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ABSTRACT

Labour Market Dynamics and Worker Heterogeneity during the Great Recession: Evidence from Europe*

Using harmonized micro data, this paper investigates the effects of the early phase (2008-10) of the recent economic crisis on transitions between labour market states in Europe. Our analysis focuses on individual heterogeneity, on the type of employment contract, and on cross-country differences. Our analysis shows that specific worker groups, such as men and young persons, were particularly strongly hit by the crisis. Furthermore, more transitions from employment, and especially temporary employment to unemployment, were the main factor behind the rise in unemployment; while reduced unemployment outflows did not contribute substantially to the increase in unemployment during the early phase of the crisis.

JEL Classification: J6, E24

Keywords: recession, labour market transitions, Markov transition matrices, worker heterogeneity

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1. Introduction

The recent financial and economic crisis led to high and persistent unemployment rates in all European labour markets. The initial impact of this economic shock on European labour markets was very strong: Between 2008 and 2010, four million persons lost their jobs within the European Monetary Union (ECB, 2012). Furthermore, evidence from aggregate data suggests that specific worker groups were particularly strongly hit by the crisis, namely men and young persons. In addition, the type of employment contract seems to have had an important influence on the labour market effects of the economic crisis, which becomes particularly evident when comparing France, a country with very few fixed-term contracts, with Spain, where the opposite is the case. As a consequence, unemployment rose much more strongly in Spain than in France (Bentolila et al., 2012).

The relative importance of inflows into and outflows from unemployment for the cyclicality of unemployment has attracted a great deal of attention in the analysis of labour market dynamics (Shimer, 2012). Recent articles have mainly found a relatively equal contribution of inflows and outflows to the unemployment stock (Elsby et al., 2009; Fujita and Ramey, 2009). Fujita and Ramey (2009) as well as Fujita (2011) find evidence for important differences in the timing of these effects, with the effect of the inflow rate being more prevalent during the early phase of the recession and the effect of the outflow rate being more important in the middle of the downturn. Yet, these studies have generally focussed on the US labour market and relied on aggregate data, thus neglecting potential composition effects, i.e. differences in the socio-demographic structure of the employed and unemployed. However, especially when including several countries into the analysis, it is important to control for composition effects.

In this study, we perform a micro-data based analysis of the labour market transitions in a large number of European countries, and investigate how these transitions have been affected by the recent financial and economic crisis during its early phase (2008-2010). In doing so, we contribute to the literature in several ways. First, we give a general overview of the effects of the Great Recession on labour market dynamics in Europe, and provide evidence on heterogeneous effects based on individual-level data. In doing so, we update the results of Ward-Warmedinger and Macchiarelli (2014), who analyse labour market transitions in the EU before the Great Recession. Second, we show the importance of temporary and permanent contracts for labour market dynamics during the recession in a large number of European countries – previous studies focused on comparisons of a very limited number of countries (Bentolila et al., 2012). Third, our analysis of labour market transitions yields insights into the relative importance of the driving forces of increased unemployment during the Great Recession. [1] Finally, given that the EU-SILC data are internationally comparable, we are able to provide evidence on cross-country differences in labour market reactions to the crisis in Europe.

The paper is structured as follows. The next section briefly reviews the relevant literature. Section 3 presents the micro data set used as well as our empirical strategy. Section 4 contains the empirical evidence. The final section summarizes our main results and concludes.

2. Related literature

The aggregate effects of the Great Recession are clearly established, particularly the effect on job loss and unemployment, as mentioned in the introduction (e.g. ECB, 2012). In the following,

[1] Note, however, that we do not perform an unemployment decomposition exercise in the spirit of Shimer (2012) or Hairault et al. (2015), but rather focus on analyses at the individual level.

we briefly summarise previous findings on heterogeneous effects (age, gender and contract types), especially with respect to labour market transitions.

The situation of young workers has attracted special attention, as it has become apparent that young workers have suffered disproportionately during the recession (Bell and Blanchflower, 2011). This is particularly worrying against the background of evidence on past recessions which demonstrates a substantial and long-lived negative influence of labour market entry in a recession on wages and employment outcomes. This is, for example, shown by von Wachter and Bender (2008) in their analysis of the labour market history of German workers, and for West Germany as a whole by Bachmann et al. (2010). The latter authors find that labour market entrants earning less than the average starting wage are more likely to change their job as well as their occupation. Moreover, although job mobility tends to reduce the effects of labour market entry conditions, implying that job mobility operates as an adjustment mechanism that mitigates entry wage differentials, this process tends to take quite a long time. Finally, they show that these results hold not only for high-skilled, but also for medium-skilled and unskilled workers. Similar results are shown by Kahn (2010) for the US where wages decrease by 6% with a 1% increase in the unemployment rate at graduation. Moreover, this effect persists for up to 15 years after graduation. Using Canadian data, Oreopoulos et al. (2012) show that the unemployment rate at year of graduation has negative effects on graduate earnings that last up to 10 years.

Labour market mobility generally differs between men and women; hence one can expect heterogeneous effects of the crisis in this respect, too. For example, using panel data from six European countries, Theodossiou and Zangelidis (2009) find that low-educated women are more likely to exit to non-employment than high-educated women and men of all education levels. With respect to the business cycle, less-educated males display a pro-cyclical response of job-to-non-employment transitions, less-educated females a counter-cyclical response. This means that, judging from previous recessions, one should expect a decrease of transitions to non-employment for less-educated men, and an increase for less-educated women. For the recent recession, Verick (2009) finds that in OECD countries, young men were hit hardest, which is also due to men working in heavily impacted sectors such as construction.

Concerning contract types, there is some evidence for selected countries that the prevalence of temporary contracts had an important influence for labour markets during the crisis. This issue has been made obvious by a comparison of the performance of the French and Spanish labour markets (Bentolila et al., 2012). Before the recession, temporary employment grew strongly in Spain, which led to a strong growth in overall employment, while the French labour market was relatively stagnant. In the recession, Bentolila et al. (2012) argue, temporary employment in Spain collapsed, which resulted in a large reduction in overall employment and a correspondingly large increase in unemployment. Therefore, the situation before the crisis with respect to temporary contracts played an important role for the reaction of the labour market during the crisis.

The degree to which inflows and outflows determine unemployment has been strongly debated in the literature. This has typically been addressed by the analysis of aggregate time series of labour market transitions, especially for the US labour market. In this context, early studies such as Darby et al. (1986) found inflows into unemployment to be the decisive factor, later studies found a more important role for outflows (Hall, 2005; Shimer, 2012). By now, a consensus seems to have been reached that the role of inflows into and outflows from unemployment is relatively evenly split (Elsby et al., 2009; Yashiv, 2008; Fujita and Ramey, 2009). However, there are important differences between countries in this respect: Petrongolo and Pissarides (2008) compare France, Spain, and the UK, and find that Spain and the UK, both inflows and outflows play an important role, whereas the outflow rate is the predominant factor in France. Elsby et al.

(2013) argue that in Continental Europe, such a decomposition exercise should take into account that unemployment in these countries often deviates from its steady-state value. Examining a sample of 14 OECD countries, they find that outflows play a much more important role for unemployment variation than inflows in Anglo-Saxon countries; whereas for Continental European and Nordic countries, their relative importance is roughly equal. Furthermore, they find that increases in unemployment inflows precede a higher unemployment stock, whereas outflows lag behind increases in unemployment.

3. Micro Data and Empirical Strategy

Our empirical analysis is mainly based on the European Union Statistics on Income and Living Conditions (EU-SILC), which provide representative and internationally comparable data on employment, income, poverty and living conditions for all EU Member States[2] as well as for the two EFTA (European Free Trade Association) countries Norway and Iceland. The data, which are collected at a yearly frequency, are delivered to and processed by Eurostat with the aim to harmonize the information and to ensure comparability across countries.

In order to be able to identify labour market transitions at an individual level, we use the longitudinal files of EU-SILC. The data sets consist of a four-year rotational panel, except for France (9-year panel), Norway (8-year panel) and Luxembourg (yearly panel), (Iacovou et al. 2012). This means that each person selected into the sample is interviewed for four years, and each subsequent year one quarter of all respondents is replaced by new respondents. This structure enables us to follow individuals up to a maximum of four consecutive years.

For a given year, the respective longitudinal file available from Eurostat only contains those respondents that were interviewed both in the respective survey year and in the preceding year. In order to construct a data set with as many observations as possible, we combine the longitudinal files for 2005 to 2010. That is, the different longitudinal data sets are merged together, resulting in a data set that covers the time period from 2004 to 2010. We follow Engel and Schaffner (2012) in order to adjust the weighting scheme of the micro data accordingly. As a consequence, our weighted sample is representative for the population of the countries under consideration. For the majority of countries, EU-SILC data are available for the whole time period covering the years 2004 to 2010. For a subset of countries, the survey was first conducted in 2005 (Cyprus, Czech Republic, Hungary, Lithuania, Poland, Slovenia, Slovakia and the United Kingdom) and thus data on 2004 are not available. For another group of countries, including Bulgaria and Malta, the years 2004 and 2005 are not covered as the survey started in 2006. In addition, no data are available for Ireland in 2010. EU-SILC data for Germany only cover the years 2005 and 2006, for Romania only the years from 2007. We therefore exclude these two countries from the regression analysis. However, we fill this gap in the data using micro data from the European Union Labour Force Survey (EU-LFS) in order to compute descriptive statistics for these two countries.

In the empirical analyses we concentrate on labour market adjustments through the extensive margin, i.e. the transitions across different labour market states. It is commonly asserted that the extensive margin of labour adjustment is significantly more important than the intensive margin (cf. King and Rebelo (1999), Langot and Quintero-Rojas (2008), Merkl and Wesselbaum (2011)).[3] In order to construct labour market transitions, we combine the information on the eco-

[2] Except for Croatia.

[3] Ohanian and Raffo (2012) challenge this view and argue that higher labor market frictions make the intensive margin of labor adjustment more important in Europe. However, van Rens (2012) finds no evidence for this conclusion.

nomic status of an individual in a given year with the information on the labour market status in the preceding year; this allows computing yearly transitions between those states. In addition, the data set includes information on the type of contract held at the time of the interview, which allows us to identify transitions between employment with a permanent or temporary contract and other labour market states.[4]

Our empirical analysis focuses on labour market transitions from the origin states employment and unemployment. We therefore estimate multinomial logit models for these two labour market states. The destination states considered are (dependent) employment (in a further step, we also differentiate between temporary and permanent employment), self-employment, unemployment, education, and inactivity. Generally, with j labour market states, the predicted probability from the multinomial logit model can be written as

$$\Pr(y = m|\boldsymbol{X}) = \frac{\exp(\boldsymbol{X}\prime\beta_{m|b})}{\sum_{j=1}^{J}\exp(\boldsymbol{X}\prime\beta_{j|b})}, \text{with m} = 1, \dots, \text{j}. \quad (1)$$

where y is one of the j labour market states, b is the base category, and **X** is a vector of explanatory variables. When we take being employed (E) as the base category, the predicted probability of being unemployed (U) is:

$$\Pr(y = U|\boldsymbol{X}) = \frac{\exp(\boldsymbol{X}\prime\beta_{U|E})}{\exp(\boldsymbol{X}\prime\beta_{U|E}) + \sum_{j=2}^{J}\exp(\boldsymbol{X}\prime\beta_{j|b})} \quad (2)$$

The vector of explanatory variables includes individual characteristics, namely gender, age (dummy variables for belonging to the age groups 15-24, 25-34, 35-54 and 55-64), marital status, level of education (dummy variables for low, medium and high levels of education), full-time or part-time work (only for origin state employment), and occupation dummies (only for transitions out of employment). We also include the following household characteristics: Number of children (younger than 5 years, between 5 and 14 years), number of persons aged 15-64, number of persons older than 65 in the household, as well as the presence of a partner in the household, and the labour market status of the partner. The regressions also include country fixed effects in order to control for region-specific factors that are constant over time.

As the main focus of the analysis is on the impact of the financial and economic crisis on labour market dynamics, the vector of explanatory variables also includes an indicator variable for the economic crisis. This variable takes the value of 0 for the pre-crisis period and 1 for the crisis period, which started either in 2008 or 2009 in the respective countries. In doing so, we take into account the interview date of each individual (available on a quarterly basis) and the timing of the crisis in each country. As for the latter, we use quarterly GDP data from Eurostat and define a recession as at least two consecutive quarters of negative GDP growth[5]. Note that our indicator captures the overall effect of the recessionary period on labour market dynamics. Interacting the crisis indicator with demographic characteristics (gender, age, level of education) allows investigating how the impact of the crisis varies over demographic groups.

[4] Employing annual data leads to a time aggregation bias in transitions, inducing an underestimation of the true labour market mobility due to the missing transitions that occur between two consecutive years. However, empirical research indicates that although the level of labour market mobility is affected by the time aggregation bias, the effect on its cyclicality is quantitatively small (Elsby et. al., 2009; Nekarda, 2009).

[5] This procedure was not applicable for Poland and Slovakia. For those two countries we had to rely on the information of the turning point indicator (OECD).

4. Empirical evidence

4.1 Labour market transitions and worker heterogeneity

In the years before the crisis, the overall unemployment rate of our country sample displayed a downward trend and amounted to 9.6 per cent in 2008 (see Figure 1). With the onset of the crisis, the unemployment rate increased to 12.1 per cent in 2009 and 13 per cent in 2010. It also becomes apparent that the crisis marks a turning point in the development of the unemployment rates of men and women. Before the crisis, women had higher unemployment rates than men but this gender difference declined strongly in 2008. After the beginning of the crisis, the unemployment rate of men increased much more than that of women (13.8 per cent versus 12.2 per cent in 2010).

The crisis also had heterogeneous effects with respect to age groups. The unemployment rate of young workers (15-24 years), is generally higher than the unemployment rates of other age groups, but it increased particularly strongly during the crisis, reaching 28.6 per cent for our country sample in 2010 (Figure 1). The unemployment rate of the 25-34 and 55-65 year-olds is very close to the average unemployment rate over the time period considered In contrast, the prime-age group (35-54 years) displays consistently lower unemployment than the average unemployment rate, but follows the same trend.

Figure 1
Unemployment rates by gender and age groups

Source: EU-SILC, own calculations.

We first analyse which transitions changed most strongly as the European economies went into recession. In order to do so, we compute Markov transition matrices between labour market states for the time periods before and during the crisis (Table 1).[6] This shows that before, 91.9 per cent of those employed in a given year were still employed in the following year; however, this rate drops to 90.8 per cent during the crisis. As the transitions from employment to other labour market states remain largely unchanged, this drop is mainly due to an increase of the transition rate from employment-to-unemployment transition rate of 1 percentage point.

[6] The corresponding Markov transition matrices for individual countries are presented in Table A.1 in the appendix.

As for transitions from unemployment, we observe a decrease of the yearly transition rate to employment from 27.6 per cent to 24.9 per cent, and a corresponding increase of the rate at which the unemployed remained in this labour market state of 1.1 per cent. Furthermore, we observe increases in the transition rates to education and to inactivity.

Table 1
Yearly Markov transition matrix for all countries

	DESTINATION									
ORIGIN	Employ-ment	Self-employ-ment	Unemploy-employ-ment	Education	Inactivity	Employ-ment	Self-employ-ment	Unemploy-employ-ment	Education	Inactivity
	Pre-crisis					During the crisis				
Employment	91.9	1.4	2.9	0.6	3.2	90.8	1.5	3.9	0.6	3.3
Self-employment	6.6	87.4	1.6	0.2	4.2	5.8	87.5	2.1	0.3	4.3
Unemployment	27.6	3.4	51.5	1.9	15.5	24.9	3.3	52.6	2.8	16.3
Education	15.3	0.8	3.8	77.0	3.0	13.5	0.9	5.5	77.4	2.8
Inactivity	5.0	1.4	2.3	0.6	90.7	4.5	1.4	2.7	0.7	90.6
Total	51.4	8.9	5.9	7.7	26.2	51.4	9.3	6.5	7.6	25.1

Source: EU-SILC and EU-LFS, own calculations. – Note: See Section 3 for a definition of the pre-crisis and the crisis period.

The transition rates from the other labour market states mostly change to a smaller extent. Most notably, the transition rate from self-employment to employment decreases from 6.6 per cent to 5.8 per cent, the transition rate from education to employment declines from 15.3 per cent to 13.5 per cent, and the transition rate from inactivity to employment falls from 5.0 per cent to 4.5 per cent. While these transition rates are clearly crucial for the evolution of employment, they are not directly linked to the evolution of the unemployment rate, our focus of analysis. In the following, we therefore concentrate on transitions emanating from employment and from unemployment.

In order to find out whether the changes in transition rates between the pre-crisis and the crisis periods are statistically significant, we run the multinomial regression models described in Section 3. In doing so, we focus on the states of origin employment and unemployment. Table 2 presents our baseline regression results for the transitions out of employment. Our first main finding in this context is that during the crisis, employment stability decreased significantly and sizably – by 1.1 percentage points – and flows from employment to unemployment increased significantly by 1.3 percentage points. For other transition destinations – besides employment and unemployment – the coefficient of the crisis indicator is insignificant, i.e. the crisis apparently did not have strong effects on these other transitions.

Besides this overall picture on the changes during the economic crisis, our regression results indicate important heterogeneities between demographic groups. With respect to gender, the results for the pre-crisis period show that men are 1.5 percentage points more likely to remain employed than women, and they are less likely to become unemployed (0.5 percentage points – Table 3). However, this picture eroded during the economic crisis, as employment stability of men was affected more by the crisis than that of women. In particular, men were nearly 1 percentage point less likely to stay in employment during the crisis than women. In a similar vein, employment-to-unemployment flows increased for men by nearly 1 percentage point more than for women during the crisis.

Table 2
Yearly transitions from employment to different labour market states, regression results

	EE	ES	EU	EEd	EI
Crisis indicator	-0.0114***	-0.0005	0.0125***	0.0000	-0.0006
	(0.0026)	(0.001)	(0.0024)	(0.0001)	(0.0013)
Female	*Reference category*	*Reference category*	*Reference category*	*Reference category*	*Reference category*
Male	0.0110***	0.0058***	-0.0019	0.0000	-0.0150***
	(0.0035)	(0.001)	(0.0016)	(0.0001)	(0.0021)
Age 15-24	-0.0540***	0.0010	0.0223***	0.0167***	0.0139***
	(0.0033)	(0.001)	(0.003)	(0.0016)	(0.0036)
Age 25-34	-0.0214***	0.0033***	0.0098***	0.0027***	0.0056***
	(0.0032)	(0.001)	(0.0025)	(0.0005)	(0.0019)
Age 35-54	*Reference category*	*Reference category*	*Reference category*	*Reference category*	*Reference category*
Age 55-65	-0.0990***	-0.0001	-0.0008	-0.0011***	0.1009***
	(0.0152)	(0.0007)	(0.0017)	(0.0002)	(0.0148)
Single	*Reference category*	*Reference category*	*Reference category*	*Reference category*	*Reference category*
Married	0.0026**	-0.0005	-0.0069***	-0.0005**	0.0053***
	(0.0012)	(0.0012)	(0.0011)	(0.0002)	(0.0009)
Low skilled (ISCED 0-2)	-0.0168***	0.0006	0.0103***	-0.0003***	0.0063***
	(0.002)	(0.0006)	(0.0011)	(0.0001)	(0.0008)
Medium skilled (ISCED 3-4)	*Reference category*	*Reference category*	*Reference category*	*Reference category*	*Reference category*
High skilled (ISCED 5)	0.0096***	-0.0015*	-0.004***	0.0000	-0.0042***
	(0.0018)	(0.0009)	(0.0009)	(0.0001)	(0.0012)
Number of children(<=4) in household	-0.0067***	0.0006	0.0001	-0.0004***	0.0065***
	(0.0017)	(0.0005)	(0.0006)	(0.0001)	(0.0017)
Number of children(5-14) in household	-0.0005	0.0011***	0.0013***	0.0001	-0.002***
	(0.0007)	(0.0003)	(0.0005)	(0)	(0.0005)
Number of employable persons (15-64) in household	0.0016***	0.0002	0.0003	0.0002**	-0.0022***
	(0.0006)	(0.0002)	(0.0003)	(0.0001)	(0.0004)
Number of elderly(>=65) in household	-0.0044***	0.0004	0.0009	0.0000	0.0031***
	(0.0015)	(0.0004)	(0.0008)	(0.0001)	(0.0008)
Full-time employed partner in household	0.0111***	0.0001	-0.0063***	-0.0002**	-0.0047**
	(0.0032)	(0.0004)	(0.0014)	(0.0001)	(0.0022)
Part-time employed partner in household	0.0132***	-0.0006	-0.0066***	-0.0003***	-0.0056***
	(0.0026)	(0.0008)	(0.0016)	(0.0001)	(0.0019)
Inactive/unemployed partner in household	*Reference category*	*Reference category*	*Reference category*	*Reference category*	*Reference category*
No partner in household	0.0057**	0.0004	0.0005	0.001***	-0.0076***
	(0.0024)	(0.0013)	(0.001)	(0.0002)	(0.0022)
Full-time employed	*Reference category*	*Reference category*	*Reference category*	*Reference category*	*Reference category*
Part-time employed	-0.0382***	0.0071***	0.0126***	0.0029***	0.0156***
	(0.0023)	(0.0015)	(0.0027)	(0.0006)	(0.0019)
Occupation dummies	*included*	*included*	*included*	*included*	*included*
Country dummies	*included*	*included*	*included*	*included*	*included*
Pseudo-R-squared	0.1094				
Observations	578,331				

*Source: EU-SILC, own calculations. – Notes: Multinomial logit model. * / ** / ***: statistically significant at least at the 10 %- / 5 %- / 1 %-level. – The model includes transitions between the following labour market states: employment (E) (i.e. persons remaining in employment), unemployment (U), self-employment (S), education (Ed) and inactivity (I). – Robust standard errors clustered at the country level in parentheses.*

Turning to different age groups, we find that before the crisis, the chances of remaining in employment were highest for those aged 35-54 and lowest for those aged 55-65 (Table 4). The transition rate from employment to unemployment is higher for the youngest cohort than for those aged 35-54 (the reference group). The coefficients on the interaction terms with the crisis indicator suggest that the youngest cohort has been hit particularly strongly by the economic crisis: The employment-to-unemployment transition rate increases by 0.5 percentage points more for those aged 15-24 than the transition rate of the reference group.

Table 3
Yearly transitions from employment to different labour market states, heterogeneous effects of the crisis by gender

	E	U
Female	*Reference category*	*Reference category*
Male	0.0147***	-0.0058***
	(0.0044)	(0.0021)
Crisis indicator	-0.0071***	0.0074***
	(0.0027)	(0.0014)
Crisis*Male	-0.0083*	0.0088***
Other individual covariates	*included*	*included*
Occupation dummies	*included*	*included*
Country dummies	*included*	*included*
Pseudo-R-squared	0.1097	
Observations	578,331	

*Source: EU-SILC, own calculations. – Notes: Multinomial logit model. * / ** / ***: statistically significant at least at the 10 %- / 5 %- / 1 %-level. – The model includes transitions between the following labour market states: employment (E) (i.e. persons remaining in employment), unemployment (U), self-employment (S), education (Ed) and inactivity (I); only the first two are presented. – Robust standard errors clustered at the country level in parentheses.*

Table 4
Yearly transitions from employment to different labour market states, heterogeneous effects of the crisis by age groups

	E	U
Age 15-24	-0.0489***	0.0188***
	(0.0043)	(0.0029)
Age 25-34	-0.0203***	0.0098***
	(0.0036)	(0.0027)
Age 35-54	*Reference category*	*Reference category*
Age 55-65	-0.0992***	0.0006
	(0.0164)	(0.0028)
Crisis indicator	-0.0099***	0.0119***
	(0.0023)	(0.0021)
Crisis*Age 15-24	-0.0077	0.0049**
	(0.0049)	(0.0022)
Crisis*Age 25-34	-0.0022	0.0000
	(0.0021)	(0.0012)
Crisis*Age 55-65	-0.0009	-0.0027
	(0.0042)	(0.002)
Other individualcovariates	*included*	*included*
Occupation dummies	*included*	*included*
Country dummies	*included*	*included*
Pseudo-R-squared	0.1095	
Observations	578,331	

*Source: EU-SILC, own calculations. – Notes: Multinomial logit model. * / ** / ***: statistically significant at least at the 10 %- / 5 %- / 1 %-level. – The model includes transitions between the following labour market states: employment (E) (i.e. persons remaining in employment), unemployment (U), self-employment (S), education (Ed) and inactivity (I); only the first two are presented. – Robust standard errors clustered at the country level in parentheses.*

With respect to skill groups, our regression results show that before the crisis, high-skilled workers find it easier to remain in employment and have a lower transition rate into unemployment than the reference group "medium-skilled" (Table 5). During the economic crisis, employment stability is reduced by 1 percentage point for medium-skilled workers, the reference group. Our regression results do not suggest any differences by skill groups in this context, i.e. the re-

duction of employment stability is equally pronounced. A similar picture becomes apparent for flows from employment to unemployment: The crisis increases the corresponding transition rates, but we do not observe any differences by skill level.

Table 5
Yearly transitions from employment to different labour market states, heterogeneous effects of the crisis by skill groups

	E	U
Low skilled (ISCED 0-2)	-0.0174***	0.0097***
	(0.0026)	(0.0016)
Medium skilled (ISCED 3-4)	*Reference category*	*Reference category*
High skilled (ISCED 5)	0.0106***	-0.0047***
	(0.0023)	(0.001)
Crisis indicator	-0.0113***	0.0118***
	(0.0027)	(0.0014)
Crisis*Low skilled	0,0017	0,0010
	(0.0027)	(0.0034)
Crisis*High skilled	-0,0023	0,0015
	(0.0024)	(0.002)
Other individualcovariates	*included*	*included*
Occupation dummies	*included*	*included*
Country dummies	*included*	*included*
Pseudo-R-squared	0,1095	
Observations	578,331	

*Source: EU-SILC, own calculations. – Notes: Multinominal logit model. * / ** / ***: statistically significant at least at the 10 %- / 5 %- / 1 %-level. – The model includes transitions between the following labour market states: employment (E) (i.e. persons remaining in employment), unemployment (U), self-employment (S), education (Ed) and inactivity (I); only the first two are presented. – Robust standard errors clustered at country level in parentheses.*

We now turn to an analysis of the transitions out of unemployment. Table 6 shows the general effect of the crisis: The transition rate from unemployment to employment decreases by about 4 percentage points, which is statistically significant at the 5% level. This is in line with previous empirical studies as that of the ECB (2012). Somewhat surprisingly, the econometric analysis does not suggest higher persistence of unemployment since the coefficient for staying unemployed of the crisis indicator is not statistically significant. This also applies to the other destination states. This is a first indication that the main factor behind increasing unemployment rates in the early phase of the financial and economic crisis were increased inflow rates into unemployment, in particular increased flows from employment to unemployment, rather than reduced outflow rates from unemployment.

We now look at heterogeneities of the crisis impact on transitions out of unemployment by gender, age, and skill group. Before the crisis, men had a 6 percentage point higher transition rate from unemployment to employment (Table 7). During the recession, men are 3.5 percentage points less likely to make a transition to employment than women. Therefore, while transitions from unemployment to employment did not play an important role in the aggregate, they do explain to some extent why unemployment rose more strongly during the crisis for men than for women.

As for differences between age groups, we see a clear pattern of higher unemployment-to-employment transitions for younger ages before the crisis (Table 8). Those aged between 15 and 24 (between 25 and 34) on average had an 11 percentage points (8.3 percentage points) higher chance of becoming employed compared to the prime age group of those aged 35 to 54.

Table 6
Yearly transitions from unemployment to different labour market states

	UU	UE	US	UEd	UI
Crisis indicator	0.0466	-0.0401**	-0.0030	0.0018	-0.0053
	(0.0301)	(0.0167)	(0.0031)	(0.0013)	(0.0125)
Female	*Reference category*	*Reference category*	*Reference category*	*Reference category*	*Reference category*
Male	0.0258*	0.0488***	0.0226***	-0.0022**	-0.095***
	(0.0149)	(0.0135)	(0.0008)	(0.0009)	(0.0084)
Age 15-24	-0.1019***	0.1024***	-0.0125***	0.0578***	-0.0458***
	(0.0233)	(0.014)	(0.0039)	(0.0061)	(0.0102)
Age 25-34	-0.0619***	0.076***	-0.0016	0.0171***	-0.0298***
	(0.0139)	(0.012)	(0.0018)	(0.0033)	(0.0069)
Age 35-54	*Reference category*	*Reference category*	*Reference category*	*Reference category*	*Reference category*
Age 55-65	0.0238	-0.1885***	-0.0157***	-0.01***	0.1904***
	(0.0172)	(0.0212)	(0.0025)	(0.0022)	(0.0206)
Single	*Reference category*	*Reference category*	*Reference category*	*Reference category*	*Reference category*
Married	-0.0045	-0.0058	-0.0016	-0.0033***	0.0151***
	(0.0095)	(0.0064)	(0.0025)	(0.001)	(0.0055)
Low skilled (ISCED 0-2)	0.0692***	-0.0725***	-0.0113***	-0.0049***	0.0195***
	(0.0154)	(0.0141)	(0.0014)	(0.0008)	(0.0039)
Medium skilled (ISCED 3-4)	*Reference category*	*Reference category*	*Reference category*	*Reference category*	*Reference category*
High skilled (ISCED 5)	-0.0577***	0.069***	0.0175***	0.0041***	-0.0329***
	(0.0139)	(0.0135)	(0.0038)	(0.0014)	(0.0044)
Number of children (<=4) in household	-0.0132***	-0.018***	0.0004	-0.0025*	0.0332***
	(0.0044)	(0.0049)	(0.0031)	(0.0013)	(0.0031)
Number of children (5-14) in household	-0.0015	0.0006	-0.0001	0.0006	0.0004
	(0.0033)	(0.0037)	(0.0014)	(0.0006)	(0.0024)
Number of employable persons (15-64) in household	0.0093*	0.0010	-0.0003	0.0003	-0.0103***
	(0.0055)	(0.0041)	(0.0006)	(0.0003)	(0.0033)
Number of elderly (>=65) in household	0.016**	-0.0233***	-0.0005	0.0008	0.0071***
	(0.008)	(0.0073)	(0.0019)	(0.0014)	(0.0025)
Full-time employed partner in household	-0.0594**	0.0398	0.0036	0.0005	0.0155**
	(0.0253)	(0.0264)	(0.0043)	(0.0015)	(0.0069)
Part-time employed partner in household	-0.0487*	0.0568*	0.01*	-0.0069***	-0.0112
	(0.0285)	(0.0313)	(0.0054)	(0.0012)	(0.0144)
Inactive/unemployed partner in household	*Reference category*	*Reference category*	*Reference category*	*Reference category*	*Reference category*
No partner in household	0.0395**	-0.0167	-0.0133***	0.0021	-0.0116
	(0.0175)	(0.0127)	(0.0047)	(0.0028)	(0.0086)
Pseudo-R-squared	0.086				
Observations	69,281				

*Source: EU-SILC, own calculations. – Notes: Multinomial logit model. * / ** / ***: statistically significant at least at the 10 %- / 5 %- / 1 %-level. – The model includes transitions between the following labour market states: employment (E) (i.e. persons remaining in employment), unemployment (U), self-employment (S), education (Ed) and inactivity (I). – Robust standard errors clustered at country level in parentheses.*

Table 7
Yearly transitions from unemployment to different labour market states, heterogeneous effects of the crisis by gender

	U	E
Male	0.0053	0.0612***
	(0.0137)	(0.0124)
Crisis indicator	0.0182	-0.0193
	(0.0277)	(0.0158)
Crisis*Male	0.0534***	-0.035***
	(0.0074)	(0.0051)
Other individual covariates	*included*	*included*
Country dummies	*included*	*included*
Year dummies	*included*	*included*
Pseudo-R-squared	0.0863	
Observations	69,281	

*Source: EU-SILC, own calculations. – Notes: Multinomial logit model. * / ** / ***: statistically significant at least at the 10 %- / 5 %- / 1 %-level. – Transitions take place between the following labour market states: employment (E), unemployment (U), self-employment (S), education (Ed) and inactivity (I); only the first two are presented. – Robust standard errors clustered at country level in parentheses.*

Table 8
Yearly transitions from unemployment to different labour market states, heterogeneous effects of the crisis by age groups

	U	E
Age 15-24	-0.1039***	0.1099***
	(0.028)	(0.0154)
Age 25-34	-0.0683***	0.0829***
	(0.0174)	(0.0112)
Age 35-54	*Reference category*	*Reference category*
Age 55-65	0.0227	-0.1872***
	(0.0218)	(0.0225)
Crisis indicator	0.0390	-0.031*
	(0.0326)	(0.0174)
Crisis*Age 15-24	0.0005	-0.0193
	(0.0191)	(0.0127)
Crisis*Age 25-34	0.0175	-0.0163**
	(0.0116)	(0.0071)
Crisis*Age 55-65	0.0091	-0.0049
	(0.0215)	(0.019)
Other individual covariates	*included*	*included*
Country dummies	*included*	*included*
Year dummies	*included*	*included*
Pseudo-R-squared	0.0862	
Observations	69,281	

*Source: EU-SILC, own calculations. – Notes: Multinomial logit model. * / ** / ***: statistically significant at least at the 10 %- / 5 %- / 1 %-level. – Transitions take place between the following labour market states: employment (E), unemployment (U), self-employment (S), education (Ed) and inactivity (I); only the first two are presented. – Robust standard errors clustered at country level in parentheses.*

Table 9
Yearly transitions from unemployment to different labour market states, heterogeneous effects of the crisis by skill groups

	U	E
Low skilled (ISCED 0-2)	0.0555***	-0.0749***
	(0.0204)	(0.0153)
Medium skilled (ISCED 3-4)	*Reference category*	*Reference category*
High skilled (ISCED 5)	-0.077***	0.0767***
	(0.0139)	(0.0124)
Crisis indicator	0.0246	-0.0395***
	(0.0217)	(0.0129)
Crisis*Low skilled	0.0320	0.0065
	(0.0315)	(0.0199)
Crisis*High skilled	0.0483**	-0.0178
	(0.0206)	(0.0135)
Other individual covariates	*included*	*included*
Country dummies	*included*	*included*
Year dummies	*included*	*included*
Pseudo-R-squared	0.0864	
Observations	69,281	

*Source: EU-SILC, own calculations. – Notes: Multinomial logit model. * / ** / ***: statistically significant at least at the 10 %- / 5 %- / 1 %-level. – Transitions take place between the following labour market states: employment (E), unemployment (U), self-employment (S), education (Ed) and inactivity (I); only the first two are presented. – Robust standard errors clustered at country level in parentheses.*

In contrast, near-retirement ages have an 18.7 percentage points lower transition rate into employment. Considering the impact of the crisis, we only detect a significantly stronger negative impact for the 25-34 year-olds compared to the prime-age group. Therefore, the negative impact on young workers, which has been much discussed, does not seem to be driven by the evolution of the transition rate from unemployment to employment.

As for skill groups, we observe that prior to the crisis, low-skilled workers display a 7.5 percentage points lower transition rate from unemployment to employment, and high-skilled workers a 7.7 percentage points higher rate than medium-skilled persons (see Table 9). During the crisis, the high-skilled experience a higher chance of remaining in unemployment than the medium-skilled, indicating a more persistent unemployment for this worker group.

4.2 The role of contract type for labour market transitions

As discussed in Section 2, the type of contract a worker holds plays an important role for labour market dynamics. Given our large sample of European countries, we can provide a broader perspective and thereby add to the selected results of Bentolila et al. (2012). We therefore split aggregate employment into permanent and temporary employment, and compute the corresponding Markov transition matrix for the time periods before and during the crisis (Table 10).[7]

Table 10
Yearly Markov transition matrix for all countries, detailed employment states

	DESTINATION											
ORIGIN	Perm Employ-ment	Temp Employ-ment	Self-employ-ment	Un-employ-ment	Educati-on	Inactivity	Perm Employ-ment	Temp Employ-ment	Self-employ-ment	Un-employ-ment	Educati-on	Inactivity
	Pre-crisis						During the crisis					
Perm Employment	90.3	3.0	1.2	2.0	0.3	3.2	89.7	2.6	1.3	3.3	0.3	3.0
Temp employment	27.2	54.8	2.1	9.8	2.0	4.1	23.1	55.1	2.2	13.9	1.8	3.9
Self-employment	4.8	1.7	87	1.8	0.2	4.5	3.7	1.6	87.7	2.4	0.3	4.4
Unemployment	11.8	16	3.7	51.9	2.2	14.5	9.1	14.5	3.6	56.7	3.0	13.1
Education	6.2	7.2	0.9	4.9	77.7	3.2	3.9	5.6	1.0	6.8	79.7	3.0
Inactivity	3.3	1.9	1.5	2.8	0.7	89.7	2.6	1.7	1.7	3.5	0.8	89.7
Total	43.7	8.0	10.1	6.6	8.0	23.6	41.6	7.7	11.1	8.3	8.6	22.8

Source: EU-SILC, own calculations.

For Europe as a whole, this yields evidence that employment stability declined more strongly for those workers holding a temporary contract than for those with a permanent contract. While the rate at which workers remained employed (either permanent or temporary) from one year to the next declined from 93.3 to 92.3 per cent for permanent workers, it decreased from 82 to 78.2 per cent for temporary workers.

Furthermore, during the recession, the transition rate from temporary employment to unemployment increased by more than that of permanent employment to unemployment. Compared to the pre-crisis period, during the crisis the transition rate to unemployment increased by 4.1 percentage points for temporary workers, and by 1.3 percentage points for permanent workers. Finally, during the crisis the transitions from temporary employment to permanent employment declined strongly, i.e. temporary employment was much less of a stepping stone to permanent employment during the crisis than during the pre-crisis period.

These findings are generally confirmed by the econometric evidence, which reveals a significant increase in the transition rate from permanent employment to unemployment of 1.02 percentage points, and an also significant but quantitatively much more important increase in the transition rate from temporary employment to unemployment of 4.85 percentage points (Table 11). The regression results also show that, when controlling for composition effects, employment stability did not decline significantly during the recession for both permanent employment and temporary employment. This result for temporary employment may appear surprising at first glance. However, it should be noted that the outflow rate from temporary employment,

[7] The corresponding Markov transition matrices for individual countries are presented in Table A.2 in the appendix.

Table 11
Crisis indicator for different labour market transitions, detailed employment states

	PermE	TempE	S	U	Ed	I
PermE	-0.0016	-0.0055**	-0.0012	0.0102***	0.0000*	-0.002***
	(0.0028)	(0.0028)	(0.001)	(0.0015)	0.0000	(0.0006)
TempE	-0.0441***	-0.0013	-0.0016	0.0485**	0.0003	-0.0018
	(0.0158)	(0.0109)	(0.0013)	(0.0194)	(0.0004)	(0.0015)
U	-0.0225***	-0.0158	-0.0035	0.0468	0.0013	-0.0063
	(0.0044)	(0.016)	(0.0034)	(0.0335)	(0.0013)	(0.013)

Source: EU-SILC, own calculations. – Note: The three rows display the marginal effects on the crisis indicator from three separate multinomial logit models for the origin states permanent employment (PermE), temporary employment (TempE) and unemployment (U). – Robust standard errors clustered at country level in parentheses.

which mirrors its stability, mainly consists of the transition rates to permanent employment and to unemployment. As the transition rate to permanent employment significantly declined, and the transition rate to unemployment significantly increased, the net effect on the outflow rate was insignificant, leading to an insignificant effect of the crisis on the stability of temporary employment.

The regression results also point to strong gender differences with respect to the contract type of employment. For instance, men are 0.5 percentage points less likely to remain in permanent employment than women during the crisis; for the latter, the crisis has no significant impact. Furthermore, the crisis increases flows from permanent employment to unemployment especially for men, since their rate of becoming unemployed out of permanent employment increases by 0.6 percentage points more than for women (Table 12). However, this picture changes when we focus on temporary employment as state of origin. The transition rate from temporary employment to unemployment increases by 4.2 percentage points more for men than for women (see Table 13). This means that the strong effect of the crisis on men is to a large extent triggered by the upsurge in transitions from temporary employment to unemployment.

Table 12
Yearly transitions from permanent employment to different labour market states, heterogeneous effects of the crisis by gender

	PermE	TempE	U
Female	*Reference category*	*Reference category*	*Reference category*
Male	0.0132***	-0.002*	-0.0039*
	(0.0049)	(0.0011)	(0.002)
Crisis indicator	0.0014	-0.0055**	0.0065***
	(0.0031)	(0.0024)	(0.001)
Crisis*Male	-0.0055***	-0.0001	0.0062***
	(0.002)	(0.0024)	(0.0015)
Other individual covariates	*included*	*included*	*included*
Occupation dummies	*included*	*included*	*included*
Country dummies	*included*	*included*	*included*
Pseudo-R-squared	0.0925		
Observations	402,731		

*Source: EU-SILC, own calculations. – Notes: No data available for Denmark and the United Kingdom. Multinomial logit model. * / ** / ***: statistically significant at least at the 10 %- / 5 %- / 1 %-level. Transitions take place between the following labour market states: Permanent employment (PermE), temporary employment, (TempE) unemployment (U), self-employment (S), education (Ed) and inactivity (I); only the first three are presented. – Robust standard errors clustered at country level in parentheses.*

Table 13
Yearly transitions from temporary employment to different labour market states, heterogeneous effects of the crisis by gender

	TempE	PermE	U
Female	*Reference category*	*Reference category*	*Reference category*
Male	0.0033	0.0367***	-0.0256***
	(0.0223)	(0.0134)	(0.0076)
Crisis indicator	0.0046	-0.0292*	0.0249**
	(0.0165)	(0.0175)	(0.0118)
Crisis*Male	-0.0113	-0.0271	0.0421**
	(0.029)	(0.0178)	(0.0164)
Other individual covariates	*included*	*included*	*included*
Occupation dummies	*included*	*included*	*included*
Country dummies	*included*	*included*	*included*
Pseudo-R-squared	0.0786		
Observations	62,439		

*Source: EU-SILC, own calculations. – Notes: No data available for Denmark and the United Kingdom. Multinomial logit model. * / ** / ***: statistically significant at least at the 10 %- / 5 %- / 1 %-level. Transitions take place between the following labour market states: Permanent employment (PermE), temporary employment, (TempE) unemployment (U), self-employment (S), education (Ed) and inactivity (I); only the first three are presented. – Robust standard errors clustered at country level in parentheses.*

Table 14
Yearly transitions from permanent employment to different labour market states, heterogeneous effects of the crisis by age groups

	PermE	TempE	U
Age 15-24	-0.0785***	0.0415***	0.0142***
	(0.0056)	(0.0044)	(0.0039)
Age 25-34	-0.0345***	0.0154***	0.0075***
	(0.0025)	(0.0013)	(0.002)
Age 35-54	*Reference category*	*Reference category*	*Reference category*
Age 55-65	-0.1104***	-0.0071*	0.0050
	(0.0136)	(0.0037)	(0.0043)
Crisis indicator	-0.0014	-0.0056*	0.0106***
	(0.0036)	(0.003)	(0.0016)
Crisis*Age 15-24	-0.01***	0.0043	0.0036
	(0.0034)	(0.0027)	(0.0023)
Crisis*Age 25-34	0.0014	-0.0010	-0.0008
	(0.0026)	(0.0018)	(0.001)
Crisis*Age 55-65	0.0035	-0.0018	-0.0034**
	(0.003)	(0.0023)	(0.0016)
Other individual covariates	*included*	*included*	*included*
Occupation dummies	*included*	*included*	*included*
Country dummies	*included*	*included*	*included*
Pseudo-R-squared	0.0924		
Observations	402,731		

*Source: EU-SILC, own calculations. – Notes: No data available for Denmark and the United Kingdom. Multinomial logit model. * / ** / ***: statistically significant at least at the 10 %- / 5 %- / 1 %-level. Transitions take place between the following labour market states: Permanent employment (PermE), temporary employment, (TempE) unemployment (U), self-employment (S), education (Ed) and inactivity (I); only estimates for the first three categories are presented. – Robust standard errors clustered at country level in parentheses.*

As for heterogeneous effects for age groups, we observe only few statistically significant different impacts of the crisis by age (Table 14). On the one hand, the crisis decreases the rate at which workers remain in permanent employment by 1 percentage point for the youngest age group, signaling a substantial reduction in permanent job stability. On the other hand, the oldest age group is marginally less likely (by 0.3 percentage points) to become unemployed out of permanent employment during the crisis than the reference group. However, this picture changes if we look at temporary employment as state of origin. In general, the older age cohorts are by 5 percentage points less likely to remain in temporary employment than the middle-aged group. Furthermore, in the crisis the temporary-employment-to-unemployment transition rate for 15-24 year-olds was nearly 3 percentage points higher than the transition rate of the 35-54 year-olds (Table 15).

Table 15
Yearly transitions from temporary employment to different labour market states, heterogeneous effects of the crisis by age groups

	TempE	PermE	U
Age 15-24	-0.0152	0.0075	-0.0052
	(0.0268)	(0.0286)	(0.0071)
Age 25-34	-0.0119	0.0108	0.0044
	(0.0081)	(0.0087)	(0.009)
Age 35-54	*Reference category*	*Reference category*	*Reference category*
Age 55-65	-0.0459***	-0.0517***	-0.0047
	(0.0141)	(0.0193)	(0.012)
Crisis indicator	0.0077	-0.0387*	0.0389**
	(0.0109)	(0.0213)	(0.0191)
Crisis*Age 15-24	-0.0077	-0.0302	0.0273**
	(0.0323)	(0.0264)	(0.0135)
Crisis*Age 25-34	-0.0176*	-0.0006	0.0075
	(0.009)	(0.007)	(0.0079)
Crisis*Age 55-65	-0.0188	0.0224	0.0024
	(0.0158)	(0.0194)	(0.0095)
Other individual covariates	*included*	*included*	*Included*
Occupation dummies	*included*	*included*	*Included*
Country dummies	*included*	*included*	*Included*
Pseudo-R-squared	0.0784		
Observations	62,439		

*Source: EU-SILC, own calculations. – Notes: No data available for Denmark and the United Kingdom. Multinomial logit model. * / ** / ***: statistically significant at least at the 10 %- / 5 %- / 1 %-level. Transitions take place between the following labour market states: Permanent employment (PermE), temporary employment, (TempE) unemployment (U), self-employment (S), education (Ed) and inactivity (I); only estimates for the first three categories are presented. – Robust standard errors clustered at country level in parentheses.*

We observe a similar pattern for skill groups, i.e. there are no major changes for transitions out of permanent employment during the crisis (Table 16). The crisis does not negatively affect the rate at which the low-skilled remain in permanent employment, but does so for the medium-skilled workers. However, for temporary employment as state of origin we find that the transition probabilities of the high-skilled workers were affected most by the crisis (Table 17). Flows from temporary employment to unemployment increase by up to 2.8 percentage points more for high-skilled than for medium skilled workers.

Turning to labour market flows out of unemployment, the descriptive statistics reveal that the transition rate from unemployment to permanent employment declined by 2.7 percentage points, the transition rate to temporary employment by 1.5 percentage points (Table 10). Interestingly, the regression results reveal that while the decrease of the transition rate from unemployment to

Table 16
Yearly transitions from permanent employment to different labour market states, heterogeneous effects of the crisis by skill groups

	PermE	TempE	U
Low skilled ISCED 0-2	-0.021***	0.0064**	0.0075***
	(0.0025)	(0.0026)	(0.0019)
Medium skilled ISCED 3-4	*Reference category*	*Reference category*	*Reference category*
High skilled ISCED 5	0.0048*	0.0029**	-0.0025
	(0.0025)	(0.0013)	(0.0017)
Crisis indicator	-0.0041*	-0.0031*	0.0109***
	(0.0024)	(0.0017)	(0.0015)
Crisis*Low skilled	0.0054*	-0.0046	-0.0012
	(0.0032)	(0.0037)	(0.0025)
Crisis*High skilled	0.0030	-0.0046	-0.0009
	(0.0019)	(0.0029)	(0.0035)
Other individual covariates	*included*	*included*	*included*
Occupation dummies	*included*	*included*	*included*
Country dummies	*included*	*included*	*included*
Pseudo-R-squared	0.0925		
Observations	402,731		

*Source: EU-SILC, own calculations. – Notes: No data available for Denmark and the United Kingdom. Multinomial logit model. * / ** / ***: statistically significant at least at the 10 %- / 5 %- / 1 %-level. Transitions take place between the following labour market states: Permanent employment (PermE), temporary employment, (TempE) unemployment (U), self-employment (S), education (Ed) and inactivity (I); only estimates for the first three categories are presented. – Robust standard errors clustered at country level in parentheses.*

Table 17
Yearly transitions from temporary employment to different labour market states, heterogeneous effects of the crisis by skill groups

	TempE	PermE	U
Low skilled (ISCED 0-2)	0.0123	-0.0387***	0.0224***
	(0.0141)	(0.0089)	(0.0077)
Medium skilled (ISCED 3-4)	*Reference category*	*Reference category*	*Reference category*
High skilled (ISCED 5)	0.0234**	0.0239**	-0.036***
	(0.0092)	(0.0114)	(0.0074)
Crisis indicator	0.0050	-0.0391***	0.0309**
	(0.0125)	(0.011)	(0.0126)
Crisis*Low skilled	-0.0147	-0.0024	0.0301
	(0.0109)	(0.0225)	(0.0239)
Crisis*High skilled	-0.0063	-0.0169**	0.0278***
	(0.0093)	(0.0084)	(0.0102)
Other individual covariates	*included*	*included*	*included*
Occupation dummies	*included*	*included*	*included*
Country dummies	*included*	*included*	*included*
Pseudo-R-squared	0.0785		
Observations	62,439		

*Source: EU-SILC, own calculations. – Notes: No data available for Denmark and the United Kingdom. Multinomial logit model. * / ** / ***: statistically significant at least at the 10 %- / 5 %- / 1 %-level. Transitions take place between the following labour market states: Permanent employment (PermE), temporary employment, (TempE) unemployment (U), self-employment (S), education (Ed) and inactivity (I); only estimates for the first three categories are presented.. – Robust standard errors clustered at country level in parentheses.*

permanent is significant, the decline in the transition rate from unemployment to temporary employment is not (Table 11). Therefore, temporary employment preserved its job-creating role even in the time of the economic crisis and thus can potentially deal as one important instrument in order to re-build European labour markets.

Looking at heterogeneous effects, the more pronounced effect of the crisis on men, which was shown above for transitions emanating from employment, also holds for transitions from unemployment to temporary employment, as Table 18 shows. The rate at which unemployed men find a temporary job drops by 1.8 percentage points for men; for women, this rate remains constant during the crisis.

Table 18
Yearly transitions from unemployment to different labour market states (detailed employment states), heterogeneous effects of the crisis by gender

	U	PermE	TempE
Female	*Reference category*	*Reference category*	*Reference category*
Male	0.0012	0.032***	0.0289***
	(0.0118)	(0.0041)	(0.0081)
Crisis indicator	0.0212	-0.0151***	-0.0053
	(0.0308)	(0.0052)	(0.0169)
Crisis*Male	0.0493***	-0.0127***	-0.0175***
	(0.0068)	(0.0044)	(0.0036)
Other individual covariates	*included*	*included*	*included*
Country dummies	*included*	*included*	*included*
Year dummies	*included*	*included*	*included*
Pseudo-R-squared	0.0845		
Observations	65,872		

*Source: EU-SILC, own calculations. – Notes: No data available for Denmark and the United Kingdom. Multinomial logit model. * / ** / ***: statistically significant at least at the 10 %- / 5 %- / 1 %-level. Transitions take place between the following labour market states: Permanent employment (PermE), temporary employment, (TempE) unemployment (U), self-employment (S), education (Ed) and inactivity (I); only estimates for the first three categories are presented. – Robust standard errors clustered at country level in parentheses.*

Table 19
Yearly transitions from unemployment to different labour market states (detailed employment states), heterogeneous effects of the crisis by age groups

	U	PermE	TempE
Age 15-24	-0.099***	0.0288***	0.0703***
	(0.0296)	(0.0085)	(0.0116)
Age 25-34	-0.0645***	0.0293***	0.0467***
	(0.0182)	(0.0065)	(0.0078)
Age 35-54	*Reference category*	*Reference category*	*Reference category*
Age 55-65	0.0204	-0.0659***	-0.1138***
	(0.0205)	(0.006)	(0.0159)
Crisis indicator	0.0404	-0.0202***	-0.0102
	(0.0367)	(0.006)	(0.0151)
Crisis*Age 15-24	0.0051	-0.0060	-0.0124
	(0.0192)	(0.0061)	(0.011)
Crisis*Age 25-34	0.0153	-0.0040	-0.0070
	(0.0114)	(0.0075)	(0.0064)
Crisis*Age 55-65	0.0086	-0.0001	-0.0124
	(0.0247)	(0.0144)	(0.0169)
Other individual covariates	*included*	*included*	*included*
Country dummies	*included*	*included*	*included*
Year dummies	*included*	*included*	*included*
Pseudo-R-squared	0.0845		
Observations	65,872		

*Source: EU-SILC, own calculations. – Notes: No data available for Denmark and the United Kingdom. Multinomial logit model. * / ** / ***: statistically significant at least at the 10 %- / 5 %- / 1 %-level. Transitions take place between the following labour market states: Permanent employment (PermE), temporary employment, (TempE) unemployment (U), self-employment (S), education (Ed) and inactivity (I); only estimates for the first three categories are presented. – Robust standard errors clustered at country level in parentheses.*

Furthermore, for the different age groups, we do not discover any heterogeneous effects when disaggregating the flows from unemployment into temporary and permanent employment (Table 19). Finally, Table 20 suggests that highly skilled persons have been affected more by the economic crisis in one respect: Their transition rates into permanent employment decrease by 2.1 percentage points more than that of the medium-skilled group.

Table 20
Yearly transitions from unemployment to different labour market states (detailed employment states), heterogeneous effects of the crisis by skill groups

	U	PermE	TempE
Low skilled (ISCED 0-2)	0.0503**	-0.0402***	-0.0257***
	(0.0203)	(0.0065)	(0.0097)
Medium skilled (ISCED 3-4)	*Reference category*	*Reference category*	*Reference category*
High skilled (ISCED 5)	-0.0797***	0.0462***	0.0275*
	(0.0134)	(0.0051)	(0.0157)
Crisis indicator	0.0236	-0.0223***	-0.0150
	(0.0232)	(0.008)	(0.0121)
Crisis*Low skilled	0.0349	0.0128	-0.0079
	(0.0329)	(0.0123)	(0.0135)
Crisis*High skilled	0.041*	-0.0211*	0.0105
	(0.0217)	(0.011)	(0.0139)
Other individual covariates	*included*	*included*	*included*
Country dummies	*included*	*included*	*included*
Year dummies	*included*	*included*	*included*
Pseudo-R-squared	0.0848		
Observations	65,872		

*Source: EU-SILC, own calculations. – Notes: No data available for Denmark and the United Kingdom. Multinomial logit model. * / ** / ***: statistically significant at least at the 10%- / 5%- / 1%-level. Transitions take place between the following labour market states: Permanent employment (PermE), temporary employment, (TempE) unemployment (U), self-employment (S), education (Ed) and inactivity (I); only estimates for the first three categories are presented. – Robust standard errors clustered at country level in parentheses.*

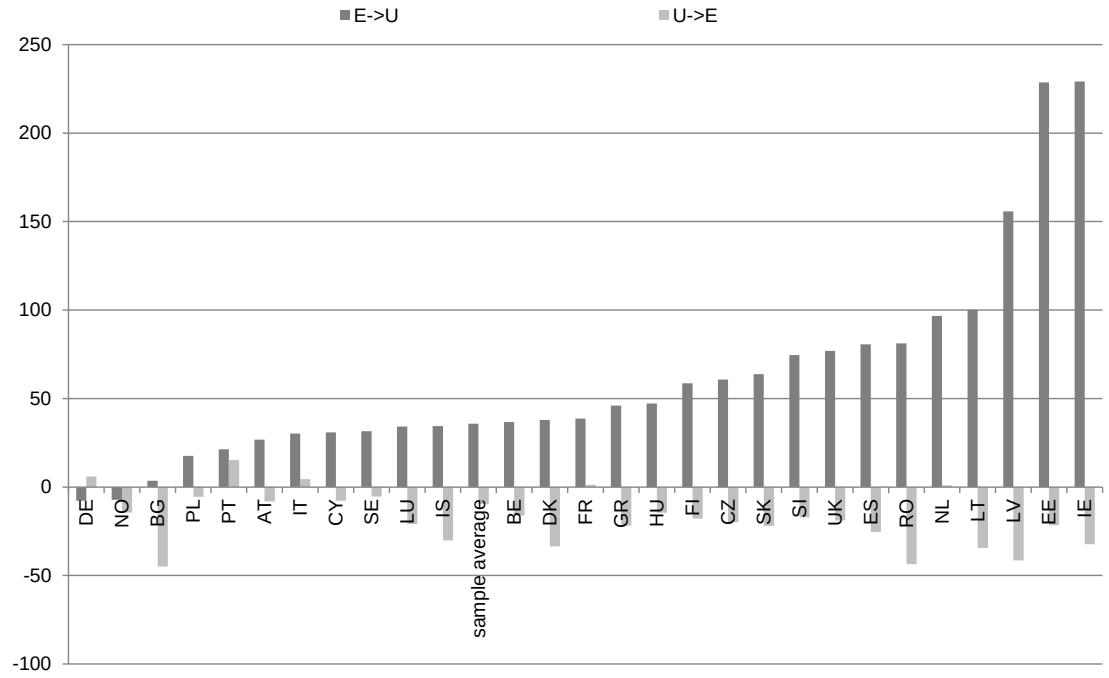
4.3 Inflows vs. outflows and cross-country differences

The previous descriptive and econometric evidence shows that the worker flows between employment and unemployment strongly changed during the crisis, while other labour market transitions were affected to a much smaller extent. Hence, the increase of the aggregate unemployment rate during the crisis was mainly driven by transitions from employment to unemployment and vice versa. Therefore, in the final step of the analysis, we compare the change in inflows into and outflows from unemployment for the European countries in order to shed light on the countries' adjustment patterns to the crisis. In doing so, we use the descriptive evidence directly computed from EU-SILC and EU-LFS, which allows us to take into account the maximum number of countries (see Section 2).

The inflow rate into unemployment was much stronger than the decrease in the outflow rate (see Figure 2). For the sample average, these growth rates amounted to 36 per cent and -9.6 per cent, respectively.

Furthermore, while the overwhelming majority of countries mirror this overall adjustment pattern, there was relatively strong heterogeneity in the degree countries reacted to the crisis. On the one side of the spectrum, there are those countries which were very strongly hit by the crisis, and which feature the highest increase in unemployment inflows. These countries include the Baltic States, Ireland, and Spain. On the other side of the spectrum, countries such as Germany and Poland did not experience a strong recession, and therefore the flow rates did not change by much.

Figure 2
Flow rates between employment and unemployment: Growth rates between pre-crisis and crisis period by country



Source: EU-LFS (for DE and RO) and EU-SILC, own calculations.

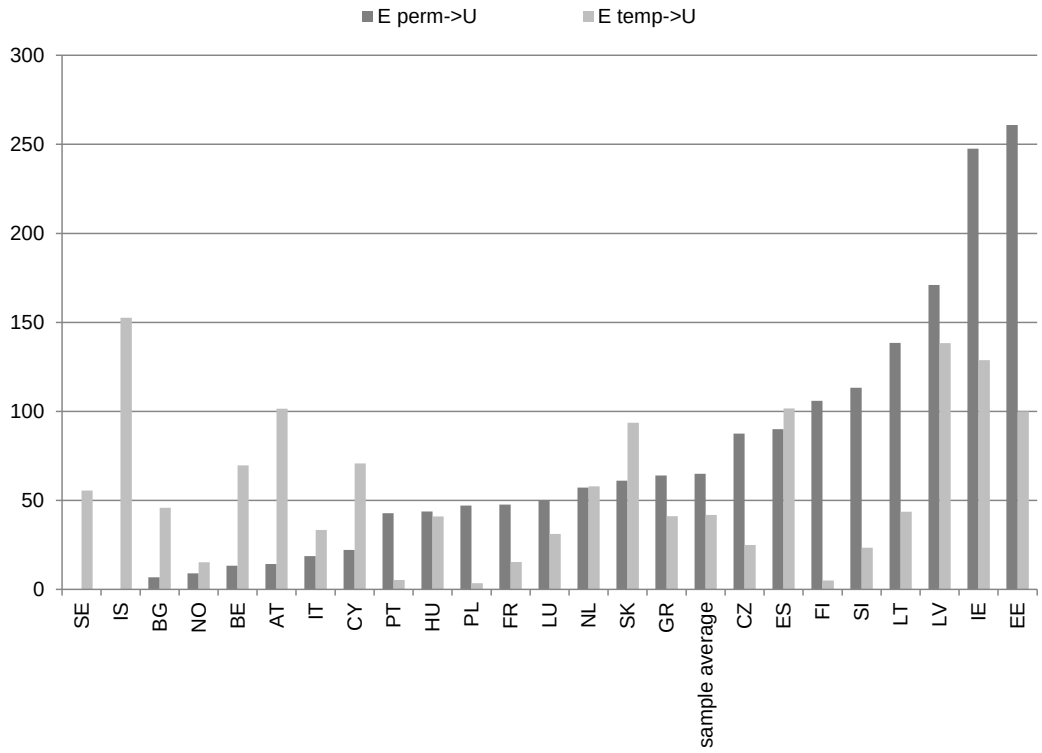
At least in some countries of the European Union, aggregate labour market dynamics are likely to be strongly influenced by the prevalence of temporary contracts.[8] We therefore analyse the flow rates from permanent and temporary employment to unemployment in more detail. For Europe as a whole, Figure 3 shows that the increase in the transition rate from permanent to unemployment was actually higher (+65 per cent) than the increase in the transition rate from temporary employment to unemployment (+42 per cent). This aggregate figure hides strong country heterogeneity. On the one hand, there are countries which experienced a strong increase in the transition rate from permanent employment to unemployment. These countries include the Baltic States and Ireland, which were strongly hit by the crisis and at the same time are characterised by relatively low employment protection (Martin / Scarpetta, 2012; Muravyev, 2010).

On the other hand, there are countries which hardly experience any increase in the transition rate from permanent employment to unemployment, but a strong increase in the transition rate from temporary employment to unemployment. Examples are Austria, Cyprus and Sweden. Interestingly, Spain – which is often cited as the prime example of a dual labour market – only features a slightly higher increase in the transition rate from temporary employment to unemployment (+102 per cent) than from permanent employment to unemployment (+92 per cent).[9] Although the difference between permanent and temporary contracts was not that large in Spain

[8] Boeri (2011) investigates this issue extensively for the time period before the Great Recession.

[9] It should, however, be pointed out that the transition rate from temporary to permanent employment is likely to be more strongly affected by the time aggregation bias which is imminent in our yearly data. Using monthly data would probably increase the difference between the two growth rates considered.

Figure 3
Flow rates from permanent/temporary employment to unemployment: Growth rates between pre-crisis and crisis period by country



Source: EU-SILC, own calculations.

in relative terms (i.e. in terms of the rate of increase of the transition rate), the large prevalence of temporary contracts nevertheless implied a very strong increase in the absolute number of transitions from employment to unemployment, which is in line with evidence presented by Eichhorst et al. (2010b), Bentolila et al. (2012), and Silva and Vázquez-Grenno (2013).

While temporary contracts play an important role for labour market dynamics during the Great Recession in a number of countries, the reasons for cross-country differences as a reaction to the crisis are likely to be multi-faceted. In the final step of our analysis, we therefore perform an econometric analysis at the level of country clusters. In doing so, we follow Esping-Andersen (1990) in defining country clusters: The Anglo-Saxon cluster (IE, UK), Scandinavia (DK, FI, IS, NO, SE), Continental Europe (AT, BE, FR, LU, NL), Mediterranean Europe (CY, ES, GR, IT, PT), and Central and Eastern Europe (CEE: BG, CZ, EE, HU, LT, LV, PL, SI, SK). [10] Despite some institutional variation within these country clusters, the clusters can be viewed as approximations to certain labour market frameworks, with the Anglo-Saxon countries displaying very flexible labour markets, Scandinavia high flexibility and high social security (e.g. unemployment benefits, which are however strictly monitored), Continental Europe low flexibility and high social security, Mediterranean countries dual labour markets and low social security, and CEE high flexibility and low social security (Boeri and van Ours, 2013; Martin / Scarpetta, 2012). Examining country groups rather than single institutions allows us to take into account the complemen-

[10] We can only do so for the countries contained in EU-SILC for a sufficient number of years, i.e. DE and RO are not included in this analysis (see Section 2).

tarity of labour market institutions, i.e. the fact that these institutions usually have a joint effect on labour market outcomes.

We thus run a multinomial regression model at the individual level (see Equation 1), and focus on outflows from employment because these transitions were the most affected flows for national labour markets in the majority of countries during the crisis. As the cross-country differences in transitions are strongly influenced by the depth of the recession in the respective countries, we include country-specific GDP growth as an explanatory variable in the econometric model, in addition to the individual-level socio-economic variables and yearly dummies used above (see Table 2). Furthermore, we include dummy variables for the different country clusters in order to capture level differences in transition probabilities which are constant over time. Finally, we add interactions between the crisis indicator variable and the cluster dummies as explanatory variables. Given that we control for GDP growth, these interactions show how labour markets differed in their reaction to the crisis, beyond differences which are due to the depth of the recession. Therefore, differences in the respective interaction coefficients can be attributed to differences in the institutional framework prevailing in the country clusters.

The regression results show that, for all countries considered jointly, GDP growth is significantly correlated with the probability of remaining employed, and of making a transition from employment to either unemployment or education, with the latter two correlations being countercyclical (Table 21). By contrast, the transitions from employment to self-employment and to inactivity are acyclical.

Table 21
Yearly transitions from employment to different labour market states, heterogeneous effects of the crisis by country clusters

Country cluster	EE	ES	EU	EEd	EI
GDP growth	0.00118***	-0.00014	-0.00081***	-0.00002**	-0.00021
	(0.00026)	(0.00013)	(0.00017)	(0.00001)	(0.00021)
Anglo-Saxon	*Reference*	*Reference*	*Reference*	*Reference*	*Reference*
Scandinavian	-0.0191*	-0.0035***	0.0170*	-0.0021***	-0.0035
	(0.0112)	(0.0012)	(0.0088)	(0.0003)	(0.0022)
Continental	-0.0143*	-0.0049**	0.0247***	-0.0007***	-0.0049**
	(0.0074)	(0.0021)	(0.0086)	(0.0002)	(0.0021)
Mediterranean	-0.0441***	0.0106***	0.0340**	-0.0007***	0.0002
	(0.0097)	(0.0023)	(0.0133)	(0.0002)	(0.0022)
CEE	-0.0536***	0.0061**	0.0419***	-0.0008***	0.0064*
	(0.0096)	(0.0025)	(0.0084)	(0.0001)	(0.0037)
Crisis*Anglo-Saxon	-0.0231***	0.0012*	0.0180***	-0.0001	0.0040***
	(0.0034)	(0.0007)	(0.0034)	(0.0001)	(0.0009)
Crisis*Scandinavian	-0.0016	-0.0009	0.0085***	-0.0002	-0.0058***
	(0.0045)	(0.0020)	(0.0025)	(0.0001)	(0.0019)
Crisis*Continental	-0.0046	0.0003	0.0064***	-0.0001	-0.0020***
	(0.0029)	(0.0014)	(0.0012)	(0.0001)	(0.0008)
Crisis*Mediterranean	-0.0051	-0.0024***	0.0090	0.0001	-0.0015
	(0.0043)	(0.0008)	(0.0058)	(0.0001)	(0.0013)
Crisis*CEE	-0.0067	0.0015	0.0082***	-0.0004***	-0.0026
	(0.0055)	(0.0026)	(0.0030)	(0.0001)	(0.0017)
Individual covariates	*included*	*included*	*included*	*Included*	*included*
Year dummies	*included*	*included*	*included*	*included*	*included*
Pseudo-R-squared	0.1003				
Observations	578,331				

*Source: EU-SILC, own calculations. – Notes: Multinomial logit model. * / ** / ***: statistically significant at least at the 10 %- / 5 %- / 1 %-level. – The model includes transitions between the following labour market states: employment (E) (i.e. persons remaining in employment), unemployment (U), self-employment (S), education (Ed) and inactivity (I). – Robust standard errors clustered at the country level in parentheses.*

Turning to cluster-specific effects, it becomes apparent that, net of GPD growth, the Mediterranean and CEE clusters displayed higher employment stability than the reference cluster (Anglo-Saxon) before the crisis. Furthermore, transitions from employment to unemployment were significantly lower in the Anglo-Saxon cluster than in all the other clusters. Finally, the Continental cluster displayed a remarkably lower transition probability from employment to inactivity than the other country clusters.

During the crisis, employment stability declined particularly strongly in the Anglo-Saxon country cluster, as the coefficients on the interaction of the crisis dummy with the country cluster dummies make clear. In the other country clusters, the transition probability evolved in line with the development of country-specific GDP (GDP growth included as explanatory variable) and yearly European trends (yearly dummies included). Turning to transitions from employment to unemployment, the results indicate that the Anglo-Saxon cluster again displays the strongest labour-market reaction, i.e. a strongly above-average increase in the respective transition rate. In the Mediterranean, Scandinavian and CEE clusters, the EU transition probability also increased disproportionately, but to a smaller extent than in the Anglo-Saxon cluster.[11] Finally, during the crisis the transition probability to inactivity rose disproportionately in the Anglo-Saxon country cluster, while the opposite was the case in the Continental cluster and, especially, the Scandinavian cluster.

As argued above, these results are likely to be mainly driven by the institutional framework prevailing in the different country clusters. In this context, it is important to point out that our analysis focuses on the extensive margin. Changes along the intensive margin and/or wage adjustments constitute alternative adjustment patterns. While labour market institutions always exert a joint effect on labour market outcomes, employment protection plays a particularly important role in this context. As stressed by Cazes et al. (2013), countries with low employment protection feature more external flexibility and less internal flexibility. The UK is an example for such an economy, which can at least partly explain the above result of a strong increase in flows from employment to unemployment during the Great Recession. By contrast, the Mediterranean country cluster includes countries such as Italy, Portugal and Spain with relatively high employment protection. Consequently, this cluster features employment-to-unemployment transitions which are in line with its GDP development and aggregate European trends.

5. Summary and conclusions

Using the individual-level EU-SILC and EU-LFS data, we examine the labour market transitions in Europe and the effects of the recent financial and economic crisis in this context, highlighting differences between socio-demographic groups and employment types. Our main findings can be summarized as follows. First, the crisis in its early phase (2008-2010) predominantly affected transitions from employment to unemployment and vice versa. The other labour market transitions remained virtually unchanged.

Second, we reveal heterogeneities in the evolution of labour market transitions: The increase in the transition rate from employment to unemployment was particularly pronounced for young persons, the medium-skilled, and for men. The transition rate from unemployment to employment, on the other hand, fell more strongly for men than for women during the recession. Furthermore, our results indicate that unemployment became more persistent for the high-skilled during the crisis.

[11] A Wald test shows that the coefficients for the Scandinavian, Continental and CEE clusters are not significantly different from each other.

Third, temporary contracts played a prominent role for labour market dynamics during the recession in a number of European countries. In particular, transitions from temporary employment to unemployment increased more strongly during the crisis than transitions from permanent employment to unemployment. This finding holds true especially for men and high-skilled workers, suggesting that temporary contracts are the driving forces for the gender- and skill-related heterogeneities that we detect. Furthermore, the overall outflow rate from temporary employment remained relatively constant during the crisis. This can be explained by a significant increase in the transition rate from temporary employment to unemployment and a significant decline in the transition rate from temporary employment to permanent employment offsetting each other.

Fourth, inflows into unemployment increased more strongly during the crisis in the overwhelming majority of countries. Given that we focus on the time period 2005-2010, this result is consistent with the finding by Fujita and Ramey (2009) and Fujita (2011) for the US, stressing the importance of the separation rate during the early phase of the recessionary period.

Furthermore, one can observe important country heterogeneities, which can partly be explained by the depth of the crisis, and partly by institutional features. Our results in this context focus on the extensive margin, which is likely to be strongly influenced by employment protection. An analysis of alternative adjustment mechanisms, such as wage and working hours adjustments, is clearly warranted, but beyond the scope of this paper.

Using yearly data, the time aggregation bias may affect our results, since we analyse relatively persistent labour market transition. While previous research has shown that the cyclical features of labour markets remain relatively unchanged when accounting for time aggregation (Elsby et. al., 2009; Nekarda, 2009), it is nevertheless conceivable that the time aggregation bias differs between countries. Such differences would affect the level differences in labour market transitions between countries, although not necessarily the cross-country differences in cyclicality. This issue is, however, left for future research.

Our results have several important policy implications. Our finding of strong heterogeneous effects especially for young workers is particularly worrisome as the literature indicates that an unfavourable start of a person's labour market career usually has long-lasting, scarring effects (Kahn, 2010; Oreopoulos et al., 2012). This calls for economic policy-making that targets young workers. In addition, temporary employment dropped and its stepping-stone function into permanent employment dwindled. Despite this, temporary employment remains a port of entry into the labour market from unemployment during the recession. Therefore, temporary employment can contribute to a recovery of overall employment in the aftermath of the crisis – an aspect that should be studied closely as the European labour markets recover from the recession.

Table A.1
Yearly Markov transition matrix for selected countries, different labour market states
Before and during the crisis

ORIGIN	Employment	Self-employment	Un-employment	Education	Inactivity	Employment	Self-employment	Un-employment	Education	Inactivity
			Pre-crisis					During the crisis		
AT										
Employment	90.2	1.5	3.0	0.6	4.7	89.0	1.4	3.8	0.9	4.8
Selfemployment	10.3	82.1	0.9	0.2	6.6	12.3	78.8	1.5	0.2	7.2
Unemployment	35.3	2.0	43.5	1.1	18.0	32.4	1.9	46.9	3.3	15.5
Education	15.6	1.3	1.4	76.4	5.3	16.4	0.9	3.0	74.8	4.8
Inactivity	8.1	1.2	1.8	0.7	88.2	8.5	1.7	3.5	1.1	85.3
Total	56.0	7.7	4.4	5.9	26.1	56.4	7.6	5.8	6.9	23.3
BE										
Employment	93.8	0.9	2.1	0.3	2.9	93.5	0.8	2.8	0.4	2.5
Selfemployment	5.9	90.1	0.9	0.0	3.1	9.0	87.2	0.5	0.0	3.3
Unemployment	21.8	1.2	67.4	1.1	8.4	18.3	1.3	67.1	0.4	13.0
Education	9.1	0.4	4.0	83.7	2.9	8.6	0.6	4.2	84.0	2.5
Inactivity	4.2	0.9	2.7	0.5	91.7	4.0	1.8	2.6	0.6	91.0
Total	55.0	7.0	7.7	8.8	21.4	55.5	6.6	7.6	8.9	21.4
BG										
Employment	86.8	3.8	5.7	0.6	3.1	88.7	2.6	5.9	0.2	2.6
Selfemployment	17.8	73.8	5.6	0.4	2.3	18.6	77.8	1.9	0.0	1.8
Unemployment	31.4	7.4	46.9	0.7	13.5	17.3	2.4	71.0	1.0	8.3
Education	14.5	0.7	7.8	73.9	3.2	7.9	0.2	9.8	79.6	2.5
Inactivity	8.8	1.8	4.2	0.9	84.4	7.0	0.9	1.7	0.6	89.8
Total	55.3	8.0	11.8	5.7	19.3	54.7	8.1	13.0	6.7	17.4
CY										
Employment	93.5	1.1	2.9	0.3	2.1	93.1	0.8	3.8	0.2	2.0
Selfemployment	10.2	83.6	1.8	0.0	4.4	7.4	87.4	2.2	0.0	3.1
Unemployment	44.6	8.4	27.8	2.0	17.2	41.1	7.0	41.8	2.3	7.7
Education	10.4	0.3	2.6	78.7	7.9	10.3	0.3	5.1	75.6	8.7
Inactivity	5.7	1.6	1.9	4.1	86.6	4.7	1.4	1.8	3.4	88.7
Total	55.9	9.1	3.3	11.4	20.3	55.5	8.8	4.9	11.3	19.5

Table A.1, continued

ORIGIN	Employment	Self-employment	Un-employment	Education	Inactivity	Employment	Self-employment	Un-employment	Education	Inactivity
			Pre-crisis					During the crisis		
CZ										
Employment	92.7	1.0	2.1	0.2	4.0	90.7	1.2	3.4	0.2	4.5
Selfemployment	6.8	88.4	1.6	0.1	3.0	3.0	92.9	0.7	0.3	3.1
Unemployment	31.8	1.6	53.0	0.8	12.8	25.5	2.7	57.5	1.6	12.8
Education	11.8	0.6	3.8	83.3	0.4	9.3	0.5	5.1	84.6	0.6
Inactivity	5.3	0.8	1.7	0.0	92.1	6.5	0.7	2.8	0.3	89.7
Total	54.3	9.2	6.1	8.4	22.0	51.8	10.2	6.4	9.5	22.1
DK										
Employment	91.9	1.3	1.7	1.6	3.6	94.0	0.8	2.3	1.3	1.7
Selfemployment	13.1	81.1	1.3	0.1	4.3	10.3	88.3	0.6	0.2	0.7
Unemployment	42.7	0.5	32.3	4.2	20.3	28.3	0.6	59.8	5.7	5.6
Education	21.4	0.3	2.5	72.9	2.8	17.5	0.3	1.9	79.7	0.6
Inactivity	7.4	1.3	2.8	1.3	87.3	3.0	0.3	1.9	0.2	94.6
Total	65.2	4.6	3.0	10.5	16.7	65.4	5.1	4.4	10.8	14.3
EE										
Employment	92.2	1.1	2.6	0.6	3.5	84.7	1.7	8.5	0.7	4.3
Selfemployment	17.9	77.2	1.7	0.1	3.0	16.4	72.9	4.5	0.2	6.0
Unemployment	37.3	2.9	47.4	1.3	11.2	29.2	0.3	55.6	2.2	12.7
Education	16.4	0.2	2.9	76.6	3.9	12.4	1.0	6.2	75.8	4.7
Inactivity	11.1	0.8	1.8	1.0	85.4	11.4	0.7	4.7	1.7	81.5
Total	64.2	4.6	5.1	9.0	17.2	58.7	4.5	10.7	9.2	16.9
ES										
Employment	88.9	2.0	5.7	0.6	2.8	85.8	1.3	10.2	0.7	2.1
Selfemployment	8.8	84.3	2.4	0.1	4.4	5.3	86.1	4.6	0.1	3.8
Unemployment	34.0	4.1	41.8	2.7	17.4	25.4	2.9	60.0	2.3	9.4
Education	16.2	1.1	5.2	73.2	4.3	10.8	0.7	8.8	77.8	1.9
Inactivity	6.7	1.9	5.9	1.7	83.8	4.0	1.4	7.4	2.3	84.9
Total	54.0	11.3	8.2	7.5	19.0	51.9	11.6	14.4	7.6	14.5

Table A.1, continued

ORIGIN	Employment	Self-employment	Un-employment	Education	Inactivity	Employment	Self-employment	Un-employment	Education	Inactivity
			Pre-crisis					During the crisis		
FI										
Employment	88.9	1.5	3.0	2.1	4.6	86.9	0.8	4.7	2.8	4.8
Selfemployment	7.3	86.3	1.1	0.6	4.8	4.5	88.0	0.9	0.8	5.8
Unemployment	28.2	1.8	52.7	5.0	12.3	23.2	0.9	53.7	5.9	16.4
Education	27.9	0.9	5.1	59.8	6.3	17.2	0.5	5.4	69.8	7.0
Inactivity	11.4	2.0	3.2	2.5	81.0	10.5	1.3	3.6	1.9	82.8
Total	57.5	9.4	6.7	8.5	18.0	57.0	8.3	7.1	9.2	18.5
FR										
Employment	93.0	0.5	3.4	0.4	2.6	91.6	0.6	4.8	0.3	2.6
Selfemployment	4.5	90.6	1.2	0.0	3.6	4.9	90.7	1.5	0.0	2.9
Unemployment	28.2	2.7	60.1	1.4	7.5	28.6	2.3	59.6	2.0	7.6
Education	14.8	0.2	3.6	80.2	1.2	15.0	0.3	3.9	79.8	1.0
Inactivity	3.0	0.2	0.8	0.3	95.6	2.8	0.2	0.9	0.3	95.8
Total	57.1	6.0	6.8	7.8	22.3	57.1	5.8	7.5	7.3	22.3
GR										
Employment	89.7	2.5	4.0	0.5	3.3	89.4	1.7	5.9	0.3	2.6
Selfemployment	4.6	89.3	1.2	0.1	4.8	2.9	91.1	2.1	0.1	3.8
Unemployment	28.7	5.9	50.6	2.9	11.9	22.4	5.8	58.1	2.6	11.1
Education	9.0	1.7	5.3	78.2	5.7	6.8	1.5	6.8	79.9	5.1
Inactivity	3.5	3.3	2.5	0.7	90.0	3.1	2.3	3.1	1.1	90.4
Total	38.8	22.0	6.3	8.0	24.9	39.9	20.9	8.0	8.1	23.1
HU										
Employment	87.3	2.0	4.0	0.3	6.3	84.1	4.2	6.0	0.2	5.5
Selfemployment	20.4	68.6	2.2	0.2	8.6	16.4	73.3	3.5	0.0	6.8
Unemployment	39.3	1.7	40.8	1.4	16.8	33.5	2.7	48.4	0.5	14.9
Education	10.6	0.4	3.0	81.2	4.8	8.7	0.6	5.7	78.8	6.2
Inactivity	6.1	0.9	1.8	0.5	90.6	6.5	1.3	3.2	0.6	88.5
Total	50.0	6.5	5.9	8.8	28.8	46.8	7.7	8.0	8.7	28.8

Table A.1, continued

ORIGIN	Employment	Self-employment	Un-employment	Education	Inactivity	Employment	Self-employment	Un-employment	Education	Inactivity
			Pre-crisis					During the crisis		
IE										
Employment	90.7	1.7	2.4	1.7	3.4	84.3	1.4	8.1	2.0	4.3
Selfemployment	5.5	89.8	1.1	0.5	3.1	7.3	85.4	4.5	0.0	2.8
Unemployment	23.6	2.5	50.3	3.8	19.8	16.0	2.7	53.9	8.5	18.9
Education	23.2	0.3	3.9	67.3	5.3	15.5	0.8	7.7	68.7	7.3
Inactivity	6.8	1.4	2.9	1.6	87.3	4.9	0.7	5.0	0.8	88.6
Total	51.5	10.3	5.1	8.3	24.7	45.7	9.8	9.5	9.0	25.9
IS										
Employment	88.3	1.8	1.6	4.5	3.8	87.6	2.3	2.1	3.1	4.9
Selfemployment	10.8	82.3	1.8	0.8	4.2	14.3	74.1	4.0	3.2	4.4
Unemployment	55.0	5.6	12.6	8.0	18.8	38.4	9.0	37.2	10.5	5.0
Education	24.8	1.0	1.1	70.6	2.6	17.9	0.6	4.1	74.5	2.8
Inactivity	22.7	4.4	2.7	4.3	65.9	27.1	4.7	4.6	2.1	61.5
Total	65.8	10.8	1.7	12.9	8.7	63.2	9.2	4.4	13.9	9.3
IT										
Employment	90.7	2.6	2.4	0.4	3.9	90.3	2.2	3.1	0.4	4.0
Selfemployment	6.1	86.5	2.3	0.3	4.9	5.0	87.0	2.4	0.5	5.1
Unemployment	17.9	4.7	57.0	3.0	17.4	18.7	5.0	54.3	4.8	17.2
Education	6.3	1.6	7.6	81.2	3.3	5.6	1.6	9.3	79.6	3.8
Inactivity	4.3	2.3	3.4	0.5	89.5	4.4	2.4	4.8	0.7	87.7
Total	41.9	14.8	7.0	7.4	28.9	42.7	14.6	7.6	8.3	26.7
LT										
Employment	92.5	1.4	3.3	0.4	2.4	89.7	0.7	6.6	0.5	2.5
Selfemployment	12.4	74.7	4.2	0.6	8.2	6.3	85.9	4.2	0.0	3.5
Unemployment	31.9	4.8	46.9	1.7	14.8	20.9	1.5	66.6	1.9	9.1
Education	15.3	0.9	2.1	79.7	2.0	8.0	0.3	6.0	84.6	1.1
Inactivity	9.4	1.9	2.1	0.7	85.8	3.4	1.2	4.4	0.2	90.7
Total	59.9	6.9	6.0	10.0	17.2	56.2	6.9	10.7	10.5	15.8

Table A.1, continued

ORIGIN	Employment	Self-employment	Un-employment	Education	Inactivity	Employment	Self-employment	Un-employment	Education	Inactivity
	Pre-crisis					During the crisis				
LU										
Employment	94.3	0.5	2.2	0.3	2.8	93.1	0.3	3.0	0.3	3.3
Selfemployment	6.1	88.2	1.1	0.0	4.7	6.4	89.3	0.2	0.6	3.6
Unemployment	44.7	1.2	42.8	1.1	10.2	35.3	0.5	49.7	0.3	14.2
Education	10.7	0.3	1.9	86.1	1.1	9.8	0.0	4.1	83.4	2.7
Inactivity	3.3	0.8	0.6	0.4	94.9	4.7	0.7	1.2	0.4	93.1
Total	59.6	4.1	3.0	9.5	23.7	59.6	4.4	4.4	8.2	23.4
LV										
Employment	89.1	2.4	4.2	0.6	3.7	80.9	2.4	10.8	0.6	5.4
Selfemployment	27.5	61.0	3.8	0.2	7.5	22.7	58.5	10.8	0.1	7.9
Unemployment	43.5	4.5	32.8	1.4	17.8	25.5	2.6	54.4	3.8	13.7
Education	20.6	0.4	5.0	71.4	2.6	11.6	0.8	10.2	71.2	6.2
Inactivity	13.0	2.4	5.0	1.0	78.6	13.9	2.1	9.5	2.2	72.2
Total	63.7	5.6	6.4	7.5	16.7	54.8	5.5	15.3	7.9	16.5
NL										
Employment	94.5	1.0	0.7	1.1	2.7	93.9	0.9	1.4	0.8	2.9
Selfemployment	3.3	93.1	0.3	0.3	3.1	3.1	93.2	0.2	0.8	2.6
Unemployment	38.5	2.4	26.3	4.7	28.2	38.9	8.1	20.5	4.7	27.8
Education	22.5	1.4	1.5	70.1	4.6	15.2	1.3	3.2	77.4	2.9
Inactivity	11.1	1.7	1.8	0.9	84.6	5.4	1.7	2.0	1.1	89.8
Total	60.8	8.3	1.5	8.1	21.3	60.3	9.4	1.9	8.7	19.8
NO										
Employment	92.4	1.5	1.3	1.7	3.2	91.5	1.9	1.2	2.2	3.2
Selfemployment	19.6	76.2	1.2	0.7	2.3	20.5	72.8	2.1	0.4	4.2
Unemployment	47.7	2.0	24.9	8.8	16.7	40.8	5.1	27.5	13.8	12.8
Education	23.6	1.1	2.1	69.2	4.1	20.2	0.5	3.0	74.0	2.3
Inactivity	11.2	1.2	2.8	2.6	82.1	10.2	1.7	2.4	5.2	80.4
Total	67.9	6.1	2.2	9.2	14.7	67.9	6.1	2.2	10.4	13.4

Table A.1, continued

ORIGIN	Employment	Self-employment	Un-employment	Education	Inactivity	Employment	Self-employment	Un-employment	Education	Inactivity
	Pre-crisis					During the crisis				
PL										
Employment	91.2	1.3	3.5	0.3	3.7	91.0	1.3	4.1	0.2	3.3
Selfemployment	4.9	88.1	2.0	0.3	4.7	3.9	91.3	1.2	0.1	3.5
Unemployment	27.7	3.8	51.8	1.7	15.1	26.1	5.2	47.6	0.4	20.7
Education	12.4	1.1	5.6	78.0	2.9	10.4	1.7	5.4	79.9	2.7
Inactivity	4.7	1.9	3.7	0.6	89.2	5.3	2.3	2.6	0.4	89.3
Total	44.5	11.2	9.0	9.3	26.0	47.0	13.2	6.0	8.3	25.5
PT										
Employment	91.8	1.1	4.4	0.2	2.5	90.9	1.6	5.4	0.5	1.6
Selfemployment	7.8	86.5	1.3	0.2	4.2	11.7	75.0	3.1	0.4	9.8
Unemployment	26.1	5.9	56.1	0.8	11.0	30.1	5.0	52.9	2.1	9.9
Education	12.2	0.9	4.6	79.3	3.1	7.1	0.2	8.3	79.2	5.3
Inactivity	3.5	2.3	2.9	0.4	91.0	4.1	2.7	2.7	2.1	88.3
Total	53.1	12.9	7.9	8.0	18.1	55.2	10.0	8.7	7.9	18.2
SE										
Employment	91.8	1.3	1.8	1.7	3.4	91.6	1.6	2.4	1.6	2.8
Selfemployment	11.2	83.3	1.3	0.5	3.7	18.9	75.8	1.5	0.5	3.3
Unemployment	40.1	3.8	32.8	8.5	14.8	38.0	2.2	39.5	11.6	8.7
Education	24.4	0.7	7.7	63.7	3.5	23.0	0.8	10.2	63.8	2.2
Inactivity	10.2	1.7	3.2	2.6	82.2	10.3	1.4	2.9	2.4	83.0
Total	67.0	7.3	3.9	9.7	12.1	68.9	7.0	4.7	9.1	10.3
SI										
Employment	93.6	2.0	2.6	0.2	1.6	90.7	2.5	4.5	0.3	2.0
Selfemployment	25.9	64.9	4.0	0.2	5.0	19.9	68.7	5.6	0.8	5.1
Unemployment	23.5	2.4	56.7	3.9	13.5	19.4	3.6	59.3	3.1	14.6
Education	8.6	0.5	5.9	84.5	0.5	7.8	0.9	5.0	85.7	0.7
Inactivity	1.9	0.9	4.9	0.5	91.8	1.1	1.1	5.0	0.3	92.5
Total	54.4	4.6	8.5	13.2	19.3	53.9	5.7	8.7	13.2	18.5

Table A.1, continued

ORIGIN	Employment	Self-employment	Un-employment	Education	Inactivity	Employment	Self-employment	Un-employment	Education	Inactivity
			Pre-crisis					During the crisis		
SK										
Employment	93.2	1.5	2.2	0.4	2.8	91.9	1.2	3.6	0.2	3.2
Selfemployment	11.5	84.2	1.5	0.0	2.7	7.4	88.5	2.2	0.3	1.6
Unemployment	31.6	2.7	52.6	1.4	11.7	24.7	2.9	62.1	2.4	7.8
Education	10.8	0.5	4.7	83.0	1.1	8.0	0.5	5.5	85.2	0.8
Inactivity	5.9	0.5	2.5	0.4	90.6	4.2	0.2	1.9	0.1	93.7
Total	57.3	6.1	6.4	11.9	18.4	56.5	6.7	7.0	12.3	17.5
UK										
Employment	92.5	1.1	1.1	1.0	4.3	90.5	1.4	1.9	1.0	5.2
Selfemployment	6.9	87.3	1.3	0.3	4.2	6.5	85.1	2.2	0.1	6.1
Unemployment	37.9	3.8	31.8	2.1	24.3	30.8	4.3	35.0	4.4	25.5
Education	29.9	0.7	4.5	60.4	4.5	23.5	1.0	8.0	64.3	3.2
Inactivity	10.6	1.8	2.2	0.8	84.6	9.0	1.9	3.4	0.9	84.8
Total	63.8	8.3	2.3	4.1	21.5	62.0	8.2	3.6	4.5	21.7
DE										
Employment	92.5	1.6	3.0	0.3	2.7	92.6	1.7	2.7	0.4	2.6
Selfemployment	4.6	91.8	1.4	0.1	2.1	4.5	92.1	1.0	0.2	2.2
Unemployment	24.9	2.2	52.7	1.4	18.8	26.4	1.5	44.4	1.9	25.8
Education	20.2	0.8	1.8	74.0	3.2	21.8	0.5	1.8	72.9	3.0
Inactivity	3.2	0.3	1.6	0.5	94.3	3.5	0.4	1.4	0.5	94.2
Total	46.4	5.7	5.5	7.0	35.4	48.7	5.8	4.2	6.7	34.6
RO										
Employment	95.7	1.1	1.1	0.1	2.0	94.4	0.9	2.1	0.1	2.5
Selfemployment	4.9	89.5	0.7	0.0	4.9	4.1	88.0	1.4	0.0	6.5
Unemployment	19.1	6.4	55.9	0.7	17.9	10.8	7.0	56.0	1.2	25.0
Education	3.8	0.3	1.9	92.7	1.2	2.7	0.3	2.1	94.0	0.9
Inactivity	4.1	4.1	1.2	0.0	90.5	2.6	4.2	1.0	0.1	92.2
Total	41.3	11.1	3.7	10.6	33.3	40.8	11.2	3.9	10.0	34.1

Source: EU-SILC and EU-LFS, own calculations.

Table A.2
Yearly Markov transition matrix for all countries, detailed different labour market states
Before and during the crisis

ORIGIN	Perm Employment	Temp Employment	Self-employment	Un-employment	Education	Inactivity	Perm Employment	Temp Employment	Self-employment	Un-employment	Education	Inactivity
	Pre-crisis						During the crisis					
AT												
Perm Employment	87.9	3.0	1.4	2.8	0.4	4.5	86.8	3.5	1.4	3.2	0.7	4.4
Temp employment	49.0	32.7	1.6	6.4	2.3	8.0	43.9	31.4	1.1	12.9	3.6	7.1
Selfemployment	9.0	0.8	82.6	0.9	0.2	6.6	10.4	1.8	79.0	1.5	0.2	7.2
Unemployment	28.0	7.0	2.0	43.8	1.1	18.1	24.4	7.6	1.9	47.1	3.3	15.6
Education	11.2	3.8	1.3	1.5	76.9	5.3	9.1	5.4	1.0	3.1	76.4	4.9
Inactivity	7.3	0.7	1.2	1.8	0.7	88.3	6.6	1.8	1.7	3.5	1.1	85.4
Total	52.1	3.6	7.7	4.4	5.9	26.2	51.3	4.3	7.8	5.8	7.0	23.7
BE												
Perm Employment	92.9	2.0	0.8	1.5	0.1	2.9	93.0	2.2	0.6	1.7	0.1	2.4
Temp employment	38.6	46.1	2.4	7.6	1.8	3.5	36.6	42.0	1.8	12.9	3.0	3.6
Selfemployment	4.3	1.6	90.2	0.9	0.0	3.1	6.9	1.0	88.2	0.5	0.0	3.4
Unemployment	11.0	10.8	1.2	67.4	1.1	8.4	9.9	8.4	1.3	67.1	0.4	13.0
Education	3.7	5.3	0.4	4.0	83.7	2.9	3.5	5.1	0.6	4.2	84.0	2.5
Inactivity	2.8	1.4	0.9	2.7	0.5	91.7	3.0	1.0	1.8	2.6	0.6	91.0
Total	49.7	5.3	7.0	7.7	8.8	21.4	50.6	4.8	6.6	7.6	8.9	21.4
BG												
Perm Employment	87.3	1.9	3.4	4.4	0.4	2.7	89.8	0.6	2.5	4.7	0.1	2.3
Temp employment	48.7	22.7	3.9	14.4	1.9	8.4	37.1	31.8	2.1	21.0	0.4	7.5
Selfemployment	13.0	1.2	77.0	5.9	0.5	2.4	12.8	1.3	82.0	2.0	0.0	1.9
Unemployment	16.6	7.7	8.2	51.8	0.8	14.9	10.5	3.6	2.5	73.8	1.0	8.7
Education	11.5	1.8	0.7	7.9	74.9	3.2	4.8	1.8	0.2	9.9	80.7	2.5
Inactivity	6.5	1.2	1.8	4.2	0.9	85.4	5.3	0.6	0.9	1.7	0.6	90.8
Total	49.6	3.6	8.2	12.1	6.0	20.5	50.8	2.1	8.4	13.4	7.0	18.3
CY												
Perm Employment	91.5	2.6	1.0	2.7	0.2	2.1	91.6	2.5	0.5	3.3	0.2	1.8
Temp employment	28.5	60.7	2.3	4.8	1.3	2.5	23.3	61.8	2.9	8.2	0.3	3.5
Selfemployment	8.7	1.5	83.6	1.8	0.0	4.4	6.0	1.4	87.4	2.2	0.0	3.1
Unemployment	33.0	11.7	8.4	27.8	2.0	17.2	34.2	7.0	7.0	41.8	2.3	7.7
Education	6.0	4.5	0.3	2.6	78.7	7.9	7.2	3.1	0.3	5.1	75.6	8.7
Inactivity	4.3	1.4	1.6	1.9	4.1	86.6	2.6	2.1	1.4	1.8	3.4	88.7
Total	49.8	6.1	9.1	3.3	11.4	20.3	49.1	6.3	8.8	4.9	11.3	19.5

Table A.2, continued

ORIGIN	Perm Employment	Temp Employment	Self-employment	Un-employment	Education	Inactivity	Perm Employment	Temp Employment	Self-employment	Un-employment	Education	Inactivity
	Pre-crisis						During the crisis					
CZ												
Perm Employment	90.1	3.8	0.9	1.6	0.1	3.5	89.1	3.1	1.1	3.0	0.1	3.6
Temp employment	36.6	49.0	1.2	5.2	0.5	7.5	38.2	41.5	2.1	6.5	0.6	11.0
Selfemployment	4.9	1.9	88.5	1.6	0.1	3.1	2.3	0.7	92.9	0.7	0.3	3.1
Unemployment	16.1	15.6	1.6	53.0	0.8	12.8	12.5	13.0	2.7	57.5	1.6	12.8
Education	6.9	4.8	0.6	3.8	83.3	0.4	4.6	4.7	0.5	5.1	84.6	0.6
Inactivity	2.8	2.5	0.8	1.7	0.0	92.1	4.2	2.2	0.7	2.8	0.3	89.8
Total	46.6	7.6	9.2	6.1	8.4	22.0	45.9	5.8	10.2	6.4	9.6	22.1
EE												
Perm Employment	92.1	0.8	1.0	2.3	0.4	3.3	85.0	0.7	1.6	8.3	0.5	4.0
Temp employment	59.5	13.9	2.4	9.3	6.2	8.6	26.3	22.9	0.0	18.6	15.8	16.3
Selfemployment	14.3	1.1	78.3	1.9	0.3	4.1	15.7	0.1	73.4	4.5	0.2	6.1
Unemployment	32.7	4.1	3.3	45.8	1.6	12.6	21.6	6.0	0.3	56.9	2.2	13.0
Education	13.5	1.3	0.3	2.8	77.8	4.4	9.1	3.0	1.0	6.2	76.0	4.7
Inactivity	9.8	1.0	1.2	2.1	1.4	84.5	10.4	0.7	0.7	4.8	1.7	81.7
Total	57.8	1.4	5.0	4.8	12.9	18.2	57.2	1.5	4.5	10.6	9.3	17.0
ES												
Perm Employment	86.3	5.6	2.1	3.0	0.2	2.8	88.7	2.3	1.1	5.7	0.2	2.0
Temp employment	26.0	53.0	2.1	12.5	1.8	4.6	17.1	51.8	1.6	25.2	2.1	2.2
Selfemployment	5.7	2.7	84.3	2.0	0.1	5.3	3.1	1.8	86.5	4.6	0.1	3.9
Unemployment	8.4	25.1	3.5	41.1	2.5	19.3	6.2	18.1	3.0	60.9	2.4	9.5
Education	3.4	11.5	0.8	5.4	74.3	4.5	1.8	8.8	0.7	8.8	78.1	2.0
Inactivity	2.4	4.3	2.0	5.9	1.4	84.0	1.6	1.8	1.4	7.4	2.3	85.4
Total	36.1	13.6	11.0	8.2	7.7	23.4	41.0	10.7	11.7	14.5	7.7	14.6
FI												
Perm Employment	89.8	1.2	1.7	1.7	1.0	4.5	86.9	2.2	0.9	3.5	1.8	4.7
Temp employment	17.9	54.6	1.7	10.1	9.6	6.0	43.0	31.1	0.5	10.6	10.6	4.2
Selfemployment	1.9	0.5	91.9	0.7	0.5	4.6	2.3	0.2	89.8	1.0	0.8	6.0
Unemployment	6.2	11.6	2.9	56.1	6.0	17.1	10.5	5.5	0.9	58.8	6.4	17.9
Education	6.0	8.1	1.3	4.8	72.8	7.0	5.8	5.0	0.5	5.9	75.2	7.6
Inactivity	4.4	1.7	4.0	3.0	2.9	84.0	4.4	0.8	1.4	3.8	2.0	87.6
Total	28.4	5.5	24.6	6.5	13.1	21.9	40.9	4.4	11.1	8.1	11.8	23.7

Table A.2, continued

ORIGIN	Perm Employment	Temp Employment	Self-employment	Un-employment	Education	Inactivity	Perm Employment	Temp Employment	Self-employment	Un-employment	Education	Inactivity
	Pre-crisis						During the crisis					
FR												
Perm Employment	93.3	1.4	0.3	2.1	0.1	2.8	92.4	1.2	0.4	3.1	0.1	2.8
Temp employment	13.5	70.0	0.6	11.7	1.9	2.3	11.9	70.4	0.8	13.5	1.6	1.8
Selfemployment	2.3	0.9	91.9	1.3	0.0	3.7	2.0	1.5	92.1	1.5	0.0	2.9
Unemployment	11.4	16.7	2.7	60.2	1.4	7.5	10.8	17.3	2.3	60.0	2.0	7.7
Education	6.7	8.0	0.2	3.6	80.3	1.2	6.6	8.3	0.3	3.9	79.9	1.0
Inactivity	1.9	1.1	0.2	0.8	0.3	95.7	1.6	1.2	0.2	0.9	0.3	95.9
Total	47.1	8.8	6.1	7.0	8.0	23.0	46.8	9.3	5.9	7.6	7.5	22.9
GR												
Perm Employment	87.3	5.3	1.7	2.5	0.2	2.9	87.6	4.5	1.3	4.1	0.1	2.5
Temp employment	25.0	55.2	4.9	9.0	1.5	4.3	18.9	60.8	3.3	12.7	0.9	3.3
Selfemployment	2.9	1.7	89.3	1.2	0.1	4.8	1.3	1.2	91.5	2.1	0.1	3.8
Unemployment	12.2	16.4	5.9	50.6	2.9	11.9	8.0	11.8	6.0	60.1	2.7	11.5
Education	3.8	5.2	1.7	5.3	78.2	5.7	1.9	3.3	1.6	6.9	81.2	5.2
Inactivity	1.7	1.9	3.3	2.5	0.7	90.0	1.0	1.6	2.3	3.1	1.1	90.9
Total	29.8	9.0	22.0	6.3	8.0	24.9	29.7	8.8	21.4	8.2	8.3	23.6
HU												
Perm Employment	84.0	4.7	2.0	3.2	0.3	5.7	83.0	3.1	4.1	4.6	0.1	5.0
Temp employment	50.2	26.8	1.8	10.5	0.6	10.0	45.2	25.3	4.6	14.8	1.2	8.9
Selfemployment	18.1	2.1	68.9	2.2	0.2	8.6	13.9	1.7	74.0	3.5	0.0	6.9
Unemployment	24.4	12.2	1.8	42.5	1.4	17.5	18.3	13.7	2.8	49.5	0.5	15.2
Education	7.5	2.6	0.4	3.0	81.6	4.8	6.2	2.2	0.6	5.7	79.1	6.2
Inactivity	4.2	1.6	0.9	1.8	0.5	91.0	4.6	1.5	1.3	3.2	0.6	88.9
Total	44.4	5.0	6.6	5.8	8.9	29.2	41.9	4.2	7.8	7.9	8.9	29.3
IE												
Perm Employment	90.3	2.1	1.5	2.1	1.1	2.9	84.4	2.1	1.3	7.3	0.7	4.1
Temp employment	43.1	35.4	1.7	6.6	7.1	6.1	26.7	39.7	1.6	15.1	11.5	5.5
Selfemployment	4.2	0.5	90.5	1.1	0.5	3.2	6.3	0.3	86.1	4.5	0.0	2.8
Unemployment	16.4	6.1	2.5	51.0	3.9	20.1	11.5	3.0	2.7	54.9	8.7	19.2
Education	11.2	7.4	0.3	4.1	71.3	5.6	7.4	5.2	0.8	8.0	71.1	7.5
Inactivity	4.1	2.0	1.4	2.9	1.6	88.0	2.7	1.6	0.7	5.0	0.8	89.2
Total	46.5	3.8	10.6	5.2	8.4	25.5	41.0	3.7	10.0	9.6	9.1	26.6

Table A.2, continued

ORIGIN	Perm Employment	Temp Employment	Self-employment	Un-employment	Education	Inactivity	Perm Employment	Temp Employment	Self-employment	Un-employment	Education	Inactivity
	Pre-crisis						During the crisis					
IS												
Perm Employment	87.7	2.4	1.8	1.7	3.0	3.4	84.4	3.9	2.4	1.7	2.4	5.1
Temp employment	33.3	46.3	1.9	1.9	10.5	6.1	53.2	27.3	3.7	4.8	5.1	6.0
Selfemployment	4.6	1.1	87.0	1.9	0.9	4.5	7.9	0.9	78.8	4.2	3.5	4.7
Unemployment	32.9	11.7	6.9	15.5	9.9	23.2	20.2	10.8	10.1	41.6	11.7	5.6
Education	9.9	4.2	1.1	1.2	80.6	2.9	7.3	3.6	0.7	4.5	80.9	3.1
Inactivity	10.3	4.2	4.9	2.9	4.8	73.0	15.5	1.5	5.3	5.2	2.4	70.0
Total	49.8	5.1	15.2	2.0	16.8	11.2	46.7	4.5	12.6	5.5	18.9	11.7
IT												
Perm Employment	89.2	3.1	2.3	1.6	0.3	3.6	89.8	2.5	1.9	1.9	0.3	3.6
Temp employment	28.9	51.9	4.5	7.8	1.3	5.6	26.6	51.3	4.0	10.4	1.6	6.1
Selfemployment	4.6	1.5	86.5	2.3	0.3	4.9	3.4	1.6	87.0	2.4	0.5	5.1
Unemployment	9.2	8.7	4.7	57.0	3.0	17.4	7.5	11.2	5.0	54.3	4.8	17.2
Education	2.3	4.0	1.6	7.6	81.2	3.3	2.5	3.1	1.6	9.3	79.6	3.8
Inactivity	2.9	1.4	2.3	3.4	0.5	89.5	2.9	1.4	2.4	4.8	0.7	87.7
Total	36.3	5.6	14.8	7.0	7.4	28.9	37.0	5.7	14.6	7.6	8.3	26.7
LT												
Perm Employment	91.5	2.4	1.2	2.6	0.2	2.1	89.6	0.7	0.7	6.2	0.4	2.5
Temp employment	45.3	31.0	4.3	11.7	2.0	5.7	57.2	19.4	1.7	16.8	2.8	2.2
Selfemployment	8.8	3.4	74.8	4.2	0.6	8.2	5.9	0.2	86.1	4.2	0.0	3.5
Unemployment	21.6	10.1	4.8	47.0	1.7	14.8	16.5	3.6	1.5	67.3	1.9	9.2
Education	12.1	3.2	0.9	2.1	79.7	2.0	7.6	0.3	0.3	6.0	84.7	1.1
Inactivity	7.1	2.2	1.9	2.1	0.7	85.9	3.3	0.0	1.2	4.4	0.2	90.8
Total	55.4	4.4	6.9	6.0	10.1	17.2	55.0	1.0	6.9	10.7	10.5	15.8
LU												
Perm Employment	93.7	1.6	0.4	1.4	0.1	2.8	93.0	1.2	0.3	2.1	0.1	3.3
Temp employment	42.7	41.8	0.4	10.6	2.3	2.2	33.2	48.9	1.0	13.9	1.4	1.8
Selfemployment	5.5	0.6	88.2	1.1	0.0	4.7	5.6	0.2	89.8	0.2	0.6	3.6
Unemployment	24.2	20.3	1.2	42.9	1.1	10.3	17.3	17.9	0.5	49.8	0.3	14.2
Education	3.9	6.6	0.3	1.9	86.3	1.1	3.5	6.0	0.0	4.1	83.7	2.7
Inactivity	1.7	1.3	0.8	0.6	0.4	95.2	2.8	1.7	0.7	1.2	0.4	93.2
Total	54.8	4.6	4.1	3.0	9.6	23.9	54.7	4.6	4.5	4.4	8.2	23.6

Table A.2, continued

ORIGIN	Perm Employment	Temp Employment	Self-employment	Un-employment	Education	Inactivity	Perm Employment	Temp Employment	Self-employment	Un-employment	Education	Inactivity
	Pre-crisis						During the crisis					
LV												
Perm Employment	88.0	2.1	2.3	3.8	0.3	3.6	80.3	1.5	2.2	10.3	0.4	5.2
Temp employment	54.4	24.0	3.0	9.4	4.3	4.9	40.3	17.0	5.1	22.4	4.2	11.1
Selfemployment	24.3	3.2	61.0	3.8	0.2	7.5	19.8	1.1	59.8	11.0	0.1	8.1
Unemployment	32.2	11.3	4.5	32.8	1.4	17.8	19.2	5.8	2.6	54.8	3.9	13.7
Education	16.2	4.4	0.4	5.0	71.4	2.6	9.1	2.5	0.8	10.2	71.3	6.2
Inactivity	11.5	1.4	2.4	5.0	1.0	78.6	11.8	1.9	2.1	9.5	2.2	72.4
Total	59.6	4.0	5.6	6.4	7.5	16.7	51.9	2.4	5.5	15.4	8.0	16.8
NL												
Perm Employment	92.8	2.6	0.8	0.7	0.5	2.6	92.1	3.0	0.8	1.1	0.4	2.6
Temp employment	25.0	63.9	2.4	1.9	3.8	3.1	22.8	65.3	1.3	3.0	2.4	5.1
Selfemployment	1.1	0.9	94.3	0.3	0.3	3.1	1.0	0.8	94.4	0.2	0.9	2.7
Unemployment	9.7	18.2	2.8	30.7	5.5	33.0	12.1	16.7	9.4	23.9	5.5	32.4
Education	7.0	5.6	1.6	1.6	79.0	5.2	4.0	4.1	1.4	3.4	84.0	3.2
Inactivity	4.0	2.0	1.8	1.9	0.9	89.5	1.5	1.2	1.7	2.1	1.1	92.3
Total	39.9	6.7	11.3	1.9	10.9	29.2	39.1	6.7	13.0	2.1	12.0	27.1
NO												
Perm Employment	90.8	2.7	1.2	1.1	1.5	2.8	89.7	2.2	1.7	1.2	2.3	3.0
Temp employment	44.8	36.3	2.8	4.6	6.6	4.9	46.7	34.8	0.4	5.3	7.8	5.0
Selfemployment	9.9	1.3	84.1	1.3	0.7	2.6	11.1	1.7	79.9	2.3	0.4	4.6
Unemployment	24.2	13.9	2.3	29.5	10.4	19.7	18.2	11.2	6.0	32.9	16.4	15.3
Education	9.2	8.5	1.1	2.3	74.6	4.4	7.4	5.1	0.6	3.3	81.1	2.5
Inactivity	5.3	2.1	1.3	2.9	2.8	85.7	4.4	1.7	1.8	2.5	5.4	84.1
Total	52.3	5.5	7.9	2.6	12.4	19.3	54.2	4.0	7.6	2.8	13.9	17.5
PL												
Perm Employment	88.9	4.8	1.1	1.7	0.1	3.5	88.5	5.0	1.1	2.5	0.1	2.8
Temp employment	28.5	55.7	1.8	8.6	1.0	4.4	25.8	57.9	2.1	8.9	0.7	4.6
Selfemployment	2.3	2.7	88.1	2.0	0.3	4.7	2.1	1.8	91.3	1.2	0.1	3.5
Unemployment	6.0	21.6	3.8	51.8	1.7	15.1	6.1	20.0	5.2	47.7	0.4	20.7
Education	2.4	10.0	1.1	5.6	78.0	2.9	2.2	8.1	1.7	5.4	79.9	2.7
Inactivity	1.6	3.0	1.9	3.7	0.6	89.2	2.0	3.3	2.3	2.6	0.4	89.3
Total	32.1	12.4	11.2	9.0	9.3	26.0	35.2	11.7	13.2	6.0	8.3	25.5

Table A.2, continued

ORIGIN	Perm Employment	Temp Employment	Self-employment	Un-employment	Education	Inactivity	Perm Employment	Temp Employment	Self-employment	Un-employment	Education	Inactivity
	Pre-crisis						During the crisis					
PT												
Perm Employment	90.7	2.9	0.9	2.8	0.1	2.6	88.9	3.8	1.4	4.0	0.2	1.7
Temp employment	18.6	65.3	2.0	11.3	0.7	2.2	27.1	55.0	2.9	11.9	1.8	1.3
Selfemployment	4.1	3.4	86.8	1.3	0.2	4.3	6.8	4.0	75.8	3.1	0.4	9.9
Unemployment	5.5	20.6	5.9	56.1	0.8	11.0	6.5	23.0	5.0	53.3	2.1	10.0
Education	2.8	9.4	0.9	4.6	79.3	3.1	0.7	5.5	0.2	8.3	80.0	5.3
Inactivity	1.4	2.1	2.3	2.9	0.4	91.0	1.0	2.2	2.8	2.7	2.1	89.1
Total	41.8	11.1	13.0	7.9	8.0	18.2	44.4	10.3	10.1	8.8	8.0	18.4
SE												
Perm Employment	89.7	3.1	1.3	1.7	1.1	3.1	90.8	2.9	1.0	1.7	1.2	2.4
Temp employment	55.1	24.8	2.1	6.3	7.2	4.6	41.8	37.0	1.3	9.8	6.1	4.0
Selfemployment	5.6	1.1	87.5	1.3	0.5	3.9	5.4	1.0	87.5	1.8	0.6	3.8
Unemployment	16.7	11.9	4.5	39.2	10.1	17.6	9.8	15.1	2.7	47.8	14.0	10.5
Education	8.7	6.1	0.8	8.7	71.8	3.9	6.3	7.2	0.9	11.5	71.7	2.5
Inactivity	4.2	2.0	1.8	3.4	2.7	85.9	2.8	1.7	1.5	3.1	2.6	88.3
Total	50.0	4.7	10.2	5.2	13.6	16.4	51.0	5.8	9.6	6.2	13.1	14.3
SI												
Perm Employment	90.6	3.8	2.2	1.5	0.1	1.9	88.5	3.7	2.4	3.2	0.0	2.2
Temp employment	40.0	45.0	1.9	11.1	1.2	0.8	36.9	45.0	2.0	13.7	1.7	0.8
Selfemployment	10.2	2.0	76.8	4.7	0.3	5.9	8.5	1.4	77.2	6.3	0.9	5.7
Unemployment	3.2	6.4	2.8	67.0	4.6	16.0	2.9	6.0	4.1	67.0	3.5	16.4
Education	0.9	1.8	0.5	6.3	89.9	0.5	0.8	1.9	0.9	5.3	90.4	0.7
Inactivity	0.3	0.3	0.9	4.9	0.5	93.0	0.2	0.2	1.1	5.0	0.3	93.2
Total	29.4	4.3	6.1	11.8	19.9	28.4	29.7	4.1	7.5	11.1	20.1	27.5
SK												
Perm Employment	87.9	6.1	1.4	1.8	0.4	2.5	89.5	3.5	1.1	2.9	0.1	3.0
Temp employment	56.1	31.7	1.7	4.7	0.9	4.8	42.4	40.4	2.2	9.1	0.6	5.2
Selfemployment	9.1	2.3	84.4	1.5	0.0	2.7	6.4	1.0	88.5	2.2	0.3	1.6
Unemployment	23.9	7.7	2.7	52.7	1.4	11.7	12.6	11.3	3.0	62.7	2.5	7.9
Education	7.9	2.8	0.5	4.7	83.1	1.1	4.5	3.5	0.5	5.5	85.3	0.8
Inactivity	4.6	1.2	0.5	2.5	0.4	90.6	2.7	1.4	0.2	1.9	0.1	93.8
Total	50.8	6.4	6.1	6.4	11.9	18.4	50.5	5.8	6.7	7.1	12.4	17.5

Source: EU-SILC, own calculations.

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