



Recent patterns of labour mobility in the European Union: what is the role of migrants?

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Abstract: This paper presents a comprehensive account of labour mobility across the EU economies. We differentiate between the EU-15 and the NMS-8 and further between sub-regions (OMS-North, OMS-South, NMS-Central, Baldivics). The main indicators examined are the gross mobility and net employment creation rates (GERR and NECR respectively) taken over from Davis and Haltiwanger (1992, 1999) and the study has a descriptive and an econometric analytical part. We analyse differences in mobility patterns in OMS and NMS as regards age groups, skill groups, gender, length of job tenure, the impact of labour market institutions etc. and more specifically differences in mobility patterns of natives and migrants. Hence the focus is the potential of migrants to ‘grease the wheels’ (Borjas, 2001) of labour markets by either themselves showing higher mobility rates or impacting on the mobility patterns of natives or existing migrants themselves. This impact is analysed in great detail with respect to the differentiated impact of migrants of different skill groups or from different countries of origin on patterns of labour market mobility. Apart from overall labour market mobility we also examine inter-regional and inter-sectoral mobility.

Keywords: labour mobility, European Union, worker flow analysis, employment reallocation, international migration, regional migration, labour turnover.

JEL Code: F22, J61, J62, J63, R23.

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Executive Summary

The paper attempts to present a comprehensive picture of labour mobility across the European Union with a *focus on distinct mobility patterns by native and migrant workers*.

Mobility is analysed by means of two well-known indicators developed and proposed by Davis and Haltiwanger (1992, 1999): the *gross employment reallocation rate (GERR)* and the *net employment creation rate (NECR)*. The database on which this study relies is the *Eurostat Labour Force Survey (LFS)* which is a large household sample survey providing detailed information concerning labour status (employment, unemployment, inactivity), age, level of education, country of birth/nationality, employment by sector and residence by region, occupation, period of employment with the same employer, gender, etc. Although more information is available, these are the variables used in our analysis. Apart from LFS information, country-specific information is used such as GDP growth to capture cyclical effects, union density and the OECD's employment protection index.

The following are the main results obtained by our analysis (the time period 2000-2011 was analysed; in our **descriptive analysis** mobility patterns over the pre-crisis period 2000-2008 were compared with the post-crisis period 2009-2011):

- We distinguished between the two periods and also amongst a number of country groupings: EU-15 and NMS and then further sub-dividing these into EU(15)-Advanced and EU(15)-South; further, the NMS-5 and the NMS-Baltics⁴ ; we did not include Romania and Bulgaria in the analysis for paucity of data. We found *significant differences between migrants and natives* regarding gross labour turnover (GERR) in both periods for the EU-15 with migrants showing higher values of GERR than natives; this was also true for the sub-groups EU(15)-South and EU(15)-Advanced but amongst the NMS only for the Baltics. In terms of net employment gains/losses (NECR) migrants were much more hit by the recessions in the EU-South and the Baltics in the 2009-2011 period.
- As regards age cohorts we find generally the pattern that GERR and NECR is high for the youngest age cohort (the 15-24 years old) and the oldest age cohort in the labour force (the 55-64 years old). However, NECR confirms that the movements are quite different for the two groups: into employment for the youngest age cohort and out of employment for the oldest age group. As regards the other age group, gross labour mobility declines with age (i.e. the 25-34 age group show greater mobility than the 35-44 and these again show higher labour mobility than the 45-54 years old; and this is true both in the pre-crisis boom period in terms of positive employment experience as well as during the crisis period in terms of negative employment growth.) The *generally higher mobility* – both in terms of GERR and NECR – *of migrants* amongst these age-cohorts are confirmed.
- What about labour mobility across skill groups (which we capture by educational attainment)? Here we find a clear pattern with the 'low educated' having the highest gross mobility followed by the 'middle educated' – those with completed secondary education – followed by the 'most highly educated' i.e. those with completed tertiary education. This pattern is observed both in the EU-15 and the NMS (and the sub-groups). Closer inspection of the data shows less of a difference between the 'middle' and the 'highly' educated and much stronger difference between both these groups and the 'low educated'. Interestingly,

⁴ See Annex for precise country grouping.

evidence suggests quite high net employment growth (NECR) for the low educated both in the EU-15 and in the NMS. As regards the **differences between migrants and natives**, we find the higher labour mobility of migrants amongst the ‘middle’ and ‘highly’ educated and not amongst the ‘low’ educated. There are also marked differences between the sub-groups of countries, e.g. in the EU-South and the Baltics the relative employment growth and contraction in the pre-crisis and crisis-periods was much higher for migrants than for natives, most likely to do with the construction boom and bust.

- As regards inter-sector mobility (which was measured by GERR at the NACE 1-digit level; a more detailed sectoral classification could not be used for a sufficient number of countries) we do find significantly higher inter-sectoral job mobility for migrants than for natives in the EU-15 but not amongst the NMS. This **higher inter-sectoral job mobility for migrants in the EU-15 shows up for all skill groups**. When we break this down by individual sectors, we find particularly high employment absorption of migrants in sectors such as hotels, finance, private households and public utilities such as electricity, gas, water.
- Finally, we come to inter-regional mobility (the analysis aggregated NUTS 2-digit information into six regional groupings distinguished by their sectoral employment specialisation relative to the national average: agricultural regions, business services regions which include also the capital cities, low technology manufacturing and medium-/high-technology manufacturing, tourism regions and others; in the last grouping no distinct specialisation pattern was found). We found **significantly higher inter-regional mobility for migrants compared to natives in the agricultural, the manufacturing, tourism and other regions in the EU-15; and in the NMS it includes all the different types of regions** i.e. also the business services regions. This pattern also emerges by and large when we distinguish periods in which job destruction or job creation took place i.e. the **greater sensitivity of migrants compared to natives to job-destruction and job-creation** in these region types.

We now move to report some main results from our **econometric analysis** focussing again on behavioural differences migrants/natives and impacts of migrants on mobility patterns:

- First we find a **stronger elasticity of migrants reacting to business cycle fluctuations** both in terms of gross mobility and net mobility than do natives. Second, it was important to test **whether the presence of a high share of migrants ‘leads to’⁵ higher job mobility amongst natives (and also among migrants;** in this case we used a procedure to circumvent endogeneity issues). The rather general result we find is that when we introduce the share of migrants variable as an explanatory variable for GERR in a sparse model the variable is significant and indicates a positive impact of a higher share of migrants on natives’ gross mobility. However, as we introduce more control variables (age, gender, educational attainment, job duration, etc.) the variable does not remain significant. This is not always the case (e.g. we do find at times significant impacts for specific skill groups and also the ‘impact’

⁵ We have to be rather careful with implying causality in most of our analysis as e.g. a higher share of migrants in countries or during periods in which job mobility is high amongst natives might simply be due to migrants being more present in countries (or during periods) in which job mobility is relatively high. We shall from time-to-time – though not always - point to the necessary caution with regard to causality implications.

on migrants⁶ is at times significant as well) and we shall discuss the cases with significant effects in detail below.

- Thus in general we find only weak and ***non-robust effects of a higher share of migrants being associated with more mobility of natives in and out of employment.***
- The above analysis was however refined in various ways by looking at:
 - whether ‘the impact’ of a high share of migrants on labour mobility is higher or lower (or insignificant) in ***‘boom’ or ‘slump’ periods*** (i.e. periods of above or below trend employment growth).
 - the impact of the presence of ***different ‘skill groups’*** of migrants and whether they have different effects on natives and migrants belonging to these skill groups; furthermore
 - whether ***migrants from different regions of origin*** have different impacts (i.e. those from other European economies, from advanced economies, or from developing economies).
- As regards the differential impact of a higher share of migrants in ‘boom’ and ‘slump’ periods we found a significant ***positive impact of a high share of migrants in the EU-15 on GERR in slump periods on migrants themselves but not on natives***, while in NMS a higher share of migrants was related to higher gross mobility of natives both in ‘boom’ and in ‘slump’ periods.
- We found interesting ***gender differences*** with regard to labour mobility between EU-15 and NMS and also between natives and migrants: ***in the EU-15***, native males are more mobile between employment and inactivity than native females while ***foreign males are less mobile than foreign females. In the NMS on the other hand***, the reverse is observable: while native males are less mobile than native females, ***foreign male migrant workers tend to be more mobile than female migrant workers.***
- There is also weak evidence that the ***length of residence of migrant workers*** in a country matter for their mobility in and out of employment. In particular, for the EU as a whole, a higher share of migrant workers with more than five years of residence in their host country leads to lower labour market mobility than when the migrant workforce is more recent.
- As regards ***labour market institutions/regulations***, we found that among OECD countries included in the country sample, ***employment protection*** (against individual dismissals) ***is associated significantly with lower labour mobility***, of both native and migrant workers. However, observable effects are generally higher for migrant workers. If we come to ***net employment creation***, results highlight that strong labour market institutions intended to protect workers ***tend to reduce net employment creation of both native and migrant workers.*** However, the effect tends to differ between EU-15 and NMS. For instance, in the EU as a whole and the EU-15, both native and migrant workers experience significantly lower net employment creation if the degree of unionisation is high. On the contrary, for the NMS, net employment creation is unrelated to the degree of unionisation, for both native and migrant workers. Equally, ***among OECD countries*** included in the country sample (this is the sample of countries for which this variable is available), ***employment protection only matters***

⁶ Caution on causality here as well; see previous footnote.

for native workers whose net employment creation is significantly lower in the face of strong employment protection mechanisms.

- Let us now discuss the results with respect to different skill-groups: Our analysis shows that ***net employment creation patterns are skill-specific*** and differ strongly between native and migrant workers. Particularly, for both the EU as a whole and the EU-15, relative to low-skilled native workers, net employment creation is significantly higher among high-skilled native workers. In contrast, ***migrant workers show no skill-related differences in net employment creation***. Hence while ***natives' net job creation reflects the skill-bias in additional employment, migrants' net employment does not***.
- Returning to the relationship between a higher share of migrants and whether this has an impact on labour mobility of natives and migrants, we tested whether this relationship is skill-specific i.e. whether the mobility patterns of a ***particular skill-group is affected by the stronger presence of the respective skill-group of migrants***. We obtained a number of interesting results:
 - The presence of a ***high share of high-skilled migrants is significantly positively related to high gross mobility (GERR) and high net employment creation of high-skilled natives in the EU as a whole and the EU-15***. Hence we do find here a 'greasing of the wheels' effect and also no substitution but rather a complementarity effect between high-skilled migrants and high-skilled natives.
 - We also find a ***significant positive effect of a strong presence of low-skilled migrants on gross mobility (GERR) of both native and migrant workers in the EU as a whole and the EU-15***. Hence again a 'greasing of the wheels' effect is present here. Furthermore the 'migrant-on-migrant' effect is stronger than the 'migrant-on-native' effect which indicates that the impact on labour mobility which results from a high presence of low-skill migrants is stronger on migrants than on natives of this skill-category.
 - ***As regards net employment creation (NECR) no significant negative effect could be detected as a result of a relatively high presence of low-skilled migrants for either natives or migrants***.
 - The only significant negative effect could be detected with respect to the presence of a high share of medium-skilled migrants in ***NMS economies*** on native employees. We would relate this to the ***general process of de-industrialisation*** in these economies as ***medium-skilled workers*** represent a relatively high share of the workers in manufacturing.
- We approached the issue of the 'impact' of migrants on labour market mobility also from another angle: we tested whether the presence of ***migrants from different types of source countries*** affects mobility patterns of natives and migrants differently. We distinguished 3 groups of migrants differentiated by source region: ***migrants from Europe, migrants from other developed economies, and migrants from non-European developing countries***. We obtained the following striking results:
 - While ***migrants from other developed countries have a very strong positive impact on gross mobility rates of natives in the EU-15 and the EU as a whole*** (for the NMS alone this effect is not significant), ***migrants from developing countries have a negative impact on gross mobility of natives in the EU*** (this time the impact is significant both in

the EU-15 and the NMS). We interpret this in the following way: Migrants from other developed economies are more similar in their characteristics to domestic labour forces, hence they have higher substitution elasticities with natives (see also Ottaviano and Peri, 2006) and provide a stronger incentive for natives to respond to labour market shocks through stronger mobility. Migrants from developing countries, on the other hand, exert less pressure on mobility of domestic labour forces to increase their mobility to shocks; on the contrary, they might provide a buffer against shocks and reduce mobility amongst domestic work forces. There were no significant results for the net employment creation variable.

- As regards **'migrant-on-migrant' effects** we observe a **consistent positive impact of high shares of migrants from developing countries on gross mobility (GERR) of migrants – i.e. the opposite of what we observe for natives - in EU-15 economies (and also in EU as a whole)**; while **for NMS there is a negative impact of a high share of migrants from European economies on gross mobility of migrants**. Again we would explain these patterns by a high degree of **substitutability of migrants from developing countries with migrants in EU-15 economies** (as opposed to natives) **as regards their relative exposure and reaction to shocks**, while this would be less the case for migrants from other European economies in the NMS. Migrants from other European countries would reduce the pressure of mobility in the NMS for migrants in general over there. We were able to support this interpretation (with regard to complementarity and substitutability) with information regarding the skill composition of migrants from these different source countries in the EU-15 and the NMS.
- In a similar vein we can interpret the results with respect to net employment creation (NECR) in relation to migrants: we observe a **positive impact of a high share of migrants from developed economies (and from other EU countries) on net job growth in the EU as a whole and a negative impact of migrants from developing countries**. This indicates evidence for a substitution effect of a high share of migrants from developing countries on net job creation for migrants in the EU-15 and complementarity with respect to migrants from developed (and other EU) economies.
- Apart from the analysis of macroeconomic patterns we also analysed two other issues: (i) inter-sectoral mobility and (ii) inter-regional mobility. Let us discuss first the **results on inter-sectoral mobility**: Inter-sectoral mobility was analysed by calculating gross mobility flows of employment by sectors (i.e. sum of job destruction plus job creation across the various NACE 1-digit sectors). The following was found:
 - The share of migrants in the host country plays a non-negligible role for the mobility of native workers between sectors. More specifically, we find consistent evidence that a **high share of migrant workers in the host country helps to spur mobility of native workers across sectors. In contrast, we find no significant effect of the presence of migrants on the mobility of migrant workers between sectors**.
 - We also find weak evidence for the EU as a whole that **migrant workers with a job duration with the same employer of between 6 and 10 years are less mobile across sectors** than those with less than 6 years only. Furthermore, in the NMS, the number years with the same employer matters for cross-sectoral mobility of both native and migrant workers such that workers with longer years of employment with the same

employer tend to be less mobile across sectors. Finally, we also find weak evidence for the role of labour market institutions for cross-sectoral **mobility of workers as the mobility of migrant workers is significantly lower if the degree of unionisation is high**, irrespective of country-sample considered.

Regarding **inter-regional mobility** (the analysis was undertaken on the basis of 'region types' based on NUTS 2-digit data) we also found that **a high share of migrants spurs mobility of native workers across regions** (and this was true both for the EU-15 and the NMS). On the other hand, **the migrant-on-migrant' impact in the EU-15 was negative**: hence migrants' inter-regional mobility (which is higher than that of natives) itself is lower when there is a high stock of migrants.

- As regards inter-regional mobility by skill types, our results consistently show that **high-skilled native workers in either the EU, the EU-15 or the NMS are less mobile across regions than their low-skilled counterparts**. On the contrary, we find **no significant differences in cross-regional mobility of migrant workers with different levels of skills**. Native vs. migrant behavioural differences were also found with respect to the length of employment: In the EU as a whole, native workers with between 6 to 10 years of employment with the same employer are less mobile between regions than those with less than 6 years with the same employer. No such differences emerge for migrant workers. **For the EU-15 alone, both native and migrant workers with between 6 and 10 years of employment with the same employer are less mobile between regions**. We also failed to find any evidence that mobility patterns of migrants differ by their years of residence in the host country, irrespective of country-sample considered.
- Finally, our results again highlight that labour market institutions matter for cross-regional mobility of workers, to a limited degree though. For the EU as a whole, the role of union density for cross-regional mobility differs by type of worker: while native workers show higher cross-regional mobility if union density is high, migrant workers, on the contrary, show lower cross-regional mobility if union density is high. **For the EU-15 alone, we find that cross-regional mobility is higher among native workers if union density is high⁷ but no relationship between cross-regional mobility and union density for migrant workers** was found. For the NMS, we find no significant relationship between cross-sectoral mobility and union density.

⁷ One explanation for the evidence of higher cross-regional mobility of natives in the presence of high union membership could be that it would result in stronger assistance programs (such as retraining, relocation assistance, etc.); migrants might benefit less from such assistance programs.

1. Introduction

Labour mobility is an important topic in the European Union. The reasons for this are manifold. There is the well-rehearsed argument that compared to the United States, the European Union shows much lower mobility and this is seen as an important problem especially when happening in a currency Union; see the role of labour mobility in the literature on the Optimum Currency Area (see Mundell, 1961; McKinnon, 1963; Kenen, 1994; Eichengreen, 1991, Decressin and Fatás, 1995, etc.) The role of labour mobility as a vital mechanism of adjustment to asymmetric shocks in a currency union has been strongly emphasised in this literature and also been analysed empirically.

From an historical perspective, the mobility of workers within Europe has intensified significantly during the last two decades. First, because of the impact of the gradual implementation of the Single Market's four freedoms (together with some movement towards harmonisation of regulations, degree recognition, etc.) amongst the older members of the EU; secondly, as a result of the collapse of the Central and Eastern European communist bloc, the disruptions caused by transition including regional conflicts (such as in ex-Yugoslavia); and thirdly, because of the relaxation of restrictions on the movement of people and workers in the course of the EU enlargements in 2004 and 2007. The final transitional restrictions on the free mobility of workers from the new member countries to the EU-15 were lifted on 1 May 2011 for the countries which joined in 2004 and on January 1st 2014 for Bulgarians and Romanians; this might again have impacted on the patterns of workers and jobs mobility within the EU (Holland, 2011). However, the global financial crisis and the subsequent economic recession might have slowed down the flow of migrant workers from NMS-8, NMS-2⁸ and non-EU countries due to the downturn in general labour demand.

The mobility of workers and jobs may contribute to a better matching of supply and demand on the labour market, and it can also serve the purpose of improving employment status, job position and making workers more competitive by adapting skills and competences to job market changes and technological progress. Theoretical and empirical studies have shown that the mobility of people and consequently mobility of workers can contribute to raise the flexibility to respond to sudden economic shocks that may hit an economy (see e.g. Pissarides, 2000 and Petrongolo and Pissarides, 2001). Neoclassical growth models and labour mobility studies see *migration* as the way in which a region adjusts to economic shocks (see e.g. Pissarides and Wadsworth, 1989; Brezzi and Piacentini, 2010; Blanchard and Katz, 1992; Partridge and Rickman, 2003, 2006; Mitze et al., 2012). The flow of labour migrants from low to high income per capita regions can contribute to the convergence of income levels across regions. Furthermore, considering that new labour mobility patterns in the EU are related to the growing demand for flexible labour, flexible working contracts (e.g. temporary rather than permanent jobs) and increasing numbers of job to job transitions, the role that temporary and circular migration might play in this new dynamics is crucial (Eurofound, 2011a). Thus, the mobility of migrant workers within EU countries and between EU and non-EU countries helps to counteract imbalances in labour supply and demand, **thereby 'greasing the wheels' of labour markets** (see Borjas, 2001). Moreover, migrants are also found to perform an important function in that they contribute to productivity growth also in industries which have lower productivity (see Hierländer et al., 2010).

⁸ NMS-8 refers to the first group of Central and Eastern European members which joined the EU in May 2004 and comprises Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia and NMS-2 refers to Bulgaria and Romania who joined in 2007.

In this study we attempt to give a comprehensive picture of mobility patterns in the European Union including migration flows from outside the European Union. The study will rely on a specific feature of EU Labour Force Surveys (LFS) which provide information about people's employment status, place of residence, employment in a particular industry, occupation, etc. We have used this information to construct indicators of gross employment reallocation (GERR) and net employment creation (NECR) which have been introduced into the literature by Davis and Haltiwanger (1992; 1999).

Labour mobility in this study will include a number of different dimensions: changes in labour status (employed, unemployed or inactive), change of place of residence across EU regions i.e. mobility in and out of regions and change of sector employment i.e. inter-sector mobility.

A crucial question which we shall ask will be the role of migrants influencing these measures of labour market mobility either through their own mobility patterns or through their presence in the labour markets of particular countries (or regions) on people in these countries (or regions), be they 'natives' (people born in those countries) or themselves 'migrants' (foreign-born). Furthermore, we want to also check whether migrants with different educational attainment levels show different mobility patterns and might have different impacts in different skill segments of the labour market and, similarly, whether the presence of migrants from different types of source countries (particularly migrants from higher- or lower-income countries) might have different impacts. We shall also check whether the impact of migrants' mobility differs in periods of 'upswings' or 'downswings'.

Methodologically, we shall structure the presentation in this paper in two parts: first, a detailed descriptive analysis is pursued in Part 1 to draw a comprehensive picture of prevailing worker mobility dynamics of both native and migrant workers in the EU between 2000 and 2011. We shall distinguish the EU-15 as an important region of destination for migrant workers and the New Member States (NMS) as an important region of origin of migrant workers. We shall further subdivide the EU-15 into an EU-South (Greece, Italy, Portugal, Spain) which were particularly strongly hit by the recent economic crisis and the EU-Advanced (rest of the EU-15). Amongst the NMS we shall distinguish the Central European economies (Czech Republic, Hungary, Poland, Slovakia, Slovenia) and the Baltic states (Estonia, Latvia, Lithuania). The analysis covers the period 2000-2011 but, in the descriptive part of the analysis, we shall distinguish the pre-crisis period (2000-2008) and the post-crisis period (2009-2011) in order to account for differences in mobility patterns in the two periods. In the econometric analysis a more sophisticated approach will be taken with regard to distinguishing cyclical patterns of labour mobility and possibly accounting for asymmetric effects in 'boom' and 'slump' phases of economic fluctuations. The econometric analysis discussed in Part 2 of this paper furthermore attempts to identify key determinants of observable mobility rates and of the role of migrants in such mobility patterns.

The rest of the paper is organised as follows: section 2 provides a brief overview of the related literature which generally finds that the mobility of migrants helps grease the wheels of labour markets and helps shield native labour from negative effects of economic downturns. Section 3 discusses the data used and the methodological approach employed in the analysis while section 4 provides a detailed descriptive analysis of labour mobility patterns across different dimensions. Econometric results of the determinants of mobility across different dimensions, in general, and of the particular impact of migrants' flows, in particular, are presented and discussed in section 5. Finally, section 6 summarises and concludes.

2. Related literature

Increasing migration flows observable in many developed countries have intensified the interest in analysing economic consequences of immigration in host countries. However, while the majority of studies analysed impacts on wages and employment opportunities of natives only a small body of literature focused on immigrants' contribution to economic efficiency in the operation of labour markets.

In his seminal paper, Borjas (2001) shows that immigration greases the wheels of the labour market such that the mobility of immigrants helps to reduce prevailing interstate wage differentials, thereby improving labour market efficiency. He uses data drawn from the 1950 to 1990 U.S. censuses to shed light on the relationship between interstate wage differences for a particular skill group⁹ on the one hand and the location decisions of immigrant and native workers on the other. He demonstrates that immigrants to the US are very sensitive to interstate wage differentials and are more likely to locate in states with higher wage differentials than natives. Moreover, his findings point at differences across immigrant groups: relative to earlier immigrants, new immigrants are more responsive to wage differences. In particular, the associated relative supply elasticity indicates that a one percent increase in the relative wage in a particular state is associated with an increase in the relative number of new immigrants by 1.3 percent.

In a similar vein, evidence of the 'greasing of the wheels' effect of migration is found by Amuedo-Dorantes and de la Rica (2005), Schündeln (2007), Åslund (2005) or Roed and Schone (2012). For instance, Amuedo-Dorantes and de la Rica (2005) test whether immigration contributes to the reduction in unemployment rate disparities across Spanish regions. They use data from the Spanish Labor Force Survey (Encuesta de Población Activa) between 1999 and 2004 and demonstrate that relative to their native counterparts, immigrants are generally more responsive to employment opportunities, in terms of either indefinite, self-employment or informal employment opportunities. In addition, they emphasise that the relative responsiveness of immigrants differs by country of origin. While European immigrants are only slightly more responsive to higher employment probabilities in informal and in formal/indefinite employment, African and Latin-American immigrants demonstrate stronger responsiveness to regional employment opportunities in informal, self-employment as well as in formal/indefinite work. However, in contrast to Borjas (2001), they fail to find any evidence of a significantly higher responsiveness of more recent immigrants relative to less recent ones. Furthermore, their analysis highlights that immigration indeed helped lessen prevailing unemployment rate disparities across Spanish regions.

Relatedly, Schündeln (2007) sheds light on internal interstate migration patterns in Germany. He uses the German microcensus (Mikrozensus) for the years 1996 to 2003 and shows that migrants in Germany are generally more mobile than natives and more responsive to labour market differentials. In particular, relative to natives, migrants are between 6 to 9 percentage points more likely to change their place of residence. Moreover, migrants are found to possess a significantly higher responsiveness to labour market differentials - captured in terms of either interstate per capita income differentials or interstate differences in unemployment rates - than their native counterparts. Differentiated by age-groups, the study shows that younger migrants are generally more responsive

⁹ He differentiates between five education groups (defined in terms of education attainment): (i) less than nine years of schooling, (ii) nine to eleven years of schooling, (iii) twelve years of schooling (high school graduates), (iv) thirteen to fifteen years of schooling, and (v) at least sixteen years of schooling (college graduates).

to labour market differentials than older migrants. Furthermore, he calculates the costs of within and between-state migration and highlights that migration is less costly for migrants than for natives. In particular, the cross-state moving costs of migrants are only 37 percent of the moving costs of natives and, with only 30 percent, even lower for the group of recent migrants.

Åslund (2005) addresses internal interregional migration and analyses how the initial and secondary location decisions of migrants in Sweden are affected by regional labour market and economic opportunities. He uses the longitudinal database LINDA supplemented by data on regional characteristics and stresses that the propensity to migrate is strongly dependent on the region of origin of migrants. For instance, relative to Eastern European migrants, African migrants have a 30 percent higher migration probability while Middle Eastern migrants have an almost 50 percent higher migration probability. In contrast, Asian and South American migrants are between 30 and 40 percent less likely to migrate than their Eastern European counterparts. The study also provides conclusive evidence that initial movers as well as secondary movers are strongly responsive to differences in regional labour market opportunities: both groups of migrants are strongly responsive to regional labour market differentials and are found to be more likely to leave municipalities characterized by higher unemployment and to move to municipalities characterized by lower unemployment or higher earnings.

Finally, Roed and Schone (2012) analyse the responsiveness of both refugees and labour migrants who arrived in Norway between 1995 and 2004 to regional labour market and economic opportunities. They study three different stages in the regional mobility decision of refugees and labour migrants, comprising (i) the initial settlement decision of newly arrived immigrants, (ii) their subsequent interregional secondary mobility decision and (iii) their final exit decision from regional labour markets to third countries. Their findings highlight that since the geographical mobility of immigrants is particularly sensitive to regional employment opportunities, immigrants do grease the wheels of the labour market. Particularly, the initial settlement decision of migrants is sensitive to regional differences in unemployment rates but independent of regional income differences. This pattern is particularly true for labour migrants aged 30 and above. As for the secondary mobility decision, while labour migrants are strongly responsive to interregional differences in unemployment only, refugees are responsive to both interregional differences in unemployment and wages. Furthermore, the responsiveness of refugees to interregional differences in unemployment is considerably higher than the responsiveness of labour migrants. Finally, they show that the out-migration decision of both refugees and labour migrants is sensitive to the unemployment rate: an increase in the unemployment rate in the region of residence significantly increases the probability of outmigration to third countries.

Furthermore, a few studies also examine migrants' mobility responses to regional differences in the course of economic crises to shed light whether the mobility of migrants helps shielding native labour from negative effects of economic downturns or recessions. In this respect, Tani (2003) finds that migrants indeed absorb some of the effects of a negative labour demand shock, thereby dampening the effect on natives. In particular, he uses an unbalanced panel of 161 European NUTS-2 regions of 12 EU-member states for the period 1988 to 1997 and demonstrates that the variability of employment growth of natives is significantly lower the higher the proportion of migrants in the local labour force. More specifically, the results highlight that migrants reduce the variability of native labour in a region by approximately 16 percent when they constitute 5 percent of that region's labour force. Furthermore, the study also points at differences across country groups. And while the effect is smaller in traditional immigration countries (like e.g. Germany, Denmark, the Benelux or the

UK), it is particularly strong in recent immigration countries (like Greece, Italy, Spain, Portugal or Ireland). In addition, a decomposition analysis¹⁰ helps shed light on the transmission channel through which migrants exert this cushioning effect and shows that interregional mobility is key.

Similarly, Cedena and Kovak (2013) study mobility responses of native born US and foreign born workers to geographically differentiated labour demand shocks during the Great Recession. They use the American Community Survey (ACS) from 2006 to 2010 and show that, generally, the responsiveness differs by level of skills. In particular, high-skilled workers are found to be more responsive to geographically different employment opportunities while this is less so among low-skilled workers. Furthermore, they highlight that the responsiveness also differs between native and foreign born workers, with foreign-born workers showing stronger responsiveness than their native-born counterparts. Moreover, they show that less skilled immigrants from Mexico respond more strongly than high-skilled native-born (male and female) workers.

¹⁰ For the decomposition analysis, overall employment growth is decomposed into (i) a change in their unemployment rate, (ii) a change in the participation rate and (iii) a change in the working population.

3. Methodology and data

Our analysis will proceed in two steps. In a first step, a comprehensive descriptive picture of labour mobility dynamics in the European Union across different dimensions is drawn between 2000 and 2011, for native and foreign workers separately. To capture labour mobility dynamics, the gross employment reallocation rate (GERR) as well as the net employment creation rate (NECR) as developed and proposed by Davis and Haltiwanger (1992, 1999) or Davis et al. (1996, 2006) are used as the two most important and widely accepted indicators of worker mobility.

In a second step, an econometric analysis is pursued to shed light on key determinants of observable labour mobility rates. A particular focus will be the role which migrants play in affecting the mobility patterns overall, on natives and for migrants themselves. Hence we focus on the 'greasing of the wheels' aspect of the impact which a high or low share of migrants has on mobility patterns. We shall differentiate here also between skill groups, age groups, migrants from different source regions (in particular developed and developing) and consider also the impact of labour market institutions, the length of job tenure and the years of residence. Apart from overall job-mobility, we shall also consider mobility across sectors and across regions.

The analysis uses the Eurostat Labour Force Survey (LFS) to calculate labour mobility indicators and worker characteristics. The EU LFS is a large household sample survey which is conducted in the EU and provides quarterly data on labour participation of persons aged 15 and over as well as on persons outside the labour force. For the purpose of the analysis, however, annual averages of quarterly data are used. The EU LFS contains detailed information on demographic backgrounds of interviewees (like sex, year of birth, nationality, years of residence in a country or country of birth), their labour status, residence by region, level of education, job characteristics (like industry, occupation etc.) or their previous work experience. Moreover, it provides information on the situation of the interviewee a year prior to the interview (in terms of e.g. labour status, country and region of residence or industry code of the firm the interviewee worked the year before the survey). The latter information is crucial as it allows calculating worker flows between countries, regions and industries but also between different types of labour status (i.e. from activity into inactivity and vice versa). Furthermore, with the information contained in the EU LFS, other types of worker flows can be identified like labour status related mobility rates differentiated by skill level.

Furthermore, for the econometric analysis, other relevant data sources are used like Eurostat to recover data on annual real GDP growth rates and union density or OECD for data on employment protection.

All in all, a total of 23 EU-member countries is included in the analysis comprising Austria, Belgium, Bulgaria, the Czech Republic, Germany, Denmark, Estonia, Spain, France, Greece, Hungary, Italy, Lithuania, Luxembourg, Latvia, the Netherlands, Poland, Portugal, Romania, Sweden, Slovenia, Slovakia and the UK.

4. Descriptive analysis of labour mobility patterns

4.1. Methodological approach

Methodologically, the two most important indicators of worker mobility as developed and proposed by Davis and Haltiwanger (1992, 1999) or Davis et al. (1996, 2006) are used to measure labour mobility. In particular, the **gross employment reallocation rate (gerr)** is defined as follows:

$$GERR_{i(j)} \equiv \frac{\text{hired employees}_{i(j)} + \text{leaving employees}_{i(j)}}{\frac{1}{2}(L_{i(j),t-1} + L_{i(j),t})}, \quad (1)$$

while the **net employment creation rate (necr)** is defined as follows:

$$NECR_{i(j)} \equiv \frac{\text{hired employees}_{i(j)} - \text{leaving employees}_{i(j)}}{\frac{1}{2}(L_{i(j),t-1} + L_{i(j),t})}. \quad (2)$$

In this respect, (*hired employees + leaving employees*) captures *gross* worker flows while (*hired employees – leaving employees*) captures *net* worker flows and L_{t-1} and L_t refer to the stocks of labour of category i in period $t - 1$ and t , respectively. Moreover, i refers to the mobility dimension which is either employment status, sector, or region while j refers to the type of worker considered, which is either ‘domestic’ for native workers or ‘foreign’ for migrant workers born outside the country of residence.

To draw the most comprehensive picture of labour mobility patterns in the EU, the analysis looks at the following types of labour mobility:

- (a) Employment status change: as movements of workers from activity into inactivity and vice versa;
- (b) Employment status change by skill category: as movements of workers from activity into inactivity (and vice versa) of high-skilled (H), medium-skilled (M) and low-skilled (L) persons;
- (c) Across industries: as movements of persons across industries, according to NACE Rev. 1 (until 2007) and NACE Rev. 2 from 2008 onwards;
- (d) In and out of regions: as movements of persons in and out of the following six regions (based on NUTS-2 regional classification): agriculture, low-tech manufacturing, medium-high-tech manufacturing, business, tourism and other. The capital region is included in the business region;

Moreover, given data availability, the analysis focuses on the period between 2000 and 2011, which is marked – over the later years - by the recent economic and financial crisis. The financial crisis hit the global economy in 2008 and led to a strong disruption of national labour markets which resulted in partly dramatic surges in unemployment - particularly among the younger age cohorts – and potentially stronger movements of workers across jobs, industries or in and out of regions.

Hence, in order to account for the effects of the recent crisis, labour mobility dynamics are analysed separately for the pre-crisis period (2000-2008) and the post-crisis period (2009-2011). However, some countries (like the Baltics or Southern European economies) were more strongly affected by the crisis. Hence, pre- and post-crisis labour mobility dynamics are studied for the EU-15 and the

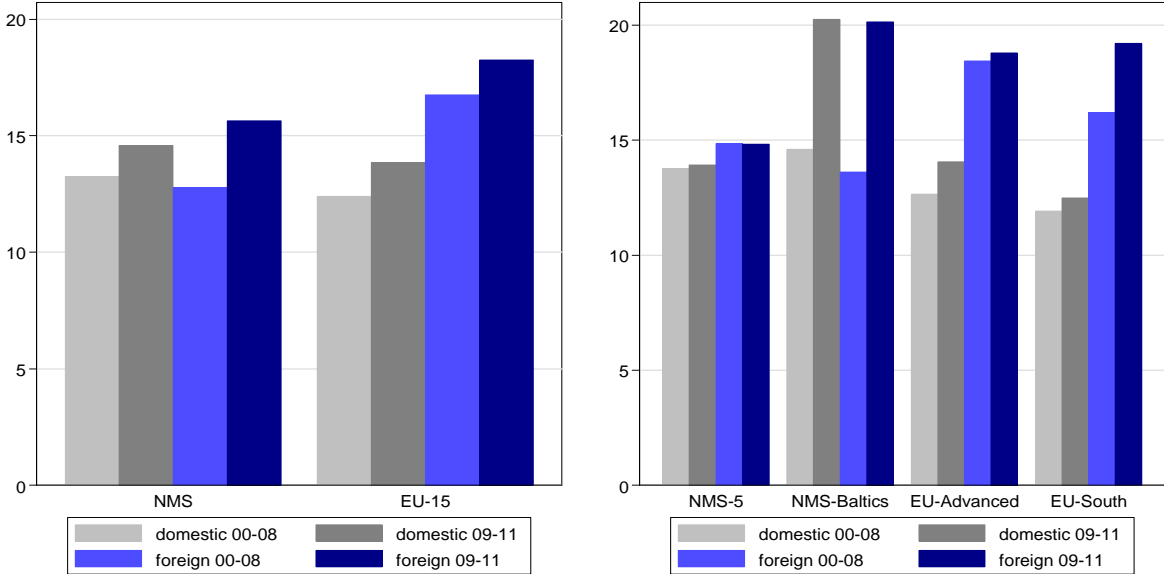
NMS separately but also for four different country sub-groups. In particular, the EU-15 is further sub-divided into the **EU-South** comprising Greece, Italy, Portugal and Spain and the **EU-Advanced** comprising Austria, Belgium, Germany, Denmark, France, Sweden and the UK. Furthermore, the group of NMS is sub-divided into the **Central European economies (NMS-5)** comprising the Czech Republic, Hungary, Poland, Slovakia and Slovenia and the **Baltic states** comprising Estonia, Latvia and Lithuania.

4.2. Findings

In what follows, some description of mobility patterns using the two types of indicators, GERR and NECR defined in (1) and (2) above is provided where we distinguish between migrants and natives and between 2 periods, 2000-2008 and 2009-2011.

Figure 1 points at *significant differences between migrants and natives* regarding gross labour turnover (GERR) in both periods for the EU-15 with migrants showing higher values of GERR than natives; this was also true for the sub-groups EU(15)-South and EU(15)-Advanced but not or much less for the NMS. In terms of net employment gains/losses (NECR) - see Figure 2 - migrants were much more hit by the recession than natives in the EU-South and the Baltics over the 2009-2011 period.

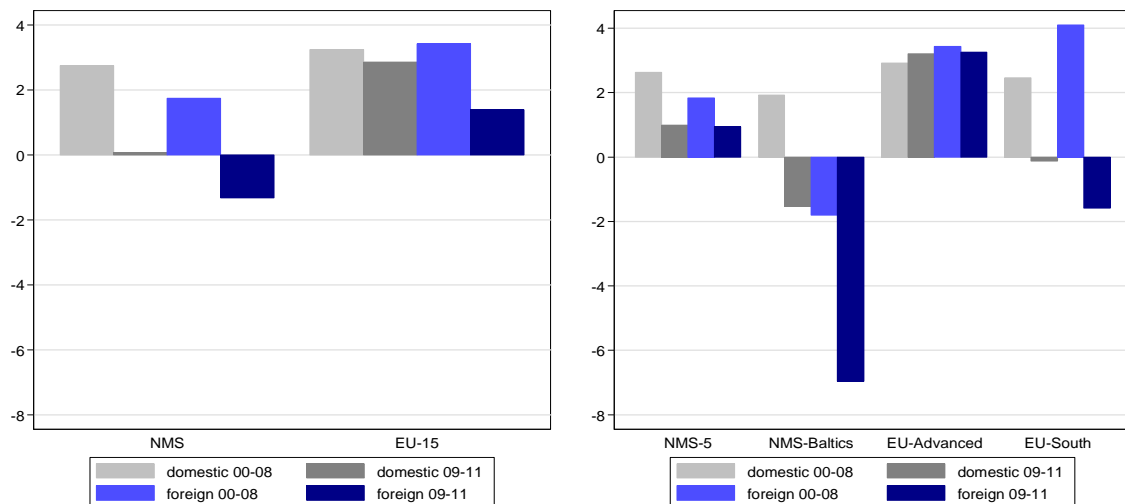
Figure 1. Status change: gross employment reallocation rates, by country group



Source: LFS, own calculations

Note: NMS-5 comprises the Czech Republic, Hungary, Poland, Slovakia and Slovenia; NMS-Baltics comprises Estonia, Latvia and Lithuania; EU-Advanced comprises Austria, Belgium, Denmark, France, Germany, Sweden and the UK while EU-South comprises Greece, Italy, Portugal and Spain.

Figure 2. Status change: net employment creation rates, by country group

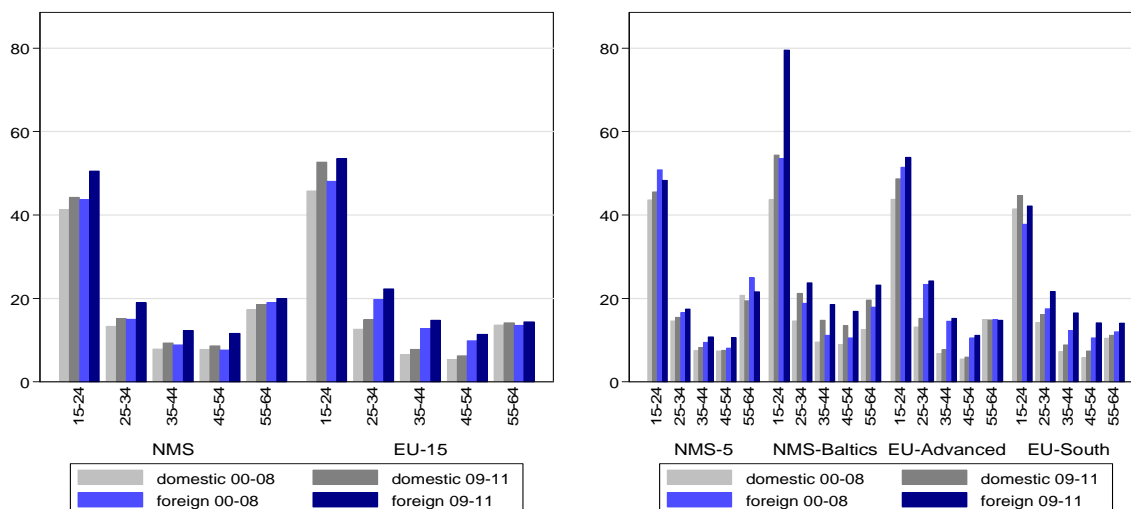


Source: LFS, own calculations

Note: NMS-5 comprises the Czech Republic, Hungary, Poland, Slovenia and Slovakia; NMS-Baltics comprises Estonia, Latvia and Lithuania; EU-Advanced comprises Austria, Belgium, Denmark, France, Germany, Sweden and the UK while EU-South comprises Greece, Italy, Portugal and Spain.

As regards age cohorts, we generally find that GERR and NECR are high for the youngest age cohort (the 15-24 years old) and the oldest age cohort in the labour force (the 55-64 years old) (Figure 3 and Figure 4). However, patterns on NECR in Figure 4 confirm that movements are quite different for the two groups: into employment for the youngest age cohort and out of employment for the oldest age group. As regards the other age cohorts, **gross labour mobility declines with age** (i.e. the 25-34 age cohort show greater mobility than the 35-44 age cohort which again shows higher labour mobility than the 45-54 age cohort; and this is true both in the pre-crisis boom period in terms of positive employment experience as well as during the crisis period in terms of negative employment growth.) The **generally higher mobility – both in terms of GERR and NECR – of migrants** amongst these age-cohorts are confirmed.

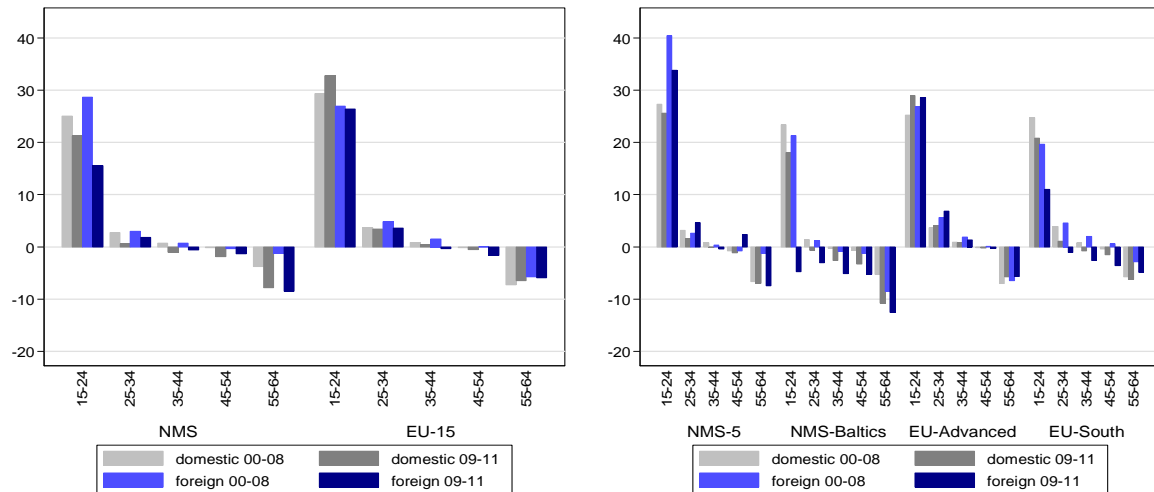
Figure 3. Status change: gross employment reallocation rates, by country group and age



Source: LFS, own calculations

Note: NMS-5 comprises the Czech Republic, Hungary, Poland, Slovenia and Slovakia; NMS-Baltics comprises Estonia, Latvia and Lithuania; EU-Advanced comprises Austria, Belgium, Denmark, France, Germany, Sweden and the UK while EU-South comprises Greece, Italy, Portugal and Spain.

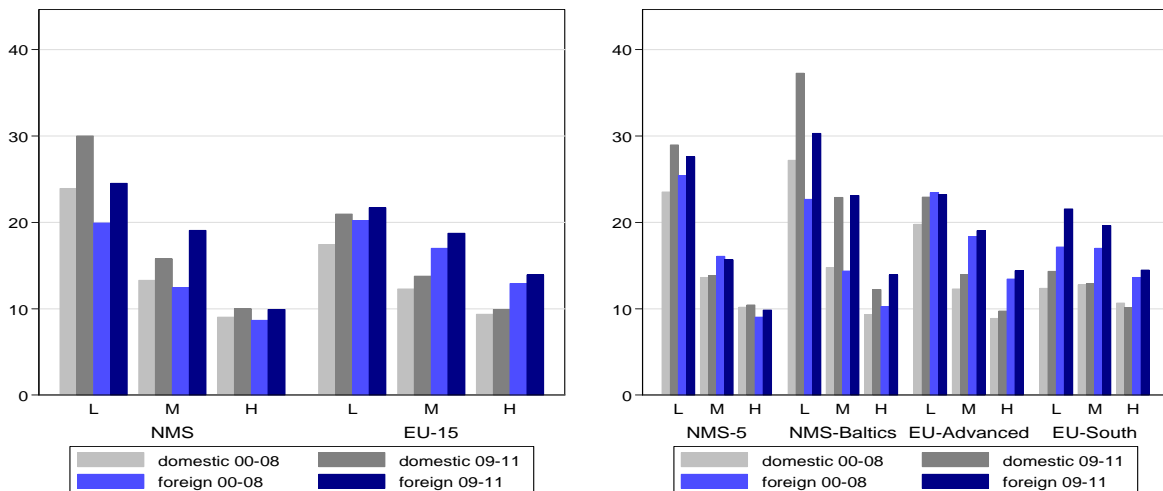
Figure 4. Status change: net employment creation rates, by country group and age



Source: LFS, own calculations

Note: NMS-5 comprises the Czech Republic, Hungary, Poland, Slovenia and Slovakia; NMS-Baltics comprises Estonia, Latvia and Lithuania; EU-Advanced comprises Austria, Belgium, Denmark, France, Germany, Sweden and the UK while EU-South comprises Greece, Italy, Portugal and Spain.

Figure 5. Status change: gross employment reallocation rates, by country group and skill-groups



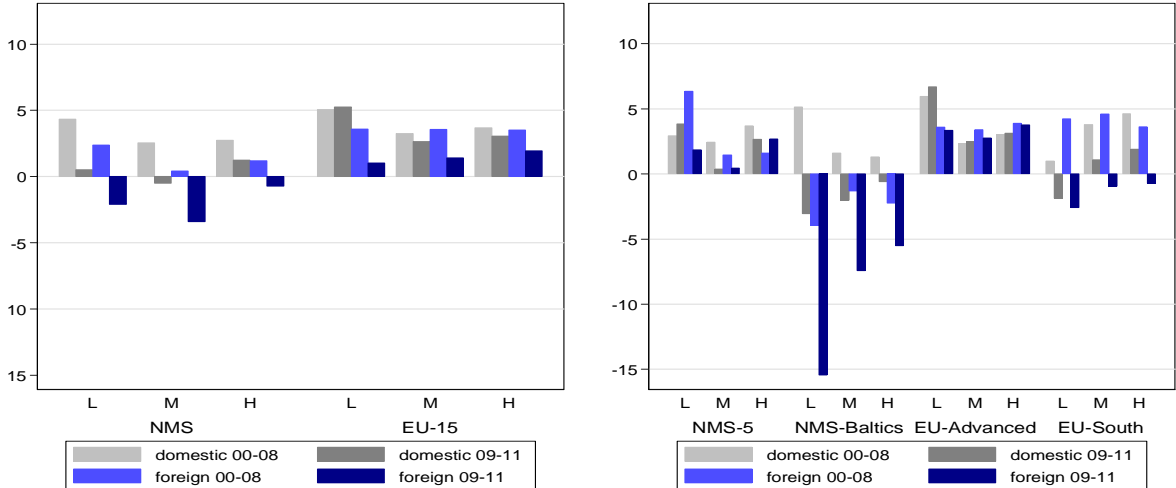
Source: LFS, own calculations

Note: NMS-5 comprises the Czech Republic, Hungary, Poland, Slovenia and Slovakia; NMS-Baltics comprises Estonia, Latvia and Lithuania; EU-Advanced comprises Austria, Belgium, Denmark, France, Germany, Sweden and the UK while EU-South comprises Greece, Italy, Portugal and Spain.

With respect to labour mobility across skill groups, which we capture by educational attainment, we find a clear pattern with the **‘low educated’ having the highest gross mobility** followed by the ‘middle educated’ – those with completed secondary education – followed by the ‘most highly educated’ i.e. those with completed tertiary education (see Figure 5 and Figure 6). This pattern is observed both in the EU-15 and the NMS (and the sub-groups). Closer inspection of the data shows – at least for the pre-crisis period - less of a difference between the ‘middle’ and the ‘highly’ educated and much stronger difference of both these groups and the ‘low educated’. Interestingly, evidence suggests quite high relative net employment growth (NECR) for the low educated amongst the natives both in the EU-Advanced and in the NMS-5. Further, regarding **differences between migrants and natives**, we find the **higher labour mobility of migrants in the ‘middle’ and ‘highly’ educated and not amongst the ‘low’ educated**. There are also marked differences between the sub-groups of

countries, e.g. in the EU-South and the Baltics the relative employment growth and contraction in the pre-crisis and crisis-periods was much higher for migrants than for natives, most likely to do with the construction boom and bust.

Figure 6. Status change: net employment creation rates, by country group and skill-groups

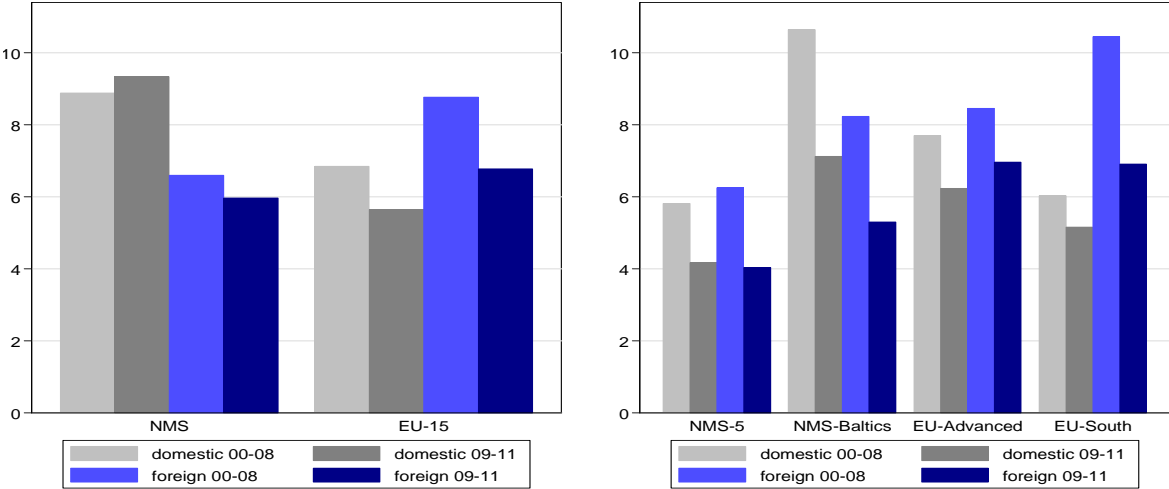


Source: LFS, own calculations

Note: NMS-5 comprises the Czech Republic, Hungary, Poland, Slovenia and Slovakia; NMS-Baltics comprises Estonia, Latvia and Lithuania; EU-Advanced comprises Austria, Belgium, Denmark, France, Germany, Sweden and the UK while EU-South comprises Greece, Italy, Portugal and Spain.

Patterns of *inter-sector mobility* (which was measured by GERR at the NACE 1-digit level; a more detailed sectoral classification could not be used for a sufficient number of countries) are depicted in Figure 7 and Figure 8. We do find significantly higher inter-sectoral job mobility for migrants than for natives in the EU-15 but not amongst the NMS (Figure 7). This *higher inter-sectoral job mobility for migrants in the EU-15 shows up for all skill groups* (Figure 8). When we break this down by individual sectors, we find particularly high employment absorption of migrants in sectors such as hotels, finance, private households and public utilities such as electricity, gas, water (not shown separately).

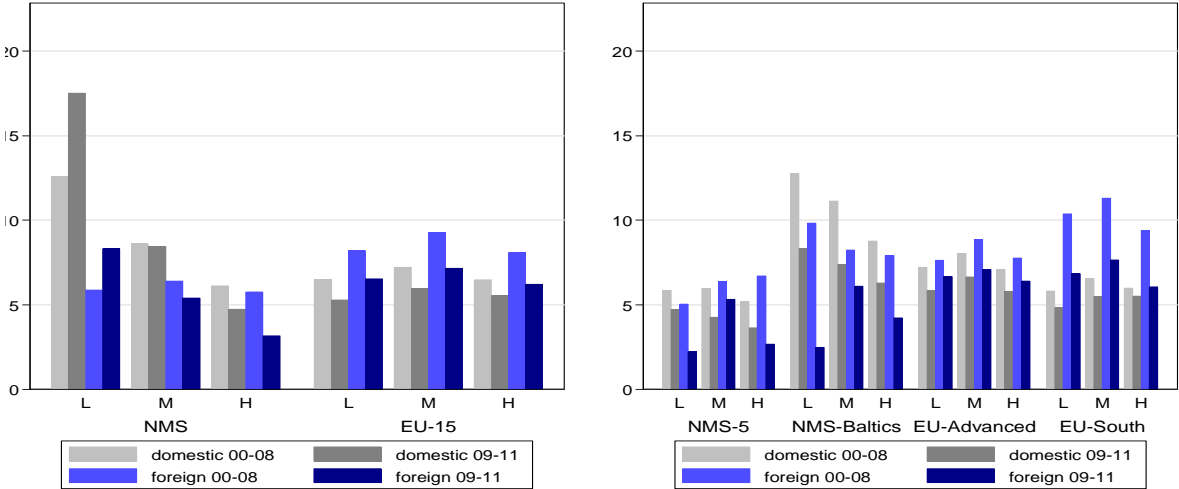
Figure 7. Inter-sectoral mobility: gross employment reallocation rates, by country group



Source: LFS, own calculations

Note: NMS-5 comprises the Czech Republic, Hungary, Poland, Slovenia and Slovakia; NMS-Baltics comprises Estonia, Latvia and Lithuania; EU-Advanced comprises Austria, Belgium, Denmark, France, Germany, Sweden and the UK while EU-South comprises Greece, Italy, Portugal and Spain.

Figure 8. Inter-sectoral mobility: gross employment reallocation rates, by country group and skill groups



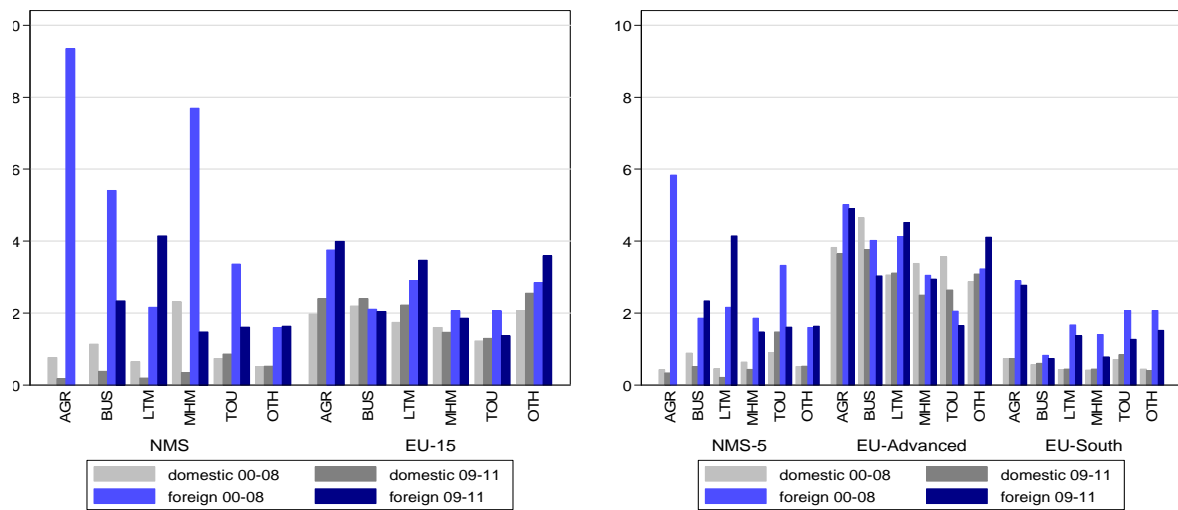
Source: LFS, own calculations

Note: NMS-5 comprises the Czech Republic, Hungary, Poland, Slovenia and Slovakia; NMS-Baltics comprises Estonia, Latvia and Lithuania; EU-Advanced comprises Austria, Belgium, Denmark, France, Germany, Sweden and the UK while EU-South comprises Greece, Italy, Portugal and Spain.

Finally, as concerns **mobility in and out of regions** (see Figure 9; the analysis aggregated NUTS 2-digit information into six regional groupings distinguished by their sectoral employment specialisation relative to the national average: agricultural regions, business services regions which include also the capital cities, low technology manufacturing and medium-/high-technology manufacturing, tourism regions and others; in the last grouping no distinct specialisation pattern was found) we find **significantly higher regional mobility for migrants compared to natives, particularly in the agricultural, the manufacturing, tourism and other regions in the EU-15; and in the NMS it includes all the different types of regions** i.e. also the business services regions¹¹. This pattern also emerges by and large when we distinguish periods in which job destruction or job creation took place (see Figure 10) i.e. the **greater sensitivity of migrants compared to natives to job-destruction and job-creation** in these region types. Figure 11 gives a summary account of inter-regional mobility of migrants and natives when (in-and-out-of) regions' mobility is aggregated across the region types with regional employment shares used as weights. Again, we see significantly higher overall inter-regional mobility for migrants in the NMS economies (restricted to NMS-5 as the Baltic states have too few NUTS 2 regions to conduct this type of analysis) and the EU-South with the difference between migrants and natives being much smaller for the EU-advanced economies.

¹¹ We should mention here that international mobility of migrants into a region is included in the calculation of the inter-regional mobility indicator (i.e. of migrants who have not been in the country in t-1. This is also the case for the calculation of inter-sectoral mobility indicators discussed earlier. However, in both in these two cases, this inclusion of migrants which have not been in the country in t-1 is legitimate if the focus is on their role in the 'greasing of the wheels'.

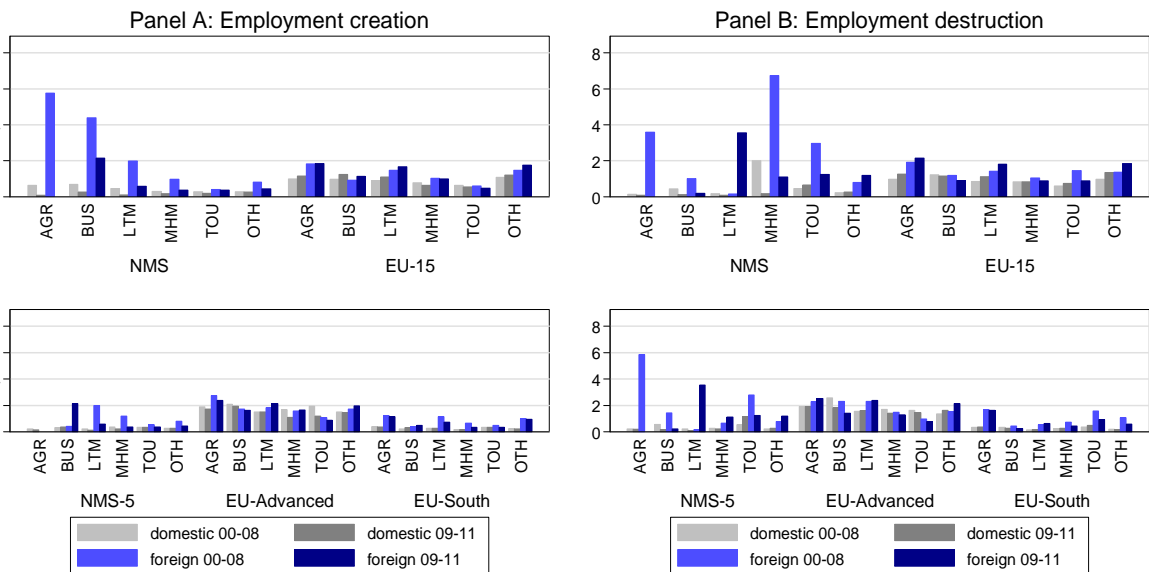
Figure 9. Regional mobility: gross employment reallocation rates, by country group



Source: LFS, own calculations

Note: AGR refers to agriculture, BUS to business, LTM to low-tech manufacturing, MHM to medium-high-tech manufacturing, TOU to tourism and OTH to other. The capital region is included in the business region; NMS-5 comprises the Czech Republic, Hungary, Poland, Slovenia and Slovakia; EU-Advanced comprises Austria, Belgium, Denmark, France, Germany, Sweden and the UK while EU-South comprises Greece, Italy, Portugal and Spain.

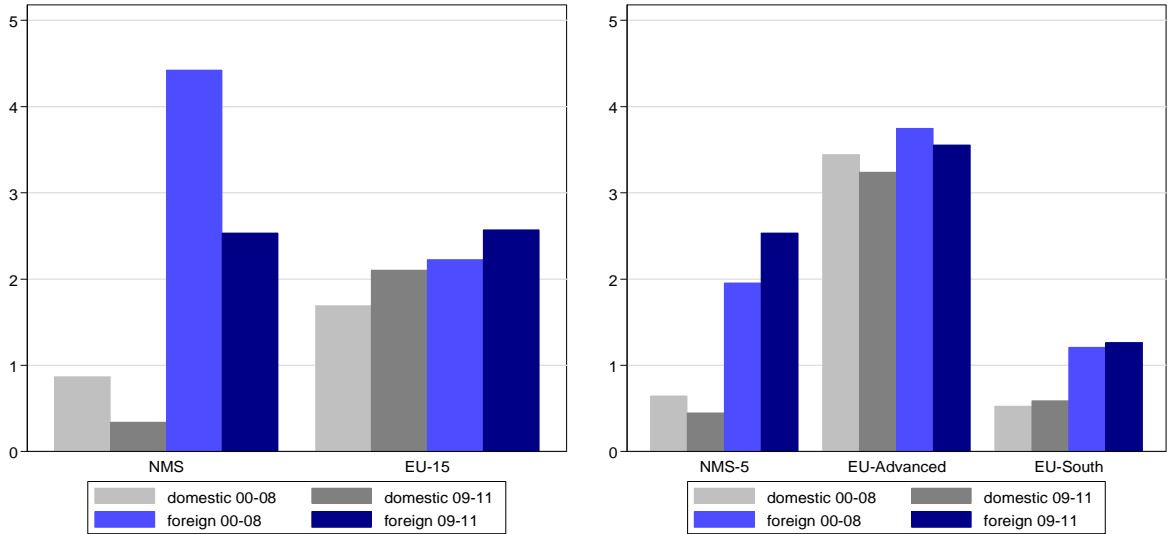
Figure 10. Regional mobility: employment creation and destruction rates, by country group



Source: LFS, own calculations

Note: AGR refers to agriculture, BUS to business, LTM to low-tech manufacturing, MHM to medium-high-tech manufacturing, TOU to tourism and OTH to other. The capital region is included in the business region; NMS-5 comprises the Czech Republic, Hungary, Poland, Slovenia and Slovakia; EU-Advanced comprises Austria, Belgium, Denmark, France, Germany, Sweden and the UK while EU-South comprises Greece, Italy, Portugal and Spain.

Figure 11. Regional mobility: country-level gross employment reallocation rates (weighted by relative weights of each region)



Source: LFS, own calculations

Note: NMS-5 comprises the Czech Republic, Hungary, Poland, Slovenia and Slovakia; NMS-Baltics comprises Estonia, Latvia and Lithuania; EU-Advanced comprises Austria, Belgium, Denmark, France, Germany, Sweden and the UK while EU-South comprises Greece, Italy, Portugal and Spain.

5. Econometric analysis

In what follows, light is shed on the determinants of observable labour mobility dynamics. For this purpose, the following econometric specification is used (as the fullest specification):

$$Mobrate_{ijt} = \beta_0 + \beta_1 GRRGDP_{jt} + \beta_2 ShMig_{jt} + \beta_3 Age_{ijt} + \beta_4 Skills_{ijt} + \beta_5 Male_{ijt} + \beta_6 JobDur_{ijt} + \beta_7 Resid_{ijt} + \beta_8 UnionDensity_{jt} + \beta_9 ProtInd_{jt} + \gamma_j + \varepsilon_{ijt}, \quad (3)$$

where $Mobrate_{ijt}$ denotes either the gross employment reallocation rate (GERR) or the net employment creation rate (NECR) of type i of country j at time t , where i refers to labour mobility across (a) employment status, (b) employment status, broken down by skill-category, (c) industry, or (d) region. Furthermore, $GRRGDP_{jt}$ refers to the annual real GDP growth rate of country j at time t which is included to capture business-cycle related effects of labour mobility. Generally, it is expected that gross employment reallocation is more of an anti-cyclical phenomenon while net employment creation is a pro-cyclical phenomenon. Moreover, $ShMig_{jt}$ refers to the share of migrants in a country and captures the pressure a high share of migrants may exert on the mobility of workers¹². In a sense, this variable captures the ‘greasing of the wheels’ effect which a relatively high share of migrant workers may exert on labour market mobility characteristics (overall, on natives and on migrants). Furthermore, a number of individual characteristics of the flow of workers is controlled for: Age_{ijt} is included to account for differences in mobility across different age groups. In particular, five age cohorts are considered: the youngest age cohort aged 15-24, comprising a high share of newly entering persons in the labour market and of young persons who also more strongly pursue educational activities. The remaining age cohorts are: 35-44, 45-54 and 55-64 (as the pre-retirement age cohort); the cohort aged 25-34 serves as the reference group. $Skills_{ijt}$ is included to capture mobility differences by level of skills. It is based on educational attainment (ISCED 1 to 6) and available for three different groups: high-skilled (H), medium-skilled (M) and low-skilled (L), with the last as reference group¹³. To account for differences in mobility between male and female workers $Male_{ijt}$ is included. Moreover, $JobDur_{ijt}$ refers to job duration and is intended to capture differences in mobility between workers with different periods of employment with the same employer. Three different groups are considered: the group of workers with between 1 and 5 years of employment (as reference group), those with between 6 and 10 years of employment with the same employer and those with more than 10 years of employment with the same employer. Generally, it is expected that longer periods of employment with the same employer are associated with lower mobility. Years of residence of migrant workers in the current country of residence is captured by $Resid_{ijt}$ for two different groups: migrant workers with more than five years of residence in the country and migrant workers with less than five years of residence in the country (as

¹² When we try to explain the mobility of migrants themselves, then this term is lagged by two periods in order to avoid endogeneity (GERR and NECR are calculated from stocks in t and $t-1$; hence in this case $ShMig_{jt-2}$ has to be lagged twice). In an additional exercise, we shall also differentiate between migrants from different source regions (European migrants, migrants from non-European advanced economies, migrants from non-European developing countries); see section 5.3. below.

¹³ Alternatively, we also employ a different ‘skills’ classification combining ISCO-88 categories into white-collar high-skilled, white-collar low-skilled, blue-collar high-skilled with blue-collar low-skilled as reference group.

reference group). Since mobility of migrant workers tends to decrease with the years of residence in a country, a negative effect is expected.

To also account for the effect of unionization and labour market policies, union density ($UnionDensity_{jt}$) and the OECD employment protection index ($ProtInd_{jt}$) are included as well. More specifically, the OECD employment protection index (EPI) refers to the strictness of employment protection against individual dismissals. However, as will be seen in the estimates, as this variable exists only for OECD economies, the sample size is significantly reduced when this additional explanatory variable is included.

Finally, γ_j and ε_{ijt} refer to country fixed effects and the error term, respectively.

To shed light on differences across types of workers and country samples, equation (3) is estimated separately for native and migrant workers for the overall sample of EU countries included in the EU LFS as well as for the group of EU-15 member states and the group of NMS separately for the period from 2000 to 2011.

In what follows, results are presented with regard to different mobility dimensions. In particular, sections 5.1 to 5.4 discuss results for mobility in terms of changes in labour status, also differentiated by country of origin of migrants, by level of skills and checking for asymmetries between boom and slump periods, section 5.5 provides a brief discussion of the role of labour market institutions for the mobility of workers in the subset of OECD countries in the EU. Section 5.6 focuses on determinants of mobility across sectors while section 5.7 discusses determinants of mobility in and out of regions.

5.1. Determinants of labour market status change

As expected (see Table 1) for the EU as a whole, mobility in and out of employment is an anti-cyclical phenomenon and therefore more pronounced in economic downturns than upturns (see e.g. Davis and Haltiwanger (1992, 1998) or Davis et al. (2006) for similar findings for the US). This general cyclical pattern is observable for both native and migrant workers but tends to be more pronounced for migrant workers.¹⁴ Moreover, there is evidence that the cyclicity differs between new and old EU member states. In particular, for the EU-15, labour-status related gross employment reallocation is acyclical for both native and migrant workers while for the group of NMS, it is strongly anti-cyclical for migrant workers but tends to be acyclical for native workers.

Furthermore, the *share of migrants* in a country has a non-robust effect on the mobility of workers in and out of employment. We can see that when GERR for natives is estimated simply as a function of the presence of a high or low share of migrants this variable turns out to be highly significant and positive. However when we introduce all additional control variables, the variable tends to become insignificant. Thus we do not have a robust result that in the EU as a whole or the EU-15, a high share of migrants goes along with a high rate of gross mobility of native workers. On the other hand, such an impact does emerge – with control variables in it – in the NMS. Furthermore, there is somewhat more robust (but weak) evidence for the EU-15 that a high share of migrants in a country renders migrant workers to be more mobile between employment and inactivity. Hence, results suggest that migrants indeed help grease the wheels of the labour market, spurring mobility of native workers in the NMS and migrant workers in the EU-15. This non-robust effect on mobility also emerges if mobility of all workers as a whole is considered (see Table A1 in the Appendix): the greasing of the

¹⁴ The t-test to determine the equality of coefficients is not rejected, however, suggesting that differences across coefficients are not significant.

wheels phenomenon of migrants is observable for the EU as a whole, disappears for the EU-15 once all additional control variables are included and is altogether absent for the NMS.

Next we address the issue of **age**: labour mobility in and out of employment is age-specific but also differs strongly between native and migrant workers. For migrant workers in the EU-15 we obtain the expected U-shaped result: there are high gross employment reallocation rates (GERR) when there is a strong presence of younger age cohorts or of the oldest age cohort (55-64 years old) in the labour force. For native workers in the EU-15 as well as in the EU as a whole and the NMS we find, on the contrary, a significantly lower GERR in the presence of a high share of the oldest (pre-retirement group) and, on the other hand, a significantly higher GERR when there is a strong presence of the age cohort of the 45-54 years old. This is related to the fact that natives from this age cohort are moving significantly more into inactivity than other members of the labour force as our results for NECR (Table 3) show. We do not find this result for either natives in NMS labour markets nor for migrants in EU-15 labour markets.

Labour mobility in and out of employment also differs by **level of skills** and country sample considered. In the EU, relative to low-skilled native workers, a higher share of medium-skilled native workers indicates lower overall mobility of native workers between employment and inactivity while the presence of a high share of high-skilled native workers is associated with higher gross labour mobility of native workers. In contrast, no skill-related differences in mobility emerge for migrant workers in the EU. Similarly, in the group of EU-15 countries, a high share of high-skilled workers leads to more gross mobility of native workers between employment and inactivity while, again, no skill-related differences in mobility emerge for migrant workers. On the contrary, different skill-related mobility effects are observable for the group of NMS. There, overall mobility of migrant workers seems to be lower when there is a high share of medium- and high-skilled migrant workers, while a high share of native workers of these skill groups does not affect overall mobility rates of native workers.

Furthermore, results emphasise that employment-status related labour mobility is not independent of **gender**. In particular, for the EU as a whole, overall mobility of migrants is higher if the share of foreign males is higher while no sex-related differences in labour mobility are observable for native workers. In the EU-15, on the other hand, mobility of native workers between employment and inactivity is higher if the share of native males is higher while, on the contrary, it is lower if the share of foreign males is higher. In NMS on the other hand, the opposite is observable: while the mobility of native workers is lower if the share of native males is higher, the mobility of migrant workers is higher if the share of foreign male migrant workers is higher.

Moreover, **job duration** also matters for labour mobility, to a minor degree though. Results show that in the EU-15, an economy which has a higher share of workers with a job duration of more than 10 years (relative to those with a job duration of less than 6 years) is found to be linked to less gross mobility of native workers between employment and inactivity. In the NMS, it is the higher share of workers with a job duration of between 6 and 10 years which has this effect on both natives' and migrant workers' mobility.

There is no evidence that **years of residence** of migrant workers in a country matters for their mobility in and out of employment.

Table 1. Status change: determinants of gross employment reallocation rates (gerr) of native and migrant workers

	EU				EU-15				NMS			
	Natives		Migrants		Natives		Migrants		Natives		Migrants	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Real GDP growth rate		-0.084**		-0.149***		-0.004		-0.082		-0.045		-0.249***
		(-2.44)		(-2.63)		(-0.07)		(-1.01)		(-1.49)		(-2.94)
Share migrants	0.216***	0.115	0.223	0.196	0.223***	0.046	0.292***	0.282*	0.158	0.383**	-0.226	-0.150
	(3.24)	(1.26)	(1.60)	(1.22)	(3.61)	(0.48)	(2.77)	(1.87)	(0.68)	(2.15)	(-0.44)	(-0.29)
Age cohort 15-24		-0.151		-0.166		0.407		0.880***		-0.526**		-1.062**
		(-0.86)		(-0.71)		(1.58)		(3.30)		(-2.30)		(-2.57)
Age cohort 35-44		-0.328*		-0.099		-0.041		0.272**		-0.087		-0.636***
		(-1.88)		(-0.85)		(-0.21)		(2.10)		(-0.39)		(-2.85)
Age cohort 45-54		-0.042		-0.099		0.793***		-0.087		-0.212		-0.556***
		(-0.23)		(-0.95)		(3.64)		(-0.36)		(-0.78)		(-2.95)
Age cohort 55-64		-0.624***		0.248**		-0.369**		0.542**		-0.732**		-0.171
		(-4.14)		(1.99)		(-2.22)		(2.06)		(-2.45)		(-0.83)
Share medium-skilled		-0.181**		-0.048		-0.050		-0.015		0.095		-0.581**
		(-2.40)		(-0.59)		(-0.70)		(-0.20)		(0.41)		(-2.63)
Share high-skilled		0.177**		0.038		0.375***		0.094		0.187		-0.414*
		(2.15)		(0.47)		(3.87)		(1.39)		(1.04)		(-1.96)
Share males		-0.194		0.155*		0.785***		-0.431**		-2.010***		0.267**
		(-0.94)		(1.77)		(3.64)		(-2.00)		(-6.93)		(2.26)
Share job duration: 6-10 yrs		0.069		0.139		-0.117		-0.011		0.283**		0.234*
		(0.76)		(1.60)		(-1.13)		(-0.11)		(2.05)		(1.68)
Share job duration: +10 yrs		-0.028		-0.068		-0.375***		0.127		0.120		-0.040
		(-0.29)		(-0.78)		(-2.78)		(0.92)		(1.20)		(-0.30)
Share years of residence: >5 yrs				-0.031				-0.047				0.109
				(-0.64)				(-1.22)				(0.74)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	12.140***	51.401***	13.496***	11.615	12.025***	-34.092	13.195***	17.150	11.493***	113.473***	14.792***	75.536**
	(9.77)	(2.72)	(9.20)	(1.11)	(10.57)	(-1.61)	(8.95)	(1.01)	(10.48)	(4.82)	(5.57)	(2.51)
No of obs.	226	226	187	186	135	135	113	113	91	91	74	73
R-squared	0.708	0.773	0.015	0.193	0.761	0.846	0.072	0.362	0.591	0.892	0.003	0.416
F-test	21.31	19.76	2.554	3.019	29.63	26.45	7.662	4.154	11.55	28.85	0.197	3.03

t-statistics in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Note: In the estimations for migrant workers (i.e specifications (3), (4), (7), (8), (11) and (12)) the twice-lagged share of migrants is used to avoid endogeneity

Next, we discuss more fully the results for *net employment creation (NECR)*. As shown in Table 2 the results consistently demonstrate that net employment creation is a pro-cyclical phenomenon, which suggests that during economic upturns, significantly more workers become employed than inactive. Furthermore, the cyclical sensitivity of net employment creation (and losses) is consistently higher for migrants than for natives.

Furthermore, there is weak evidence that a high *share of migrants* in a country affects net employment creation, which, however, holds for migrant workers only: in the EU and the EU-15, a high share of migrants is associated with lower net employment creation of migrant workers. This effect, however, disappears once additional control variables are included.

Net employment creation patterns are also strongly *age*-related but pretty similar among native and migrant workers. For instance, in the EU as a whole, net employment creation of native workers is significantly higher when the share of the very young (aged 15-24) is high but significantly lower when there is a high share of the age cohort 35-44. Similarly, net employment creation of migrant workers is significantly higher when there is a high share of very young workers. However, the role of age for net employment creation also differs between natives and migrants and between NMS and old EU member states. In the EU-15, net employment creation of workers is higher with a high share of the very young and lower with a high share of prime age workers between 35 and 44 years; this is true for both migrants and natives. On the other hand, while net employment creation is significantly lower among native workers also with a high share of persons in the pre-retirement age, this does not seem to be the case with migrants where a higher share of older migrant workers in the age cohorts 45-54 and 55-64 is associated with higher net employment creation for migrants. One way to interpret this is that the two issues are related: negative employment creation (i.e. early inactivity or unemployment of natives) makes space for employment creation for migrants in the higher age brackets. In NMS, net employment creation (for migrants) is related positively only with a higher share of the youngest group of migrant workers only while for native workers, net employment creation is related negatively with a higher share of the age cohort 35-44.

Furthermore, net employment creation patterns are *skill*-specific and differ between native and migrant workers. Particularly, for both the EU as a whole and the EU-15, relative to low-skilled native workers, net employment creation of native workers is significantly higher with a higher share of high-skilled native workers. In contrast, migrant workers show no skill-related differences in net employment creation.

Similarly, net employment creation is strongly *gender*-related but differs by type of worker analysed. For native workers, net employment creation is consistently higher for the EU as a whole and the EU-15 with a higher share of male workers (relative to female workers). In contrast, the results for migrant workers are less robust and would go in this direction for the group of EU-15 countries only.

In addition, net employment creation of native and migrant workers differs by *job duration* and country sample considered. Particularly, there is consistent evidence that only medium-term job duration (relative to short-term job duration) matters for net employment creation: for the EU as a whole, net employment creation is significantly higher among native workers with a higher share of workers between 6 and 10 years of job duration only. In the EU-15, net employment creation is significantly higher among both migrant and native workers with between 6 and 10 years of job duration (and significantly lower for native workers with more than 10 years of job duration) while, on the contrary, in the group of NMS, net employment creation for migrant workers is significantly lower when the share of migrant workers between 6 and 10 years of job duration is higher but

significantly higher among native workers when the share of those with more than 10 years of job duration is high.

For migrant workers, **years of residence** in the host country also matters for net employment creation. More specifically, in the EU as a whole and the EU-15, net employment creation is significantly lower if the share of migrant workers with more than five years of residence in the country is high (relative to those with less than five years of residence). However, for the NMS, net employment creation of migrant workers is independent of years of residence.

Table 2. Status change: determinants of net employment creation rates (necr) of native and migrant workers

	EU				EU-15				NMS			
	Natives		Migrants		Natives		Migrants		Natives		Migrants	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Real GDP growth rate		0.296*** (9.67)		0.383*** (8.87)		0.185*** (3.94)		0.263*** (3.40)		0.336*** (8.20)		0.411*** (7.38)
Share migrants	-0.062 (-0.80)	0.113 (1.40)	-0.333** (-2.42)	0.201 (1.64)	-0.037 (-0.56)	0.052 (0.61)	-0.443*** (-3.29)	0.032 (0.22)	-0.262 (-0.90)	-0.261 (-1.08)	0.376 (0.90)	-0.322 (-0.96)
Age cohort 15-24		0.332** (2.13)		0.521*** (2.92)		0.608*** (2.69)		0.627** (2.47)		-0.325 (-1.05)		0.500* (1.84)
Age cohort 35-44		-0.575*** (-3.69)		-0.057 (-0.64)		-0.439** (-2.60)		-0.254** (-2.06)		-0.618** (-2.03)		0.175 (1.19)
Age cohort 45-54		-0.217 (-1.34)		0.114 (1.42)		0.086 (0.45)		0.664*** (2.86)		-0.138 (-0.37)		0.141 (1.14)
Age cohort 55-64		-0.135 (-1.00)		-0.064 (-0.67)		-0.305** (-2.09)		0.562** (2.24)		-0.223 (-0.55)		-0.011 (-0.08)
Share medium-skilled		-0.073 (-1.09)		-0.067 (-1.08)		0.026 (0.41)		-0.084 (-1.20)		-0.324 (-1.03)		-0.129 (-0.89)
Share high-skilled		0.182** (2.47)		-0.012 (-0.20)		0.283*** (3.33)		-0.020 (-0.32)		-0.165 (-0.67)		-0.186 (-1.34)
Share males		0.418** (2.28)		0.010 (0.14)		0.491** (2.60)		0.551*** (2.68)		0.589 (1.49)		-0.026 (-0.34)
Share job duration: 6-10 yrs		0.341*** (4.23)		0.000 (-0.01)		0.264*** (2.91)		0.270*** (3.03)		0.250 (1.34)		-0.244** (-2.66)
Share job duration: +10 yrs		0.119 (1.37)		0.006 (0.09)		-0.255** (-2.15)		-0.100 (-0.76)		0.268* (1.97)		-0.103 (-1.19)
Share years of residence: >5 yrs				-0.208*** (-5.62)				-0.202*** (-5.56)				-0.150 (-1.56)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	5.375*** (3.70)	-11.705 (-0.70)	4.865*** (3.36)	14.620* (1.82)	4.973*** (4.11)	-19.285 (-1.04)	8.629*** (4.59)	-29.223* (-1.81)	0.508 (0.37)	11.212 (0.35)	-2.204 (-1.02)	26.785 (1.35)
No of obs	226	226	187	186	135	135	113	113	91	91	74	73
R ²	0.431	0.743	0.035	0.544	0.602	0.825	0.099	0.652	0.150	0.734	0.013	0.645
F-test	6.662	16.79	5.866	15.01	14.09	22.8	10.84	13.75	1.415	9.634	0.817	7.717

t-statistics in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Note: In the estimations for migrant workers (i.e specifications (3), (4), (7), (8), (11) and (12)) the twice-lagged share of migrants is used to avoid endogeneity

5.2. Status change: business-cycle related asymmetries

In a special exercise we also tested for asymmetric patterns affecting gross mobility and net employment creation in the ‘boom’ (years above trend GDP growth) and ‘slump’ phases (years below trend GDP growth) of the business cycle. In Table 3 and Table 4 below, we only show the parameter estimates for the share of migrants as explanatory variables for gross employment reallocation (gerr) and net employment creation (necr) of native and migrant workers, respectively. The full set of econometric results can be seen in Tables A2-A5 in the Appendix.

The following were the results:

As regards the impact of the presence of migrants, we find quite different results for the EU as a whole and the EU-15, on the one hand, and the NMS on the other hand:

In the EU and the EU-15 there is a significant positive impact of a high share of migrants on GERR of migrants (and no significant robust impact on NECR) in the slump periods on other migrants. No significant impact on natives was found or, more generally, in the boom periods. Hence this supports a view of a high share of migrants leading to higher job status changes of migrants during slump periods via its impact on migrant gross mobility and not via an impact on natives. Furthermore, no significant impact on net employment creation of a higher share of migrants was found in either boom or slump periods.

In the NMS the picture is different in that there is a positive impact of a high share of migrants on gross mobility of natives in slump periods and a significantly positive impact on net employment creation for natives in boom periods. Hence migrants act here as complementary factors in boom periods.

In relation to the impact of age structure, interesting differences emerge regarding migrants and natives (and also comparing EU-15 and NMS):

Amongst the Natives there is more general labour mobility (GERR) in the boom periods in the EU as a whole when there is a high share of the relatively young reference group (25-34); in the slump general labour mobility is low when the oldest age cohort (55-64) is strongly represented. If we look at net employment creation (NECR) there is significantly more positive net job creation in the slump periods when we have a large share of the youngest age cohort. In the EU-15 there is lower NECR during the slump periods when the ‘middle age’ cohort 35-44 is relatively well represented.

For the Migrants the picture is somewhat different: in the EU and the EU-15, migrants show a high GERR in the boom periods when the share of the oldest age (55-64) cohort is high and in the slumps when the youngest age cohort (15-24) has a strong weight.¹⁵ Regarding net employment creation (NECR) a high share of the oldest age cohorts has different implications in the EU-15 and the NMS: in the EU-15 it relates negatively to natives’ net employment creation and positively to migrants’ net employment creation NECR in the slump periods while in the NMS it has a negative impact on migrants’ net job creation. This can be easily interpreted in that in slump periods a high share of old age workers leads to early retirement of natives but this might generate some net job creation for migrant workers. In boom periods, a high share of the youngest age cohort relates significantly positively to NECR in the EU and the EU-15, while no age-related effects on NECR are observable for the NMS.

¹⁵ These findings point to the following possible interpretation: a strong presence of old age cohorts can lead to high gross labour status mobility in a boom because more old-age persons might take the opportunity to retire earlier and employers use the opportunity of relatively good times to offer severance pay and take in new people. Also from the fiscal side, the willingness by the state to accept the costs of early retirement in good times might be higher.

Table 3. Status change: effects of the share of migrants on gross employment reallocation rates (gerr) of native and migrant workers during boom and slump periods

	EU				EU-15				NMS			
	Natives		Migrants		Natives		Migrants		Natives		Migrants	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Boom												
Share migrants	0.155*	0.114	0.126	0.021	0.160**	0.035	0.325**	-0.066	0.113	0.436	-0.954	-0.612
	(1.66)	(0.96)	(0.53)	(0.09)	(2.12)	(0.28)	(2.28)	(-0.33)	(0.33)	(1.55)	(-1.18)	(-0.77)
Slump												
Share migrants	0.233**	0.160	0.340*	0.619**	0.239**	0.174	0.335**	0.533*	0.187	0.827**	0.376	1.386
	(2.21)	(0.90)	(1.95)	(2.51)	(2.20)	(0.82)	(2.10)	(1.89)	(0.55)	(2.84)	(0.56)	(1.56)

t-statistics in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Note: In the estimations for migrant workers (i.e specifications (3), (4), (7), (8), (11) and (12)) the twice-lagged share of migrants is used to avoid endogeneity

Table 4. Status change: effects of the share of migrants on net employment creation rates (necr) of native and migrant workers during boom and slump periods

	EU				EU-15				NMS			
	Natives		Migrants		Natives		Migrants		Natives		Migrants	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Boom												
Share migrants	-0.050	0.103	-0.128	0.227	0.018	0.114	-0.188	-0.067	0.187	0.827**	0.198	-0.113
	(-0.56)	(0.92)	(-0.76)	(1.28)	(0.22)	(1.02)	(-1.14)	(-0.33)	(0.55)	(2.84)	(0.42)	(-0.22)
Slump												
Share migrants	-0.095	0.260	-0.692***	-0.161	-0.184	-0.275	-0.873***	-0.217	0.613	-0.633	0.589	-1.264
	(-0.69)	(1.57)	(-2.87)	(-0.56)	(-1.60)	(-1.51)	(-4.04)	(-0.86)	(1.14)	(-1.34)	(-0.680)	(-1.59)

t-statistics in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Note: In the estimations for migrant workers (i.e specifications (3), (4), (7), (8), (11) and (12)) the twice-lagged share of migrants is used to avoid endogeneity

There are also interesting differences in EU-15 and NMS regarding the position of Natives in the boom and slump periods **with regard to skills**: in the EU-15 we can see a clear pattern of positive skill-bias and this is the case both in boom and slump periods; in the NMS the impact of skill shares on GERR is much weaker, while we observe a significant relatively high negative impact on NECR during the slump periods when there is a high share of white-collar high-skilled and white-collar low-skilled workers in an economy.

For the migrants we see a different interesting pattern reflecting the relative demand for Migrants with different skill levels: there is a significantly higher GERR for the white-collar high- and low-skilled in the slump periods both in the EU-15 and the EU as a whole; furthermore in the EU as a whole, there is a significant positive NECR during the boom periods in the presence of a high share of blue-collar high-skilled workers. (In contrast we observe a significant negative impact of a strong presence of this group on NECR in slump periods amongst the natives; this points towards a fragile position of this group amongst the natives).

With regard to **gender**, we find in the EU-15 we find consistently positive signs for males amongst natives; this is not the case for the NMS where consistent negative coefficients emerge for GERR but mixed results for NMS: negative during slump periods but positive during boom periods.

Amongst migrants we find positive signs for GERR for the male gender variable in the NMS during boom periods while negative signs in the EU as a whole and the NMS during slump periods. Interestingly there is a positive sign on the male gender variable in slump periods in the EU-15 in the case of NECR, i.e. they are doing better than females during such periods in the EU-15; no significant effects in the NMS;

5.3. Status change: distinguishing the impact of migrants by countries of origin

In this section we review results regarding the impact of the presence of **migrants** on mobility patterns when migrants are **distinguished by their regions of origin**. We distinguish three groups of migrants:

- Migrants from Europe
- Migrants from other Developed Economies
- Migrants from non-European Developing Countries

In Tables 5 and 6 we again only show the parameter estimates for the shares of migrants from these different source regions as explanatory variables with GERR and NECR for natives and migrants as dependent variables respectively¹⁶. The full set of econometric estimates can be seen in Tables A6 and A7 in the Appendix.

¹⁶ Hence looking at specification in equation (3) above where the $Mobrate(ijt)$ refers to the mobility rate of a particular group (differentiated by migrants and natives) in a country j at time t , we shall now distinguish amongst the explanatory variables on the right hand side $shMig(ijt)$ which refers to the share of migrants from a particular 'source region' (Europe, Other Advanced, non-European Developing) amongst all migrants in country j at time t . When the estimates are done for the mobility rates of migrants (left-hand side variable), the migrant share variable (right-hand side variable) is lagged twice as this explanatory variable would otherwise itself be affected by the mobility rate of migrants in that period.

Table 5. Status change: effects of the share of migrants on gross employment reallocation rates (gerr), by country of origin and type of workers

	EU				EU-15				NMS			
	Natives		Migrants		Natives		Migrants		Natives		Migrants	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Share migrants: EUROPE	-0.386 (-1.53)	-0.411* (-1.87)	-0.420 (-0.86)	-1.018** (-2.26)	0.183 (0.88)	-0.006 (-0.03)	0.041 (0.12)	-0.420 (-1.28)	-3.050*** (-3.67)	-0.378 (-0.73)	-3.492* (-1.72)	-6.747*** (-5.33)
Share migrants: DEVELOPED	12.062*** (4.04)	6.655*** (2.97)	5.161 (0.99)	-2.072 (-0.44)	9.080*** (3.90)	5.787*** (3.08)	3.674 (1.03)	3.960 (1.14)	17.578 (0.96)	-12.670 (-1.13)	4.255 (0.07)	5.021 (0.14)
Share migrants: DEVELOPING	-0.070 (-0.20)	-0.871*** (-2.95)	1.802*** (3.03)	1.818*** (3.05)	-0.275 (-1.04)	-1.101*** (-4.14)	1.678*** (4.15)	1.597*** (3.56)	1.100 (0.26)	-7.150*** (-3.08)	-10.063 (-0.83)	-8.854 (-1.21)

t-statistics in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Note: In the estimations for migrant workers (i.e specifications (3), (4), (7), (8), (11) and (12)) the twice-lagged share of migrants is used to avoid endogeneity

Table 6. Status change: effects of the share of migrants on net employment creation rates (necr), by country of origin and type of workers

	EU				EU-15				NMS			
	Natives		Migrants		Natives		Migrants		Natives		Migrants	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Share migrants: EUROPE	0.561* (1.67)	0.351 (1.32)	-0.109 (-0.23)	0.690* (1.78)	0.375 (1.30)	0.360 (1.38)	0.211 (0.50)	0.994** (2.52)	3.083** (2.48)	1.645 (1.58)	-2.481 (-1.47)	-1.614 (-0.94)
Share migrants: DEVELOPED	-0.844 (-0.21)	-1.584 (-0.59)	8.188 (1.60)	9.843** (2.43)	0.413 (0.13)	-2.095 (-0.90)	7.542* (1.77)	6.898 (1.65)	-29.647 (-1.09)	-5.694 (-0.25)	40.709 (0.85)	-0.488 (-0.01)
Share migrants: DEVELOPING	-0.530 (-1.14)	0.276 (0.78)	-2.299*** (-3.95)	-1.082** (-2.11)	-0.412 (-1.12)	-0.112 (-0.34)	-2.499*** (-5.15)	-0.800 (-1.49)	-14.752** (-2.31)	-4.747 (-1.01)	17.690* (1.75)	11.996 (1.20)

t-statistics in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Note: In the estimations for migrant workers (i.e specifications (3), (4), (7), (8), (11) and (12)) the twice-lagged share of migrants is used to avoid endogeneity

The results we obtain are very interesting and show more robust results with respect to the ‘impact’ of the migrant share variable on labour mobility, especially in EU-15 markets:

- The most striking result is the differentiated impact of a strong presence of migrants from other developed countries vs. migrants from developing countries on mobility patterns: while migrants from other developed countries have a very strong positive impact on gross mobility rates of natives in the EU-15 and the EU as a whole (for the NMS alone this effect is not significant), the impact of migrants from developing countries have a negative impact on gross mobility of natives in the EU (this time the impact is significant both in the EU-15 and the NMS). We interpret this in the following way: Migrants from other developed economies are more similar in their characteristics to domestic labour forces, hence they have higher substitution elasticities with natives (see also Ottaviano and Peri, 2013) and provide a stronger incentive for natives to respond to labour market shocks through stronger mobility. Migrants from developing countries, on the other hand, exert less pressure on mobility of domestic labour forces to increase their mobility to shocks; on the contrary, they might provide a buffer against shocks and reduce mobility amongst domestic work forces. There are no consistent, significant results for net employment creation variable.

Turning to the impact of shares of different groups of migrants (distinguished by countries of origin) on mobility patterns of the migrants themselves the following results are obtained:

- For the gross mobility indicator (GERR) we observe a consistent positive impact of high shares of migrants from developing countries on gross mobility (GERR) in EU-15 economies (and also in the EU as a whole); while for NMS there is a negative impact of a high share of migrants from European economies on gross mobility. The former would indicate the exertion of pressure from the presence of a high share of migrants from developing countries towards more mobility of migrants generally; the latter shows that migrants from other European countries reduce the pressure of mobility in the NMS for migrants over there.
- For NECR we observe a positive impact of a high share of migrants from developed economies on net job growth in EU-15 and EU as a whole and a negative impact of migrants from developing countries. This indicates evidence for a substitution effect of a high share of migrants from developing countries on net job creation for migrants in the EU-15. Alternatively, one can interpret as little net job creation in economies in which the share of developing countries’ migrants are high without necessarily seeing any causality in this relationship.

We desist to analyse the full set of econometric results with respect to the other explanatory variables which can be looked at in Tables A6 and A7 in the Appendix. Let us, however, refer to Figure 11 which we can use to substantiate our interpretation above. In Figure 11 we plot the skill composition of migrants from the different source regions (from Europe, Other Developed Economies, non-European Developing Economies) and of natives in the EU as a whole, the EU-15 and the NMS respectively. The following can be seen regarding similarity or dissimilarity in skill composition between natives and migrants from different source countries:

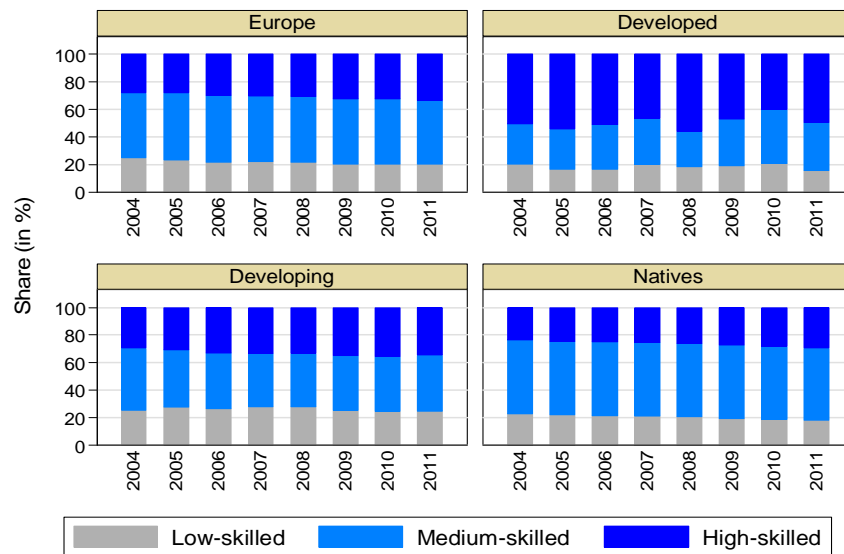
- What is striking are the much higher shares of high-skilled from other developed economies both in the EU-15 and the NMS. The skill profile from developing countries in the EU-15 is quite different with a smaller share of the high-skilled and a significantly larger share of the low-skilled. The profile of migrants in NMS, on the other hand is different from that in the

EU-15 with the share of high-skilled from both developed and developing country regions showing a significantly higher share of the high-skilled.

- As regards the skill composition of migrants from European countries, these show a rather similar skill profile to the natives in the EU-15 and a higher share of the high skilled compared to the natives in the NMS.

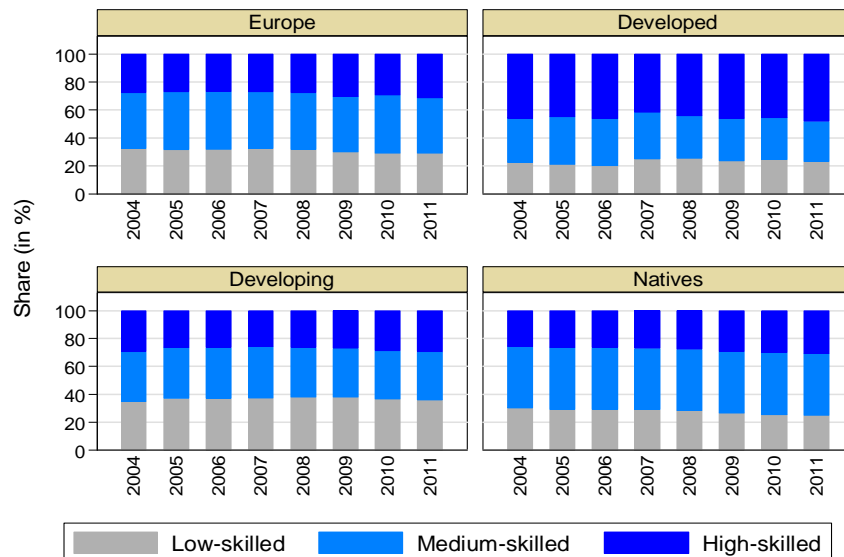
The skill profiles of migrants and of natives in the EU-15 and the NMS summarised above supports the interpretation of the econometric results regarding the differentiated signs obtained for the migrant share variable regarding migrant groups coming from different source regions.

Figure 12. EU: Skill-composition of migrant and native workers, by country of origin



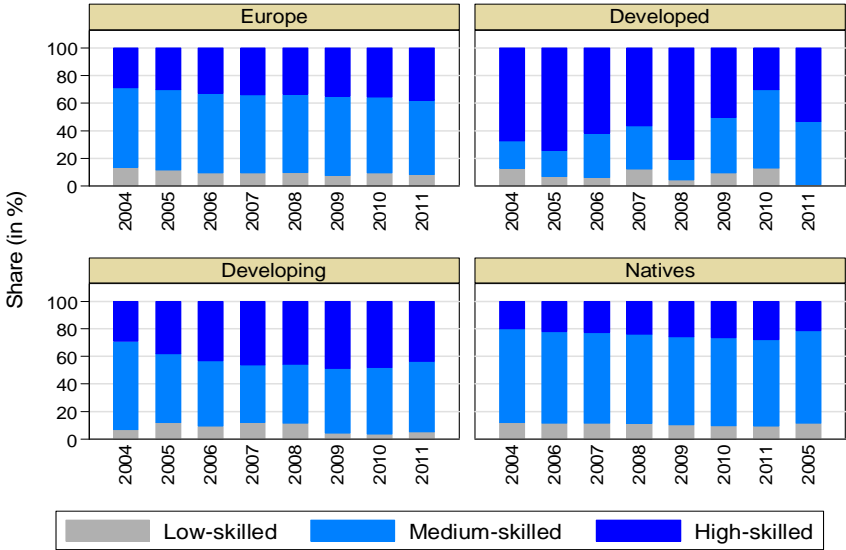
Source: LFS, own calculations

Figure 13. EU-15: Skill-composition of migrant and native workers, by country of origin



Source: LFS, own calculations

Figure 14. NMS: Skill-composition of migrant and native workers, by country of origin



Source: LFS, own calculations

5.4. Status change: by level of skills

Next we follow up our analysis of decomposing the labour market impact of migrants by analysing the impact in *different skill segments*. Tables 7 and 8 concentrate again only on the parameter estimates of the migrant share variable as explanatory variable for GERR and NECR on natives and migrants respectively¹⁷, but this time we undertook the analysis separately for the three different skill groups (distinguished by levels of educational attainment, i.e. completion of primary, secondary and tertiary levels respectively)¹⁸.

We obtain the following results for our GEER and NECR mobility variables, this time distinguished by skill-type:

- Gross mobility rates (GEER) of medium-skilled native workers are negatively affected in EU-15 countries (and this drives the same result for the EU as a whole) by the presence of a high share of migrants of the same skill category; this means that a higher share of migrants in this skill category reduces the pressure on natives for high gross mobility rates.
- For the Net employment generation rate (NECR) variable we find that there are interestingly positive effects on employment generation for the native low skilled and – less pronounced – for the medium-skilled in EU-15 economies. No such effects were found for the NMS.
- As regards the impact of *migrants on migrants’* mobility by skill group we find that there is a strongly positive effect of a strong presence of low-skilled migrants on migrants of the same skill group’s gross mobility in the EU, which is again driven by mobility patterns in the EU-15.

¹⁷ The full set of econometric results are presented in Tables A8-A13 in the Appendix.

¹⁸ Returning to specification in equation (3) above, in the following estimates the $Mobrate(ijt)$ refers to the mobility rate of a particular skill group (differentiated by migrants and natives) in a country j at time t and amongst the explanatory variables on the right hand side we shall now have $shMig(ijt)$ which refers to the share of migrants of that particular skill group in total employment in country j at time t . When the estimates are done for the mobility rates of migrants (left-hand side variable), the migrant share variable (right-hand side variable) is lagged twice as this explanatory variable would otherwise itself be affected by the mobility rate of migrants in that period.

Amongst the NMS, we find a negative impact on gross mobility for the most highly skilled migrants from a strong presence of other high-skilled migrants in NMS labour markets.

- For the net employment creation variable (NECR) we find a significant negative impact of a strong presence of medium-skilled migrant workers on net employment creation of migrants of the same skill group in EU-15 labour markets (which drives again the same result for the EU as a whole); no such effect was found for the NMS labour markets. As medium-skilled workers are particularly employed in industrial sectors we would hypothesise that the negative impact in EU-15 markets might have something to do with the general labour shedding (affecting migrant workers more strongly) of workers in that sector.

Table 7. Status change: effects of share of migrants on gross employment reallocation rates (gerr), by type of worker and level of skills

	EU				EU-15				NMS			
	Natives		Migrants		Natives		Migrants		Natives		Migrants	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
High-skilled												
Share high-skilled migrants	0.113*** (2.73)	0.158*** (3.25)	-0.018 (-0.20)	-0.072 (-0.73)	0.179*** (3.63)	0.289*** (4.73)	0.179** (2.02)	0.068 (0.60)	-0.036 (-0.48)	0.089 (0.99)	-0.372** (-2.02)	-0.520** (-2.19)
Medium-skilled												
Share medium-skilled migrants	0.036 (0.55)	-0.136 (-1.56)	0.068 (0.46)	0.115 (0.92)	0.045 (0.85)	-0.125 (-1.65)	0.046 (0.44)	0.168 (1.12)	-0.165 (-0.43)	-0.266 (-0.74)	0.586 (0.59)	1.060 (1.62)
Low-skilled												
Share low-skilled migrants	0.468*** (3.85)	0.342** (2.32)	0.475* (1.78)	0.663*** (3.59)	0.430*** (4.22)	0.282** (2.37)	0.367*** (2.96)	0.399*** (2.95)	0.660* (1.73)	1.007** (2.40)	0.959 (1.00)	0.279 (0.25)

Note: In the estimations for migrant workers (i.e specifications (3), (4), (7), (8), (11) and (12)) the twice-lagged share of migrants is used to avoid endogeneity
t-statistics in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Table 8. Status change: effects of share of migrants on net employment creation rates (necr), by type of worker and level of skills

	EU				EU-15				NMS			
	Natives		Migrants		Natives		Migrants		Natives		Migrants	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
High-skilled												
Share high-skilled migrants	0.098** (2.14)	0.153*** (3.46)	0.018 (0.18)	-0.050 (-0.48)	0.075 (1.37)	0.219*** (3.87)	0.045 (0.45)	0.095 (0.85)	0.148* (1.82)	0.052 (0.60)	-0.029 (-0.14)	-0.148 (-0.49)
Medium-skilled												
Share medium-skilled migrants	-0.164** (-2.42)	-0.062 (-0.84)	-0.430*** (-3.45)	-0.092 (-0.76)	-0.139*** (-2.73)	-0.084 (-1.35)	-0.461*** (-4.00)	-0.164 (-1.07)	-0.720* (-1.72)	-0.888*** (-3.13)	0.258 (0.37)	0.525 (0.90)
Low-skilled												
Share low-skilled migrants	-0.052 (-0.35)	-0.193 (-1.26)	-0.361 (-1.23)	-0.181 (-0.88)	0.021 (0.21)	0.021 (0.21)	-0.359** (-2.25)	-0.112 (-0.73)	-0.421 (-0.82)	-0.804 (-1.55)	-0.370 (-0.36)	-1.575 (-1.29)

Note: In the estimations for migrant workers (i.e specifications (3), (4), (7), (8), (11) and (12)) the twice-lagged share of migrants is used to avoid endogeneity
t-statistics in parentheses: *** p<0.01, ** p<0.05, * p<0.1

5.5. The role of labour market institutions: results for EU OECD countries

Furthermore, the analysis also sheds light on the role of labour market institutions captured in terms of union density and employment protection against individual dismissal (by means of the OECD employment protection index) for mobility of native and migrant workers residing in EU-15 and the NMS countries that are OECD members.¹⁹ To conserve space, the results are only discussed but not presented here but are available upon request.

With respect to **labour market status change** – i.e. the mobility of workers in and out of employment - the results demonstrate that labour market institutions do matter for labour mobility, both in terms of gross reallocation as well as net creation rates. In particular, while employment-status related gross labour mobility is found to be unrelated to the degree of unionisation, irrespective of country-sample or type of workers considered, employment protection (against individual dismissals) is related to significantly lower gross labour mobility, among both native and migrant workers. Hence, results suggest that higher labour adjustment costs associated with stronger employment protection tend to stifle labour mobility of both native and migrant workers alike. However, observable effects are generally higher for migrant workers.²⁰

On the contrary, results show that strong labour market institutions intended to protect workers tend to reduce net employment creation of both native and migrant workers. However, this effect tends to differ between OECD countries in the EU-15 and NMS. For instance, in the EU as a whole and the EU-15, both native and migrant workers experience significantly lower net employment creation if the degree of unionisation is high. This indicates that unions which aim at preserving their members' jobs significantly reduce net employment creation. Equally, employment protection only matters for native workers in the EU as a whole and the EU-15, whose net employment creation is significantly lower in the face of strong employment protection mechanisms. On the contrary, for the NMS, net employment creation is unrelated to labour market institutions intended to protect workers in terms of either the degree of unionisation or employment protection against individual dismissals, for both native and migrant workers.

Furthermore, there is also weak evidence of an important role of labour market institutions for **cross-sectoral mobility of workers**. Again, strong labour market institutions intended to protect workers tend to reduce gross cross-sectoral mobility of workers. More specifically, gross cross-sectoral mobility of migrant workers is significantly lower if the degree of unionisation is high, irrespective of country-sample considered. For native workers, such an effect only emerges for the sample of OECD countries in the EU as a whole. This is generally in line with findings by Micco and Pagés (2004) which highlight that for a sample of developed and developing countries more stringent job security regulations noticeably slow down job turnover, particularly in sectors that require higher labor flexibility.

Finally, labour market institutions are found to matter for the **mobility of workers in and out of regions**, to a limited degree though. Interestingly, for the overall EU-sample, the role of union density for cross-regional mobility differs by type of worker: while native workers show higher regional

¹⁹ In the EU-15, Austria, Belgium, Denmark, France, Germany, Greece, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden and the UK are included. In the NMS, the Czech Republic, Estonia, Hungary, Latvia, Poland, Slovakia, Slovenia are OECD countries.

²⁰ The t-test which determines the equality of coefficients was however not rejected, suggesting that there are no significant differences between native and migrant workers.

mobility if union density is high, migrant workers, on the contrary, show lower regional mobility if union density is high. This may indicate that stronger protection provided by unions induces native workers to more intensely look for alternative/better jobs and move regionally. This effect seems to be absent for migrant workers who appear to be less mobile regionally in the light of stronger union protection. Furthermore, for the EU-15, regional mobility is higher among native workers if union density is high, however, no relationship between regional mobility and union density emerges for migrant workers. And for the NMS, cross-sectoral mobility and union density appear unrelated.

5.6. *Inter-sectoral labour mobility*

We also investigated the determinants of mobility of both native and migrant workers across sectors. Since for each individual country, inflows of workers into one sector represent outflows of workers from other sectors, overall in- and outflows of workers cancel out at the country-level. Hence, only labour mobility in terms of gross employment reallocation rates (GERRs) will be analysed in what follows.

Our results highlight that the ***share of migrants*** in the host country plays a minor role for the mobility of native workers between sectors (Table 9). More specifically, we find evidence that a high share of migrant workers in the host country helps spur mobility of native workers across sectors. Hence, migrant workers help grease the wheels of the labour market by stimulating the mobility of native workers. In contrast, we find no significant effect of the presence of migrants on the mobility of migrant workers between sectors, particularly once additional control variables are included.

Table 9. Inter-sectoral mobility: effects of share of migrants on gross employment reallocation rates (gerr), by type of worker

	EU				EU-15				NMS			
	Natives		Migrants		Natives		Migrants		Natives		Migrants	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Inter-sectoral mobility												
Share migrants	0.022 (0.28)	0.271** (2.50)	-0.273** (-2.11)	0.011 (0.07)	-0.002 (-0.02)	0.227 (1.42)	-0.291** (-2.17)	-0.273 (-1.25)	0.213 (1.18)	0.077 (0.49)	-0.155 (-0.42)	-0.310 (-0.83)

Note: In the estimations for migrant workers (i.e specifications (3), (4), (7), (8), (11) and (12)) the twice-lagged share of migrants is used to avoid endogeneity
t-statistics in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Table 10. Regional mobility: effects of share of migrants on gross employment reallocation rates (gerr), by type of worker

	EU				EU15				NMS			
	Natives		Migrants		Natives		Migrants		Natives		Migrants	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Regional mobility												
Share migrants	0.133 (1.15)	0.748*** (2.81)	-0.548** (-2.37)	-1.347*** (-2.99)	0.128 (0.89)	0.847* (1.88)	-0.549*** (-2.77)	-0.789* (-1.76)	1.098*** (3.31)	0.908*** (2.81)	-0.156 (-0.02)	-0.839 (-0.22)

Note: In the estimations for migrant workers (i.e specifications (3), (4), (7), (8), (11) and (12)) the twice-lagged share of migrants is used to avoid endogeneity
t-statistics in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Moreover, the full set of results provided in Table A14 in the Appendix highlight that gross inter-sectoral reallocation is acyclical in nature and therefore does not follow any particular cyclical pattern. With two notable exceptions, this finding is consistent for both native and migrant workers across all three country samples considered. In particular, a pro-cyclical pattern is observable for native workers in the NMS only which indicates that contrary to migrant workers native workers in the NMS show a positive correlation between job mobility across sectors with the cyclical movements of the economy. On the contrary, an anti-cyclical pattern emerges for native workers in the EU-15 which suggests that native workers in the EU-15 move more intensively between sectors during the economically difficult times of recessions.

Furthermore, we also find that gross inter-sectoral mobility patterns of both native and migrant workers are strongly **age**-specific. For the EU as a whole, for instance, relative to the age cohort 25-34, inter-sectoral mobility of migrant workers is significantly higher if the presence of the very young migrant workers aged between 15 and 24 in the labour force is very high. However, age-related differences in inter-sectoral mobility patterns are more pronounced between the EU-15 and the NMS. In the EU-15, gross mobility of native workers across sectors is significantly lower if there is a strong presence of native workers in their prime age (35-44) and those before retirement, aged between 55 and 64. On the contrary, cross-sectoral mobility of migrant workers is higher if there is a strong presence of older migrant workers aged between 45 and 54. In the NMS, on the other hand, native and migrant workers show more similar age-related cross-sectoral mobility patterns: their cross-sectoral mobility is significantly higher if there is a strong presence of both the very young native and migrant workers aged between 15 and 24. Moreover, in the NMS, overall mobility of native workers across sectors is higher if there is a strong presence of native workers in the pre-retirement age group (55-64).

On the contrary, **skill**-related cross-sectoral mobility patterns are more uniform across type of worker or country sample considered. Our results show that in the EU as a whole and the EU-15, overall cross-sectoral mobility of native workers is lower if the share of medium and high-skilled native workers is higher (relative to low-skilled native workers). Among migrant workers, we only find in the EU-15 that cross-sectoral mobility is lower if the share of medium-skilled migrant workers is high. On the contrary, we find that cross-sectoral mobility of native and migrant workers in the NMS is independent of differences in levels of skills.

Furthermore, results demonstrate that cross-sectoral mobility patterns generally do not differ by **gender**. In particular, both male and female native and migrant workers are generally equally mobile across sectors. However, in the EU-15 only, overall mobility of native workers across sectors is lower if the share of male native workers is higher.

We also find partly weak evidence that mobility of workers across sectors differs by the **number of years of employment with the same employer**. For native workers, our results show that cross-sectoral mobility is lower in the NMS only if the share of native workers with more than 10 years of employment with the same employer is higher. In contrast, the number of years of employment with the same employer matters more for the mobility of migrant workers: for the EU-15, overall cross-sectoral mobility is lower if the share of migrant workers with a job duration of more than 10 years is higher (relative to those with less than 6 years only). In the NMS, however, overall cross-sectoral mobility is lower if the share of migrant workers with between 6 and 10 years of employment with the same employer is higher (relative to those with less than 6 years only).

On the contrary, our results consistently demonstrate that **years of residence** in a country matters little for cross-sectoral mobility of migrant workers.

5.7. Regional labour mobility

Additionally, we investigate the determinants of mobility of both native and migrant workers in and out of regions. Again, since for each individual country, inflows of workers into one region represent outflows of workers from other regions, overall in- and outflows of workers cancel out at the country-level. Hence, only labour mobility in terms of gross employment reallocation rates (GERRs) will be analysed in what follows.

As presented in Table 10 above, we find that the **share of migrants** in the host country matters for the mobility of workers across regions. Particularly, our results consistently show that a high share of migrants spurs mobility of native workers in and out of regions. On the contrary, for the EU as a whole and the EU-15, the opposite holds: a high share of migrants significantly reduces the mobility of migrant workers in and out of regions. Hence, results indicate that migrant workers play a dual role: on the one hand, they help grease the wheels of the labour market by stimulating regional mobility of native workers, on the other hand, they appear to be sand in the wheels of the labour market by stifling regional mobility of migrant workers.

In addition, the full set of results reported in Table A15 in the Appendix consistently show that gross employment reallocation in and out of regions is generally acyclical in nature.

Moreover, regional mobility patterns are only weakly, if at all, related to **age**. Specifically, in the EU-15, regional mobility is significantly higher among native workers if there is a strong presence of native workers aged between 45 and 54 in the labour force while among migrant workers, it is significantly higher if there is a strong presence of the pre-retirement group (55-64). And for native workers in the NMS, we find evidence that very young (15-24 years) and older native workers (45-54 years) are less mobile across regions.

Our results also demonstrate that the mobility of workers in and out of regions is only weakly related to **skills**. In particular, our results consistently show that regional mobility of native workers is lower if the share of high-skilled native workers (relative to low-skilled workers) is high. On the contrary, we find no significant differences in regional mobility patterns of migrant workers with different levels of skills.

Similarly, regional mobility patterns also hardly differ by **gender** of workers. In particular, the mobility of workers across regions is unrelated to a worker's gender except for native workers in the NMS whose mobility across is lower if the share of male native workers is high.

Our results also demonstrate that the **number of years of employment with the same employer** is obstructive to regional mobility. In the EU as a whole, native workers show lower regional mobility if the share of native workers with more than 6 years of employment with the same employer is high. No such differences emerge for migrant workers. For the EU-15, regional mobility of migrant workers is lower if the share of migrant workers with more than 6 years of employment with the same employer is higher. For the NMS, on the other hand, both native and migrant workers show no differences in mobility by years of employment with the same employer.

We also fail to find any evidence that mobility patterns of migrants differ by their **years of residence** in the host country, irrespective of country-sample considered.

6. Summary and conclusion

This paper attempted to contribute to the important issue of mobility patterns on labour markets in the European Union. The relevance of this topic for the functioning of a Monetary Union but also beyond that – more generally – for matching processes on labour markets between patterns of demand and supply in all its dimensions - over the cycle, across skill groups and occupations, across sectors, across regions, adjusting to life cycles across age groups etc. - has been pointed out in an introductory section of this paper.

In this paper, the particular focus was the role of migrants contributing to mobility patterns across the EU economies. We used two main indicators of labour market mobility following Davis and Haltiwanger's analysis: the gross employment mobility rate (GERR) which looks at changes in labour market status in an additive manner (i.e. in and out of jobs) and the net employment rate (NECR) which counts net additions in employment.

We started with a descriptive account of labour mobility patterns in older and new member states (the EU-Advanced, the EU-South, the NMS-5 and the Baltics) along the various dimensions: migrants vs. natives, by age groups, by skill groups, by gender, across sectors and across regions. In general we found that migrants show significantly higher gross and net mobility both at the aggregate economy level as well as cross-sectorally and cross-regionally.

In the second, econometric part of our analysis we tried to see the significance of different factors contributing to GERR and NECR mobility rates in the EU-15 and the NMS. Again the focus was on differences in mobility patterns of migrants vs. natives and also the impact which a strong presence of migrants (furthermore differentiated by skill groups and by regions of origin) might have on overall mobility and separately on mobility of natives and of migrants themselves. The following are our most interesting results:

- There is generally a stronger elasticity (in terms of mobility) of migrants reacting to business cycle fluctuations
- In general a strong presence of a stock of migrants is associated with higher gross mobility rates of migrants (but not that of natives) in slump periods of the business cycle; while in the NMS it was associated with higher gross mobility of natives in both boom and slump periods.
- For OECD member countries we could test for the impact of labour market institutions on labour mobility: thereby we found that stronger employment protection (against individual dismissals) was associated with lower (gross) labour mobility of both natives and migrants. As regards, net employment creation we found that higher employment protection led to lower net employment creation only for natives and not for migrants.
- Once we look at specific skill categories, a number of interesting results emerge:
- For both the EU as a whole and the EU-15, net employment creation is higher for high-skilled workers relative to low-skilled workers, but this applies only to native workers, while migrants do not show the same skill-bias in net employment creation.
- As regards the impact of the presence of a higher share of migrants on labour mobility indicators, we find that a high share of high-skilled migrants is significantly positively related to gross mobility (GERR) and net employment creation (NECR) of high-killed natives. Hence there is a complementarity effect between high-skilled migrants and high-skilled natives.

- We also found a significant positive effect of a strong presence of low-skilled migrants on gross mobility of both native and migrant workers in the EU as a whole and the EU-15. Hence a 'greasing of the wheels' effect is there. Furthermore the 'migrant-on-migrant' effect is stronger than the 'migrant-on-native' effect which indicates that the impact on labour mobility which results from a high presence of low-skill migrants is stronger on migrants than on natives of this skill-category.
- As regards net employment creation (NECR) no significant negative effect could be detected as a result of a relatively high presence of low-skilled migrants for either natives or migrants.
- The only significant negative effect could be detected with respect to the presence of a high share of medium-skilled migrants in NMS economies on native employees. We would relate this to the general process of de-industrialisation in these economies as medium-skilled workers represent a relatively high share of the workers in manufacturing.
- Interesting results also emerged when we distinguished migrants from different source regions (other EU economies, other advanced economies, developing countries):
- While migrants from other developed countries have a very strong positive impact on gross mobility rates of natives in the EU-15 and the EU as a whole (for the NMS alone this effect is not significant), migrants from developing countries have a negative impact on gross mobility of natives in the EU (this time the impact is significant both in the EU-15 and the NMS). We interpret this in the following way: Migrants from other developed economies are more similar in their characteristics to domestic labour forces, hence they have higher substitution elasticities with natives (see also Ottaviano and Peri, 2006) and provide a stronger incentive for natives to respond to labour market shocks through stronger mobility. Migrants from developing countries, on the other hand, exert less pressure on mobility of domestic labour forces to increase their mobility to shocks; on the contrary, they might provide a buffer against shocks and reduce mobility amongst domestic work forces. There were no significant results for the net employment creation variable.
- As regards 'migrant-on-migrant' effects we observe a consistent positive impact of high shares of migrants from developing countries on gross mobility (GERR) of migrants – i.e. the opposite of what we observe for natives - in EU-15 economies (and also in EU as a whole); while for NMS there is a negative impact of a high share of migrants from European economies on gross mobility of migrants. Again we would explain these patterns by a high degree of substitutability of migrants from developing countries with migrants in EU-15 economies (as opposed to natives) as regards their relative exposure and reaction to shocks, while this would be less the case for migrants from other European economies in the NMS. Migrants from other European countries would reduce the pressure of mobility in the NMS for migrants in general over there. We were able to support this interpretation (with regard to complementarity and substitutability) with information regarding the skill composition of migrants from these different source countries in the EU-15 and the NMS.
- In a similar vein we can interpret the results with respect to net employment creation (NECR) in relation to migrants: we observe a positive impact of a high share of migrants from developed economies (and from other EU countries) on net job growth in the EU as a whole and a negative impact of migrants from developing countries. This indicates evidence for a substitution effect of a high share of migrants from developing countries on net job creation

for migrants in the EU-15 and complementarity with respect to migrants from developed (and other EU) economies.

- Finally, we tested the impact of a high share of migrants on inter-sectoral and inter-regional mobility and we found – in general – we found that a higher share of migrants spurs both inter-sectoral and inter-regional mobility of natives.
- As regards skill-types inter-regional mobility is generally lower for high-skilled native workers than for their low-skilled counter-parts.

From a policy angle we come to the following conclusion:

Our study came out with substantive evidence for the ‘greasing of the wheels’ effect of migrants in relation to labour market mobility: migrants have a higher elasticity of mobility across the cycle, they spur inter-sectoral and inter-regional mobility of natives, there is a significant migrant-on-migrant mobility effect. There was also evidence of complementarity effects in terms net employment creation between high-skilled migrants and high-skilled natives and we also found quite different complementarity vs. substitution effects with regard to the impact of a high share of migrants from advanced (and European) economies as compared to migrants from developing countries. Finally we, found certain impacts of labour market institutions for labour market mobility.

All this evidence leads to policy conclusions depending on whether policy wants to encourage labour mobility or rather try to reduce it. As negative effects on net employment creation from a higher share of migrant workers were hardly found (except for the impact of a high share migrants from developing countries on migrants themselves) the rather low mobility rates for Europe as compared to e.g. the United States would suggest that the impact of migrants to support mobility should rather be welcomed.

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8. Appendix

Table A1. Status change: determinants of gross employment reallocation rates (gerr) of all workers

	EU		EU-15		NMS	
	(1)	(2)	(3)	(4)	(5)	(6)
Real GDP growth rate	-0.130*** (-4.12)	-0.064* (-1.85)		-0.006 (-0.12)		-0.072** (-2.11)
Share migrants*	0.266*** (3.40)	0.207* (1.72)	0.366*** (5.08)	0.192 (1.64)	-0.184 (-0.68)	0.338 (1.14)
Age cohort 15-24		-0.119 (-0.46)		0.873** (2.35)		-0.165 (-0.38)
Age cohort 35-44		-0.142 (-0.61)		0.731*** (2.90)		-0.827** (-2.46)
Age cohort 45-54		-0.113 (-0.47)		1.003*** (3.29)		-0.859** (-2.28)
Age cohort 55-64		-0.368* (-1.79)		0.516* (1.97)		-0.461 (-1.11)
Share medium-skilled		-0.195** (-2.19)		0.015 (0.18)		0.190 (0.58)
Share high-skilled		0.122 (1.50)		0.258*** (3.15)		0.385 (1.45)
Share males		-0.637** (-2.31)		0.916*** (2.84)		-2.429*** (-6.18)
Share job duration: 6-10 yrs		0.027 (0.27)		-0.154 (-1.54)		0.756*** (3.40)
Share job duration: +10 yrs		0.090 (0.77)		-0.216 (-1.42)		0.390** (2.66)
Share years of residence: >5 yrs		-0.065** (-2.38)		-0.005 (-0.18)		0.103* (1.98)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Constant	10.947*** (13.18)	66.831*** (2.79)	8.079*** (8.04)	-96.855*** (-3.29)	14.870*** (10.59)	132.031*** (3.49)
No of obs	187	187	113	113	74	74
R-squared	0.161	0.338	0.207	0.497	0.007	0.746
F-test	15.49	6.48	25.84	7.233	0.465	12.71

Note: In all estimations twice-lagged share of migrants is used to avoid endogeneity

t-statistics in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Table A2. Status change: determinants of gross employment reallocation rates (gerr) of native and migrant workers during boom periods

	EU				EU-15				NMS			
	Natives		Migrants		Natives		Migrants		Natives		Migrants	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Share migrants	0.155*	0.114	0.126	0.021	0.160**	0.035	0.325**	-0.066	0.113	0.436	-0.954	-0.612
	(1.66)	(0.96)	(0.53)	(0.09)	(2.12)	(0.28)	(2.28)	(-0.33)	(0.33)	(1.55)	(-1.18)	(-0.77)
Age cohort 15-24		-0.490*		-0.326		0.029		0.476		-0.464		-0.360
		(-1.91)		(-0.90)		(0.08)		(1.37)		(-1.10)		(-0.44)
Age cohort 35-44		-0.469**		-0.010		-0.189		0.118		-0.155		-0.170
		(-2.20)		(-0.05)		(-0.85)		(0.61)		(-0.47)		(-0.47)
Age cohort 45-54		-0.415*		-0.130		0.437		-0.467		-0.345		-0.190
		(-1.73)		(-0.92)		(1.53)		(-1.60)		(-0.94)		(-0.65)
Age cohort 55-64		-0.704***		0.497***		-0.412*		0.883**		-0.773*		0.357
		(-3.64)		(2.74)		(-1.97)		(2.49)		(-1.95)		(1.06)
Share medium-skilled		-0.192*		-0.065		-0.100		0.149		0.243		-0.501
		(-1.68)		(-0.51)		(-0.91)		(1.46)		(0.72)		(-1.49)
Share high-skilled		0.187		0.080		0.302**		0.242**		0.329		-0.052
		(1.62)		(0.59)		(2.17)		(2.30)		(1.23)		(-0.15)
Share males		-0.469*		0.382***		0.549*		-0.368		-2.137***		0.494**
		(-1.74)		(3.29)		(1.87)		(-1.29)		(-4.89)		(2.67)
Share job duration: 6-10 yrs		0.055		0.156		-0.026		0.241*		0.342		0.166
		(0.45)		(1.12)		(-0.20)		(1.82)		(1.48)		(0.58)
Share job duration: >10 yrs		0.061		-0.259**		-0.311		0.222		0.243		-0.160
		(0.47)		(-2.19)		(-1.62)		(1.07)		(1.50)		(-0.86)
Share years of residence: >5 yrs				0.070				0.097				-0.222
				(0.81)				(1.38)				(-0.86)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	11.822***	76.439***	14.480***	-7.456	10.674***	-8.914	12.720***	2.266	13.454***	111.830***	18.322***	46.905
	(11.81)	(3.49)	(5.77)	(-0.42)	(9.42)	(-0.36)	(5.99)	(0.10)	(7.84)	(3.33)	(4.48)	(1.07)
No of obs	131	131	114	113	75	75	64	64	56	56	50	49
R ²	0.025	0.309	0.003	0.38	0.069	0.330	0.094	0.438	0.002	0.760	0.034	0.521
F-test	2.768	4.38	0.279	4.405	4.505	2.562	5.185	2.836	0.112	11.38	1.383	2.771

Note: In the estimations for migrant workers (i.e specifications (3), (4), (7), (8), (11) and (12)) the twice-lagged share of migrants is used to avoid endogeneity

t-statistics in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Table A3. Status change: determinants of gross employment reallocation rates (gerr) of native and migrant workers during slump periods

	EU				EU-15				NMS			
	Natives		Migrants		Natives		Migrants		Natives		Migrants	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Share migrants	0.233** (2.21)	0.160 (0.90)	0.340* (1.95)	0.619** (2.51)	0.239** (2.20)	0.174 (0.82)	0.335** (2.10)	0.533* (1.89)	0.187 (0.55)	0.827** (2.84)	0.376 (0.56)	1.386 (1.56)
Age cohort 15-24		0.146 (0.46)		1.325*** (3.09)		0.804 (1.64)		1.043** (2.10)		-0.710* (-2.10)		3.286 (2.24)
Age cohort 35-44		-0.217 (-0.62)		0.230 (1.37)		0.000 (-0.00)		0.328 (1.56)		0.009 (0.02)		0.963 (1.70)
Age cohort 45-54		0.141 (0.41)		0.227 (1.20)		0.916** (2.06)		0.123 (0.29)		-0.025 (-0.05)		0.866 (1.53)
Age cohort 55-64		-0.530* (-1.75)		0.275 (1.54)		-0.135 (-0.42)		0.520 (1.15)		-0.625 (-1.04)		1.198* (2.45)
Share medium-skilled		-0.091 (-0.70)		-0.064 (-0.60)		0.113 (0.90)		-0.130 (-1.07)		-0.563 (-1.37)		0.284 (0.45)
Share high-skilled		0.324** (2.35)		-0.097 (-0.93)		0.559*** (3.85)		0.032 (0.30)		-0.229 (-0.66)		-0.546 (-0.77)
Share males		0.114 (0.29)		-0.804*** (-3.74)		1.275*** (2.89)		-0.384 (-1.01)		-2.184*** (-4.85)		-1.491** (-3.56)
Share job duration: 6-10 yrs		-0.092 (-0.59)		0.112 (0.93)		-0.408* (-1.95)		-0.228 (-1.51)		0.198 (1.05)		0.750 (1.06)
Share job duration: >10 yrs		-0.095 (-0.49)		0.212 (1.56)		-0.356 (-1.28)		0.015 (0.07)		0.176 (1.19)		0.357 (0.96)
Share years of residence: >5 yrs				-0.115* (-1.88)				-0.048 (-0.73)				-0.777 (-1.15)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	10.363*** (9.19)	14.112 (0.36)	12.349*** (6.80)	35.465** (2.17)	8.705*** (5.80)	-87.695* (-1.85)	12.636*** (6.20)	17.233 (0.62)	13.308*** (7.42)	173.011*** (3.86)	11.698*** (3.16)	40.197 (0.52)
No of obs	95	95	73	73	60	60	49	49	35	35	24	24
R ²	0.064	0.27	0.072	0.408	0.095	0.539	0.112	0.481	0.012	0.853	0.024	0.866
F-test	4.865	2.292	3.788	2.439	4.823	4.33	4.401	2.105	0.302	8.67	0.319	1.759

Note: In the estimations for migrant workers (i.e specifications (3), (4), (7), (8), (11) and (12)) the twice-lagged share of migrants is used to avoid endogeneity

t-statistics in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Table A4. Status change: determinants of net employment creation rates (necr) of native and migrant workers during boom periods

	EU				EU-15				NMS			
	Natives		Migrants		Natives		Migrants		Natives		Migrants	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Share migrants	-0.050 (-0.56)	0.103 (0.92)	-0.128 (-0.76)	0.227 (1.28)	0.018 (0.22)	0.114 (1.02)	-0.188 (-1.14)	-0.067 (-0.33)	0.187 (0.55)	0.827** (2.84)	0.198 (0.42)	-0.113 (-0.22)
Age cohort 15-24		0.425* (1.75)		0.945*** (3.31)		0.407 (1.33)		0.954** (2.67)		-0.710* (-2.10)		0.344 (0.65)
Age cohort 35-44		-0.773*** (-3.83)		-0.048 (-0.32)		-0.518** (-2.65)		-0.345* (-1.72)		0.009 (0.02)		0.151 (0.65)
Age cohort 45-54		-0.482** (-2.12)		0.103 (0.92)		-0.196 (-0.78)		0.350 (1.17)		-0.025 (-0.05)		0.144 (0.76)
Age cohort 55-64		-0.340* (-1.85)		-0.149 (-1.04)		-0.323* (-1.75)		0.032 (0.09)		-0.625 (-1.04)		-0.111 (-0.51)
Share medium-skilled		-0.068 (-0.64)		-0.031 (-0.31)		0.008 (0.08)		-0.021 (-0.20)		-0.563 (-1.37)		-0.021 (-0.09)
Share high-skilled		0.158 (1.45)		-0.057 (-0.53)		0.217* (1.78)		0.075 (0.69)		-0.229 (-0.66)		-0.326 (-1.41)
Share males		0.195 (0.76)		0.063 (0.69)		0.364 (1.41)		0.275 (0.94)		-2.184*** (-4.85)		-0.044 (-0.37)
Share job duration: 6-10 yrs		0.478*** (4.16)		0.083 (0.75)		0.319*** (2.82)		0.446*** (3.27)		0.198 (1.05)		-0.261 (-1.41)
Share job duration: >10 yrs		0.324*** (2.64)		0.210** (2.25)		-0.155 (-0.92)		0.120 (0.56)		0.176 (1.19)		0.030 (0.25)
Share years of residence: >5 yrs				-0.129* (-1.89)				-0.125* (-1.73)				0.034 (0.21)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	3.605*** (3.73)	1.661 (0.08)	3.526* (1.98)	-2.617 (-0.19)	3.338*** (2.79)	-5.265 (-0.24)	6.213** (2.53)	-19.796 (-0.89)	13.308*** (7.42)	173.011*** (3.86)	-0.394 (-0.16)	9.481 (0.33)
No of obs	131	131	114	113	75	75	64	64	35	35	50	49
R ²	0.003	0.32	0.006	0.281	0.001	0.502	0.025	0.52	0.012	0.853	0.004	0.448
F-test	0.315	4.608	0.577	2.81	0.0487	5.236	1.301	3.945	0.302	8.67	0.173	2.063

Note: In the estimations for migrant workers (i.e specifications (3), (4), (7), (8), (11) and (12)) the twice-lagged share of migrants is used to avoid endogeneity

t-statistics in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Table A5. Status change: determinants of net employment creation rates (necr) of native and migrant workers during slump periods

	EU				EU-15				NMS			
	Natives		Migrants		Natives		Migrants		Natives		Migrants	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Share migrants	-0.095 (-0.69)	0.260 (1.57)	-0.692*** (-2.87)	-0.161 (-0.56)	-0.184 (-1.60)	-0.275 (-1.51)	-0.873*** (-4.04)	-0.217 (-0.86)	0.613 (1.14)	-0.633 (-1.34)	0.589 (0.68)	-1.264 (-1.59)
Age cohort 15-24		0.855*** (2.87)		-0.250 (-0.50)		0.303 (0.72)		0.461 (1.04)		0.785 (1.43)		-0.361 (-0.27)
Age cohort 35-44		-0.403 (-1.24)		-0.082 (-0.42)		-0.638* (-1.70)		-0.357* (-1.90)		-0.042 (-0.06)		-0.538 (-1.06)
Age cohort 45-54		0.073 (0.23)		-0.184 (-0.84)		-0.014 (-0.04)		1.023** (2.73)		-0.139 (-0.17)		-0.623 (-1.22)
Age cohort 55-64		-0.007 (-0.03)		-0.682*** (-3.29)		-0.549* (-1.98)		1.181*** (2.92)		-0.045 (-0.05)		-1.195* (-2.72)
Share medium-skilled		0.192 (1.59)		-0.074 (-0.59)		0.038 (0.35)		-0.109 (-1.00)		1.096 (1.64)		-1.253 (-2.20)
Share high-skilled		0.101 (0.79)		0.066 (0.54)		0.310** (2.47)		-0.063 (-0.66)		0.283 (0.50)		-0.819 (-1.28)
Share males		1.391*** (3.80)		0.425* (1.71)		0.527 (1.38)		1.064*** (3.12)		2.561*** (3.50)		0.461 (1.23)
Share job duration: 6-10 yrs		0.459*** (3.15)		0.092 (0.67)		0.183 (1.01)		0.037 (0.27)		-0.138 (-0.45)		-1.062 (-1.68)
Share job duration: >10 yrs		0.041 (0.23)		-0.052 (-0.33)		-0.678*** (-2.81)		-0.201 (-1.01)		0.035 (0.14)		-0.597 (-1.79)
Share years of residence: >5 yrs				-0.220*** (-3.10)				-0.213*** (-3.66)				0.770 (1.27)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	2.345 (1.58)	-100.343*** (-2.77)	7.275*** (2.90)	13.739 (0.73)	4.348*** (2.74)	13.997 (0.34)	12.291*** (4.46)	-53.266** (-2.13)	-2.685 (-0.95)	-212.961** (-2.93)	-5.299 (-1.11)	110.794 (1.58)
No of obs	95	95	73	73	60	60	49	49	35	35	24	24
R ²	0.007	0.609	0.144	0.616	0.053	0.677	0.318	0.825	0.051	0.85	0.035	0.936
F-test	0.472	9.647	8.223	5.681	2.565	7.767	16.34	10.72	1.301	8.476	0.468	3.98

Note: In the estimations for migrant workers (i.e specifications (3), (4), (7), (8), (11) and (12)) the twice-lagged share of migrants is used to avoid endogeneity

t-statistics in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Table A6. Status change: determinants of gross employment reallocation rates (gerr) of native and migrant workers, by country of origin

	EU				EU-15				NMS			
	Natives		Migrants		Natives		Migrants		Natives		Migrants	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Real GDP growth rate		-0.067** (-2.01)		-0.031 (-0.50)		-0.002 (-0.05)		-0.052 (-0.76)		-0.110** (-2.80)		-0.030 (-0.30)
Share migrants: EUROPE	-0.386 (-1.53)	-0.411* (-1.87)	-0.420 (-0.86)	-1.018** (-2.26)	0.183 (0.88)	-0.006 (-0.03)	0.041 (0.12)	-0.420 (-1.28)	-3.050*** (-3.67)	-0.378 (-0.73)	-3.492* (-1.72)	-6.747*** (-5.33)
Share migrants: DEVELOPED	12.062*** (4.04)	6.655*** (2.97)	5.161 (0.99)	-2.072 (-0.44)	9.080*** (3.90)	5.787*** (3.08)	3.674 (1.03)	3.960 (1.14)	17.578 (0.96)	-12.670 (-1.13)	4.255 (0.07)	5.021 (0.14)
Share migrants: DEVELOPING	-0.070 (-0.20)	-0.871*** (-2.95)	1.802*** (3.03)	1.818*** (3.05)	-0.275 (-1.04)	-1.101*** (-4.14)	1.678*** (4.15)	1.597*** (3.56)	1.100 (0.26)	-7.150*** (-3.08)	-10.063 (-0.83)	-8.854 (-1.21)
Age cohort 15-24		0.317 (1.10)		0.722** (2.32)		0.683** (2.27)		1.127*** (4.40)		0.627 (1.27)		-0.643 (-1.04)
Age cohort 35-44		-0.313 (-1.58)		0.476*** (2.89)		0.381* (1.72)		0.266 (1.55)		1.392** (2.71)		0.334 (0.95)
Age cohort 45-54		-0.247 (-1.10)		0.176 (1.36)		0.130 (0.48)		-0.005 (-0.02)		1.017* (1.80)		0.365 (1.33)
Age cohort 55-64		-0.507** (-2.25)		0.627*** (3.73)		0.125 (0.41)		0.966*** (3.23)		0.109 (0.24)		0.098 (0.37)
Share medium-skilled		-0.089 (-1.00)		0.035 (0.32)		-0.102 (-1.00)		0.221** (2.50)		0.297 (1.21)		0.072 (0.27)
Share high-skilled		0.554*** (5.90)		0.393*** (3.14)		0.682*** (6.95)		0.249** (2.57)		0.094 (0.42)		0.916** (2.56)
Share males		-0.821*** (-2.99)		-0.218* (-1.84)		0.022 (0.07)		-0.289 (-1.39)		-2.596*** (-5.73)		-0.360** (-2.35)
Share job duration: 6-10 yrs		-0.019 (-0.19)		-0.069 (-0.64)		-0.070 (-0.75)		-0.101 (-0.73)		0.220 (1.05)		-0.114 (-0.55)
Share job duration: >10 yrs		0.204** (1.99)		-0.343*** (-2.88)		-0.079 (-0.50)		-0.063 (-0.38)		0.233* (1.80)		-0.245 (-1.52)
Share years of residence: >5 yrs				0.149** (2.38)				0.147*** (2.83)				-0.138 (-0.64)
Country dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	17.568*** (6.25)	68.866*** (3.09)	11.300*** (3.77)	-16.129 (-1.16)	11.535*** (5.01)	-10.709 (-0.46)	7.472*** (2.93)	-21.826 (-1.19)	10.371*** (14.84)	56.549 (1.26)	28.959*** (3.50)	26.187 (0.80)
No of obs	130	130	101	101	87	87	70	70	43	43	31	31
R ²	0.759	0.887	0.184	0.579	0.874	0.936	0.418	0.748	0.631	0.953	0.162	0.921
F-test	16.17	24.78	5.953	6.685	35.58	37.67	13.17	9.328	6.279	24.72	1.35	8.348

Note: In the estimations for migrant workers (i.e specifications (3), (4), (7), (8), (11) and (12)) the twice-lagged share of migrants is used to avoid endogeneity

t-statistics in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Table A7. Status change: determinants of net employment creation rates (necr) of native workers, by country of origin

	EU				EU-15				NMS			
	Natives		Migrants		Natives		Migrants		Natives		Migrants	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Real GDP growth rate		0.286*** (7.14)		0.337*** (6.32)		0.203*** (3.62)		0.363*** (4.41)		0.285*** (3.59)		0.218 (1.61)
Share migrants: EUROPE	0.561* (1.67)	0.351 (1.32)	-0.109 (-0.23)	0.690* (1.78)	0.375 (1.30)	0.360 (1.38)	0.211 (0.50)	0.994** (2.52)	3.083** (2.48)	1.645 (1.58)	-2.481 (-1.47)	-1.614 (-0.94)
Share migrants: DEVELOPED	-0.844 (-0.21)	-1.584 (-0.59)	8.188 (1.60)	9.843** (2.43)	0.413 (0.13)	-2.095 (-0.90)	7.542* (1.77)	6.898 (1.65)	-29.647 (-1.09)	-5.694 (-0.25)	40.709 (0.85)	-0.488 (-0.01)
Share migrants: DEVELOPING	-0.530 (-1.14)	0.276 (0.78)	-2.299*** (-3.95)	-1.082** (-2.11)	-0.412 (-1.12)	-0.112 (-0.34)	-2.499*** (-5.15)	-0.800 (-1.49)	-14.752** (-2.31)	-4.747 (-1.01)	17.690* (1.75)	11.996 (1.20)
Age cohort 15-24		0.784** (2.26)		0.674** (2.52)		0.885** (2.38)		0.655** (2.13)		-0.061 (-0.06)		0.934 (1.11)
Age cohort 35-44		-0.697*** (-2.92)		-0.030 (-0.21)		-0.335 (-1.23)		0.130 (0.63)		-0.472 (-0.45)		0.263 (0.55)
Age cohort 45-54		-0.613** (-2.28)		-0.016 (-0.15)		-0.917*** (-2.74)		-0.086 (-0.27)		0.682 (0.60)		0.213 (0.57)
Age cohort 55-64		-0.066 (-0.24)		-0.217 (-1.50)		0.425 (1.12)		-0.010 (-0.03)		0.748 (0.81)		-0.058 (-0.16)
Share medium-skilled		0.076 (0.71)		0.085 (0.89)		-0.037 (-0.29)		-0.029 (-0.28)		-0.247 (-0.50)		0.443 (1.20)
Share high-skilled		0.243** (2.14)		-0.084 (-0.78)		0.386*** (3.19)		-0.046 (-0.39)		-0.453 (-1.01)		0.100 (0.20)
Share males		0.072 (0.22)		0.123 (1.21)		-0.080 (-0.22)		0.600** (2.39)		0.902 (0.99)		0.278 (1.33)
Share job duration: 6-10 yrs		0.358*** (2.94)		0.034 (0.37)		0.347*** (3.04)		0.087 (0.52)		0.160 (0.38)		0.026 (0.09)
Share job duration: +10 yrs		0.342*** (2.78)		0.008 (0.08)		0.203 (1.04)		-0.056 (-0.28)		0.503* (1.92)		-0.130 (-0.59)
Share years of residence: >5 yrs				-0.044 (-0.81)				-0.024 (-0.38)				-0.138 (-0.47)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-0.735 (-0.20)	-8.861 (-0.33)	7.021** (2.39)	-9.569 (-0.80)	1.031 (0.32)	2.784 (0.10)	8.327*** (2.71)	-42.730* (-1.94)	3.597*** (3.45)	-63.474 (-0.70)	3.503 (0.51)	-42.111 (-0.95)
No of obs	130	130	101	101	87	87	70	70	43	43	31	31
R ²	0.606	0.849	0.196	0.68	0.741	0.895	0.354	0.721	0.394	0.859	0.191	0.796
F-test	7.909	17.71	6.431	10.34	14.72	21.95	10.04	8.124	2.388	7.397	1.656	2.783

Note: In the estimations for migrant workers (i.e specifications (3), (4), (7), (8), (11) and (12)) the twice-lagged share of migrants is used to avoid endogeneity

t-statistics in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Table A8. Status change: determinants of gross employment reallocation rates (gerr) of native and migrant workers: high-skilled

	EU				EU-15				NMS			
	Natives		Migrants		Natives		Migrants		Natives		Migrants	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Real GDP growth rate		-0.070*** (-2.76)		-0.054 (-1.15)		-0.034 (-0.76)		-0.123 (-1.63)		-0.041 (-1.43)		0.015 (0.23)
Share migrants	0.113*** (2.73)	0.158*** (3.25)	-0.018 (-0.20)	-0.072 (-0.73)	0.179*** (3.63)	0.289*** (4.73)	0.179** (2.02)	0.068 (0.60)	-0.036 (-0.48)	0.089 (0.99)	-0.372** (-2.02)	-0.520** (-2.19)
Age cohort 15-24		0.066 (0.43)		0.299 (1.55)		0.372* (1.77)		0.172 (0.50)		-0.306 (-1.23)		0.272 (1.00)
Age cohort 35-44		-0.252*** (-3.49)		0.034 (0.52)		-0.232** (-2.20)		-0.014 (-0.15)		0.014 (0.14)		0.123 (1.11)
Age cohort 45-54		-0.103* (-1.67)		-0.062 (-0.93)		-0.144 (-1.39)		0.106 (0.88)		0.243** (2.60)		-0.017 (-0.17)
Age cohort 55-64		-0.277*** (-3.04)		0.129 (1.59)		-0.078 (-0.65)		0.000 (-0.00)		-0.201 (-1.39)		0.212 (1.58)
Share males		0.236*** (2.94)		-0.015 (-0.24)		0.430*** (4.82)		0.117 (1.45)		-0.185 (-1.31)		-0.118 (-1.10)
Share job duration: 6-10 yrs		0.410** (2.32)		0.401** (2.55)		0.470** (2.11)		0.042 (0.17)		0.351 (1.19)		0.365 (1.56)
Share job duration: >10 yrs		0.158 (1.32)		0.242* (1.74)		-0.008 (-0.05)		0.032 (0.12)		0.204 (1.20)		0.141 (0.76)
Share years of residence: >5 yrs				-0.073 (-0.91)				0.133 (1.02)				-0.174 (-1.43)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	8.162*** (16.50)	5.119 (1.05)	11.669*** (10.92)	8.846* (1.85)	6.726*** (8.79)	-9.614 (-1.27)	10.435*** (7.79)	0.436 (0.06)	9.739*** (19.96)	10.968 (1.54)	11.372*** (9.06)	11.780 (1.50)
No of obs	226	226	187	170	135	135	113	113	91	91	74	57
R ²	0.036	0.168	0.000	0.178	0.098	0.349	0.040	0.161	0.003	0.311	0.061	0.441
F-test	7.459	4.356	0.0384	2.96	13.2	6.741	4.072	1.729	0.232	3.613	4.064	2.915

Note: In the estimations for migrant workers (i.e specifications (3), (4), (7), (8), (11) and (12)) the twice-lagged share of migrants is used to avoid endogeneity

t-statistics in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Table A9. Status change: determinants of gross employment reallocation rates (gerr) of native and migrant workers: medium-skilled

	EU				EU-15				NMS			
	Natives		Migrants		Natives		Migrants		Natives		Migrants	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Real GDP growth rate		-0.137*** (-3.56)		-0.098 (-1.53)		-0.037 (-0.65)		0.020 (0.18)		-0.171*** (-3.15)		-0.110 (-1.32)
Share migrants	0.036 (0.55)	-0.136 (-1.56)	0.068 (0.46)	0.115 (0.92)	0.045 (0.85)	-0.125 (-1.65)	0.046 (0.44)	0.168 (1.12)	-0.165 (-0.43)	-0.266 (-0.74)	0.586 (0.59)	1.060 (1.62)
Age cohort 15-24		-0.007 (-0.05)		0.267 (1.44)		0.233 (1.43)		0.560*** (2.66)		-0.771** (-2.43)		-0.556 (-1.49)
Age cohort 35-44		-0.163 (-1.15)		-0.109 (-1.32)		-0.168 (-1.20)		0.010 (0.07)		0.060 (0.20)		-0.214 (-1.59)
Age cohort 45-54		0.359*** (2.76)		-0.042 (-0.43)		0.526*** (3.84)		-0.367** (-2.11)		0.711** (2.41)		-0.061 (-0.38)
Age cohort 55-64		-0.217* (-1.82)		0.362*** (3.62)		-0.272* (-1.92)		0.336 (1.30)		-0.659** (-2.29)		0.299** (2.27)
Share males		0.029 (0.19)		-0.204*** (-2.82)		0.055 (0.39)		-0.597*** (-3.34)		-0.498 (-1.08)		-0.162 (-1.59)
Share job duration: 6-10 yrs		-0.230* (-1.69)		-0.046 (-0.27)		0.104 (0.53)		0.178 (0.64)		-0.456 (-1.51)		-0.098 (-0.43)
Share job duration: >10 yrs		-0.226* (-1.80)		-0.084 (-0.46)		-0.469*** (-3.42)		0.285 (0.77)		-0.113 (-0.44)		-0.149 (-0.63)
Share years of residence: >5 yrs				-0.051 (-0.56)				-0.088 (-0.72)				-0.058 (-0.30)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	12.887*** (20.04)	18.368 (1.57)	16.034*** (10.97)	29.057*** (3.65)	11.997*** (17.29)	11.085 (1.05)	17.162*** (13.04)	47.192*** (2.99)	15.053*** (7.62)	48.049* (1.68)	12.035** (2.31)	31.061 (1.66)
No of obs	226	226	186	180	135	135	113	113	91	91	73	67
R ²	0.002	0.219	0.001	0.222	0.006	0.323	0.002	0.237	0.002	0.362	0.006	0.443
F-test	0.305	6.046	0.211	4.206	0.721	5.983	0.195	2.799	0.184	4.546	0.349	3.736

Note: In the estimations for migrant workers (i.e specifications (3), (4), (7), (8), (11) and (12)) the twice-lagged share of migrants is used to avoid endogeneity

t-statistics in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Table A10. Status change: determinants of gross employment reallocation rates (gerr) of native and migrant workers: low-skilled

	EU				EU-15				NMS			
	Natives		Migrants		Natives		Migrants		Natives		Migrants	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Real GDP growth rate		-0.173*** (-2.71)		-0.166 (-1.55)		-0.073 (-0.82)		-0.184* (-1.73)		-0.128 (-1.41)		0.090 (0.36)
Share migrants	0.468*** (3.85)	0.342** (2.32)	0.475* (1.78)	0.663*** (3.59)	0.430*** (4.22)	0.282** (2.37)	0.367*** (2.96)	0.399*** (2.95)	0.660* (1.73)	1.007** (2.40)	0.959 (1.00)	0.279 (0.25)
Age cohort 15-24		0.244 (1.49)		0.651*** (4.80)		0.462*** (2.71)		0.384** (2.46)		-0.485 (-1.64)		0.620** (2.20)
Age cohort 35-44		0.164 (0.99)		0.199 (1.42)		-0.433** (-2.21)		0.326** (2.42)		0.339 (1.27)		-0.199 (-0.58)
Age cohort 45-54		-0.289*** (-2.63)		0.004 (0.03)		0.151 (1.01)		-0.089 (-0.47)		-0.472** (-2.38)		-0.209 (-0.78)
Age cohort 55-64		0.156 (1.33)		-0.090 (-0.67)		-0.362* (-1.82)		0.276 (1.23)		0.148 (0.81)		-0.350 (-1.18)
Share males		-0.454*** (-3.23)		-0.060 (-0.58)		-0.289** (-2.27)		-0.010 (-0.08)		-0.498 (-1.57)		-0.132 (-0.61)
Share job duration: 6-10 yrs		-1.927*** (-3.63)		-0.585 (-1.33)		-0.825* (-1.85)		-0.410 (-1.38)		-2.363* (-1.73)		-3.302 (-1.57)
Share job duration: >10 yrs		0.005 (0.02)		-0.405 (-1.07)		-0.111 (-0.54)		-0.518* (-1.74)		0.015 (0.01)		-1.332 (-1.04)
Share years of residence: >5 yrs				-0.016 (-0.10)				0.056 (0.46)				-0.067 (-0.11)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	15.771*** (11.21)	48.230*** (3.80)	15.995*** (5.22)	11.506 (0.87)	10.699*** (6.29)	39.730*** (2.79)	14.814*** (7.39)	4.827 (0.38)	23.512*** (15.44)	65.666*** (2.72)	18.692*** (4.75)	55.991* (1.75)
No of obs	226	226	185	159	135	135	113	113	91	91	72	46
R ²	0.068	0.313	0.019	0.374	0.128	0.488	0.081	0.316	0.036	0.5	0.016	0.503
F-test	14.83	9.832	3.161	7.695	17.83	11.95	8.744	4.165	2.994	8.014	1.008	2.932

Note: In the estimations for migrant workers (i.e specifications (3), (4), (7), (8), (11) and (12)) the twice-lagged share of migrants is used to avoid endogeneity

t-statistics in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Table A11. Status change: determinants of net employment creation rates (necr) of native and migrant workers: high-skilled

	EU				EU-15				NMS			
	Natives		Migrants		Natives		Migrants		Natives		Migrants	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Real GDP growth rate		0.125*** (5.41)		0.197*** (4.02)		0.114*** (2.77)		0.180** (2.42)		0.163*** (5.84)		0.242*** (2.80)
Share migrants	0.098** (2.14)	0.153*** (3.46)	0.018 (0.18)	-0.050 (-0.48)	0.075 (1.37)	0.219*** (3.87)	0.045 (0.45)	0.095 (0.85)	0.148* (1.82)	0.052 (0.60)	-0.029 (-0.14)	-0.148 (-0.49)
Age cohort 15-24		0.469*** (3.34)		0.130 (0.64)		0.510*** (2.62)		0.258 (0.77)		0.168 (0.70)		-0.007 (-0.02)
Age cohort 35-44		-0.279*** (-4.25)		-0.088 (-1.28)		-0.306*** (-3.13)		-0.088 (-0.98)		-0.109 (-1.09)		-0.034 (-0.24)
Age cohort 45-54		-0.119** (-2.12)		-0.054 (-0.77)		-0.227** (-2.36)		-0.155 (-1.30)		0.098 (1.09)		0.024 (0.19)
Age cohort 55-64		-0.113 (-1.37)		-0.259*** (-3.04)		-0.001 (-0.01)		-0.369*** (-2.83)		-0.164 (-1.17)		-0.173 (-1.01)
Share males		0.204*** (2.79)		-0.012 (-0.18)		0.315*** (3.82)		0.102 (1.28)		-0.035 (-0.26)		-0.152 (-1.11)
Share job duration: 6-10 yrs		0.589*** (3.66)		-0.065 (-0.40)		0.765*** (3.70)		0.141 (0.57)		0.154 (0.54)		-0.198 (-0.66)
Share job duration: >10 yrs		-0.193* (-1.77)		-0.230 (-1.57)		-0.410*** (-2.66)		0.042 (0.15)		-0.030 (-0.18)		-0.343 (-1.45)
Share years of residence: >5 yrs				0.275*** (3.28)				0.081 (0.63)				0.342** (2.19)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	1.782*** (3.28)	-0.181 (-0.04)	1.325 (1.12)	5.914 (1.18)	2.249*** (2.62)	-3.485 (-0.50)	2.016 (1.34)	2.857 (0.42)	1.279** (2.39)	3.991 (0.58)	-0.024 (-0.02)	7.834 (0.78)
No of obs	226	226	187	170	135	135	113	113	91	91	74	57
R ²	0.022	0.421	0.000	0.281	0.015	0.515	0.002	0.327	0.04	0.487	0.000	0.307
F-test	4.585	15.65	0.0334	5.361	1.867	13.34	0.202	4.374	3.304	7.583	0.0196	1.643

Note: In the estimations for migrant workers (i.e specifications (3), (4), (7), (8), (11) and (12)) the twice-lagged share of migrants is used to avoid endogeneity

t-statistics in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Table A12. Status change: determinants of net employment creation rates (necr) of native and migrant workers: medium-skilled

	EU				EU-15				NMS			
	Natives		Migrants		Natives		Migrants		Natives		Migrants	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Real GDP growth rate		0.364*** (11.22)		0.450*** (7.22)		0.187*** (3.97)		0.373*** (3.36)		0.396*** (9.24)		0.469*** (6.27)
Share mnigrants	-0.164** (-2.42)	-0.062 (-0.84)	-0.430*** (-3.45)	-0.092 (-0.76)	-0.139*** (-2.73)	-0.084 (-1.35)	-0.461*** (-4.00)	-0.164 (-1.07)	-0.720* (-1.72)	-0.888*** (-3.13)	0.258 (0.37)	0.525 (0.90)
Age cohort 15-24		0.370*** (2.91)		0.541*** (2.99)		0.537*** (4.01)		0.819*** (3.83)		-0.299 (-1.19)		0.065 (0.19)
Age cohort 35-44		-0.060 (-0.50)		-0.067 (-0.83)		-0.151 (-1.31)		-0.275** (-2.03)		-0.302 (-1.25)		0.054 (0.45)
Age cohort 45-54		0.139 (1.27)		0.172* (1.79)		0.302*** (2.68)		0.328* (1.86)		-0.223 (-0.96)		0.116 (0.82)
Age cohort 55-64		0.141 (1.39)		-0.202** (-2.07)		-0.130 (-1.11)		0.153 (0.58)		-0.351 (-1.54)		-0.257** (-2.20)
Share males		0.183 (1.37)		-0.016 (-0.23)		0.165 (1.39)		-0.082 (-0.45)		0.791** (2.17)		0.086 (0.96)
Share job duration: 6-10 yrs		0.253** (2.21)		0.050 (0.31)		0.665*** (4.14)		0.667** (2.36)		-0.056 (-0.23)		-0.301 (-1.48)
Share job duration: >10 yrs		-0.003 (-0.03)		0.180 (1.01)		-0.252** (-2.23)		0.305 (0.81)		0.191 (0.94)		0.181 (0.86)
Share years of residence: >5 yrs				-0.067 (-0.76)				-0.165 (-1.32)				0.360** (2.08)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	3.830*** (5.69)	-18.405* (-1.87)	5.551*** (4.53)	-1.765 (-0.23)	4.619*** (6.95)	-14.978* (-1.73)	8.204*** (5.61)	-0.777 (-0.05)	5.001** (2.33)	-22.723 (-1.00)	-1.555 (-0.43)	-31.378* (-1.88)
No of obs	226	226	186	180	135	135	113	113	91	91	73	67
R ²	0.028	0.507	0.068	0.419	0.058	0.526	0.139	0.450	0.036	0.675	0.002	0.605
F-test	5.874	22.17	11.9	10.58	7.479	13.91	15.98	7.373	2.959	16.58	0.14	7.212

Note: In the estimations for migrant workers (i.e specifications (3), (4), (7), (8), (11) and (12)) the twice-lagged share of migrants is used to avoid endogeneity

t-statistics in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Table A13. Status change: determinants of net employment creation rates (necr) of native and migrant workers: low-skilled

	EU				EU-15				NMS			
	Natives		Migrants		Natives		Migrants		Natives		Migrants	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Real GDP growth rate		0.587*** (8.81)		0.673*** (5.62)		0.213*** (2.77)		0.360*** (2.98)		0.681*** (6.08)		0.854*** (3.09)
Share migrants	-0.052 (-0.35)	-0.193 (-1.26)	-0.361 (-1.23)	-0.181 (-0.88)	0.021 (0.21)	0.021 (0.21)	-0.359** (-2.25)	-0.112 (-0.73)	-0.421 (-0.82)	-0.804 (-1.55)	-0.370 (-0.36)	-1.575 (-1.29)
Age cohort 15-24		0.369** (2.17)		0.450*** (2.98)		0.557*** (3.78)		0.086 (0.48)		0.092 (0.25)		0.679** (2.22)
Age cohort 35-44		-0.460*** (-2.67)		0.142 (0.90)		-0.409** (-2.42)		-0.360** (-2.35)		-0.443 (-1.34)		0.379 (1.02)
Age cohort 45-54		-0.359*** (-3.15)		-0.176 (-1.24)		-0.195 (-1.50)		-0.457** (-2.14)		-0.215 (-0.88)		0.016 (0.05)
Age cohort 55-64		0.233* (1.91)		0.334** (2.24)		-0.342** (-2.00)		0.155 (0.61)		0.353 (1.56)		0.491 (1.52)
Share males		0.060 (0.41)		-0.071 (-0.61)		-0.215* (-1.95)		0.284** (2.00)		0.549 (1.40)		-0.005 (-0.02)
Share job duration: 6-10 yrs		0.621 (1.13)		-0.322 (-0.66)		0.287 (0.75)		0.159 (0.47)		0.374 (0.22)		-2.078 (-0.91)
Share job duration: >10 yrs		-0.467* (-1.73)		-0.562 (-1.33)		-0.440** (-2.49)		-0.244 (-0.72)		-0.034 (-0.03)		-0.710 (-0.51)
Share years of residence: >5 yrs				0.293* (1.66)				-0.016 (-0.12)				0.983 (1.45)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	4.335** (2.50)	13.318 (1.01)	5.330 (1.58)	-6.182 (-0.42)	4.088** (2.46)	32.062** (2.61)	8.294*** (3.22)	7.559 (0.52)	4.289** (2.09)	-21.422 (-0.72)	0.661 (0.16)	-29.538 (-0.85)
No of obs	226	226	185	159	135	135	113	113	91	91	72	46
R ²	0.001	0.475	0.009	0.381	0	0.538	0.049	0.450	0.008	0.568	0.002	0.490
F-test	0.123	19.53	1.506	7.936	0.044	14.61	5.075	7.35	0.672	10.5	0.129	2.792

Note: In the estimations for migrant workers (i.e specifications (3), (4), (7), (8), (11) and (12)) the twice-lagged share of migrants is used to avoid endogeneity

t-statistics in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Table A14. Inter-sectoral: determinants of gross employment reallocation rates (gerr) of native and migrant workers

	EU				EU-15				NMS			
	Natives		Migrants		Natives		Migrants		Natives		Migrants	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Real GDP growth rate		0.016 (0.38)		-0.007 (-0.13)		-0.161* (-1.81)		-0.074 (-0.64)		0.055** (2.03)		0.039 (0.62)
Share migrants	0.022 (0.28)	0.271** (2.50)	-0.273** (-2.11)	0.011 (0.07)	-0.002 (-0.02)	0.227 (1.42)	-0.291** (-2.17)	-0.273 (-1.25)	0.213 (1.18)	0.077 (0.49)	-0.155 (-0.42)	-0.310 (-0.83)
Age cohort 15-24		0.288 (1.40)		0.541** (2.41)		-0.472 (-1.11)		0.367 (0.94)		1.017*** (5.14)		0.922*** (3.04)
Age cohort 35-44		-0.184 (-0.87)		0.045 (0.40)		-0.729** (-2.29)		0.137 (0.71)		0.158 (0.80)		0.127 (0.77)
Age cohort 45-54		-0.028 (-0.13)		0.120 (1.20)		-0.598 (-1.61)		0.590* (1.69)		0.282 (1.19)		0.198 (1.43)
Age cohort 55-64		-0.129 (-0.71)		-0.056 (-0.46)		-0.477* (-1.73)		-0.184 (-0.48)		0.550** (2.09)		-0.021 (-0.14)
Share medium-skilled		-0.329*** (-3.71)		-0.073 (-0.95)		-0.517*** (-4.35)		-0.192* (-1.83)		0.106 (0.51)		-0.001 (-0.01)
Share high-skilled		-0.278*** (-2.82)		-0.087 (-1.14)		-0.366** (-2.28)		-0.125 (-1.31)		-0.094 (-0.57)		-0.119 (-0.77)
Share males		-0.243 (-0.99)		-0.055 (-0.66)		-0.633* (-1.77)		-0.174 (-0.57)		0.145 (0.56)		-0.049 (-0.57)
Share job duration: 6-10 yrs		0.080 (0.74)		-0.262*** (-3.19)		0.189 (1.10)		-0.137 (-1.00)		-0.108 (-0.90)		-0.337*** (-3.31)
Share job duration: >10 yrs		-0.087 (-0.73)		-0.117 (-1.41)		0.032 (0.14)		-0.472** (-2.34)		-0.210** (-2.27)		-0.105 (-1.09)
Share years of residence: >5 yrs				-0.011 (-0.25)				-0.029 (-0.53)				-0.090 (-0.84)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	6.051*** (6.91)	47.078** (2.15)	9.583*** (7.07)	18.216* (1.83)	6.056*** (4.38)	111.862*** (3.28)	11.505*** (6.14)	29.707 (1.21)	5.560*** (5.65)	-23.905 (-1.09)	6.461*** (3.35)	20.579 (0.93)
No of obs	220	220	186	185	134	134	112	112	86	86	74	73
R ²	0.000	0.243	0.027	0.176	0.000	0.256	0.046	0.167	0.018	0.684	0.003	0.424
F-test	0.0778	5.414	4.469	2.667	0.0004	3.441	4.727	1.454	1.383	12.79	0.176	3.131

Note: In the estimations for migrant workers (i.e specifications (3), (4), (7), (8), (11) and (12)) the twice-lagged share of migrants is used to avoid endogeneity

t-statistics in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Table A15. Regional: determinants of gross employment reallocation rates (gerr) of native and migrant workers

	EU				EU15				NMS			
	Natives		Migrants		Natives		Migrants		Natives		Migrants	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Real GDP growth rate		0.060 (0.72)		0.286 (1.41)		0.056 (0.35)		0.305 (1.37)		-0.015 (-0.72)		-0.245 (-0.90)
Share migrants	0.133 (1.15)	0.748*** (2.81)	-0.548** (-2.37)	-1.347*** (-2.99)	0.128 (0.89)	0.847* (1.88)	-0.549*** (-2.77)	-0.789* (-1.76)	1.098*** (3.31)	0.908*** (2.81)	-0.156 (-0.02)	-0.839 (-0.22)
Age cohort 15-24		-0.574 (-1.50)		-2.268*** (-3.43)		0.090 (0.11)		-0.603 (-0.83)		-0.450** (-2.41)		2.134 (0.90)
Age cohort 35-44		0.642 (1.58)		-0.087 (-0.32)		1.310 (1.32)		0.481 (1.50)		-0.015 (-0.14)		1.253 (2.32)
Age cohort 45-54		0.519 (1.17)		-0.172 (-0.39)		1.465* (1.77)		0.764 (1.17)		-0.535*** (-3.33)		3.297 (1.71)
Age cohort 55-64		0.734 (1.62)		-0.111 (-0.30)		1.073 (1.00)		1.207** (2.16)		-0.233 (-1.28)		1.311 (2.67)
Share medium-skilled		0.180 (0.84)		0.352 (1.20)		0.399 (1.11)		-0.101 (-0.31)		-0.021 (-0.19)		0.176 (0.25)
Share high-skilled		-0.634** (-2.50)		-0.387 (-1.43)		-0.884** (-2.09)		0.024 (0.09)		-0.280** (-2.24)		-0.131 (-0.20)
Share males		1.017 (1.59)		-0.270 (-0.84)		1.356 (1.09)		0.577 (1.27)		-0.625** (-2.23)		1.882 (1.15)
Share job duration: 6-10 yrs		-0.592*** (-3.09)		-0.224 (-0.83)		-0.485 (-1.24)		-0.888*** (-2.73)		-0.077 (-1.01)		1.864 (1.17)
Share job duration: +10 yrs		-0.368* (-1.68)		-0.141 (-0.50)		-0.601 (-1.39)		-0.615* (-1.79)		-0.016 (-0.26)		-0.796 (-2.64)
Share years of residence: >5 yrs				-0.100 (-1.21)				0.078 (0.95)				-2.871 (-3.64)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	5.062*** (5.86)	-55.469 (-1.01)	15.589*** (7.73)	73.955** (2.44)	7.303*** (4.53)	-116.258 (-1.02)	17.955*** (8.60)	-19.563 (-0.50)	0.051 (0.09)	64.731*** (2.83)	6.820 (0.38)	-18.786 (-0.17)
No of obs	108	108	73	73	66	66	56	56	42	42	17	17
R ²	0.014	0.289	0.084	0.356	0.013	0.351	0.138	0.433	0.244	0.654	0	0.995
F-test	1.332	3.061	5.608	2.299	0.786	2.356	7.67	2.355	10.95	4.116	0.000514	16.93

Note: In the estimations for migrant workers (i.e specifications (3), (4), (7), (8), (11) and (12)) the twice-lagged share of migrants is used to avoid endogeneity

t-statistics in parentheses: *** p<0.01, ** p<0.05, * p<0.1