

2.3 LABOUR MIGRATION, CROSS-BORDER COMMUTING, EMIGRATION

Factors explaining the employment-related emigration of Hungarians and changes since EU accession

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Emigration and employment

Since Hungary's accession to the European Union in 2004 Hungarians have had freedom of employment in European countries, their employment opportunities have expanded, and the cost of working abroad has decreased. In principle, it is possible to take up employment abroad under the same conditions as in Hungary, although the characteristics of labour demand and regulations of the host country must be taken into account. There has been an array of studies exploring the attraction of working abroad and its implications for the labour market, the push and pull factors influencing decisions, the selective nature of migration, and the social and individual factors beyond the economic and labour market explanations (*Hazans-Philips*, 2010, *Kahanec*, 2013, *Kahanec et al.*, 2010, *Kahanec-Zimmermann*, 2010, *Kaczmarczyk*, 2010, *Massey et al.*, 1993).

The intended permanence of migration, its costs in terms of working time, job difficulty, and sacrifices for private life result in a diversity of employment patterns for migrants. One-way migration and variable, circular forms of migration and cross-border commuting co-exist and characterise the range of migration and labour market strategies of emigrants. Some migrants move away in the hope of financial security or for other reasons, and plan for a long-term future abroad, while others consider working abroad as temporary or instrumental means – as defined by *Piore* (1971) – of earning money. There are no definitive and sharp boundaries between groups, there are many variations. However, it is possible to distinguish between labour migrants and those who decide to settle abroad, based on factors associated with migration and its impact. This study examines labour migration: what groups are affected and how this has changed over time.¹ Its impact on the Hungarian labour market can be estimated based on the description of migration.

Data and methods of analysis

Labour migrants in the Labour Force Survey

A clearly defined segment of emigration is *labour migration*. The CSO's *Labour Force Survey* (LFS) offers a unique possibility to examine the factors associated with labour migration on a large dataset using individual-level data

¹ See Chapter 2.2 of *In Focus* by Zsuzsa Blaskó and Irén Gödri on people moving away.

and detailed explanatory models. On the basis of data available in the LFS, labour migration is analysed using the cases of individuals *working abroad*.

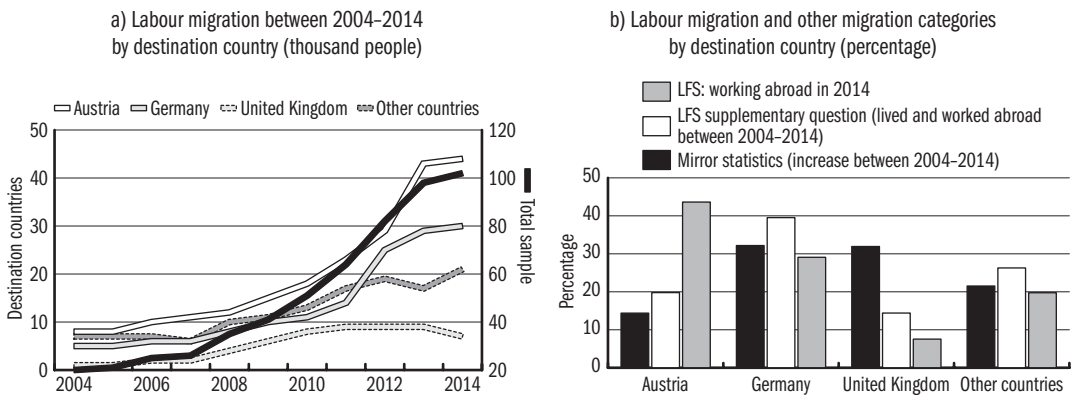
In the Labour Force Survey if the answer for the question on the location of the employer is not Hungary, then the response “abroad” is recorded alongside the name of the country. This question applies to those who are currently working abroad, or whose last job (within the previous eight years) was abroad. The group of those who previously worked abroad is heterogeneous and not reliable, therefore the current analysis focuses on individuals currently working abroad. Those identified by the LFS as working abroad only include people with a household in Hungary (that could be reached by LFS interviewers) but excludes those whose families have moved abroad either recently or in the past. People who live abroad but are not in employment, as well as refusers are not part of the sample either.²

From the LFS it is possible to identify workers who are still connected to the Hungarian labour market via their families but are employed abroad. In the following analysis this sub-group of migrants is referred to as *labour migrants*.³ It is assumed that those who work abroad do this as an alternative to employment in Hungary.⁴ This study presents findings for this population for the period between 2004, the year of accession to the EU, and the end of 2014.

Characteristics of the sample

The number of labour migrants has been increasing steadily, similarly to the trends described in other studies based on other sources of data; however the increase appears to be slowing down towards the end of the period. This is shown by part a) of *Figure 2.3.1*: the right axis depicts the development of total labour migration, the left axis represents trends by destination country.

Figure 2.3.1: Trends in labour migration and distribution by destination country



Source: labour migration: LFS; mirror statistics: authors' calculation based on Chapter 1, In Focus; work history abroad 2004–2014: LFS ad hoc module, 2nd quarter, 2014.

Labour migrants represent a particular group: the share of those working in Austria is high in the total sample, while the share of those working in the United Kingdom is low, and declining towards the end of the period. The

2 The data was made available in a non-anonymised format to the databank of MTA KRTK by the CSO for the study.

3 Hárs-Simon (2015) and Czibik et al. (2014) analysed this group previously.

4 Those working abroad are also included in the number of employees calculated on the basis of the CSO LFS, and thus affect the employment rate in Hungary while also forming part of the emigrant population.

characteristics of labour migration are examined in comparison to two data sources: the mirror statistics show the increase in the stock of Hungarian nationals residing abroad between 2004–2014, the supplementary questions of the LFS in the 2nd quarter of 2014 show non-commuters who lived and worked abroad for at least six months between 2004–2014 (the latter obviously includes only those who were residing or had a household in Hungary at the time of the survey). Despite their different composition, the groups are comparable by destination country and the percentages are shown by part b) of *Figure 2.3.1*.

In this comparison, the share of labour migrants in Austria is extremely high and the share of those in the United Kingdom is very low in our sample. The supplementary questions of the LFS on work history in the period between 2004–2014 also indicate that the share of those who worked or are still working in the United Kingdom is low. This suggests that the share of whole households moving to the United Kingdom is higher than in the case of other destination countries – the LFS only includes those who have a household in Hungary. This assumption is also supported by *Blaskó* (2014) and *Blaskó et al.* (2014) who attempted to estimate long-term emigration. Both studies concluded that a high proportion of long-term emigrants live in the United Kingdom. The assumption is also in line with the fact that labour migration was initially low, then stagnating and declining by the end of the period, which might be explained by the growing number of people emigrating to the United Kingdom.

The exceptionally high share of labour migrants in Austria is explained by a high level of cross-border commuting; however, non-commuting labour migration is also significant. The LFS does not have any variables that would allow us to distinguish cross-border commuters from other labour migrants. Cross-border commuting can be estimated for the 2nd quarter of 2014. Based on the supplementary questions and the basic variables of the LFS it is possible to compare the work history of labour migrants as well as non-migrants. The supplementary questionnaire excluded commuters, therefore it is possible to distinguish non-commuters (those who lived and worked as well as those who worked abroad for at least six months) and those who did not reside abroad but are labour migrants, thus cross-border commuters. This is presented in *Table 2.3.1*. Sixty percent of the labour migrant population were not commuters, (out of this 53 percent worked abroad for at least six months); 40 percent were cross-border commuters. The share of commuters was over 60 percent in Austria and considerably lower in other destination countries.

Employment can be stable either with or without cross-border commuting: although the average duration of employment is below the Hungarian average (nine years), but these are people working abroad long-term.⁵ The average duration of employment with the current employer was longest in Austria

5 The average duration of employment was calculated for the first quarters of 2010–2015 – a period characterised by increasing labour migration – based on LFS data. As the number of labour migrants increases, the average duration of employment decreases, although of course the length of employment of new labour migrants is uncertain.

(4.6 years), in Germany 3.7 years, in the United Kingdom 2.4 years and also relatively high, 4.2 years in other EU countries.

Table 2.3.1: Commuting and non-commuting labour migrants (percentage)

Work history abroad between 2004 and 2014	Labour migration by destination country				Total labour migrants
	Austria	Germany	United Kingdom	Other country	
Lived and worked abroad	39	77	81	77	60
Out of this: lived and worked abroad for at least 6 months	34	70	68	64	53
Cross-border commuter (did not live abroad but labour migrant)	61	23	19	23	40
Total labour migrants	100	100	100	100	100

Source: labour migration: LFS 2nd quarter 2014; work history abroad 2004–2014: LFS ad hoc module, 2nd quarter, 2014.

Method of analysis

Logistic regression models were used to explore the factors that explain labour migration as opposed to employment in Hungary, and how these changed in the period between EU accession and the end of 2014 in regard to total labour migration and main destination countries (Austria, Germany, United Kingdom, and other EU and EEA countries). The equation of our model for all destination countries was as follows:

$$\ln \left(\frac{p}{1-p} \right) = b_0 + b_1 X_{nem} + b_2 X_{kor} + b_3 X_{kor}^2 + b_4 X_{isk} + b_5 X_{fogl.kat} + b_6 X_{fogl.visz} + b_7 X_{szerz} + b_8 X_{vall.munkaido} + b_9 X_{fogl.stat1.eve} + b_{10} X_{regio} + b_{11} X_{szul.orsz} + b_{12} X_{csal.dll} + b_{13} X_{gyerm.0-6eves} + b_{14} X_{gyerm.7-18eves} + b_{15} X_{nyugd.hazt.tag} + b_{16} X_{segelyezett.hazt.tag} + b_{17} X_{nem}t + (...) + b_{32} X_{segelyezett.hazt.tag}t + b_{33} X_{nem}t^2 + (...) + b_{48} X_{segelyezett.hazt.tag}t^2 + b_{49}t + b_{50}t^2,$$

where p denotes the proportion of labour migrants in the total population under study (i.e. total number of employees in Hungary and labour migrants), as well as by destination country.

Demographic variables

X_{nem} : sex (reference category: males)

X_{kor} : age (centred on workers in Hungary)

X_{isk} : highest level of education (reference category: no more than primary education)

Labour market variables

$X_{fogl.kat}$: profession (reference category: machine operator or unskilled job)

$X_{fogl.visz}$: type of employment (reference category: employee)

X_{szerz} : type of contract (reference category: open-ended)

$X_{vall.mukaido}$: acceptable working time (hours/week) (centred on workers in Hungary)

$X_{fogl.stat1.eve}$: labour market status in the previous year (reference category: in employment)

Regionality variables

X_{regio} : region (reference category: Central Hungary)

$X_{szul.orsz}$: country of birth (reference category: Hungary)

Household variables

$X_{csal.all}$: marital status (reference category: spouse)

$X_{gyerm.0-6eves}$: number of children aged 0–6 years in the household (reference value: 0)

$X_{gyerm.7-19eves}$: number of children aged 7–18 years in the household (reference value: 0)

$X_{nyugd.hazt.tag}$: number of old-age pensioners in the household (reference value: 0)

$X_{segelyezett.hazt.tag}$: number of welfare recipients in the household (reference value: 0)

Time

t : quarter (reference value: 3rd quarter of 2004)

The models' goodness of fit was examined using multiple methods. The creators of the commonly used Hosmer–Lemeshow test argue that for large samples even minor departures from the proposed model appear as significant errors (Paul–Pennell–Lemeshow, 2013). In addition to this, the Link test (Pregibon, 1980) – also sensitive to sample size – and the ROC (Receiver Operating Characteristic) analysis – unrelated to sample size – were used alongside the c statistic to examine the models' goodness of fit.⁶ Furthermore, the value of Nagelkerke's pseudo- R^2 is also presented for each model (goodness-of-fit parameters are summarised in Table 2.3.2). Based on the c statistic each model is at least acceptable; according to the Link test the explanatory power of the models is significant and they show a slight (although in some cases significant due to the sample size) departure from the goodness-of-fit. The Hosmer–Lemeshow test is significant but this is not considered a problem in the light of the above. The value of Nagelkerke's pseudo- R^2 for the models ranged from 0.19 to 0.26.

The constant of the models is significant in all cases, however change over time independent from other factors is only significant for the total sample – showing that, all other conditions being equal, the probability of labour migration is increasing at a growing rate. The results of the models are presented via changes in marginal probabilities and marginal effects over time (when change over time is not significant, the odds ratio is presented). For marginal probabilities, the estimated probability of labour migration or employment

⁶ According to Hosmer–Lemeshow (2000) for the c statistic a value over 0.7 is acceptable, over 0.8 is very good, and over 0.9 is excellent.

in a particular country is presented for the total population (employees in Hungary and labour migrants).

Table 2.3.2: Goodness-of-fit parameters of the models

	Total sample	Austria	Germany	United Kingdom
c-statistic	0.849	0.812	0.802	0.741
Link test: model explanatory power	2.610***	2.253***	2.350***	1.633***
Link test: departure from goodness-of-fit	0.994	1.020***	1.013***	1.010***
Hosmer–Lemeshow test ^a	17.12(8)*	24.92(8)**	84.63(8)***	106.90(8)***
Nagelkerke's R^2	0.190	0.271	0.189	0.262

^a In parentheses: degree of freedom.

Significance level: ***1 percent, **5 percent, *10 percent.

Factors affecting labour migration and their changes over time

All labour migrants and those in three main destination countries (Austria, Germany and the United Kingdom) were analysed. The total sample also shows the effect of a more heterogeneous labour migration to other EU countries (and to a lesser extent outside the EU); however this is not discussed here in detail. Labour migration appears highly selective according to main destination country; the effect of individual and demographic factors, employment and household characteristics are presented together for each destination country as well as total labour migration.

The effect of individual and demographic factors

Women are half as likely as men to work abroad, and this has not changed significantly over time. The odds are similar to the total sample in Austria, somewhat lower in Germany (0.4), while in the United Kingdom sex has no significant effect on labour migration.

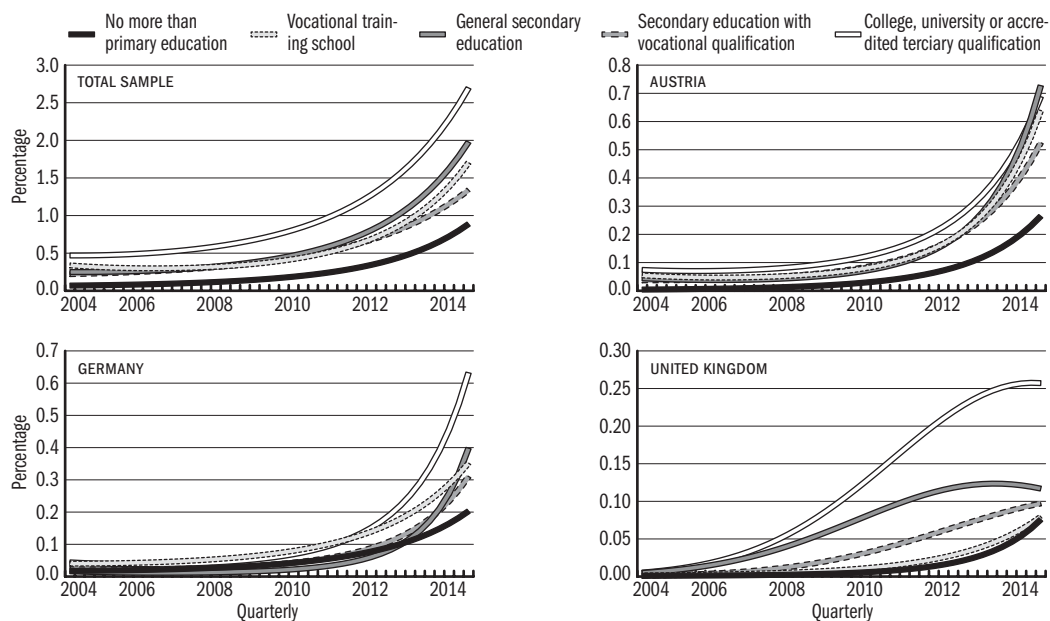
The probability of labour migration changes with *age*. In the full sample the effect of age did not change significantly over time: up to the age of 39 years the marginal probability of labour migration is increasing, then it declines (in 2014 it was 0.55 percent at the age of 25, and 0.8 percent at 39 years). Because change over time was found to be significant in the model (see earlier), the marginal probability of labour migration is growing at an increasing rate annually (at the end of 2010 the marginal probability of labour migration for 25-year-olds was just under 0.15 percent and 0.2 percent for those aged 39, in 2013 these were 0.4 and 0.55 percent respectively). In Austria the effect of age was similar to that in the full sample, while in Germany there was no significant effect. The marginal probability of labour migration also changed over time in the United Kingdom: during the years of the downturn the average age was rising; however, more recently labour migrants have become increas-

ingly younger. In 2004, the year of EU accession, the marginal probability of labour migration was highest at the age of 30, in 2009 at the age of 33, in 2010 at the age of 33–34, in 2011 at the age of 35, in 2012–2013 at the age of 34, and at the end of 2014 at the age of 32.

Place of birth is associated with propensity for mobility: people born outside Hungary were more mobile than those born in Hungary. Their odds were 4.8 times higher and this did not change significantly over time. At the end of 2014, all other conditions being equal, being born outside Hungary increased the probability of labour migration by 1.3 percentage point in the total sample. In 2014 the same effect was 0.64 percentage point for working in Austria and 0.2 percentage point for Germany. The size of the marginal effect increased rapidly in both countries, but especially in Austria, after 2011.

In the full sample of labour migrants, the probability of working abroad increases significantly with education (*Figure 2.3.2*). This was stable over time, with the exception of vocational education, for which the probability of labour migration grew at an increasing rate.

Figure 2.3.2: The effect of education on labour migration, marginal probability (percentage)



Reference category: no more than primary education.

Total sample: *significant over time*: vocational training school *not significant over time*: general secondary education, secondary education with vocational qualification, tertiary education.

Austria: *significant over time*: all variables.

Germany: *not significant over time*: vocational training school, *not significant*: general secondary education, secondary education with vocational qualification, tertiary education.

United Kingdom: *significant over time*: general secondary education, secondary education with vocational qualification, tertiary education, *not significant*: vocational training school.

Selectivity by destination country is strong: for Austria all education levels that are higher than primary education significantly increase the probability of labour migration. After 2011 – when the Austrian labour market fully opened for Hungarian nationals – the increase was substantial and by the end of 2014 the marginal probabilities for all non-primary education levels were largely similar to each other and significantly exceeded the probability of labour migration of those with no more than primary education. In Germany – all other conditions being equal – the labour migration of those with vocational training school was increasing significantly. In the United Kingdom the steady increase in the labour migration of those with secondary and tertiary education stopped, and even started to decline among people with general secondary education. This suggests that these groups are increasingly opting for long-term emigration. Similar changes can be observed in the marginal probability of labour migration for those with secondary vocational qualification. The probability of labour migration was lower for skilled, semi-skilled and unskilled workers (people with vocational training school or primary education); however it was growing in line with increasing labour migration.

The *region of residence* has a significant effect on the probability of labour migration in the full sample, and only Northern Hungary remained unchanged in the studied period (*Figure 2.3.3*).

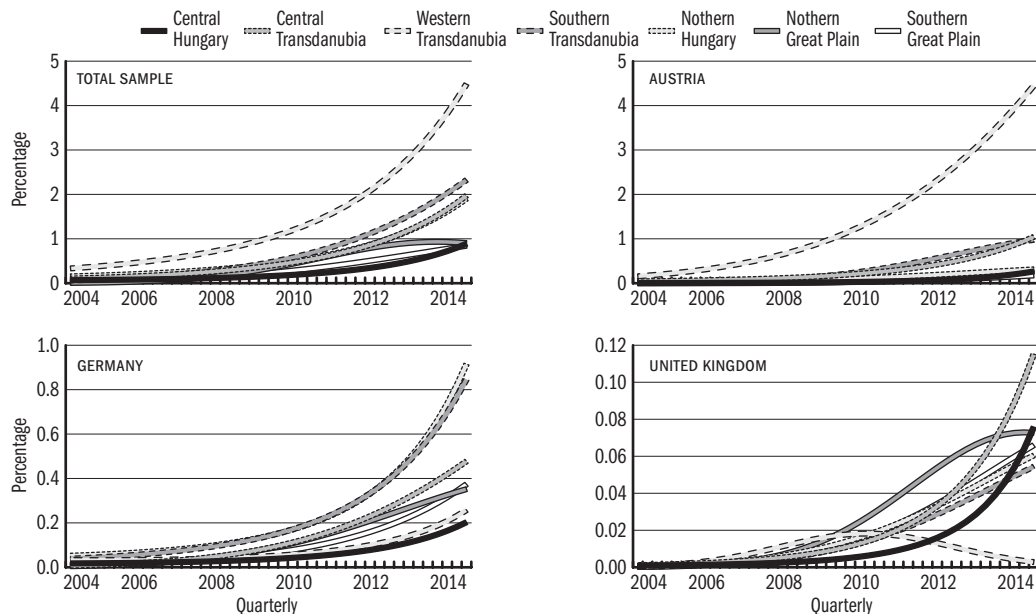
The probability of labour migration is by far highest in Western Transdanubia and is growing at an increasing rate: here, all other conditions being equal, the probability of labour migration was 4.5 percent at the end of 2014. The marginal probabilities of labour migration in Southern and Western Transdanubia were lower, nevertheless increasing steadily; similar trends can be observed in Northern Hungary. The marginal probabilities of labour migration were low in the Northern and Southern Great Plain, with a slowing rate of increase.

Based on the region of residence, labour migration is highly selective by destination country. The marginal probability of labour migration to Austria is by far the highest in Western Transdanubia (4.5 percent at the end of 2014); it is more than four times higher than the marginal probabilities in other Transdanubia regions. This suggests that the regional labour market is a strong incentive to work in Austria and cross-border migration plays an important role (more than 80% of labour migrants in Western Transdanubia region work in Austria).

Migrant labour in Germany also seems selective by region, although less so than in the case of Austria. All other conditions being equal, the marginal probability of labour migration is highest in Northern Hungary and Southern Transdanubia, and this effect is stable over time. This suggests long-term relations, traditional cooperation, or even organised recruitment in these re-

gions. The marginal probability of labour migration to Germany is increasing by a lesser rate in other regions, with the exception of the Northern Great Plain where it is declining.

Figure 2.3.3: The effect of the region of residence on labour migration, marginal probability (percentage)



Reference category: Central Hungary.

Total sample: *significant over time*: Central Transdanubia, Western Transdanubia, Northern Great Plain, Southern Great Plain, Southern Transdanubia, *not significant over time*: Northern Hungary.

Austria: *significant over time*: Northern Hungary, Northern Great Plain, Southern Transdanubia, *not significant over time*: Central Transdanubia, Western Transdanubia, *not significant*: Southern Great Plain.

Germany: *significant over time*: Central Transdanubia, Northern Great Plain, Southern Great Plain, *not significant over time*: Western Transdanubia, Southern Transdanubia, Northern Hungary.

United Kingdom: *significant over time*: Northern Great Plain, Western Transdanubia, Southern Transdanubia, Northern Hungary, Southern Great Plain, *not significant over time*: Central Transdanubia.

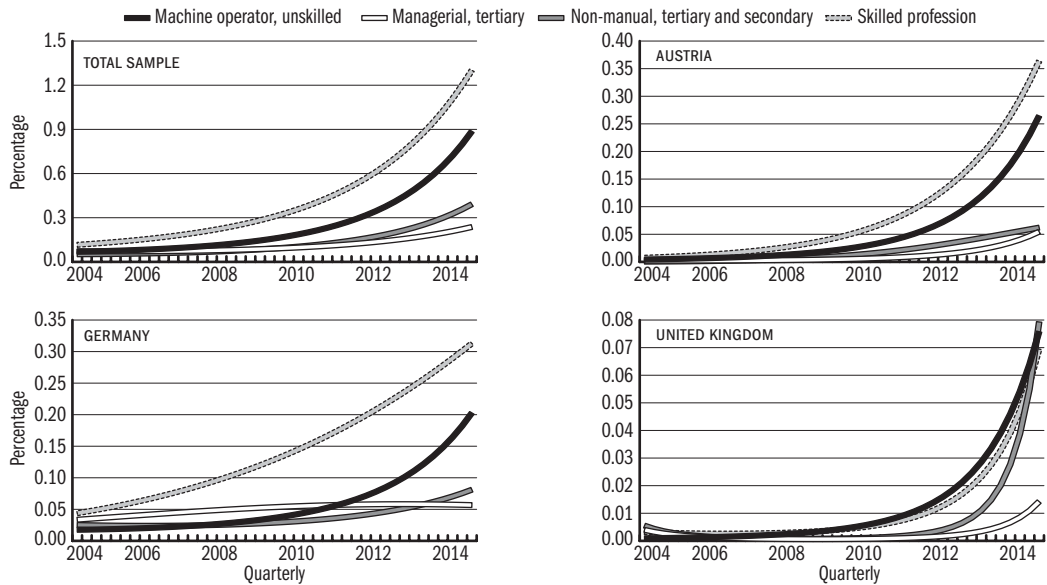
In the case of the United Kingdom, there is no evidence of clear regional selectivity. The marginal probability of labour migration is increasing faster in Central Hungary than in any other region; however, overall, regions have a very small effect on the marginal probability of labour migration.

The effect of labour market factors

In the case of labour migration, professions requiring a vocational qualification increase the prospect of working abroad most of all (Figure 2.3.4). In the total sample, the marginal probability of labour migration among skilled

workers – all other conditions being equal – was 1.3 percent at the end of 2014; and the effect did not change significantly over time. White-collar professions did not have a significant effect on the probability of labour migration.

Figure 2.3.4: The effect of profession on labour migration, marginal probability (percentage)



Reference category: machine operator, unskilled.

Total Sample: *significant over time*: skilled professions, *not significant*: managerial professions requiring tertiary qualifications, non-manual professions requiring tertiary or secondary qualifications.

Austria: *significant over time*: non-manual professions requiring tertiary or secondary qualifications, *not significant over time*: managerial professions requiring tertiary qualifications, skilled professions.

Germany: *significant over time*: skilled professions, *not significant*: managerial professions requiring tertiary qualifications, non-manual professions requiring tertiary or secondary qualifications.

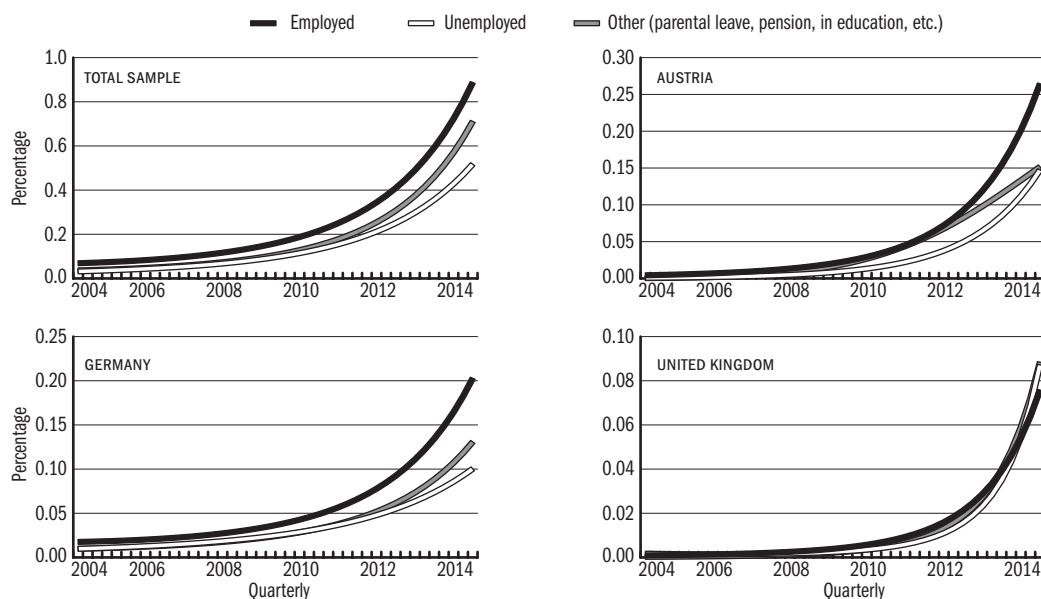
United Kingdom: *significant over time*: all variables.

In Austria, the marginal probability of skilled professions increased and that of non-manual professions decreased the marginal probability of labour migration compared to the reference group of machine operators and unskilled professions. Skilled professions – all other conditions being equal – increase the probability of labour migration the most in Germany as well, although this effect is slowing over time. A somewhat different picture emerges for the United Kingdom: compared to unskilled and machine operator professions, all other professions diminish the marginal probability of labour migration. However, apart from managerial professions that require tertiary qualifications, marginal probabilities for all other professions converged and were largely identical by the end of 2014.

The *type of employment* also affects the probability of labour migration. Casual employment, with all other conditions being equal, increases the probability of labour migration compared to employee status in the total sample: by just over 0.05 percentage point, at the end of 2010, by 0.02 percentage point at the end of 2012, and by nearly 0.8 percentage point at the end of 2014. In Austria, casual employment also increases the likelihood of labour migration at a growing rate (at the end of 2014 marginal probability was 0.4 percent). In Germany the marginal probability of this was more modest (0.1 percent) and stable over time. There was no significant effect in the United Kingdom.

Another hypothesis has been that a previous unfavourable labour market situation – unemployment or difficulties in returning or entering the labour market after education or looking after children – increase the probability of labour migration. However, contrary to our expectations – with all other conditions being equal – being out of work *in the previous year* reduces the probability of labour migration among those working abroad. (Figure 2.3.5).

Figure 2.3.5: The effect of labour market status in the previous year on labour migration, marginal probability (percentage)



Reference category: employed.

Total sample: *not significant over time*: unemployed, other (parental leave, pension, in education, etc.).

Austria: *significant over time*: other (parental leave, pension, in education, etc.), *not significant over time*: unemployed.

Germany: *not significant over time*: unemployed, *not significant*: other (parental leave, pension, in education, etc.).

United Kingdom: *significant over time*: unemployed, *not significant*: other (parental leave, pension, in education, etc.).

In the total sample, the marginal probability of labour migration is reduced by being unemployed or any other labour market status in the previous year compared to the reference group of those in employment. At the end of 2014 the marginal probability of labour migration was 0.5 for those who had been unemployed in the previous year, 0.7 percent for *other* labour market status (on parental leave, in education), and 0.9 percent for those who had been in employment. Previous labour market status has a similar effect in Austria and Germany; however the *other* labour market status reduces marginal probability of labour migration in Austria only after 2011. There seems to be no difference in marginal probabilities in the United Kingdom.

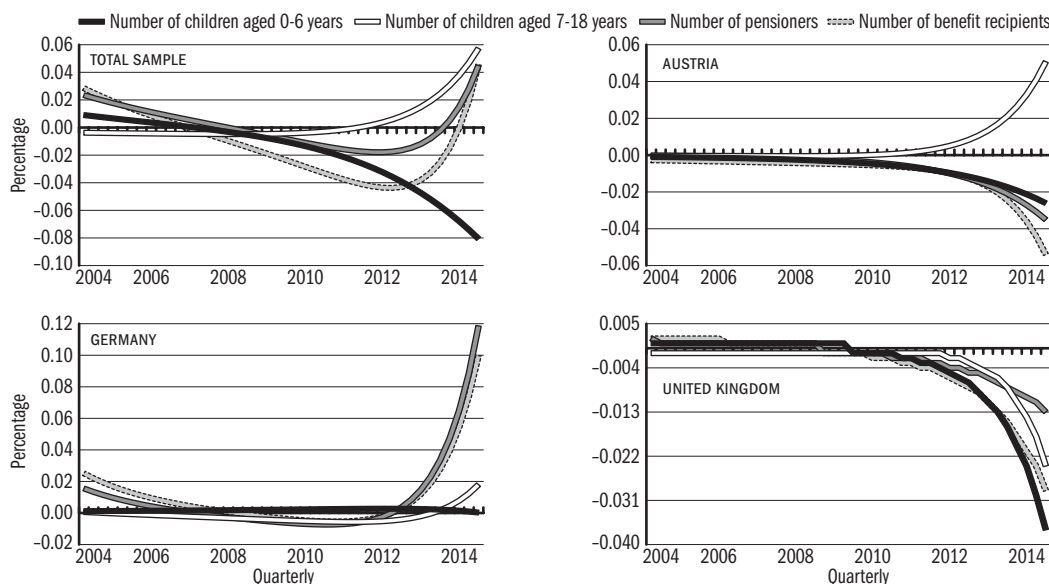
The *acceptable working time* – the opportunity cost of labour migration – increases the probability of labour migration, but the effect is very weak. An additional working hour, with all other conditions being equal, increased the probability of labour migration by just under 0.035 percent at the end of 2014. The effect increases over time: at the end of 2010 longer working hours meant less than a 0.01 percent increase in probability. In Austria the effect is very small and decreasing over time, in Germany and the United Kingdom it is also small and stable over time.

The effect of household characteristics

The number of dependants in the family, including younger or older children, benefit-recipients as well as old-age pensioners can also influence decisions around labour migration (*Figure 2.3.6*).

In the total sample of migrants, the number of pensioners and benefit recipients increased the likelihood of labour migration after EU accession and reduced it in the years of the economic crisis. By the end of the period the trend changed once more, and it again increased the probability of labour migration; however, its marginal effect was very small: an additional pensioner or benefit recipient in the household equally increased the probability of labour migration by 0.04 percent at the end of 2014. However, the number of children did not have a significant effect. In Austria, the number of children aged 0–6 years and benefit recipients significantly reduced labour migration, while the effect of other inactives was not significant. In Germany, where labour migration was highest from the most disadvantaged regions from a labour market perspective, both the number of pensioners and benefit recipients substantially increased the probability of labour migration. This effect was increasing rapidly over time after 2011, when the German labour market fully opened to migrants from accession countries. An additional pensioner in the household increased the probability of labour migration by 0.12 percent, an additional benefit recipient by 0.1 percent. In the United Kingdom, every inactive family member decreased the probability of labour migration.

Figure 2.3.6: The effect of household composition on labour migration, marginal probability (percentage)



Total sample: *significant over time*: number of pensioners in the household, number of benefit recipients in the household, *not significant*: number of children aged 0–6 years, number of children aged 7–18 years.

Austria: *not significant over time*: number of children aged 0–6 years, number of benefit recipients in the household, *not significant*: number of children aged 7–18 years, number of pensioners in the household.

Germany: *significant over time*: number of pensioners in the household, number of benefit recipients in the household, *not significant*: number of children aged 0–6 years, number of children aged 7–18 years.

United Kingdom: *significant over time*: number of children aged 7–18 years, number of pensioners in the household, *not significant over time*: number of children aged 0–6 years, number of benefit recipients in the household.

Conclusion

This study has examined the factors affecting labour migration, a clearly defined segment of migration. It has been shown that alongside demographic factors, regional selection and the type of profession had the most important effect on labour migration. The analysis of changes over time has highlighted that the rapid increase of labour migration in itself increases the marginal probability of working abroad for all those in the sample. In fact, this was found to be the strongest effect, while the effect of specific factors often remained unchanged over time. Labour migration represents a stable and long-term strategy for skilled migrants in Austria and Germany. Labour migration towards the United Kingdom is somewhat different: here more highly educated labour migrants are more likely to work in semi-skilled or skilled professions; therefore overeducation is probably very common. It has been

shown that another aspect of migration (not discussed here) is relocation, which would complement the picture that has emerged here based on the analysis of labour migration. In addition to the destination countries presented here, labour migration to other EU countries is also fairly substantial but more heterogeneous, characterised by trends found in the United Kingdom, as well as those in Germany and Austria.

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