Employment convergence of immigrants in the EU: differences across genders, regions of origin and destination

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Abstract In light of the importance of immigrants' labour market integration in the host countries, this study examines the employment convergence between foreign-born and native-born in the European Union (EU) based on the EU Labour Force Survey (EU LFS). The evidence points to numerous differences in assimilation patterns across immigrant groups (EU-born versus third country immigrants), genders and receiving EU regions. Potential explanations for these differences, such as the occupational composition of immigrants are discussed. Furthermore, predictions of the family investment hypothesis in terms of the human capital investment of the partners are tested in light of the finding that the employment rate of females born outside the EU exceeds that of similar native-born in the Southern EU member states.

1 INTRODUCTION

In light of the importance of immigrants' labour market integration in the host countries, numerous recent empirical studies analyse the applicability of the "immigrant labour market assimilation hypothesis" (Chiswick 1978). The hypothesis predicts that the initial labour market disadvantage of immigrants relative to the native-born in the receiving country, due to the lack country-specific human capital and social networks, the difficulty in getting qualifications recognized, the imperfect transferability of job-specific and academic skills as well as institutional and individual discrimination from the employer's side, diminishes as time passes, as immigrants acquire the necessary country-specific human capital. The aim of this study is to add to the literature on economic assimilation of immigrants using the same labour market outcome for a broad range of European Union (EU) countries by gender, thereby allowing for a cross-region and cross-gender comparison within the EU. More precisely, the study analyses the employment convergence patterns of immigrants, which is significant from a policy perspective: if immigrants adapt rapidly to the receiving country's labour market they can make a significant contribution to economic growth (Borjas 1994). The analysis is carried out by broad region of origin, distinguishing between immigrants born within and outside the EU.[1]

An important contribution of the paper to the literature on immigrant employment assimilation is that it does not restrict the analysis to selected countries of the EU15[2], but analyses the EU8 as well. As of today, there is no empirical study examining the employment assimilation of the foreign-born in the EU8 despite the fact that by 2005 not only the EU15 but numerous new member states had a positive migration balance (Münz 2007). Whereas there is a relatively large body of literature on the labor market performance of immigrants relative to natives for selected countries of the EU15, little is known on this subject in the Eastern European member states (An exception is Kahanec and Zaiceva (2008) who analyse the roles of foreign origin and citizenship in economic performance in the Eastern and Western EU member states in 2005).

In the empirical analysis, probit models are estimated using the 2005 cross-section of the EU Labour Force Survey (EU LFS), which has not been used to analyse the employment convergence of immigrants, by gender and country of birth in the EU. Note that as opposed to some of the previous studies on immigration based on the EU LFS (such as Kogan 2006), this study controls for the presence of pre-school-aged children in the analysis, which is an important determinant of female employment.

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[1] Throughout the paper, country of birth rather than nationality is used to identify immigrants as suggested by Münz and Fassmann (2004). For the cross-country / cross-region analysis it is especially important to use the definition based on country of birth as the naturalization policies vary across EU member rendering the nationality-based definition problematic.
[2] The EU15 denotes the countries comprising the EU prior to May 2004 (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxemburg, the Netherlands, Portugal, Spain, Sweden and the United Kingdom).

The paper is organised as follows: Section 2 provides a brief description of the literature on immigrant assimilation in the EU, and describes the lines along which the receiving EU regions are generated for the empirical analysis. Section 3 proceeds with a presentation of the data and descriptive statistics. Sections 4 and 5 present the empirical strategy and the estimation results respectively. The potential explanations for the different assimilation patterns in the EU, addressing for example the occupational composition of immigrants and the applicability of the family investment hypothesis, are discussed in Section 6. Finally, Section 7 concludes. Tables and figures are presented in the Appendix.

2 BACKGROUND

In the past decades immigration has increased in the EU and since 1992 immigration has been the most significant source of population growth in the EU (Lavenex 2009). Because of the ageing of European societies and growing labour market needs, immigration is expected to increase over the coming decades (OECD 2008). Increasing migration to the EU coupled with the lower employment rate of immigrant groups (for detail see Münz 2007) implies that studying immigrant employment assimilation patterns in the EU is of key importance.

Subsequently, the labour market adjustment of immigrants in several EU countries has been the focus of attention of scientific research. Several empirical studies focusing on Europe find evidence in support of the labour market assimilation of immigrants: in terms of earnings in the EU15 (Adsera and Chiswick 2007), in terms of female labour force participation in the old migrant-receiving countries of Western Europe (Rendall et al. 2008), in terms of employment and occupation of recent immigrants in Spain (Amuedo-Dorantes and de la Rica 2007), in terms of employment in Sweden (Nekby 2002) and in the United Kingdom (UK) for males (Wheatley Price 1998). An exception is Venturini and Villosio (2008), who find no evidence in support of economic assimilation of immigrants (non-citizens) in Italy neither in terms of employment nor in terms of wages. Note that cross-country comparisons of labour market assimilation patterns within the EU are often difficult given the cross-country variation in the choice of labour market outcomes as a measure of economic incorporation (van Tubergen et al. 2004). Subsequently, this analysis aims to faciliate the cross-country comparison by uniformly analysing employment convergence.

When analyzing immigrant outcomes, it is important to distinguish between regions of origin, that is, immigrants born within and outside the EU. The latter distinction is important in light of the existing empirical evidence on foreign-native employment gap by immigrant origin (for example, Amuedo-Dorantes and de la Rica 2007), given that EU-born and non-EU-born immigrants face different immigration regimes (Münz 2007, OECD 2008), may differ in family-role orientation (Münz et al. 2006), and in re-emigration patterns (Amuedo-Dorantes and de la Rica 2007, Borjas and Bratsberg 1996, Rendall et al. 2008) as well as in the transferability of skills (diplomas). Accordingly, the analysis will be carried out for the two groups separately.

Concerning the receiving country distinction, the paper generates groups of countries from the 20 EU countries with sufficient information on immigration, in light of the differences in (1) immigration histories (2) labour market regulations and welfare provision that have an effect on immigrants' employment chances and (3) the size of the unskilled and low-skilled sector (as in Kogan 2006). Concerning the immigration histories we build on the classification of the EU25 proposed by Triandafyllidou and Gropas (2007). The classification is based on migration experiences, taking into account the relations between sending and receiving countries, past migration experience, the size of the migration population and the factors that triggered migration flows. Concerning the labour market regulations and welfare provisions we follow (i) Kogan (2006) who builds on Esping-Andersen's (1990) classifications to differentiate between liberal, conservative and social democratic welfare regimes and (ii) OECD (2008) which points to the tougher restrictions on the access to employment and the more generous welfare state systems in the Northern EU member states relative to the Southern EU member states ultimately putting less pressure on migrants to work in the former countries. The grouping of countries is important to ensure a large enough immigrant population for meaningful econometric analysis.[3]

Accordingly, the analysis differentiates between four country groups plus the UK. First, the Northern European countries, the *social-democratic welfare* countries, namely Denmark, Finland and Sweden are grouped together. The second group is composed of the Southern EU member states, the *recent hosts* with a large share of unskilled and low-skilled jobs, namely, Greece, Portugal and Spain. The third group contains the five *old migrant-receiving* countries of Western Europe considered *conservative welfare countries*: Austria, Belgium, France, Luxemburg and the Netherlands. Fourth, the Eastern European member states (EU8) admitted to the EU in May 2004, are analyses separately: the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia. The UK, the *old migrant-receiving country*, with a *liberal welfare regime*, is analyses separately. Subsequently, the study allows for different employment convergence patterns across groups of receiving countries and immigrant groups simultaneously.

3 DATA

The data for the analysis is drawn from the 2005 cross-section of the EU Labour Force Survey (EU LFS). One of the advantages of the EU LFS lies in the high degree of comparability among EU member states given the common coding of the individual replies and the definitions and classifications of the variables used (see Eurostat 2007 for data detail). Moreover, the dataset is well suited for the analysis as it contains information on both the country of birth of the individual and the number of years of residence in the member state.[4] However, there are three disadvantages of the EU LFS concerning data on immigrants. First, Germany, Ireland and Italy need to be omitted from the

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[3] Note that all regressions include country fixed effects.
[4] The EU LFS only covers migrants who have stayed or intend to stay at least one year in the host country.

analysis as the country of birth is not reported for these countries. Second, the EU LFS does not cover illegal immigrants, subsequently conclusions from the estimation results can only be drawn for the population of legal immigrants rather than for the entire immigrant population. The final disadvantage is that the variable identifying the country of birth is aggregated and reported in three categories, namely, "Born in this Member State", "Born in other EU country" and "Born in non EU country".

Descriptive statistics of the samples used in estimation are reported in Tables 2 – 5 of the Appendix. The sample statistics indicate expected differences in employment rates not only between men and women but also between natives, EU-born and non-EU-born immigrant groups. In the Northern and Western EU member states, the average employment level is highest for native-born men and women and lowest for non-EU-born men and women. In the Southern and Eastern European member states, however, the average employment rate of native-born males and females is lower than that of the non-EU-born and is similar to the EU-born.

Notable differences in the years of residence between the two immigrant groups and across EU-regions also exist. The figures confirm that in the recent migration countries of Southern Europe, the proportion of immigrants who arrived within the past five years is significantly higher than in continental Western and Northern Europe and the opposite applies to immigrants who have lived in the country for over 10 years. Contrary to the Eastern European member states, in the Northern and Southern EU countries the group of non-EU-born immigrants is composed of more recent immigrants than the EU-born group. In the Western EU member states the composition by years of residence is similar across the two immigration groups. The differences in employment rates and years of residence across the immigrant groups in turn (further) support the disaggregation of the group of immigrants in the econometric analysis.

4 ESTIMATION STRATEGY

In order to examine the employment convergence of native-born and foreign-born men and women the paper uses a probit model. The probability of being in employment as opposed to not being in employment is estimated using the following specification:

$$Emp_i = \alpha + \beta_1 RES_i + X_i'\beta_2 + \beta_3 C_i + \varepsilon_i, \qquad i = 1,...,n \quad (1)$$

where Emp_i is a dichotomous dependent variable indicating whether individual i is employed or not. RES_i indicates the years of residence in the EU member state; it is a set of dummy variables with the following categories: native-born (as reference), 1 – 5 years of residence, 6 – 10 years of residence and more than 10 years of residence for the EU15 and (due to data limitations, see Table 5) native-born (as reference), 1 – 10 years of residence and more than 10 years of residence for the EU8. X_i represents a vector of demographic characteristics affecting labour market performance including age, educational

attainment, marital status, and the presence of children under the age of five[5]. C_i represents the receiving country to account for the impact of country-level variables such as welfare state arrangements and state of the economy and ε_i is a random disturbance term (see Table 1 in the Appendix for the description of variables used in estimation). The parameter of interest is the variable capturing the years of residence in the EU member state, β_1. The analysis is restricted to working age individuals, aged 25 – 54 years, excluding those in compulsory military service.

Equation (1) is estimated for men and women separately. In terms of receiving regions, estimation is carried out for the Northern, Southern, and Western EU15 member states, the UK and the EU8 separately. Equation (1) is first estimated for the native-foreign pooled sample. In order to analyse the assimilation patterns by broad immigrant groups, Equation (1) is then estimated for the subsample of natives and immigrants born in another EU country and for the subsample of natives and immigrants born outside the EU respectively. Subsequently, six specifications are estimated for each of the four receiving country groups plus the UK.

5 ESTIMATION RESULTS

Tables 6 – 9 of the Appendix report the marginal effects of the probit models for the EU15 North, EU15 South, EU15 West and the UK and EU8 respectively. Only the results for the main parameter of interest, the years of residence in the EU member state, are presented. Columns 2 – 5 in the respective tables present the estimation results for the sample of native men and all immigrant men (Specification 1), for the subsample of native men and men born in another EU country (Specification 2) and for the subsample of native men and men born outside the EU (Specification 3) respectively. The final three columns of Tables 6 – 9 report the corresponding estimation results for females (Specifications 4 – 6).

5.1 EU15 – NORTH

Table 6 presents the estimation results for the Northern EU countries (Denmark, Finland and Sweden). Consistent with the immigrant assimilation hypothesis, the probability to be employed is lower for immigrants than for similar native-born and narrows as the years of residence in the host countries lengthen: The employment gap between male natives and their immigrant counterparts narrows from

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[5] Because the EU LFS reports the age of the individual in five-year categories, we define small children as those aged under five years; the data does not allow us to differentiate between pre-kindergarden- and pre-school-aged children. Unfortunately, the variable used for the generation of the presence of children is not available for Northern EU member states, namely, Denmark, Finland and Sweden, hence, the estimated specifications for these countries do not include the dummy variable indicating presence of children aged under five years in the household. As a robustness check, specifications were ran for the EU15 South, EU15 West, the UK and the EU8 without controlling for the presence of small children. The coefficient estimates for the years of residence dummies for men were either identical or only slightly different (in the magnitude of around one percentage point) from the ones where the presence of small children is controlled for in the regression. For women, when the presence of children was not controlled for, the coefficient estimates on the years of residence (a) indicate a larger (at most three percentage points) employment gap relative to natives up to 10 years and (b) identical results (in almost all cases) after 10 years or residence.

27 percentage points after the first five years in the host country to 12 percentage points for those who have been in the country for over 10 years. Although the immigrant assimilation hypothesis holds for both EU-born and non-EU-born men, substantial differences between the two groups can be observed. First of all, the magnitude of the employment gap between native-born and otherwise-comparable non-EU-born males is larger than that between native-born and EU-born males: after the first five years of residence the gap amounts to 33 percentage points and to eight percentage points for the former and latter groups respectively. Whereas after 10 years the employment rate of EU-born immigrants is only slightly below (by three percentage points) that of similar natives, indicating almost complete convergence, the employment rate of non-EU-born males is still 17 percentage points lower than that of similar natives. The estimation results for females are similar to those for males (as in Nekby 2002) analysing employment convergence in Sweden) – with faster convergence of non-EU-born females than non-EU-born males.

5.2 EU15 – SOUTH

Table 7 presents the estimation results for the Southern EU member states (Greece, Portugal and Spain). The magnitude of the employment gap between native-born and EU-born male and female immigrants and the pattern of convergence is similar in Southern and Northern Europe i.e. for the male subsample the employment probability gap amounts to 14 percentage points after the first five years of residence and reduces to four percentage points after 10 years, for females the corresponding figures are 16 and six percentage points. However, contrary to the Northern EU member states, men born outside the EU and residing in the Southern EU member states are not significantly less likely to be employed than their native counterparts up to the first 10 years or residence, and after 10 years the magnitude of the employment gap in favour of similar natives amounts to four percentage points – the same in magnitude as for men born in the EU. A further substantial difference to the Northern EU member states concerns the employment probability gap between natives and females born outside the EU: In the Southern EU member states non-EU-born women are significantly more likely to be employed than similar natives up to 10 years of residence in the host country and after 10 years the employment probability gap is statistically not significant. Thus, the results indicate that the region of origin works in the opposite direction in Southern and Northern Europe.

5.3 EU15 – WEST AND THE UK

The top panel of Table 8 presents the estimation results for the EU15 – West (Austria, Belgium, France, Luxemburg and the Netherlands). The employment gap between male natives and their immigrant counterparts narrows from 24 percentage points after the first five years in the host country to 10 percentage points for those who have been in the country for over 10 years. The assimilation pattern by region of origin is similar to that in Northern Europe. That is, whereas males born in the EU start off with an employment gap of seven percentage points and achieve almost complete

convergence, the employment gap between natives and similar non-EU-born males is (a) larger in magnitude than that between the native-born and those born outside the EU and (b) even after 10 years of residence in the host country amounts to 12 percentage points. The same pattern holds for females, i.e. after 10 years the employment probability gap between native-born females and females born in the EU amounts to merely two percentage points, and the corresponding figure for those females born outside the EU amounts to 15 percentage points.[6]

The estimation results for the UK are reported in the bottom panel of Table 8. The most notable difference between the UK and the five Western EU member states is that up to the first 10 years of residence the employment probability gap between the native-born and foreign-born, regardless of gender and region of birth, is larger in the latter group of countries than in the UK. This is most characteristic of men and women born outside the EU. However, after 10 years the native-foreign employment gap is similar in magnitude between the UK and the Western European countries for all subsamples analysed. It is also worth noting that the general pattern of worse relative position of non-EU-born men and women (compared to their EU-born counterparts) is characteristic for the UK as well as.

5.4 EU8

Table 9 presents the estimation results for the eight Eastern European EU member states, admitted in May 2004 (the Czech Republic, Estonia, Hungary, Lithuania, Latvia, Poland, Slovakia and Slovenia). Contrary to the analysis of the EU15, for the new member states, only two categories for the years of residence of the foreign-born have been generated (i.e. 1 – 10 years and more than 10 years of residence) due to data limitations (see Table 5). Starting with the male subsample, the estimation results are not consistent with the immigrant assimilation hypothesis. Males born outside the EU are not significantly (neither economically nor statistically) less likely to be employed than comparable natives. Whereas the employment rate of men born in the EU and living in the receiving country for less than 10 years is not significantly lower than that of otherwise-comparable native-born, EU-born males living in the receiving country for over 10 years are significantly less likely to be employed than similar native-born. The employment gap for the latter group amounts to 10 percentage points, which is larger in magnitude than the corresponding figures in the EU15. As opposed to males, the estimation results for females are consistent with the immigrant assimilation hypothesis, and are (almost) identical for the subsample of EU-born and non-EU-born females: Females born in the EU are 15 percentage points less likely to be employed than similar natives in the first 10 years of residence in

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[6] Note that an alternative specification was estimated for the EU15 – West (by gender), without Luxemburg as Luxemburg has a substantially higher fraction of EU-born immigrants than Austria, Belgium, France and the Netherlands (amounting to 38 percent for both genders), yielding similar results.

the receiving country, and with additional years the gap declines to five percentage points, the corresponding figures for females born outside the EU are 16 and five percentage points respectively.[7]

6 DISCUSSION

6.1 WHAT ARE THE POTENTIAL REASONS BEHIND THE DIFFERENT EMPLOYMENT ASSIMILAITON PATTERNS OF WITHIN THE EU15?

The cross-regional differences in convergence patterns reflect a combination of factors which merit further discussion. First of all, the composition of third-country immigrants by status at entry (humanitarian, family-linked or labour migration), which cannot be controlled for in this analysis due to data limitations, could in part explain the differences in employment convergence patterns of third-country immigrants between the Northern and Southern member states. According to OECD (2008)[8] the large employment gap between natives and third-country immigrants in the Northern States reflects, among other things, the high shares of immigration that is unrelated to employment for some decades (i.e. humanitarian and family related flows) relative to the Southern EU member states. Furthermore, Rendall et al. (2008), analysing the labour force participation convergence pattern of non-EU-born females in nine EU15 countries in 2005, attribute the differences between Western and Southern Europe to immigration policy differences, especially immigrant-admission policy differences across the two regions.

Moreover, cultural background of third-country immigrants and thus different views on family role, might explain the native-foreign gap in employment levels across receiving regions, especially for women. Note that the (potential) employment gap between native-born and immigrant mothers and the cross-country variation in the magnitude of the gap reflects a combination of factors, which cannot be disentangled without suitable data: In addition to cultural factors, the access of day-care facilities and the financial constraint (i.e. spouses' wages) of the households may differ between the native- and the foreign-born and across countries. Subsequently, variables on earnings, more detailed data on region of origin and on routes of admission are needed to analyse the role of family role orientation and routes of admission respectively in explaining differences in employment convergence patterns of third-country immigrants between the EU regions.

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[7] Note that two alternative specifications were estimated for the EU8 (by gender), given the differences in the fraction of non-EU-born immigrants, due to the differences in migration histories in the region (for detail see Triandafyllidou and Gropas 2007). In the Visegrad countries (the Czech Republic, Hungary, Poland and Slovakia) the fraction of male and female non-EU-born immigrants is around one percent of the selected population, as opposed to the Baltic States (Estonia, Latvia and Lithuania) and Slovenia (where it ranges from four to 15 percent). Therefore, (the six) regressions were ran for the Visegrad countries only, yielding similar results. Second, as Estonia and Latvia have large ethnic Russian populations (OECD 2008, Triandafyllidou and Gropas 2007), and accordingly the highest percentage of non-EU-born individuals among the EU8 countries (in Estonia around 13 and 15 percent of the selected male and female population respectively was born outside the EU, and the corresponding figures for Latvia are 10 and 12 percent respectively), (the six) regressions were estimated for the EU8 without Estonia and Latvia, also yielding similar results.

[8] The definition of immigrant is also based on the country of birth rather than nationality in OECD (2008). However, contrary to this paper, the OECD (2008) analysis pools the native-born and the EU-born and compares them to the group of non-EU-born.

It is important to point out that, according to OECD (2008), while Southern European countries seem to be more successful at getting third-country immigrants into employment than their Northern counterparts, the employment third-country immigrants accept is more likely to involve work for which they are over-qualified and they are more likely to be exposed to lower quality and precarious employment. As opposed to the reasons outlined above, relating the individual characteristics of immigrants such as cultural background and routes of entry, the occupational composition of third-country immigrants can be examined with the EU LFS data using the International standard classification of occupations (ISCO). Figure 1 of the Appendix shows the share of immigrants born outside the EU aged 25 – 54 performing unskilled and low-skilled jobs in the EU regions. Not surprisingly, given the high demand for unskilled and low-skilled labour in this region (Kogan 2006), third-country male immigrants in the Southern European countries under analysis are more likely to perform low-skilled occupations than their counterparts in the other EU regions: around 83 percent perform low-skilled occupations, exceeding the Northern European, Western European, UK and EU8 figures by around 21, 24, 41 and 19 percentage points respectively. The figures for females show a similar pattern, and the magnitude of the (regional) differences is larger than for males. However, it must be noted that the high fraction of third-country immigrants performing unskilled and low-skilled occupations relative to the other EU regions in part reflects two composition effects (see Tables 2 – 5): (a) the high fraction of third-country immigrants in the Southern countries with low educational levels relative to the rest of the EU countries and (b) the high fraction of recent immigrants relative to the rest of the EU countries. These two groups are more likely of to perform unskilled and low-skilled occupations than the highly educated and the more established third-country immigrants respectively. In order to alleviate the effect of the educational composition, Figure 2 presents the percentage of tertiary graduates aged 25 – 54 performing unskilled and low-skilled occupations by receiving EU regions. The magnitude of the differences between the Southern member states and the rest of the EU is even higher than if all education groups are aggregated, for both genders. For example, the percentage of male third-country immigrants in the Southern EU member states with tertiary education performing unskilled and low-skilled jobs amounts to around 61 percent, which is 27, 40, 47 and 37 percentage points higher than the corresponding figures for the Northern, Western EU member states, the UK and the EU8. This simple statistical analysis provides some support that the employment third-country immigrants accept in the Southern Europe is more likely to involve work for which they are over-qualified. However, more detailed analysis of occupational convergence of third-country immigrants and of the incidence of over-education is needed.

Finally, the large employment gap between natives and third-country immigrants in the Northern States reflects in part the high participation rate of immigrants in education and training activities – higher than that of EU-born in Northern Europe and higher than that of non-EU-born in Southern Europe (OECD 2008).

Turning to the UK, the estimation results for females in this paper augment those for females Rendall et al. (2008), who find that that the UK falls in between the Southern Europe and the Western Europe in terms of female native-migrant labour force participation gap, attributing this in part to differences in migrant entry types (i.e. labour migration makes up a large fraction of migration to the UK – over 40 percent in 2005 (OECD 2008)). In addition, Kogan (2006), who examines the unemployment chances of recent third-country male and female immigrants in 14 EU15 countries for the time period of 1992 – 2000 also finds (a) that in liberal welfare countries (UK and Ireland), male immigrants have better prospects of finding employment than those who have settled in countries with conservative welfare regimes (continental Western Europe). Kogan (2006) suggests language proficiency as a potential explanation of the relative employment advantage of immigrants in the UK as opposed to the other Western European countries. In fact, receiving country language proficiency of immigrants has been shown to be an important determinant of economic success (Chiswick and Miller 1995). In their analysis of the EU15, Adsera and Chiswick (2007) conclude that immigrants in the EU15 earn more if their origin language is the same as or close to that of the destination country than if the languages differ.

6.2 CAN THE FAMILY INVESTMENT HYPOTHESIS EXPLAIN IMMIGRANT EMPLOYMENT OUTCOMES IN THE EU15 – SOUTH?

The empirical results in this paper augment the existing evidence that, as opposed to the rest of the EU15, the labour market performance of third-country immigrants is similar or exceeds that of similar native-born. Rendall et al. (2008) find that the female *labour force participation* trajectories in the old migrant-receiving countries of Western Europe are consistent with the labour market assimilation hypothesis as opposed to the new migrant-receiving countries of Southern Europe (Greece, Portugal and Spain) where the labour force participation of immigrant women at all durations of residence is similar to those of native-born women. The authors conclude that the "family investment hypothesis remains a plausible explanation for the high initial labour force participation of migrant women in the Southern European countries". The "family investment hypothesis" (Baker and Benjamin 1997, Duleep and Sanders 1993) predicts that credit-constrained immigrant families adopt a strategy in which borrowing and investing is divided across family members. Accordingly, initially immigrant wives (secondary workers) will be more ready to lower their reservation wages in order to finance their husband's (primary worker's) investment in local human capital. Subsequently, immigrant women's employment / labor market participation levels are predicted to be initially higher[9] than that of the native-born, and the difference is expected to decline with additional years in the receiving country, and they are expected to work longer hours and to forgo their own investment in human capital.

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[9] Note that there is evidence that the family investment hypothesis holds for more established immigrants (Cobb-Clark and Crossley 2004 and references within).

Given the information on household composition in the EU LFS, specific predictions of the family investment hypothesis can be tested in order to preliminarily analyse the applicability of the family investment hypothesis in Spain.[10] In the analysis, we follow Baker and Benjamin (1997) and Cobb-Clark and Crossley (2004) to exploit the variation across families that differ by native or foreign birth to examine the behaviour of both male partners[11] (primary workers) and female partners (secondary workers). We distinguish between three types of households: (1) immigrant households (credit constrained), where both partners were born outside the EU, (2) mixed households, where the individual under analysis is native-born and his / her partner was born outside the EU and (3) native households, where both partners are native-born. We test two predictions about the specific investment activity of both the primary and secondary worker. First, the family investment hypothesis predicts that the primary worker in the immigrant household invests in local human capital. Therefore, we test (1) whether non-EU-born men with non-EU-born partners (immigrant household) are more likely to participate in education and training than native-born men with non-EU-born partners (mixed household) and (2) whether non-EU-born men with non-EU-born partners (immigrant household) are more likely to participate in education and training than native-born men with native-born partners (native household). Second, the family investment hypothesis predicts that the secondary worker, the female partner, forgoes investment in local human capital and has a higher employment rate than the foreign-born in order to finance the primary worker's investment in local human capital. Thus, we test (1) whether non-EU-born women with non-EU-born partners (immigrant household) are less likely to participate in education and training than native-born women with non-EU-born partners (mixed household) and (2) whether non-EU-born women with non-EU-born partners (immigrant household) are less likely to participate in education and training than native-born women with native-born partners (native household).

We limit the analysis of immigrants to those born outside the EU as it is the employment behaviour of non-EU-born female immigrants which we are seeking to explain (i.e. their employment exceeds that of similar native-born). Investment in local human capital is proxied by attendance in education or training – courses, seminars, conferences, private lessons or instructions outside the regular education system – within the last four weeks. The probability of attending education or training as opposed to not attending is estimated using a probit model, whereby the following specification is estimated:

$$Ed_i = \alpha + \beta_1 Hh_i + X_i'\beta_2 + \varepsilon_i, \qquad\qquad i = 1,...,n \quad (2)$$

where Ed_i is a dichotomous dependent variable indicating whether individual i has attended education or training, Hh_i is a dummy variable for household structure, equal to one for immigrant households (i.e. non-EU-born individual with a non-EU-born partner) and zero for mixed (native-born

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[10] The tests are not implemented for Greece and Portugal because of data limitations.
[11] Partners are either married or cohabiting.

individual with a non-EU-born partner) and for native households (native-born individual with a native-born partner) respectively. X_i includes controls for age and educational attainment and ε_i is a random disturbance term (see Table 1 in the Appendix for the description of variables used in estimation). We limit the sample to those aged 25 – 54, excluding those in compulsory military service. Equation (2) is first estimated for immigrant and mixed households, with the education attendance of the primary worker being the outcome of interest (Specification 1), then for immigrant and native households, with the education attendance of the primary worker being the outcome of interest (Specification 2), then for immigrant and mixed households, with the education attendance of the secondary worker being the outcome of interest (Specification 3), and finally for immigrant and native households, with the education attendance of the secondary worker being the outcome of interest (Specification 4). The parameter of interest is β_1, which in light of the predictions of the family investment hypothesis, is expected to be positive in Specifications (1) and (2) and negative in Specifications (3) and (4).

The estimation results for Specifications (1) – (4) are displayed in Table 10. The negative coefficient estimate in the for Specifications (1) and (2) indicate that immigrant men with immigrant partners are less likely to participate in education than their native counterparts with immigrant partners and that immigrant men with immigrant partners are less likely to participate in education than their native counterparts with native partners respectively. This seems at odds with the predictions of the family investment hypothesis. The estimates for secondary workers, on the other hand, support the family investment hypothesis: Immigrant females with immigrant partners are less likely to participate in education than their native counterparts with immigrant partners (Specification 3) and immigrant females with immigrant partners are less likely to participate in education than their native counterparts with native partners (Specification 4). Thus, in terms of investment in local human capital, only the female partner's behaviour provides some support of the family investment hypothesis. Note however that although using gender to identify primary and secondary workers (as in Benjamin and Baker 1997, Duleep and Sanders 1993) is plausible, it makes it difficult to disentangle explanations for immigrant behaviour that are based on optimal economic specialization (i.e. family investment hypothesis) from those based on gender (i.e. heterogeneity of preferences) (see Cobb-Clark and Crossley 2004). Larger datasets at the country level are needed to explore the applicability of the family investment hypothesis in explaining the high employment rates of non-EU-born women in the Southern European countries further.

6.4 THE EU8

The estimation results for the EU8 augment those found by Kahanec and Zaiceva (2008) for the year 2005, who focus their analysis on the role immigrant origin and citizenship in Eastern and Western Europe (i.e. not addressing years of residence). That is, not only the role of immigrant origin and citizenship for employment and earnings differ between the EU15 and the EU8, the employment

assimilation patterns differ as well. Furthermore, Kahanec and Zaiceva (2008) also find that males born outside the EU do not have a lower employment probability than comparable native-born in the EU8. Whether the favourable employment position (after controlling for age, education, marital status, presence of small children) of third-country immigrants is due to cultural composition / language proficiency[12] or differences in routes of entry of immigrants / migration policy[13] should be the focus of further research.

7 CONCLUSION

This paper examined the assimilation of immigrants to the EU labour market in terms of employment likelihood as their residencies lengthen, by gender and broad region of origin, distinguishing between immigrants born within and outside the EU. Substantial differences across immigrant groups were found, which in turn supports the importance of analyzing immigrant outcomes by region of origin. In the Northern and Western EU countries, the employment gap between natives and similar EU-born was smaller in magnitude than that between natives and otherwise-comparable individuals born outside the EU. Furthermore, as opposed to those born outside the EU, convergence was almost complete for the EU-born after 10 years of residence in the receiving country. In the Southern EU countries, region of origin works in the *opposite* direction. The employment rate of females born outside the EU even exceeds that of similar native-born. In order to investigate the latter finding further, two predictions of the family investment hypothesis in terms of the human capital investment of the partners were tested in Spain. As opposed to third-country immigrant men, the estimates for third-country immigrant women, support the family investment hypothesis: Third-country immigrant females with third-country immigrant partners are less likely to participate in education than their native counterparts with third-country immigrant partners and their native counterparts with native partners. Despite the differences across the EU15 regions, the estimation results indicate that region of origin *plays a greater role* in the EU15 than in the new member states in terms of employment convergence.

However, further research should check the robustness of the latter result concerning the EU8 using other cross-sections. Furthermore, in order to disentangle the potential explanations addressed in this paper behind the cross-regional variation in convergence patterns, such as cultural background, immigrant entry types and language proficiency, more detailed data is needed – especially by country of birth and entry types of immigrants. Finally, further research is necessary to analyze the relevance of the family investment hypothesis in explaining the employment rates of third-country females in the Southern European member states.

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[12] For example, the overwhelming majority of third-country immigrants in Hungary are ethnic Hungarians from neighbouring countries (Kováts and Sík 2007).

[13] For example, labour migration makes up a large fraction of migration in Hungary (Kováts and Sík 2007)

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Table 1 Description of variables

Dependent variable	Description
Employed	Equals one for those who (based on the ILO definition) did any work for pay or profit during the reference week – one hour or more or were not working but had a job or business from which they were absent during the reference week and zero otherwise.
Attendance in education and training	Equals one for those who attended courses, seminars, conferences or received private lessons or instructions outside the regular education system within the last four weeks and zero otherwise.

Explanatory variable	Description
Years of residence	Reported in the dataset as a variable ranging from 0 – 11. The value is 0 for those born in the specific member state, 1 – 10 indicates the number of years the person has been in the member state in one year increments and the value 11 refers to individuals who have been in the member state for more than 10 years. These 12 categories have been merged, due to data considerations and for comparability purposes to existing literature using the EU LFS (for example, Lemaître (2007), Rendall et al. (2008) and van Tuebergen et al. 2004), into four categories for the EU15 (Born in the member state, 1 – 5 years of residence, 6 – 10 years of residence, more than 10 years of residence) and three categories for the EU8 (Born in the member state, 1 – 10 years of residence, more than 10 years of residence). The reference group is native-born.
Age	Reported in five-year intervals in the dataset and regrouped into three categories: 25 – 34 years old, 35 – 49 years old and 50 – 54 years old. The reference group is 35 – 49 years old.
Marital status	Reported in the dataset in three categories and regrouped as a dummy variable equal to one for those who are married and zero otherwise, whereby the latter group aggregates those who are widowed, divorce, legally separated or single. The reference is single.
Education	Coded in three categories (Low, Middle and High) in the dataset based on the ISCED-97 classification. The reference group is Middle.
Education: Low	ISCED1 or ISCED2 (at most lower secondary education)
Education: Middle	ISCED3 or ISCED4 (at most upper secondary education)
Education: High	ISCED5 or ISCED6 (tertiary education)
Child	A dummy variable equal to one for those who have a child in the household aged under five and zero otherwise. The variable is not constructed for the EU15 North as for Denmark, Finland and Sweden the variables for household composition (used for the generation of the child dummy) are not available.

Table 1 continued

Country	All estimated specifications (where the receiving countries are groups) include receiving country dummies.

Country groups	
EU15 – North	Denmark, Finland, Sweden.
EU15 – South	Greece, Portugal, Spain.
EU15 – West	Austria, Belgium, France, Luxemburg, the Netherlands.
EU8	Central European member states admitted in May 2004 (the Czech Republic, Estonia, Hungary, Lithuania, Latvia, Poland, Slovakia and Slovenia). The reference country is Poland.

Table 2 Descriptive statistics of sample used in estimation, EU15 – North (percentages)

	Males			Females		
	Native-born	Born in other EU	Born in non-EU	Native-born	Born in other EU	Born in non-EU
Married	46.04	48.42	61.91	51.42	53.90	64.38
Education: Low	15.39	19.38	22.91	11.29	11.98	24.75
Education: Medium	56.14	47.46	45.99	49.02	50.14	42.20
Education: High	28.47	33.16	31.10	39.69	37.88	33.06
Employed	87.85	84.48	68.51	82.58	75.33	58.11
Age group: 25 – 34	31.50	27.99	32.36	31.10	26.08	37.91
Age group: 35 – 49	51.68	51.42	55.54	51.74	53.01	51.45
Age group: 50 – 54	16.83	20.59	12.10	17.16	20.90	10.64
Years of residence: 1 – 5		17.34	17.64		14.32	22.59
Years of residence: 6 – 10		10.09	18.64		8.99	20.22
Years of residence: more than 10		72.57	63.72		76.69	57.18
Observations	82367	2342	4871	84114	2781	5546

Note: EU15 – North refers to Denmark, Finland and Sweden.

Table 3 Descriptive statistics of sample used in estimation, EU15 – South (percentages)

	Males			Females		
	Native-born	Born in other EU	Born in non-EU	Native-born	Born in other EU	Born in non-EU
Married	62.62	57.52	65.39	70.17	60.76	66.26
Education: Low	49.91	28.64	48.27	47.32	23.40	41.49
Education: Medium	23.81	29.70	32.51	24.00	34.11	34.89
Education: High	26.28	41.65	19.22	28.68	42.49	23.62
Employed	87.37	82.23	87.58	62.77	62.86	66.73
Presence of children aged 0 – 4	17.70	22.55	22.00	17.95	22.21	24.28
Age group: 25 – 34	36.20	46.30	45.68	34.72	43.33	47.03
Age group: 35 – 49	49.72	43.09	48.18	50.64	44.20	45.41
Age group: 50 – 54	14.08	10.61	6.14	14.65	12.46	7.56
Years of residence: 1 – 5		29.24	44.72		26.62	49.68
Years of residence: 6 – 10		25.19	31.11		17.11	29.35
Years of residence: more than 10		45.58	24.16		56.27	20.97
Observations	211591	1692	11689	220446	2335	12408

Note: EU15 – South refers to Greece, Portugal and Spain.

Table 4 Descriptive statistics of sample used in estimation, EU15 – West and the UK (percentages)

EU15 – West	Males			Females		
	Native-born	Born in other EU	Born in non-EU	Native-born	Born in other EU	Born in non-EU
Married	54.13	65.56	68.42	58.67	67.64	69.17
Education: Low	24.50	33.10	38.36	26.31	34.83	45.81
Education: Medium	48.07	40.11	37.79	43.99	37.65	30.91
Education: High	27.43	26.79	23.84	29.70	27.52	23.28
Employed	89.15	87.29	74.98	76.29	69.24	51.04
Presence of children aged 0 – 4	19.88	16.89	27.38	20.38	16.13	26.47
Age group: 25 – 34	32.23	19.52	29.26	31.23	24.72	32.74
Age group: 35 – 49	52.06	59.73	54.08	52.66	55.94	51.63
Age group: 50 – 54	15.71	20.75	16.67	16.11	19.34	15.63
Years of residence: 1 – 5		13.24	12.66		13.44	14.70
Years of residence: 6 – 10		10.33	11.33		11.32	12.52
Years of residence: more than 10		76.43	76.01		75.25	72.79
Observations	227091	12891	20083	235181	15476	23265
UK						
Married	56.49	50.25	68.16	56.74	53.17	65.76
Education: Low	10.80	11.91	16.04	12.53	11.46	21.69
Education: Medium	58.00	59.80	51.68	56.41	55.75	49.46
Education: High	31.20	28.30	32.28	31.06	32.79	28.86
Employed	88.72	87.25	80.31	76.83	72.77	57.88
Presence of children aged 0 – 4	17.57	18.31	24.36	18.75	21.12	34.54
Age group: 25 – 34	30.05	43.72	37.12	30.55	42.11	37.84
Age group: 35 – 49	54.38	44.78	50.04	54.13	45.10	49.80
Age group: 50 – 54	15.57	11.50	12.84	15.32	12.79	12.36
Years of residence: 1 – 5		34.70	31.77		26.17	30.29
Years of residence: 6 – 10		15.27	16.28		15.15	15.99
Years of residence: more than 10		50.03	51.95		58.68	53.71
Observations	82585	2561	7972	90989	3139	9081

Note: EU15 – West refers to Austria, Belgium, France, Luxemburg and the Netherlands.

Table 5 Descriptive statistics of sample used in estimation, EU8 (percentages)

	Males			Females		
	Native-born	Born in other EU	Born in non-EU	Native-born	Born in other EU	Born in non-EU
Married	69.30	66.03	75.04	72.51	70.29	70.78
Education: Low	11.30	12.86	10.52	12.62	19.49	12.81
Education: Medium	73.20	60.47	64.89	67.42	58.83	60.11
Education: High	15.50	26.67	24.59	19.95	19.49	27.08
Employed	79.89	78.35	85.10	67.50	66.70	70.95
Presence of child aged 0 – 4	15.47	18.12	14.17	15.42	14.59	10.70
Age group: 25 – 34	35.75	30.33	21.87	34.62	31.86	20.63
Age group: 35 – 49	47.45	47.23	56.41	47.51	48.89	57.02
Age group: 50 – 54	16.80	22.44	21.72	17.87	19.25	22.34
Years of residence: 1 – 10		26.81	17.19		19.37	17.19
Years of residence: more than 10		73.19	82.81		80.63	82.81
Observations	211506	1174	3859	220405	1273	4330

Note: EU8 refers to the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, Slovenia.

Table 6 Employment probabilities, EU15 – North

	Males			Females		
	(1)	(2)	(3)	(4)	(5)	(6)
1 – 5 years	-0.27***	-0.08***	-0.33***	-0.36***	-0.13***	-0.40***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
6 – 10 years	-0.25***	-0.03	-0.29***	-0.23***	-0.11***	-0.25***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
More than 10 years	-0.12***	-0.03***	-0.17***	-0.12***	-0.07***	-0.14***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Observations	89580	84709	87238	92441	86895	89660
Log Likelihood	-32765.55	-29350.14	-31650.69	-42317.44	-38486.10	-40749.97
Wald Chi2 (10)[a]	3392.82	2754.20	3440.51	3805.12	2815.16	3689.93
Prob > Chi2	0.000	0.000	0.000	0.000	0.000	0.000
Test: Equality between genders[b]						
Wald Chi2 (3)	22.15	6.81	38.32			
Prob > Chi2	0.000	0.078	0.000			
Test: Equality between immigrant groups[c]						
Wald Chi2 (3)		229.47			131.83	
Prob > Chi2		0.000			0.000	

Notes: The dependent variable equals one if employed and zero otherwise. The regressions include controls for age, educational attainment, marital status and country dummies. The reference group for the years of residence dummies is native (i.e. born in the country of residence). *Significant at the 10% level. **Significant at the 5% level. ***Significant at the 1% level. Robust standard errors are in parentheses. Marginal effects are reported. EU15 – North refers to Denmark, Finland and Sweden. Specification (1) refers to the sample of native men and all immigrant men, Specification (2) refers to the subsample of native men and men born in another EU country and Specification (3) refers to the subsample of native men and men born outside the EU. Specification (4) refers to the sample of native women and all immigrant women, Specification (5) refers to the subsample of native women and women born in another EU country and Specification (6) refers to the subsample of native women and women outside the EU. [a] Wald test testing significance of the model. [b] Wald test testing equality of the years of residence coefficients (assimilation pattern) for males and females. The statistic displayed in column 2 refers to the comparison of the native-immigrant assimilation pattern between males in females, the statistic displayed in column 3 refers to the comparison of the native-EU-born-immigrant assimilation pattern between males and females, the statistic in column 4 refers to the comparison of the native-non-EU-born-immigrant assimilation pattern between males and females. [c] Wald test testing equality of the years of residence coefficients (assimilation pattern) for EU-born and non-EU-born immigrants. The statistic displayed in columns 3 refers to the comparison of the native-EU-born-immigrant assimilation pattern and the native-non-EU-born-immigrant assimilation pattern for males, and the statistic in column 6 refers to the comparison of the native-EU-born-immigrant assimilation pattern and the female native-non-EU-born-immigrant assimilation pattern for females.

Table 7 Employment probabilities, EU15 – South

	Males			Females		
	(1)	(2)	(3)	(4)	(5)	(6)
1 – 5 years	-0.02	-0.14	-0.01	0.02	-0.16	0.04
	(0.01)**	(0.03)***	(0.01)	(0.01)**	(0.03)***	(0.01)***
6 – 10 years	0.00	-0.03	0.00	0.06	0.00	0.07
	(0.01)	(0.03)	(0.01)	(0.01)***	(0.04)	(0.01)***
More than 10 years	-0.04	-0.04	-0.04	-0.01	-0.06	0.01
	(0.01)***	(0.02)***	(0.01)***	(0.01)	(0.02)***	(0.01)
Observations	224972	213283	223280	235189	222781	232854
Log Likelihood	-80184.85	-75512.89	-79211.82	-142380.93	-134372.33	-140831.48
Wald Chi2 (11)[a]	6121.20	7300.72	6216.78	13648.20	14872.28	13673.18
Prob > Chi2	0.000	0.000	0.000	0.000	0.000	0.000
Test: Equality between genders[b]						
Wald Chi2 (3)	30.43	1.52	31.72			
Prob > Chi2	0.000	0.678	0.000			
Test: Equality between immigrant groups[c]						
Wald Chi2 (3)		22.45			49.88	
Prob > Chi2		0.000			0.000	

Notes: The dependent variable equals one if employed and zero otherwise. The regressions include controls for age, educational attainment, marital status, presence of children under the age of five and country dummies. The reference group for the years of residence dummies is native (i.e. born in the country of residence). *Significant at the 10% level. **Significant at the 5% level. ***Significant at the 1% level. Marginal effects are reported. EU15 – South refers to Greece, Portugal and Spain. Specification (1) refers to the sample of native men and all immigrant men, Specification (2) refers to the subsample of native men and men born in another EU country and Specification (3) refers to the subsample of native men and men born outside the EU. Specification (4) refers to the sample of native women and all immigrant women, Specification (5) refers to the subsample of native women and women born in another EU country and Specification (6) refers to the subsample of native women and women outside the EU. [a] Wald test testing significance of the model. [b] Wald test testing equality of the years of residence coefficients (assimilation pattern) for males and females. The statistic displayed in column 2 refers to the comparison of the native-immigrant assimilation pattern between males in females, the statistic displayed in column 3 refers to the comparison of the native-EU-born-immigrant assimilation pattern between males and females, the statistic in column 4 refers to the comparison of the native-non-EU-born-immigrant assimilation pattern between males and females. [c] Wald test testing equality of the years of residence coefficients (assimilation pattern) for EU-born and non-EU-born immigrants. The statistic displayed in columns 3 refers to the comparison of the native-EU-born-immigrant assimilation pattern and the native-non-EU-born-immigrant assimilation pattern for males, and the statistic in column 6 refers to the comparison of the native-EU-born-immigrant assimilation pattern and the female native-non-EU-born-immigrant assimilation pattern for females.

Table 8 Employment probabilities, EU15 – West and the UK

	Males			Females		
EU15 – West	(1)	(2)	(3)	(4)	(5)	(6)
1 – 5 years	-0.24	-0.07	-0.30	-0.37	-0.17	-0.44
	(0.01)***	(0.02)***	(0.01)***	(0.01)***	(0.02)***	(0.01)***
6 – 10 years	-0.18	-0.02	-0.23	-0.27	-0.15	-0.31
	(0.01)***	(0.01)	(0.01)***	(0.01)***	(0.02)***	(0.01)***
More than 10 years	-0.10	-0.02	-0.12	-0.12	-0.02	-0.15
	(0.00)***	(0.01)***	(0.00)***	(0.00)***	(0.01)***	(0.01)***
Observations	260065	239982	247174	273922	250657	258446
Log Likelihood	-89537.74	-76892.05	-84567.23	-146078.15	-130615.67	-136698.46
Wald Chi2 (13)[a]	6927.28	5183.38	6949.80	11851.09	7290.86	11648.14
Prob > Chi2	0.000	0.000	0.000	0.000	0.000	0.000
Test: Equality between genders[b]						
Wald Chi2 (3)	38.25	24.83	34.60			
Prob > Chi2	0.000	0.000	0.000			
Test: Equality between immigrant groups[c]						
Wald Chi2 (3)		348.12			461.21	
Prob > Chi2		0.000			0.000	
UK	(1)	(2)	(3)	(4)	(5)	(6)
1 – 5 years	-0.12	-0.02	-0.16	-0.16	-0.07	-0.19
	(0.01)***	(0.01)	(0.01)***	(0.01)***	(0.02)***	(0.01)***
6 – 10 years	-0.08	-0.03	-0.09	-0.17	-0.09	-0.20
	(0.01)***	(0.02)*	(0.01)***	(0.01)***	(0.02)***	(0.01)***
More than 10 years	-0.05	-0.00	-0.07	-0.11	-0.02	-0.14
	(0.01)***	(0.01)	(0.01)***	(0.01)***	(0.01)**	(0.01)***
Observations	93118	85146	90557	103209	94128	100070
Log likelihood	-30605.78	-26722.26	-29596.30	-51380.58	-46034.43	-49622.97
Wald Chi2 (9)[a]	6747.68	5972.70	6701.32	12030.14	9192.04	11826.02
Prob > Chi2	0.000	0.000	0.000	0.000	0.000	0.000
Test: Equality between genders[b]						
Wald Chi2 (3)	28.21	3.00	35.72			
Prob > Chi2	0.000	0.392	0.000			
Test: Equality between immigrant groups[c]						
Wald Chi2 (3)		104.75			133.14	
Prob > Chi2		0.000			0.000	

Notes: The dependent variable equals one if employed and zero otherwise. The regressions include controls for age, educational attainment, marital status, presence of children under the age of five and country dummies. The reference group for the years of residence dummies is native (i.e. born in the country of residence). *Significant at the 10% level. **Significant at the 5% level. ***Significant at the 1% level. Robust standard errors are in parentheses. Marginal effects are reported. EU15 – West refers to Austria, Belgium, France, Luxemburg and the Netherlands. Specification (1) refers to the sample of native men and all immigrant men, Specification (2) refers to the subsample of native men and men born in another EU country and Specification (3) refers to the subsample of native men and men born outside the EU. Specification (4) refers to the sample of native women and all immigrant women, Specification (5) refers to the subsample of native women and women born in another EU country and Specification (6) refers to the subsample of native women and women outside the EU. [a] Wald test testing significance of the model. [b] Wald test testing equality of the years of residence coefficients (assimilation pattern) for males and females. The statistic displayed in column 2 refers to the comparison of the

native-immigrant assimilation pattern between males in females, the statistic displayed in column 3 refers to the comparison of the native-EU-born-immigrant assimilation pattern between males and females, the statistic in column 4 refers to the comparison of the native-non-EU-born-immigrant assimilation pattern between males and females. [c] Wald test testing equality of the years of residence coefficients (assimilation pattern) for EU-born and non-EU-born immigrants. The statistic displayed in columns 3 refers to the comparison of the native-EU-born-immigrant assimilation pattern and the native-non-EU-born-immigrant assimilation pattern for males, and the statistic in column 6 refers to the comparison of the native-EU-born-immigrant assimilation pattern and the female native-non-EU-born-immigrant assimilation pattern for females.

Table 9 Employment probabilities, EU8

	Males			Females		
	(1)	(2)	(3)	(4)	(5)	(6)
1 – 10 years	-0.03	-0.08	-0.01	-0.15	-0.15	-0.16
	(0.03)	(0.06)	(0.03)	(0.02)***	(0.05)***	(0.03)***
More than 10 years	-0.02	-0.10	0.00	-0.05	-0.05	-0.05
	(0.01)**	(0.02)***	(0.01)	(0.01)***	(0.02)***	(0.01)***
Observations	216539	212680	215365	226008	221678	224735
Log likelihood	-97106.91	-95490.13	-96544.03	-126899.85	-124434.46	-126198.58
Wald Chi2 (15)[a]	12239.72	12152.20	12206.56	15173.25	14994.38	15065.11
Prob > Chi2	0.000	0.000	0.000	0.000	0.000	0.000
Test: Equality between genders[b]						
Wald Chi2 (3)	9.03	8.08	16.26			
Prob > Chi2	0.029	0.044	0.000			
Test: Equality between immigrant groups[c]						
Wald Chi2 (3)		25.61			2.63	
Prob > Chi2		0.000			0.452	

Notes: The dependent variable equals one if employed and zero otherwise. The regressions include controls for age, educational attainment, marital status, presence of children under the age of five and country dummies. The reference group for the years of residence dummies is native (i.e. born in the country of residence). *Significant at the 10% level. **Significant at the 5% level. ***Significant at the 1% level. Robust standard errors are in parentheses. Marginal effects are reported. EU8 refers to the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, Slovenia. Specification (1) refers to the sample of native men and all immigrant men, Specification (2) refers to the subsample of native men and men born in another EU country and Specification (3) refers to the subsample of native men and men born outside the EU. Specification (4) refers to the sample of native women and all immigrant women, Specification (5) refers to the subsample of native women and women born in another EU country and Specification (6) refers to the subsample of native women and women outside the EU. [a] Wald test testing significance of the model. [b] Wald test testing equality of the years of residence coefficients (assimilation pattern) for males and females. The statistic displayed in column 2 refers to the comparison of the native-immigrant assimilation pattern between males in females, the statistic displayed in column 3 refers to the comparison of the native-EU-born-immigrant assimilation pattern between males and females, the statistic in column 4 refers to the comparison of the native-non-EU-born-immigrant assimilation pattern between males and females. [c] Wald test testing equality of the years of residence coefficients (assimilation pattern) for EU-born and non-EU-born immigrants. The statistic displayed in columns 3 refers to the comparison of the native-EU-born-immigrant assimilation pattern and the native-non-EU-born-immigrant assimilation pattern for males, and the statistic in column 6 refers to the comparison of the native-EU-born-immigrant assimilation pattern and the female native-non-EU-born-immigrant assimilation pattern for females.

**Table 10** Attendance in education or training activities within the last four weeks, Spain

	Males		Females	
	(1)	(2)	(3)	(4)
Household status: immigrant	-0.05***	-0.05***	-0.04***	-0.06***
	(0.01)	(0.00)	(0.01)	(0.00)
Observations	5196	119917	4350	125068
Log Likelihood	-1208.03	-38047.08	-1110.21	-44028.99
Wald Chi2 (5)[a]	85.51	4221.41	95.21	4894.74
Prob > Wald Chi2	0.000	0.000	0.000	0.000

Notes: The dependent variable equals one if attended courses, seminars, conferences or received private lessons or instructions outside the regular education system within the last four weeks and zero otherwise. The regressions include controls for education and labour force status. *Significant at the 10% level. **Significant at the 5% level. ***Significant at the 1% level. Robust standard errors are in parentheses. Marginal effects are reported. Immigrant in Specifications (1) – (4) refers to those born outside the EU. Specifications (1) and (3) refer to the subsample immigrant households and mixed households, Specifications (2) and (4) refer to the subsample of immigrant households and native households respectively. The coefficient estimate in Specification (1) shows the probability of immigrant men with an immigrant partner attending education and training relative to native-born men with an immigrant partner. The coefficient estimate in Specification (2) shows the probability of immigrant men with an immigrant partner attending education and training relative to native-born men with a native-born partner. The coefficient estimate in Specification (3) shows the probability of immigrant women with an immigrant partner attending education and training relative to native-born women with an immigrant partner. The coefficient estimate in Specification (4) shows the probability of immigrant women with an immigrant partner attending education and training relative to native-born women with a native-born partner. [a] Wald test testing significance of the model.

Figure 1 Share of immigrants born outside the EU aged 25 – 54 performing unskilled and low-skilled occupations, by region
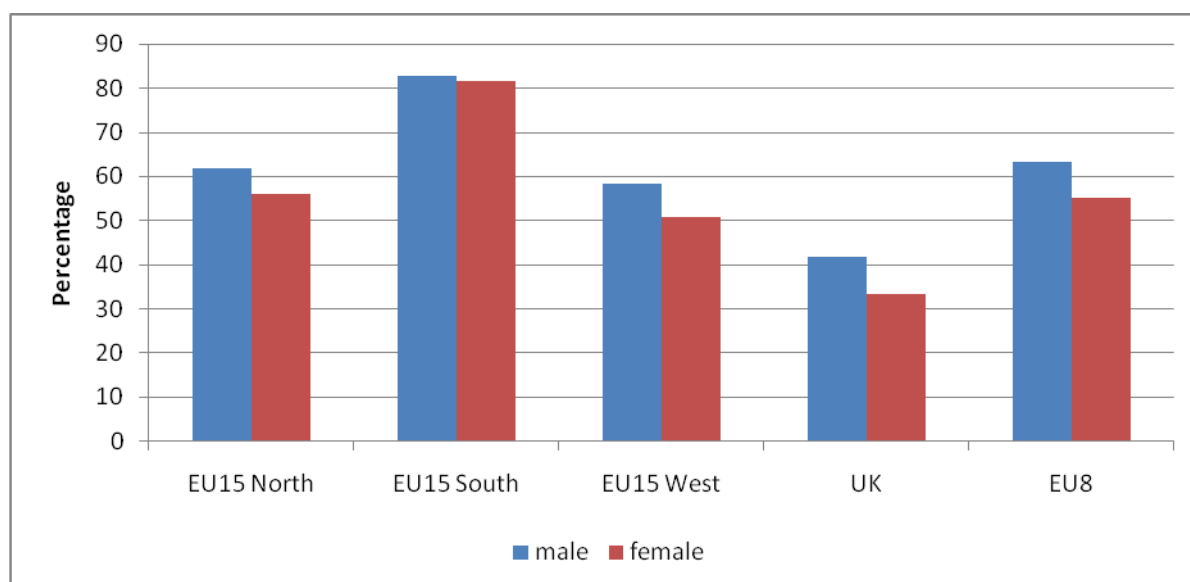
Note: Unskilled and low-skilled occupations include ISCO5, ISCO7, ISCO8 or ISCO9 occupations (service workers and shop and market sales workers, craft and related trades workers, plant and machine operators and assemblers or elementary occupations respectively).

Figure 2 Share of immigrants born outside the EU with tertiary degrees aged 25 – 54 performing unskilled and low-skilled occupations, by region
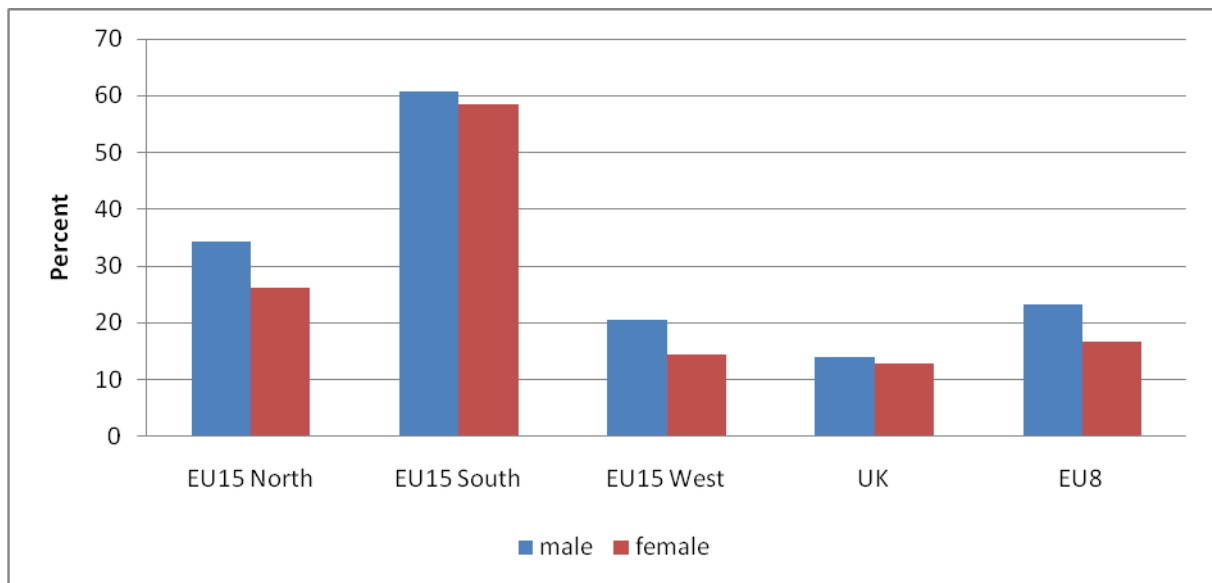
Note: Unskilled and low-skilled occupations include ISCO5, ISCO7, ISCO8 or ISCO9 occupations (service workers and shop and market sales workers, craft and related trades workers, plant and machine operators and assemblers or elementary occupations respectively).

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Annekatrin Niebuhr | Hamburg, July 2006

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