Institut für Ost- und Südosteuropaforschung
Institute for East and Southeast European Studies

Arbeitsbereich Ökonomie

IOS Working Papers

No. 325 January 2013

The Determinants of International Migration in the European Union: An Empirical Analysis

Ekaterina Sprenger*

* ZBW – Leibniz Information Centre for Economics. Neuer Jungfernstieg 21, 20354 Hamburg, Germany. E-mail: e.sprenger@zbw.eu.

Institut für Ost- und Südosteuropaforschung
Institute for East and Southeast European Studies
Landshuter Straße 4
D-93047 Regensburg
Telefon: (0941) 943 54-10
Telefax: (0941) 943 54-27
E-Mail: info@ios-regensburg.de
Internet: www.ios-regensburg.de

Contents

List of Tables

List of Figures

Abstract

This paper empirically investigates the determinants of migration between 21 developed countries which are members of the EU and the OECD. Using data on migration flows over the period 2000–2009, the paper examines the impact of traditional economic variables such as income and unemployment differentials, geographical and demographic factors. It also examines the effect of cultural differences on the mobility patterns in the EU before and after the 2004 enlargement round.

1 Introduction

1.1 Motivation

Over 200 years ago, Adam Smith wrote that 'a man is, of all sorts of luggage the most difficult to be transported' (1827, p. 31). This correctly reflects the attitude of European workers towards migration. There is very little migration between the Member States of the European Union (EU). In spite of increasing legislative support for intra-European migration on the one hand and stricter legislation on non-EU immigration on the other hand, there are more non-EU citizens in the labour force of the Member States than there are foreign EU citizens (Eurostat online statistics database, 2011). The combination of deepening economic integration and low labour mobility can have high economic costs for the EU.

In 2011, 17 of 27 EU Member States have the euro as their single currency. Technically, however, all Member States of the EU, with the exception of Denmark and the United Kingdom, are members of the Economic and Monetary Union (EMU) and have a legal obligation to adopt the euro (Grauwe and Schnabl, 2004). Denmark and the United Kingdom had the possibility to opt out. All remaining countries have to join the EMU as soon as they fulfil the euro convergence criteria laid down in the Treaty on European Union, commonly known as the Maastricht Treaty (Grauwe and Schnabl, 2004). The EMU encompassed countries with a wide range of economic disparities prior to the eastern enlargement, and it includes countries with even more disparities as its consequence. Increased heterogeneity implies a higher probability of asymmetric shocks. The theory of Optimum Currency Area (OCR), first described by Mundell (Mundell, 1961), sees labour mobility as an instrument minimising the costs of such shocks.[1] Areas that are subject to asymmetric shocks require international labour mobility as a macroeconomic adjustment mechanism. This paper does not discuss either of these theoretical aspects in detail, however, briefly introducing them helps understand the motivation for the present study.

The enlargement of the EU towards Central and Eastern Europe has given a fresh impetus to political, economic and academic debates on migration. There is an extensive literature on the volume and composition of new migrants as well as on the consequences of migration from the accession countries (e.g. Kahanec and Zimmermann, 2010; Baas and Bruecker, 2010; Bruecker et al., 2009). However, the question of which factors determine international migration within the enlarged EU remains unanswered. Most studies directly or indirectly suggest that there are solely economic incentives to migrate. Many empirical studies have shown that, as a general rule, there is indeed some idea of material improvement usually involved in migration decision making (e.g. Harris and Todaro, 1970; Hatton and Williamson, 2002; Grogger and Hanson, 2008). Yet this cannot explain the uneven migration pattern within the EU – flows between some countries are almost negligible, while flows between other countries are extremely large. Other studies show

[1] Other classical OCR criteria include diversification of production proposed by Kenen (1994) and openness introduced by McKinnon (1963).

that migration flows do not automatically respond to wage and unemployment differentials, especially in developed countries (e.g. Ghatak, Levine, and Price, 1996; Brauner-hjelm, Faini, Norman, Ruane, and Seabright, 2000; Bentivogli and Pagano, 1999). Finally, contrary to most studies, the empirical analysis by van Wissen and Visser (1998) shows that economic factors, the difference in unemployment rates and in income levels, have no significant influence on size of migration flows between the countries of the European Economic Area (EEA).

A very different approach to analysing migration flows between developed countries is adopted by Belot and Ederveen (2011) in their study 'Cultural Barriers in Migration Between OECD Countries'. The authors suggest that investigating the role of cultural barriers to mobility can help to explain bilateral migration flows or their absence. The analysis uses data for 22 member countries of the Organisation for Economic Co-operation and Development (OECD) over the period 1990–2003. The included variables measuring cultural distance between countries are shown to be important for intra-OECD migration flows.

Belot and Ederveen's (2011) paper is unique. In spite of a large body of theoretical literature on economic, demographic, geographical and political causes of international migration, there are very few studies focusing on cultural determinants. In addition, there are relatively few empirical studies on migration, especially flows between developed countries. One of the reasons is that migration flows are not easy to measure. There is no satisfactory definition of a migrant – it may vary from country to country. Finally, not all immigration is officially listed. In addition to illegal immigration, there are perfectly legal decisions by some countries to modify their registration requirements, e.g. France does not register inflows from other EEA countries from 2004 onwards.

Basing on the study of Belot and Ederveen (2011), the present paper's intention is to elucidate the determinants of migration flows between Member States of the EU. Because the study showed cultural hypotheses to hold for the member countries of the OECD, not all 27 countries of the EU are investigated. 21 EU Member States that are also members of the OECD are the subject of the analysis. These include Austria, Belgium, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Poland, Portugal, Spain, Slovakia, Slovenia, Sweden and the United Kingdom. The empirical analysis uses the data for the period 1998–2010.

1.2 Outline

The paper contains six chapters including Introduction and Conclusion. The chapters fall naturally into two parts. Following the Introduction in Chapter 1, Chapters 2–4 present theoretical and empirical literature focused on migration. Chapter 5 is devoted to the empirical application. Chapter 6 concludes the paper.

The introductory chapter provides the motivation for analysing migration flows within the EU. It also briefly introduces the study of Belot and Ederveen (2011), which is the basis of the present article.

Since formal methods are of great use when structuring the empirical analysis, Chapter 2 gives an overview of economic theories of international migration. Firstly, the neoclassical theory of migration is presented. Section 2.3 introduces the idea of labour markets operating in an environment where there is asymmetric information. Sections 2.4 and 2.5 discuss some relevant theoretical ideas of the 'new economics of labour migration' approach and from social psychology respectively.

Chapter 3 describes the patterns and institutional framework of intra-EU migration. Section 3.1 deals with current trends in international labour migration in the EU in detail. Section 3.2 addresses the institutional challenges for the free movement of workers.

Chapter 4 summarises the results of empirical studies on international migration between developed countries and elucidates the mechanisms driving migration in the EU. Section 4.1 discusses the relevance of economic, demographic, geographical and social determinants of intra-EU migration. Section 4.2 discusses the relevant cultural determinants found in the literature. The hypotheses of the study are formulated in Section 4.3.

The ambition of this study is to evaluate different determinants of international migration discussed in the literature rather than to provide a new theory of migration. Consequently, the hypotheses formulated in Chapter 4 are tested in Chapter 5. The first section of the chapter describes the data used for the estimation. The appropriate econometric model to test the hypotheses using these given data is the focus of Section 5.2. The results of the estimation and the implications these results have for the hypotheses are considered in Sections 5.3.

The final chapter summarises the results presented in the paper and discusses some implications for policy-making basing on these results.

2 The theory of international migration

There is an intrinsic difference between international and internal migration. Legal restrictions, cultural, linguistic and social differences need to be taken into account when considering international migration flows. This chapter reviews the theoretical approaches to international migration. Starting with very early contributions by Ravenstein (1885, 1889), Harris and Todaro (1970) and Todaro (1969), this chapter presents the main ideas of neoclassical macroeconomics in Section 2.1, followed by an overview of the concepts of neoclassical microeconomic theory in Section 2.2. Section 2.3 introduces the notion of labour markets operating in an environment where there is imperfect information. Part 2.4 discusses some ideas of the 'new economics of labour migration'. Finally, Section 2.5 gives a brief account of some ideas from social psychology that influence migration decision making.

2.1 Neoclassical macroeconomics

The decision to migrate may be a very complex one, involving numerous determinants of economic as well as non-economic nature. Important unmeasured and/or immeasurable factors, such as employment instability or discrimination in the home country, may encourage migration. '[The] laws of population, and economic laws generally, have not the rigidity of physical laws, as they are continually being interfered with by human agency', Ravenstein, a German-British geographer, observed in 1889 (p. 241). Despite his disbelief in such laws' rigidity, Ravenstein was the first scholar who attempted to explain and predict currents of migration within and between countries. Having analysed the data from the British Census of 1871 and 1881 and presented his first study on the laws of migration in 1885, he revisited his study in 1889 using additional information on the respondents' birthplaces. This second publication proposed seven laws of migration: (1) migrants generally proceed a short distance; (2) a universal displacement of population takes place whereby people from the rural areas surrounding a growing town 'flock' into it and the arising gaps are filled by migrants from more remote areas; (3) in- and out-migration are inversely related; (4) every migration stream produces a compensating counter-stream; (5) those migrating longer distances tend to move to large industrial or commercial centres; (6) rural population's propensity to migrate is higher than that of urban population; (7) females tend to be more migratory than males (Ravenstein, 1889, pp. 198–199).

The renowned work of Hicks (1932) has greatly influenced international migration theory by drawing more attention to differentials in wages. In his book, Hicks made a much-cited observation that 'differentials in net economic advantages chiefly in wages are the main causes of migration' (1932, p. 76).[2] The neoclassical approach to analysing international migration turned its attention away from several interesting observations made by Ravenstein and suggested migration takes place because there are variations in wages across labour markets in different regions which individuals respond to (Harris and To-

daro, 1970; Todaro, 1969). This approach was first developed to explain internal rather than international migration. In countries or regions where labour is abundant relative to capital, equilibrium market wages are low, whereas countries or regions with a labour shortage and a capital surplus have a high equilibrium wage. In maximising his utility, the neoclassical individual from the labour-abundant country inevitably chooses to enjoy the highest income possible and thus migrates. The outcome of such migration flow is then a decrease in wages in the country with initially higher equilibrium wages and an increase in wages of the initial labour-surplus country. The international flow of labour will eventually end when the differences in wages across labour markets merely reflect the moving expenses from the capital-poor to the capital-rich country.

This rather simple approach to international migration has been playing a crucial role in shaping scholars' and policy-makers' views and strategies for decades. Massey et al. (1998) provide a useful summary of neoclassical assumptions and propositions: (1) the reason workers decide to change residence is wage differentials between countries; (2) there is no migration in the absence of earnings differentials, and existing migration flows stop once the differentials disappear; (3) migration patterns of highly skilled workers and of unskilled workers are distinct from each other and may even oppose each other; (4) international migration is solely affected by labour market frictions, and it is unaffected by other markets; (5) by controlling labour markets in sending and/or receiving countries, the governments can manipulate migration (p. 19).

2.2 International migration as a form of investment in human capital

Current wage differentials may explain the macroeconomic neoclassical theory of international migration, but they may not summarise the incentives to change residence to the full extent of an individual's migratory behaviour. The neoclassical individual does not live at present only; he or she is also concerned about future wages, can make a cost-benefit calculation and can reach a rational decision. Given their skills, individuals decide

[2] Adam Smith's *An Inquiry into the Nature and Causes of the Wealth of Nations* (1827) contains possibly one of the first observations of wage-dependent internal migration:

> as the price of provisions varies more from year to year than the wages of labour, so, on the other hand, the wages of labour vary more from place to place than the price of provisions. The prices of bread and butcher's meat are generally the same or very nearly the same through the greater part of the united kingdom. These, and most other things which are sold by retail, the way in which the labouring poor buy all things, are generally fully as cheap, or cheaper, in great towns than in the remoter parts of the country [...] But the wages of labour in a great town and its neighbourhood, are frequently a fourth or a fifth part, twenty or five-and-twenty per cent, higher than at a few miles distance. Eighteen pence a day may be reckoned the common price of labour in London and its neighbourhood. At a few miles distance it falls to fourteen and fifteen pence. Tenpence may be reckoned its price in Edinburgh and its neighbourhood. At a few miles distance it falls to eightpence, the usual price of common labour through the greater part of the low country of Scotland, where it varies a good deal less than in England. Such a difference of prices, which it seems, is not always sufficient to transport a man from one parish to another, would necessarily occasion so great a transportation of the most bulky commodities, not only from one parish to another, but from one end of the kingdom, almost from one end of the world to the other, as would soon reduce them more nearly to a level. After all that has been said of the levity and inconstancy of human nature, it appears evidently from experience, that a man is, of all sorts of luggage the most difficult to be transported. If the labouring poor, therefore, can maintain their families in those parts of the kingdom where the price of labour is lowest, they must be in affluence where it is highest. (p. 31)

to migrate to where they can be most productive, but before they can enjoy migrants' grapes of success, they must invest, i.e. pay the cost of moving. Sjaastad (1962) emphasised that there is a connection between migration and investment in human capital.[3] This inter-temporal microeconomic extension of the neoclassical approach to migration theory remains very influential in modelling labour migration (e.g. Borjas, 1987, 1988, 1989; Hatton and Williamson, 2002; Sjaastad, 1962).

Following Hatton and Williamson (2002, p. 5–6), basing on the premise that the decision to migrate is influenced by international differences in the net gain from migrant's labour, in a simple theoretical framework, the decision of individual *i* in home country *h* (*h* for home) to immigrate to destination country *f* (*f* for foreign) can be specified as follows:

$$d_i = w_{f,i} - w_{h,i} - z_i - c > 0, \qquad i = 1, 2, .., n, \tag{1}$$

where $w_{f,i}$ and $w_{h,i}$ are the wages earned by that individual in the home country and in the destination country respectively. The individual's compensation differential in favour of *h* is described by z_i. It can be negative if the individual's preferences for amenities in the destination country are stronger. Finally, *c* is the fixed cost of migration. It is straightforward that the individual is more likely to migrate the lower the home wage, the migration cost and the compensation differential in favour of *h* and the higher is the wage at the country of destination. Given $w_{f,i}$, $w_{h,i}$ and z_i are interpreted as present values, the likelihood that individual *i* migrates declines as his or her remaining working life becomes shorter.

Realistically, the cost of migration is not fixed. It could be modelled, for example, by a distance proxy (Sjaastad, 1962). Transportation expenses rise with the distance, however, not all types of moving expenses vary with distance as assumed by Sjaastad (1962). One is also forced to pay the lodging expense and the cost of maintenance during the move, to compensate for the interruption in income, possibly to lose some employment benefits, to integrate in a new country and adapt to a different market, and to count the societal and psychological cost.

Social network effects are important in understanding international migration (e.g. Hugo, 1981; Massey and García-España, 1987). Such non-economic factors of migration decision making as networks reflected by z_i, the individual-specific compensating differential, can have an economic interpretation. The first migrant faces the highest costs and risks, while his or her relatives and friends will face substantially lower costs. Network effects reduce the risks and costs associated with migration to a new country in three ways: they diminish the psychological costs by reducing the loss of ethnic capital, they enable migrants to reduce their individual-level monetary costs through relatives' or

[3] The human capital model has been introduced by Becker (1962). Migration is seen as an investment in human capital because labour income is a return to human capital.

friends' financial and housing support, and networks reduce the risk of not finding a new employment at the country of destination by providing information on the labour market of that country.

Borjas (1988, 1989) suggested that potential migrants assess the discounted net returns on their labour dependent on differences in the income distribution and in the economic situation in the home country and alternative international locations in making a decision on whether to migrate and where to migrate. Including earnings, if employed, at the destination and origin in equation (1) yields

$$d_i = \alpha_f - \alpha_h + (\beta_f - \beta_h)s_i - z_i - c, \tag{2}$$

where earnings in the home country and at the destination are specified as:

$$w_{h,i} = \alpha_h + \beta_h s_i \qquad \text{and} \qquad w_{f,i} = \alpha_f + \beta_f s_i \tag{3}$$

respectively. s_i is defined as the individual's skill level. Migrants are positively selected, i.e. migration increases with skill level, if the returns to migrants' skills abroad are higher than that in the home country ($\beta_f > \beta_h$). The migration decision depends not only on the average differences in wages in those countries but on what employment position the migrant would have in the country of destination. The individual is more likely to migrate the higher the degree of skill transferability.[4]

Another feature that has an immense influence on migration is the presence (or absence) of countries' policies restricting migration. From a migrant's perspective, policies restricting migration translate directly into a higher cost of migration (Hatton and Williamson, 2002). This additional cost can be a result of quantitative restrictions on immigration. A quota on immigration may imply a longer waiting period as well as intense competition for a working visa. Alternatively, countries may have skill-selective immigration policies. In that case immigrants need to have a certain level of education or experience in order to qualify for a working visa. This implies the acquisition of the required characteristics for the less skilled, but the more skilled face a lower cost of migration. The decision-making process (1) is now given by

$$d_i = w_{f,i} - w_{h,i} - z_i - c^* + v_i, \tag{4}$$

where c^* is the modified cost of migration. c^* includes the policy-related aspects of immigration costs. v_i represents the individual's characteristics that reduce the cost of migration; it mainly addresses skill-selective immigration policies.

The role of unemployment in the migration decision has been first addressed by Todaro (1969) and Harris and Todaro (1970) in the context of internal rural-to-urban migration

[4] Borjas (1988, 1989) did not include z_i, the individual-specific compensating differential, in his model. The individual-specific migration cost z_i is one of the extensions of the Borjas' model introduced by Hatton and Williamson (2002) and Clark, Hatton and Williamson (2007) .

in developing countries. Unlike Sjaastad, who takes the probability of a migrant finding new employment in the country of destination to be 100 per cent, Todaro (1969) points out that the existence of urban unemployment often forces rural migrants to wait for an indefinite period of time until they find new employment in the city. The migrants are unemployed or underemployed as they search for jobs. Since the expected income depends on the probability of obtaining a job at the destination, the problem can be avoided by substituting expected income at the destination for actual income. Net returns are then estimated by multiplying the earnings corresponding to the individual's skill level at the destination by the probability of obtaining work there.

The human capital approach to international migration is based on the premise that there are disequilibria between labour markets and that there is no international movement in their absence. However, in contrast to the standard macroeconomic neoclassical approach, the human capital migration theory is not only based on the assumption that international migration results from differences in wages and in unemployment rates, it also takes heterogeneity of immigrants into account. The human capital approach suggests that the probability to become employed and to receive higher remuneration at the destination relative to the origin, and thus to migrate, depends on and increases with individual human capital characteristics, *ceteris paribus*. These characteristics are also the reason why individuals from the same country of origin may have different costs of migration and hence very different inclination to move. In fact, migration costs may even be negative in case prospective immigrants prefer the destination country to the origin in psychological, political and/or climate terms. Finally, governments at the origin and destination can control migration by implementing policies that have effect on immigrants' psychological and monetary costs (Massey et al, 1998, pp. 20–21).

2.3 Asymmetric information

One of the most common examples of imperfect information is labour markets operating in an environment where there is asymmetric information. In entering into a contract of employment, the employee possesses information about her productivity, however, the employer does not know her productivity level. Such asymmetry may be due to the fact that the employee is young and yet unknown to firms and thus cannot attest her skills or due to the fact that there is no information exchange between labour markets, i.e. 'markets are isolated in the sense that information does not ordinarily flow across them (or does not flow costlessly and freely)' (Katz and Stark, 1987, p. 718). As Katz and Stark (1987) show, the latter case is very plausible when labour markets are in different countries. Therefore, asymmetric information is crucial to migration decision making. Labour migration under asymmetric information can be entirely different from labour migration under symmetric information, which, of course, also implies a change in theoretical concepts.

The employers at the destination do not have full information about immigrant's skills and are most secure if they offer all immigrants the wage level of an average skilled immigrant irrespective of individual productivity of each worker, with the result that if the top skill level migrating is $\bar{S}$, any skill level S*, where S*$< \bar{S}$, will migrate as well. In the long run, the employer will know how productive the immigrant is and can adjust the wage level accordingly, but in the short run, immigrants with low skill levels will receive higher wages. If everyone with a skill level less than or equal to $\bar{S}$ migrates, the employers at the destination may wish to acquire more information about the skill levels of potential workers, and potential immigrants may want to invest in signalling devices which can identify their true skill level, e.g. an examination of professional qualifications. In that case, if workers with any skill level find it useful to invest in such devices, all migrating workers with a higher skill level – and certainly those with top skill level – will also find it worthwhile to signal. The structure of migration under asymmetric information depends on initial migration of workers with different skill levels, on immigrants' investments in signalling as well as on the time horizon in consideration.

2.4 Family as the decision-making unit

The 'new economics of labour migration' has extended the assumptions of the neoclassical theory to include social entities and interactions among them, fiscal policies in the sending countries, risks and insurance, labour and non-labour market phenomena and behavioural parameters (Stark and Bloom, 1985). A key achievement of this approach is that migration decisions are made by households or families. Prior to the 'new economics of labour migration' there have been only few studies that examined the migration decisions of married women and men.

2.4.1 Female labour force participation

The neoclassical theories mentioned above either do not distinguish between individual and family decisions or explicitly concentrate on the individual as the decision-making unit. The early assumption that migration by an individual has no effect on the welfare of his relatives – in case that individual is a part of a family – has been first challenged by Sandell (1977) and Mincer (1978). These works assume the family or household members may have different or opposing interests.

Mincer's (1978) model examines the impact the family has on migration decisions given the labour force participation of women. Increasing labour force participation of wives implies that both partners have invested in their human capital and probably both tend to see migration as a further investment in human capital. Hence, conflicts over coordinating migration decisions of two-earner households are much more likely than conflicts over international relocation of single-earner married households. The costs and benefits of migration increase proportionally with the size of the household and the number of

working household members. In maximising their total utility, families evaluate the net family gain from migration. That is, the potential migrant family makes the decision to move in case the gains of one member are higher than the losses of another member (or other members), i.e. the sum of family gains has a positive sign rather than each individual gains are positive. In Mincer's model, the migrating wife becomes a 'tied mover' if her loss is lower than the husband's gain on account of migration and a 'tied stayer' if her loss eliminates the husband's gain. Moreover,

> [t]he growth of labor market attachment of women creates an increase in migration ties, which both deters migration and contributes to marital instability. Conversely, growing marital instability stimulates migration and reinforces the upward trends in women's labor force participation. (Mincer, 1978, p. 749)

2.4.2 Migration and remittances

Mincer (1978) assumed that the family either migrates or stays in the home country, that is, all its members choose one option or the other, and no one person migrates leaving the other members behind. Another strand of family migration literature emphasised families' risk-sharing behaviour. Introduced by Stark and Levhari (1982), Stark (1984) and Katz and Stark (1987), this migration decision-making model mainly explains movement of families from least developed countries.[5] The family protects itself from labour market risks and uncertainty by diversifying its resources through sending a family member to work abroad where employment conditions are more stable and the wages are higher. Households are very likely to engage in both migration and activities in the home country. This type of labour investment aims at minimising risks of the household's income and at compensating for the lack of social security, credit institutions and other risk-protection mechanisms and thus can explain migration flows in the absence of earnings differentials as long as other markets of the sending country are imperfect.

2.5 Happiness and migration

Two topics have attracted considerable attention of the happiness researchers: the relationship between happiness and income and the relationship between happiness and labour market status, unemployment in particular (Clark, Frijters, and Shields, 2006, p. 3).[6] Individuals migrate to maximise their income, improve employment conditions, follow their relatives and thus to maximise utility, i.e. their subjective well-being.

Stark and Taylor (1989, 1991) and Stark (1991) point out that family members undertake migration not solely to increase their absolute incomes but also to improve their incomes relative to their reference group, hence reduce their deprivation relative to other income-earning families in the home country. This way, the income distribution at the

[5] Stark (1991) provides an overview.
[6] The terms 'happiness', 'subjective well-being' and 'life satisfaction' are usually interchangeable.

origin gains importance in addition to the income distribution at the destination. According to Braunerhjelm et al. (2000), levels of income in the sending region rather than income differentials have an impact on the propensity to migrate. In developed countries, households are not forced to migrate due to poverty and deprivation in the home country. Socially acceptable income of nearly everyone leads to the non-monetary costs of migration being of more importance for potential emigrants. Braunerhjelm et al. (2000) argue that 'cultural and linguistic factors can play a role in discouraging migration, provided however that home income is sufficiently high and households are willing to substitute home amenities for a further rise in wages through migration' (p. 53).

3 International migration in the EU

This chapter starts by describing patterns of international migration in the EU. It shows that there is very little migration between Member States despite a rather favourable institutional framework. Labour mobility patterns vary greatly from one Member State to another. There is a large share of foreign nationals in the labour force of some countries and almost complete absence in others. European economic integration puts high reliance on labour market integration and flexibility, yet popular fears of labour immigration lead to political decisions which intend to keep immigration by nationals of these countries low. An example of such measure is the introduction of the transitional arrangements for the free movement of workers from the new Member States following the two last enlargement rounds as shown in Section 3.2.

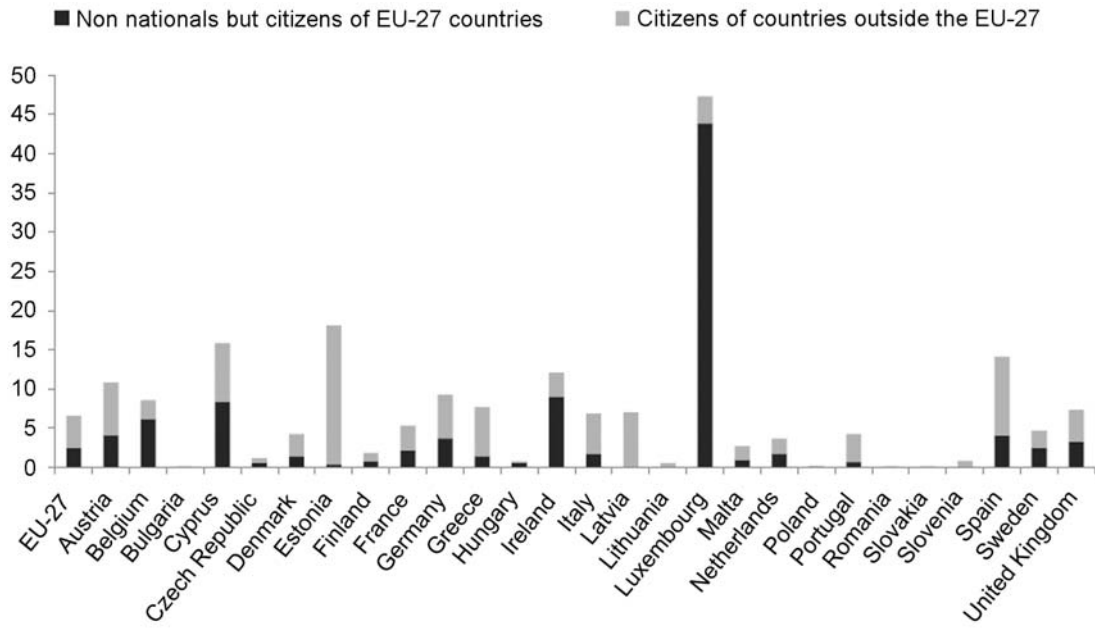
3.1 Current patterns of international migration

The abolition of obstacles to freedom of movement of persons, goods, services and capital within the borders of the EU has been first called for by the Treaty establishing the European Economic Community (EEC), which was signed on 25 March 1957 and entered into force on 1 January 1958 (DG for Employment, Social Affairs and Inclusion of the EC, n.d.). The right of freedom of movement as a worker has existed since the foundation of the European Community and is enshrined in Article 45 of the Treaty on the Functioning of the European Union (previously Article 48 of the Treaty establishing the European Economic Community and Article 39 of the Treaty establishing the European Community)(EUR-Lex access to European Union law, n.d.). Free movement of workers means that EU citizens are entitled to seek employment in another Member State, to work in another Member State without needing a work permit, to live in another Member State for that purpose as well as to remain there after the employment has finished. Free movement of workers also means that EU citizens have the right to equal treatment with nationals as regards access to employment, working conditions and payment (DG for Employment, Social Affairs and Inclusion of the EC).

Despite substantial economic differences from one European country to another and deepening integration, which is reflected by migration-encouraging legislation, there is very little actual migration within the EU. On average, EU citizens who have a nationality other than that of the country of residence constituted 2.1% of the labour force of the EU 2005; in 2009, the figure reached 2.8 % (Eurostat online statistics database, 2011). For the same years, the figures for non-EU nationals in the labour force of the Union were 3.6% and 4.5% respectively (Eurostat online statistics database, 2011).

Despite increasing EU support for intra-European migration on the one hand and stricter legislation on non-EU immigration on the other hand, EU citizens are predominant in the foreign labour force only in Belgium, Cyprus, Luxembourg, Hungary and Sweden in 2009 (Eurostat online statistics database, 2011). Moreover, the percentages vary very

Figure 1: **Foreign nationals in the labour force 2005–2009 (% of total labour force)**



Source: Eurostat

strongly across Member States as shown in Figure 1. While Luxembourg has the highest figure for EU nationals in the labour force – an average 44% of total labour force for the period between 2005 and 2009 – Poland, Slovakia and Slovenia have an average of 0.1% of non-nationals but citizens of other EU countries in their labour force during the same period. Citizens of countries outside the EU-27 represent almost 18% of the Estonian labour force and merely 0.1% of the labour force in Bulgaria, Romania and Poland on average during the 2005–2009 period.

3.2 Impact of the enlargement of the EU and OECD

The free movement of capital, goods and services has been well represented in the policy debate from the foundation of the European Economic Community onwards, while the mobility of persons has received comparatively little attention. The eastern enlargement rounds gave a strong impetus to filling this gap. The Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia (EU-8) as well as Cyprus and Malta joined the EU on 1 May 2004. The last EU enlargement round has added Bulgaria and Romania (EU-2) to the list of Member States on 1 January 2007.

Six of the 2004 EU accession countries were members of the OECD prior to the enlargement of the Union. Four of these countries have participated in the Partners in Transition Programme, which was establishes by the OECD to assist and support the economic transition of these states. As a result, the Czech Republic joined the OECD in 1995, followed by Hungary's and Poland's accession in 1996 as well as Slovakia's entry in 2000. Estonia

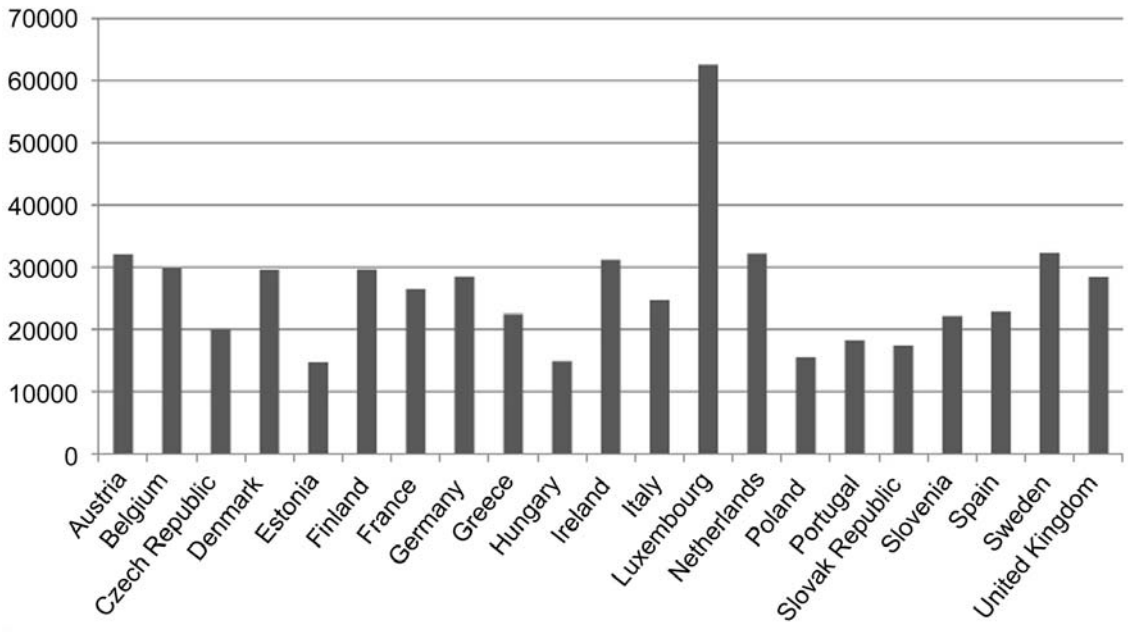
and Slovenia fulfilled the criteria for OECD membership and both became members of the organisation associated with security and prosperity in 2010.

Although the key criteria for OECD membership may seem vague, the corresponding yardsticks elucidate how the OECD Council maintains the organisation's high standards when considering new applicants. According to the OECD Strategy for Enlargement and Outreach (2004),

> [i]n considering the accession of a given country, it is first necessary to identify the eligibility of the candidate country by using two criteria, namely "like-mindedness" and "significant player" [...] "Mutual benefit" will be considered as a criterion with which, in addition to positioning a country based on the criteria of "like-mindedness" and "significant player", the Council takes a more definitive decision to select the country as candidate [....] The criterion of "Global considerations" [...] is another criterion that is included in the Council's deliberations [...] The concept of "like-minded countries" is considered to denote those countries who broadly share values ("more-like-us"). (p. 16)

The OECD is an economic as well as political organisation, and consequently the possible candidates' fundamental yardsticks for becoming 'more-like-us' are following the democratic principles and having a market-based economy. According to the same document, some other factors contributing to 'like-mindedness' are basic economic performance indicated by per capita income, the rule of law, good governance and respect for human rights. Being a 'significant player' entails the capacity of potential members to contribute to the global significance to the OECD and thus be of 'mutual benefit'.

Figure 2: **GDP per capita in 2010, US $, constant prices, constant PPPs, reference year 2000**



Source: OECD.Stat

The most straightforward yardstick, the 'basic economic performance (per capita income levels as an indicator of the capacity to contribute to peer learning)' is presented in Figure 2 (Economic Co-operation and Development, 2004, p. 17). Obviously, on average, there still is a gap in per capita income between the 'old' EU and OECD member states and the recently acceded ones. However, some of the 2004 accession countries perform as good as, or better than, the non-accession Member States. As shown in Figure 2, in 2010, Slovenia's and Czech Republic's per capita income was higher that that in Portugal and practically equal to per capita GDP in Italy, Spain and Greece.

Despite the fact that these six countries did become 'more-like' the rest of the EU in the OECD sense, the average income gap between the EU-15 and Central and Eastern Europe as well as on average higher unemployment rates in the new Member States raised doubts about the scale of labour migration from these countries. A number of fears such as rise in unemployment, depressed wages and migrants becoming a net burden on the taxpayer in the receiving countries as well as slower economic development due to 'brain drain' in the new Member States are associated with the increasing migration (Bruecker et al., 2009). Uncertainties about the economic and fiscal consequences of immigration forced most of the 15 EU Member States to impose temporary restrictions on labour mobility, the measures applying to migrant workers from the new Member States. The transitional measures concern only migrant workers, not self-employed or retired persons, students or any other category of EU citizens (DG for Employment, Social Affairs and Inclusion of the EC, n.d.).

Table 1: **Establishment of rights of nationals of EU-8 Member States to work in EU-15 Member States**

Year	Member State
2004	Ireland (1 May), Sweden (1 May), the United Kingdom (1 May)
2005	–
2006	Finland (1 May), Greece (1 May), Italy (27 July), Portugal (1 May), Spain (1 May)
2007	Luxembourg (1 November), Netherlands (1 May)
2008	France (1 July)
2009	Belgium (1 May), Denmark (1 May)
2010	–
2011	Austria (1 May), Germany (1 May)

Source: The Directorate-General for Employment, Social Affairs and Inclusion of the European Commission.

In 2004, citizens of Cyprus and Malta could immediately benefit from the rules for the free movement of workers within the EU, while transitional arrangements concerning free movement of workers have been applied to other new Member States (European Union,

2003). As elaborated in Table A.4 in the appendix, a maximum of seven years (2 + 3 + 2) of postponement enabled the old Member States to regulate the opening of their labour markets.

Transitional arrangements regarding free movement of workers have been applied previously in case of the accession of Greece in 1981 and Portugal and Spain in 1986 (European Union, 1979, 1985). Yet these cannot be seen as a precedent for the latest transition arrangements, because in the latter case, each country is free to lift the restrictions or to remain a believer in transitional measures (see Table 1 and Table A.3 in the appendix). In the case of the accession of Greece, Portugal and Spain, the transitional period was fixed to seven years. The transitional measures for Portugal and Spain were withdrawn before the expiration of the initially established period (Dustmann, Casanova, Fertig, Preston, and Schmidt, 2003, p. 41). Another difference is the introduction of the phases of the transitional period. Delegating the choice of whether or not to open the labour market from the supranational to the national level had an important outcome for the migration flows within the EU-27 after the eastern enlargement rounds.

The United Kingdom, Ireland and Sweden were the first countries to open their labour markets after the 2004 enlargement. During the second and the third phase of the transitional period, all EU-15 countries with the exception of Austria and Germany have withdrawn transitory restrictions on labour migration from the EU-8. Germany and Austria proved to be the fiercest believers in immigration restrictions and kept their labour markets closed to workers from the EU-8 until 1 May 2011.

Despite the presence of transitional arrangements, there has been a general increase in inflow of migrants from the 2004 accession states in the EU-15 countries. On average, some 250,000 citizens of these new Member States immigrated into the EU-15 between 2004 and 2009 (Baas and Bruecker, 2010, p. 8). However, in all receiving countries, immigration declined during the financial crisis.

The number of immigrants distributed unevenly across the EU-15 countries. The United Kingdom and Ireland became major migration destinations for workers from Central and Eastern European countries that joined the EU in 2004. The number of immigrants arriving from these countries in the United Kingdom and Ireland, two of the three countries that opened their labour markets in 2004, exceeded the highest expectations. Over the period 2004–2009, some 120,000 and 30,000 immigrants from the 2004 accession states came each year on average to the United Kingdom and Ireland respectively (Baas and Bruecker, 2010, p. 14).

Sweden did not apply the transitional rules for the 2004 accession countries either, and yet it saw a much lower increase in immigration from these countries than the United Kingdom and Ireland (Gerdes and Wadensjoe, 2010). Moreover, the immigration from the Central and Eastern European 2004 accession countries constituted only a small part of total immigration to Sweden during the period following the accession (Wadensjoe, 2007).

Germany did not open its labour market until May 2011. Despite the strict immigration regime vis-à-vis the new Member States, a substantial inflow of immigrants from the Central and Eastern European 2004 accession countries into Germany has been shown in several studies (Baas and Bruecker, 2010; Bruecker et al., 2009). Baas and Bruecker found that some 32,000 immigrants from the EU-8 came to Germany each year on average since the 2004 enlargement (2010). Comparing to the four-year period prior to the enlargement, the number of nationals of 2004 accession countries immigrating to Germany has more than doubled since 2004 (Brenke, Mutlu, and Zimmermann, 2010).

Given the fact that the transitional arrangements (Table A.4 in the appendix) were only applied to workers but not to self-employed persons, it is no surprise that the post-enlargement immigrants in Germany are more likely to be self-employed and less likely to be employed (Brenke et al., 2010).

4 Factors explaining migration patterns within the EU: An overview of the empirical literature

Factors determining migration flows between developed countries are different from those explaining migration between developing and developed countries. It has been shown in the literature that mechanisms causing migration between developed countries are not the same, because the potential migrants' initial situation is unlike that of the immigrants from developing countries. This chapter gives an overview of related empirical literature on migration flows between developed countries, and thus justifies the analysis strategy chosen for the present study. Section 4.1 is devoted to the relevant traditional factors determining international migration flows. The cultural determinants of international migration between high-income countries developed by a new strand of migration literature and their relevance are elucidated in Section 4.2. Finally, the hypotheses of the study are formulated in Section 4.3.

4.1 Traditional determinants of international migration and their relevance for the EU

4.1.1 Economic determinants

As described in Chapter 2, the significance of economic incentives for migration decision making has been elaborated on very early by neoclassical economists. In the presence of large economic differentials within the EU (Table 2), migration flows between single Member States (Table 1) are too little to be compensating and to lead to a decrease in these economic differentials. Wage and unemployment differentials discussed by Harris and Todaro (1970) do not seem to be a major explaining factor in the European case. Braunerhjelm et al. (2000) claim that despite a considerable fall in wage differentials between some European countries or regions – for instance, between France and Spain or southern and northern Italy – since the 1970s, there has been an even more considerable increase in unemployment differentials (2000, p. 51). As a result, when weighted by the probability of being unemployed, income differentials have in actual fact risen.

In spite of the incentives to migrate, the responsiveness of migration of European workers to these incentives is low. Bentivogli and Pagano (1999) compare the migration responsiveness to differentials in earnings and unemployment in the USA and in the euro area.[7] The authors find that sensitivity of immigration flows to regional disparities in both per capita income and unemployment rates in Europe is much lower than in the USA. Moreover, there is null response of migration flows to shocks in the relative unemployment rate in the euro area regions.

[7] The authors consider eleven EU Member States that have adopted the euro as their common currency on 1 January 1999: Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain.

Other empirical studies also find that the traditional economic determinants for the pattern of migration flows are not the most important factors explaining workers' mobility. Van Wissen and Visser (1998) analyse the causes of international migration between 16 Member States of the EEA, 15 EU Member States and Norway, by testing economic and social network hypotheses for international migration using the data on gross migration flows between those countries. The authors find that economic factors, the difference in GDP and in unemployment rates, have no significant influence on the size of migration flows between the countries of the EEA.

Belot and Ederveen (2011) also find that traditional economic variables such as income and unemployment differentials alone bear little explanation for migration patterns of the OECD countries. The study uses a data panel of 22 OECD countries over the 1990–2003 period to investigate the role of cultural, demographic and economic determinants of international migration as well as the role of social networks in explaining mobility patterns between these countries. Belot and Ederveen (2011) find that the cultural approach works better at explaining migration patterns between developed countries than the traditional economic approach. Nonetheless, the authors also show that, in the case of the EU-15, the economic variables play a large and significant role, and so do the cultural variables.

4.1.2 Demographic determinants

Some segments of the population have been shown to be more mobile than others. An analysis of the composition of the population can thus shed light on mobility attitudes of particular groups. There is evidence in migration literature that age structure, education and female labour force participation are particularly elucidating.

Age structure

The youth is thought to be more mobile, that is, younger people have the lowest cost of migrating (monetary as well as psychological), and they expect the highest returns to investment in their human capital. In analysing migration patterns in Germany after the reunification, Burda (1993) found that age is negatively and strongly associated with the inclination to migrate. Belot and Ederveen (2011) also find a positive correlation between the share of young population in the country of origin and migration flows between OECD countries. Mayda's (2010) study also confirms that the share of young population is one of the most important drivers of migration flows. However, Mayda's (2010) analysis includes both developing and developed countries. The fact that the EU is facing demographic decline, low natural growth and the ageing of its population could in fact explain little migration between the Member States.

Education

As discussed in Chapter 2, workers with higher skill level are likely to gain more from migration or to have lower cost of moving, especially in case the receiving countries have skill-selective immigration policies. The argument that highly skilled workers are more

likely to emigrate (positive selection) is also relevant for the EU, albeit there are no skill-selective policies for intra-EU migration. The theoretical idea that education increases the probability of moving is supported by several empirical studies for international migration (e.g. Belot and Ederveen, 2011, for intra-EU-15 and Grogger and Hanson, 2008, for OECD destination countries) and for internal migration (e.g. Giannetti, 2001, for Italy and Mauro and Spilimbergo, 1999, for Spain).

Female labour force participation

Higher labour force participation of women makes migration decisions harder to coordinate since relocating a two-earner household may be more difficult than relocating a single-earner household. There is limited empirical evidence, however, that higher female labour force participation decreases mobility. Belot and Ederveen (2011) even find that the participation rate of women increases immigration flows in the case of intra-OECD as well as in the case of intra-EU migration. Moreover, the generally lower female participation rates of many southern European countries should increase European mobility while Denmark's and Sweden's very high female labour force participation rates should suggest that these countries have he lowest emigration rates (which is not the case).

4.1.3 Geographical determinants

Geographical distance has been used as a proxy for the monetary cost of migration by Sjaastad (1962). However, physical distance can also reduce the quality and quantity of information about the destination country. For example, the population of countries that share a border with each other has not only a lower migration cost but also better information about job opportunities in the neighbouring country. Belot and Ederveen (2011) find that the physical distance has a significant negative effect and that border sharing has a significant positive effect on migration flows between OECD countries. Mayda's (2010) empirical findings support the idea that the distance between countries – both developing and developed – decreases emigration at the origin.

4.1.4 Social network effects

The role of networks has been stressed in the recent empirical literature on migration. The presence of a national community at the destination could reduce the monetary and psychological cost of migration to a foreign country, as discussed in Chapter 2. The existence of network effects finds strong support in the empirical literature. Munshi (2003) studies social networks among Mexican migrants in the labour market of the US and finds that these social ties do influence the individual's migration decision and provide a new migrant with assistance of different kinds. Gross and Schmitt (2005) show that the cultural communities are attractive for immigrants, albeit their existence is advantageous to the immigrants from developing rather than from developed countries. The authors claim that migration flows between OECD countries as well as between the EU Member States

show no reaction to the presence of cultural clusters. Van Wissen and Visser (1998) find the contrary. Network effects are present within the EEA area. In their analysis of intra-EEA migration flows, van Wissen and Visser (1998) show that the variables indicating past migratory movements are very important for predicting migration flows.

4.2 Cultural determinants of international migration and their relevance for the EU

In the past decades, migration researchers turned to less traditional and less straightforward explanations to understand why the Europeans are not more mobile. The empirical literature used various measure to proxy cultural distance, however, most authors did not go beyond including a common religion or common language dummy or considering difference in language defined in broad linguistic groups (e.g. Mayda, 2010 and van Wissen and Visser, 1998).

Belot and Ederveen (2011) show that cultural barriers measured by elaborate indicators bring about a much more enlightening estimation of migration flows between developed countries. In their paper 'Cultural Barriers in Migration Between OECD Countries', Belot and Ederveen (2011) propose several new cultural distance measures. Two new indicators of linguistic and of religious distance measure the extent of cultural barriers between countries. Two further indicators capturing distance between countries are calculated on the basis of two comprehensive sets of cultural measures, cultural indicators created by Hofstede and the World Values Survey.

4.2.1 Linguistic distance

The indicator measuring linguistic distances is based upon the linguistic proximity measure constructed by Dyen et al. (1992) from the matrix of lexicostatistical percentages for the Indo-European languages. Lexicostatistics is a method introduced by Swadesh in the early 1950s that assesses degrees of relatedness between languages. It uses lexicostatistical percentages in order to classify the varieties of speech. The lexicostatistic method uses a list of M basic meanings that are present in almost every culture, i.e. culture-independent core vocabulary that includes pronouns, simple adjectives, simple verbs, names of body parts, names of natural phenomena, etc. Dyen et al. (1992) use the longer list containing M= 200 such basic words.[8] Some of the words contained in the longer list are 'mother', 'I', 'all', 'to breathe', 'to kill', 'snow', 'blood', 'child' and numerals from one to five (the full list can be found in e.g. McMahon and McMahon, 2005, pp. 38–39). The phonetic representations of the words with these basic meanings are collected for all languages belonging to a language family. They are then considered for each meaning to determine whether some of all the forms are cognate. This method allows to avoid words borrowed

[8] The shorter Swadesh list contains M= 100 words. However, there are more examples of Swadesh lists containing various amount of basic meanings, mostly not exceeding 200.

from one language to another. For example, English 'flower' is not cognate to French 'fleur', because it is borrowed from French. However, English 'blossom' is (Dyen et al., 1992, p. 95). The lexicostatistical percentage is simply the percentage of all meanings for which the forms are cognate. For instance, French and English are connected by 23.6% and German and English are connected by 57.8% (Dyen et al., 1992, pp. 102–118).

Basing on Dyen et al. (1992), the indicator of linguistic distance is defined as

$$1 - \max_{\forall i \in A, \forall j \in B} \{proximity\{i, j\}\},$$

where *i* and *j* are the official languages of countries *A* and *B* respectively. *proximity* is the lexicostatistical percentage as described above. One *maximises* the proximity between languages by taking the highest value of linguistic proximity of all possible pairs of languages for the countries with several official languages. The indicator can range from 0, when countries have the same official language and thus no distance, to 1 when countries' official languages belong to different language families, as in the case of the distance between the languages of the Uralic language family (in Europe, these are Finnish, Hungarian and Estonian) and the Indo-European languages, which include most other languages in Europe.

4.2.2 Religious distance

The indicator of religious distance between two countries is measured as the 'probability of drawing two individuals, one in each country, who would have a different religion' (Belot and Ederveen, 2011, p. 10). The indicator of religious distance is defined as

$$DISTREL_{A,B} = 1 - \rho_{A,B}$$

$$\text{with} \quad \rho_{A,B} = \sum_i s_{i,A} s_{i,B}, \tag{5}$$

where $s_{i,A}$ is the share of adherents to religion *i* in the total population of country *A* and $s_{i,B}$ is the share of adherents to religion *i* in the total population of country *B*. $\rho_{A,B} \in [0, 1]$ is then a bilateral index of religious proximity.

4.2.3 Cultural distance based on Hofstede's dimensions

Hofstede first proposed a systematic framework for comparison of nations in the 1980s (Hofstede and Hofstede, n.d.). This study, as described in Hoofstede's book *Culture's Consequences*, assesses differences between nations, basing on answers of IBM employee samples from 40 countries to the same attitude questions. It also takes into account answers of executive students from different companies and 15 different countries to some of the same sample questions (Hofstede, 1980). These data sets revealed systematic differences between the respondents' nations especially for questions about values. Four

dimensions were formed on the basis of these answers that distinguished between countries rather than individuals. The original dimensions (1–4 in the list below) reflect four anthropological topics that are handled differently in different nations. The list of Hofstede dimensions of national culture was extended to include the fifth and sixth dimensions in 1991 and 2010 respectively.

1. *Power distance* is defined by Hofstede and Hofstede as 'the extent to which the less powerful members of organizations and institutions (like the family) accept and expect that power is distributed unequally' (n.d.).

2. *Uncertainty avoidance* 'indicates to what extent a culture programs its members to feel either uncomfortable or comfortable in unstructured situations. Unstructured situations are novel, unknown, surprising, different from usual (Hofstede and Hofstede, n.d.).

3. *Individualism* 'versus its opposite, collectivism, is the degree to which individuals are integrated into groups [...] The word collectivism in this sense has no political meaning: it refers to the group, not to the state '(Hofstede and Hofstede, n.d.).

4. *Masculinity* 'refers to the distribution of emotional roles between the genders' (Hofstede and Hofstede, n.d.).

5. *Long-term orientation*. According to Hofstede and Hofstede, 'long- term oriented societies foster pragmatic virtues oriented towards future rewards, in particular saving, persistence, and adapting to changing circumstances. Short-term oriented societies foster virtues related to the past and present such as national pride, respect for tradition, preservation of "face", and fulfilling social obligations' (n.d.).

6. *Indulgence versus restraint*, where '[i]ndulgence stands for a society that allows relatively free gratification of basic and natural human drives related to enjoying life and having fun. Restraint stands for a society that suppresses gratification of needs and regulates it by means of strict social norms' (Hofstede and Hofstede, n.d.).

The indicator of cultural distance inspired by Hofstede's dimensions was first used by Kogut and Singh in their analysis of the choice of market entry mode in the US (1988). Belot and Ederveen use the four original dimensions to analyse migration flows between the OECD countries. All six dimensions described above are used for the purpose of this study, and the indicator is constructed as described by Kogut and Singh (1988):

$$CD_{i,j} = \frac{1}{6} \frac{\sum_{k=1}^{6} (I_{i,k} - I_{j,k})^2}{V_k},$$

where $CD_{i,j}$ denotes the cultural difference or distance between country *i* and country *j*. $I_{i,k}$ is Hofstede's index for country *i* and dimension *k*. V_k indicates the variance of the index of the *k*th dimension.

4.2.4 Cultural distance based on the World Values Survey

The World Values Survey is an ambitious indicator created in 1981 by a worldwide network of social scientists that is intended to 'provide a comprehensive measurement of all major areas of human concern, from religion to politics to economic and social life' (Inglehart, n.d., p. 6). Two dimensions were found to be dominant as they explained over 70 per cent of the cross cultural variance (Inglehart and Welzel, 2005).

1. *Traditional versus secular-rational values dimension* (referred to as Dim1 later in text) takes into account a number of various characteristics of human life such as a degree of tolerance towards abortion, divorce and euthanasia; the importance of traditional family values; and a degree of deference to authority.
2. *Survival versus self-expression values dimension* (referred to as Dim2 later in text) reflects societies' preference for subjective well-being, political activism, self-expression as opposed to sheer physical and economic security.

Figure A.3 in the appendix presents the global cultural map depicting the position of different cultural societies in these dimensions for the periods 1999–2004 and 2005–2008.

Belot and Ederveen (2011) propose the following indicator of cultural distance between countries based on these two dimensions:

$$DistInglehart_{i,j} = \sqrt{(Dim1_i - Dim1_j)^2 + (Dim2_i - Dim2_j)^2},$$

where *i* and *j* are countries' indices.

4.3 Hypotheses of the study

The relevance of some theoretically important determinants of international migration flows between EU Member States that are members of the OECD can be tested using the data described in 5.1. Basing upon the literature discussed in this chapter, the following hypotheses are expected to hold:

Economic hypotheses

– Migration flows increase with the income level of the receiving country and decrease with increasing income level of the sending country.

– Migration flows increase with the unemployment rate in the sending country and decrease with the increasing unemployment rates of the receiving country.

Demographic hypotheses

– Migration flows increase with the share of tertiary educated people in the sending country.

– Migration flows increase with the share of young people in the sending country.

– Migration flows decrease with increasing female participation rates of the sending country.

Geographical hypotheses

– Migration flows decrease with increasing distance between the sending country and the receiving country.

– Migration flows are higher between countries sharing a border.

Cultural hypotheses

– Migration flows decrease with increasing linguistic distance.

– Migration flows are higher between countries with the same official language.

– Migration flows decrease with increasing religious distance.

– Migration flows decrease with increasing cultural distance.

Social network hypotheses

– Migration flows increase with the number of foreigners of the citizenship of the sending country living in the receiving country.

Political hypotheses

– Migration flows are higher between countries allowing free movement of workers.

5 Estimation

This section tests the hypotheses defined in Chapter 4 using an explanatory model of international migration for the data collected from 21 EU Member States that are also members of the OECD. The ambition of this paper is to evaluate different determinants of international migration discussed in the literature and not to provide a new theory of migration or to develop a new migration equation. The data are presented in Section 5.1, followed by a description of the econometric model in Section 5.2. The estimation results are discussed in detail in Sections 5.3.1 and 5.3.2. The hypotheses that are formulated in the Section 4.3 are revisited in Section 5.4.

5.1 Data

The data for the period 1998–2010 on migration flows and on explanatory variables used in the empirical analysis are briefly described in this section. Detailed information on data sources and coverage for each variable and country is presented in the appendix.

5.1.1 International migration

The data are collected from a number of different sources. Much of the data come from Eurostat. The domain 'International Migration Flows' contains series of long-term international immigration during the reference year for all countries (destination) of the EU of mostly good quality. The most common problem with international migration data is that countries register foreigners not uniformly but by either citizenship, country of birth or country of previous residence. The indisputable advantage of the Eurostat data is that migration data for all countries are disaggregated by citizenship (or so it is claimed). The data are collected by Eurostat from national statistical institutes, but the data for some countries and/or years are missing. To have a more complete overview of the relevant migration flows, the Eurostat data are extended by the information provided by national statistical offices as well as the OECD, where, too, the national statistical offices' data are used. In addition to obvious international migration data problems – different definitions and data sources used in different countries, which make comparisons between countries difficult – there are country-specific data problems. For instance, France has modified its registration requirements to exclude inflows from other countries of the European Economic Area from 2004 onwards. Another drawback of the data on international migration flows is that different migration motives are aggregated, so that the types of migrants are not distinguishable any more.

5.1.2 Explanatory variables

Economic variables

– PPP adjusted per capita GDP (in US $ constant prices) is included for the country of origin and destination to indicate the possible economic benefits of migration.

– Unemployment rates are included for both the country of origin and destination to further capture the push and pull factors of economic migration. Unemployment rates indicate the probability of obtaining the economic benefits at the destination.

Population variables

– The size of the population at the origin and destination is included to indicate the magnitude of potential migration and to capture possible opportunities respectively.

– The number of foreigners of the citizenship of the sending country in the receiving country is included as a measure of the network size.

Demographic variables

– The share of tertiary educated people of the total population of the sending country is included as an indication of workers' skill level.

– The female participation rate in the country of origin is included to reflect the impact of the family on migration decisions.

– The share of young people (20–34) in the country of origin as percent of the total population is intended to capture the age structure of the population.

Geographical variables

– The distance in kilometres between the capital cities of the origin and destination is included to capture the financial costs involved. In addition, it is expected to capture the information the potential migrant has about the possible destination and its labour market.

– For the same purpose, a dummy variable is defined with the value of 1 if two countries share a common border and 0 if they do not. Of course, time-varying data is least expected here, yet this seemingly undynamic variable showed some variation among the countries of the sample. Up until 2000, there was no land border between Denmark and Sweden. On 1 July 2000, the Øresund bridge was opened, thus establishing a land border between the countries. The fact that Denmark has re-imposed land border controls on its borders with Germany and Sweden in July 2011 proves there is a land border. The data take an account of this change.

Cultural variables

All of the following variables intend to measure the extent to which the country of destination differs in culture and thus necessitates making an effort to adapt oneself.

– A dummy variable is defined with the value of 1 if two countries have the same official language and 0 if not. This indicator takes only official languages into account and not officially recognised minority languages such as, for example, German in the district of South Jutland or North Schleswig in Denmark.

– The measure of linguistic distance is constructed as defined in Section 4.2. The data collected by Dyen et al. (1992) is used for all Indo-European languages, however, no Uralic language is covered by the study. The distance between the Indo-European languages and Uralic languages – Finnish, Hungarian and Estonian in the EU – is taken to be equal to 1 since these are two unrelated language groups. By means of a lexicostatistical analysis, Kessler and Lehtonen (2006) verified that the groups, representing the Indo-European and Uralic languages are not connected. The authors found that none of the pairwise combinations between Uralic and Indo-European languages were significant. The findings of the study are very important for the purpose of this paper; it concludes that Hungarian and Finnish are related with a magnitude of 31% (Kessler and Lehtonen, 2006, p. 13). This is in line with the Uralic theory. Finnish and Estonian both belong to Finnic (non-Ugric) subgroup of the Uralic languages family, while there are very poor correlations between Hungarian (Ugric group) and Finnic languages (Marcantonio, 2002). Marcantonio (2002) even claims that 'Hungarian should be classified as an "Inner Asian" language' (2002, p. 275). On the basis of these results, linguistic proximity is taken to be relatively high for the pair Finnish and Estonian and relatively low for the pairs Hungarian with Estonian and Hungarian with Finnish, as suggested by Kessler and Lehtonen (2006). The data are reported in Figure A.1 in the appendix.

– The paper introduces a refined measure alternative to the common language dummy, the share of the adult population of the sending country speaking the official language of the receiving country (as a foreign language and as a mother tongue). For multilingual countries, the highest percentage is taken. The indicator is based on the 2007 Eurostat Adult Education Survey and contains the data for 18 countries and 17 languages. It evaluates self-reported known languages of adults (25–64 years). The data for Ireland, Luxembourg and the Netherlands are not available. Slovak was not recorded as a foreign language in the Czech survey whereas Czech was recorded as a foreign language in the Slovak survey.

– The measure of religious distance is constructed as defined in Section 4.2. The data are reported in Figure A.2 in the appendix. The data used to compute the bilateral indices of religious proximity $\rho_{A,B}$ are taken from Felbermayr and Toubal (2009), because the data on religions broken down by geography are not freely available.[9] In order to construct the indicators, the shares of adherents to Catholicism, Protestantism, Orthodox Christianity, Islam, Judaism, atheism and no religion in the total population of each country are taken. The data for the Czech Republic, Luxembourg and Slovakia are missing. The value of the religious distance measure reaches a maximum of 0.9949 for the country pair Finland-Spain and a minimum of 0.200485 for Poland and Portugal.

[9] The data from www.worldchristiandatabase.org used by Felbermayr and Toubal (2009) are not freely available online. The data set used in Felbermayr and Toubal (2009) can be freely downloaded from http://ces.univ-paris1.fr/membre/toubal/papers/CP/.

– The measures of cultural distance on the basis of the World Values Survey (2000) and on the basis of Hofstede's cultural dimensions (2010) are computed as defined in Section 4.2.

Political variables

– A dummy variable is defined with the value of 1 if two countries both allow free movement of workers between them and 0 if either one of the countries does not. This measure is especially relevant for the EU in the light of the transitional arrangement discussed in Section 3.2. Not only most of the EU-15 Member States kept restrictions during that period, three of the new Member States (Hungary, Poland and Slovenia) used reciprocal measures to restrict access to their labour markets for nationals from those Member States that restricted labour market access for their nationals (see Table A.3 in the appendix for more detail).

5.2 Econometric model

The dependent variable under analysis is the total inflow of citizens of the sending country in the receiving country. It is an example of a count variable, which can take on non-negative integer values. It has a high frequency of small numbers and may include zeros. Several possibilities for modelling count data are presented in Table 2. The assumed distribution can be either normal, Poisson or negative binomial. In almost all cases, the mean is parameterised as $f(\mathbf{X},\beta)= \exp(\mathbf{X}\beta)$ to ascertain that it is positive. A positive mean is required for the Maximum Likelihood Estimation (MLE) for the negative binomial and Poisson distributions.[10] However, the exception is normal distribution where $f(\mathbf{X},\beta)=(\mathbf{X}\beta)$, and an Ordinary Least Squares (OLS) estimation is appropriate.

Table 2: **Some models for count data**

Model	Distribution	Mean	Variance
OLS	Normal	$\mathbf{X}\beta$	α
Poisson	Poisson	$\mathbf{exp(X}\beta\mathbf{)}$	$\mathbf{exp(X}\beta\mathbf{)}$
NB1	Negative binomial	$\mathbf{exp(X}\beta\mathbf{)}$	$(1+\alpha)\exp(\mathbf{X}\beta)$
NB2	Negative binomial	$\mathbf{exp(X}\beta\mathbf{)}$	$\exp(\mathbf{X}\beta)(1+\alpha\exp(\mathbf{X}\beta))$

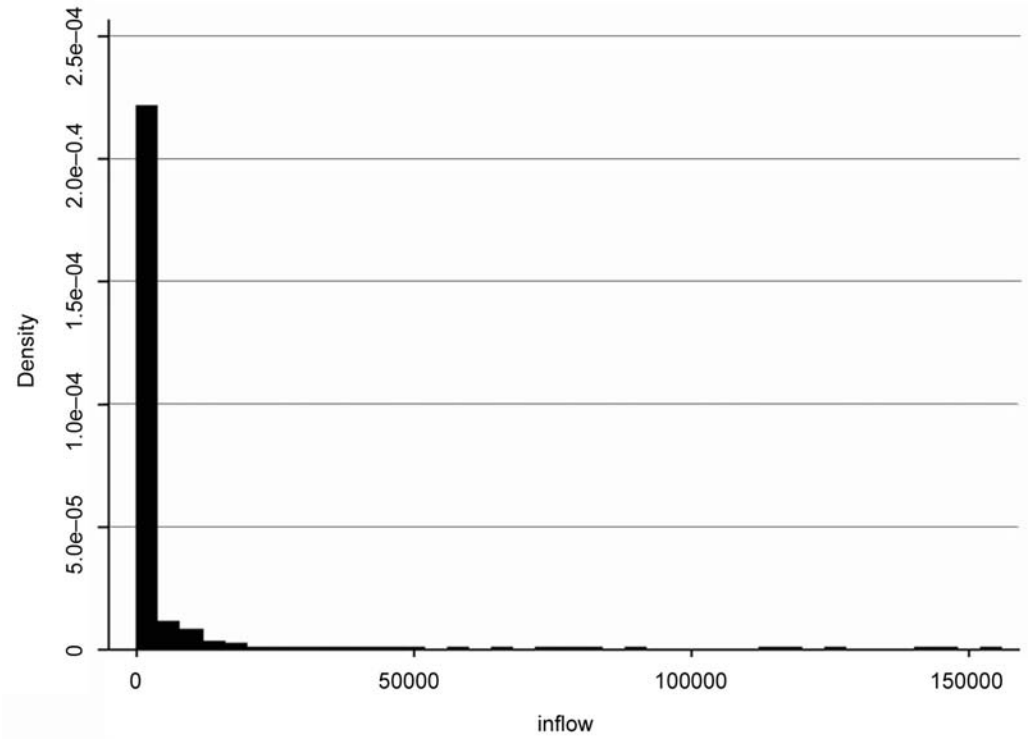
Source: Cameron and Trivedi (1985)

A simple histogram shows that using the data of the present study in an OLS regression is unsuitable (Figure 3). The distribution of the dependent variable is discrete and non-negative. The mass of the distribution is extremely concentrated on the left, and the right tail is much longer; there are mostly small numbers and only few high values. In that case,

[10] Pseudo Maximum Likelihood (PML) and Quasi-Generalised Pseudo Maximum Likelihood (QGPML) methods do not require a positive mean.

the data are said to be skewed to the right. The Poisson model may be appropriate because count data often follow a Poisson distribution. Since the Poisson regression requires the mean and variance to be equal, summary statistics of the dependent variable are analysed in Table 3. The summary statistics show that the variance is much larger than the mean, hence the Poisson model is unsuitable. A more general count data model is more suitable in such settings.

Figure 3: **Histogram of the dependent variable (inflows)**



The negative binomial (NB) model is an example of a generalised Poisson model and is usually used to model Poisson data which are overdispersed, i.e. the variance is greater in value than the mean (Cameron and Trivedi, 1986; Hilbe, 2011). The amount of overdispersion is represented by α. It is obvious from Table 2 that NB1 and NB2 models correspond to the Poisson model when the overdispersion parameter α is 0, that is, there is no overdispersion. This statement is, however, only intuitively correct, because an NB model cannot be identified when $\alpha = 0$, that is, an NB algorithm is not able to estimate $\alpha = 0$. The difference between the values of the predicted counts for a defined mean is depicted in Figure 4. Belot and Ederveen (2011) suggest that the standard negative binomial regression model, or NB2 model, fits the distribution of the explained variable (inflows). The quadratic nature of the variance of the NB2 model (referred to as NB model later in text) distinguishes it from the NB1 model, as shown in Table 2. Van Wissen and Visser (1998) also claim that a more general Poisson regression model allowing overdispersion is most appropriate for the modelling of flows of international migration.

Table 3: **Summary statistics for inflow**

	Percentiles	Smallest		
1%	0	0		
5%	1	0		
10%	6	0	**Obs**	3608
25%	45	0	**Sum of Wgt.**	3608
50%	264		**Mean**	1964.98
		Largest	**Std. Dev.**	7359.539
75%	1240	125042		
90%	4491	140870	**Variance**	5.42e+07
95%	9345	147716	**Skewness**	12.38259
99%	20087	152733	**Kurtosis**	203.2871

Following Hilbe (2011, pp. 188–190), the NB model is derived as a Poisson model with gamma heterogeneity, where u_i is the gamma noise and ϵ is an individual unobserved effect in the conditional Poisson mean:

$$\begin{aligned} \ln\mu_i &= x_i\beta + \epsilon_i \\ &= \ln\lambda_i + \ln u_i \end{aligned} \tag{6}$$

The model is only identified with an assumption about the mean of the error term. It is assumed that E[u_i] = 1, so that E[λ_i] = λ_i. The probability density function (PDF) is:

$$f(y_i; x_i, u_i) = \frac{e^{-\lambda_i u_i}(\lambda_i u_i)^{y_i}}{y_i!}. \tag{7}$$

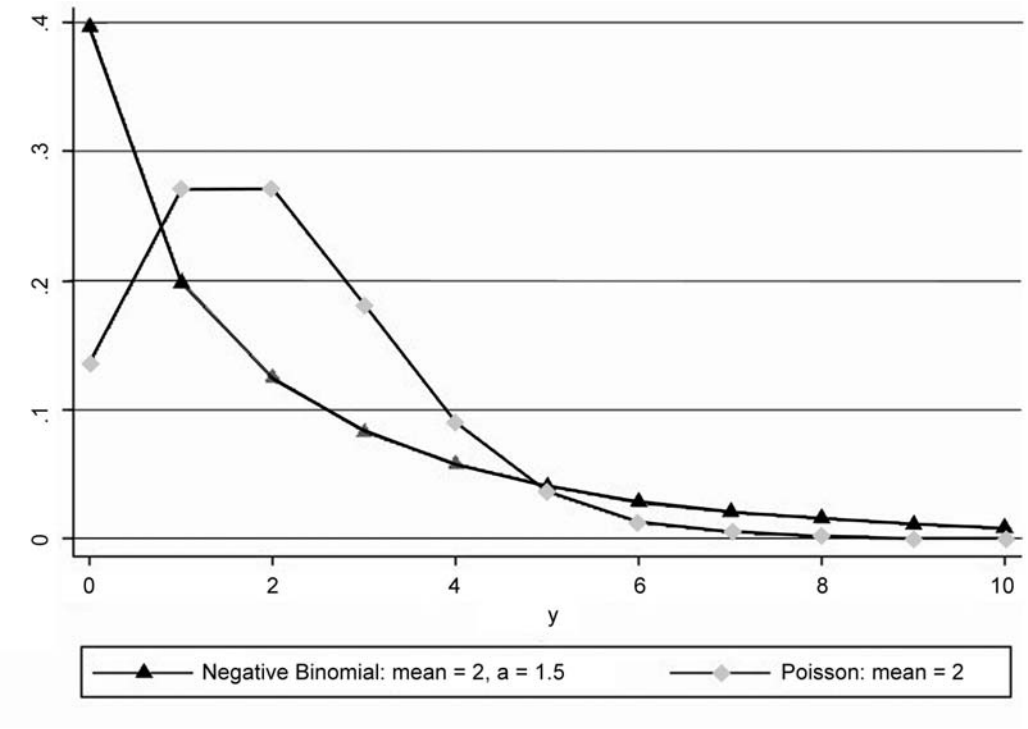
Seen that u_i is unknown, the distribution of y_i conditional only on x_i is then derived as

$$f(y_i; x_i) = \int_0^\infty \frac{e^{-\lambda_i u_i}(\lambda_i u_i)^{y_i}}{y_i!} g(u_i) du_i. \tag{8}$$

Assuming the mean of gamma to be 1 yields

$$f(y_i; x_i) = \int_0^\infty \frac{e^{-\lambda_i u_i}(\lambda_i u_i)^{y_i}}{y_i!} \frac{\nu^\nu}{\Gamma(\nu)} u_i^{\nu-1} e^{-\nu u_i} du_i. \tag{9}$$

Figure 4: **Poisson versus negative binomial PDFs at mean = 2**



Solving 9 and rewriting it yields the negative binomial probability mass function

$$f(y_i; x_i) = \frac{\Gamma(y_i + 1/\alpha)}{\Gamma(y_i + 1)\Gamma(1/\alpha)} \left(\frac{1}{1 + \alpha\mu_i}\right)^{1/\alpha} \left(1 - \frac{1}{1 + \alpha\mu_i}\right)^{y_i}, \tag{10}$$

where α is the inverted gamma scale parameter, ν. α is the negative binomial overdispersion or heterogeneity parameter. Finally, the expected mean and the variance of the expected variable can be shown to be identical to the mean and the variance presented in Table 2, namely

$$E[y_i] = \lambda_i = exp(X_i\beta) \tag{11}$$

and

$$Var(y_i) = \lambda_i(1 + \alpha\lambda_i) = exp(X_i\beta)(1 + \alpha(X_i\beta)). \tag{12}$$

The likelihood function is derived from the negative binomial probability function is given as

$$L(\mu; y_i, \alpha) = \prod_{i=1}^{n} \exp\Bigg\{ y_i \ln\left(\frac{\alpha\mu_i}{1+\alpha\mu_i}\right) - \frac{1}{\alpha}\ln(1+\alpha\mu_i) + \ln\Gamma\left(y_i + \frac{1}{\alpha}\right) - \ln\Gamma\left(y_i+1\right) - \ln\Gamma\left(\frac{1}{\alpha}\right)\Bigg\}. \tag{13}$$

By taking the natural logarithm of both sides, the function becomes additive. The negative binomial log-likelihood is expressed as

$$\mathcal{L}(\mu; y_i, \alpha) = \sum_{i=1}^{n} y_i \ln\left(\frac{\alpha\mu_i}{1+\alpha\mu_i}\right) - \frac{1}{\alpha}\ln(1+\alpha\mu_i) + \ln\Gamma\left(y_i + \frac{1}{\alpha}\right) - \ln\Gamma\left(y_i+1\right) - \ln\Gamma\left(\frac{1}{\alpha}\right). \tag{14}$$

In order to take the specifics of the panel structure of the data into account, the data are analysed by a conditional fixed-effects population-averaged negative binomial model that directly specifies the correlation structure within panels. Firstly, the observations within panels are not independent, as confirmed by a Wooldridge test of autocorrelation.[11] Secondly, as pointed out by Belot and Ederveen (Belot and Ederveen, 2011), immigration flows into the same country may be correlated if country-specific factors are not controlled for. For instance, this can be the case because some countries may be more attractive for immigrants for not directly observable reasons. This possible problem can be solved by using fixed effects for the receiving countries to avoid correlation among panels.

5.2.1 The interpretation of coefficients of the negative binomial model

Interpreting the coefficients of the NB model is not trivial. The coefficients presented in the next section do not have a straightforward interpretation. These coefficients can be interpreted in terms of incidence rate ratios (IRR), that is, the difference between the logarithms of the expected counts (Hardin and Hilbe, 2007). IRR is the ratio of change in the outcome rather than the difference in the outcome. Since $\beta = \ln\mu_{x+1} - \ln\mu_x$ is equivalent to $\beta = \ln\left(\frac{\mu_{x+1}}{\mu_x}\right)$, the IRRs can be obtained by exponentiating the coefficients, so that

$$\text{IRR} = \exp(\beta). \tag{15}$$

The IRRs represent the factor by which the dependent variable changes with an additional unit of the explanatory variable, *ceteris paribus*.

[11] The hypothesis of no first-order autocorrelation rejected at the 1% level with F(1, 325) = 19.787.

5.3 Estimation results

This section discusses the results of the negative binomial regression model. Tables 5 to 11 present the estimation results of different specifications. In the first part of this section, the EU-21 is under consideration. For the purpose of comparison, the second part of the section evaluates the estimation results for the EU-15. Finally, the hypotheses suggested in Section 4.3 are discussed with regard to the results of the estimation.

Table 4: **Definition of the variables**

Mnemonic	Description
inflow	Immigration inflow by citizenship from country b (origin) to country a (destination) (in units)
gdpcapa	GDP per capita, country a (10^3 units)
gdpcapb	GDP per capita, country b(10^3 units)
ura	Unemployment rate, country a (%)
urb	Unemployment rate, country b (%)
popa	Total population of country a (10^6 units)
popb	Total population of country b (10^6 units)
distkm	Distance in kilometres between country a and country b (10^3 units)
border	Dummy variable denoting whether country a and country b share a common border (1) or not (0)
shareyoungb	Share of young people in the total population of country b (%)
partwomenb	Participation rate of women in country b (%)
tertiaryb	Share of persons with tertiary education attainment in the total population of country b (%)
forpopb	Stock of foreign population in country a by citizenship of country b (10^6 units)
comlang	Dummy variable denoting whether country a and country b have the same official language (1) or not (0)
distlang	Index of linguistic distance
distrel	Index of religious distance
disthofstede	Index of cultural distance based on Hofstede's dimensions
distinglehart	Index of cultural distance based on the World Value Survey
totlang	Share of adults (25–64) in country b speaking the official language of country a (%)
open	Dummy variable denoting whether country a and country b both allow free movement of workers (1) or not (0)

5.3.1 The determinants of international migration in the EU-21

Firstly, the estimation results corresponding to a specification with traditional variables only are presented, followed by a specification that takes into account the proposed cultural determinants. Finally, the social network determinants are considered.

Traditional determinants

The first column of Table 5 presents estimation results including economic, population, demographic, geographical and political variables. Turning first to the economic determinants, it is clear that the parameter values are both relatively high and significant and that per capita GDP and the unemployment rate of the receiving country are more important in determining migration flows. The IRR corresponding to per capita GDP of the receiving country is equal exp(0.073) = 1.0757. This implies that a one unit (1000 euro) increase in GDP per capita of the destination increases the rate ratio for inflow by a factor of 1.0757, *ceteris paribus*.

Table 5: **Determinants of migration flows – traditional variables**

Variable	**(1) inflow**	**(2) inflow**
gdpcapa	0.073** (0.012)	0.072** (0.012)
gdpcapb	–0.052** (0.006)	–0.052** (0.006)
ura	–0.098** (0.014)	–0.098** (0.014)
urb	0.046** (0.011)	0.046** (0.011)
popa	0.003 (0.047)	0.003 (0.047)
popb	0.028** (0.002)	0.028** (0.002)
tertiaryb	–0.012 (0.008)	–0.011 (0.008)
shareyoungb	0.018 (0.023)	0.018 (0.023)
partwomenb	0.035** (0.006)	0.035** (0.006)
distkm	–0.594** (0.088)	–0.596** (0.088)
border	0.755** (0.138)	0.767** (0.149)
open	0.208** (0.058)	0.209** (0.058)
comlang		–0.062 (0.229)
Intercept	3.010** (1.122)	3.035** (1.127)
Observations	2713	2713
Panels	294	294

Standard errors in parentheses. Significance levels: † : 10% * : 5% ** : 1%.

The signs of the economic variables correspond to the hypotheses stated earlier. The direction of migration flows is out of poorer countries. Higher unemployment rate at the origin increases emigration while higher unemployment rate at the destination decreases immigration. The effect of the population size at the origin is obvious.

The demographic variables show not quite the effect one would expect. Higher female participation rate in the sending country has a surprisingly positive and significant effect on immigration. The share of tertiary educated discourages migration, albeit it is insignificant. Despite the fact that the share of young people in the total population of the sending country has an expected positive sign, it is not statistically significant.

The physical distance effect measured as straight line distance between capital cities is significant and of the expected sign, i.e. negative. Sharing a border also has the predicted positive sign and is statistically significant. The effect of geographical proximity is remarkably high. The IRR for border sharing is 2.1276. Countries sharing a border, while holding other variables of the model constant, are expected to have a rate 2.1276 times greater for inflows. This effect is even higher than that of per capita income. Finally, migration flows between countries with free movement of workers are significantly larger.

The second column of Table 5 presents estimation results including the same commonly used determinants of international migration plus the common language dummy, which often serves as a measure of cultural proximity. According to the estimation, there is less migration between countries that share a common official language. This contradicts the findings of Belot and Ederveen (2011), but is not very surprising when one considers the countries of the sample. Many countries that are present in the sample of Belot and Ederveen (2011) have the same official language (e.g. Australia, Ireland, New Zealand, the United Kingdom, the United States) and many are multilingual (e.g. Belgium, Canada, Switzerland). As a result, 22 different countries and merely 13 different languages are used for the estimation. However, there is much more linguistic variation in the EU. The sample used for the given paper includes 21 different countries and 17 different languages. There are fewer countries sharing a common official language. Given European linguistic diversity, a common language dummy seems to be a rather poor – or even misleading – measure of cultural proximity for the Member States of the EU. More refined measures of cultural proximity are needed if one is to include any cultural determinants at all.

Cultural determinants

Tables 6 to 8 introduce the other measures of cultural distance. All variables cannot be introduced simultaneously, because the data are missing for some indicators for some countries of the sample. The indicator of religious distance and the share of the adult population of the sending country speaking the official language of the receiving country are introduced separately.

The first column of Table 6 introduces the measure of linguistic distance defined by Belot and Ederveen (2011). The indicator of linguistic distance proves to be significant as a determinant of migration flows. Its effect is negative, as expected, and high. It is also noticeable that the significance of the common language dummy increases, although it remains of the wrong sign. The estimated importance of geographical determinants increases in the presence of the linguistic distance measure.

Table 6: **Determinants of migration flows – the role of language knowledge**

Variable	**(1) inflow**	**(2) inflow**	**(3) inflow**
gdpcapa	0.076**(0.012)	0.058**(0.014)	0.056**(0.014)
gdpcapb	–0.057**(0.006)	–0.018 (0.012)	–0.015 (0.012)
ura	–0.095**(0.015)	–0.094**(0.016)	–0.094**(0.016)
urb	0.040**(0.011)	0.056**(0.013)	0.060**(0.013)
popa	0.009 (0.048)	0.003 (0.050)	–0.003 (0.050)
popb	0.029**(0.002)	0.026**(0.002)	0.025**(0.002)
tertiaryb	–0.006 (0.008)	–0.021*(0.010)	–0.019*(0.010)
shareyoungb	0.004 (0.024)	0.007 (0.031)	0.007 (0.031)
partwomenb	0.030**(0.006)	0.017*(0.008)	0.019**(0.007)
distkm	–0.464**(0.090)	–0.426**(0.110)	–0.482**(0.109)
border	0.899**(0.147)	0.791**(0.165)	0.882**(0.162)
open	0.200**(0.061)	0.219**(0.069)	0.210**(0.069)
comlang	–0.494*(0.244)	–1.419**(0.394)	–0.868**(0.315)
distlang	–0.785**(0.220)	–1.034**(0.270)	–0.992**(0.270)
totlang		0.010*(0.005)	
Intercept	3.946**(1.163)	4.601**(1.435)	4.652**(1.434)
Observations	2713	1975	1975
Panels	294	217	217

Standard errors in parentheses. Significance levels: † : 10% $*$: 5% $**$: 1%.

The second column of Table 6 introduces an alternative measure of linguistic proximity, the share of the adult population of the sending country speaking the official language of the receiving country. Its effect is reported to be positive, as it should be, and significant. The data on the adult population of the sending country speaking the official language of the receiving country are not available for all countries of the sample, and the sample size drops significantly. For comparability, the third column of Table 6 reports estimation results, using the same sample as in column 2 but excluding the share of the adult population of the sending country speaking the official language of the receiving country. Most

explanatory variables remain of the same sign and similar magnitude as in column 1 with an exception of per capita GDP in the country of origin. Both estimations column 2 and 3 suggest it is insignificant, and its effect is much weaker than in previous estimations. The reason for this change could be the fact that two of the three missing countries, Luxembourg and Ireland, have the largest share of EU nationals in their labour force as depicted in Figure 1.

Table 7: **Determinants of migration flows – the role of religion**

Variable	(1) inflow	(2) inflow
gdpcapa	0.138** (0.024)	0.135** (0.024)
gdpcapb	–0.018† (0.010)	–0.017† (0.010)
ura	–0.066* (0.026)	–0.067** (0.026)
urb	0.052** (0.016)	0.054** (0.016)
popa	–0.052 (0.055)	–0.050 (0.055)
popb	0.026** (0.002)	0.026** (0.002)
tertiaryb	–0.016† (0.009)	–0.017† (0.009)
shareyoungb	0.037 (0.027)	0.040 (0.027)
partwomenb	0.024** (0.007)	0.024** (0.007)
distkm	–0.655** (0.097)	–0.681** (0.093)
border	0.532** (0.157)	0.573** (0.153)
open	–0.097 (0.094)	-0.084 (0.094)
comlang	–0.138 (0.282)	–0.205 (0.276)
distlang	–0.233 (0.231)	–0.254 (0.228)
distrel	–0.233 (0.229)	
Intercept	1.383 (1.464)	1.204 (1.443)
Observations	1955	1955
Panels	215	215

Standard errors in parentheses. Significance levels: † : 10% * : 5% ** : 1%.

The second measure of cultural proximity proposed by Belot and Ederveen (2011) is the indicator of religious distance. The results of the estimation including this indicator are presented in the first column of Table A.2. The data were missing for the Czech Republic, Luxembourg and Slovakia, and the estimation is based on a much smaller sample. Column 2 of Table A.2 reports the results of the estimation based on the same sample excluding the indicator of religious distance. The effect of religious distance is negative but statistically insignificant.

The presence of religious distance has a peculiar effect on several other variables. As in Table 6, per capita GDP in the country of origin is less significant and its effect is weaker than in previous estimations. The reason for this alteration could again be the missing data for Luxembourg. The effect of per capita GDP in the receiving country, on the other hand is much stronger. The estimation suggests that the share of tertiary educated decreases migration, and it is significant. Nonetheless, the effect of religious distance on the flows of migration within the EU-21 seems to be negligible.

Table 8: **Determinants of migration flows – the role of culture**

Variable	**inflow**	
gdpcapa	0.073**	(0.012)
gdpcapb	–0.055**	(0.006)
ura	–0.097**	(0.014)
urb	0.043**	(0.011)
popa	0.005	(0.047)
popb	0.029**	(0.002)
tertiaryb	–0.007	(0.008)
shareyoungb	0.002	(0.024)
partwomenb	0.030**	(0.007)
distkm	–0.510**	(0.091)
border	0.804**	(0.141)
open	0.207**	(0.060)
distlang	–0.707**	(0.209)
distinglehart	0.079	(0.080)
disthofstede	0.061	(0.044)
Intercept	3.772**	(1.144)
Observations		2713
Panels		294

Standard errors in parentheses. Significance levels: † : 10% * : 5% ** : 1%.

Table 8 introduces the indicators based on Hofstede's dimensions (2010) and on the World Values Survey (2000). Unlike the linguistic distance indicator, the cultural distance indicator based on measures of values and norms seem to not influence international migration within the EU-21. Both indicators are of the wrong sign and are not statistically significant.

Social network determinants

The results of the above estimations show that variables reflecting cultural proximity or distance, apart from language-based variables, are not particularly useful in explaining migration flows within the EU Member States under consideration. Table 9 presents the results of the estimation including the number of foreigners of the citizenship of the sending country in the receiving country. Column 1 shows the results of the estimation using the entire sample, column 2 includes the indicator of religious proximity, and column 3 presents the results of the estimation based on the smaller sample.

Table 9: **Determinants of migration flows – the role of networks**

Variable	(1) inflow	(2) inflow	(3) inflow
gdpcapa	0.086** (0.014)	0.122 ** (0.024)	0.120** (0.024)
gdpcapb	–0.049** (0.006)	–0.001 (0.012)	–0.001 (0.012)
ura	–0.051** (0.014)	–0.049 * (0.024)	-0.050* (0.024)
urb	0.042** (0.011)	0.058** (0.016)	0.061** (0.016)
popa	–0.024 (0.046)	–0.093† (0.055)	–0.091† (0.055)
popb	0.026** (0.002)	0.024** (0.002)	0.023** (0.002)
tertiaryb	0.000 (0.009)	–0.005 (0.011)	–0.012 (0.010)
shareyoungb	0.031 (0.025)	0.032 (0.029)	0.041 (0.028)
partwomenb	0.030** (0.007)	0.019* (0.008)	0.022** (0.008)
distkm	–0.561** (0.098)	–0.716** (0.108)	–0.762** (0.104)
border	0.674** (0.147)	0.345* (0.160)	0.383* (0.159)
open	–0.049 (0.062)	–0.140 (0.088)	–0.133 (0.089)
distlang	–0.551* (0.223)	–0.085 (0.237)	–0.088 (0.236)
distrel		–0.511† (0.263)	
distinglehart	0.076 (0.085)	0.150† (0.091)	0.150† (0.090)
disthofstede	0.024 (0.048)	0.094 (0.059)	0.049 (0.055)
forpopb	4.884** (0.785)	4.822** (0.771)	4.799** (0.768)
Intercept	2.492* (1.191)	1.667 (1.511)	1.208 (1.487)
Observations	2522	1882	1882
Panels	273	197	197

Standard errors in parentheses. Significance levels: † : 10% ∗ : 5% ∗∗ : 1%.

For all three specifications, the effect of the number of foreigners of the citizenship of the sending country in the receiving country is very strong and significant. It is much stronger than the effect of the population size variables. Migration between a pair of countries of the EU-21 is stronger affected by the structure of population as regards citizenship than it is affected by the actual size of the population.

5.3.2 The determinants of international migration in the EU-15

In order to answer the question how international migration within the enlarged EU differs from international migration within the EU-15, the latter is analysed in the following.

The first column of Table 10 presents estimation results including economic, population, demographic, geographical and some of the linguistic variables. Turning first to the economic determinants, it is clear that all parameter values are still relatively high and significant and that the unemployment rate of the receiving country is more important in determining migration flows than the unemployment rate of the sending country. The signs of the economic variables correspond to the expected pattern. Migration flows still tend to go towards richer countries, albeit the effect of the parameter values of the income variables and of the unemployment variables is weaker than in the EU-21.

Table 10: **Determinants of migration flows in EU-15 countries**

Variable	(1) inflow	(2) inflow	(3) inflow
gdpcapa	0.063** (0.013)	0.100** (0.028)	0.096** (0.029)
gdpcapb	–0.065** (0.008)	–0.027† (0.015)	–0.029† (0.015)
ura	–0.061** (0.015)	–0.041† (0.024)	–0.046† (0.024)
urb	0.028* (0.013)	0.043* (0.019)	0.048* (0.019)
popa	0.032 (0.042)	–0.008 (0.055)	–0.001 (0.055)
popb	0.027** (0.003)	0.026** (0.003)	0.025** (0.003)
tertiaryb	–0.004 (0.011)	–0.012 (0.012)	–0.016 (0.012)
shareyoungb	0.008 (0.028)	0.041 (0.032)	0.042 (0.032)
partwomenb	0.031** (0.007)	0.024** (0.009)	0.027** (0.009)
distkm	–0.409** (0.132)	–0.435** (0.139)	–0.542** (0.130)
border	0.472* (0.195)	0.402† (0.207)	0.510* (0.202)
comlang	0.175 (0.294)	0.397 (0.337)	0.184 (0.326)
distlang	–0.278 (0.322)	0.146 (0.320)	0.005 (0.313)
distrel		–0.739 * (0.321)	
Intercept	3.861** (1.331)	1.872 (1.719)	1.583 (1.706)
Observations	1752	1405	1405
Panels	189	155	155

Standard errors in parentheses. Significance levels: † : 10% ∗ : 5% ∗∗ : 1%.

Secondly, the parameter values of the geographical variables are of the expected signs. However, both physical proximity measured in kilometres and sharing a border seem to have a weaker effect than in 21 Member States.

The effect of the demographic variables confirms the expectations only partially. There is a positive but not significant correlation between migration flows and the share of young people at the origin. The share of tertiary educated as well as the female participation rate have an effect opposite of that described in Section 4.3.

Contrary to the results of the previous section, the simple dummy for sharing a common language has a positive, although not significant, effect on migration flows. It could be due to the fact that there is less linguistic variation between the EU-15 countries. The effect of linguistic distance between the country of origin and the country of destination is negative, as expected, but it is not statistically significant.

The second column of Table 10 presents estimation results including the indicator of religious distance in addition to the variables of the first column. Its effect is again somewhat puzzling. Unlike in the previous section, the parameter is significant and its effect complies with the expected effect. In the smaller sample, the effect of the indicator of linguistic distance is positive and is the opposite of what is expected and also the opposite of the results of previous estimations. To analyse the role of linguistic and cultural distance in more detail, Tables 11 and 12 present further explanatory variables.

Cultural determinants

Column 1 of Table 11 introduces the variables based on Hofstede's dimensions (2010) and on the World Values Survey (2000). The second column of the table introduces the indicator of religious distance. Column 3 presents the estimation based on the same sample as the estimation presented in column 2 excluding the religious distance variable.

The indicator of cultural distance based on the World Values Survey is of the right sign, negative, and is significant in the smaller sample (column 2 and 3). The distance measure based on Hofstede's dimensions is of the wrong sign, positive, and is insignificant throughout the specifications of column 1 to column 3. Interestingly, in the sample excluding the Czech Republic, Luxembourg and Slovakia (column 3), the share of young people of the total population of the sending country is significant. In the presence of the variables indicating cultural distance, the sign of linguistic distance is again negative. However, the indicator of linguistic distance remains insignificant throughout all specifications presented in Table 11.

The estimations including all variables measuring linguistic distance and linguistic proximity are presented in Table 12. The data on the share of the adult population of the sending country speaking the official language of the receiving country is not available for all countries. The first column presents the estimation results including the share of the adult population of the sending country speaking the official language of the receiving country, and the second column reports the results based on the same sample excluding this variable.

Table 11: **Determinants of migration flows – the role of culture in EU-15 countries**

Variable	**(1) inflow**	**(2) inflow**	**(3) inflow**
gdpcapa	0.065**(0.013)	0.105**(0.029)	0.103**(0.029)
gdpcapb	–0.066**(0.009)	–0.028†(0.017	–0.035*(0.016))
ural	–0.062**(0.015)	–0.042†(0.024)	–0.045†(0.025)
urb	0.030*(0.013)	0.047*(0.019)	0.051**(0.019)
popa	0.037 (0.043)	–0.001 (0.055)	0.005 (0.056)
popb	0.027**(0.003)	0.026**(0.003)	0.025**(0.003)
tertiaryb	–0.005 (0.012)	–0.008 (0.013)	-0.016 (0.012)
shareyoungb	0.020 (0.028)	0.057†(0.033)	0.061†(0.033)
partwomenb	0.034**(0.008)	0.027**(0.009)	0.032**(0.009)
distkm	–0.432**(0.134)	–0.480**(0.139)	–0.582**(0.130)
border	0.493*(0.196)	0.412*(0.207)	0.539**(0.203)
comlang	0.185 (0.293)	0.498 (0.338)	0.249 (0.325)
distlang	–0.254 (0.326)	0.137 (0.322)	0.042 (0.315)
distrel		–0.932**(0.335)	
distinglehart	–0.163 (0.128)	-0.223†(0.125)	–0.228†(0.122)
disthofstede	0.066 (0.068)	0.162*(0.072)	0.093 (0.067)
Intercept	3.332*(1.347)	1.034 (1.749)	0.676 (1.741)
Observations	1752	1405	1405
Panels	189	155	155

Standard errors in parentheses. Significance levels: † : 10% ∗ : 5% ∗∗ : 1%.

The effect of the share of the adult population of the sending country speaking the official language of the receiving country is positive and significant. The variable indicating linguistic distance is negative and also significant, however, the indicator of linguistic distance seems to have a stronger and continuously negative significant effect in the EU-21. As in the estimations presented in Table 11, the variable indicating cultural distance based on the World Values Survey is of the negative sign, and the distance measure based on Hofstede's dimensions is of the wrong sign again. Neither of the two indicators is significant.

The results of some estimations including cultural variables are more confusing then they are enlightening. The cultural indicators seem to explain migration flows within the EU-15 to a certain degree, however, not all estimation results are consistent with each other.

Table 12: **Determinants of migration flows – the role of language knowledge in EU-15 countries**

Variable	(1) inflow	(2) inflow
gdpcapa	0.051** (0.015)	0.046** (0.014)
gdpcapb	–0.026 (0.020)	–0.016 (0.019)
ura	–0.072** (0.017)	–0.069** (0.014)
urb	0.046** (0.015)	0.051** (0.013)
popa	0.035 (0.047)	0.015 (0.043)
popb	0.026** (0.003)	0.024** (0.003)
tertiaryb	–0.014 (0.013)	–0.012 (0.014)
shareyoungb	0.025 (0.036)	0.019 (0.034)
partwomenb	0.022* (0.009)	0.023* (0.009)
distkm	–0.311* (0.154)	–0.537** (0.159)
border	0.437* (0.210)	0.330† (0.198)
comlang	–0.929* (0.470)	0.046 (0.379)
distlang	–0.629† (0.375)	–0.211 (0.389)
totlang	0.013* (0.006)	
distinglehart	–0.153 (0.166)	–0.089 (0.170)
disthofstede	0.089 (0.075)	0.014 (0.077)
Intercept	3.271† (1.699)	3.692* (1.588)
Observations	1329	1329
Panels	144	144

Standard errors in parentheses. Significance levels: † : 10% * : 5% ** : 1%.

Social network determinants

Table 13 presents the results of the estimation including the number of foreigners of the citizenship of the sending country in the receiving country. Column 1 shows the results of the estimation using the entire sample, column 2 includes the indicator of religious proximity, and column 3 presents the results of the estimation based on the smaller sample.

Turning to the variables indicating the network size, it is clear from Table 13 that for all specifications, the effect of the number of foreigners of the citizenship of the sending country in the receiving country is very strong and significant. The magnitude of other cultural variables, distances based on Hofstede's dimensions and on the World Values Survey as well as linguistic distance, is reduced.

Table 13: **Determinants of migration flows – the role of networks in EU-15 countries**

Variable	(1) inflow	(2) inflow	(3) inflow
gdpcapa	0.078** (0.012)	0.102** (0.027)	0.103** (0.026)
gdpcapb	–0.048** (0.009)	–0.027 (0.018)	–0.033† (0.018)
ura	–0.034** (0.011)	–0.021 (0.020)	–0.022 (0.019)
urb	0.039** (0.010)	0.049** (0.017)	0.049** (0.016)
popa	–0.017 (0.035)	–0.051 (0.050)	–0.050 (0.050)
popb1000	0.023** (0.003)	0.023** (0.003)	0.021** (0.003)
tertiaryb	0.009 (0.013)	0.006 (0.015)	–0.001 (0.015)
shareyoungb	0.059* (0.025)	0.070* (0.033)	0.070* (0.033)
partwomenb	0.027** (0.007)	0.026** (0.009)	0.028** (0.009)
distkm	–0.498** (0.150)	–0.484** (0.158)	–0.601** (0.151)
border	0.292† (0.177)	0.308 (0.210)	0.341 (0.208)
comlang	0.261 (0.316)	0.401 (0.372)	0.229 (0.368)
distlang	–0.108 (0.357)	0.138 (0.355)	0.062 (0.358)
distrel		–0.827* (0.377)	
distinglehart	–0.036 (0.141)	–0.104 (0.140)	–0.106 (0.141)
disthofstede	0.033 (0.080)	0.128 (0.087)	0.059 (0.083)
forpopb	4.957** (0.900)	4.955** (0.932)	4.962** (0.936)
Intercept	1.647 (1.200)	0.653 (1.705)	0.604 (1.675)
Observations	1660	1350	1350
Panels	175	142	142

Standard errors in parentheses. Significance levels: † : 10% * : 5% ** : 1%.

5.4 Migration hypotheses revisited

The empirical analysis of migration flows between 21 EU Member States which are also members of the OECD discussed in Section 5.3 confirmed several hypotheses found in the literature on international migration and failed to support other claims.

Per capita GDP at the destination and at the origin as well as the unemployment rate of the receiving country prove to be significant across all specifications described above, which is in line with the findings of Belot and Ederveen (2011). Moreover, the unemployment rate of the sending country is also found to be statistically significant and having a positive effect on migration, which is, however, not the case in the study of Belot and Ederveen (2011). The effect of the parameter values of the unemployment variables is weaker in the EU-15 than in the EU-21.

The demographic variables are generally insignificant. Positive correlation between the share of young people in the total population of the sending country confirms the expec-

tations. However, the effect of other demographic variables is opposite to the expected result. The share of tertiary educated is practically always negative with an exception of estimation results presented in columns 2 and 3 of Table 13, and it is never significant. The effect of female participation influences migration positively and insignificant across the above specifications. Regarding the demographic variables, same results are found in Belot and Ederveen (2011). The authors suggest, this pattern may be characteristic for the developed countries. Most high-income countries have a higher female participation rate and a generally higher level of human capital. Moreover, women increase the stock of potential labour migrants as well as men do.

Geographical variables, the straight line distance between capitals and the presence of common border, have the expected signs and are significant in the EU-21 as well as in the EU-15, which confirms the findings of Belot and Ederveen (2011).

The common language dummy proved to be an indisputably poor measure of cultural proximity. In multilingual settings, such a proxy of cultural similarity can be incorrect in the best case and utterly misleading in the worst. The parameter values are negative and the magnitude is higher the higher the number of language spoken. The common language dummy's effect is negative across all the EU-21 specifications, while it is unclear what effect it has in the smaller sample, where the parameter values are mostly positive but never significant. The same effect of the simple language dummy is found by Wissen and Visser (1998), whose analysis also involved very few multilingual countries and countries with the same official language. Even though van Wissen and Visser's (1998) language dummy denotes whether origin and destination belong to the same language sub-group, its effect is insignificant and of the wrong sign. This outcome indicates that a more refined measure is needed in case one is to include any kind of linguistic indicators at all. The study introduces such indicators, namely the index of linguistic distance as described in Belot and Ederveen (2011) and the share of the adult population of the sending country speaking the official language of the receiving country. These indicators are tested along with the dummy variable approximating linguistic similarity. In a multilingual context, both new linguistic distance indicators capture linguistic proximity better than the dummy variable. Both indicators have the expected sign in all specifications for the EU-21 and are shown to be significant in the vast majority of these specifications. Belot and Ederveen (2011) also find that the index of linguistic distance has a significant negative effect. At the same time, as shown in Sections 5.3.1 and 5.3.2, the index of linguistic distance seems to bear more explanation in the sample of countries with more linguistic variation. The indicator of linguistic distance does not seem to be a robust explanation for migration flows within the EU-15.

The indicator of religious distance has been shown to have the expected negative effect on immigration and thus to confirm the findings of Belot and Ederveen (2011). However, the parameter value of the variable is only significant in the EU-15 sample.

The variables indicating the degree of cultural distance between countries deliver rather controversial results. While Belot and Ederveen (2011) show both indicator based on Hofstede's dimensions and indicator based on the World Values Survey to be negative (though insignificant), Sections 5.3.1 and 5.3.2 provide evidence that the indicators behave differently. The indicators based on Hofstede's dimensions and on the World Values Survey seem to bear no explanation for migration flows within the EU-21. The parameter values of the variable based on the World Values Survey is negative in the EU-15. The variable based on Hofstede's cultural dimensions is of the wrong sign for all specifications and in both samples.

The results show that the variable indicating the presence of networks of migrants, the number of foreigners of the citizenship of the sending country living in the receiving country, has a positive, strong and significant effects in all specifications in both samples under consideration. This has previously been shown by Belot and Ederveen (2011) and by van Wissen and Visser's (1998) for OECD countries and EEA countries respectively.

Finally, not surprisingly, the free movement of workers has a significant positive effect on migration, and yet, the magnitude of its effect is not larger that that of geographical or linguistic variables.

6 Conclusions

The present paper attempts to identify the barriers to international migration within the EU. For that purpose, firstly, a number of theories proposing to explain the origins of migration are discussed. An overview of current patterns of international migration confirms that these are very uneven within the EU. In order to conduct an empirical assessment, factors determining migration between developed countries are chosen out of various theoretical explanations by reference to empirical literature on the subject. Finally, a number of variables indicating theoretically important concepts for the explanation of international migration flows between the Member States of the EU are evaluated. A particular focus of the research is understanding what role cultural differences play in intra-European migration. For that purpose, a series of indicators of cultural distance proposed by Belot and Ederveen (2011) is tested along with economic, demographic, geographical and network variables.

The paper presents an empirical study of migration flows between 21 EU Member States that are also OECD members over the period 1998–2010. The results show that economic factors are significant in analysing migration flows, which is not surprising given the fact that people almost always migrate for the purpose of improving their material conditions. The reason why Europeans seem to fail to exploit the economic gains from migration more than they actually do may in one way or another be culture. The results show that migration flows between countries with related languages are likely to be larger than between countries with unrelated languages. Similarly, knowledge of language of the country of destination stimulates migration. The common language dummy proved to be a poor and misleading measure of cultural proximity in multilingual settings. Seen that EU eastern enlargement added as many different languages as new Member States, the indicator of linguistic distance is a much more reliable measure. Contrary to the variables indicating linguistic proximity, cultural proximity indicators do not bear explanation to why there is not more migration within the EU.

Robust, positive and significant results are shown for the variable indicating the presence of networks of migrants, the number of foreigners of the citizenship of the sending country living in the receiving country. Physical distance is also shown to be important in directing international migration within the EU. Migration flows between neighbouring countries are likely to be larger than between physically distant countries. Finally, the free movement of workers has a significant positive effect on migration.

Open borders alone do not necessarily imply the Europeans enjoy full freedom of movement. Other obstacles to migration – from physically moving to a new country to learning a new language – are translated into costs. The cost of learning a new language is one of the factors hindering potential migrants in Europe. Acquiring a command of several foreign languages could raise labour mobility and, more crucially, broaden the choice of destination countries. For example, Baas and Bruecker (2010) claim that the United Kingdom and Ireland may remain the main migration destination for workers from

Central and Eastern Europe due to the position of English as the first foreign language taught at schools (p. 54).

For obvious reasons, little can be done about common borders and geographical distance. However, the present situation can be used to encourage labour migration in frontier regions yet more. Increasing cross-border labour mobility in these regions could result in a cultural spillover into neighbouring regions that are more distant.

The results of the study lead to a conclusion that effective policies developed to lower the costs of migration may well remove the obstacles that are present at the time being. More research could identify other sources of costs and suggest practical policy solutions aimed at reducing them.

References

Baas, T., and Bruecker, H. (2010). Wirkungen der Zuwanderungen aus den neuen mittel- und osteuropäischen EU-Staaten auf Arbeitsmarkt und Gesamtwirtschaft. *Friedrich-Ebert-Stiftung WISO Diskurs*.

Becker, G. (1962). Investment in Human Capital: A Theoretical Analysis. *The Journal of Political Economy, 70*, 9.

Belot, M., and Ederveen, S. (2011). Cultural barriers in migration between OECD countries. *Journal of Population Economics, Online First, 12 February 2011*.

Bentivogli, C., and Pagano, P. (1999). Regional Disparities and Labour Mobility: The Euro-11 versus the USA. *Labour, 13*.

Borjas, G. (1987). Self-Selection and the Earnings of Immigrants. *NBER Working Paper, 2566*.

Borjas, G. (1988). Immigration and Self-Selection. *The American Economic Review, 77*, 531.

Borjas, G. (1989). Economic Theory and International Migration. *International Migration Review, 23*, 457.

Braunerhjelm, P., Faini, R., Norman, V., Ruane, F., and Seabright, P. (2000). *Integration and the Regions of Europe: How the Right Policies Can Prevent Polarization. Monitoring European Integration 10*. London: Centre for Economic Policy Research.

Brenke, K., Mutlu, Y., and Zimmerman, K. (2010). EU enlargement under continued mobility restrictions: Consequences for the German labour market. In M. Kahanec and K. Zimmermann (Eds.), *EU labor markets after post-enlargement migration* (p. 163). Heidelberg: Springer.

Bruecker, H., Baas, T., Beleva, I., Bertoli, S., Boeri, T., Damelang, A., et al. (2009). *Labour mobility within the EU in the context of enlargement and the functioning of the transitional arrangements* [Report]. DG for Employment, Social Affairs and Inclusion of the EC.

Burda, M. (1993). The determinants of East-West German migration. *European Economic Review, 37*, 452.

Cameron, A., and Trivedi, P. (1986). Econometric Models Based on Count Data: Comparisons and Applications of Some Estimators and Tests. *Journal of Applied Econometrics, 1*.

Clark, A., Frijters, P., and Shields, M. (2006). Income and happiness: Evidence, explanations and economic implications. *Peris-Jordan sciences economiques Working Paper, 24*, 1.

Clark, X., Hatton, T., and Williamson, J. (2007). Explaining U.S. migration, 1971–1998. *Review of economics and statistics, 89*, 357.

DG for Employment, Social Affairs and Inclusion of the EC. (n.d.). online. Retrieved from http://ec.europa.eu/social/main.jsp?catId=457&langId=en (Retrieved on 01. 04. 2011)

Dustmann, C., Casanova, M., Fertig, M., Preston, I., and Schmidt, C. (2003). *The impact of EU enlargement on migration ows*.

Dyen, I., Kruskal, J., and Black, P. (1992). *An Indoeuropean Classification: A Lexicostatistical Experiment*. Philadelphia: The American Philosophical Society.

Economic Co-operation and Development. (2004). *Strategy for enlargement and outreach*.

EUR-Lex access to European Union law. (n.d.). online. Retrieved from http://eur-lex.europa.eu/en/treaties/index.htm\#founding (Retrieved on 01.04.2011)

European Union. (1979). Treaty between the Kingdom of Belgium, the Kingdom of Denmark, the Federal Republic of Germany, the French Republic, Ireland, the Italian Republic, the Grand Duchy of Luxembourg, the Kingdom of the Netherlands, the United Kingdom of Great Britain and Northern Ireland (Member States of the European Communities) and the Hellenic Republic concerning the accession of the Hellenic Republic to the European Economic Community and to the European Atomic Energy Community. *Official Journal of the European Union*.

European Union. (1985). Treaty between the Kingdom of Belgium, the Kingdom of Denmark, the Federal Republic of Germany, the Hellenic Republic, the French Republic, Ireland, the Italian Republic, the Grand Duchy of Luxembourg, the Kingdom of the Netherlands, the United Kingdom of Great Britain and Northern Ireland (Member States of the European Communities) and the Kingdom of Spain, the Portuguese Republic, concerning the accession of the Kingdom of Spain and the Portuguese Republic to the European Economic Community and to the European Atomic Energy Community. *Official Journal of the European Union.*

European Union. (2003). Documents concerning the accession of the Czech Republic, the Republic of Estonia, the Republic of Cyprus, the Republic of Latvia, the Republic of Lithuania, the Republic of Hungary, the Republic of Malta, the Republic of Poland, the Republic of Slovenia and the Slovak Republic to the European Union. *Official Journal of the European Union, 46*.

Eurostat online statistics database. (2011). Retrieved from http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search database (Retrieved on 20.06.2011)

Felbermayr, G., and Toubal, F. (2009). Cultural proximity and trade. *European Economic Review, 54*.

Gerdes, C., and Wadensjoe, E. (2010). Post-enlargement migration and labor market impact in Sweden. In M. Kahanec and K. Zimmermann (Eds.), *EU labor markets after post-enlargement migration* (p. 163). Heidelberg: Springer.

Ghatak, S., Levine, P., and Price, S. (1996). Migration theories and evidence: An assessment. *Journal of Economic Surveys, 10*.

Giannetti, G. (2001). Skill Complementarities and Migration Decision. *Labour, 15*.

Grauwe, P., and Schnabl, G. (2004). EMU entry strategies for the new member states. *Intereconomics – Review of European Economic Policy, 39*.

Grogger, J., and Hanson, G. (2008). Income Maximization and the Selection and Sorting of International Migrants. *NBER Working Paper, 13821*.

Gross, D., and Schmitt, N. (2005). Cultural Clustering, Skills, and International Labour Mobility. *Policy study – CD Howe institute, 42*, 115.

Hardin, J., and Hilbe, J. (2007). *Generalized linear models and extensions* (second ed.). Texas: Stata Press.

Harris, J., and Todaro, M. (1970). Migration, unemployment and development: A two-sector analysis. *American Economic Review, 60*, 126.

Hatton, T., and Williamson, J. (2002). What Fundamentals Drive World Migration? *Australian National University Discussion Papers, 45*, 1.

Hicks, J. (1932). *The Theory of Wages*. London: Macmillan.

Hilbe, J. (2011). *Negative binomial regression* (second edition ed.). New York: Cambridge University Press.

Hofstede, G. (1980). *Culture's consequences: International differences in work-related values*. Beverly Hills CA: Sage Publications.

Hofstede, G., and Hofstede, G. (n.d.). *Geert Hofstede's personal website*. online. Retrieved from http://www.geerthofstede.nl/index.aspx (Retrieved on 20.08.2011)

Hofstede, G., and Hofstede, G. (2010). *Geert Hofstede's personal website – dimension data matrix*. online. Retrieved from http://www.geerthofstede.nl/research--vsm/dimension-data-matrix.aspx (Retrieved on 20.06.2011)

Hugo, G. (1981). Village-community Ties, Village Norms, and Ethnic and Social Networks: A Review of Evidence from the Third World. In G. F. de Jong and R. R. Gardner (Eds.), *Migration Decision Making. Multidisciplinary Approaches to Microlevel Studies in Developed and Developing Countries* (pp. 186–224). New York: Pergamon Press.

Inglehart, R. (n.d.). *Brochure presenting the World Values Survey*.

Inglehart, R., and Welzel, C. (2005). *Modernization, Cultural Change and Democracy*. New York: Cambridge University Press.

Kahanec, M., and Zimmermann, K. (Eds.) (2010). *EU labor markets after post-enlargement migration*. Heidelberg: Springer.

Katz, E., and Stark, O. (1987). International Migration Under Asymmetric Information. *The Economic Journal, 97*, 718.

Kenen, P. (1994). *Exchange rates and the monetary system: selected essays of Peter B. Kenen*. Aldershot: Edward Elgar Publishing Limited.

Kessler, B., and Lehtonen, A. (2006). *Multilateral Comparison and Significance Testing of the Indo-Uralic Question*. Unofficial prepublication draft of chapter 3 of: Forster, Peter, and Colin Renfrew (eds.), Phylogenetic methods and the prehistory of languages. Cambridge, England: McDonald Institute for Archaeological Research, 2006. Retrieved from http://spell.psychology.wustl.edu/McDonald/paper/Kessler--Multilateral.pdf

Kogut, B., and Singh, H. (1988). The E□ect of National Culture on the Choice of Entry Mode. J*ournal of International Business Studies, 19*.

Marcantonio, A. (2002). *The Uralic Language Family: Facts, Myths and Statistics*. Oxford: Blackwell Publishers.

Massey, D., Arango, J., Hugo, G., Kouaoci, A., Pellegrino, A., and Taylor, E. (1998). *Worlds in Motion: Understanding International Migration at the End of the Millennium*. London: Clarendon Press.

Massey, D., and García-Espãna, F. (1987). The Social Process of International Migration. *Science, 237*, 733–738.

Mauro, P., and Spilimbergo, A. (1999). How Do the Skilled and the Unskilled Respond to Regional Shocks? The Case of Spain. *IMF Staff Papers, 46*.

Mayda, A. (2010). International migration: A panel data analysis of the determinants of bilateral ows. *Journal of Population Economics, 23*.

McKinnon, R. (1963). Optimum Currency Areas. *The American Economic Review, 53*, 717.

McMahon, A., and McMahon, R. (2005). *Language classification by numbers*. Oxford: Oxford University Press.

Mincer, J. (1978). Family migration decisions. *Journal of Political Economy, 86*, 749.

Mundell, R. (1961). A Theory of Optimum Currency Areas. *The American Economic Review, 51*.

Munshi, K. (2003). Networks in the modern economy: Mexican migrants in the U.S. labor market. *The Quarterly Journal of Economics, 118*.

Ravenstein, E. (1885). The Laws of Migration. *Journal of the Statistical Society of London, 48*, 167–235.

Ravenstein, E. (1889). The Laws of Migration. *Journal of the Royal Statistical Society, 52*, 241–305.

Sandell, S. (1977). Women and the economics of family migration. *Review of Economics and Statistics, 59*, 406.

Sjaastad, L. (1962). The Costs and Returns of Human Migration. *The Journal of Political Economy, 70*, 80.

Smith, A. (1827). *An inquiry into the nature and causes of the wealth of nations*. Edinburgh: University Press.

Stark, O. (1984). Migration decision making. *Journal of Development Economics, 14*, 251.

Stark, O. (1991). *The migration of labour*. Oxford: Blackwell.

Stark, O., and Bloom, D. (1985). The new economics of labor migration. *The American Economic Review, 31*, 173.

Stark, O., and Levhari, D. (1982). On migration and risks in LCDs. *Economic development and cultural change, 31*, 191.

Stark, O., and Taylor, E. (1989). Relative deprivation and international migration. *Demography, 26*, 1.

Stark, O., and Taylor, E. (1991). Migration incentives, migration types: the role of relative deprivation. *The Economic Journal, 101*, 1163.

Todaro, M. (1969). A Model of Labour Migration and Urban Unemployment in Less Developed Countries. *American Economic Review, 59*, 138.

van Wissen, L., and Visser, H. (1998). An Explanatory Analysis of International Migration Flows Within the European Economic Area. In G. C., P. Nijkamp, and J. Poot (Eds.), *Crossing Borders: Regional and Urban Perspectives on International Migration* (pp. 337–359). Alredshot: Ashgate.

Wadensjoe, E. (2007). Migration to sweden from the new eu member states. *IZA Discussion Paper Series, 3190*, 1.

World Values Survey 2000 wave (2000). online. Retrieved from http://www.wvsevsdb.com/wvs/WVSData.jsp (Retrieved on 21.06.2011)

Appendix

Table A.1: **Summary statistics**

Variable	Mean	Std. Dev.	Min.	Max.	No. obs.
inflow (units)	1964.98	7359.539	0	152733	3608
gdpcapa (10^3 US$)	24.931	9.916	8.859	65.14	5460
gdpcapb (10^3 US$)	24.931	9.916	8.859	65.14	5460
ura (%)	8.044	3.629	1.9	20.1	5460
urb (%)	8.044	3.629	1.9	20.1	5460
popa/popb (10^6 units)	21.578	24.106	0.422	82.537	5460
distkm (in 10^3km)	1.27	0.683	0.055	3.365	5460
border	0.137	0.344	0	1	5460
shareyoungb (%)	28.752	2.019	24.3	33.2	5460
partwomenb (%)	58.419	8.704	36.786	74.641	5380
tertiaryb (%)	20.548	6.491	10.7	28.6	5460
forpopb (10^6 units)	0.019	0.059	0	0.619	4166
comlang	0.048	0.213	0	1	5460
distlang	0.687	0.293	0	1	5460
distrel	0.719	0.26	0.2	0.99	3940
disthofstede	2.1	1.331	0.117	7.553	5460
distinglehart	1.437	0.755	0.08	3.545	5460
totlang (%)	13.729	23.683	0	100	3939
open	0.704	0.457	0	1	5460

Countries: Austria, Belgium, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Poland, Portugal, Spain, Slovakia, Slovenia, Sweden, the United Kingdom.

Table A.2: **Description of the variables and data sources**

Mnemonic	**Description**	**Source**
inflow	Immigration inflow by citizenship from country b (origin) to country a (destination), yearly data, in units	Eurostat online statistics database, national statistical institutes, OECD International Migration Outlook 2010
gdpcapa/ gdpcapb	GDP per capita, US $, constant prices, constant PPPs, reference year 2000, yearly data, in 10^3 units	OECD.Stat
ura/urb	Harmonised unemployment rate, yearly data, in per cent	OECD.Stat
popa/popb	Total population, yearly data, in 10^6 units	Eurostat online statistics database
distkm	Distance in kilometres between country a and country b, in 10^3 units	http://www.luftlinie.org/
border	Dummy variable denoting whether country a and country b share a common border (1) or not (0)	world atlas
shareyoungb	Share of young people (20–34 years of age) in the total population of country b, yearly data, in per cent	Eurostat online statistics database
partwomenb	Participation rate of women in country b, yearly data, in per cent	
tertiaryb	Share of persons with tertiary education attainment in the total population of country b, 2005, in per cent	
forpopb	Stock of foreign population in country a by citizenship of country b, yearly data, in 10^6 units	Eurostat online statistics database; linear interpolation for the years in between for Belgium, France, Greece, Italy, Luxembourg, Poland, Portugal, the UK
comlang	Dummy variable denoting whether country a and country b have the same official language (1) or not (0)	English: Ireland, United Kingdom French: Belgium, France, Luxembourg German: Austria, Belgium, Germany, Luxembourg Dutch: Belgium, Netherlands

Table A.2 (continued)

Mnemonic	Description	Source
distlang	Index of linguistic distance	Own calculations based on Dyen et al. (1992), Kessler and Lehtonen (2006), Marcantonio (2002)
distrel	Index of religious distance	Own calculations based on Felbermayr and Toubal (2009)
disthofstede	Index of cultural distance based on Hofstede's dimensions	Own calculations based on Hofstede (2010)
distinglehar	Index of cultural distance based on the World Values Survey	Own calculations based on World Values Survey (2000)
totlang	Share of adults (25–64 years) in country b speaking the official language of country a, 2007, in per cent	Eurostat online statistics database: Adult Education Survey
open	Dummy variable denoting whether country a and country b both allow free movement of workers (1) or not (0)	European Commission

Table A.3: **Rights of EU nationals to work in other EU Member States**

Member State	**EU-8/EU-15 workers**	**EU-2/EU-25 workers**
Austria	Free access (1 May 2011)	Restrictions with simplifications*
Belgium	Free access (1 May 2009)	Restrictions with simplifications
Denmark	Free access (1 May 2009)	Free access (1 May 2009)
Finland	Free access (1 May 2006)	Free access (1 January 2007)
France	Free access (1 July 2008)	Restrictions with simplifications
Germany	Free access (1 May 2011)	Restrictions with simplifications*
Greece	Free access (1 May 2006)	Free access (1 January 2009)
Ireland	Free access (1 May 2004)	Restrictions
Italy	Free access (27 July 2006)	Restrictions with simplifications
Luxembourg	Free access (1 November 2007)	Restrictions with simplifications
Netherlands	Free access (1 May 2007)	Restrictions with simplifications
Portugal	Free access (1 May 2006)	Free access (1 January 2009)
Spain	Free access (1 May 2006)	Free access (1 January 2009) Restrictions for workers from Romania (22 July 2011 – safeguard clause)
Sweden	Free access (1 May 2004)	Free access (1 January 2007)
United Kingdom	Access – mandatory workers registration scheme (1 May 2004)	Restrictions
Cyprus	–	Free access (1 January 2007)
Czech Republic	No reciprocal measures	Free access under national law (1 January 2007)

Table A.3 (continued)

Member State	EU-8/EU-15 workers	EU-2/EU-25 workers
Estonia	No reciprocal measures	Free access (1 January 2007)
Hungary	No reciprocal measures (1 January 2009)	Free access (1 January 2009)
Latvia	No reciprocal measures	Free access (1 January 2007)
Lithuania	No reciprocal measures	Free access (1 January 2007)
Malta	–	Restrictions
Poland	No reciprocal measures (17 January 2007)	Free access (1 January 2007)
Slovakia	No reciprocal measures	Free access (1 January 2007)
Slovenia	No reciprocal measures (25 May 2006)	Free access (1 January 2007)
Bulgaria	–	No reciprocal measures
Romania	–	No reciprocal measures

Source: The DG for Employment, Social Affairs and Inclusion of the EC.

Table A.4: **The transitional arrangements for the free movement of workers from the new Member States following the enlargement of the European Union on 1 May 2004**

Phase II	Phase II	Phase III
In the first two years following accession, the EU-15 Member States may liberalise their labour markets, however, only under national law. Supranational law on the free movement of workers cannot apply in the first phase. Before the end of phase one, the EU-15 Member States must notify the European Commission whether they will lift the restrictions and entirely apply European Community law, or whether they intend to continue applying the transitional arrangements for another three years.	If the countries choose to apply European Community law on 1 May 2006, a safeguard clause allows for the possibility to re-impose restrictions in case of serious disturbances on their labour markets until the end of the transitional period.	At the end of the five year period following accession, the EU-15 Member States shall apply European Community law on the free movement of workers. A Member State may prolong national measures should it undergo or foresee disturbances on its labour market. As of the end of the transitional period, 1 May 2011, free movement of workers shall apply across the EU-25 countries.
Phase I: May 2004 – April 2006 Phase II: May 2006 – April 2009 Phase III: May 2009 – April 2011		

Source: The DG for Employment, Social Affairs and Inclusion of the EC

Figure A.1: **Linguistic distance between countries**

	AT	BE	CZ	DK	EE	FI	FR	DE	GR	HU	IE	IT	LU	NL	PL	PT	SK	SI	ES	SE	UK
AT	0	0.00	0.74	0.29	1.00	1.00	0.76	0.00	0.83	1.00	0.42	0.74	0.00	0.16	0.75	0.75	0.74	0.73	0.75	0.37	0.42
BE	0.00	0	0.74	0.29	1.00	1.00	0.00	0.00	0.83	1.00	0.39	0.20	0.00	0.00	0.75	0.29	0.74	0.73	0.27	0.35	0.39
CZ	0.74	0.74	0	0.75	1.00	1.00	0.77	0.74	0.85	1.00	0.76	0.75	0.74	0.76	0.23	0.76	0.09	0.34	0.76	0.77	0.76
DK	0.29	0.29	0.75	0	1.00	1.00	0.76	0.29	0.83	1.00	0.41	0.74	0.29	0.34	0.75	0.75	0.73	0.73	0.75	0.17	0.41
EE	1.00	1.00	1.00	1.00	0	0.25	1.00	1.00	1.00	0.70	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FI	1.00	1.00	1.00	1.00	0.25	0	1.00	1.00	1.00	0.69	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FR	0.76	0.00	0.77	0.76	1.00	1.00	0	0.76	0.85	1.00	0.76	0.20	0.00	0.76	0.78	0.29	0.77	0.78	0.27	0.76	0.76
DE	0.00	0.00	0.74	0.29	1.00	1.00	0.76	0	0.83	1.00	0.42	0.74	0.00	0.16	0.75	0.75	0.74	0.73	0.75	0.37	0.42
GR	0.83	0.83	0.85	0.83	1.00	1.00	0.85	0.83	0	1.00	0.85	0.83	0.83	0.83	0.85	0.84	0.85	0.83	0.84	0.83	0.85
HU	1.00	1.00	1.00	1.00	0.70	0.69	1.00	1.00	1.00	0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
IE	0.42	0.39	0.76	0.41	1.00	1.00	0.76	0.42	0.85	1.00	0	0.75	0.42	0.39	0.76	0.76	0.75	0.75	0.76	0.41	0.00
IT	0.74	0.20	0.75	0.74	1.00	1.00	0.20	0.74	0.83	1.00	0.75	0	0.20	0.74	0.76	0.23	0.75	0.76	0.21	0.75	0.75
LU	0.00	0.00	0.74	0.29	1.00	1.00	0.00	0.00	0.83	1.00	0.42	0.20	0	0.16	0.75	0.29	0.74	0.73	0.27	0.37	0.42
NL	0.16	0.00	0.76	0.34	1.00	1.00	0.76	0.16	0.83	1.00	0.39	0.74	0.16	0	0.77	0.75	0.75	0.75	0.74	0.35	0.39
PL	0.75	0.75	0.23	0.75	1.00	1.00	0.78	0.75	0.85	1.00	0.76	0.76	0.75	0.77	0	0.78	0.22	0.37	0.77	0.77	0.76
PT	0.75	0.29	0.76	0.75	1.00	1.00	0.29	0.75	0.84	1.00	0.76	0.23	0.29	0.75	0.78	0	0.76	0.78	0.13	0.76	0.76
SK	0.74	0.74	0.09	0.73	1.00	1.00	0.77	0.74	0.85	1.00	0.75	0.75	0.74	0.75	0.22	0.76	0	0.31	0.76	0.76	0.75
SI	0.73	0.73	0.34	0.73	1.00	1.00	0.78	0.73	0.83	1.00	0.75	0.76	0.73	0.75	0.37	0.75	0.31	0	0.77	0.75	0.75
ES	0.75	0.27	0.76	0.75	1.00	1.00	0.27	0.75	0.84	1.00	0.76	0.21	0.27	0.74	0.77	0.13	0.76	0.77	0	0.76	0.76
SE	0.37	0.35	0.77	0.17	1.00	1.00	0.76	0.37	0.83	1.00	0.41	0.75	0.37	0.35	0.77	0.76	0.76	0.75	0.76	0	0.41
UK	0.42	0.39	0.76	0.41	1.00	1.00	0.76	0.42	0.85	1.00	0.00	0.75	0.42	0.39	0.76	0.76	0.75	0.75	0.76	0.41	0

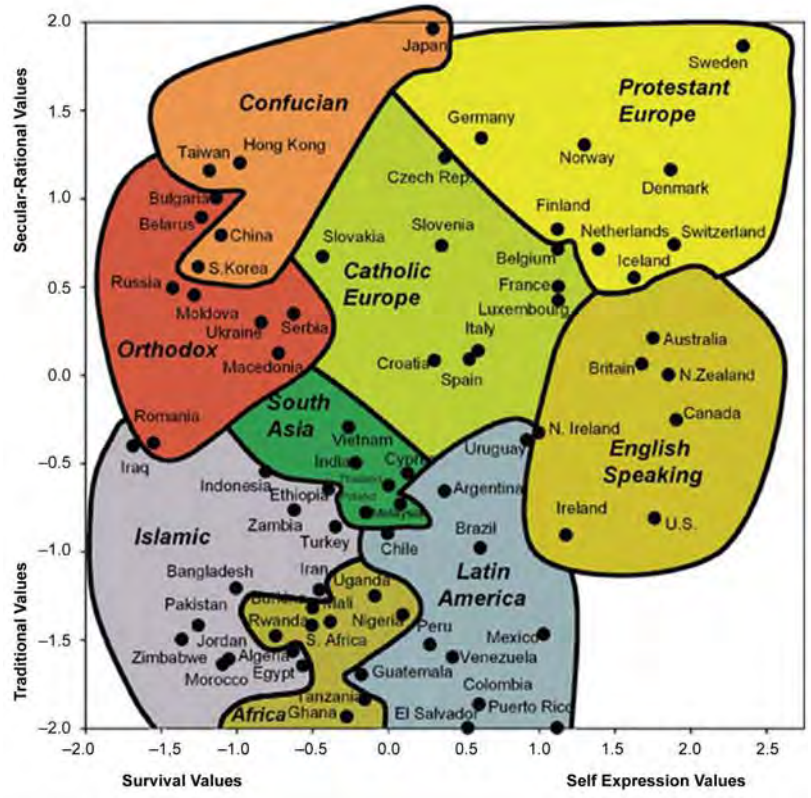
Source: own calculations, based on Dyen et al. (1992), Kessler and Lehtonen (2006), Marcantonio (2002) and Belot and Ederveen (2011)

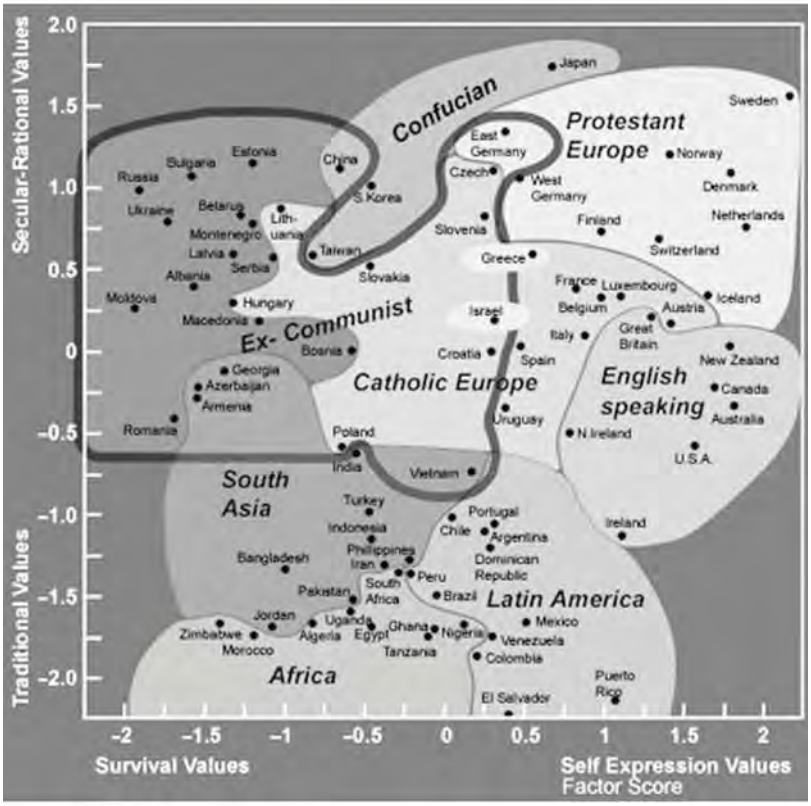
Figure A.2: **Religious distance between countries**

	AT	BE	CZ	DK	EE	FI	FR	DE	GR	HU	IE	IT	LU	NL	PL	PT	SK	SI	ES	SE	UK
AT	0	0.45		0.95	0.95	0.95	0.48	0.73	0.98	0.53	0.39	0.46		0.74	0.34	0.37		0.41	0.35	0.93	0.89
BE	0.45	0		0.97	0.97	0.98	0.45	0.73	0.99	0.51	0.36			0.73	0.30	0.33		0.37	0.31	0.96	0.91
CZ			0																		
DK	0.95	0.97		0	0.83	0.28	0.96	0.69	0.99	0.79	0.96	0.98		0.80	0.99	0.98		0.97	0.99	0.27	0.58
EE	0.95	0.97		0.83	0	0.83	0.95	0.89	0.84	0.94	0.98	0.96		0.91	0.98	0.98		0.98	0.98	0.79	0.88
FI	0.95	0.98		0.28	0.83	0	0.97	0.69	0.99	0.79	0.97	0.98		0.80	0.99	0.98		0.97	0.99	0.25	0.57
FR	0.48	0.45		0.96	0.95	0.97	0	0.73	0.98	0.54	0.41	0.47		0.73	0.35	0.38		0.43	0.36	0.94	0.90
DE	0.73	0.73		0.69	0.89	0.69	0.73	0	0.98	0.70	0.71	0.74		0.79	0.69	0.70		0.74	0.69	0.74	0.77
GR	0.98	0.99		0.99	0.84	0.99	0.98	0.98	0	0.99	0.99	0.99		0.99	0.97	0.99		0.98	0.99	0.98	0.99
HU	0.53	0.51		0.79	0.94	0.79	0.54	0.70	0.99	0	0.46	0.49		0.74	0.48	0.44		0.47	0.43	0.77	0.83
IE	0.39	0.36		0.96	0.98	0.97	0.41	0.71	0.99	0.46	0	0.32		0.77	0.225	0.26		0.31	0.24	0.96	0.90
IT	0.46			0.98	0.96	0.98	0.47	0.74	0.99	0.49	0.32	0		0.77	0.27	0.30		0.34	0.27	0.96	0.90
LU													0								
NL	0.74	0.73		0.80	0.91	0.80	0.73	0.79	0.99	0.74	0.77	0.77		0	0.70	0.71		0.73	0.70	0.77	0.84
PL	0.34	0.30		0.99	0.98	0.99	0.35	0.69	0.97	0.48	0.225	0.27		0.70	0	0.20		0.25	0.73	0.98	0.906
PT	0.37	0.33		0.98	0.98	0.98	0.38	0.70	0.99	0.44	0.26	0.30		0.71	0.20	0		0.28	0.24	0.97	0.90
SK																	0				
SI	0.41	0.37		0.97	0.98	0.97	0.43	0.74	0.98	0.47	0.31	0.34		0.73	0.25	0.28		0	0.26	0.96	0.90
ES	0.35	0.31		0.99	0.98	0.99	0.36	0.69	0.99	0.43	0.24	0.27		0.70	0.73	0.24		0.26	0	0.97	0.90
SE	0.93	0.96		0.27	0.79	0.25	0.94	0.74	0.98	0.77	0.96	0.96		0.77	0.98	0.97		0.96	0.97	0	0.55
UK	0.89	0.91		0.58	0.88	0.57	0.90	0.77	0.99	0.83	0.90	0.90		0.84	0.906	0.90		0.90	0.90	0.55	0

Source: own calculations based on Felbermayr and Toubal (2009) and on Belot and Ederveen (2011)

Figure A.3: **The World Values Survey Cultural Map 2005–2008 (top) and 1999–2004 (bottom)**





Source: The World Values Survey website