



LUND UNIVERSITY

School of Economics and Management

Master programme in Economic Growth,
Innovation and Spatial Dynamics

Migration trends in the European Union following the 2004 Enlargement

Siddartha Aradhya

siddartha.aradhya@gmail.com

Abstract: Following World War Two emigration from Central and Eastern Europe, in particular, has grown in spite of increasingly strict border controls. Given this rise in migration pressure from the East during a strictly regulated period, the 2004 EU enlargement of Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, and Slovenia threatened to transform the migration landscape, as well as invoked fear of a mass East-West migration. In order to protect their labor markets, old member states established transitional arrangements that suspend access of their labor market to citizens of new member states for 7 years. The following study investigates the impact of these legislations on intra-EU migration by analyzing 111 country pairs. The findings suggest that the transitional arrangements in specific EU-15 countries were more influential than others on the migration experience between all country pairs in the study. In addition, the evidence suggests that there is an interrelationship and between migration rates and labor market restrictions across EU-15 countries.

Key words: Intra-EU migration, transitional arrangements, 2004 EU enlargement

EKHR71

Master thesis, first year (15 credits ECTS)

June 2013

Supervisor: Kirk Scott

Examiner: Martin Dribe

Website <http://www.ehl.lu.se>

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1. Introduction:

1.1 Statement of Problem:

Throughout the latter part of 20th century, the European Union (EU) 15¹ has increasingly become a popular destination for immigrants from all over the world. Today, non-citizens and foreign-born individuals make up a substantial portion of the population in EU 15 countries. For example, in 2011 foreign nationals accounted for 12%, 9%, 8%, and 7% of the population in Spain, Germany, Italy, and the United Kingdom respectively (Allen 2012). Following World War Two emigration from Central and Eastern Europe, in particular, has grown undeterred by increasingly strict border controls (Dietz 2002). Given this rise in migration pressure from the East during a strictly regulated period, the 2004 EU enlargement of Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, and Slovenia (CEEC-10) threatened to transform the migration landscape, as well as invoked fear of a mass East-West migration (Hazans and Philips 2011). As a result, old member states suspended access of their labor market to citizens of new member states for seven years. The present study will investigate the consequences of these legislations on intra-EU migration flows.

The transitional arrangements, as they are commonly called, were established to postpone a foundational principle of the European Union, as stipulated by *acquis communautaire*, permitting the free mobility of workers. Because of this, policy makers and the general public became concerned over the social and economic burden the influx of immigration would impose on host country labor markets. Hence a buffer period of up to seven years allowed the old member states to adjust to the new labor force conditions in an enlarged EU (Zaiceva and Zimmermann 2008). One key element of this ruling, however, was that each country maintained the autonomy to enforce transitional arrangements for the full period, or remove them anytime prior. Although previous studies have looked at the

¹ EU-15 = UK, Sweden, Ireland, France, Spain, Germany, Portugal, Italy, Greece, Austria, Finland, Denmark, Belgium, Luxembourg, the Netherlands

outcome of immigration flows following the 2004 EU enlargement, the interrelationship and interdependence that exists between individual country's transitional arrangements and the migration patterns throughout the EU has not yet been explored.

Theoretically, it can be assumed that once a country provides immigrants full access to their labor market, they will experience subsequent increases in immigration. Less anecdotal and worth investigating, however, is the impact of each EU-15 country removing their transitional arrangements on the immigration experienced by neighboring countries in the Union.

1.2 Background:

Prior to the fall of the Iron Curtain, migration between Central and Eastern European countries (CEECs) and the EU-15 was strictly regulated and relied heavily on bilateral agreements between Eastern and Western European countries. However, during the period 1989-1993, the onset of political transformation in the CEECs brought about increased migration as a result of relaxed immigration regulations. Upwards of one million CEEC nationals left their home countries during the period in order to move west, driven mainly by large income differentials, growing unemployment, and periodic cultural conflicts (Bauer and Zimmerman 1999; Dietz 2002). By 1993, 67% of all emigrants from CEECs resided in Germany, Austria, Italy, France, and the UK (in descending order), with the main countries of origin being Poland (41.2%) and the former Czech and Slovakian Federal Republic and Hungary (combined 8.4%) (Bauer and Zimmerman 1999). Western European countries reacted fearfully at this sudden influx of immigration, concerned that it would bring a mixture of political, social, and economic distress within their countries. In response to this growing sentiment, each country began imposing stricter labor market restrictions and reinforced border security to deter migration flows from the East. Consequently, net inflows of immigrants from CEECs declined between 1992 and 1997; however growth resumed towards the late 1990s (Fassmann and Munz 1994).

The debate over East-West migration regained steam in the early 2000s during the lead up to the 2004 EU expansion. With ten new nations joining the Union, this meant substantial growth in the size of the labor market as nationals from new member states gained access to the same community rights as citizens of the EU-15. According to the *acquis communautaire*, all citizens of EU member states are granted the following employment rights:

- The right to look for a job in another Member State
- The right to work in another Member State
- The right to reside there for that purpose
- The right to remain there
- The right to equal treatment in respect of access to employment, working conditions and all other advantages which could help facilitate the workers integration in the host Member State (Arigho 2011).

The implementation of these rights was delayed in the previous EU enlargements in 1981 and 1986 (Greece, Spain, and Portugal), as old member states were concerned about a large, uncontrolled inflow of migration from new states that would be detrimental for host country labor markets (Dietz 2002). The 2004 enlargement presented a similar circumstance, however, at a much larger scale; the population of the CEEC-10 (approximately 74,100,000 in 2004) and the economic differences between the acceding countries and the old member states were more pronounced than the previous enlargements (Kvist 2004). Baas and Brücker (2010) state that in 2004 per capita gross national income of the acceding nations was roughly 40% of the EU-15 at the outset of enlargement. Thus, these conditions re-sparked concern that the abolishment of immigration restrictions would yield a wave of mass migration that would subsequently depress wages and increase unemployment in the old EU member states. The transitional arrangements were imposed in order to mitigate these possible consequences and facilitate a smooth transition into the EU-25.

Of the ten countries to join the EU in 2004, only eight were subjected to labor market restrictions. Cyprus and Malta were not included in the transitional

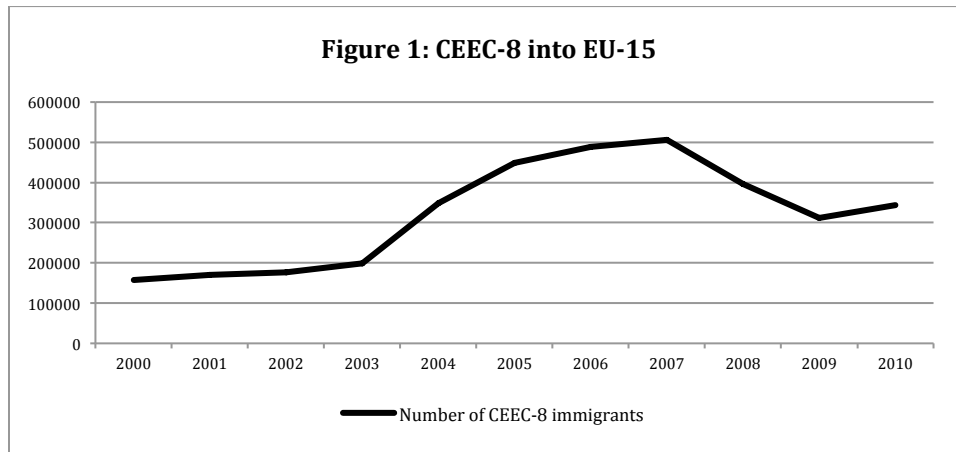
arrangements because of their historically minimal emigration flows into the old member states (Dietz 2002). The CEEC-8 (Poland, Estonia, Hungary, Czech Republic, Slovakia, Slovenia, Lithuania, and Latvia), on the other hand, presented a more plausible concern because of previously high migration rates. There were three phases of transitional arrangements that could be implemented by the host nations. Initially, established EU countries were permitted a two-year period in which nationals from the acceding nations were unable to access their labor market (there were a few exceptions including those for immigrants already holding work visas, etc.). An additional three-year restriction could be implemented if the old member states chose to maintain national restrictions. Finally, another two-year extension could be implemented under the circumstance that the host country was facing labor market disturbances due to immigration (Lang 2007; Kahanec, Zaiceva et al. 2009; Hazans and Philips 2011). Accordingly, each country maintained the autonomy to impose transitional arrangements for a maximum seven years after enlargement or remove them earlier.

The length of the transitional arrangements varied across EU-15 countries after expansion. Sweden, Ireland, and the UK were the only three countries that immediately opened their labor markets in 2004. Other EU countries shortly followed by revoking their transitional arrangements prior to the 7 year limit: Greece, Spain, Portugal and Finland (all May 1, 2006); Italy (July 27, 2006); the Netherlands (May 1, 2007); Luxembourg (November 1, 2007); France (July 1, 2008); and Belgium and Denmark (both May 1, 2009). Germany and Austria, on the other hand, maintained immigration restrictions until 2011.

1.3 Purpose and Aim:

During the lead up to the 2004 enlargement, migration from the CEEC-8 into the EU-15 had already been increasing steadily, albeit at an incremental rate. Between 2003 and 2004, however, there is a substantial jump coinciding with the EU expansion (Figure 1). This growth continued until roughly 2007 when the economies of the CEEC-8 and EU-15 were hit by the global financial crisis. While there is a pronounced decline in emigration between 2007 and 2009, there seems to

be a rebound in 2010. Nonetheless, there was an apparent increase in migration from the CEEC-8 nations to the EU-15 in relation to the 2004 enlargement, followed by a decline in relation to the 2007 financial crisis (Figure 1).



Source: Eurostat, OECD, Department of Social Protection-Ireland, Directorate of General Statistics and Economic Information-Belgium; Calculated by author

While the aggregate statistics portray a clear pattern coinciding with the major events in the period, the chronology of immigration observed in each destination country present less consistent trends. The existing literature suggests that some of these patterns can be attributed to the transitional arrangements. For example, it has been well documented that the enlargement had a redistributive effect on migration flows throughout the EU (Boeri and Brücker 2005; Kahanec and Zimmermann 2008; Baas and Brücker 2010; Constant 2011; Holland, Fic et al. 2011). Germany had been a major destination for Polish emigrants between 1999-2003, but after enlargement the UK became the principle destination for this migrant population (Galgóczy, Leschke et al. 2011; Galgóczy and Leschke 2012). Likewise, the UK and Ireland initially experienced larger inflows of immigrants than in previous years because they imposed no restrictions and provided promising labor markets. These outcomes undoubtedly indicate that the transitional arrangements were influential determinants of migration immediately following EU enlargement; however, there have been no attempts to quantify the impact of each country's transitional arrangements.

The following study aims at filling this void in the literature by employing a model that controls for relevant determinants of international migration with a specific emphasis on the role of changes in labor market access. Using this approach, the study will provide a clearer understanding on the significance and directional impact of the transitional arrangements on intra-EU migration patterns. Additionally, the study will explore whether certain country pairs (representing migration flows between each CEEC-8 country and EU-15 country) experienced isolated shifts in their migration flows associated with the removal of each destination country's restrictions. Ultimately, these results will provide insights to gauge the effects of the transitional arrangements on migration in future EU enlargements.

The rest of the study will be organized as follows. The following section will discuss a few prominent theories of international migration that provide the basis for the present study. Section three briefly discusses the breadth of relevant literature, including, general studies analyzing the determinants of migration followed by studies assessing the magnitude and patterns of post enlargement migration. Section four describes the data and the methodology used in the empirical analysis. Section five presents the results and discuss the implications of the findings. Section six acknowledges a few of the limitations associated with the study. Finally, section seven summarizes some of the key results in the study followed by a few concluding remarks.

2. Theory:

In this study, the impact of the transitional arrangements on intra-EU migration will be analyzed within the framework of the foundational theories of migration. It is important to note that there is no single coherent theory of international migration because the phenomenon is too complex in nature to be explained through the lens of one academic discipline (Massey, Arango et al. 1993).

Thus, the present study is necessarily founded upon a combination theoretical assumptions and academic perspectives.

Of the existing theoretical models a few are used to describe the factors initiating international migration, while the others discuss why transnational migration is sustained over space and time (Massey, Arango et al. 1993). The following five theories each lend specific aspects to the foundation of many empirical studies analyzing the determinants of migration. Each of the pertinent approaches will be briefly discussed and their key assumptions and hypotheses will be highlighted.

2.1 Neoclassical approach

The neoclassical approach was one of the first and most prominent theoretical models used to discuss the initiating factors of international migration. The principle assumption of this approach is that individuals behave in order to maximize their utility in relation to a budget constraint. Furthermore, the theory suggests that international migration is driven by geographical differences in the supply and demand of labor. Labor markets with a shortage of labor relative to capital have a high equilibrium wage, whereas labor markets with abundant labor in relation to capital will have lower equilibrium wages (Bauer and Zimmerman 1999). These wage differentials will cause migration to occur from the low wage region to the high wage region. Accordingly, the supply of labor in the high wage country will increase until their labor endowment becomes equal to that of the low wage country. Equilibrium wages will be congruent in both countries resulting in an international wage differential solely reflecting migration costs (Massey, Arango et al. 1993).

Harris and Todaro (1970) expand upon on this approach by suggesting that migration is determined by differentials in prospective earnings rather than actual earnings. In this modified model, the probability of becoming employed is also considered an important variable driving migration. Nonetheless, the basic assumption behind both models is similar: migration is driven by wage differentials between two regions. This logic also applies to differences in returns to human

capital. Human capital theory can be considered a branch off of the neoclassical model, but it is often used separately to describe international migration (Massey, Arango et al. 1993).

2.2 Human Capital theory

The human capital model, introduced by Sjaastad (1962), has become one of the most prominent theory used in migration research. This model views the decision to migrate as an investment made by an individual. A person's decision to migrate depends on whether the returns that he or she may gain from their human capital are higher in their home or destination country after discounting the costs of migration. Migration occurs if the returns in the destination outweigh those in the home country. These costs may include monetary (i.e. cost of travel, differences in cost of living, etc.), as well as the psychological toll associated with moving (i.e. separation from family and friends). Among the monetary costs considered by migrants is the likelihood of becoming employed in the destination country, drawing a parallel between the human capital and neoclassical approach to international migration. While often separated into two theories, they can be seen as contributing complimentary assumptions (Massey, Arango et al. 1993; Bauer and Zimmerman 1999).

Based on the assumptions of this model, the cost-benefit decisions differ based on the characteristics of the individual. For example, age has a negative influence on the likelihood to migrate, because older people may have less time than younger individuals to seek the returns of moving. Similarly, the cost of migration increases concurrently with the geographical distance of the destination, because information about labor markets is better in nearer regions than distant locations (Bauer and Zimmerman 1999). Overall, this model extends the neoclassical approach by accounting for the socioeconomic characteristics that influence migration. Moreover, aggregate migration flows are the sum of individual moves based on individual cost-benefits assessments (Massey, Arango et al. 1993).

2.3 The new economics of migration

The new economics of migration is also used to describe factors that initiate international migration, but its assumptions contrast those proposed by the previous two theoretical approaches. This model suggests that migration decisions are not made by individuals, but by larger familial units. In addition, it argues that individuals do not necessarily behave in order to maximize utility; rather, the decision to migrate may be to minimize the risks of possible labor market failures (Massey, Arango et al. 1993). For example, a family member may decide to migrate to a country where labor market conditions are weakly or negatively correlated with the source country labor market. In the event that labor market conditions deteriorate in the source country, the family will still have access to a source of income through the remittances sent from the family member working abroad. In this case, international migration may occur without the influence of cross-country wage differentials (Bauer and Zimmerman 1999).

2.4 Network migration

The network migration theory is used to describe the new conditions that arise once migration has already been initiated. It suggests that migration is a self-perpetuating phenomenon, because the probability to migrate increases as the costs associated with moving are lessened as social and information networks are established (Massey, Arango et al. 1993). The first individuals that immigrate face high costs and risks as a result of being unfamiliar with labor market of the destination; however, after the first person has moved to a new location their relatives or friends from the same country of origin face lower migration risks and costs. These individuals can expect help to find a job and become acquainted in the destination country from the network of people that had previously migrated. This increases the incentive to migrate by lowering costs and increasing the net return of migration (Bauer and Zimmerman 1999).

This model differs from the previous two, because it suggests that wage differentials and employment prospects are less correlated with migration decisions than network effects. Instead, it argues that international migration between two

countries will grow until network connections become so extensive that anyone can migrate without difficulty, only then will migration between the two countries begin to subside. This can be considered its major contribution to the theory of migration, because it considers the conditions that arise from migration eventually become individual causes themselves (Massey, Arango et al. 1993).

2.5 Push and Pull migration

Push and Pull migration, enhanced by Zimmerman (1996), encompasses aspects from the previous theories discussed in this section to describe the determinants of migration. Zimmerman describes push migration and pull migration in the framework of a standard price-output diagram with an upward sloping supply curve. Push migration is defined as all internal or external factors that affect aggregate supply. For example, individuals emigrate due to poor living conditions in the source country, not necessarily because of a specific characteristic particular destination that attracts them. On the other hand, pull migration is characterized by all internal factors that impact aggregate demand. For example, if demand for labor increases and wages rise, immigration is encouraged to avoid inflation and further increase output (Zimmerman 1996; Bauer and Zimmerman 1999).

While pull migration is mainly instigated through labor recruitment policies in destination countries, there are a variety of sources of push migration. Such sources include superior economic conditions in the destination country relative to the sending country (unemployment, social security benefits, etc.), as well as demographic characteristics in the destination country (size and age distribution of the working population). Additionally, in accordance with the network migration theory, chain migration in the form of family reunification can be considered a form of push migration (Bauer and Zimmerman 1999). Thus, by drawing together the implications of the previous approaches presented, the push and pull migration theory provides a relatively cohesive model explaining the determinants of migration.

Within the context of these theories, it is fair to assume that the transitional arrangements will be a factor influencing individuals' decision to migrate. Labor market restrictions that impede an immigrant's ability to gain employment in a destination country can be seen as an extra cost associated with migration. Thus, removing restrictions will alleviate this cost and increase the incentive to move.

In the following section, a few empirical studies analyzing the determinants of international migration are discussed. In general, the studies test the validity of the theories discussed above by incorporating unique explanatory variables to assess different scenarios of migration. It should also be noted that the model used in the empirical analysis of the present study is built upon the findings and theoretical explanations of the existing literature.

3. Literature Review:

3.1 Drivers of migration:

It is commonly assumed by each of the theoretical models discussed in the previous section that individuals behave in a way that maximizes their wellbeing, be it financially or socially. Potential migrants compare all of their possible alternatives in order to select the destination that may benefit them the most. Concomitant with this assumption is the role of both source and destination countries' conditions on individuals' decision to migrate. The existing literature has approached the analysis of the determinants of migration from various angles. Some studies have focused on single or few source-destination pairs and produced extremely detailed findings (Greenwood 1975; Borjas 1987); whereas other studies have assessed the phenomenon from a broader scale with multiple source-destination country combinations and produced more generalizable (often less detailed) findings (Karemera, Oguledo et al. 2000; Pedersen, Pytlikova et al. 2004; Palmer and Pytlikova 2013). Nonetheless, a majority of studies have discovered that a complex interrelationship between a variety of geographic, demographic, political, and economic factors drive migration (Karemera, Oguledo et al. 2000; Clark, Hatton et al. 2002; Clark, Hatton et al. 2007; Palmer and Pytlikova 2013).

Moreover, the breadth of findings all adheres to the theoretical principles of migration. The following studies discussed will provide the foundation for the model employed in the empirical analysis of this study.

Borjas (1987) assessed the determinants of immigration from 41 different sending countries into the United States. He argued that according to a profit-maximization framework individuals that may experience larger returns have a larger propensity to immigrate than individuals that stand to gain less from moving. Similar evidence was found in other studies (Greenwood 1975; Fassmann and Munz 1992; Mayda 2010). Another novel finding presented in this study was that immigration displayed a negative relationship with source-country inequality. This finding, however, has been contested in other studies (Borjas 1987; Clark, Hatton et al. 2002). For example, Clark, Hatton et al. (2002) found that the source to destination ratio of income inequality has a positive impact on migration flows between the two locations.

In contrast to the findings of Borjas (1987), Greenwood (1969), found that unemployment rates were a more significant driving force of interstate migration in the United States as compared to source-destination income differentials. Besides Greenwood (1969), it has been reported that migration rates are positively related to source and negatively related to destination unemployment rates (Fields 1979; Fassmann and Munz 1992; Palmer and Pytlikova 2013). Additionally, Greenwood and McDowell (1991) found a similar result regarding income differentials; however, they argue that the cost to transfer one's skills across countries plays an important role. Higher levels of education in the source country, as well as similar levels of development and common language between the source and host country facilitate the transfer of skills and promote immigration.

Mayda (2010) empirically analyzed migration inflows into 14 OECD countries from numerous origins and finds results substantiating the importance of economic factors, but also highlights the pivotal role of immigration policies in host countries. She reported a strong positive relationship between destination country GDP and emigration rates; however, the relationship between emigration rates and origin country GDP is less discernible. She further argues that the influence of both

economic factors is strengthened when immigration laws become less restrictive in host countries. Likewise, Ortega and Peri (2009) found that immigration displays a strong positive relationship with host-source country income differentials and a negative relationship with the number of restrictive immigration policies imposed in destination countries. In general, fluctuations in destination country immigration policies and quotas have been seen to redirect, hinder, or bolster immigration flows (Greenwood and McDowell 1991; Karemera, Oguledo et al. 2000).

While the impact of immigration policies have been rather clear, the function of welfare policies in destination countries has attracted a more contentious debate. Borjas (1999) investigated whether generous welfare programs act as “magnets” for immigration in the United States. Theoretically, welfare can mitigate the risk and costs of being unemployed for immigrants, thus incentivizing destinations that provide the most lucrative benefits. Borjas argued that immigrant welfare recipients tend to cluster in locations with high welfare benefits, whereas native welfare recipients are more dispersed; furthermore, this “magnet-effect” causes immigrants to be negatively selected. These findings, however, were not robust when translated from a single destination country to multiple source-destination combinations. In a study looking at migration flows into 27 OECD countries from 129 source countries, Pedersen, Pytlikova et al. (2004) discovered contradictory evidence. In this global setting, the welfare indicator displays a negative relationship with migration flows. In fact, the negative effect tends to be magnified in the case of immigration from the poorest countries in the study suggesting that a strong welfare system might actually deter immigration. Instead, the authors argued that the variable measuring the stock of immigrants of own national background already residing in the destination country has a significantly positive effect on immigration flows. A network effect, as it can be labeled, has been identified as reducing the risk and costs associated with migrating and establishing oneself in a new labor market (Fassmann and Munz 1992; Mayda 2010; Grogger and Hanson 2011; Palmer and Pytlikova 2013).

The role of different forms of proximity (locational, cultural, and linguistic) has also been broadly addressed in the literature. Common across many studies has

been the analysis of geographic distance between country of origin and destination countries. Migration rates and distance have displayed a negative relationship because moving to farther destinations is associated with higher psychological and monetary costs (Fassmann and Munz 1992; Borjas 1999; Karemera, Oguledo et al. 2000; Clark, Hatton et al. 2002; Pedersen, Pytlikova et al. 2004). For example, Clark, Hatton et al. (2002) explored migration trends into the United States from 81 countries of origin between 1971-1998. Their results showed that an increase of one thousand miles between the origin and Chicago decreases migration by roughly one-fifth, and if the origin country is land-locked it reduces by roughly one-third.

Adsera and Pytlikova (2012), on the other hand, evaluated specifically the role of linguistic proximity in determining migration patterns. Their study utilized an extensive dataset that included the emigration flows from 223 source countries into 30 OECD countries during the period 1980-2009. By also including information on cultural distance, the study was able to distinguish whether linguistic or cultural proximity is more influential on individuals' decision to migrate. The results presented suggest that migration is higher between countries whose languages are more similar, and the results remain robust once genetic distance is included in the model. Consequently, the authors state, "Language itself affects migration costs beyond any ease derived from moving to a destination where people may look or be culturally more similar to the migrant" (Adsera and Pytlikova 2012). Similarly, Karemera, Oguledo et al. (2000) found little evidence that cultural similarities play a role in migration patterns.

Finally, it is important to note that while each of the studies discussed does not provide a comprehensive model, each identifies vital aspects that are important to understanding the phenomenon of immigration. Of the aforementioned studies, Karemera, Oguledo et al. (2000) and Clark, Hatton et al. (2002) proposed most holistic approaches to modeling international migration because they account for a significant number of the relevant explanatory variables that are frequently analyzed in the literature. In particular, Karemera, Oguledo et al. (2000), employ a gravity model analysis in order to capture influences of a variety of factors in both the origin and destination countries. While Clark, Hatton et al. (2002) conducted

their analysis on panel data containing specifications similar to that of the present study. Combining the approaches of both studies and incorporating the theoretically justified findings of the previous literature provides the basis for the empirical analysis in this study.

The present study is built upon the assumption that the transitional arrangements are one of the factors that impact people's decision to migrate in the enlarged EU. This assumption is founded on the findings of earlier studies that found immigration restrictions negatively impact migration rates (Karemera, Oguledo et al. 2000; Ortega and Peri 2009; Mayda 2010). The next section will give an overview of how earlier studies have assessed the impact of the transitional arrangements migration flows in the EU.

The literature addressing patterns of EU migration can be separated into two thematic categories. The first set of studies attempted to forecast the impact of enlargement on intra-EU migration. The second set of studies assessed migration after enlargement, and analyzed the determinants of flows and patterns of migration within the enlarged EU. The following discussion will briefly review both of these categories of literature.

3.2 Forecasting:

There exist a considerable number of empirical studies that attempted to predict the migration flows and patterns between the new and old EU member states (Boeri and Brücker 2001; Alvarez-Plata, Brücker et al. 2003; Dustmann, Casanova et al. 2003; Wadensjö 2007; Blanchflower and Lawton 2010). Even though the various studies employed different methodological approaches, data, and explanatory variables, the results were reasonably consistent. A few of the studies used surveys to estimate potential migration while others used previous emigration statistics to extrapolate future emigration from new member states. Nonetheless, there is general consensus amongst the varying studies forecasting between 2%-4% of the acceding Central and Eastern European countries' population will emigrate to the EU-15 in the long run.

Bauer and Zimmerman (1999) estimated the potential migration from the CEEC-10 over the coming 15 years based on the southern EU enlargement. They analyzed emigration potential under two conditions, restricted mobility and free mobility. They estimated that emigration as a percentage of sending country population would lie roughly between 1.8% for Poland and 0.2% for Slovenia accounting for restricted and free mobility. Because the findings from this model are subject to double extrapolation biases, the authors also conducted a follow-up study by surveying experts on migration from the acceding nations to gauge potential post enlargement emigration. Through the second approach they estimated 2-3% of the CEEC-8 would emigrate to the EU-15 in the long run, and that Germany and Austria would be the main receiving countries. In addition, they state that a large portion of this emigration flow is expected to be temporary.

Zaiceva (2006) also estimated a model using the migration experience from Greece, Portugal, and Spain during the 1981 and 1986 enlargement to estimate the parameters of a migration function. The author stated that these countries serve as viable proxies because they provide comparable circumstances to the CEEC-8 in terms of income differentials, populations, and faced similar transitional arrangements during enlargement. Based on this model, 3.5-5 million individuals (1-1.4 per cent of the EU-15 population) are expected to emigrate into the EU-15 during the period 2004-2014. On the other hand, Dietz (2002) found slightly lower estimates, because they account for temporary migration. Their study projected that roughly 1-2% of the CEEC-8 will emigrate 10-20 years after free mobility is introduced.

Using slightly different data but a similar approach, Boeri, Brücker et al. (2000) estimated a time-series model for all immigration to Germany from 1967-1998. Aggregate migration statistics were used to estimate the function because no record exists for previous emigration from the CEEC-8 into Germany upon which projections could be made. They used these estimations along with the distribution of CEEC-8 immigrants in the EU-15 in 1998 to make a prediction for future immigration. Based on this model that assumes that per capita incomes between the CEEC-8 and EU-15 converge at a rate of 2% annually, they predicted that CEEC-8

nationals would make up 1% of the EU-15 population by 2030. Boeri and Brücker (2001) largely corroborated the findings on immigration to Germany; however they also added that net migration would increase immediately after enlargement to roughly 335,000 people annually, and eventually decline to approximately 100,000-150,000 within the following decade. Fertig (2001), employing a similar model and using similar data, estimated citizens of the CEEC-8 to reach 1.6-2% of Germany's population by 2015.

In yet another different methodological approach, Fertig and Schmidt (2000) estimated cumulative migration from Poland, Hungary, Czech Republic, and Estonia to Germany by using emigration statistics from 17 countries into Germany. The study projects that within 20 years 300,000-1.2 million individuals will migrate to Germany. Dustmann, Casanova et al. (2003), in similar fashion, forecasted the potential migration flows into the UK and Germany. The authors employed several models with different income-convergence scenarios using similar data as the previous study; however, this study did not consider the impact of the transitional arrangements. Their findings showed that net annual immigration after enlargement would be roughly 5,000-13,000 into UK and between 20,000-200,000 into Germany.

One aspect of post-enlargement migration that was largely overlooked in the forecasting literature is the effect of the transitional arrangements. In a report projecting post-enlargement migration, Alvarez-Plata, Brücker et al. (2003) produced slightly lower emigration estimates than the majority of studies; however, they argued that this was not caused by the transitional arrangements. Instead they claimed that the transitional arrangements would mainly divert previous migration flows, and only partially mitigate the magnitude of migration. One year after enlargement, Boeri and Brücker (2005) stated that while there seems to be short-term fluctuations in migration, there will be no long-term impact caused by the transitional arrangements. They also claimed that the transitional arrangements were responsible for redistributing immigration towards EU-15 countries that opened labor markets earlier and lessening the overall magnitude of emigration from the CEEC-8 relative to free mobility.

Kraus and Schwager (2003) presented a different view on post enlargement migration. They stated that the many of studies making projections overestimate the magnitude of migration, because they do not account for the economic and social benefits that accrue from Union membership altering the incentive for individuals to emigrate. For example, integration into the European market may enhance business and R&D relationships that will have a positive impact on the growth of acceding nations' economies. In addition, the article discussed the role of expectations in the timing of an individual's decision to move. For example, the transitional arrangements may cause an increase in immediate emigration, because they increase fear amongst potential migrants that free mobility will never be initiated.

All of the different studies, approaches, and report came to similar projections of roughly 3-4% of CEEC-8 nationals will emigrate in the long term after enlargement. Although this estimate has been consistent, these studies are still subject to methodological scrutiny. In addition, many of the models used seem rather *ad hoc* due to a lack of sufficient detailed macroeconomic data (Bauer and Zimmerman 1999; Straubhaar 2001; Zaiceva 2006). Many of these models also largely overlook the direct impact of the transitional arrangements on mitigating flows of migration. The following literature analyzed actual migration patterns since enlargement, and similarly the results from the various studies are fairly consistent.

3.3 Post enlargement migration trends and effects of transitional arrangements:

In 2006 and 2008 the European Commission released reports assessing the post-enlargement EU migration as well as the impacts of the transitional arrangements. The reports contained a number of general findings presented in the breadth of literature. Two years after enlargement, the first European Commission (2006) report assessed immigration and the effectiveness of the first period of the transitional arrangements. It states that the percentage of EU-10 nationals in the resident population of each EU-15 country was relatively stable before and after

enlargement, apart for prominent increases in the UK, Austria, and Ireland (Kahanec and Zimmermann 2008; Zaiceva and Zimmermann 2008; Kahanec, Zaiceva et al. 2009; Blanchflower and Lawton 2010; Constant 2011). In addition, there is no evidence showing a direct link between the magnitude of migration flows from the CEEC-8 and the transitional arrangements since countries that imposed restrictions still experienced inflows of CEEC-8 nationals (Kahanec, Zaiceva et al. 2009; Galgóczi, Leschke et al. 2011). The transition arrangements only created biased migration patterns by diverting flows to countries that opened their labor markets to CEEC-8 citizens earlier (Boeri and Brücker 2005; Kahanec and Zimmermann 2008; Baas and Brücker 2010; Constant 2011; Holland, Fic et al. 2011). Another report by the European Commission (2008) determined that since enlargement there has been an increase in CEEC-8 individuals working in the EU-15, often on a temporary basis; however, there is no evidence of the massive East-West migration that initially instigated the establishment of the transitional arrangements (Guardia and Pichelmann 2006; Lang 2007; Kahanec, Zaiceva et al. 2009; Galgóczi, Leschke et al. 2011; Hazans and Philips 2011; Galgóczi and Leschke 2012).

Several other studies also looked into country-specific changes in the magnitude of migration before and after enlargement. Gilpin, Henty et al. (2006) reported that in the United Kingdom there was a substantial increase in the number of CEEC-8 nationals following the enlargement. Pollard, Latorre et al. (2008), on the other hand, presented evidence suggesting emigration from the CEEC-8 into the UK has been on the decline—roughly 30,000 less immigrants entered the country in 2007 than in 2006. Moreover, the UK may continue to experience declining immigration from new member states as other EU-15 countries also institute free mobility. Additionally, the authors stated that free mobility might have lead to less permanent migration patterns. In general, migration from new member states into the UK was much higher than the forecasted estimates (Galgóczi, Leschke et al. 2011).

Ireland also experienced increased immigration upon EU enlargement (Doyle, Hughes et al. 2006; Hughes 2007; Kahanec, Zaiceva et al. 2009). Doyle, Hughes et al. (2006) based estimates from Personal Public Service Numbers

(PPSNs) – which are individual identifiers required to obtain a job or access state benefits in Ireland—and find that 186,000 CEEC-8 nationals immigrated in the post-accession period until 2006. Similarly, Hughes (2007) identified an annual increase in the number of immigrants registering through the PPSN registration program between 2004 and 2006. By 2006, individuals from new member states constituted 3% of Ireland's population (Barrett and McCarthy 2008). Specifically, Hazans and Philips (2011) found that combined flows to the UK and Ireland accounted for roughly 80% of the total outflows from Lithuania and Latvia, as well as 60% (2005) from Estonia.

Although it may seem that a lack of labor market restrictions led to increased immigration in the UK and Ireland, immigration to Sweden was not equally as dramatic (Dølvik and Eldring 2006; Doyle, Hughes et al. 2006). Doyle, Hughes et al. (2006) reported that in 2005 approximately 5,600 emigrants came to Sweden from the accession states. Although this was a far lower number than was previously anticipated, it was twice the number of immigrants than in 2003. Based on the different immigration outcomes in the UK, Ireland, and Sweden it can be seen that the transitional arrangements are not the only factor contributing to immigration patterns; furthermore, beyond slight evidence of migration diversions the direct impact of the transitional arrangements is still unclear.

A number of studies have aimed to shed light on the direct relationship between the transitional arrangements and intra-EU migration. Dobson (2009), Dobson and Sennikova (2007) corroborated the notion that the transitional arrangements did not significantly impact migration. Instead, the studies found that economic conditions were the main factors influencing the direction and magnitude of migration flows. The study also highlighted that larger ethnic enclaves in the host country through network migration, or language similarities served as influential pull factors for migration. Similarly, Galgóczi, Leschke et al. (2011) argued that labor demand and wage differentials are key drivers of migration. Their analysis indicated that migration flows have largely been from high unemployment to low unemployment countries and from low paid to high paid work.

On the contrary, other studies have argued that the transitional arrangements have been profoundly impactful on migration. One common argument states that large ethnic populations developed unevenly throughout the EU-15 as a result of the diversion caused by the transitional arrangements. For example, large ethnic communities may form in UK, Ireland, and Sweden before other nations because CEEC-8 nationals were able to easily immigrate to these destinations immediately upon accession. As a result, these legislations may have a permanent impact on migration patterns by creating strong network effects (Drinkwater, Eade et al. 2006; Holland, Fic et al. 2011). Other studies have suggested that the transitional arrangements influenced the composition of immigrants. There may have been an increase in undocumented or own-account and potentially bogus self-employed immigrants in countries that maintained labor market restrictions (Ruspini 2006; Kahanec, Zaiceva et al. 2009; Galgóczi, Leschke et al. 2011).

A less common but relevant topic that has been addressed in studies is the impact of the economic crisis on migration patterns (Hazans and Philips 2011; Galgóczi and Leschke 2012). Galgóczi and Leschke (2012) stated that patterns of migration, initially influenced by loose institutional barriers, may have also been impacted by changing economic conditions caused by the crisis. For example, Belgium abolished labor market restrictions a few months prior to the onset of the economic and financial crisis; as a result, migration flows to Belgium were influenced by contradictory push and pull factors during that period. In the case of the Baltic countries, Hazans and Philips (2011) stated that prior to the crisis migration was mainly short-term and circulatory; however, there is evidence that diminishing economic conditions and employment opportunities in sending countries caused by the crisis will lead to more long-term migration patterns. This mainly has profound implications for the UK, Ireland, and Finland as these countries have hosted large populations of Baltic immigrants since the enlargement.

Finally, it is worth noting that between 2003 and 2007 there was an increase in the number of CEEC-8 nationals in countries outside the EU-15 such as Iceland and Norway (Dølvik and Eldring 2006; Kahanec, Zaiceva et al. 2009). For example,

Dølvik and Eldring (2006) found that in 2005, Norway received the largest influx of immigration out of all the Nordic countries. The authors state that the transitional arrangements have contributed to establishing order and controlling the labor supply from the CEEC-8; however, in certain countries with limited immigration there is concern as to whether the restrictions have had a negatively impacted the recruitment of labor.

Although there are many studies that have assessed post-enlargement migration, there is further room to extend knowledge on the impacts of the transitional arrangements. In particular, the interrelationship between migration flows to EU-15 states and the labor market restrictions of other Union members is relevant and yet to be discussed. The present study is designed to shed light on this scenario, thus contributing to the existing literature.

4. Data and Methodology:

4.1 Data

This study relied on annual migration statistics from each of the CEEC-8 into each of the EU-15 countries during the period 2000-2011. This data was compiled from a variety of sources in order to create a useable dataset. The Eurostat² and OECD databases³ provided a majority of the data for each country pair apart for Ireland and Belgium. In particular, the data from Eurostat and OECD consisted of annual migration (in thousands); however, there was missing data for certain country pairs in particular years. Migration statistics for Belgium between 2000 and 2007 were obtained from the Belgian Directorate of General Statistics and Economic Information. In the case of Ireland, immigration data was sparse in multiple EU databases; therefore, annual allocations of Personal Public Service Numbers⁴ (Also known as PPSNs are individual identifiers required to obtain a job

² <http://epp.eurostat.ec.europa.eu/portal/page/portal/population/data/database>

³ <http://www.oecd.org/els/mig/keystat.htm>

⁴ <http://www.welfare.ie/en/Pages/Personal-Public-Service-Number-Statistics-on-Numbers-Issued.aspx>

or access state benefits in Ireland) to nationals of CEEC-8 countries between 2000 and 2011 were used as proxies for annual immigration figures. This served as a relevant proxy, as it captures the number of specific foreign nationals entering the Irish labor market in a given year. Additionally, it has been used in many previous studies. Although data is available from earlier years, I chose to analyze the period 2000-2011 because there is sufficient data prior to and following the 2004 EU expansion to clearly capture the impact of country-specific labor market restrictions.

Economic and demographic data were collected mainly from the Eurostat and OECD databases. The annual data includes unemployment rates, GDP per capita (Purchasing Power Parities EU-27=100), GINI coefficients, and percentage of population between the age of 15-29 for each sending and host country in the study (Karemera, Oguledo et al. 2000; Clark, Hatton et al. 2002; Hatton and Williamson 2003). The following tables give a brief overview of the general patterns seen in the economic data:

Table 2: Descriptive statistics

GDP Per Capita (PPS EU-27=100)				Unemployment (%)			
	2000	2004	2011		2000	2004	2011
Poland	48	51	64	Poland	16.1	19.1	9.6
Czech Republic	71	78	80	Czech Republic	8.7	8.3	6.7
Estonia	45	57	67	Estonia	13.6	9.7	12.5
Hungary	54	63	66	Hungary	6.3	6.1	10.9
Latvia	36	47	58	Latvia	13.7	11.2	16.2
Lithuania	40	51	66	Lithuania	16.4	11.3	15.3
Slovenia	80	87	84	Slovenia	6.7	6.3	8.2
Slovakia	50	57	73	Slovakia	18.9	18.4	13.6
EU-15 (Avg)	125.13	124.53	122.47	EU-15 (Avg)	6.63	7.40	9.49

GINI Coefficient

	2000	2004	2011
Poland	30.00	34.90	31.10
Czech Republic	26.00	26.80	25.20
Estonia	36.00	37.40	31.90
Hungary	26.00	29.10	26.80
Latvia	34.00	35.05	35.40
Lithuania	31.00	33.65	32.90
Slovenia	22.00	22.90	23.80
Slovakia	27.45	27.45	25.70
EU-15 (Avg)	28.45	28.87	29.53

Source: Eurostat, OECD, Department of Social Protection-Ireland, Directorate of General Statistics and Economic Information-Belgium; Calculated by author

The tables above depict the conditions at the beginning of the period, the year of EU enlargement, and the end of the period considered in this study. It shows how these

factors may have impacted migration differently at separate points of time. The statistics presented for unemployment do not clearly portray the trend in the CEEC-8 countries. Figure 2 shows that unemployment actually fell drastically, hitting a low point around 2008; however, following the crisis unemployment rose to near pre-enlargement levels. This pattern is important later in the analysis of the empirical results.

The data was organized in a panel format by arranging migration for each sending and host country combination (ij) with the respective explanatory variables for each of year in the period. Using this format, the results for the explanatory variables depicted their impact on each country pair. The following section will discuss and theoretically justify how the variables are organized.

4.2 Variable selection

The outcome of interest in this study was migration flows (*Emirate_log*) between each CEEC-8 and EU-15 country pair. Specifically, the study focused on emigration rates logged that are calculated as the number of nationals from source country i that migrated to destination country j in year t per thousand of the population in country i in year t . Ideally, there would have been observations for each country pair throughout the period (1,440 observations); however, due to data limitations this study included 1,033 (roughly 72%) complete observations. This variable has been used in earlier studies, and has produced efficient estimates on the determinants of international migration (Clark, Hatton et al. 2002; Hatton and Williamson 2003). Gross migration flows are used instead of net flows, because the data tends to be more accurate and accessible (Palmer and Pytlikova 2013).

The control variables that were included closely resemble the theoretically justified economic, demographic, and geographic variables used in the previous research. The key economic independent variables that were used are unemployment rates, GDP per capita, and GINI coefficients (a measure of income inequality) from the source and destination country. Unemployment rates and GDP per capita in country i and j were included as they depict the role of expected employment and earnings on migration. According to neoclassical economic

theories of migration, individuals behave in a way to maximize their utility; therefore, differentials in unemployment and GDP per capita (PPP adjusted) between country i and j should be a significant determinant of migration flows (Harris and Todaro 1970; Borjas 1987). GINI coefficient for countries i and j are included in order to measure the effect of income inequality. Many previous studies found that inequality is an impactful determinant of migration, but there have been some contradicting findings. For example, Borjas (1987) found that emigration rates are negatively related with source country inequality. On the other hand, Clark, Hatton et al. (2002) found that high inequality in the source country is expected increase migration, while high inequality in the destination will deter migration. This dichotomy will be investigated in this study.

The key demographic variables are annual population totals throughout the period in countries i and j , and the annual percentage of the population between ages 15-29 in specifically country i . The variable capturing the percentage of the population between the age 15 and 29 is included because emigration rates tend to be higher amongst this age group as compared to others. There are higher returns to be gained from migrating at a younger age. Thus, a larger portion of this population would contribute to higher overall migration rates (Clark, Hatton et al. 2007). Finally, emigration rates from country i to j in year $t-1$ will be incorporated in order to portray a network effect, and it may also indicate a structural dimension of migration (Wood 1982). Although previous studies have used the stock of the immigrant population residing in the destination country in order to understand a network effect, this study uses migration rates in the previous year to test whether this captures a similar theoretical effect.

Apart from the traditional determinants of international migration, the model also included a set of binary dummy variables. Each dummy variable represents the year in which at least one EU-15 nation abolished their transitional arrangements. Since in a few circumstances this occurred in a few countries in the same year, they are all combined into one variable. During the years that a particular host country or countries is imposing labor market restrictions the dummy variable will be set as '0'. The variable will switch to '1' during the years

when free mobility is allowed. The coefficient of these variables is intended to display the effect that opening host country labor markets have on migration flows between each country pair in the study.

Finally, three variables are included to capture any effects that are caused from year to year. Among these variables, *year* is used to estimate any linear property present model. While *year2* and *year3* estimate any quadratic and cubic property, respectively, that is pertinent to the model. These variables allow the regression line to best fit the curvature in migration patterns as seen in Figure 1. In addition, these variables are particularly important in this model, because they are expected to account for annual variations that may have been caused by the global financial crisis. Thus, they are intended clarify the other estimates in the model.

It is necessary to state, however, that it is possible that these variables may not fully capture the effect of the crisis. If this is the case worsening economic conditions in the source and destination countries may heavily influence migration trends and bias the estimates of the model (Borjas 1987; Ortega and Peri 2009; Mayda 2010).

Although some of the previous studies included measures of political stability, credit worthiness, and relative freedom, they were intentionally omitted from the present study. It can be assumed that there is a general level of economic, political, and social stability in order for nations to be admitted into the Union; therefore, there is little relevance to include these variables into the analysis.

4.3 Model

A fixed effects regression generalized least squares model is used in order to study the impact of a specific host country's transitional arrangements on the magnitude and pattern of migration throughout the EU-15. This model is most the appropriate statistical model, as the observations are not randomly selected and the estimations are not expected to be generalizable in other contexts. These assumptions were verified using the Hausman specification test. In addition, the theoretical specifications of a fixed effects model will account for any unexplained time-invariant heterogeneity that exists across country pairs, such as cultural

similarities, linguistic proximity, and distance (Karemera, Oguledo et al. 2000; Hatton and Williamson 2003; Adsera and Pytlikova 2012). Although other studies have employed different statistical methods, a fixed effects model is appropriate in this paradigm because a few theoretically supported time-invariant variables are unaccounted for in the dataset. The general specifications of the model is as follows:

$$\log (Emirate_{ijt}) = \beta_0 + \beta_1 \log(Population1529_{it}) + \beta_2 \log(Unemploymentratio_t) + \beta_3 \log(GDPpercapratio_t) + \beta_4 \log(GINIratio_t) + \beta_5 \log(Immrate_{ijt-1}) + \beta_6 UKIRESWE + \beta_7 GRESPAFINPORITA + \beta_8 NED + \beta_9 LUXFRA + \beta_{10} BELDEN + \beta_{11} AUSGER + \beta_{12} Year + \beta_{13} Year2 + \beta_{14} Year3 + \delta_{ij} + \varepsilon_{ijt}$$

where the dependent variable, $Emirate_{ijt}$, is the number of nationals from country i that migrated to country j per thousand of the population in country i during year t . The dependent variables are labeled as follows:

- $Population1529_{it}$ – Percentage of the source country population aged 15-29 in year t .
- $Unemploymentratio_{jit}$ – Ratio of unemployment in the destination over the source country in year t .
- $GDPpercapratio_{jit}$ – Ratio of GDP per capita (PPP: EU-27 = 100 in t) in the destination over the source country in year t .
- $GINIratio_{jit}$ – GINI coefficients of equivalised disposable income in the destination over the source country in year t .
- $Emirate_{ijt-1}$ – Emigration rate calculated as the number individuals that migrated between a country pair per thousand of source country population in year $t-1$.
- $UKIRESWE$ – Transitional arrangement variable for The United Kingdom, Ireland, and Sweden. All three abolished labor market restrictions in 2004.

- *GRESPAFINPORITA* – Transitional arrangement variable for Greece, Spain, Finland, Portugal, and Italy. All of the countries abolished labor market restrictions in 2006.
- *NED* – Transitional arrangement variable for the Netherlands that abolished labor market restrictions in 2007.
- *LUXFRA* – Transitional arrangement variable for Luxembourg and France. Although Luxembourg abolished labor market restrictions on November 1, 2007, this variable was counted in the following year. It was determined that the effect of this variable would not be as apparent in 2007 as compared to 2008. France, on the other hand, abolished labor market restrictions in 2008.
- *BELDEN* – Transitional arrangement variable for Belgium and Denmark. Both countries abolished labor market restrictions in 2009.
- *AUSGER* – Transitional arrangement variable for Austria and Germany. Both countries abolished labor market restrictions in 2011.
- *Year* – Values 1-12 corresponding to years 2000-2011.
- *Year2* – $Year^2$
- *Year3* – $Year^3$

Without straying too far from the theoretical framework, the model has been slightly modified to fit the intentions of this present study. Each of these explanatory variables has been theoretically justified and supported in the findings of previous studies; furthermore, the parameters of this experiment are well suited to understand the effects of the transitional arrangements on emigration flows following the 2004 EU enlargement.

5. Results and Discussion:

5.1 CEEC-8 Immigration flows by destination Country

The first part of the analysis will discuss aggregate CEEC-8 migration into each EU-15 country. This preliminary assessment will identify unique patterns that

will be discussed more in-depth later in this section. The first set of countries, The UK, Sweden and Ireland, did not implement transitional arrangements upon accession in 2004; however, they each did not experience similar levels of growth in immigration immediately following enlargement (Figure 3, Table 1).

Table 1: Growth rate in immigration from CEEC-8

	Germany	Belgium	Denmark	Ireland	Spain	Italy	Luxembourg	The Netherlands	Austria	Finland	Sweden
2000-2001	6.05%	106.39%	9.39%	228.51%	16.21%		-9.60%	13.95%	13.06%	51.40%	17.42%
2001-2002	6.43%	-10.48%	-0.80%	-18.43%	-1.35%		23.13%	-0.80%	-10.65%	1.28%	23.22%
2002-2003	0.51%	-5.97%	-6.86%	1.82%	11.21%	218.97%	130.96%	-7.30%	7.55%	-4.79%	-8.96%
2003-2004	33.85%	50.27%	26.36%	532.74%	65.22%	1.83%	64.84%	156.71%	49.77%	54.81%	99.90%
2004-2005	13.48%	33.14%	41.03%	90.78%	7.59%	-9.53%	63.20%	17.34%	-0.76%	9.65%	32.45%
2005-2006	1.34%	29.15%	46.49%	24.21%	61.31%	12.42%	-30.07%	14.38%	-6.65%	29.50%	68.83%
2006-2007	-6.20%	38.74%	32.45%	-18.43%	11.12%	69.40%	16.47%	33.75%	5.45%	28.80%	17.63%
2007-2008	-10.42%	1.97%	11.36%	-41.95%	-49.05%	-34.73%	7.32%	45.98%	7.88%	10.79%	-1.08%
2008-2009	-2.44%	9.73%	-30.61%	-59.78%	-27.10%	-22.43%	-21.21%	-11.69%	-4.91%	-6.15%	-10.30%
2009-2010	7.65%	-2.63%	-2.71%	-24.10%	-10.72%	-18.14%	6.41%	36.12%	7.83%	18.84%	-10.65%
2010-2011		-10.71%	5.28%	-14.13%	-2.54%	-19.36%	16.72%			21.37%	-1.20%

Source: Eurostat, OECD, Department of Social Protection-Ireland, Directorate of General Statistics and Economic Information-Belgium; Calculated by author

Ireland marked an enormous increase as the number of CEEC-8 nationals that registered for PPSNs (Individual identifiers required to obtain a job or access state benefits in Ireland) grew nearly 5.5 times between 2003 and 2004. In the case of the UK, insufficient data was collected to make a comprehensive assessment; however, based on available information, emigration from Poland into the UK grew approximately 3.5 times between 2003 and 2004. Even Sweden’s immigration inflows nearly doubled following the enlargement.

The next group of countries—Greece, Spain, Portugal, Finland, and Italy—provided labor market access to CEEC-8 immigrants in 2006 (Greece and Portugal are excluded from this analysis due to sparse immigration statistics). In general, migration to these countries reacted inconsistently to the influence of their transitional arrangements. For example, Italy, Spain, and Finland all experienced increased immigration prior to 2006 during the period of strict regulations. Immigration grew in Spain and Finland by 65.2% and 54.8%, respectively, in 2004 and tripled in Italy in 2003 (Figure 4, Table 1). In 2006, when all of the countries liberalized their labor market restrictions, immigration in Finland maintained subtle growth while Spain experienced a noticeable annual jump of 61.3%. Immigration to Italy, on the other hand, was relatively stagnant until 2007 when there was an increase of 69.4% from the previous year. The jump in immigration displayed in

Italy occurred at the same time the Netherlands abolished their transitional arrangements in 2007.

Although the Netherlands removed labor market restrictions in 2007, they also saw an increase in immigration upon enlargement that persisted through 2008 (Figure 5, Table 1). While there is a noticeable upward trend, there is no sudden increase in immigration corresponding to the year the country abolished labor market restrictions. There was only a relatively small increase of roughly 34%, between 2006 and 2007.

At the end of 2007 and the middle of 2008, Luxembourg and France, respectively, followed suit and provided labor market access to CEEC-8 citizens (France is omitted from this analysis due to unreliable data). The pattern of immigration in Luxembourg, however, depicts trends that are seemingly unrelated to enlargement and the country's transitional arrangements (Figure 6, Table 1). For example, immigration increased drastically in 2003 (130.9%) and sustained steady growth through 2005. After 2005, however, annual immigration growth fluctuated with only a slight upturn of 7.3% coinciding with the abolishment of labor market restrictions.

The next pair of countries to loosen their labor market restrictions, Belgium and Denmark, also displays immigration patterns that contradict the expected effects of enlargement and the transitional arrangements. Both countries experienced a similar upward trend in immigration between 2003 and 2008 (Figure 7, Table 1). In 2009, the year each country removed its transitional arrangements, their patterns diverged and immigration to Denmark fell by nearly 31% from 2008 while immigration to Belgium maintained its trajectory.

In the final phase of the period, Germany and Austria removed their labor market restrictions. Unfortunately, neither country has reported immigration statistics for 2011; however, based on data from 2000-2010 a few distinct patterns can be seen. Although both countries maintained transitional arrangements until 2011, each experienced a drastic increase in immigration immediately upon enlargement. Germany and Austria faced increases of nearly 34% and 50%, respectively, in 2004 that leveled off in subsequent years (Figure 8, Table 1). Based

on the available data it is unknown whether immigration rates in Germany and Austria reacted to the end of each country's transitional arrangements; however, the aggregate statistics depict an overall downward trend of immigration from the new member states into the EU-15.

It is important to note that in general immigration grew universally in the EU-15 following the 2004 enlargement and never returned to previous levels. After the initial surge, the aggregate migration flows tapered off in the latter part of the period. It is unclear what factors were caused this pattern of EU-migration rates. Equally, ambiguous is the role of the transitional arrangements, as migration flows not portray a distinguishable pattern in relation to the labor market restrictions in destination countries. Thus, remains the question as to what role the transitional arrangements and other determinants played in this paradigm. These questions can be addressed by analyzing the impact of regulatory shifts in labor market access within the theoretical framework of international migration. The next step of analysis takes a closer look at post-enlargement migration, specifically attempting to address the impact of country-specific transitional arrangements.

5.2 Econometric results:

The migration model was estimated using a fixed effects regression method on 111 different CEEC-8 and EU-15 country pairs. By using this approach, the effects of common determinants of migration were calculated for the overall context of post enlargement intra-EU migration. Likewise, the estimates for the transitional arrangement dummy variables will reflect the impact of changing labor market restrictions in specific host countries on immigration in all country pairs. This will determine whether the magnitude of migration flows throughout the EU was driven by changes in country-specific labor market restrictions or other factors.

Table 2: Regression estimates

VARIABLES	Emirate_log
L.Emirate_log	0.792*** (0.0244)
Pop1529_log	-0.500* (0.271)

Unemploymentratio_log	-0.280***
	(0.0529)
GDPpercapratio_log	0.647**
	(0.265)
GINratio_log	-0.203
	(0.249)
UKIRESWE	0.533***
	(0.101)
GRESPAFINPORITA	0.159
	(0.114)
BELDEN	-0.379***
	(0.102)
NED	0.400***
	(0.0947)
LUXFRA	-0.0855
	(0.0889)
AUSGER	-0.192
	(0.146)
year	0.393***
	(0.115)
year2	-0.110***
	(0.0303)
year3	0.00680***
	(0.00179)
Constant	-3.697***
	(1.199)
Observations	1,033
Number of CountryPair	111
R-squared	0.657
Standard errors in parentheses	
*** p<0.01, ** p<0.05, * p<0.1	

5.2.1 Control variables:

In general, the estimates calculated in the model mirror the theoretical assumptions for the determinants of international migration and corroborate the findings in the existing literature. As hypothesized by the neoclassical theory of migration, economic factors were particularly important determinants of international migration in this model. Specifically, emigration rates exhibited a negative and statistically significant relationship with the destination-source country unemployment ratio. In other words, a 10% increase in the unemployment ratio causes a 2.8% decrease in emigration for the corresponding country pair. High unemployment in the source country drives individuals to migrate in search of employment opportunities. Following the same theoretical expectations,

emigration from the CEEC-8 to the EU-15 was positively related and statistically significant to increases in GDP per capita ratio. A 10% increase in the GDP per capita of the destination in relation to the source country causes a 6.4% increase in the emigration rate. Furthermore, it is important to consider that these estimates also indicate that these variables are push factors for CEEC-8 nationals. A decline in GDP per capita or an increase in unemployment in the source country increases the incentive for individuals to migrate to the EU-15 in order to maximize utility.

Apart from the influence of economic variables, the empirical analysis shows that migration between the CEEC-8 and EU-15 is strongly driven by a network effect. Emigration rates between a country pair lagged one year have a positive and extremely significant impact on present emigration flows. Specifically, a 10% increase in emigration rates in year $t-1$ triggers a nearly 8% increase in the following year. Although other studies have used stocks of source country nationals living in the host country as a measure for a network effect, this result exhibits a similar theoretical impact.

One of the estimates in the model that was contrary to the expectations was the negative and significant impact of *Pop1529*. This estimate suggests that a larger percentage of the population between the ages of 15 and 29 in the source country is associated with smaller emigration flows between country pairs. Based on other studies, this is the age group in a population that is most mobile and likely to relocate in society (Clark, Hatton et al. 2002; Hatton and Williamson 2003). Looking at the data, it is clear that there are decreasing percentages of this age group in many of the sending countries in the study; however, it is unclear why this is associated with higher emigration rates.

It is also worth noting that GINI coefficient ratio has a negative but insignificant impact on emigration rates. An increase in the income inequality in the destination relative to the source country causes emigration rates to decrease. Although this result is insignificant, the directional impact corroborates the findings of Clark, Hatton et al. (2002), and contrast the findings of Borjas (1987).

5.2.2 Transitional Arrangements:

According to the estimates above, emigration from the acceding nations into the old member states was largely driven by employment opportunities and economic incentives. Thus, it can be assumed that the transitional arrangements would have a negative effect on migration flows by regulating labor mobility; however, the preliminary analysis showed that emigration did not behave systematically to changes in labor market restrictions. The empirical analysis below provides a clearer understanding as to which country's transitional arrangements were most influential on migration flows to the EU-15 from the acceding states.

Among the variables capturing the abolishment of labor market restrictions, only three had a significant impact on emigration. The first two, *UKIRESWE* (UK, Ireland, and Sweden) and *NED* (The Netherlands), exhibit a positive and significant impact on migration. In other words, overall migration increased between the acceding countries and the EU-15 when these countries removed their labor market restrictions. This estimate corroborates the findings of earlier studies that less restrictive immigration policies tend to bolster migration rates (Greenwood and McDowell 1991; Karemera, Oguledo et al. 2000; Ortega and Peri 2009). The third significant variable, *BELDEN* (Belgium and Denmark), exhibits a negative impact on migration. Intra-EU migration decreased when these countries abolished their transitional arrangements. The remaining variables, *AUSGER* (Austria and Germany), *GRESPAFINPORITA* (Greece, Spain, Finland, Portugal, and Italy), and *LUXFRA* (Luxembourg and France) were all insignificant in explaining emigration rates.

Table 3: Phases of the abolishment of Transitional Arrangements

Phase:	Year:	Model Abbreviation:	Countries:	Directional Impact:
Phase 1	2004	<i>UKIRESWE</i>	United Kingdom, Ireland, and Sweden	+ (0.000***)
Phase 2	2006	<i>GRESPAFINPORITA</i>	Greece, Spain, Finland, Portugal, Italy	+
Phase 3	2007	<i>NED</i>	The Netherlands	+ (0.000***)
Phase 4	2008	<i>LUXFRA</i>	Luxembourg and France	-
Phase 5	2009	<i>BELDEN</i>	Belgium and Denmark	- (0.000***)
Phase 6	2011	<i>AUSGER</i>	Austria and Germany	-

One important implication from these results is that each country's transitional arrangements did not have an equal impact on post-enlargement intra-EU migration. According to Figure 1, there was a surge of migration from the CEEC-8 to the EU-15 that began in 2004 and lasted until 2007. During this time, a total of 8 countries abolished their transitional arrangements in two phases. In the first phase, the UK, Sweden, and Ireland, opened their labor markets to the citizens of new member states immediately after enlargement. Two years later, in 2006, Greece, Spain, Finland, Portugal, and Italy followed by abolishing their transitional arrangements. Although the empirical analysis suggests that both phases exhibit a positive effect on intra-EU migration, only the first had a statistically significant impact. In the context of the theoretical underpinning of the study, it seems as though labor market access to the UK, Ireland, and Sweden were influential determinants of migration along side economic differentials and a network effect following the 2004 enlargement. It is important to clarify that when these countries provided access to their labor markets, emigration from the CEEC-8 also increased to all other countries that maintained restricted labor markets.

The same cannot be said, however, for labor market access to Greece, Spain, Finland, Portugal, and Italy. In 2007, the estimates from the model show that migration growth was determined mainly by economic differentials and network effects as compared to changes in the transitional arrangements. This is evidenced by the insignificant estimate for the dummy variable corresponding to transitional arrangements of these five countries in the second phase (*GRESPAFINPORITA*).

This intuition can also be applied to interpreting the effects of the other significant transitional arrangement dummy variables. According to the model, the liberalization of the labor markets in the Netherlands was also an important determinant of intra-EU migration flows. The opposite effect, however, is seen in the variable corresponding to Belgium and Denmark (*BELDEN*). When these countries abolished their transitional arrangements, emigration was deterred from the acceding nations into the EU-15. Thus, the parameters of the model determined that unemployment and GDP per capita differentials, network effects, and the

transitional arrangements in the UK, Ireland, Sweden, the Netherlands, Belgium, and Denmark were important determinants of migration following the enlargement.

The second important implication from the results of the model can be seen in the change of the directional impact of the transitional arrangements in the latter part of the period. Irrespective of significance, phases one through three all depict a positive impact on the emigration rates, while phases 4 through 6 all exhibit a negative influence. There are two possible explanations for this result. One is the abolishment of labor market restrictions in more EU-15 countries caused a decline in emigration to individual states. Palmer and Pytlikova (2013) found that destination states tend to see a decline in immigration as other competing countries permit access to their labor markets. A second possible explanation for this outcome is that there was a convergence in economic conditions between the acceding nations and the old member states. In 2003, for example, the GDP per capita in Latvia and Poland was merely 38.8% and 43.8%, respectively, of the EU-15 average. Similarly, employment rates in the same countries were 10.5% and 17.9%, respectively, as compared to the EU-15 average of 7.9%. By 2007, however, conditions drastically improved in these countries. GDP per capita in Latvia grew to 52.9% of the EU-15 average, and unemployment dropped to 6%. Similarly, GDP per capita in Poland grew to nearly 50% of the EU-15 average, and unemployment dropped to 9.6%. This relational convergence could have possibly decreased the attractiveness of emigrating from the CEEC-8, even as more EU-15 countries abolished their transitional arrangements (Galgóczy, Leschke et al. 2011).

The next step of analysis will be to identify the specific country pairs that seem to have been most affected by each statistically significant phase of transitional arrangement abolishment. The estimates from the regression model will be cross-referenced with tables 3-10 depicting the annual changes in growth rates of migration in each particular country pair. This will help understand which specific migration patterns were enhanced by each set of transitional arrangements.

Phase 1—2004:

Nearly all country pairs experienced a significant jump in migration coinciding with enlargement and the first phase of the period. As anticipated, the

three countries that removed labor market restrictions experienced an immediate increase in immigration—especially the UK and Ireland; therefore, it is more fascinating to focus on immigration growth in destination countries that were still enforcing transitional arrangements. The most impacted destination country was the Netherlands, experiencing growth rates of 168%, 150%, 184%, and 176% from Estonia, Latvia, Lithuania, and Slovakia, respectively. It is also noteworthy mentioning that Austria and Germany both faced inflows of Polish nationals of 108% and 41%, respectively, between 2003 and 2004.

Phase 3—2007:

The timing of phase 3 occurred simultaneously as the onset of the global financial crisis. Nonetheless, the abolishment of transitional arrangements in the Netherlands had a positive and significant impact on intra-EU migration rates. As stated above, Italy was one of the main destinations impacted by this event. In particular, emigration from Poland, Lithuania, and Slovakia grew by 62%, 73%, and 152%, respectively. Emigration from Poland also grew substantially in Belgium, Denmark, and Finland in the same year. It is also interesting to mention that besides Hungary, there was a decline in emigration to Ireland from all other acceding nations.

Phase 5—2009:

During phase 5, emigration rates dropped in a majority of country pairs. Most notably, there were substantial negative growth rates between all source countries, except for Latvia. Contrary to this overall trend, the emigration rates from Latvia grew to all destination countries, and emigration rates to the Netherlands grew from a number of sending countries. Increases in migration to the Netherlands most likely occurred because the country was not as affected by the global financial in comparison to other EU-15 countries (Galgóczy and Leschke 2012).

The analysis above attempts to identify the country pairs that were most effected by the statistically significant. The migration patterns discussed portray distinct relationship with the specific phases, and provide initial evidence indicating that migration between these country pairs was influenced by the removal labor

market restrictions in other EU-15 countries. However, further analysis into the migration patterns of these country pairs must be conducted to further corroborate the notions of this study, as well as to uncover why these patterns occurred in only a few country pairs.

6. Limitations:

There are a few reasons why one should be critical of the findings in the study. First, the data used has many missing observations. It was simply difficult to collect complete data, as many countries do not report migration statistics and even if they do it is often inaccurate. This is the broadest problem associated with migration research, and many of studies have cited this problem as a limitation to their research (Guardia and Pichelmann 2006; Kahanec, Zaiceva et al. 2009; Raymer, Beer et al. 2011; Palmer and Pytlikova 2013). In addition, the definition of an immigrant varies across countries making it difficult to make cross-country comparisons. For example, often countries do not distinguish between foreign-born individuals and foreign-citizens or temporary and permanent migrants.

Another problem of particular relevance to this study is that illegal immigration is not accounted for in official statistics (Kahanec and Zimmermann 2008; Kahanec, Zaiceva et al. 2009). This may underestimate migration flows; however, they may have also caused a jump in the data after enlargement. For example, illegal immigrants may have registered in the destination country after they gained legal status. This applies, in particular, to the data used to estimate immigration into Ireland. CEEC-8 nationals may have been registering for PPSNs in 2004, because they were unable to do so prior to enlargement.

It is important to point out that that the aforementioned limitations apply to all studies analyzing international migration, and there is no simple solution to the problems. Most importantly, however, the present study has adequately adapted to the conditions, and largely produced theoretically sound results.

7. Conclusion:

This study was designed to quantify the impacts of the transitional arrangements imposed by EU-15 countries following the 2004 enlargement on intra-EU migration patterns. Founded upon the theories of migration, the model was used to calculate the directional impact of relevant determinants of migration as well as each country's labor market restrictions on emigration flows from the CEEC-8 to the EU-15. Since this study analyzes multiple country pairs it comes closer to understanding the reality of migration in the EU. It addresses a paradigm in which individuals are presented with multiple possible destinations, and calculates how different stimuli impact migration decisions. Finally, these results were used to determine which of the EU-15 transitional arrangements influenced the migration patterns between each country pair. The findings broadly supported theoretical assumptions and contributed to the general understanding of intra-EU migration.

There are a few main points that can be taken from this study. First, it is clear that migration between new and old member states was driven largely by economic incentives and a network effect. Unemployment and GDP per capita ratios, and previous year emigration rates were all influential and significant variables. The model also suggested, however, that the transitional arrangements of certain countries were also important determinants of migration.

Second, these findings expand the existing understanding of migration in the EU by suggesting that each country's transitional arrangements did not have the same impact. Specifically, the estimates show that the removal of labor market restrictions in the UK, Ireland, Sweden, the Netherlands, Belgium, and Denmark were more influential to emigration flows than the removal of those in other EU-15 countries. The study also identified specific country pairs that were most affected by each phase of transitional arrangements. This supported the idea that migration patterns and immigration policies are linked across EU member states.

Third, the impacts of the transitional arrangements seem to depict two general trends. The first three phases of transitional arrangement abolishment have

a positive impact on migration, while the final three have a negative impact. Although the cause of this pattern is unclear, it supports the existing literature arguing that an increase in destination options as more countries removed transitional arrangements caused migration to disperse and consequently lower individual country's immigration rates (Palmer and Pytlikova 2013). All three of these findings help to depict a more complete picture of migration in the EU, and present new assertions that can be investigate further in subsequent studies.

Overall, this study sheds light on a perspective that has been seldom discussed in intra-EU migration research—that migration and the transitional arrangements are interrelated and interdependent across EU member states. By using multiple country pairs, this characteristic has become evident as the labor market restrictions of certain destination countries seemingly impact the migration flows of other Union members. Further inquiry is necessary to understand why particular countries experienced shifts in migration associated with the removal of transitional arrangements in other member states. Nonetheless, in the context of the European Union, a single entity comprising of autonomous states, this finding is particularly important to consider if transitional arrangements will be imposed in future Union enlargements. Policy makers in established member states must be aware that removing these domestic labor market restrictions may also have unintended affects on other countries in the EU.

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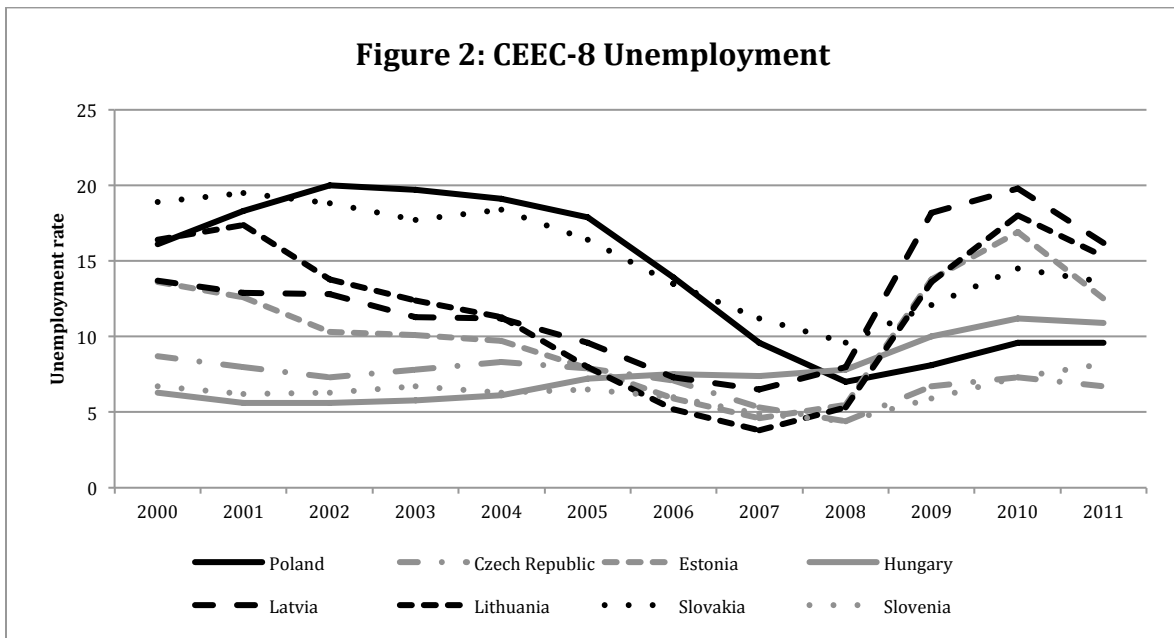
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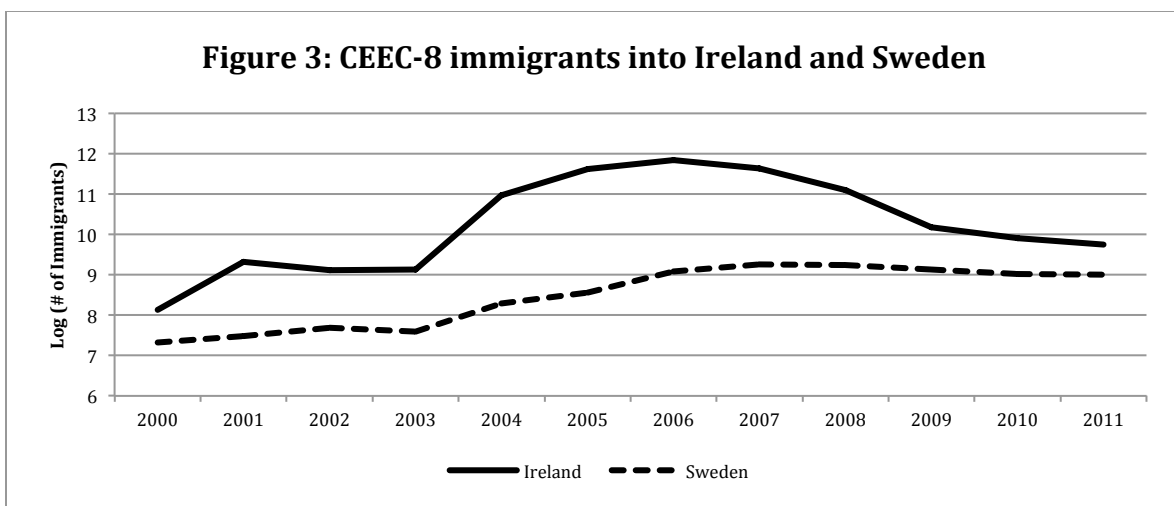
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Appendix:

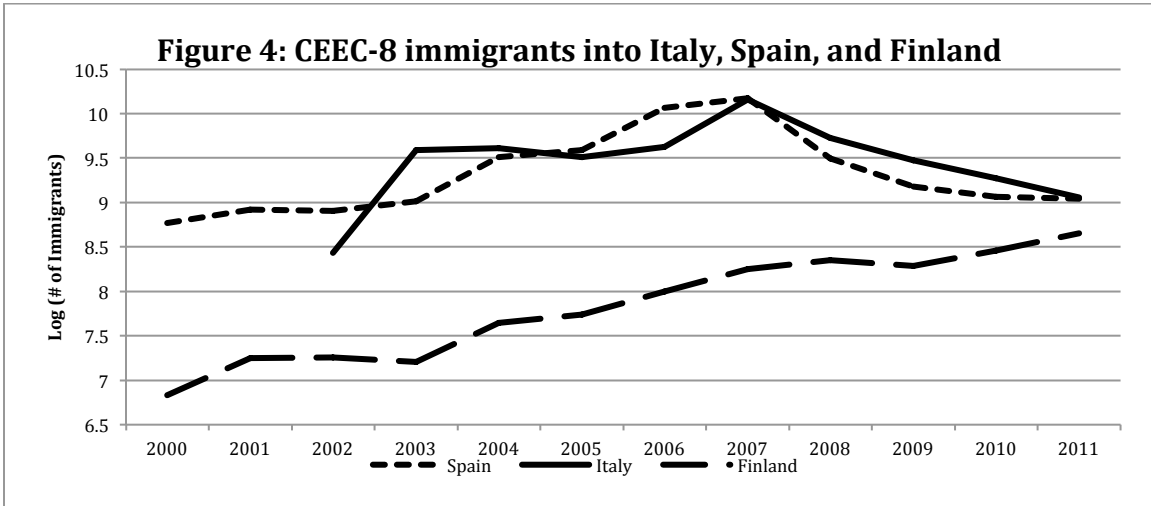
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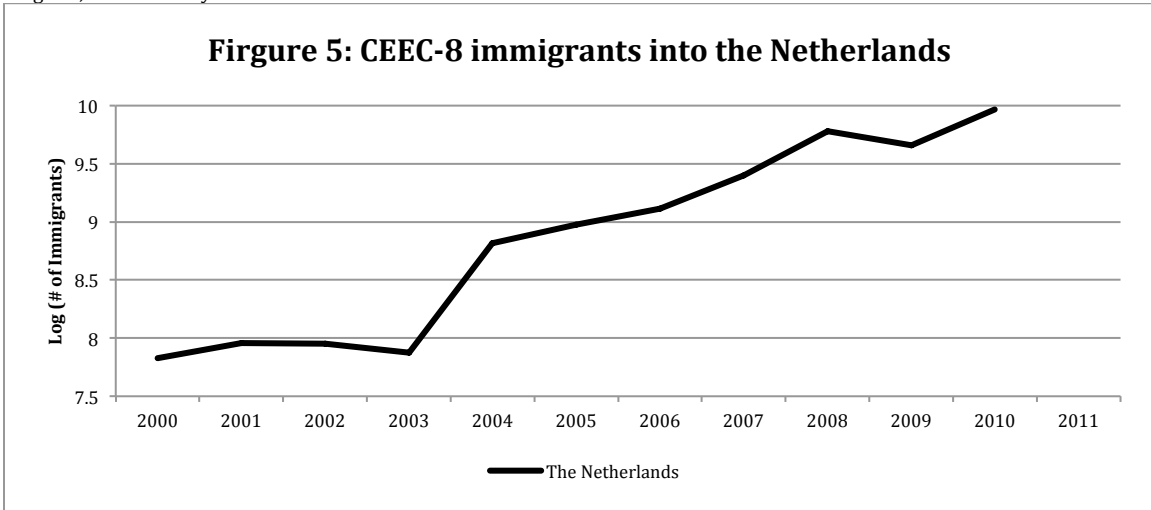
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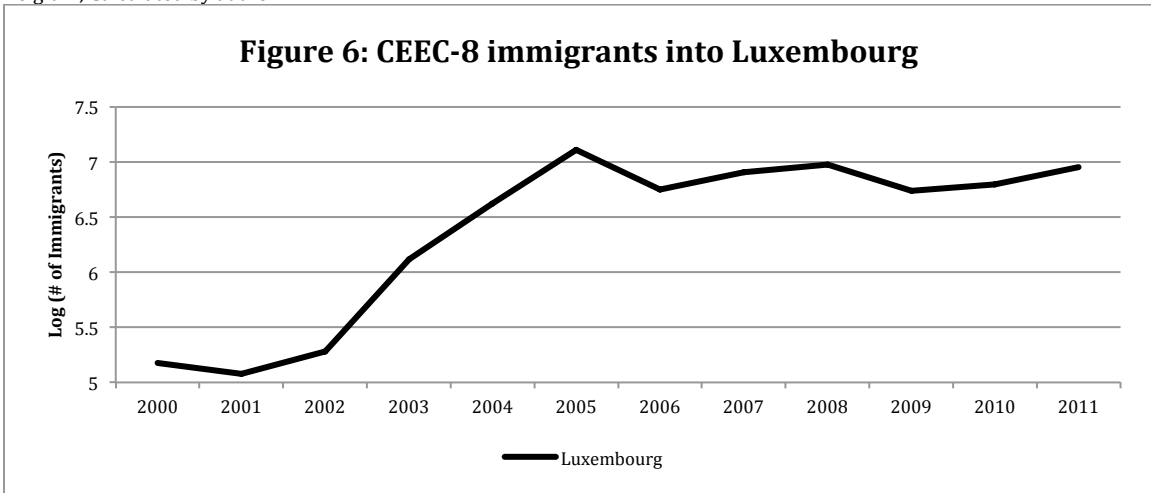
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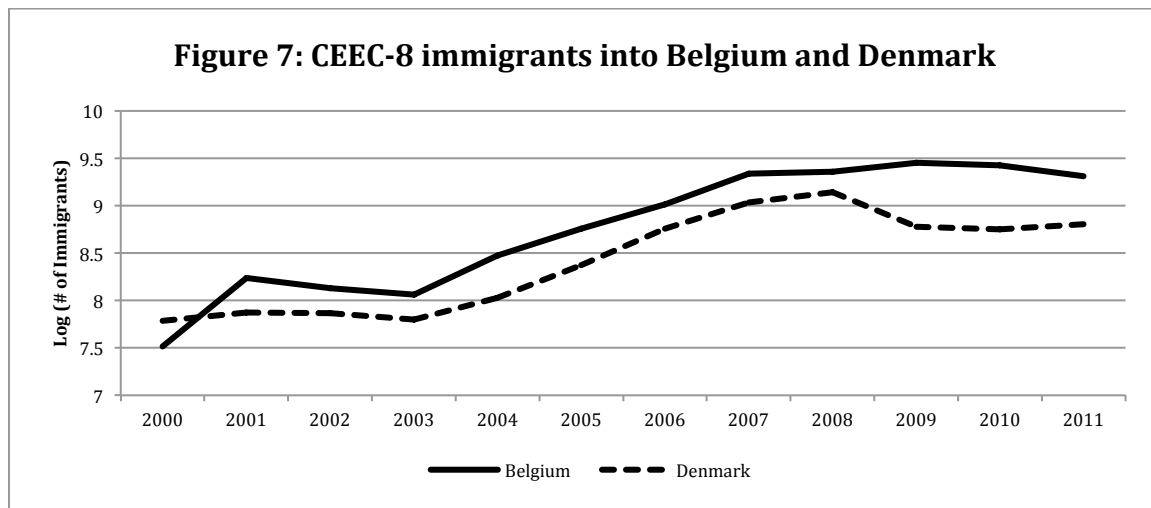
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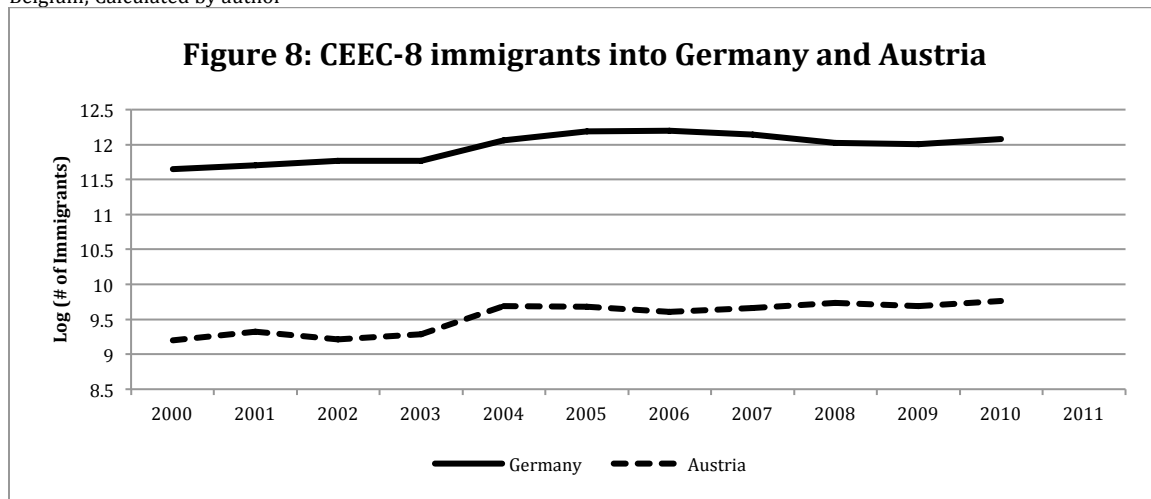
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b. Tables

Table 4: Growth rate in emigration from Poland

	Belgium	Denmark	Germany	Ireland	Spain	France	Italy	Luxembourg	The Netherlands	Austria	Finland	Sweden	UK
2000-2001	158.20%	22.69%	6.43%	296.32%	-4.23%	14.88%		7.14%	9.19%	-1.41%	51.22%	24.65%	312.95%
2001-2002	-17.11%	12.47%	3.19%	17.26%	5.53%	17.66%		61.67%	10.86%	-14.87%	-1.61%	31.64%	-30.03%
2002-2003	-14.05%	4.87%	8.20%	44.51%	19.97%	0.65%	254.85%	39.18%	-3.95%	13.44%	19.67%	-4.51%	168.11%
2003-2004	66.87%	36.00%	41.71%	613.04%	61.76%	-33.95%	4.65%	57.78%	193.07%	108.50%	63.01%	141.69%	368.40%
2004-2005	38.35%	71.65%	18.13%	137.15%	12.75%	-3.44%	-11.64%	52.58%	26.03%	-3.65%	5.04%	39.14%	187.69%
2005-2006	39.00%	79.90%	3.40%	44.89%	86.30%	35.45%	13.54%	-0.31%	19.84%	-15.99%	76.80%	85.58%	21.55%
2006-2007	40.32%	50.30%	-7.77%	-14.90%	9.33%	90.53%	62.00%	11.42%	36.39%	-7.26%	100.45%	18.56%	47.23%
2007-2008	-4.58%	22.82%	-14.91%	-46.69%	-53.90%	-39.39%	-35.53%	35.46%	43.75%	-16.88%	26.86%	-7.38%	-31.52%
2008-2009	10.58%	-47.69%	-6.54%	-67.58%	-41.75%	-99.03%	-25.91%	-25.36%	-16.17%	-12.41%	-42.88%	-25.87%	-42.59%
2009-2010	-5.10%	-15.49%	3.18%	-36.62%	-15.66%	-83.33%	-21.36%	-1.10%	30.07%	9.62%	-22.12%	-14.57%	4.57%
2010-2011	-15.20%	7.01%		-7.49%	-4.12%		-23.74%	15.51%		-100.00%	30.00%	-0.25%	-3.37%

Source: Eurostat, OECD, Department of Social Protection-Ireland, Directorate of General Statistics and Economic Information-Belgium; Calculated by author

Table 5: Growth rate in emigration from the Czech Republic

	Belgium	Denmark	Germany	Ireland	Spain	France	Italy	Luxembourg	The Netherlands	Austria	Finland	Sweden	UK
2000-2001	20.93%	23.08%	-1.45%	122.78%	15.86%	21.95%		-20.00%	10.92%	3.76%	-9.68%	3.90%	
2001-2002	64.10%	3.47%	-6.83%	-19.89%	-15.28%	-1.50%		-29.17%	-17.14%	-15.94%	-28.57%	23.75%	
2002-2003	9.77%	18.12%	-17.48%	-27.36%	29.74%	-17.26%	259.93%	288.24%	-6.90%	4.83%	70.00%	-16.16%	
2003-2004	5.69%	19.32%	5.92%	296.87%	57.58%	-15.95%	-10.93%	36.36%	88.07%	15.38%	-8.82%	6.02%	
2004-2005	19.53%	4.29%	-5.45%	36.60%	8.93%	-37.96%	-37.61%	77.78%	-0.88%	-9.48%	16.13%	28.41%	
2005-2006	-20.85%	4.57%	-8.83%	-1.04%	41.54%	-22.35%	1.10%	-26.88%	3.97%	-6.77%	33.33%	50.44%	
2006-2007	38.08%	9.61%	-13.76%	-13.91%	18.50%	31.82%	62.00%	-11.11%	10.19%	5.32%	20.83%	21.76%	
2007-2008	35.57%	-39.04%	-5.14%	-28.04%	-40.50%	-50.57%	-30.42%	6.73%	27.17%	5.85%	-29.31%	57.00%	
2008-2009	-0.19%	-10.46%	-6.10%	-67.38%	-12.43%	-95.35%	-10.48%	-15.32%	-20.61%	-4.70%	21.95%	-39.08%	
2009-2010	-4.76%	-2.92%	2.35%	-20.98%	-8.54%	-50.00%	-10.63%	-6.38%	33.78%	-7.00%	-10.00%	-17.17%	
2010-2011	-2.40%	24.81%		-12.78%	-4.08%		-13.71%	23.86%			4.44%	15.24%	

Source: Eurostat, OECD, Department of Social Protection-Ireland, Directorate of General Statistics and Economic Information-Belgium; Calculated by author

Table 6: Growth rate in emigration from Estonia

	Belgium	Denmark	Germany	Ireland	Spain	France	Italy	Luxembourg	The Netherlands	Austria	Finland	Sweden	UK
2000-2001	123.08%	-12.08%		304.72%	153.57%			-47.06%	20.51%	41.67%	66.41%	2.65%	
2001-2002	55.17%	-12.02%		-46.04%	39.44%			11.11%	-19.15%	64.71%	6.70%	7.01%	
2002-2003	53.33%	-29.27%	-2.63%	17.93%	-19.19%		96.30%	350.00%	23.68%	53.57%	-5.25%	-4.48%	
2003-2004	23.19%	8.97%	-5.53%	227.47%	73.75%		47.17%	53.33%	168.09%	48.84%	54.17%	45.49%	
2004-2005	-7.06%	8.86%	-7.02%	12.47%	3.60%		-30.13%	92.75%	-18.25%	-31.25%	9.01%	-4.96%	
2005-2006	17.72%	8.14%	-16.50%	-30.03%	45.83%		-2.75%	-53.38%	-26.21%	-2.27%	33.26%	10.18%	
2006-2007	-3.23%	8.06%	16.58%	-53.94%	-10.00%		31.13%	-1.61%	18.42%	18.60%	17.34%	-0.24%	
2007-2008	70.00%	-16.42%	-10.78%	-11.73%	12.70%		-2.16%	16.39%	46.67%	29.41%	4.90%	-7.60%	
2008-2009	-24.18%	-7.74%	35.59%	-25.17%	-6.57%		-19.12%	-52.11%	14.39%	-7.58%	4.54%	43.44%	
2009-2010	-6.03%	24.52%	31.83%	-51.64%	18.59%		12.73%	76.47%	106.62%	40.98%	23.08%	-12.01%	
2010-2011	48.62%	10.88%		-25.12%	5.51%		-26.61%	-8.33%			20.34%	0.61%	

Source: Eurostat, OECD, Department of Social Protection-Ireland, Directorate of General Statistics and Economic Information-Belgium; Calculated by author

Table 7: Growth rate in emigration from Hungary

	Belgium	Denmark	Germany	Ireland	Spain	France	Italy	Luxembourg	The Netherlands	Austria	Finland	Sweden	UK
2000-2001	15.43%	9.33%	6.12%	205.99%	36.59%	22.86%		-6.52%	16.74%	25.79%	-18.75%	14.38%	57.89%
2001-2002	-27.01%	-26.22%	-3.13%	-49.32%	6.43%	-21.71%		-23.26%	-20.22%	-13.13%	-41.35%	32.93%	-58.03%
2002-2003	27.11%	11.57%	-13.66%	-28.57%	15.77%	-6.44%	92.88%	93.94%	-12.67%	7.73%	-24.59%	-28.38%	50.53%
2003-2004	9.51%	35.56%	22.17%	894.05%	73.04%	-18.52%	-11.08%	46.88%	49.08%	10.97%	67.39%	43.40%	104.12%
2004-2005	9.74%	37.70%	6.68%	67.81%	27.14%	-23.38%	-9.47%	96.81%	5.13%	8.49%	0.00%	17.98%	-73.22%
2005-2006	-3.36%	11.11%	0.43%	40.31%	67.33%	-11.86%	12.48%	-28.11%	-3.87%	4.18%	-11.69%	71.75%	
2006-2007	49.38%	63.21%	18.88%	16.54%	61.50%	52.88%	129.85%	8.27%	70.75%	25.93%	197.06%	67.97%	
2007-2008	32.72%	-8.10%	13.42%	-9.59%	-32.13%	-35.85%	-18.81%	-12.50%	76.51%	15.65%	60.89%	31.19%	
2008-2009	6.38%	2.62%	0.47%	-60.68%	-27.23%	-96.08%	-7.87%	-6.35%	11.97%	11.22%	-44.00%	-12.28%	
2009-2010	-1.76%	2.32%	15.89%	-11.71%	-9.67%	0.00%	-12.62%	16.95%	24.55%	12.60%	-6.04%	-13.77%	
2010-2011	-2.51%	1.81%		-1.77%	22.51%		-5.43%	28.26%			61.99%	-8.31%	

Source: Eurostat, OECD, Department of Social Protection-Ireland, Directorate of General Statistics and Economic Information-Belgium; Calculated by author

Table 8: Growth rate in emigration from Latvia

	Belgium	Denmark	Germany	Ireland	Spain	France	Italy	Luxembourg	The Netherlands	Austria	Finland	Sweden	UK
2000-2001	78.13%	-3.26%		189.01%	159.49%	3.57%			28.21%	20.24%	77.14%	4.67%	
2001-2002	-12.28%	-6.29%		-49.12%	0.98%	24.14%		150.00%	64.00%	4.95%	-38.71%	2.55%	
2002-2003	42.00%	-19.18%	-6.24%	-20.03%	24.64%	22.22%	67.80%	440.00%	-31.71%	26.42%	21.05%	-5.59%	
2003-2004	19.72%	2.08%	26.17%	409.43%	11.24%	-31.82%	-13.13%	237.04%	150.00%	39.55%	65.22%	35.53%	
2004-2005	0.00%	22.09%	6.87%	48.87%	16.03%	-33.33%	32.56%	6.59%	10.71%	28.34%	13.16%	12.62%	
2005-2006	14.12%	14.05%	-17.27%	-14.73%	24.92%	-30.00%	11.84%	-57.73%	-18.06%	-8.33%	-33.72%	54.74%	
2006-2007	43.30%	5.43%	-15.10%	-41.24%	16.11%	100.00%	23.53%	92.68%	18.11%	-12.73%	57.89%	-7.24%	
2007-2008	17.27%	-10.69%	18.94%	-20.26%	-9.52%	-57.14%	-15.56%	-32.91%	63.33%	-2.08%	1.11%	21.32%	
2008-2009	55.21%	65.63%	136.98%	5.07%	67.96%	-91.67%	10.15%	-5.66%	106.53%	19.15%	41.76%	129.70%	
2009-2010	-9.49%	16.60%	52.88%	-19.97%	-23.02%	100.00%	12.63%	28.00%	100.79%	23.21%	44.19%	-17.35%	
2010-2011	10.04%	-6.54%		-29.96%	6.19%		-2.73%	32.81%			17.74%	3.65%	

Source: Eurostat, OECD, Department of Social Protection-Ireland, Directorate of General Statistics and Economic Information-Belgium; Calculated by author

Table 9: Growth rate in emigration from Lithuania

	Belgium	Denmark	Germany	Ireland	Spain	France	Italy	Luxembourg	The Netherlands	Austria	Finland	Sweden	UK
2000-2001	60.78%	11.24%		326.01%	60.67%	-9.52%		-12.50%	63.86%	20.24%	95.00%	45.89%	
2001-2002	46.34%	-3.97%		1.72%	-13.59%	10.53%		42.86%	13.97%	4.95%	58.97%	21.60%	
2002-2003	8.33%	-15.66%	-16.67%	-14.49%	-11.50%	6.35%	233.87%	210.00%	3.87%	26.42%	-46.77%	-11.20%	
2003-2004	43.08%	34.32%	47.85%	438.76%	72.64%	52.24%	4.83%	90.32%	184.47%	39.55%	133.33%	90.43%	
2004-2005	3.23%	20.35%	12.88%	46.03%	-5.03%	-17.65%	19.82%	98.31%	-17.47%	28.34%	-5.19%	58.68%	
2005-2006	0.00%	25.83%	-8.19%	-14.31%	-0.76%	-16.67%	5.77%	-47.86%	-23.81%	-8.33%	16.44%	28.78%	
2006-2007	16.15%	-12.49%	-17.79%	-33.11%	-3.42%	-27.14%	73.27%	39.34%	23.26%	-12.73%	-4.71%	2.57%	
2007-2008	46.19%	-7.10%	-15.26%	-39.94%	-50.42%	-47.06%	-24.45%	4.71%	38.31%	-2.08%	16.05%	-0.33%	
2008-2009	-4.29%	17.16%	34.58%	-41.52%	16.53%	-81.48%	-15.14%	-25.84%	14.87%	19.15%	-29.79%	32.68%	
2009-2010	-20.51%	14.95%	32.00%	15.53%	0.00%	-80.00%	-13.42%	-7.58%	92.73%	23.21%	116.67%	12.85%	
2010-2011	41.53%	5.14%		-18.33%	-23.19%		-6.99%	32.79%			-15.38%	-1.53%	

Source: Eurostat, OECD, Department of Social Protection-Ireland, Directorate of General Statistics and Economic Information-Belgium; Calculated by author

Table 10: Growth rate in emigration from Slovakia

	Belgium	Denmark	Germany	Ireland	Spain	France	Italy	Luxembourg	The Netherlands	Austria	Finland	Sweden	UK
2000-2001	17.65%	18.52%	5.27%	195.50%	8.33%	26.09%		-33.33%	15.70%	30.23%	21.43%	-21.31%	
2001-2002	43.33%	10.94%	1.62%	-23.17%	6.41%	-13.22%		75.00%	-22.50%	2.39%	-17.65%	41.67%	
2002-2003	-11.05%	8.45%	-8.30%	-1.59%	10.12%	-0.66%	121.76%	221.43%	-24.42%	3.44%	0.00%	-30.88%	
2003-2004	35.29%	-5.19%	9.76%	1991.53%	104.16%	-22.00%	-10.68%	93.33%	176.83%	34.63%	-14.29%	123.40%	
2004-2005	62.32%	68.49%	1.49%	78.48%	-8.15%	-22.22%	17.11%	22.99%	10.79%	1.45%	241.67%	-7.62%	
2005-2006	8.63%	12.20%	-3.44%	15.44%	63.36%	3.30%	17.81%	-29.91%	28.43%	-2.15%	-53.66%	54.64%	
2006-2007	33.15%	110.87%	-16.62%	-21.63%	7.29%	26.60%	157.26%	38.67%	4.64%	3.91%	131.58%	15.33%	
2007-2008	12.96%	9.97%	-7.95%	-40.37%	-48.00%	-36.13%	-50.08%	-21.15%	47.34%	35.85%	61.36%	20.23%	
2008-2009	9.11%	-42.50%	-2.86%	-64.28%	-30.60%	-89.47%	-15.70%	-21.95%	-32.43%	-18.58%	-43.66%	7.69%	
2009-2010	53.92%	3.26%	1.07%	-27.80%	-2.21%	-75.00%	-16.67%	23.44%	60.33%	1.89%	-52.50%	4.46%	
2010-2011	-1.84%	22.63%		-21.43%	8.87%		-18.44%	-21.52%			94.74%	-33.76%	

Source: Eurostat, OECD, Department of Social Protection-Ireland, Directorate of General Statistics and Economic Information-Belgium; Calculated by author

Table 11: Growth rate in emigration from Slovenia

	Belgium	Denmark	Germany	Ireland	Spain	France	Italy	Luxembourg	The Netherlands	Austria	Finland	Sweden	UK
2000-2001	-28.26%	16.67%	40.10%	-66.67%	-16.36%	123.53%		-12.50%	25.00%	16.29%		90.91%	
2001-2002	21.21%	38.10%	-12.17%	100.00%	28.26%	-31.58%		57.14%	12.00%	-22.48%		-42.86%	
2002-2003	10.00%	-3.45%	-10.77%	250.00%	55.93%	-26.92%	67.79%	281.82%	-12.50%	-10.08%	-2.3799	33.33%	
2003-2004	34.09%	7.14%	16.90%	814.29%	65.22%	-5.26%	-11.60%	11.90%	32.65%	38.79%	-0.5513	112.50%	
2004-2005	42.37%	66.67%	-37.23%	18.75%	4.61%	-61.11%	50.68%	112.77%	26.15%	-8.08%	-4.8462	5.88%	
2005-2006	11.90%	4.00%	-22.10%	32.89%	25.16%	0.00%	-1.80%	-57.00%	30.49%	13.37%	-1.2083	38.89%	
2006-2007	-12.77%	36.54%	3.45%	-37.62%	30.65%	85.71%	10.70%	37.21%	6.54%	18.42%	-2.6545	26.00%	
2007-2008	81.71%	-9.86%	1.50%	38.10%	-23.08%	-46.15%	-13.26%	-16.95%	42.98%	1.09%	0.37748	17.46%	
2008-2009	29.53%	-25.00%	1.97%	-54.02%	-28.00%		-35.35%	6.12%	-12.27%	0.94%	-0.9407	-18.92%	
2009-2010	-9.84%	-8.33%	28.10%	-7.50%	-0.69%		-5.91%	-11.54%	30.77%	11.36%	-0.1344	-20.00%	
2010-2011	-17.24%	4.55%		13.51%	29.37%		0.52%	32.61%			11.0292	41.67%	

Source: Eurostat, OECD, Department of Social Protection-Ireland, Directorate of General Statistics and Economic Information-Belgium; Calculated by author