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Abstract

In this paper we look at migration flows from 10 Central and Eastern European Countries (CEEC) to 5 Nordic countries over the years 1985 – 2007. We exploit a natural experiment that arose from the fact that while Sweden opened its labour market from the day one of the 2004 EU enlargement, and Finland and Iceland from year 2006, the other Nordic countries chose a transition period in relation to the “new” EU members. The results based on a differences-in-differences estimator show that the estimated effect of the opening of the Swedish, Finnish and Icelandic labour markets on migration from the CEECs that entered the EU in 2004 is not significantly different from zero. However, the effect of the opening of the Swedish and Finnish labour markets in 2007 on migration from the 2007 EU entrants, Bulgaria and Romania, is significantly positive. Further, we are interested in the overall effect of the “EU entry” on migration. Therefore we look at migration flows from CEECs during the first round of EU enlargement towards the East in 2004 and compare them with migration flows from Bulgaria and Romania. The estimated effect from our D-in-D analyses is positive and significant in all model specifications.

Keywords: International migration, EU enlargement.

JEL-code: J61, F22, O15

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1. Introduction

Recently, the European Union (EU) went through two significant enlargements, giving the EU a total of 27 member states. The most widely discussed issue in connection with the enlargements was the right to free labour mobility for people within the EU, and potential migration from the new to the “old” EU member states. Fearing large migration flows, the majority of the old EU member states used their rights to restrict migration from the new member by imposing transitional rules regarding the free movement of labour from these countries.

In this paper, we focus on migration from the new EU member states to 5 Nordic countries. Those 5 countries share many characteristics regarding their labour market structures and the prominent role of the public sector in the economy and all had low or fairly low unemployment in both the first and the second round of new member states entering the EU. Nevertheless, they reacted very differently regarding opening their labour markets to workers from the new EU member states¹. Sweden opened its labour market from day One of the 2004 EU enlargement while the other Nordic countries decided to introduce restrictions on entry to their employment and welfare systems relative to the new EU entrants. In 2006, Finland and Iceland followed Sweden in this respect and ended their restrictions.. Denmark and Norway remained the only Nordic countries to keep restrictions in relation to workers from the new member states². Given the record low unemployment rates in both countries and the shortage especially of skilled qualified labour the decision to keep restrictions has been purely political³. The entrance of Bulgaria and Romania to the EU in 2007 and migration from those two countries has been less discussed. Out of the 5 Nordic countries only Sweden and Finland have opened their labour markets fully to the newcomers, the rest keeps restrictive transition rules.

There is fairly rich empirical evidence with a focus on identifying migration determinants and on forecasting the possible emigration pressure from CEECs. There are, however, several problematic

¹ Two of these countries, Iceland and Norway, are not members of the EU, but members of the European Economic Area (EEA), where the EU rules on free movement of labour apply as well.

² However, both countries have softened the restrictions in 2008; see the chapter 3 for more details on immigration policies in Nordic countries. Besides Denmark only 3 other “old” EU countries keep restrictions on their labour markets till now: Austria, Belgium and Germany.

³ For example, in the case of Denmark the sometimes unfriendly debate expressing a critical attitude towards immigration of workers from (CEECs) can be illustrated by a recent advertisement campaign sponsored by 3F, the largest Danish trade union, with the text: “Eastern European workers come by themselves, but your collective agreement does not” (“Østarbejderne kommer af sig selv- det gør din overenskomst ikke”, United Federation of Danish unskilled Workers, 3F). Next to the text, there is a picture of a baby with a dramatic moustache. The trade union mostly organizes unskilled workers, i.e. the group that are most afraid of the competition of workers from those countries

issues connected to those studies and the estimates they present. Due to data limitations, the majority of the econometric analyses have relied on out-of-sample historical data on migration⁴ and/or past enlargement experience, and presented estimates that were further extrapolated to predict East-West migration, e.g. Bauer and Zimmermann, (1999), Boeri and Brücker (2001), Fertig (2001), Sinn et al. (2001), Alvarez-Plata et al. (2003), Zaiceva (2004). Consequently, the coefficients to the determinants of migration and forecasts based on such (double) out-of-sample estimates might be seriously biased and do not clearly remove the uncertainty connected with the expected migration flows from the countries in focus here. For a more detailed discussion of the problems assessing the migration potential, see Dustmann et al. (2003) and Fertig and Schmidt (2000). The recent study by Pytlikova (2006) analyses East-West migration potential based on the actual Central and Eastern European migration behaviour during the years 1989 to 2000. This helps avoiding the problems related to out-of-sample forecasts and the assumption of invariance of migration behavior across a space. Nevertheless, due to lack of data for the recent years Pytlikova (2006) sticks to the strong assumption that the migration behavior will not change with the openings of the EEA/EU-13 labor markets.

In this paper, we try to get rid of the last assumption and estimate the labour markets “opening” effect. We exploit the natural experiment that arose from the fact that some Nordic countries have opened up their labour markets, while other chose a transition period in relation to the “new” EU member states, which was an option as part of the enlargement agreement. This gives us a unique possibility to include the eventual “opening” effect into the regressions explaining the migration flows. The results using a differences-in-differences estimator show that the estimated effect on migration of the opening of Swedish, Finish and Icelandic labour markets in the first round of EU enlargement towards the East is not insignificantly different from zero. However, the results regarding the opening towards the 2007 EU entrants are different. Our regressions show that the estimated effect from opening of the Swedish and the Finish labour markets towards Bulgaria and Romania is positive and significantly so in some gross flow model specifications.

Further, we are interested in the overall effect of the “EU entry” on migration. Therefore we look at migration flows from CEECs during the first round of EU enlargement in 2004 and compare them with migration flows from Bulgaria and Romania. The estimated effect from our D-in-D analyses is positive and significant in all model specifications.

⁴ I.e. migration waves from other countries than the CEECs.

The rest of the paper is organized as follows. Section 2 gives a brief overview of migration theory and existing literature. Section 3 gives an overview of Nordic labour markets and immigration policies towards immigrants coming from the CEECs. Section 4 describes the data and the development of migration flows and stocks from the CEE countries in particular to the Nordic destination countries. In section 5, we present our difference-in differences econometric analyses and we discuss the results. Finally, Section 6 concludes.

2. Literature

There is relatively rich empirical evidence with focus on identifying migration determinants and on forecasting the possible emigration pressure from the CEECs. As regards the forecasts of migration potential, there are, in general, two different approaches in the literature: surveys and econometric analyses. Surveys give estimates of CEEC migration potential ranging from 6 to 30% of the populations, see e.g. Wallace (1998), Fassmann and Hintermann (1997). The usual critique of this types of surveys is that the numbers are overestimated because only a minority of those who express an interest in migration actually migrates; see Fassmann and Hintermann (1997). Econometric analyses constitute the richest source of studies on this issue and their forecasts of the CEEC migration potential vary due to different modelling frameworks, estimation techniques or/and data samples. But the majority of existing studies forecast a long-run migration potential at around 3-5% of the source countries population. Taking into account out- and return migration, the net migration potential is usually estimated around 2% of source countries population, see Pytlikova (2006), and further e.g. Dustmann et al. (2003) or Alvarez-Plata et al. (2003) for a more detailed literature review.

There are, however, several problematic issues in those studies and the estimates they present. Due to data limitations, the majority of the econometric analyses have relied on out-of-sample historical data on migration⁵ and/or past EU enlargement experience. The estimates were then extrapolated to predict East-West migration, e.g. Bauer and Zimmermann, (1999), Boeri and Brücker (2001), Fertig (2001), Sinn et al. (2001), Alvarez-Plata et al. (2003), Zaiceva (2004). Thus, those studies assume the same migration behaviour across the different countries, i.e. that migration decisions in the Central and Eastern European countries will respond to the same factors and in the same way as migration decisions in other source countries, e.g. Southern Europe or non-European countries like India and Pakistan with a very different economic and cultural background. Next, the studies

⁵ I.e. migration waves from other countries than the CEECs.

assume invariance across time, i.e. that future migrations react to changes in economic factors in the same way as past migrations. Some studies try at least partly, to avoid the problems, by controlling for unobservable country-specific effects. But the country-specific effects can for obvious reasons not be used in out-of-sample predictions. Some studies therefore try to model the differences in country-specific effects by time-constant factors that are characteristic for those countries or pairs of countries⁶, see e.g. Fertig (2001), Dustman et al. (2003). Nevertheless, these variables can reveal a part of the unexplained variation between the countries or pairs of countries, but cannot get rid of it completely. Therefore they still suffer from an omitted variable bias. Consequently, the forecasts based on such (double) out-of-sample estimates might be seriously biased. As a consequence they do not resolve the uncertainty connected with the expected migration flows from those countries that are in focus here.

In this paper we try to reduce the problems discussed above by expanding the existing international migration dataset creating a consistent time-series for the years 1985-2007⁷. Based on this, we are able to analyze both the effects of the falling down of the iron curtain and the recent 2004 and 2007 enlargements of the EU on migration. We focus on Nordic destination countries because of (almost) perfect data availability⁸ and the possibility of exploiting the natural experiment that happened during the 2004 EU enlargement: Sweden opened its labour market, others chose restrictions, see the discussion above.

3. Destination countries – labour markets and immigration policies

The destination countries for the migration flows we are looking at here are the five countries, consisting of the Scandinavian countries, Denmark, Norway and Sweden, and Finland and Iceland. The migration flows from the CEECs are job related, so it should be noticed that the Nordic labour markets differ from the European average in a number of ways. Participation rates for married women are high, the public sector is a big employer, unionization is well above the European average and so is the coverage with collective agreements. The wage structure is fairly compressed,

⁶ Fertig (2001) followed by Boeri and Brücker (2001), Alvarez-Plata et al. (2003) and Zaiceva (2004) estimates a fixed effects model in a two-step procedure, where the unobservable country-specific effects are regressed on distance, language and a development index (or other time-constant variables, e.g. travelling time, neighbouring country etc. in other studies). Nevertheless, the authors are able to explain only 40-50% of country-specific effects.

⁷ See Pedersen et al. (2008) regarding the existing international migration data base.

⁸ The Nordic countries have very good register data making it possible to create (almost) perfect panels of data with only few observations missing. Obviously, there are however limited data available for Estonia, Latvia, Lithuania and Slovenia for the years prior to 1992.

with relatively high minimum wages, and a social security system with more emphasis on universal rights and less emphasis on earnings history, compared with most other European countries.

As mentioned in the introduction, Sweden was the only Nordic country giving entry to the labour market for citizens from the CEECs on the same conditions as other EU/EEA citizens. In Denmark, citizens from the CEECs are free to enter for setting up a self-employment business, while entry to take a job is based on acceptance of an application for a residence and work permission. This is given if the person enters a full time job on conditions that are usual or conventional for the Danish labour market⁹. Workers could not start working until they obtain the permits, which could take a relatively long time¹⁰. Work permits are normally granted for a maximum of one year at a time, with a possibility for extension up to a maximum of three years at a time, although the one year rule usually applied. Once the person changes her job, she must apply for the permits again. Once she loses her job, she automatically loses her working and residence permits. Workers from CEEC must be able to provide for themselves while searching for a job as they do not have any access to the Danish welfare system. The same system has in principle been applied during the whole period since entry of the CEECs to the EU and the restrictions apply to Bulgaria and Romania as well; however as from May 2008 the restrictions were partly lifted¹¹. In Finland, CEECs citizens are able to get a job without a work permit only if the employment office decides there is no-one available to fill the position from within the local labour market. If there is no shortage, then a work permit application is necessary. The transition period restrictions were ended in May 2006 and Finland did not impose any restrictions on workers from Bulgaria and Romania. Iceland has followed the same course as Finland and given up the transition period restrictions for the 2004 EU entrants in May 2006, but imposed transition for Bulgaria and Romania. Finally, Norway has in principle the same system as in Denmark, where firms or individuals can apply for a residence and work permit for entry into full time jobs on usual conditions relative to the Norwegian labour market. Similarly as in

⁹ People applying for a part-time job are treated in the same way as people coming from outside the EU.

¹⁰ The official processing time was 2-3 months, but in practice it took much longer (Source: Confederation of Danish Industries). However as a consequence of frequent complaints the Danish Immigration Office announced shorter processing time and as from May 2008, the processing of working permit should not take more than 25 days.

¹¹ The restrictions were partly lifted from May 2008 and since then people from CEEC having a job covered by collective agreements have the same rights as citizens from the old EU15 countries. They do not need a residence and working permit, only the so called registration certificate. However, the previous rules are still valid for jobs that are not covered by collective agreement. . In order to allow employers to recruit workers fast from CEECs, the law has been changed and workers from CEECs do not have to wait until they get a working and residence permit, but can start working on the day, when an employer gets the so called "prior approval" to employ citizens from those countries.

Denmark also in Norway the restrictions were somewhat lifted as from January 2008¹². All remaining restrictions end by May 2009.

Next, we go on to look at the actual development in the migration flows from 8 of the new EU member countries from 1985 to 2007, i.e. including the last half decade before the fall of the communist regime. Under this regime, migration from the CEECs was tightly restricted and most of those who emigrated did so as political refugees. With the fall of the Iron Curtain in 1989, this situation changed and Central and Eastern Europeans became relatively free to migrate to other countries.¹³ Many indeed have chosen to experience the newly acquired freedom of movement in order to improve their economic conditions or simply to experience living and working in another country without a fear of not being able to return and not to see relatives in their home countries again. The magnitude of this change is illustrated in the graphs below.

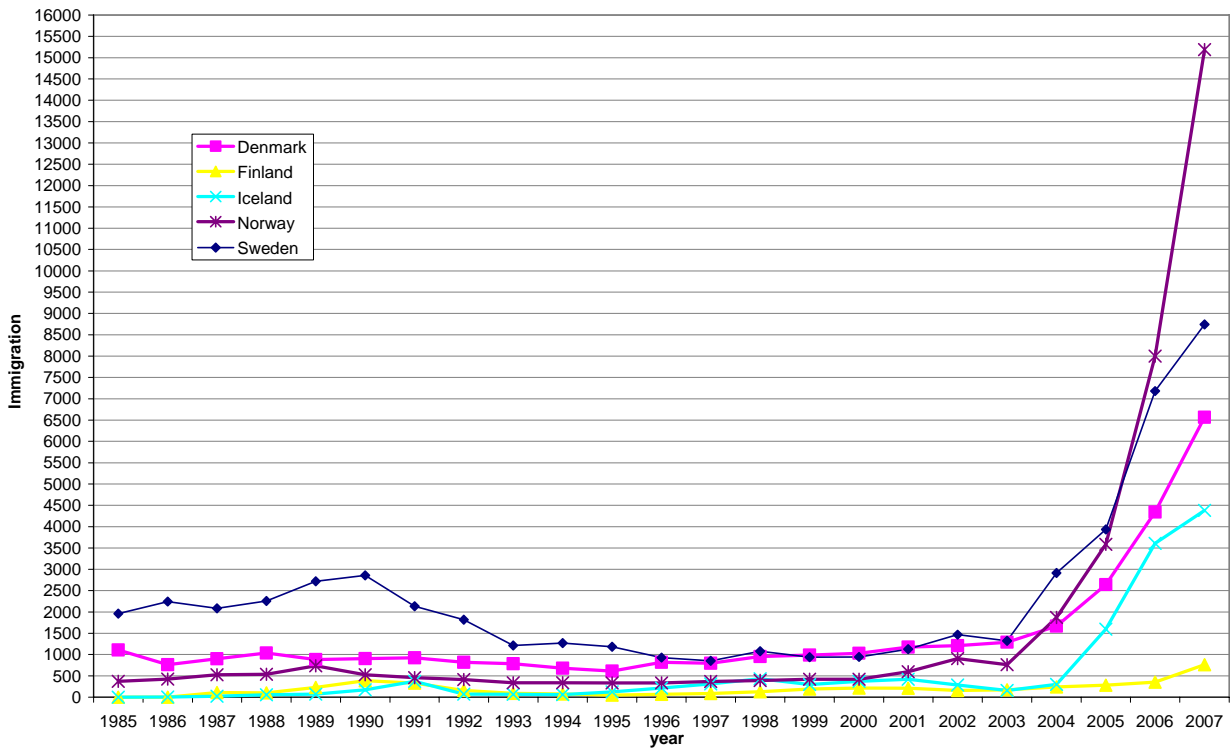
Development in migration flows and stocks from the CEECs

In Figure 1 we show the annual flow of migrants from five of the CEECs to the five Nordic countries since 1985. The fairly high level to Sweden prior to 1990 most probably consists of refugees. We observe that after a relatively stable development in the flows from CEECs during the 1990s there is a large increase in the inflows to all Nordic destination countries associated with the 2004 EU enlargement. The EU entry appears in the Swedish profile as a 4-fold increase in the annual number of entrants from 2004 to 2007 in comparison with the average annual flows prior the enlargement. Similarly in Denmark and Finland, there are almost 4- and 3- fold increases in immigration from those five countries of origin, respectively, while the increase is extremely fast and big for Iceland and Norway, also considering the small native population of Iceland. The flows are 13 and 15 times higher than the average flows from the previous years for Iceland and Norway, respectively.

¹² The procedure was simplified in the sense that migrant workers from CEECs can take up employment already while waiting for their work and residence permits to be issued.

¹³ Although “degrees of freedom” and “timings of freedom” were different across those countries.

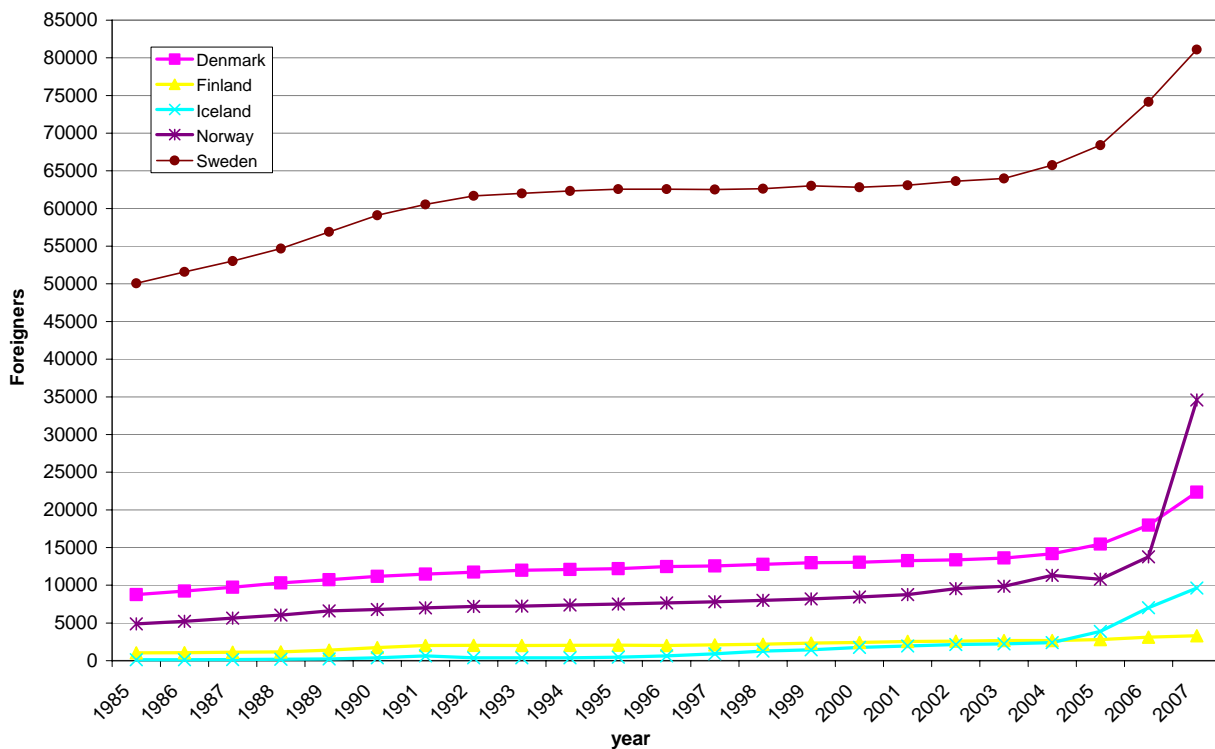
Figure 1: Immigration flows from Hungary, Poland, Slovenia and Czech and Slovak Republics to 5 Nordic countries. 1985-2007.



Source: National statistical offices; Own calculations. Note that numbers of immigrants from Slovenia are as from 1992 from.

For the same five source countries, Figure 2 shows the stock of people living in each of the Nordic countries. The development in the stocks reflects the accumulated net immigration flows. The increase in the population from the CEEC source countries is largest in Iceland and Norway, with respectively a 9- and a 4-fold increase when the post-enlargement average is compared with the pre-enlargement average for the years 1985 - 2003. Denmark and Finland have about a 1,6-fold increase in the CEEC stocks, while Sweden has a 1,3-fold increase, the lowest relative increase in the CEEC stocks among the Nordic countries, reflecting however that the stock in Sweden was much higher than in the other countries in the years prior to the enlargement. A simple comparison of the development in the CEEC flows and stocks suggest that return migration plays a significant role in migration from the five CEEC countries.

Figure 2: Foreign population from Hungary, Poland, Slovenia and Czech and Slovak Republics living in 5 Nordic countries. 1985-2007.



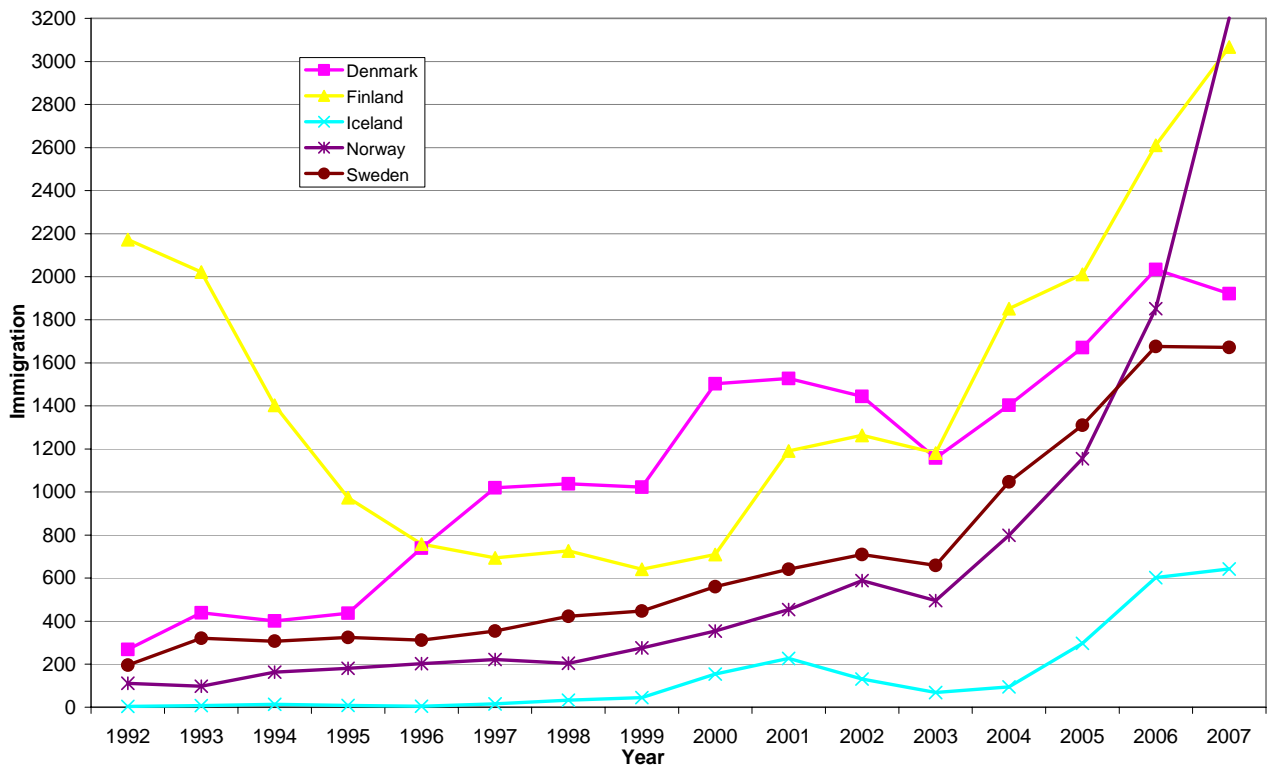
Source: National statistical offices; Own calculations. Note that numbers of immigrants from Slovenia are as from 1992 from.

Figure 3 shows the annual flows from the Baltic countries into the five Nordic countries¹⁴. Here Finland stands out, presumably due to geographical, and historical proximity and a language close to Estonian¹⁵. The flows of immigrants from Estonia and the other Baltic countries to Finland is increasing at a higher speed in the beginning of the 1990s, then it remains relatively stable and finally it increases strongly again in the most recent years. The increase in flows prior to and after the EU enlargement is observed in all Nordic destination countries. One interesting point observed from the development in migration flows in both Figures 1 and 3 is that migration flows declined slightly during 2003, the year prior to the EU enlargement. It seems as if potential emigrants from CEEC were waiting with their move until the moment of the EU enlargement.

¹⁴ Numbers for years prior 1991/1992 obviously do not exist. Further as regards the first half of the 1990s, it might be the case that some people were registered in the category “former USSR” and therefore the numbers in the graph might be underestimated for those years.

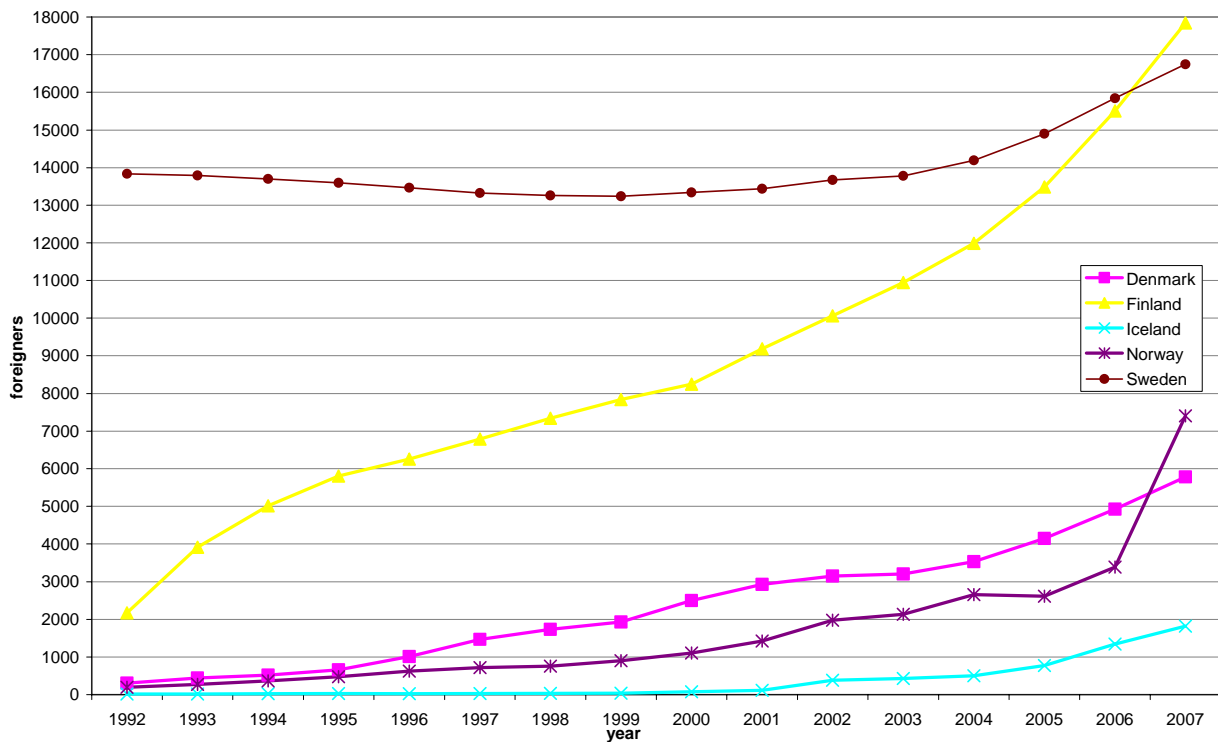
¹⁵ Estonian and Finnish belong to the same family of languages.

Figure 3: Immigration flows from Estonia, Latvia and Lithuania to 5 Nordic countries. 1992-2007.



Source: National statistical offices; Own calculations.

Figure 4: Foreign population from Estonia, Latvia and Lithuania living in 5 Nordic countries. 1992-2007.

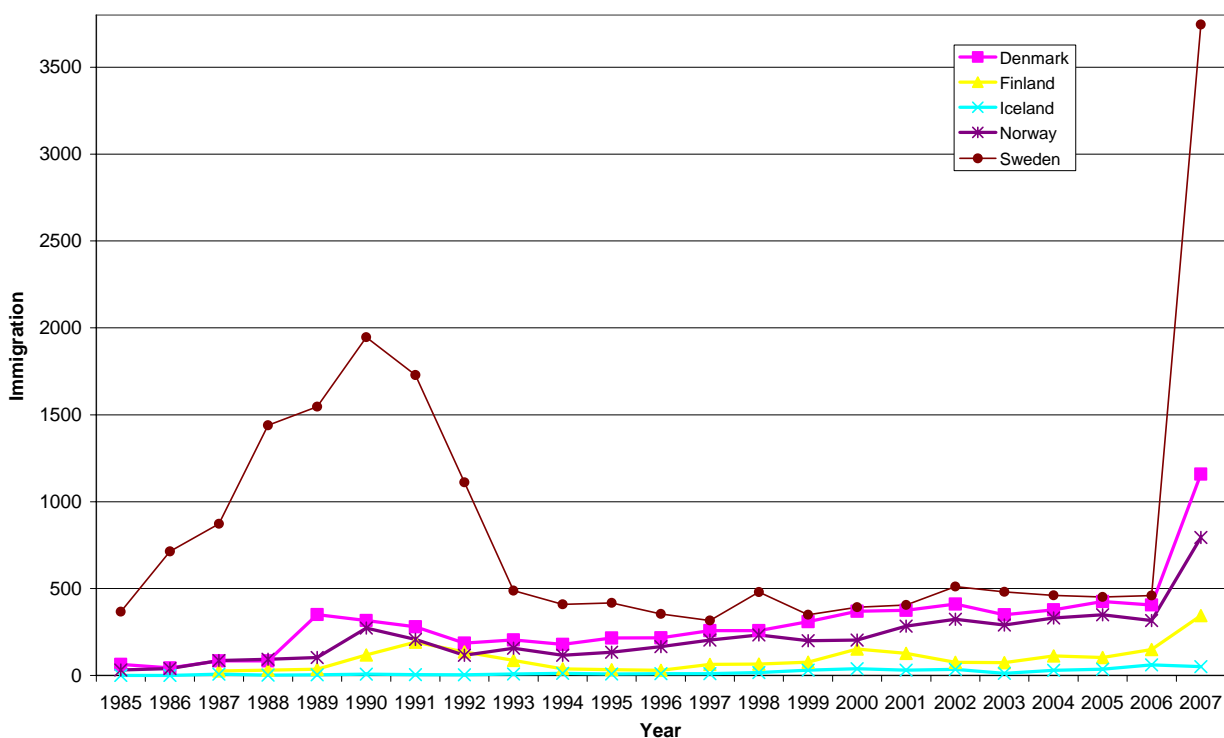


Source: National statistical offices; Own calculations.

The development in migration flows is reflected in the development in the stock of immigrants, see Figure 4. There is a visible increase in both migration flows and stocks from the 3 source countries after the 2004 enlargement in all Nordic destination countries, and especially in Finland and Norway. Finally, the development in migration stocks reflects also different return migration patterns over time.

Finally, Figures 5 and 6 show the development in migration flows and stocks from the 2007 entrants, Bulgaria and Romania, to the Nordic countries.

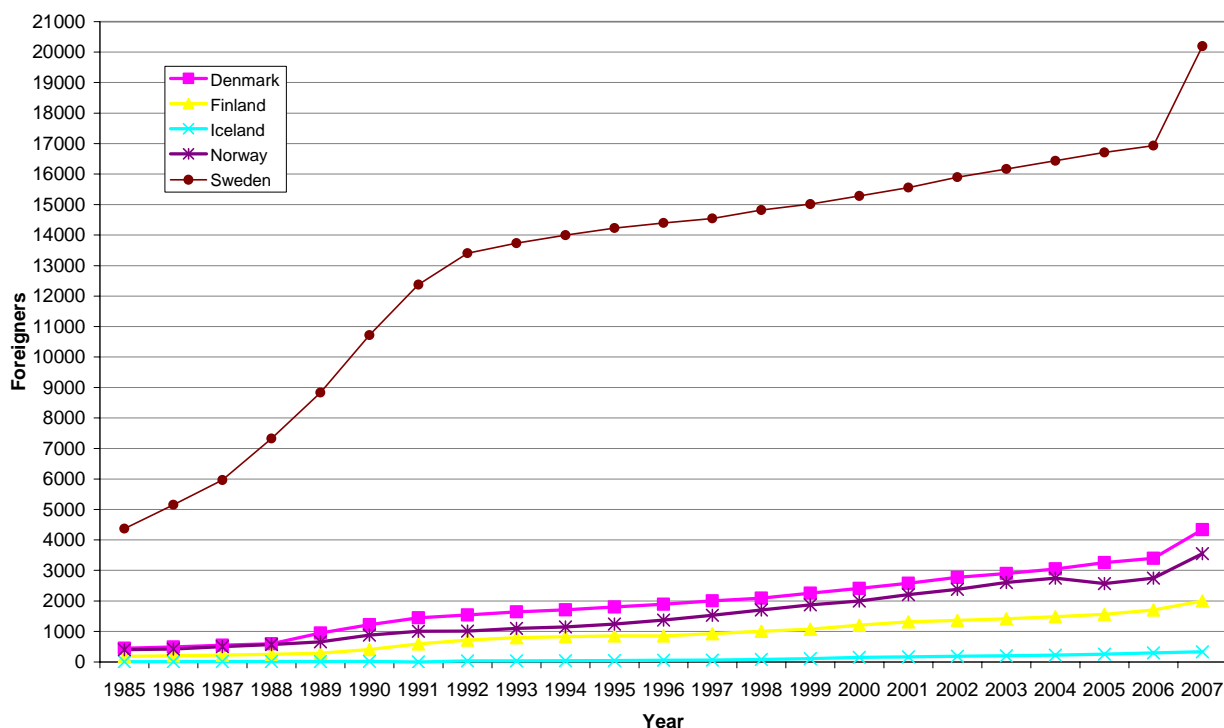
Figure 5: Immigration flows from Bulgaria and Romania to 5 Nordic countries. 1985-2007.



Source: National statistical offices; Own calculations.

We can observe increased migration flows prior to and after the “revolutionary” year 1989, which reflects flows of refugees and an “acquired freedom of movement”, respectively. Further, the migration flows are fluctuating around a fairly low level in all Nordic countries during the second half of the 1990s and in the 2000s, but they are increasing steeply in 2007 in all Nordic countries except Iceland, reflecting the 2007 EU enlargement. These patterns are especially significant for Sweden, which can be observed also in the development in the stock of people from the two countries, see figure 6. The stocks of immigrants from Bulgaria and Romania are increasing over time reflecting rather low return migration tendencies. The increase in 2007 reflects the large increase in migration flows from these two countries at the time of entry into the EU.

Figure 6: Foreign population from Bulgaria and Romania living in 5 Nordic countries. 1985-2006.



Source: National statistical offices; Own calculations.

Table 1 shows in the top panel the development in the foreign population from the individual 2004 entrant CEECs as a proportion of the population in the Nordic countries. In 1990, the proportion of the population coming from these 8 countries was relatively low ranging between 0,08 and 0,85 percent in Finland and Sweden, respectively. In 2007, the foreign population from the 8 new member countries had increased strongly in all the Nordic countries, ranging between 0,41 and 3,8 percent in Finland and Iceland, respectively. As regards the last once, Iceland experienced the biggest increase in immigration from these countries as a proportion of their population. The steep increase is almost entirely driven by Poles¹⁶. For the two 2007 entrants the population shares range from 0,04 percent in Finland to 0,22 percent in Sweden. Finally, Table 1 shows that about 10 percent of all immigrants in the Nordic countries come from CEEC. Iceland is however an exception with more than 25 percent of all immigrants coming from CEEC.

¹⁶ From the discussions among Polish job seekers on the Internet, the authors can see that part of the sudden migration inflows from Poland might be caused by a confusion of Iceland with Ireland.

Table 1: Central and Eastern European stock of immigrants in the Nordic countries as a percentage of the destination countries' populations. 1990 and 2007.

<i>DESTINATIONS:</i>	DENMARK		FINLAND		ICELAND		NORWAY		SWEDEN	
<i>ORIGINS:</i>	1990	2007	1990	2007	1990	2007	1990	2007	1990	2007
CZECH and SLOVAK REPUBLICS, CZECHO-SLOVAKIA	0,019	0,034	0,005	0,010	0,020	0,135	0,021	0,050	0,099	0,088
HUNGARY	0,026	0,0340	0,010	0,021	0,015	0,0341	0,032	0,0328	0,176	0,155
POLAND	0,172	0,3404	0,019	0,038	0,109	3,0202	0,107	0,6561	0,416	0,641
ESTONIA*	0,002	0,0154	0,042	0,318	0,001	0,0394	0,002	0,0255	0,134	0,108
LATVIA*	0,002	0,0286	0,001	0,013	0,003	0,1478	0,002	0,0273	0,023	0,034
LITHUANIA*	0,002	0,0624	0,001	0,008	0,002	0,4152	0,001	0,1062	0,003	0,042
SLOVENIA*	0,00002	0,0030	0,00002	0,0003	-	-	0,00007	0,0030	0,001	0,01
<i>Total 2004 EU Entrants</i>	<i>0,22302</i>	<i>0,5174</i>	<i>0,07802</i>	<i>0,4086</i>	<i>0,15</i>	<i>3,7916</i>	<i>0,16507</i>	<i>0,9011</i>	<i>0,852</i>	<i>1,0771</i>
BULGARIA	0,005	0,0196	0,005	0,0148	0,007	0,0477	0,011	0,0280	0,023	0,055
ROMANIA	0,019	0,0603	0,003	0,0231	0,0004	0,0633	0,010	0,0482	0,103	0,168
<i>Total 2007 EU Entrants</i>	<i>0,024</i>	<i>0,0798</i>	<i>0,008</i>	<i>0,038</i>	<i>0,0074</i>	<i>0,1110</i>	<i>0,021</i>	<i>0,0762</i>	<i>0,126</i>	<i>0,2223</i>
TOTAL % of CEE IMMIGRANTS	0,2470	0,5972	0,0860	0,4466	0,1574	3,9026	0,1861	0,9774	0,978	1,2994
TOTAL % of ALL IMMIGRANTS	3,6897	6,9651	1,3021	3,8457	3,7936	11,2316	4,6649	8,1676	9,2353	13,516

Note 1: *year 1992 instead 1990.

Source: National statistical offices; Own calculations.

4. Data

The analysis is based on data on immigration flows and stocks of foreigners in 5 Nordic destination countries from 10 Central and Eastern European source countries for the years 1985–2007¹⁷, see the Appendix for a list of countries included. Besides the flow and stock information, the dataset contains a number of other time-series variables, which might help to explain the migration flows between the countries. For purposes of the current paper, only information on GDP per capita, unemployment rates, population and distance have been used. These variables were collected from different sources, e.g. OECD, the World Bank and others; see Appendix for definitions, sources of the variables and summary statistics. For a more comprehensive description of the dataset, see Pedersen et al. (2008).

5. Econometric analysis of Central and Eastern European emigration to Nordic countries

The paper estimates two different effects on migration from CEECs, the “EU enlargement” effect and “opening of the labour market” effect. As regards the “EU enlargement” effect the main aspect of our estimation strategy is to compare migration flows from the countries of origin, which entered the EU in 2004 with the migration flows from two countries, which did not enter the EU in 2004, Bulgaria and Romania. The two countries were however candidates for the EU membership and entered the EU during the second round of enlargement in January 2007. In order to estimate the “opening of the labour market” effect we compare migration flows from the 2004 countries into Sweden, which opened its labor market from the first day of the 2004 enlargement, and migration to Finland and Iceland, which opened their markets in 2006, with migration flows into the two Nordic countries, that kept restrictions on their labour markets during the entire period, i.e. Denmark and Norway. From the methodological point of view the two events are seen as “natural experiments” and thus it is suitable to employ a differences-in-differences (DD) estimator in our analysis.

The starting point of this approach is that, other things equal, one would expect that potential emigrants in the 2004 countries would more likely go to the country, whose labour market has been opened up compared to other countries that keep restrictions in the transition period, i.e. meaning additional effort in getting proper documents, waiting times etc. for a potential emigrant. Similarly

¹⁷ The original OECD migration dataset covers 27 OECD destination and 129 source countries over the period of years 1989–2000, see Pedersen, Pytlikova and Smith (2008) for a detailed description of the dataset. In this paper, we restricted it to a sample of 5 Nordic destination countries and 10 CEE countries of origin. For purposes of the paper we additionally included Slovenia and extended the existing time period by the years 1985–1989 and 2001–2007.

one could also think that the EU enlargement itself has had some kind of announcement effect on migration to those countries. The intuition behind this is that a potential emigrant in a source country in the pre-2004 years knew that the 2004 enlargement is approaching and therefore kept waiting with the move till the day of enlargement. Then although most of the EU countries decided to keep transition periods¹⁸, he/she might have decided to migrate to the particular “dream” country anyway. It might also be due to informational imperfections, when potential emigrants did not know the immigration procedures and that some countries opened up while other kept restrictions.

Opening of the Swedish, Finnish and Icelandic labour markets to the 2004 EU entrants

In order to estimate the 2004 Swedish labour market opening we need to specify our DD model. First, we define a dummy for the treatment period, which is equal to 1 for post treatment period, i.e. period after year 2004, 0 otherwise, $PostTreatPeriod = 2004, 2005, 2006, 2007$. Further we define a dummy for treatment group equal to 1 if destination country is Sweden, $TreatCountry = Sweden$ and 0 for the control group consisting of the two Nordic countries that did not open up in the studied period, Denmark and Norway.

Similarly we can define a model for opening of the Finnish and Icelandic labour markets towards the 2004 EU entrants. Here, we define a dummy for treatment period, which is equal to 1 for the period after 2006, 0 otherwise, thus $PostTreatPeriod = 2006, 2007$. Further we define a dummy for treatment group equal to 1 for Finland and Iceland, $TreatCountry = Finland \& Iceland$, and 0 for the control group consisting of Denmark and Norway.

A general model of labour market opening has the following form:

$$\ln migr_{ijt} = \beta_0 + \beta_1 TreatCountry + \beta_2 PostTreatPeriod + \beta_3 TreatCountry * PostTreatPeriod + \varepsilon_{ijt} \quad (1)$$

where $migr_{ijt}$ denotes flows of migrants from country i to country j divided by the population of the country of origin i at time t ¹⁹. We run the regressions using both gross and net flows on the left hand side. The net flows variable is defined as a difference in stocks of foreigners living in country j and coming from i country of origin, i.e. $netmigr_{ijt} = stocks_{ijt} - stocks_{ijt-1}$.

¹⁸ Restrictions have been partly lifted even in the countries that kept transition period for free movement of workers.

¹⁹We estimate the model with net migration rates on the left-hand side as well, but we come back to that later on in the paper.

The simple DD estimation specification can be extended into a “regression adjusted” DD estimator by adding a matrix of destination and source countries characteristics that from a theoretical point of view are likely to affect the migration rates.

$$\ln migr_{ijt} = \beta_0 + \beta_1 TreatCountry + \beta_2 PostTreatPeriod + \beta_3 TreatCountry * PostTreatPeriod + \beta_4 \ln(GDPpc_j / GDPpc_i)_{t-1} + \beta_5 \ln e_{jt-1} + \beta_6 \ln e_{it-1} + \beta_7 \ln stock_{ijt-1} + \beta_8 dist_{ij} + \varepsilon_{ijt} \quad (2)$$

We include the difference in earnings, which is approximated by relative differences in economic development measured by PPP adjusted GDP per capita entered in the model as a log GDP ratio, $GDPpc_j / GDPpc_i$. The employment opportunities in the sending and receiving countries are measured by the employment rate (1-unemployment rate) are denoted as e_j and e_i respectively. Further we add a variable capturing network links between sending and receiving countries that help to lower the costs of migrating, entered as the normalized stock of immigrants, $stock_{ij}$, i.e. the stock of immigrants from source country i residing in a destination country j , divided by population of source country i . Variable $dist_{ij}$ denotes a distance in kilometres between two countries measured by the distance between their respective capital cities, which serves as a proxy for the direct costs of migration.

From an economic theory point of view, the relative differences in economic development and employment should be lagged in order to account for the collection of information, on which the potential immigrants base their decision to move. Further, there might be a reverse causality with respect to the effect of migration flows on earnings and employment.²⁰ One way to avoid the problems of endogeneity in the model is to instrument earnings and employment variables with their lags. As regards the migrants’ network, the variable is partly endogenous too, especially in the net flows regressions as in fact the stock is a function of previous stock plus net immigration. Therefore, all the explanatory variables enter the model as lagged. In one specification of the model we also include the lagged dependent variable into the gross flows regressions.

The time dimension of our data allows us to look also at some effects from the 2007 EU enlargement, where Finland and Sweden opened their labour markets towards Bulgaria and Romania while the other Nordic countries had restrictions. Although we have only one year, 2007, as post-treatment period to base on our DD estimator, we still think the results are interesting and

²⁰ There is another huge stream of literature that focuses on the effect of immigration on the labour market, see e.g. Chiswick (1996), Filer (1992), Hunt (1992) and Chiswick and Hatton (2002).

worth presenting. Thus we define a dummy for treatment period, which is equal to 1 for year 2007, 0 otherwise. Further we define a dummy for treatment group equal to 1 for Finland and Sweden and 0 for the control group consisting of Denmark, Iceland and Norway.

The results from the DD analysis of the Swedish, Finnish and Icelandic labour markets are shown in Tables 2 and 3, respectively. Columns 1-4 show gross flows regressions while columns 5-8 show regressions with net flows as the dependent variable.

Table 2. Effect of Swedish labour market opening on migration from CEECs, Diff-in-Diff estimator of gross and net flows from 8 CEECs (i) to 3 Nordic countries (j), 1985-2007.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Ln Gross Flows				Ln Net Flows			
Post Treat Period: 2006-2007	1.991 [0.224]***	1.524 [0.156]***	1.210 [0.144]***	0.480 [0.064]***	1.913 [0.292]***	2.024 [0.234]***	1.993 [0.239]***	1.549 [0.198]***
Treatment Country: Finland and Iceland	0.384 [0.166]**	0.371 [0.133]***	-0.574 [0.174]***	0.242 [0.104]**	1.080 [0.252]***	1.338 [0.203]***	1.268 [0.244]***	0.648 [0.191]***
DD: Treatment Country* Post Treat Period	-0.239 [0.389]	-0.127 [0.204]	0.079 [0.183]	-0.042 [0.081]	-1.016 [0.530]*	-0.982 [0.401]**	-0.978 [0.403]**	-0.509 [0.232]**
Ln GDPratio_t-1		1.179 [0.160]***	1.017 [0.150]***	0.373 [0.087]***		1.847 [0.250]***	1.833 [0.246]***	0.982 [0.215]***
Ln Empl Rate_j_t-1		2.730 [3.068]	-1.777 [3.078]	2.260 [1.543]		1.470 [3.851]	0.948 [4.181]	-0.268 [3.058]
Ln Empl Rate_i_t-1		-2.995 [1.107]***	-2.318 [1.048]**	0.560 [0.513]		0.316 [1.425]	0.423 [1.457]	0.095 [1.239]
Distance		-1.973 [0.171]***	-1.386 [0.169]***	-0.521 [0.134]***		-0.863 [0.312]***	-0.808 [0.358]**	-0.266 [0.253]
Ln Stock_t-1			0.399 [0.051]***	-0.075 [0.043]*			0.036 [0.086]	-0.098 [0.075]
Ln Gross Flows_t-1				0.842 [0.044]***				0.627 [0.064]***
Constant	-4.902 [0.096]***	9.089 [15.521]	23.687 [15.678]	-10.364 [7.711]	-5.503 [0.128]***	-9.487 [18.587]	-7.859 [19.271]	-0.643 [14.998]
Observations	528	390	390	390	372	303	303	264
R-squared	0.18	0.55	0.61	0.91	0.15	0.34	0.34	0.63

Notes: 10, 5 and 1% levels of confidence are indicated by *, ** and ***, respectively. Standard errors are in parentheses.

The variable of interest is the DD estimator, i.e. the interaction term of treatment country and post treatment period. Contrary to what we would expect the DD estimator in Tables 2 and 3 is neither significant nor positive. It has a negative sign in most of the specifications and it is statistically insignificant for almost all of them. In some of the net flow regressions the coefficient is even significantly negative.

Table 3: Effect of Finish and Icelandic labour markets opening on migration from CEECs, Diff-in-Diff estimator of gross and net flows from 8 CEECs (i) to 4 Nordic countries (j), 1985-2007.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Ln Gross Flows				Ln Net Flows			
Post Treat Period: 2006-2007	2.160 [0.331]***	1.617 [0.192]***	1.201 [0.158]***	0.474 [0.078]***	2.317 [0.444]***	2.352 [0.252]***	1.880 [0.233]***	1.314 [0.221]***
Treatment Country: Finland and Iceland	-1.380 [0.141]***	-0.267 [0.144]*	0.191 [0.115]*	-0.038 [0.078]	-0.962 [0.211]***	0.552 [0.175]***	0.909 [0.183]***	0.347 [0.180]*
DD: Treatment Country* Post Treat Period	0.036 [0.468]	0.039 [0.331]	-0.125 [0.285]	0.061 [0.216]	0.034 [0.640]	-0.278 [0.375]	-0.442 [0.312]	-0.505 [0.245]**
Ln GDPratio_t-1		1.062 [0.158]***	0.879 [0.143]***	0.262 [0.096]***		1.998 [0.242]***	1.908 [0.217]***	0.849 [0.255]***
Ln Empl Rate_j_t-1		13.287 [1.946]***	12.290 [1.618]***	4.380 [1.343]***		13.067 [2.195]***	9.771 [2.478]***	4.971 [2.158]**
Ln Empl Rate_i_t-1		-3.629 [1.050]***	-0.813 [0.922]	-0.488 [0.623]		-0.002 [1.247]	2.927 [1.248]**	0.624 [1.194]
Distance		-1.852 [0.121]***	-1.131 [0.153]***	-0.488 [0.141]***		-1.980 [0.085]***	-1.140 [0.205]***	-0.470 [0.150]***
Ln Stock_t-1			0.443 [0.055]***	-0.042 [0.049]		0.473 [0.086]***		0.197 [0.078]**
Ln Gross Flows_t-1				0.821 [0.038]***				0.556 [0.069]***
Constant	-4.736 [0.100]***	-36.631 [10.084]***	-48.452 [7.757]***	-15.356 [6.368]**	-5.384 [0.145]***	-53.182 [11.262]**	-55.865 [11.872]**	-24.809 [11.543]**
Observations	704	520	520	520	516	422	422	364
R-squared	0.21	0.66	0.73	0.89	0.13	0.56	0.62	0.72

Notes: 10, 5 and 1% levels of confidence are indicated by *, ** and ***, respectively. Standard errors are in parentheses.

One may argue that the reason why there is not any significant “labour market” opening effect for the 2004 EU entrants can be due to behaviour being based on an “opening announcement effect”, i.e. for instance Denmark had for a long time announced that it intended to open up the labour market without any restrictions from day One of the enlargement, but because of the political constellations in the country, at the end restrictions were enacted. Thus, the assumption is that potential migrants were driven more by announcement effects than the actual decisions on labour market openings. In order to get rid of the particular Danish “announcement effect” we estimated the model without Denmark in the control group, but the results were very similar. For the supplementary variables we find in Table 2 the expected highly significant positive coefficients to the lagged GDP ratio while the coefficient to the employment rate in the destination countries is insignificant.

In Table 3 we find the same highly significant coefficients to the lagged GDP ratio. But, regarding the opening of the Finnish and Icelandic labour markets we find – in contrast to the case of Sweden – highly significant positive coefficients to the employment rate in the destination countries.

Opening of the Swedish and Finish labour markets to the 2007 EU entrants

Next, Table 4, shows results from the opening of the Finnish and Swedish labour markets to workers from Bulgaria and Romania from day One of the 2007 EU enlargement. Although we have only one year, 2007, as post-treatment period to base our DD estimator on, we still think the results are interesting and worth presenting.

As we can see from Table 4 the DD estimator, although mostly insignificant, attaches a positive sign for both gross and net flows regressions. The effect gets significant in full model specifications in the gross flows regressions. Thus the evidence on the labour market opening for Bulgaria and Romania is rather different from the effects of labour market openings for the 2004 EU entrants. Regarding the supplementary variables, we find insignificant or significantly positive coefficients to the lagged GDP ratio, but like in Table 3 the coefficients to destination countries lagged employment rates are highly significantly positive.

Table 4: Effect of Finnish and Swedish labour markets opening on migration from Bulgaria and Romania, Diff-in-Diff estimator of gross and net flows from 2 CEECs (i) to 5 Nordic countries (j), 1985-2007.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Ln Gross Flows				Ln Net Flows			
Post Treat Period: 2007	1.417 [0.638]**	1.016 [0.161]***	0.489 [0.234]**	0.477 [0.267]*	1.657 [0.616]***	1.538 [0.240]***	1.093 [0.299]***	1.058 [0.307]***
Treatment Country: Finland and Sweden	0.790 [0.215]***	0.829 [0.119]***	-0.187 [0.141]	-0.119 [0.116]	1.158 [0.217]***	1.587 [0.185]***	0.738 [0.267]***	0.548 [0.280]*
DD: Treatment Country* Post Treat Period	0.502 [1.009]	0.588 [0.579]	0.915 [0.394]**	0.992 [0.421]**	0.155 [0.974]	0.115 [0.595]	0.392 [0.456]	0.423 [0.425]
Ln GDPratio_t-1		0.643 [0.258]**	-0.239 [0.210]	-0.056 [0.179]		1.072 [0.426]**	0.355 [0.404]	0.313 [0.405]
Ln Empl Rate_j_t-1		21.794 [1.608]***	12.215 [1.871]***	7.981 [1.766]***		24.354 [2.534]***	16.276 [3.335]***	14.071 [3.309]***
Ln Empl Rate_i_t-1		-3.859 [0.903]***	-0.404 [0.634]	0.063 [0.571]		-2.925 [1.474]**	-0.012 [1.595]	0.595 [1.538]
Distance		-4.052 [0.199]***	-1.789 [0.252]***	-1.171 [0.296]***		-3.719 [0.375]***	-1.831 [0.452]***	-1.486 [0.469]***
Ln Stock_t-1			0.485 [0.051]***	0.302 [0.055]***			0.402 [0.130]***	0.496 [0.129]***
Ln Gross Flows_t-1				0.356 [0.086]***				0.018 [0.084]
Constant	-5.880 [0.136]***	-57.144 [7.843]***	-43.340 [7.215]***	-29.900 [6.687]***	-6.270 [0.138]***	-76.906 [9.847]***	-65.158 [10.569]***	-60.017 [11.336]***
Observations	220	165	165	165	201	161	161	156
R-squared	0.11	0.82	0.92	0.93	0.18	0.65	0.70	0.73

Notes: 10, 5 and 1% levels of confidence are indicated by *, ** and ***, respectively. Standard errors are in parentheses.

EU enlargement effect

In this section we would like to see how the event of the 2004 EU enlargement affected emigration from the new member states. For that purposes we again use a dummy for treatment period, which is equal to 1 for post treatment period, i.e. the period after 2004 and 0 otherwise, i.e. $PostTreatPeriod = 2004, 2005, 2006$ ²¹. Further we define a dummy for treatment group equal to 1

²¹ We do not include the year 2007 as this is the year of EU enlargement towards Bulgaria and Romania and therefore the conditions of the two countries being in the control group would not hold.

if *source* country is one of the 2004 EU entrants and 0 for other CEE countries, which entered the EU in 2007, i.e. $TreatCountry = CzechR, Hun, Pol, Latv, Lith, Est, Slovenia, SlovakR$.

The simple DD model then has the following form:

$$\ln migr_{ijt} = \beta_0 + \beta_1 CEEC1 + \beta_2 Post2004 + \beta_3 CEEC1 * Post2004 + \varepsilon_{ijt} \quad (3)$$

And the “regression adjusted” DD estimator has the following form:

$$\begin{aligned} \ln migr_{ijt} = & \beta_0 + \beta_1 CEEC1 + \beta_2 Post2004 + \beta_3 CEEC1 * Post2004 + \\ & + \beta_4 \ln(GDPpc_j / GDPpc_i)_{t-1} + \beta_5 \ln e_{jt-1} + \beta_6 \ln e_{it-1} + \beta_7 \ln stock_{ijt-1} + \beta_8 dist_{ij} + \varepsilon_{ijt} \end{aligned} \quad (4)$$

We focus only on the event of 2004 EU enlargement as for the 2007 enlargement with Bulgaria and Romania, we do not have a proper control group, which would fulfil the assumptions of a difference in difference estimator on trends in outcome variables being the same for treatment and control groups in the absence of treatment.

The results of the EU enlargement effect on migration from the first EU enlargement in 2004 are shown in Table 5. We observe that the DD estimator of interest has a statistically significant large positive effect. The result does not change across the different model specifications, it holds for both gross and net flows regressions. This means that the event of the EU enlargement had a positive effect on migration from the new EU members. Finally, we find regarding the supplementary variables highly significant coefficients in all specifications to the lagged GDP ratio and the lagged employment rate in the destination countries

Table 5: EU enlargement and migration flows –DD estimates of migration flows from 10 CEE source countries (i) to 5 Nordic destination countries (j), 1985-2006.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Ln Gross Flows				Ln Net Flows			
Post Treat Period: 2004-2006	0.959 [0.315]***	0.477 [0.130]***	0.225 [0.076]***	0.183 [0.054]***	0.667 [0.386]*	0.388 [0.185]**	0.104 [0.138]	0.101 [0.147]
Treatment Country: 8 CEECs	0.293 [0.150]*	-0.115 [0.150]	0.223 [0.125]*	0.068 [0.087]	0.096 [0.194]	-0.321 [0.177]*	0.109 [0.199]	0.235 [0.160]
DD: Treatment Country* Post Treat Period	0.958 [0.353]***	0.709 [0.170]***	0.731 [0.120]***	0.300 [0.080]***	1.176 [0.441]***	1.007 [0.246]***	0.934 [0.206]***	0.824 [0.191]***
Ln GDPratio_t-1		1.035 [0.147]***	1.046 [0.129]***	0.337 [0.083]***		1.263 [0.229]***	1.236 [0.208]***	0.704 [0.178]***
Ln Empl Rate_j_t-1		11.065 [1.463]***	8.863 [1.254]***	3.587 [1.005]***		7.587 [1.672]***	4.453 [1.884]**	1.419 [1.446]
Ln Empl Rate_i_t-1		-3.022 [0.743]***	-1.117 [0.672]*	0.269 [0.403]		-0.885 [0.962]	1.324 [0.955]	0.716 [0.866]
Distance		-1.997 [0.100]***	-1.192 [0.114]***	-0.470 [0.114]***		-1.930 [0.092]***	-1.039 [0.187]***	-0.382 [0.127]***
Ln Stock_t-1			0.348 [0.029]***	0.010 [0.027]		0.405 [0.059]***		0.172 [0.051]***
Ln Gross Flows_t-1				0.781 [0.034]***				0.562 [0.056]***
Constant	-5.664 [0.134]***	-28.264 [7.079]***	-31.853 [5.988]***	-15.519 [4.358]***	-5.838 [0.168]***	-23.366 [8.020]***	-24.520 [8.004]***	-9.781 [7.055]
Observations	1100	765	765	765	817	622	622	550
R-squared	0.13	0.65	0.74	0.90	0.09	0.48	0.56	0.71

Notes: 10, 5 and 1% levels of confidence are indicated by *, ** and ***, respectively. Standard errors are in parentheses.

6. Conclusions

In this paper we look at migration flows from 10 of the “new” EU countries to 5 Nordic countries over the years 1985 – 2007. This enables us to exploit a natural experiment that arose from the fact that while Sweden opened its labour market from the first day of the 2004 EU enlargement, and Finland and Iceland from 2006, the other Nordic countries chose a transition period in relation to the “new” EU members, which was an option as part of the EU enlargement agreement. We employ

a differences-in-differences estimator in our analysis. The preliminary results show that the estimated effect of the opening of Swedish labour market in 2004 on migration is insignificantly different from zero, and so is the opening of Finnish and Icelandic labour markets towards the 2004 EU entrants in 2006. We have also estimated the effect of Swedish and Finnish labour markets opening towards the 2 new EU members, Bulgaria and Romania, from the first day of the 2007 EU enlargement, on migration from those countries. The results indicate that the effect of labour market opening on migration from the 2 new EU member states was positive.

Further, we have studied the overall effect of the “EU entry” on migration. Therefore we looked at migration flows from CEECs during the first round EU enlargement towards CEECs in 2004 and compared them with migration flows from Bulgaria and Romania. We again used a DD estimator in our analysis. The estimated effect is positive and significant in all model specifications, and the coefficient of interest is relatively large.

The impact on the migration flows from income and employment indicators are in the expected direction with the 2004 impact from the opening of the Swedish labour market as the only exception. A possible interpretation of this could be the fact that demand pressure in the Danish and Norwegian labour markets has been so strong that market forces have “overruled” the impact from the formal restrictions on entry of workers from the new member states from 2004.

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APPENDIX:

Data

A. List of countries included in the emigration flows' analysis:

Destination countries

Denmark, Finland, Iceland, Norway, Sweden

Source countries

The Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, the Slovak Republic, Slovenia

Bulgaria and Romania

B. Description and definitions of the variables used in the paper and their source:

Gross flow of migrants from country i to country j

Source: National statistical offices.

Stock of foreigners from country i in country j

Source: National statistical offices.

Total population is based on the de facto definition of population, which counts all residents regardless of legal status or citizenship - except for refugees not permanently settled in the country of asylum, who are generally considered part of the population of their country of origin.

Source: World Bank.

GDP per capita (constant 2000 international \$) based on purchasing power parity (PPP). PPP GDP is gross domestic product converted to international dollars using purchasing power parity rates. An international dollar has the same purchasing power over GDP as the U.S. dollar has in the United States. GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in constant 2000 international dollars.

Source: World Bank, International Comparison Programme database

Unemployment, total (% of total labour force): Unemployment refers to the share of the labour force that is without work but available for and seeking employment. Definitions of labour force and unemployment differ by country.

Source: World Bank: International Labour Organisation, Key Indicators of the Labour Market database.

Distance between countries – distance between capitals in km.

Source: MapInfo, own calculations.

C. Summary statistics

 -> toj = Denmark

Variable	Obs	Mean	Std. Dev.	Min	Max
flowij	204	236.9461	368.1451	1	3627
stockij	204	1690.27	2943.656	1	14679
popj	230	5244674	103329.4	5114000	5418313
gdppcpcppj	230	25857.6	2438.451	22459.12	30163
uj	220	6.625	1.782785	4.2	10.7

 -> toj = Finland

Variable	Obs	Mean	Std. Dev.	Min	Max
flowij	182	128.2473	345.253	0	2134
stockij	202	937.5149	2184.506	0	14515
popj	231	5085853	105866.2	4918000	5245071
gdppcpcppj	231	22901.84	2658.498	19319.86	27947
uj	220	9.405	4.196011	3.1	16.6

 -> toj = Iceland

Variable	Obs	Mean	Std. Dev.	Min	Max
flowij	231	48.12554	248.4781	0	3328
stockij	153	227.281	695.0578	0	6572
popj	231	267900.6	16081.35	241000	295112
gdppcpcppj	231	25652.88	2785.538	22081.7	31749
uj	220	2.75	1.483409	.4	5.3

 -> toj = Norway

Variable	Obs	Mean	Std. Dev.	Min	Max
flowij	186	128.6667	286.7657	0	3265
stockij	231	987.8485	1652.519	3	10899
popj	231	4367845	142927.8	4153000	4618450
gdppcpcppj	231	29861.16	4232.016	23638.74	35956
uj	220	4.1	1.188875	1.9	6

 -> toj = Sweden

Variable	Obs	Mean	Std. Dev.	Min	Max
flowij	194	357.9072	645.9441	0	6347
stockij	214	9071.958	11241.98	78	51743
popj	231	8727447	210809	8350000	9024040
gdppcpcppj	231	23505.15	2301.467	20216.25	27784
uj	220	5.705	2.879263	1.6	10.1

-> fromi = Bulgaria

Variable	Obs	Mean	Std. Dev.	Min	Max
popi	105	8391476	413344.7	7740928	8981000
gdppcippi	105	6313.24	737.925	5230.276	7866
ui	70	14.69286	4.657931	1.7	21.4

-> fromi = Czech Republ

Variable	Obs	Mean	Std. Dev.	Min	Max
popi	105	1.03e+07	55404.39	1.02e+07	1.04e+07
gdppcippi	70	15244.07	1841.093	12835.33	19067
ui	75	5.613333	2.419757	.7	8.8

-> fromi = Estonia

Variable	Obs	Mean	Std. Dev.	Min	Max
popi	105	1453543	85714.11	1345005	1569000
gdppcippi	95	9313.116	2231.008	6458.988	14515
ui	75	7.886667	4.222985	.6	13.6

-> fromi = Hungary

Variable	Obs	Mean	Std. Dev.	Min	Max
popi	105	1.03e+07	157273.3	1.00e+07	1.06e+07
gdppcippi	105	12211.96	1738.442	9959.218	16177
ui	75	7.766667	2.574214	1.7	12.1

-> fromi = Latvia

Variable	Obs	Mean	Std. Dev.	Min	Max
popi	105	2505644	137412.7	2300027	2684000
gdppcippi	105	8293.664	1901.028	5520.783	12192
ui	60	12.30833	5.137509	2.3	20.6

-> fromi = Lithuania

Variable	Obs	Mean	Std. Dev.	Min	Max
popi	105	3580554	92651.14	3415046	3704000
gdppcippi	80	9222.456	1933.679	6498.074	12864
ui	65	12.28462	5.709757	.3	17.4

-> fromi = Poland

Variable	Obs	Mean	Std. Dev.	Min	Max
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Variable	Obs	Mean	Std. Dev.	Min	Max
popi	105	3.82e+07	402691.9	3.72e+07	3.87e+07
gdppcippi	80	9387.797	1764.593	7037.505	12505
ui	75	14.19333	3.66161	6.5	19.9

-> fromi = Romania

Variable	Obs	Mean	Std. Dev.	Min	Max
popi	105	2.26e+07	483189.9	2.16e+07	2.32e+07
gdppcippi	80	6493.121	749.7474	5594.983	8236
ui	65	7.130769	1.652831	3	10.4

-> fromi = Slovak Repub

Variable	Obs	Mean	Std. Dev.	Min	Max
popi	105	5333735	60030.85	5193000	5395100
gdppcippi	105	10900.32	1527.99	8380.809	14722
ui	70	14.44286	3.628134	6.6	19.3

-> fromi = Slovenia

Variable	Obs	Mean	Std. Dev.	Min	Max
popi	105	1990246	8760.032	1966800	2001700
gdppcippi	80	8779.248	3324.506	1994	19269
ui	55	7.327273	.9982308	5.9	9.1

Variable	Obs	Mean	Std. Dev.	Min	Max
distij	1210	1499.609	845.9114	86.5	3700
neighbour	1210	.0909091	.2875987	0	1

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