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LABOUR MOBILITY WITHIN THE EU – THE IMPACT OF ENLARGMENT AND TRANSITIONAL ARRANGEMENTS

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Abstract

The main focus of this study is an assessment of the macro-economic impact on both host and home countries of the increased labour mobility that has resulted from the two recent EU enlargements. We first look at the macro-economic impact of the total population flows from the EU-8 and EU-2 to the EU-15 economies between 2004 and 2009, adjusting for the age structure and education level of the mobile population. We then attempt to quantify the share of population movements that have occurred since 2004 and 2007 that can be attributed to the enlargement process itself, and the share that is likely to have occurred even in the absence of EU expansion. We finally look at the impact that transitional restrictions on the free mobility of labour have had on the distribution of EU-8 and EU-2 citizens across the EU-15 countries.

Key-words: Migration; EU enlargement; transitional arrangements; labour mobility; economic integration

JEL codes: F22, J61, O15, O52

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For more information see: http://ec.europa.eu/progress

1. Clarification of terms

Throughout this paper, there are a number of terms and abbreviations that are used, to which we attach a precise meaning and interpretation. We clarify these terms below:

EU-15 is used to designate the 15 countries that form the EU before 2004: Belgium, Denmark, Germany, Ireland, Greece, Spain, France, Italy, Luxembourg, Netherlands, Austria, Portugal, Finland, Sweden, United Kingdom.

EU-10 is used to designate the 10 countries that joined the EU in 2004 (Cyprus, Czech Republic, Estonia, Hungary, Lithuania, Latvia, Malta, Poland, Slovenia, Slovakia).

EU-8 is used to designate the EU-10, excluding Malta and Cyprus.

EU-2 is used to designate the 2 countries that joined the EU in 2007 (Romania and Bulgaria).

EU-8+2 is used to designate the EU-8 plus the EU-2, as defined above.

EU-10+2 is used to designate the EU-10 plus the EU-2, as defined above.

Unless otherwise specified, migrant stock figures refer to end-year levels. These correspond to the 1 January figures of the following year where sourced from the Eurostat Population statistics.

2. Executive Summary

Free movement of workers within the EU was achieved in 1968 and acts as one of the four pillars of the EU Single Market. While the policy was introduced with aim of removing barriers to the functioning of a fully integrated market economy in Europe and improving the matching of labour supply and demand, concerns regarding the sudden shock of opening labour markets in existing member countries have been an issue in all subsequent enlargements where a significant wage differential existed between new and old member states (1981, 1986, 2004 and 2007). While in the long-run, free mobility can be expected to raise potential growth in the EU as a whole, the shock to labour markets and wages may have negative impacts on host economies in the short-term. To counter-act these factors, member states have been allowed to temporarily restrict the free mobility of workers from acceding countries for a period of 5 years in general, and up to 7 years under certain circumstances. These transitional arrangements are intended to smooth the shock to labour markets of the enlargement process.

The main focus of this study is an assessment of the macro-economic impact on both host and home countries of the increased labour mobility that has resulted from the two recent EU enlargements. We first look at the macro-economic impact of the total population flows from the EU-8 and EU-2 to the EU-15 economies between 2004 and 2009. In both cases we restrain our analysis of the receiving countries to the impact on the EU-15 economies. Population flows from the EU-2 to the EU-10 economies have been small in magnitude, and data availability is sporadic, and for this reason these flows are excluded from the simulation studies. The aggregate population flows to the EU-15 are adjusted to reflect the age structure and education level of the mobile population. We also look at the impact of remittances. For the 2004 enlargement, we focus attention on the EU-8 economies, as citizens from Malta and Cyprus were not affected by transitional restrictions and, given their size, the impact of any emigration from these countries can be expected to have negligible impact on the host economies.

We then attempt to quantify the share of population movements that have occurred since 2004 and 2007 that can be attributed to the enlargement process itself, and the share that is likely to have occurred even in the absence of EU expansion. We next look at the impact that transitional restrictions on the free mobility of labour have had on the distribution of EU-8 and EU-2 citizens across the EU-15 countries.

Our estimates suggest that since the 2004 enlargement, about 1.8 per cent of the **EU-8 population** has moved to the EU-15, raising the host country population by 0.4 per cent. Of this, approximately 75 per cent can be attributed to the enlargement process itself, while the remaining 25 per cent of the population shifts are likely to have

occurred even in the absence of enlargement. Since 2007, about 4.1 per cent of the **EU-2 population** has moved to the EU-15, raising the host country population by a further 0.3 per cent. Of this, just over 50 per cent can be attributed to the enlargement process itself.

The macro-economic impact on individual countries within each of the regions depends on the magnitude of emigration/immigration that has occurred relative to the size of the domestic population. Of the sending countries, the biggest effects are estimated to be in Bulgaria, Romania and Lithuania, where the potential level of output may be permanently reduced by 5-10 per cent as a result of the population shifts towards the EU-15 since 2004. Latvia and Estonia can also expect a permanent scar of at least 3 per cent on the potential level of output in their economies. While remittances can partially offset the negative impact on growth in the short- to medium-term, they cannot fully address the loss of labour input on capacity output in the longer-term. The impact on GDP per capita is much smaller than the impact on total GDP, but also tends to be negative in the sending countries (with the notable exception of Poland), especially given the age structure of migrants, who are predominantly of working age. Migrants from Poland, the Czech Republic and Hungary tend to be biased towards those with higher educational attainment, suggesting evidence of a brain drain from these countries and the decline in average productivity among the non-migrant population acts as a further restraint on productive capacity. GDP per capita may have declined by 0.5-3 per cent as a result of population outflows from Romania, Bulgaria, Latvia, Estonia, Lithuania and Slovakia.

As for the receiving countries, the macro-economic impact of the population shifts **from the EU-8 and EU-2** to the EU-15 since 2004 is expected to be small, possibly raising the long-run level of potential output by up to 0.8 per cent, after allowing for the age profile of the mobile population. The impact on Ireland is expected to be more significant, perhaps raising the potential level of GDP by 3¼ per cent in the long-run. The UK may also benefit from a rise in potential output of nearly 1½ per cent, after adjusting for the fact than most incoming migrants from the EU-8 and EU-2 countries are of working age. The long-run impact on GDP per capita is expected to be negligible, but may be slightly positive, depending on the productive capacity of inward migrants. Outflows of remittances are expected to have only a marginal effect on receiving countries.

Our estimates of the long-run effects on output of the EU enlargement are based on the assumption that all population shifts that have occurred to 2009 are permanent, and we make no assumption about population shifts after 2009. The net emigration rates of **both the EU-8 and EU-2** towards the EU-15 had receded towards pre-accession levels by 2009, so it is not clear how much future population movements

can be attributable directly to the enlargement of the EU itself. The limited data available for 2010 from the quarterly Labour Force Survey point to some recovery in emigration rates from Poland, Lithuania and Latvia, although the rate of emigration from the EU-2 continued to decline (albeit from a higher level).

There appears to be clear evidence that the pattern of restrictions in place at the beginning of the 2004 enlargement diverted mobile workers away from traditional destinations – namely Germany – and towards the more easily accessed labour markets in the UK and Ireland. However, we should not over-emphasize the magnitude of this impact, as macro-economic developments and demographics have also played a role in the location decision, and in many cases appear to have played the dominant role. Our simple model estimated for the EU-8 economies falls short of explaining a significant portion of the shifting preference for Bulgarian and Romanian citizens for Italy rather than Spain as the destination of choice, a process which began in about 2007. Transitional restrictions may have played a certain role for the EU-2 economies, although the rise in the unemployment rate in Spain can explain about half of the nearly 10 percentage point loss of EU-2 migrant stock share between 2006 and 2009. While unemployment remained relatively low in Spain in 2007 compared to levels reached in 2008-2011, the differential with the EU-15 average had already started to widen.

Our estimates suggest that by 2009, the unemployment rate in Ireland was somewhat lower by 2009 than it would have been without net population inflows from the EU-8 since 2004, although we estimate that in 2005-2007 the unemployment rate was slightly higher in Ireland as a result of the unexpectedly high inflows of workers from the EU-8. Our estimates point to a slight decline in the unemployment rate in Lithuania in the years immediately following the 2004 enlargement, but this effect should have dissipated by 2009. We would not expect unemployment rates in any country to be permanently affected by the population movements.

The population movements **from the EU-2** have had only a small macro-economic impact on any of the EU-15 economies. The biggest impacts have materialised in Italy and Spain, where GDP has increased by 1¼-1¾ cent as a result of population inflows from Bulgaria and Romania from 2004-2009. The impacts on the sending countries, on the other hand, have been more significant. Our estimates suggest that the level of GDP in Romania will eventually be more than 10 per cent lower as a result of population losses that have occurred since 2004. In Bulgaria the level of GDP will probably be about 5 per cent lower than it would have been without the loss of labour force that occurred since 2004.

Final transitional restrictions on the free mobility of labour from the EU-8 to the EU-15 were lifted on 1 May 2011. As the existence of support networks for new migrants

is one of the most important factors affecting the location decision, any distortion in the distribution of EU-8 citizens across the EU-15 that has resulted from the transitional restrictions is likely to prove permanent. Our estimates suggest that transitional restriction on the free mobility of labour introduced in some countries at the onset of the 2004 enlargement and their extension into the second and third phases of the transitional process, has significant altered the distribution of EU-8 citizens across the EU-15 economies. Our preliminary results suggest that the long-run effect of these distortions can be expected to raise the potential level of output in Ireland, the UK and Sweden by at least 0.1 per cent, while they will leave a permanent scar on the level of potential output in Germany, Austria, Belgium and Denmark of at least 0.1 per cent.

It is far less clear that transitional restrictions on the free mobility of labour from the EU-2 to the EU-15 following the 2007 EU enlargement have significantly affected the location decision of EU-2 citizens within the EU-15. The most important shift in location share for EU-2 citizens since 2006 has been away from Spain (although net migration continued to be positive) and toward Italy. Both countries had introduced some restrictions on labour market access for citizens of these countries in 2007. Spain lifted all restrictions at the beginning of 2009, while the restrictions in Italy remained in place (although work permits are not required in important sectors), so the existence of restrictions itself cannot explain the shift in location preference towards Italy. These shifts are more likely to reflect factors such as the employment opportunities in Italy compared to Spain, which experienced a severe recession in 2009 and where the unemployment rate soared above 20 per cent last year.

From 1 May 2011, citizens of the EU-10 countries have full access to labour markets across the EU-27, as the final transitional arrangements were lifted at the end of the 7 year transitional period. As of June 2011, workers from the EU-2 still face some restrictions on access to labour markets in Belgium, Germany, Ireland, France, Italy, Luxembourg, the Netherlands, Austria, the UK and Malta. The second phase of the transitional arrangements for the 2007 enlargement will come to an end on 31 December 2011, at which point the governments of these countries will have to decide whether or not to extend the restrictions for a further two years. In principle, restrictions can only be extended during the final phase if the country is facing a 'serious disturbance of its labour market or a threat thereof'. However, in practice there is no agreed definition of what constitutes a serious disturbance of the labour market, allowing a degree of leeway in its interpretation.

3. Assessment of enlargement and transitional arrangements

Data sources and issues

Before we can assess the impact of enlargement and transitional arrangements on labour mobility within the EU, we must first establish the pattern of population movements from the EU-8 and EU-2 countries to the EU-15 countries, both before and after enlargement. There are three primary data sources that we have used to establish this baseline pattern: Eurostat's Population data on population stocks by citizenship; Eurostat's Population data in International Migration Flows; Eurostat's Labour Force Statistics (LFS). We have supplemented these with information from the OECD International Migration Database in some instances.

There are some key methodological differences between the LFS and Population Statistics, which means there are likely to be some discrepancies between the sources. The LFS is based on a quarterly sample survey covering 0.2-3.3% of the population, based on a common approach across countries. The Population Statistics are based on a range of sources (administrative records, national surveys, census, migration statistics, vital statistics), and while there is a binding regulation on the collection of certain migration data on an annual basis by each member state, there is not a common methodological approach to this collection. However, the Population Statistics are more comprehensive in their coverage of the population. The rules for defining usual resident population may differ between LFS and Population statistics, and the LFS only covers persons living in private households. The timing also differs, with the Population statistics reflecting the population as of 1 January in the given year, whereas the LFS provides a quarterly or annual average.

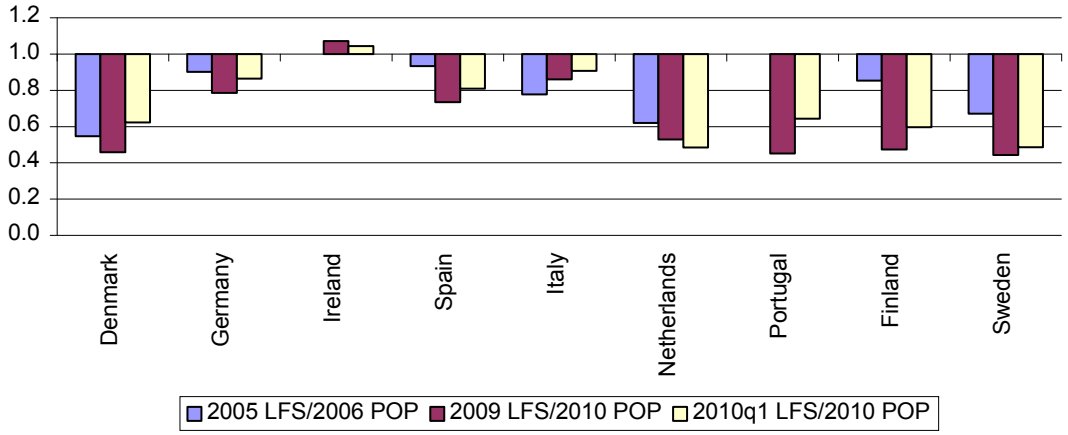
Given these potential sources for discrepancy, it is somewhat surprising to discover that the level of the population calculated for the EU-27 as a whole is only 1.2 per cent smaller in the LFS statistics compared to the Population statistics (based on 2006 figures). However, at the bilateral level within individual countries the discrepancies are far larger, and show no clear pattern over time and across countries. In figure 3.1 below we compare the stocks of population by citizenship from the EU-10 and EU-2 in a selection of EU-15 countries[*] as reported in the LFS and the Population statistics. We compare the ratio of LFS to Population statistics estimates in 2005 (January 2006 for the Population statistics) and 2009 (January 2010 for the Population statistics). We also include figures for 2010q1 from the LFS relative to January 2010 from the

[*] The selected countries were those that had near complete data sets in the relevant years in both the LFS and Population statistics.

Population statistics to see if this is a better fit. The columns in the figures are centred around 1, so if the series are identical no column appears, if the LFS series is smaller than the Population series the column is below the centre line and if the LFS series is higher the column rests above the centre line.

Except in the case of Ireland, the LFS series are consistently smaller than the Population series. This is what we would expect to see given the aggregate data for the EU-27 discussed above. However, the magnitude of discrepancy is very far from what we would hope to see, averaging about 20-40 per cent smaller, compared to the 1.2 per cent discrepancy for the aggregate data. The magnitude of discrepancy shows little in the way of stability across the time periods and there is only marginal evidence that the 2010q1 LFS fit is more closely correlated with the 2010 Population statistics than the 2009 LFS figures. At the outset this tells us that the data we will be working with is subject to a high degree of uncertainty and a wide margin of error. The results that we produce based on these estimates should be viewed with this in mind.

Figure 3.1. Migrant stocks from the EU-10 and EU-2 according to LFS and Population statistics

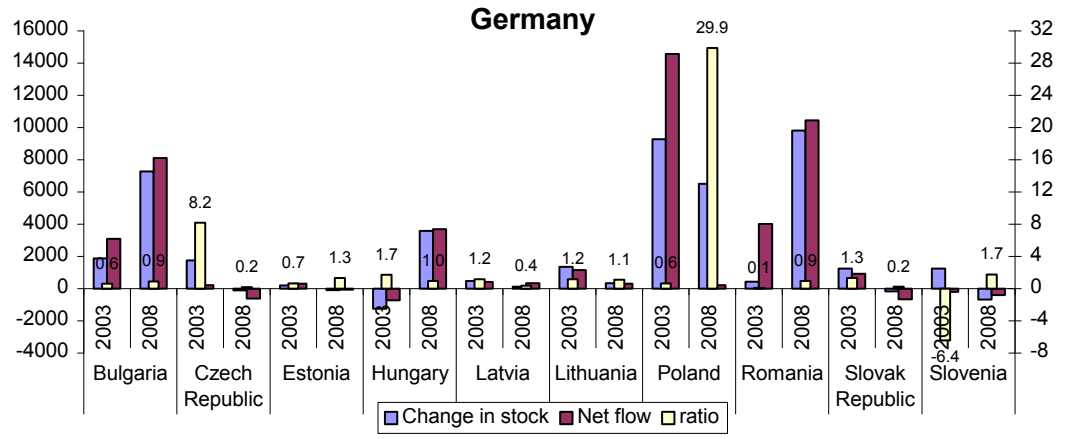


Source: Eurostat LFS and Eurostat Population statistics

We made a similar assessment of the comparability of the stock and flow data from Eurostat's Population Statistics, to determine how closely the change in the stocks matches the net flow from the same dataset. We found a similar degree of discrepancy across these two series. Theoretically the two should not match exactly, as the change in stock includes the net birth rate (births less deaths). However, this should be a very small factor over such a short time period. Figures 3.2-3.7 below illustrate the change in stock and the net flow (inflows less outflows) in 2003 and 2008 in a selection of countries, as well as the ratio of the two. A ratio of less than 1 indicates that the flow data is larger, whereas a ratio of more than one indicates that the change in stock is larger. Both series are taken from Eurostat's Population statistics.

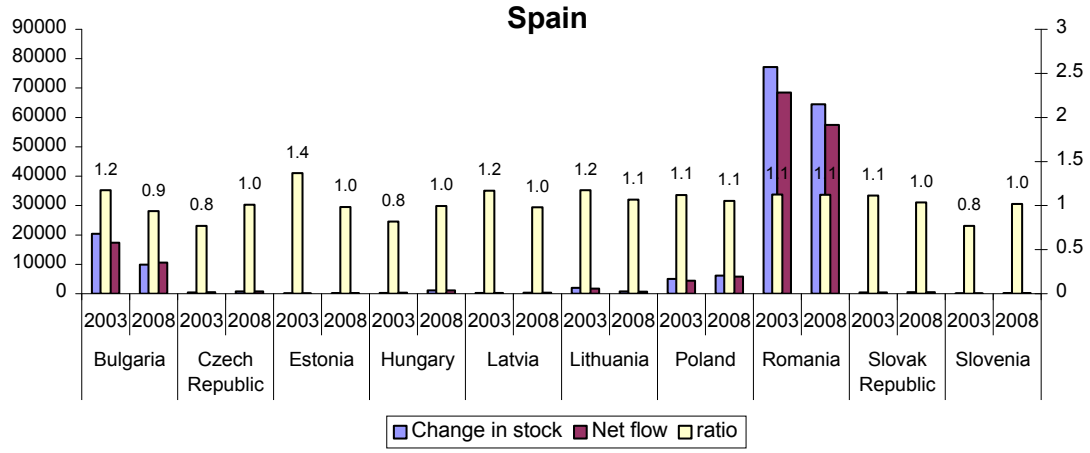
The figures for Spain show a relatively high degree of consistency across the two series, with a ratio of close to 1 in many countries and time periods. However, even in Spain these figures sometimes differ by up to 40 per cent. Finland and the Netherlands also show a relatively consistent pattern, although in the case of the Netherlands the change is stock is always at least 20 per cent below the level of the flow. The figures for Germany and Denmark show very little consistency across the two data sources, even in the case of the two largest countries, Poland and Romania, where we might expect a higher degree of reliability in the statistics given the larger sample sizes.

Figure 3.2. Germany – change in EU-8 and EU-2 residents



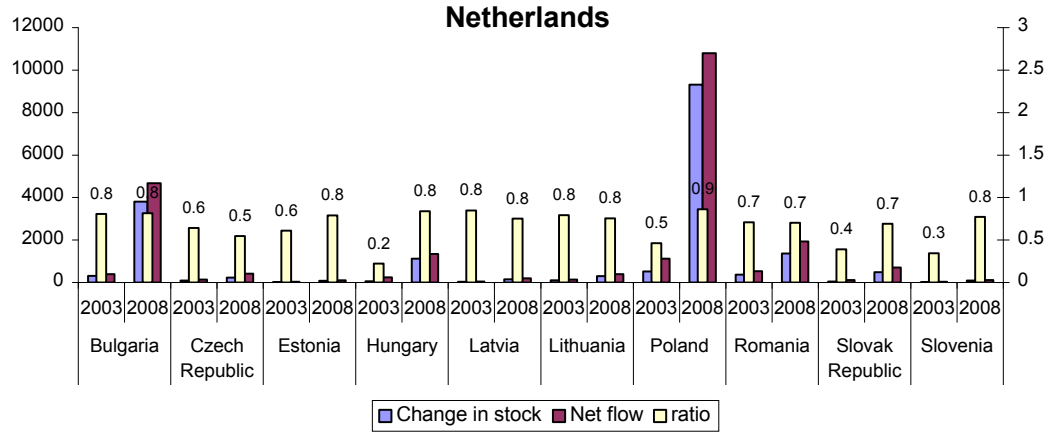
Source: Eurostat Population Statistics

Figure 3.3. Spain – change in EU-8 and EU-2 residents



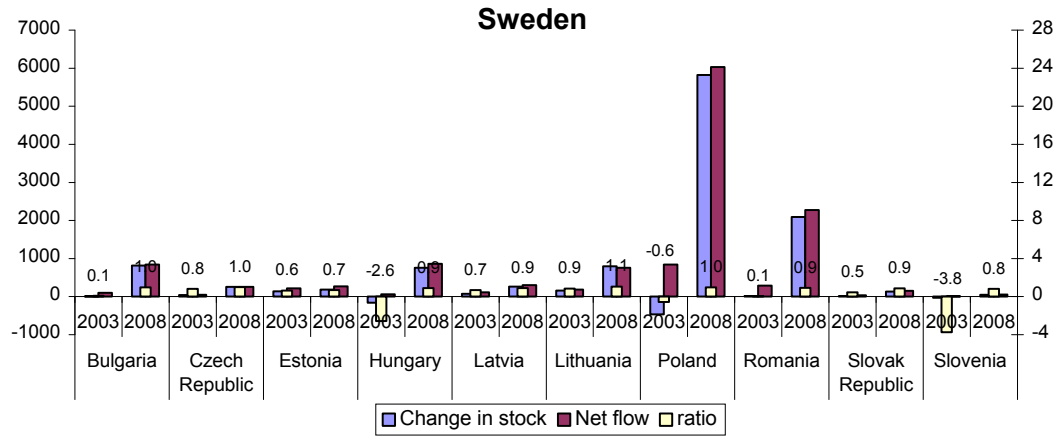
Source: Eurostat Population Statistics

Figure 3.4. Netherlands – change in EU-8 and EU-2 residents



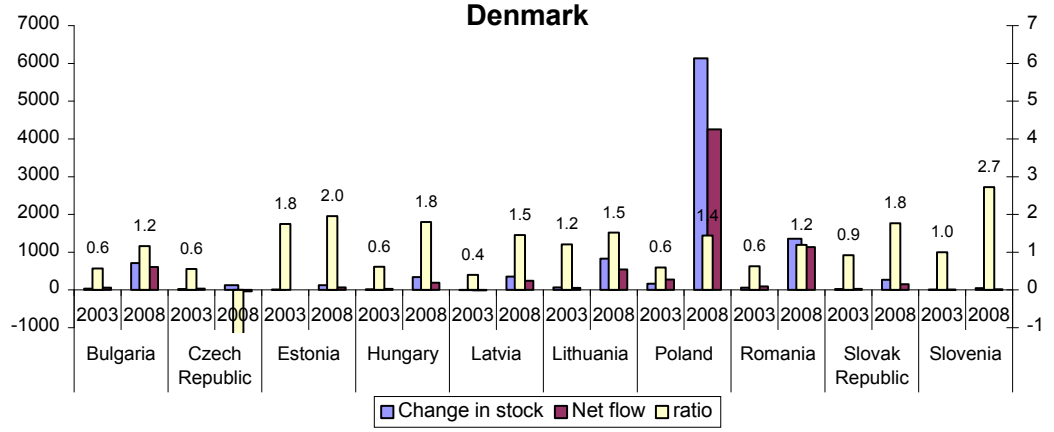
Source: Eurostat Population Statistics

Figure 3.5. Sweden – change in EU-8 and EU-2 residents



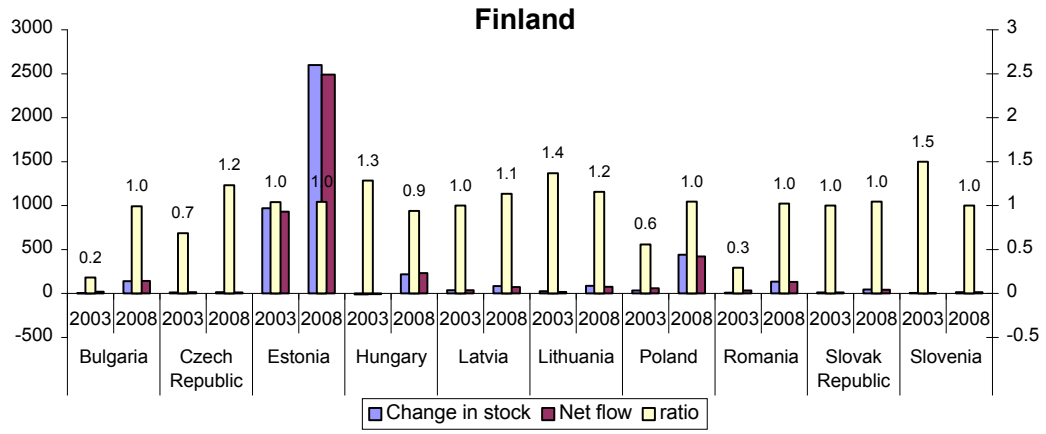
Source: Eurostat Population Statistics

Figure 3.6. Denmark – change in EU-8 and EU-2 residents



Source: Eurostat Population Statistics

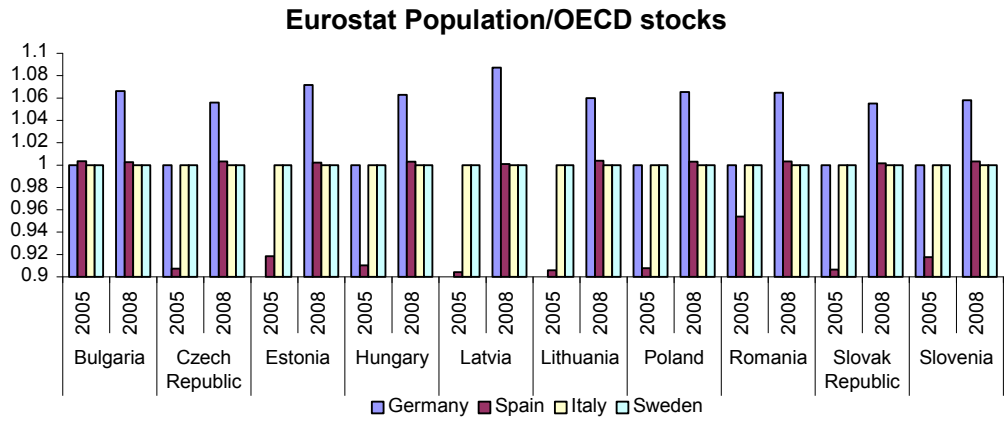
Figure 3.7. Finland – change in EU-8 and EU-2 residents



Source: Eurostat Population Statistics

The final source that we use for comparison is the OECD International Migration Database. This source is less comprehensive and less timely than the Eurostat sources, so would not be used as a primary data source. However, it does show a very strong correlation with the Eurostat Population statistics for population stocks by citizenship. Figure 3.8 below illustrates this relationship, by the ratio of Eurostat Population statistics to the relevant OECD series. In most cases (of the examples shown) the ratio is very close to one, so Eurostat and the OECD have clearly used the same source for the data[†]. The figures for Germany are somewhat higher in the Eurostat series in 2008, although the discrepancy is less than 8 per cent, which in the current context is very close. This may reflect the timeliness of the series, with the 2008 figures recently revised by Eurostat. The figures for Spain in 2005 are also significantly different, but again this discrepancy is less than 10 per cent, compared to the 20-50 per cent differences seen in the other data sources.

Figure 3.8. Eurostat/OECD population stocks of EU-8 and EU-2 nationals



[†] In most cases OECD take data directly from Eurostat for the EU countries.

Source: Eurostat Population Statistics and OECD International Migration Database

Having determined that the available data sources are not consistent, the next problem that we face is that no single source is complete, as they all contain a large number of missing values for certain countries and certain time periods. Were this not the case we could simply use the three primary data sources as alternative baseline scenarios. However, as this is not possible we need to choose a primary data source, and establish a consistent methodology for estimating the missing observations from that source.

We choose to adopt Eurostat's Population statistics on population stocks by citizenship as our primary source. This choice is supported by the fact that this is the primary source used for the development and monitoring of harmonised immigration policies. The broader coverage makes it a better choice than the LFS, which may suffer from small sample biases. Marti and Rodenas (2007) undertake a review of the sampling procedures for the LFS in several EU countries. They highlight the fact that the sample size used is not always sufficient to capture changes in the small populations of residents from a given home country in an individual host country. They find that the LFS approach is more likely to capture population statistics in some countries than others: Austria, Belgium, France, Luxembourg, Sweden and the UK.

Our primary data source contains a complete time series from 1997 for 6 of the EU-15 countries (Denmark, Germany, Spain, Netherlands, Finland, Sweden). There is a fairly comprehensive coverage of 4 other countries (Belgium, Italy, Austria, Portugal), with sporadic information on the remaining 5 countries (Ireland, Greece, France, Luxembourg, UK). We treat the 1 January 2010 data as the year-end data for 2009. Missing observations were filled using information from the OECD International Migration Database in the first instance, as this showed a very strong correlation with the Eurostat Population statistics. This allowed us to fill most of the missing observations in 4 countries (Greece, Italy, Luxembourg, Portugal). Further missing observations were filled using information from the LFS (primarily for France and the UK). The remaining missing observations were filled by assuming either a constant growth rate between two stock values or else using the average growth rate of stocks from the host country to the other EU-15 host countries for which data was available. In general, value of 0 were treated as missing values.

This allows us to establish a complete annual matrix of population stocks from home country i (EU-8 and EU-2) to host country j (EU-15) for the period 1997-2009. We approximate the net bilateral flows by the change in these stock values. Table 3.2 below reports our full bilateral population stock matrix.

We also report a smaller matrix for population stocks of EU-2 citizens in each of the EU-10 countries, since 2003. There is very limited data availability for some countries (and none for Estonia). The magnitude of EU-2 citizens moving to EU-10 countries since 2004 is small, amounting to just 0.1 per cent of the populations of Bulgaria and Romania. Of the total stock of EU-2 citizens living in the EU-10, as of 2009 about 80 per cent of Romanians reside in Hungary, and nearly 50 per cent of Bulgarians reside in Cyprus. The inflows into most EU-10 countries since 2003 have also been 0.1 per cent of the domestic population or less, except in the case of Cyprus, where the population stocks of Romanian and Bulgarian citizens has risen by nearly 2 per cent of the Cypriot population.

Table 3.1. Population stocks by citizenship in EU-15 countries

CITIZEN	TIME	Belgium	Denmark	Germany	Ireland	Greece	Spain	France	Italy	Lux	Neths	Austria	Portugal	Finland	Sweden	UK	EU-15
Czech Rep.	1997	476	133	19583	713	712	637	1119	2948	76	855	6325	87	118	267	8045	42095
Czech Rep.	1998	505	163	20782	756	536	666	1185	3122	81	1005	6699	87	138	331	7738	43794
Czech Rep.	1999	536	197	22038	803	607	920	1259	3429	86	1014	6929	96	155	371	6758	45197
Czech Rep.	2000	597	225	24361	894	677	1447	1402	3674	97	1174	7313	217	174	433	7596	50281
Czech Rep.	2001	731	254	26667	981	850	1910	1539	3669	111	1382	6231	113	187	471	14843	59940
Czech Rep.	2002	885	279	28429	1080	1957	2576	1694	3081	92	1434	6597	119	187	527	21177	70114
Czech Rep.	2003	1435	298	30186	1189	1353	2970	4821	3814	158	1525	6896	143	198	566	17738	73290
Czech Rep.	2004	3509	368	30301	924	849	3782	2750	4328	247	1776	7360	166	196	581	6651	63789
Czech Rep.	2005	1952	507	31983	2905	1047	4682	4145	4709	408	1937	7733	190	201	609	7628	70635
Czech Rep.	2006	2102	487	35382	5110	1039	6570	2729	4905	506	2057	7986	213	244	715	25563	95608
Czech Rep.	2007	2086	566	36418	6524	1163	7999	4568	5499	571	2290	8287	313	268	845	35540	112937
Czech Rep.	2008	2368	691	36312	7938	794	8767	5405	5801	645	2519	9078	203	284	1102	29055	110962
Czech Rep.	2009	2820	709	36378	7431	1312	9082	2228	6009	223	2602	5446	223	312	1212	28260	104248
Estonia	1997	68	384	3173	1633	39	22	171	191	17	100	40	1	9689	1124	830	17482
Estonia	1998	72	411	3348	1740	44	33	182	204	18	100	43	1	10340	1216	884	18636
Estonia	1999	75	395	3429	1800	49	55	188	226	18	111	47	1	10652	1350	914	19310
Estonia	2000	78	458	3649	1878	54	89	197	250	19	121	54	11	10839	1554	954	20205
Estonia	2001	88	503	3880	2018	63	176	211	305	26	147	58	9	11662	1662	1563	22371
Estonia	2002	119	534	4019	2139	73	317	224	266	23	165	74	15	12428	1768	2171	24335
Estonia	2003	403	541	4220	2291	82	421	309	383	61	187	96	24	13397	1906	2780	27101
Estonia	2004	467	539	3775	2656	95	563	394	482	124	284	129	33	13978	2155	3577	29252
Estonia	2005	635	611	3907	3614	129	720	485	555	256	318	158	42	15459	2371	4618	33878
Estonia	2006	550	682	4277	2840	86	1008	576	630	310	321	171	51	17599	2588	5346	37035
Estonia	2007	586	807	4382	4817	142	1176	666	734	340	365	194	86	20006	2809	7681	44791
Estonia	2008	776	934	4290	4082	118	1355	757	838	390	444	236	79	22604	2994	3667	43565
Estonia	2009	1186	958	4422	3861	163	1478	848	928	372	547	640	111	25510	3389	14100	58513
Hungary	1997	966	366	52029	576	609	298	2740	3608	50	1275	11536	96	454	2925	6580	84107
Hungary	1998	1022	377	51905	578	789	412	2754	3625	50	1400	11591	97	508	2954	5879	83941
Hungary	1999	1089	406	53152	590	593	540	2811	3690	111	1385	12140	112	597	2992	7133	87341
Hungary	2000	1534	391	54437	604	399	778	2874	3760	143	1538	12729	158	654	2988	4273	87260
Hungary	2001	1629	445	55978	619	411	1060	2948	3616	183	1719	13069	136	708	2727	7258	92506
Hungary	2002	1564	447	55953	622	860	1457	2961	2920	153	1832	13684	161	687	2463	6599	92363
Hungary	2003	2022	463	54714	604	414	1724	2958	3446	202	1886	14151	184	678	2303	6021	91769
Hungary	2004	1754	527	47808	525	1359	2298	2954	3734	293	2029	15133	206	634	2309	5157	86720
Hungary	2005	2397	624	49472	717	789	3044	4243	4051	480	2271	16284	229	687	2349	4009	91645
Hungary	2006	2140	724	56075	2357	425	4704	4018	4389	597	2386	17428	251	724	2560	9166	107944
Hungary	2007	2917	1019	60221	4581	124	6628	3793	5467	688	2921	19318	386	900	3104	18157	130224
Hungary	2008	2577	1357	63801	5884	2176	7791	3568	6171	756	4044	21527	333	1117	3862	21918	146881
Hungary	2009	3122	1586	65443	5543	2724	8365	5844	6868	1679	5294	19653	352	1198	4525	19308	151503

CITIZEN	TIME	Belgium	Denmark	Germany	Ireland	Greece	Spain	France	Italy	Lux	Neths	Austria	Portugal	Finland	Sweden	UK	EU-15
Latvia	1997	96	449	6147	1134	71	32	215	234	2	110	82	3	134	387	959	10055
Latvia	1998	108	509	6853	1278	60	41	243	264	2	140	92	2	175	489	1514	11770
Latvia	1999	118	558	7446	1396	48	70	265	333	9	146	100	7	201	582	1654	12934
Latvia	2000	129	742	7915	1522	37	178	289	426	8	173	152	10	227	694	1803	14305
Latvia	2001	169	860	8543	1674	116	417	318	566	9	188	173	12	276	780	1840	15941
Latvia	2002	195	909	8866	1769	195	698	336	484	10	244	228	17	300	858	2887	17996
Latvia	2003	222	905	9341	2406	274	994	493	690	39	283	272	38	338	934	4945	22174
Latvia	2004	255	942	8844	2760	353	1246	650	862	131	361	342	60	392	1072	4429	22698
Latvia	2005	682	1085	9477	7393	945	1565	392	1085	229	450	359	81	473	1217	5729	31163
Latvia	2006	707	1261	10684	13183	1474	2183	399	1286	265	491	370	102	515	1470	16526	50916
Latvia	2007	687	1531	10724	19394	1257	2533	405	1559	304	564	400	193	593	1677	15263	57084
Latvia	2008	975	1885	10851	25604	1785	2870	412	1782	347	713	461	240	677	1943	23924	74469
Latvia	2009	1204	2521	12699	24264	1539	3399	418	2020	93	1143	590	311	802	2781	25976	79760
Lithuania	1997	115	555	6631	1037	112	65	297	339	10	260	152	11	163	358	7794	17899
Lithuania	1998	128	731	7240	1156	115	77	331	378	11	325	169	11	180	413	7934	19199
Lithuania	1999	142	884	8042	1290	118	149	369	450	9	338	179	14	194	469	7863	20511
Lithuania	2000	169	1221	9442	1531	121	1565	438	526	14	346	208	29	204	574	7936	24324
Lithuania	2001	192	1496	11156	1818	140	3913	520	700	18	393	208	18	245	727	7909	29453
Lithuania	2002	250	1616	12635	2071	160	6548	593	485	20	487	237	22	288	943	15239	41594
Lithuania	2003	377	1681	13985	5089	179	8546	914	864	52	595	282	75	314	1102	15315	49369
Lithuania	2004	294	1946	14713	3967	198	11389	1234	1278	111	970	383	127	351	1451	26115	64527
Lithuania	2005	941	2372	17357	12717	103	14332	745	1735	226	1175	493	180	398	2071	43611	98456
Lithuania	2006	936	2945	20307	24434	87	18946	851	2184	280	1262	530	232	466	2821	66588	142868
Lithuania	2007	1005	3489	21165	35201	69	21234	1042	3006	337	1447	589	430	527	3613	73174	166327
Lithuania	2008	1799	4315	21499	45967	51	22013	1033	3640	397	1743	651	505	615	4408	91191	199828
Lithuania	2009	1563	5234	22812	43492	315	22075	1836	4141	250	2126	960	558	655	5484	80785	192285
Poland	1997	6034	5457	283312	1845	5246	5496	29783	23584	635	5680	21447	190	684	15842	40910	446145
Poland	1998	6319	5508	283604	1819	208	5685	29371	23258	626	5905	21151	190	698	15925	39660	439927
Poland	1999	6749	5571	291673	1906	6744	7245	30770	29478	643	5645	21394	205	718	16345	39055	464141
Poland	2000	7800	5548	301366	1988	10431	11448	32100	30419	666	5944	21841	382	694	16667	38340	485635
Poland	2001	9633	5735	310432	2042	11182	14849	32960	32889	707	6312	21433	249	743	15511	41441	506117
Poland	2002	11022	5689	317603	2091	13510	20458	33758	29972	715	6912	21750	284	768	13878	43225	521635
Poland	2003	12238	5854	326882	8954	14112	25453	23578	40314	828	7431	22249	353	802	13412	76748	579208
Poland	2004	26884	6199	292109	10333	15932	32843	36643	50794	1012	10968	26554	422	810	14664	109994	636160
Poland	2005	43134	7353	326596	13606	17007	41572	23967	60823	1313	15202	30580	490	899	17172	175981	775696
Poland	2006	37948	9701	387958	62674	16146	62910	34393	72457	1576	19645	33319	559	1083	22410	283270	1046049
Poland	2007	30768	13753	413044	75763	16627	78928	27513	90218	1834	26189	35485	913	1446	28909	486661	1328051
Poland	2008	37919	19890	419555	88851	21420	85075	36184	99389	2213	35499	36879	925	1888	34733	575346	1495766
Poland	2009	36996	21119	425608	83012	14998	85513	34156	105608	4146	43083	38849	1042	2078	38587	561515	1496311

CITIZEN	TIME	Belgium	Denmark	Germany	Ireland	Greece	Spain	France	Italy	Lux	Neths	Austria	Portugal	Finland	Sweden	UK	EU-15
Slovak Rep.	1997	260	51	9242	2996	361	148	591	1784	66	355	6182	8	21	228	2594	24887
Slovak Rep.	1998	279	65	9808	3213	351	184	633	1913	71	485	6628	8	27	263	2314	26242
Slovak Rep.	1999	341	111	12097	3929	342	303	775	2087	73	579	7136	9	40	284	8448	36553
Slovak Rep.	2000	412	127	14657	4745	332	739	935	2414	74	719	7739	22	51	349	5459	38774
Slovak Rep.	2001	556	127	17049	5494	286	1159	1083	2972	76	915	7508	14	71	363	4238	41911
Slovak Rep.	2002	824	140	18327	5879	240	1778	1159	2087	81	940	8516	15	82	400	10891	51359
Slovak Rep.	2003	1195	164	19567	6259	194	2253	3100	3092	129	983	9484	28	94	415	18455	65412
Slovak Rep.	2004	1566	184	20244	1817	148	3188	1959	3895	209	1239	11322	41	90	505	24289	70696
Slovak Rep.	2005	2538	303	21685	5450	249	4093	2801	4345	323	1560	12982	53	128	559	41665	98735
Slovak Rep.	2006	2336	301	25309	8046	350	6050	3763	5416	391	1876	14223	66	145	656	41607	110535
Slovak Rep.	2007	3001	507	25987	9589	180	7418	2677	7463	460	2178	15665	187	173	781	73844	150110
Slovak Rep.	2008	4404	777	25823	11132	264	7980	1591	8091	512	2666	18065	173	219	914	60926	143537
Slovak Rep.	2009	3736	848	26419	10379	126	8058	2303	8675	1643	2844	16605	197	248	1047	82320	165448
Slovenia	1997	213	32	18093	56	29	56	686	3386	53	110	6875	6	5	516	538	30654
Slovenia	1998	218	35	18412	58	99	52	705	3476	54	150	7058	6	7	581	552	31463
Slovenia	1999	222	40	18648	59	169	92	717	3720	56	144	6945	8	8	600	562	31989
Slovenia	2000	225	51	18766	59	239	152	726	3716	58	165	6893	18	10	625	569	32272
Slovenia	2001	215	50	19395	61	138	188	746	3751	56	193	6267	13	10	627	585	32295
Slovenia	2002	212	50	20550	64	128	244	786	2136	62	225	6215	17	11	539	616	31855
Slovenia	2003	141	57	21795	68	117	311	788	2990	105	235	6192	22	17	509	651	33998
Slovenia	2004	131	57	21034	63	99	426	789	2382	151	256	6452	28	17	520	605	33009
Slovenia	2005	745	78	21195	359	349	568	1073	2516	253	299	6554	33	21	529	649	35221
Slovenia	2006	528	102	22452	129	208	819	1052	2948	292	356	6679	38	25	537	505	36670
Slovenia	2007	559	135	22336	188	67	1055	1032	3096	334	411	6973	57	44	574	1267	38128
Slovenia	2008	399	184	21652	247	180	1217	1368	3101	359	503	7187	44	60	619	554	37674
Slovenia	2009	451	204	21279	233	519	1267	1705	3057	132	562	7886	49	74	644	2472	40533
EU-8	1997	8228	7427	398210	9991	7179	6754	35603	36075	908	8745	52639	402	11268	21647	68250	673324
EU-8	1998	8651	7799	401952	10598	2202	7150	35404	36240	913	9510	53431	402	12073	22172	66475	674972
EU-8	1999	9273	8162	416525	11772	8670	9374	37154	43413	1005	9362	54870	452	12565	22993	72387	717976
EU-8	2000	10944	8763	434593	13221	12290	16396	38962	45185	1079	10180	56929	847	12853	23884	66930	753056
EU-8	2001	13213	9470	453100	14707	13187	23672	40326	48468	1186	11249	54947	564	13902	22868	79676	800534
EU-8	2002	15071	9664	466382	15715	17122	34076	41511	41431	1156	12239	57301	650	14751	21376	102805	851250
EU-8	2003	18033	9963	480690	26861	16725	42672	36960	55593	1574	13125	59622	866	15838	21147	142653	942321
EU-8	2004	34860	10762	438828	23046	19033	55735	47373	67755	2278	17883	67675	1081	16468	23257	180817	1006851
EU-8	2005	53024	12933	481672	46762	20619	70576	37851	79819	3488	23212	75143	1297	18266	26877	283890	1235429
EU-8	2006	47247	16203	562444	118773	19815	103190	47780	94215	4217	28394	80706	1512	20801	33757	448571	1627625
EU-8	2007	41609	21807	594277	156055	19629	126971	41695	117042	4868	36365	86911	2565	23957	42312	711587	2027651
EU-8	2008	51218	30033	603783	189705	26788	137068	50317	128813	5619	48131	94084	2502	27464	50575	806581	2252681
EU-8	2009	51078	33179	615060	178215	21696	139237	49337	137306	8538	58201	90629	2843	30877	57669	814736	2288600

CITIZEN	TIME	Belgium	Denmark	Germany	Ireland	Greece	Spain	France	Italy	Lux	Neths	Austria	Portugal	Finland	Sweden	UK	EU-15
Bulgaria	1997	799	341	34463	479	7043	1673	2209	5696	100	535	3868	318	320	1331	7346	66522
Bulgaria	1998	846	357	31564	443	6742	1583	2047	5278	93	630	3584	296	333	1171	8225	63192
Bulgaria	1999	929	394	32290	454	6968	2685	2095	7378	107	713	3892	321	317	1065	8472	68080
Bulgaria	2000	1069	408	34359	490	8093	10188	2260	7500	113	870	4217	348	297	1002	7258	78472
Bulgaria	2001	1529	426	38143	599	12552	23468	2766	8375	138	1074	4690	2213	308	805	6468	103554
Bulgaria	2002	1907	460	42419	728	18591	43418	3360	7324	116	1360	5335	3503	326	796	5328	134971
Bulgaria	2003	2233	493	44300	743	17278	63814	6021	11467	132	1678	5856	4004	330	805	11903	171057
Bulgaria	2004	2672	536	39167	1031	25296	83418	7089	15374	136	1924	6284	3837	329	810	12195	200098
Bulgaria	2005	3311	572	39153	1652	27942	101975	6864	17746	204	2076	6480	3264	342	834	16012	228427
Bulgaria	2006	3944	583	41947	1295	29518	124973	9632	19924	265	2202	6419	3575	357	828	22452	267914
Bulgaria	2007	6753	823	50282	877	30670	154886	16483	33477	446	6378	7636	5076	477	1838	16214	332316
Bulgaria	2008	9201	1533	57555	2100	40210	164784	22329	40880	580	10190	9015	6456	618	2655	47746	415852
Bulgaria	2009	12092	2321	66238	1991	55265	167849	18120	46026	495	12340	16510	7202	721	3252	26206	436627
Romania	1997	2150	1095	95190	4384	6078	2385	9385	36267	280	1145	17188	169	397	3213	3932	183259
Romania	1998	2063	1046	89801	4083	4327	2723	8741	33777	261	1285	16008	12	398	3051	3974	171550
Romania	1999	2311	1099	87504	4065	6020	5682	8701	61212	320	1397	16611	65	404	2981	5204	203576
Romania	2000	2481	1106	90094	4159	5225	26779	8901	69999	355	1694	17470	202	489	2949	5324	237227
Romania	2001	3198	1176	88102	4488	7208	53087	9606	82985	375	2094	17750	8197	546	2495	6184	287491
Romania	2002	4069	1270	88679	4910	13803	112861	10510	95039	361	2360	19482	11162	547	2327	6809	374189
Romania	2003	4674	1329	89104	2006	14602	189979	15529	177812	366	2735	20483	11873	557	2343	7481	540873
Romania	2004	5642	1405	73365	2408	16195	287087	23638	248849	409	3020	21314	12310	580	2360	17619	716201
Romania	2005	7592	1563	73043	4967	18948	388422	17785	297570	496	3006	21942	10892	628	2371	31919	881143
Romania	2006	10252	1672	78452	7633	18949	539507	42701	342200	606	3225	21882	11877	732	2252	27102	1109042
Romania	2007	15310	2386	90614	11553	25735	734764	41693	625278	887	4894	27646	19280	911	4442	34259	1639652
Romania	2008	16365	3744	100429	15473	29456	799225	43404	796477	1098	6256	32341	27769	1045	6536	53052	1932670
Romania	2009	21205	5076	112230	14651	36917	823111	48991	887763	943	7118	47596	32457	1170	7661	80491	2127380
EU-2	1997	2949	1436	129653	4863	13121	4058	11594	41964	381	1680	21056	487	717	4544	11278	249781
EU-2	1998	2909	1403	121365	4527	11069	4306	10787	39055	354	1915	19592	308	731	4222	12199	234743
EU-2	1999	3240	1493	119794	4519	12988	8367	10797	68590	427	2110	20503	386	721	4046	13676	271657
EU-2	2000	3550	1514	124453	4648	13318	36967	11162	77499	468	2564	21687	550	786	3951	12582	315699
EU-2	2001	4727	1602	126245	5087	19760	76555	12372	91360	513	3168	22440	10410	854	3300	12652	391045
EU-2	2002	5976	1730	131098	5638	32394	156279	13870	102363	477	3720	24817	14665	873	3123	12137	509160
EU-2	2003	6907	1822	133404	2749	31880	253793	21550	189279	498	4413	26339	15877	887	3148	19384	711930
EU-2	2004	8314	1941	112532	3438	41491	370505	30727	264223	545	4944	27598	16147	909	3170	29814	916298
EU-2	2005	10903	2135	112196	6618	46890	490397	24649	315316	700	5082	28422	14156	970	3205	47931	1109570
EU-2	2006	14196	2255	120399	8928	48467	664480	52333	362124	871	5427	28301	15452	1089	3080	49554	1376956
EU-2	2007	22063	3209	140896	12430	56405	889650	58176	658755	1333	11272	35282	24356	1388	6280	50473	1971968
EU-2	2008	25566	5277	157984	17573	69666	964009	65733	837357	1678	16446	41356	34225	1663	9191	100798	2348523
EU-2	2009	33296	7397	178468	16642	92182	990960	67111	933789	1438	19458	64106	39659	1891	10913	106697	2564008

Source: See text

Table 3.2. Population stocks by citizenship in EU-10 countries

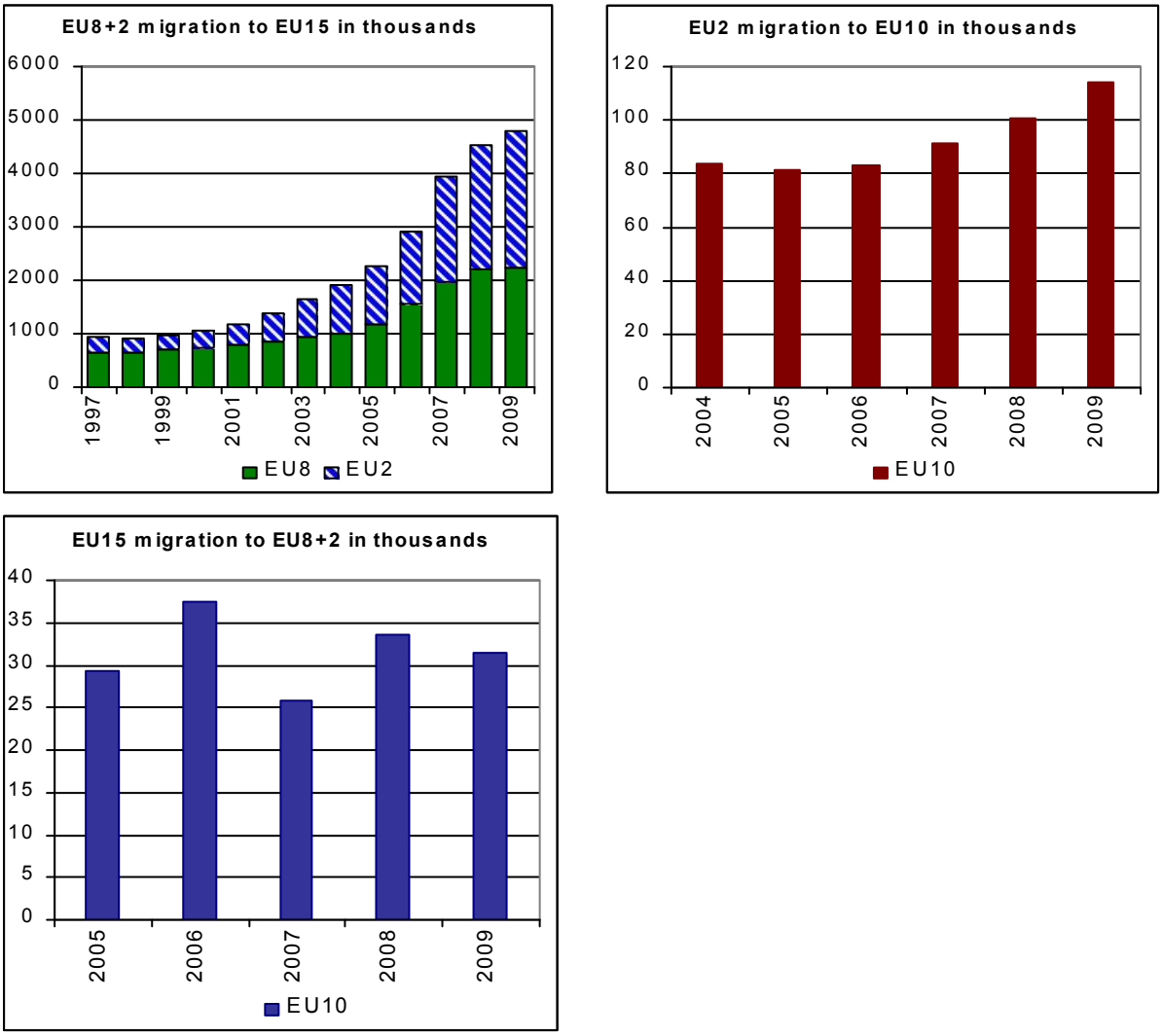
		Czech Republic	Estonia	Cyprus	Latvia	Lithuania	Hungary	Malta	Poland	Slovenia	Slovakia	EU-10
Bulgaria	2004	3593	:	2389	26	28	1177	:	2372	68	634	10287
Bulgaria	2005	4153	:	2521	27	42	1140	:	996.6	72	552	9503
Bulgaria	2006	4285	:	3057	32	97	1123	:	1023	118	547	10282
Bulgaria	2007	5046	:	5260	328	123	1128	763	1039	780	985	15452
Bulgaria	2008	5926	:	7865	562	120	1133	:	1350	599	1355	18909
Bulgaria	2009	6402	:	10057	570	:	1211	157.5	1122	770	1515	21804
Cumulative change 2004-2009 as % 2007 Bulgarian Population												**0.15**
Romania	2004	2445	:	2586	10	5	67608	:	:	131	417	73202
Romania	2005	2634	:	2231	10	4	66250	:	:	136	419	71684
Romania	2006	2697	:	2167	12	10	66951	:	228	166	700	72931
Romania	2007	3298	:	3012	76	13	65903	249	232	225	3005	76013
Romania	2008	3649	:	5650	247	:	66435	:	376	240	4966	81563
Romania	2009	4095	:	8954	301	:	72781	52	266	195	5424	92068
Cumulative change 2004-2009 as % 2007 Romanian Population												**0.09**
EU-2	2004	6038	:	4975	36	33	68785	:	2372	199	1051	83489
EU-2	2005	6787	:	4751	37	46	67390	:	996.6	208	971	81187
EU-2	2006	6982	:	5224	44	107	68074	:	1251	284	1247	83213
EU-2	2007	8344	:	8272	404	136	67031	1012	1271	1005	3990	91465
EU-2	2008	9575	:	13514	809	120	67568	:	1726	839	6321	100472
EU-2	2009	10497	:	19011	871	:	73992	209.5	1388	965	6939	113872
Cumulative change 2004-2009 as % 2007 EU-10 population		**0.04**	:	**1.80**	**0.04**	**0.00**	**0.05**	:	**0.00**	**0.04**	**0.11**	

Source: Eurostat population statistics

Descriptive statistics

The EU enlargement has resulted in a substantial increase in labour mobility. More than 99 per cent of migration flows between the newer and older member states have been East-West migration flows from EU-8+2 to EU-15 countries. Although many EU-15 members have applied transitional restrictions on access to their labour markets by EU-8+2 migrants, the stock of EU-8+2 nationals residing in EU-15 countries tripled over the period 2003-2009, increasing from about 1.6 million in 2003 to about 4.8 million in 2009. The share of West-East migration has remained marginal, at much below 1 per cent and has not shown any monotonic trend over time. Figure 3.9 shows stocks of EU-8+2 nationals in EU-15 countries, stocks of EU-2 nationals in EU-10 countries and stocks of EU-15 nationals in EU-8+2 countries.

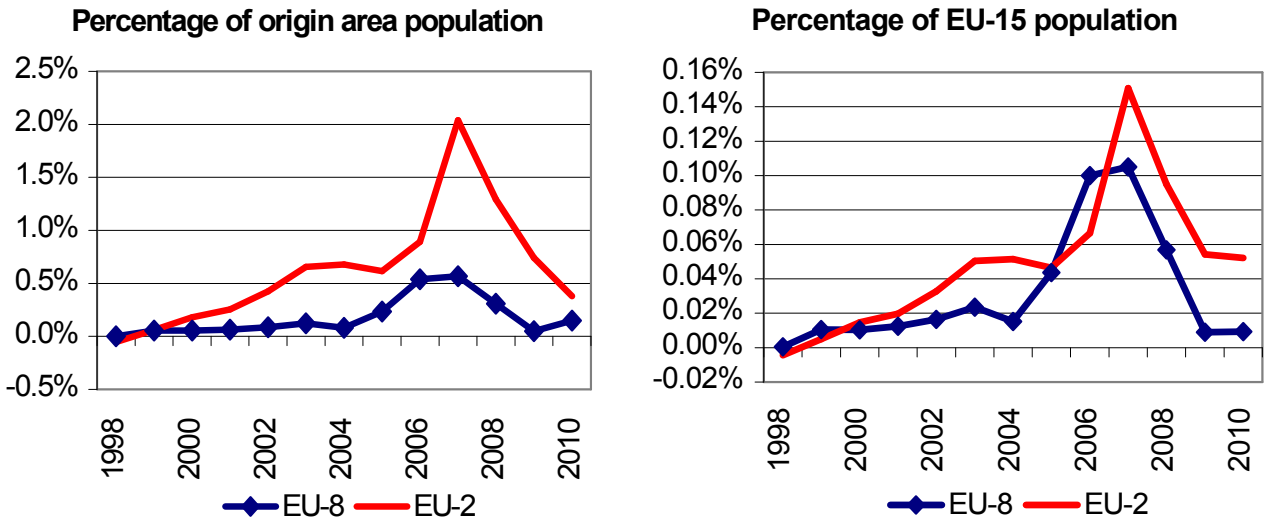
Figure 3.9. Intra EU migration from EU-8 and EU-2 to EU-15 and EU-10 (stocks)



Source: Tables 3.2-3.3 and Eurostat Population Statisitics

Below we present the scale of EU-8 and EU-2 net migration flows to EU-15 countries relative to the populations in their home and host regions.

Figure 3.10. EU-8 and EU-2 net migration flows to EU-15



Source: Calculated from Table 3.2 and NiGEM population estimates. Figures for 2010 were estimated using Eurostat Quarterly Labour Force Statistics for 2010Q1-Q3

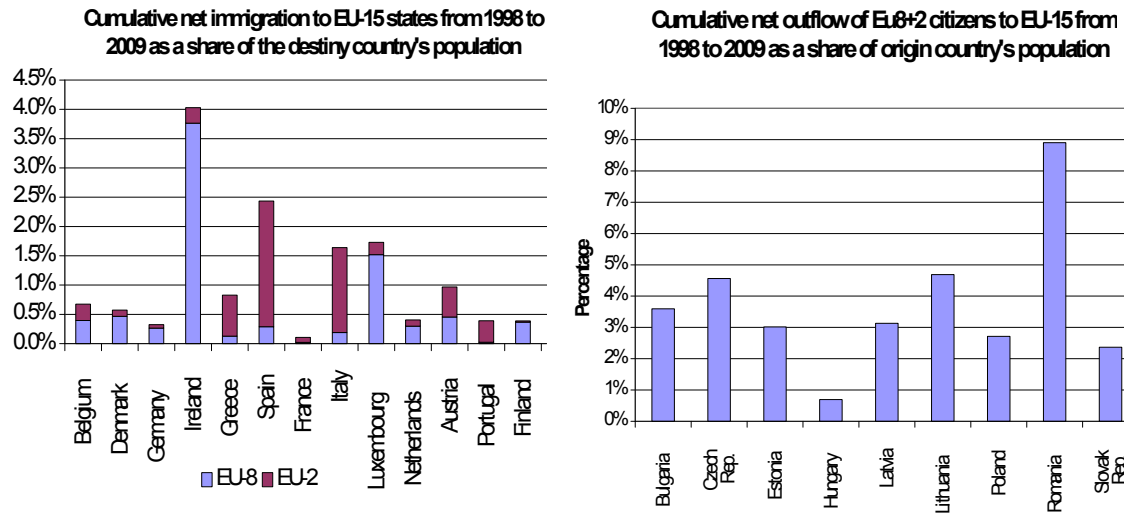
Figure 3.10 illustrates a continuous trend of net emigration with a sharp acceleration for the EU-8 after its accession in 2004, and for the EU-2 after its accession in 2007. Following the global crisis that started in mid 2007, net emigration rates from both areas dropped sharply but remained in the positive range.

The EU-2 population exhibits a higher degree of inter-EU mobility. Their net migration rates are almost continuously higher than those of the EU-8 countries. This phenomenon may be explained by the higher economic disparities between EU-2 and EU-15 countries than it is the case between EU-8 and EU-15 states. (See below for a full discussion of push and pull factors).

Figure 3.11 shows the cumulative immigration rate from the EU-8 and EU-2 to the EU-15 (as a percentage of the host country's population) from 1998 to 2009 and the cumulative emigration rate, as a percentage of the home country's population. Ireland had the highest relative inflow of EU-8+2 citizens over the respective time period, at over 4 per cent of its total population. Inflows to Spain, Italy, Luxembourg and the United Kingdom were also high, whereas net inflow rates in France and Germany were relatively low. The geographical allocations of immigration flows, as shown by the figures below, illustrate the different destination preferences of EU-2 and EU-8 citizens, after taking account of host country population size, which acts as a measure of the potential to absorb migration inflows. While EU-2 citizens targeted EU-15

states in the South, EU-8 citizens favoured destinations in Central and Western Europe - in particular the UK, Luxembourg and Ireland.

Figure 3.11. Cumulative net migration (1998-2009) as a share of 2009 population



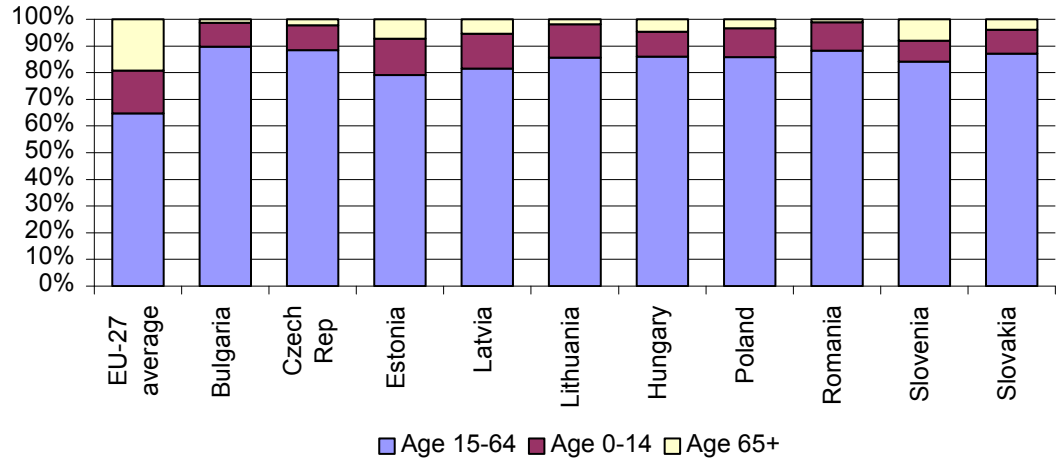
Source: Derived from Table 3.2 and Eurostat Population figures

The cumulative outflows of EU-8+2 citizens to the EU-15 have represented a sizeable human loss to the EU-8+2 countries due to their relatively small populations, as illustrated in figure 3.11. The exodus of Romanians is particularly striking - between 1998 and 2009 almost 9 per cent of the Romanian population emigrated to EU-15 countries. Whilst almost all the EU-8+2 countries experienced a cumulative net outflow of above 2 per cent of their population, the citizens of Hungary and Slovenia recorded only low net outflow rates of below one per cent. Slovenia is the wealthiest country in the EU-8+2 group, and thus the employment push-factors for migration are less urgent there than for other EU-8+2 countries. Moreover, Slovenia's proximity to Italy would allow a significant part of the population to work in Italy without having to move out of Slovenia. International commuting might also explain why the Hungarian outflow of citizens to the EU-15 was significantly lower than that of other EU-8+2 countries. A large amount of commuting activity occurs between Hungary and its wealthy neighbour, Austria.

The above analysis suggests that as migration constitutes a relatively large share of the population in both home and host countries, it may have significant consequences for both labour markets and the age profile of societies. East-West migration will aggravate the ageing problem in the EU-8+2 countries, while it may relieve pressures in EU-15 countries. A more detailed discussion of these issues in individual countries follows below.

Figure 3.12 shows the age structure of migrants from the EU-8 and EU-2 to the EU-27. We use information from the Eurostat LFS statistics on the age profile of citizens from the EU-8 and EU-2 countries resident in the EU-15 to calibrate the approximate share of migrant population flows that are of school age (0-14), working age (15-64) and retired age (65+). The available information and sample sizes are too small to establish bilateral, time varying patterns, so we limit our adjustment to information on the average age shares between 2003-2009 of citizens from each of the EU-8 and EU-2 countries resident in the EU-27 as a whole (outside of their home country). More than 80 per cent of migrants are of working age, compared to an EU-27 average of about 65 per cent. There is a clear overrepresentation of working age citizens from all of the EU-8 and EU-2 countries.

Figure 3.12. Age structure of mobile EU-8 and EU2 citizens in the EU-27, average over 2003-2009



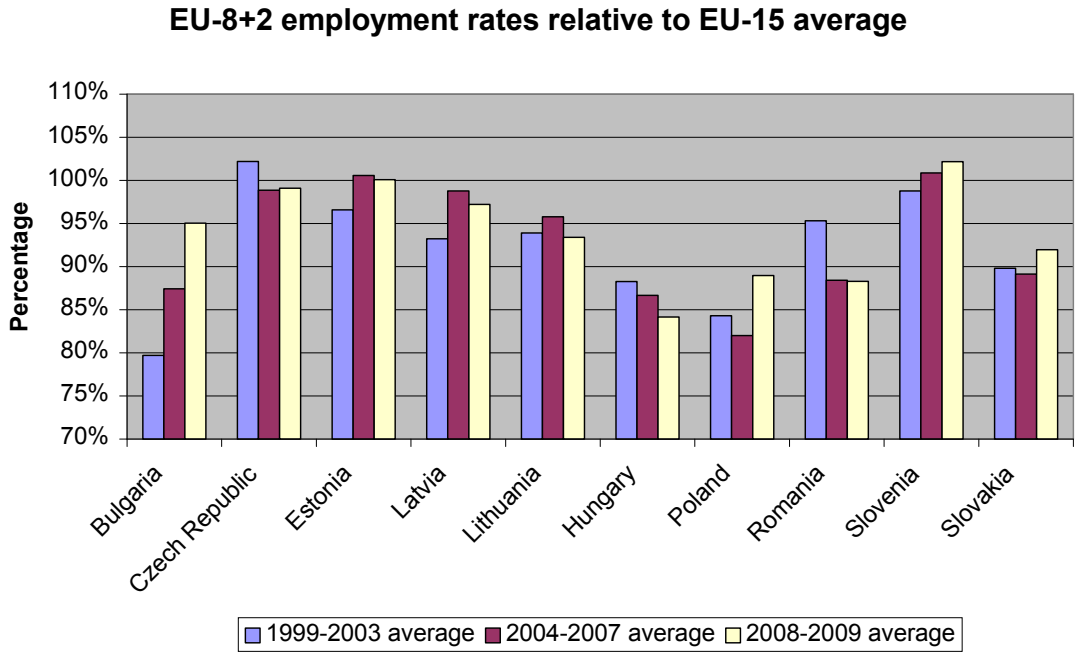
Source: Derived from Eurostat LFS series

As highlighted by the European Integration Consortium (2009) and Barrell, FitzGerald and Riley (2010), the skills implied by the occupational structure of workers mobile workers has tended to differ somewhat from their actual educational attainment. In section 3.4.2 we discuss the average educational attainment of EU-8 and EU-2 citizens residing in the EU-15, and the implications of this for the average level of productivity of migrant workers compared to native workers.

We now turn to an analysis of the domestic population in the EU-8+2 and EU-15 countries, as its characteristics will also determine the strength of migration effects on the labour market.

Figure 3.13 presents average employment rates relative to the EU-15 average employment rate for the time periods 1999-2003, 2004-2007 and 2008-2009.

Figure 3.13. Employment rates

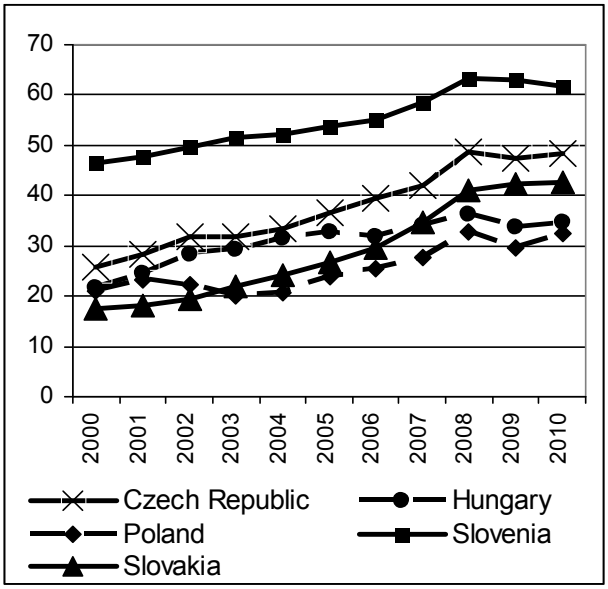


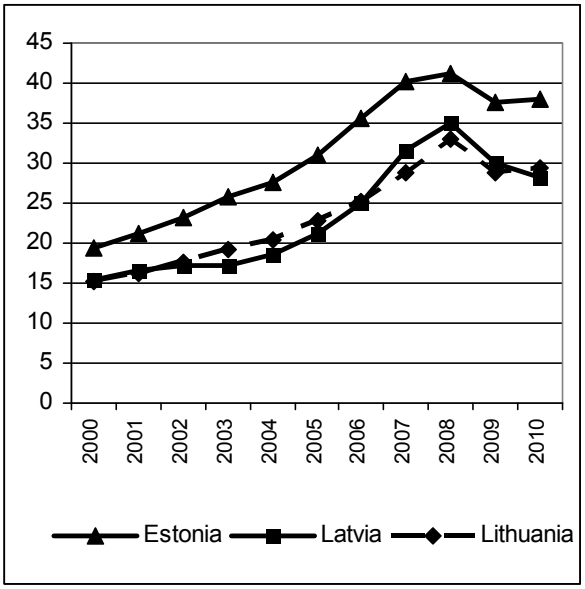
Source: Derived from Eurostat series

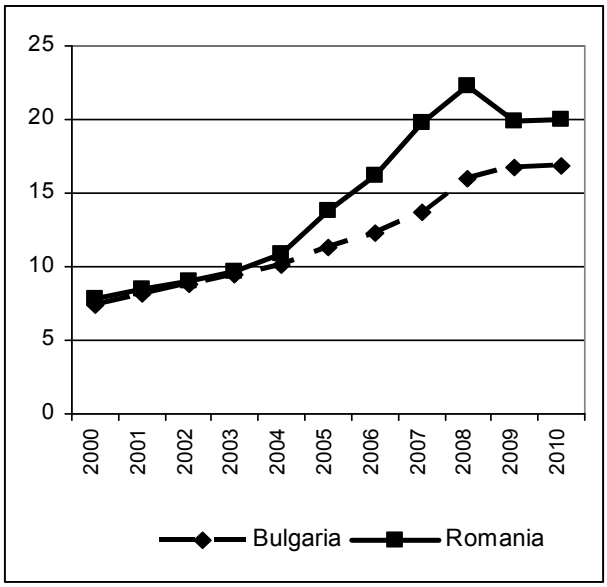
Figure 3.13 illustrates that employment rates in Slovenia, Estonia and the Czech Republic were approximately at the EU-15 level throughout the three time periods shown. A general trend of improvement relative to the 1999-2003 period can be observed. This can be explained by the gradual liberalisation and improved functioning of EU-8+2 labour markets, the fast economic expansion in these countries and unemployed workers seeking employment in EU-15 countries. Employment rates in the Czech Republic, Hungary, Romania and the Baltic countries decreased between 2008-2009 and the previous periods plotted. The most striking outliers are Bulgaria with its rapid improvement in employment over the entire time horizon, and Hungary with its steady worsening of employment figures, due to its comparatively worse economic performance since 2007.

The figure highlights the fact that the majority of migrants move to other EU countries for work purposes, and therefore the vast majority of migration from the EU-8+2 to the EU-15 countries is of an economic nature. In terms of GDP per capita, the EU-8+2 members remain relatively poorer than their Western European neighbours, as can be seen from figure 3.14.

Figure 3.14. GDP per capita in EU-8+2 relative to the EU-15 average



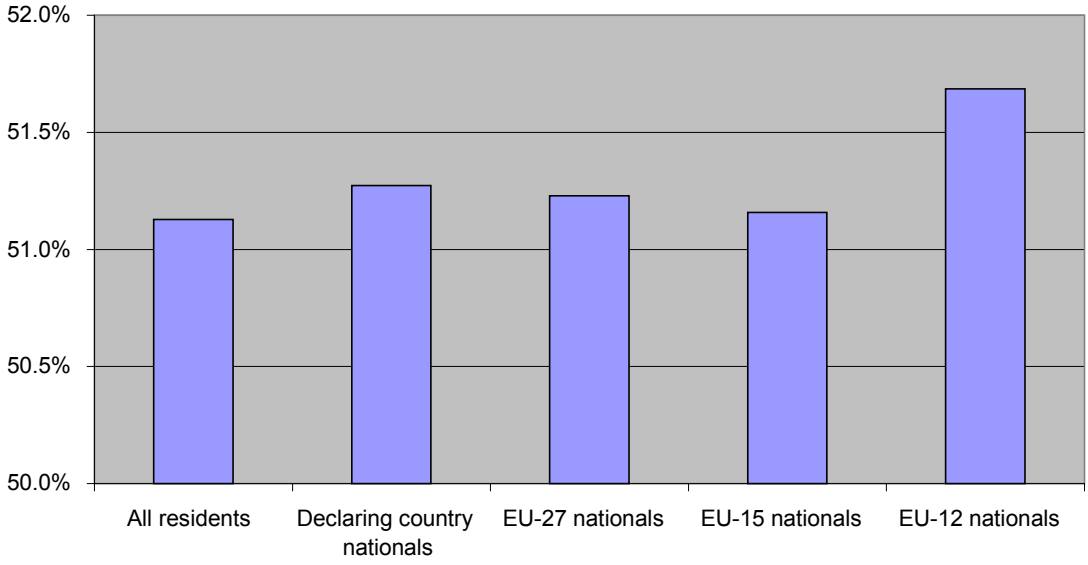




Source: Ameco, current market prices per head of population, EU-15 = 100

Figure 3.14 shows the slow, but continuous, convergence of GDP per capita between the EU-8+2 and EU-15 country groups. This trend has been reversed somewhat towards the end of the sample period in many of the countries depicted, particularly the Baltic economies. It is likely that this reversal is attributable to the financial crisis and ensuing recession in 2008-09. While the levels of GDP per capita in the EU-8+2 group remain below those of the EU-15 countries, there also exist significant differences within the cross section of countries themselves. Slovenia is by far the wealthiest country amongst the EU-8 group, whereas the EU-2 countries have the lowest level of GDP per capita.

Figure 3.15. Share of women in the EU-15 population, by citizenship

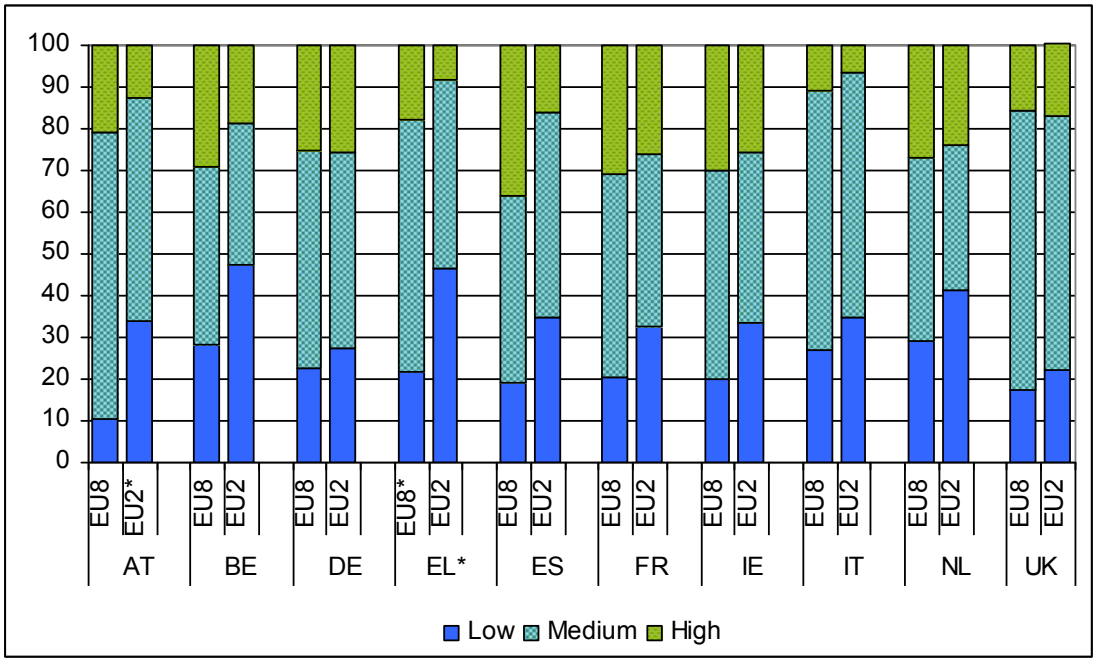


Source: Eurostat Population Statistics

The above chart illustrates the share of women in the EU-15 population, according to citizenship, as of 1 January 2010. The chart was created using Eurostat population statistics. For some countries where the full data were unavailable for 2010, we have used estimates based on the previous year's share of women. However, most of the estimates were for smaller countries such as Luxembourg or Greece, and therefore should not have had a big impact on the total figure for the EU-15 countries as a group. In general, it appears that the EU-12 (or EU10+2) citizens residing in EU-15 countries have a higher share of female population than all other groups. However, the magnitude of this bias is relatively small, with women accounting for 51.7 per cent of EU-12 citizens resident in the EU-15, compared to 51.1 per cent of EU-15 nationals.

Appendix table A1 at the end of this report shows the skill structure, based on educational attainment, of EU-8+2 migrants residing in the EU-15 in 2010. The source of this table is the EU Labour Force Survey. About 28 per cent of all EU-8+2 migrants working in EU-15 countries are low-skilled, 55 per cent are medium-skilled and 17 per cent are high-skilled. Luxembourg, Demark, Sweden and Ireland tend to attract high-skilled workers, while Greece, Portugal, Spain, Belgium, Netherlands and Finland are more popular destinations among those with low skills. Figure 3.16 shows the skill structure of EU-8 and EU-2 nationals residing in selected countries of the EU-15.

Figure 3.16. Skill structures of EU-8 and EU-2 nationals residing in selected EU-15 countries



* denotes lower reliability of data

Source: Labour Force Survey

Appendix table A2 reports the most popular occupations in which EU-8+2 nationals work in individual EU-15 countries. A large number, about 32 per cent, of EU-8+2 nationals living in EU-15 countries work in elementary occupations. About 54 per cent are employed in occupations requiring medium skills such as craft and related trades workers, service workers and shop and market sales workers. About 14 per cent of EU-8+2 nationals (that is 80 per cent of those with a university degree) work as legislators, senior officials, managers, professionals, technicians and associate professionals. Table 3.4 show shares of EU-8 and EU-2 nationals working in individual occupations.

Table 3.3. Occupational structure of EU-8 and EU-2 nationals residing and working in selected EU-15 countries

	EU-8	EU-2	EU-8+2
Legislators senior officials and managers	5	2	3
Professionals	7	3	5
Technicians and associate professionals	7	4	6
Clerks	6	3	4
Service workers and shop and market sales workers	17	15	16
Skilled agricultural and fishery workers	1	2	2
Craft and related trades workers	16	26	21
Plant and machine operators and assemblers	12	10	11
Elementary occupations	28	36	32

Source: Labour Force Survey

Table 3.5 on the education and occupational structure of EU-8 migrants in individual countries suggests that the incidence of downskilling – accepting employment in an occupation below one's qualification level – is highest in Ireland, Denmark, Sweden and the UK.

Table 3.4. Skill and occupational structure of EU8 nationals in selected EU15 countries

	Low skill occupations	Medium skill occupations	High skill occupations	Low education	Medium education	High education
BE	28	43	29	28	43	29
DK	(29.9)	46	(24.0)	18	38	44
DE	19	51	29	23	52	25
IE	24	65	11	20	50	30
ES	20	60	21	19	45	36
FR	19	51	(18.9)	20	49	31
IT	37	49	13	27	62	11
LU	:	:	83	:	:	81
NL	26	50	26	29	44	27
AT	17	52	31	11	69	21
FI	(21.6)	60	:	47	41	:
SE	19	54	27	27	31	42
UK	35	52	13	18	67	16

Data in parentheses denote lower reliability

Source: Labour Force Survey

Table 3.5. Skill and occupational structure of EU2 nationals in selected EU15 countries

	Low skill occupations	Medium skill occupations	High skill occupations	Low education	Medium education	High education
BE	(21.0)	46	33	47	34	19
DE	20	48	32	27	47	26
EL	50	47	:	47	45	8
ES	41	55	4	35	49	16
FR	(19.2)	54	(26.6)	33	41	26
IT	37	59	4	35	59	7
LU	:	:	(86.4)	:	:	(78.1)
NL	:	(50.2)	(29.9)	41	(34.6)	(23.9)
AT	31	55	(14.6)	34	53	(12.6)
UK	29	53	18	22	61	17

Data in parentheses denote lower reliability

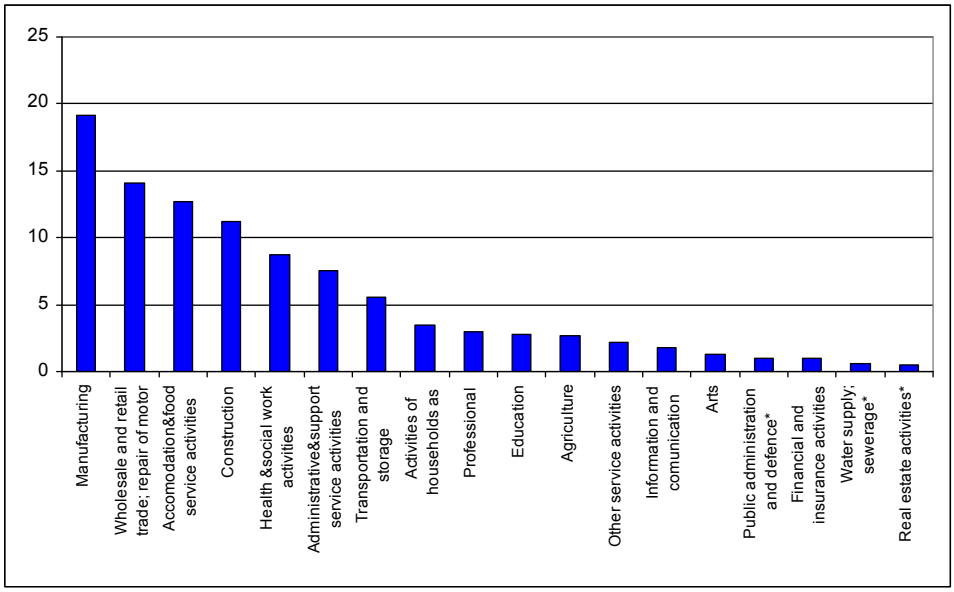
Source: Labour Force Survey

As for Romanian and Bulgarian workers, a relatively large proportion of the EU-2 migrant population with a higher qualification may work in lower-skilled occupations

in Spain, Greece and Italy (see table 3.6). The medium skilled migrant labour force may work below their qualification level in Spain and the UK.

Appendix table A3 gives a detailed breakdown of sectors in which EU-8+2 workers are employed in individual EU-15 countries. EU-8+2 citizens resident in the EU-15 countries work to a large extent in the construction and manufacturing sectors. Figures 3.17 and 3.18 show shares of EU-8 and EU-2 migrant populations employed in individual sectors.

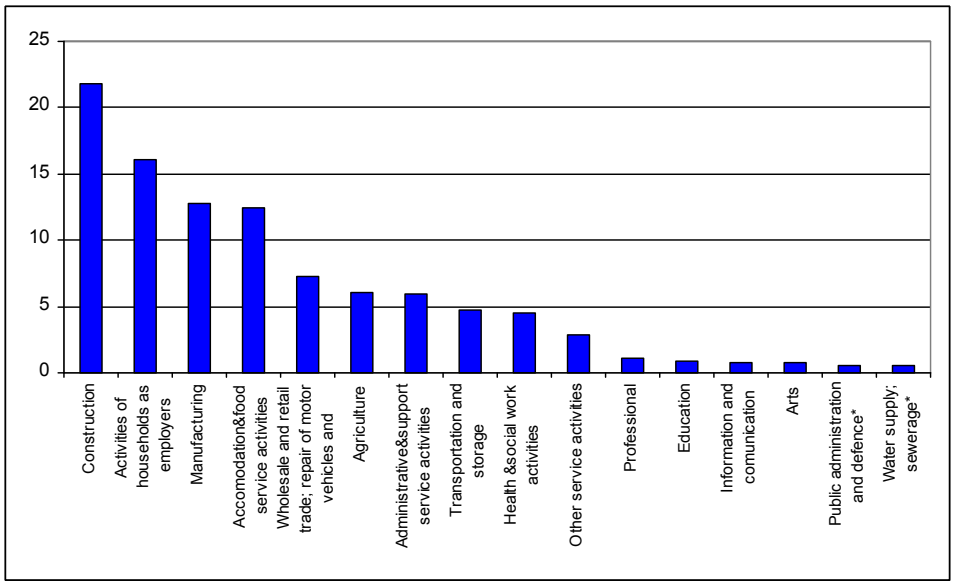
Figure 3.17. Sectoral structure of EU8 mobile workers in EU15 (2010)



* denotes lower reliability

Source: Labour Force Survey

Figure 3.18. Sectoral structure of EU2 mobile workers in EU15 (2010)



* denotes lower reliability

Source: Labour Force Survey

Macro-economic impact of population flows 2004-2009

In this section we consider the macro-economic impact of the population flows from the EU-8 and EU-2 to the EU-15 economies since 2004, based on our migration matrix reported above. At this stage we do not attempt to identify the extent to which these population movements can be attributed to the EU accession process, but the results reported here could be viewed as an upper limit to the macro-economic impact of the 2004 EU enlargement. We consider the EU-8 separately from the EU-2, and look at the impacts on both the sending and receiving countries. We do not include flows from Malta and Cyprus in this analysis, as they are very small and we cannot separately identify the impacts in these countries within the modelling framework we adopt. Flows from the EU-2 to the EU-10 are relatively small (except in the case of Cyprus) and so are omitted from the analysis reported below. Note also that we cannot separately identify the impact on Luxembourg within the modelling framework we adopt. Total inflows from the EU-8 into Luxembourg over the period 2004-2009 amounted to about 1.3 per cent of the Luxembourg population with much smaller inflows from the EU-2, in relative terms similar to the flows to the UK. We could therefore make the assumption that the macro-economic impact in Luxembourg has been roughly the same in terms of magnitude as in the UK.

The methodological approach we adopt to assess the macro-economic impact of population movements is a series of model simulation exercises, using the National Institute's model, NiGEM, following the approached adopted by Barrell (2009), Barrell, Gottschalk, Kirby and Orazgani (2009) and Barrell, Riley and Fitzgerald (2010). NiGEM has been in use at the National Institute since 1987, and is also used by a group of about 50 model subscribers, mainly in the policy community. Current users include the Bank of England, the ECB, the IMF, the Bank of France, the Bank of Italy and the Bundesbank as well as most other central banks in Europe along with research institutes and finance ministries throughout Europe and elsewhere. NiGEM is a global model, and most EU countries are modelled individually (with the exception of Luxembourg, Cyprus and Malta). All country models contain the determinants of domestic demand, export and import volumes, prices, current accounts and net assets. Economies are linked through trade, competitiveness and financial markets and the models are solved simultaneously.

Further detail on NiGEM is provided in an appendix, but the core parts of the model relevant to the scenarios presented in this paper are the labour market and the production function in each economy. The speed of response of employment to changes in labour supply varies between countries, and is estimated, as are the long run structural parameters of the production function, which are similar across countries.

Within the NiGEM model, labour markets in each country are described by a wage equation (see Barrell and Dury, 2003 for a detailed description) and a labour demand equation (see, for example, Barrell and Pain, 1997). The wage equations depend on productivity and unemployment, and have a degree of rational expectations embedded in them – that is to say the wage bargain is assumed to depend partly on expected future inflation and partly on current inflation. The speed of the wage adjustment is estimated for each country. Wages adjust to bring labour demand in line with labour supply. Employment depends on real wages, output and trend productivity, again with speeds of adjustment employment estimated for each country. Labour supply is treated as exogenous to factors other than population projections. Inward migration raises the population, which feeds directly into labour supply.

Production functions are based on a CES framework, with labour and capital as factor inputs, estimated rates of labour augmenting technical progress and an elasticity of substitution of around a half. The speed of adjustment of the equilibrium capital stock is estimated, and adjustment is toward expected output and its effects 4 years ahead. Forward looking adjustment means that it is possible to look at anticipated as well as unanticipated migration. Inward migration raises potential labour supply, and therefore raises potential output through the production function.

NiGEM allows us to model the bilateral labour flows from each of the EU-8 and EU-2 countries to each of the EU-15 countries, adjusting for shifts in the skill level and age structure of migrants. NiGEM is a quarterly model, allowing an empirical assessment of both the short-term and long-term impact on key macro-economic variables such as GDP, inflation, unemployment and wages. As all countries are simulated simultaneously, we can fully capture the positive and negative spillovers between countries. A rise in demand in one country will raise import demand in that country, raising exports and hence GDP in all of its trading partners. This will be offset to some degree by any shifts in competitiveness. For example, if wages fall in response to an inward migration shock the price level in that country will fall relative to the rest of the world, allowing a gain in competitiveness. This is particularly important within the single currency zone, as there will be no offsetting adjustment in exchange rates.

In tables 3.7-3.9 below we show the population flows from the EU-8 and EU-2 economies to the EU-15 between 2004 and 2009. The final two columns also put this into perspective, showing the aggregate inflows or outflows over the six year period, in total and relative to the size of the domestic population.

Table 3.6. Population net outflows to the EU-15, 2004-2009

	2004	2005	2006	2007	2008	2009	Total 2004-2009	% 2004 Domestic Population
Czech Rep	9501	-6846	-24973	-17329	1975	6714	-30958	-0.3
Estonia	-2150	-4627	-3157	-7756	1226	-14948	-31411	-2.3
Latvia	-524	-8464	-19753	-6168	-17385	-5291	-57586	-2.5
Lithuania	-15158	-33929	-44412	-23459	-33501	7543	-142916	-4.2
Hungary	5049	-4925	-16299	-22279	-16658	-4622	-59734	-0.6
Poland	-56953	-139535	-270353	-282002	-167715	-545	-917103	-2.4
Slovenia	989	-2212	-1449	-1457	454	-2860	-6535	-0.3
Slovakia	-5284	-28039	-11800	-39575	6573	-21911	-100036	-1.9
EU8	-64530	-228578	-392196	-400026	-225030	-35919	-1346279	-1.8
Bulgaria	-29040	-28329	-39487	-64403	-83536	-20775	-265570	-3.4
Romania	-175328	-164942	-227899	-530610	-293018	-194710	-1586508	-7.3
EU2	-204369	-193271	-267386	-595013	-376554	-215485	-1852078	-6.3

Source: Table 3.2

Table 3.7. Population net inflows from the EU-8, 2004-2009

	2004	2005	2006	2007	2008	2009	Total 2004-2009	% 2004 Domestic Population
Belgium	17013	18260	-5788	-5647	9641	-152	33328	0.3
Denmark	808	2183	3276	5613	8254	3424	23557	0.4
Germany	-42324	43072	80922	31885	9538	12274	135368	0.2
Ireland	-3857	23842	72145	37343	33762	-12506	150729	3.7
Greece	2334	1594	-806	-186	7183	-5543	4577	0.0
Spain	13207	14920	32675	23820	10131	2361	97113	0.2
France	10528	-9572	9947	-6095	8650	-1067	12392	0.0
Italy	12296	12128	14423	22864	11810	9244	82766	0.1
Neths.	4810	5357	5192	7984	11805	10961	46110	0.3
Austria	8142	7508	5573	6215	7197	-3761	30874	0.4
Portugal	218	217	216	1055	-63	371	2013	0.0
Finland	637	1808	2540	3161	3519	3715	15379	0.3
Sweden	2133	3639	6893	8569	8291	7721	37246	0.4
UK	38585	103622	164988	263445	95312	8876	674827	1.1
EU-15	64530	228578	392196	400026	225030	35918	1346279	0.4

Source: Table 3.2

Table 3.8. Population net inflows from the EU-2, 2004-2009

	2004	2005	2006	2007	2008	2009	Total 2004-2009	% 2004 Domestic Population
Belgium	1407	2591	3296	7873	3506	7722	26394	0.3
Denmark	119	194	120	955	2070	2118	5576	0.1
Germany	-20877	-336	8208	20513	17104	20461	45073	0.1
Ireland	690	3182	2311	3506	5147	-930	13906	0.3
Greece	9613	5403	1578	7944	13273	22491	60303	0.5
Spain	116739	119988	174194	225345	74427	26921	737615	1.7
France	9179	-6083	27702	5848	7564	1376	45586	0.1
Italy	74961	51134	46838	296861	178766	96325	744885	1.3
Neths.	531	138	345	5850	5179	3009	15051	0.1
Austria	1259	825	-121	6986	6080	22725	37754	0.5
Portugal	270	-1993	1297	8911	9878	5428	23791	0.2
Finland	22	61	119	299	275	228	1004	0.0
Sweden	22	35	-125	3202	2914	1720	7768	0.1
UK	10432	18132	1624	920	50372	5892	87371	0.1
EU-15	204367	193271	267386	595013	376555	215486	1852077	0.5

Source: Table 3.2

The tables show that the population flows have had the biggest impact on Romania, with 7.3 per cent of the population emigrating to the EU-15 between 2004 and 2009. Bulgaria and Lithuania have also had a significant population loss over this period. Of the receiving countries, the biggest impact has been in Ireland. Elsewhere combined inflows from the EU-8 and EU-2 have amounted to 2 per cent or less of the total population.

In order to assess the macro-economic impact of population shifts between the EU-8/EU-2 and the EU-15 since 2004, we run two NiGEM model simulations, adjusting the level of the population in each country over a six year period by the value reported in tables 3.7-3.9 above. For example, we raise the level of the population in Belgium by 1407 in the first year, by a further 2591 in the second year, by 3296 in the third year, etc. For the purposes of this baseline scenario, we assume that the cumulative population shift between 2004-2009 is permanent, allowing us to assess the expected long-run impact as well as the short-run effects. After applying these exogenous "shocks" to the population in each country, we allow the model to run, to determine the impact that this change has on the major macro-economic indicators in each country. Tables 3.10-3.17 below report the expected impact on output, inflation and the unemployment rates in each country. We also report the expected impact on real wages (from the consumer's perspective) in the EU-15 countries plus Poland, Hungary and the Czech Republic[3].

[3] The model we are working with does not explicitly measure wages in the other countries covered by this study and so we also cannot calculate the impact on aggregate EU-8/EU-2 wages. The biggest impacts can be expected in countries with the biggest short-term shifts in the unemployment rate.

Table 3.9. Impact of migration from EU-8 to EU-15 on GDP (%)

	2004	2005	2006	2007	2008	2009	Long-run	Long-run GDP per capita
EU-8	-0.02	-0.08	-0.21	-0.36	-0.44	-0.45	-1.31	0.61
Czech Rep	0.01	-0.01	-0.05	-0.08	-0.08	-0.07	-0.20	0.10
Estonia	-0.02	-0.11	-0.22	-0.42	-0.58	-0.95	-2.45	-0.11
Hungary	0.01	-0.02	-0.05	-0.08	-0.08	-0.07	-0.33	0.29
Lithuania	-0.11	-0.43	-0.99	-1.72	-2.73	-3.35	-4.89	-0.12
Latvia	0.00	-0.04	-0.24	-0.58	-1.32	-1.75	-2.80	-0.06
Poland	-0.03	-0.11	-0.29	-0.44	-0.47	-0.37	-1.46	1.04
Slovenia	0.02	0.03	0.02	-0.04	-0.11	-0.18	-0.34	0.00
Slovakia	-0.01	-0.18	-0.40	-0.79	-1.05	-1.34	-1.92	-0.09
EU-15	0.02	0.05	0.09	0.13	0.17	0.21	0.34	0.01
Belgium	0.01	0.04	0.08	0.12	0.15	0.18	0.28	-0.02
Denmark	0.01	0.04	0.08	0.12	0.18	0.24	0.42	-0.01
Finland	-0.01	-0.02	-0.01	0.00	0.02	0.04	0.18	-0.09
France	0.02	0.03	0.04	0.06	0.07	0.08	0.04	0.02
Germany	0.00	0.00	0.01	0.01	0.02	0.02	0.15	-0.02
Greece	0.03	0.06	0.09	0.11	0.14	0.15	0.07	0.03
Ireland	0.03	0.11	0.27	0.59	0.98	1.31	2.43	-0.59
Italy	0.01	0.02	0.04	0.05	0.06	0.07	0.12	-0.02
Neths	0.02	0.05	0.08	0.09	0.11	0.13	0.25	-0.02
Austria	0.02	0.05	0.08	0.11	0.13	0.15	0.30	-0.06
Portugal	0.01	0.03	0.04	0.06	0.08	0.09	0.06	0.04
Sweden	0.01	0.02	0.04	0.06	0.09	0.11	0.32	-0.06
Spain	0.01	0.03	0.05	0.07	0.09	0.10	0.17	-0.03
UK	0.07	0.18	0.30	0.44	0.57	0.68	0.91	-0.08

Table 3.10. Impact of migration from EU-8 to EU-15 on unemployment rate (percentage points)

	2004	2005	2006	2007	2008	2009	Long-run
EU-8	-0.04	-0.16	-0.35	-0.48	-0.45	-0.27	-0.05
Czech Rep	0.07	0.01	-0.16	-0.24	-0.15	-0.03	-0.01
Estonia	-0.08	-0.20	-0.14	-0.31	0.04	-0.53	0.00
Hungary	0.04	-0.01	-0.12	-0.25	-0.30	-0.20	-0.04
Lithuania	-0.23	-0.56	-0.77	-0.49	-0.53	0.08	-0.03
Latvia	-0.03	-0.18	-0.48	-0.24	-0.35	-0.17	-0.01
Poland	-0.08	-0.26	-0.60	-0.89	-0.89	-0.54	-0.10
Slovenia	0.02	-0.05	-0.06	-0.03	0.00	-0.07	0.00
Slovakia	-0.05	-0.26	-0.13	-0.36	0.04	-0.16	0.00
EU-15	0.01	0.02	0.04	0.04	0.02	-0.01	-0.01
Belgium	0.10	0.16	0.05	-0.03	0.02	0.00	0.00
Denmark	0.00	0.01	0.01	0.04	0.07	0.02	0.00
Finland	0.01	0.02	0.04	0.04	0.04	0.03	0.01
France	0.01	-0.02	-0.01	-0.03	-0.02	-0.02	0.00
Germany	-0.01	0.02	0.04	0.02	0.01	0.01	0.00
Greece	0.00	0.00	-0.02	-0.01	0.03	-0.02	0.00
Ireland	-0.06	0.25	0.78	0.15	-0.14	-0.50	-0.02
Italy	0.01	0.01	0.01	0.01	0.00	0.00	0.00
Neths	0.01	0.00	-0.01	0.02	0.06	0.06	-0.01
Austria	0.05	0.03	0.00	0.02	0.04	-0.04	0.00
Portugal	0.00	-0.01	0.00	0.00	-0.01	-0.01	0.00
Sweden	0.01	0.01	0.02	0.01	0.02	0.01	0.00
Spain	0.01	0.02	0.04	0.03	0.01	0.00	0.00
UK	0.03	0.06	0.12	0.22	0.10	-0.01	-0.01

Table 3.11. Impact of migration from EU-8 to EU-15 on real wages (%)

	2004	2005	2006	2007	2008	2009	Long-run
Czech Rep	-0.02	-0.05	0.01	0.19	0.36	0.44	0.26
Hungary	-0.01	-0.02	0.03	0.20	0.45	0.68	0.62
Poland	0.00	0.11	0.46	1.14	2.00	2.73	2.43
Belgium	0.00	-0.02	-0.06	-0.08	-0.09	-0.11	-0.09
Denmark	0.00	0.01	0.00	-0.03	-0.11	-0.19	-0.22
Finland	0.00	-0.02	-0.04	-0.07	-0.12	-0.19	-0.38
France	0.00	0.00	0.01	0.02	0.03	0.03	0.07
Germany	0.01	0.02	-0.02	-0.08	-0.13	-0.16	-0.17
Greece	0.00	0.00	0.00	0.01	0.01	0.01	0.06
Ireland	0.03	0.02	-0.34	-0.90	-1.32	-1.60	-1.64
Italy	-0.01	-0.01	-0.02	-0.04	-0.06	-0.07	-0.07
Neths	0.00	0.00	0.00	-0.02	-0.05	-0.09	-0.24
Austria	-0.03	-0.08	-0.13	-0.18	-0.28	-0.31	-0.33
Portugal	0.00	0.00	0.01	0.01	0.01	0.01	0.05
Sweden	-0.01	-0.02	-0.03	-0.06	-0.08	-0.12	-0.18
Spain	0.00	0.00	-0.01	-0.04	-0.08	-0.11	-0.12
UK	0.00	-0.02	-0.07	-0.19	-0.35	-0.42	-0.39
EU-15	0.00	0.00	0.00	-0.03	-0.07	-0.10	-0.13

Table 3.12. Impact of migration from EU-8 to EU-15 on HICP inflation (percentage points)

	2004	2005	2006	2007	2008	2009	Long-run
EU-8	0.03	0.05	0.09	0.13	0.10	0.07	-0.01
Czech Rep	-0.01	-0.01	0.00	0.02	0.03	0.02	0.00
Estonia	0.09	0.15	0.23	0.34	0.36	0.33	-0.04
Hungary	0.00	-0.01	0.00	0.01	0.02	0.02	0.00
Lithuania	0.20	0.43	1.02	1.52	1.30	0.96	0.04
Latvia	0.13	-0.01	0.37	1.16	0.81	0.71	0.02
Poland	0.04	0.04	0.04	0.03	0.01	0.00	-0.02
Slovenia	0.01	0.02	0.11	0.15	0.08	0.05	-0.04
Slovakia	0.10	0.26	0.34	0.37	0.33	0.12	-0.02
EU-15	0.00	0.00	-0.01	-0.04	-0.06	-0.06	-0.01
Belgium	-0.01	-0.02	-0.03	-0.02	-0.02	-0.01	-0.01
Denmark	-0.01	-0.02	-0.01	-0.03	-0.05	-0.05	-0.02
Finland	-0.02	-0.04	-0.04	-0.05	-0.05	-0.06	-0.05
France	0.01	0.01	0.02	0.02	0.02	0.02	0.00
Germany	-0.01	-0.02	-0.03	-0.05	-0.05	-0.04	-0.01
Greece	0.01	0.02	0.02	0.02	0.02	0.02	-0.01
Ireland	-0.05	-0.11	-0.28	-0.38	-0.23	-0.07	0.00
Italy	0.00	0.00	0.00	-0.01	-0.01	-0.01	-0.02
Neths	-0.01	-0.01	0.00	-0.01	-0.02	-0.03	-0.01
Austria	-0.03	-0.05	-0.04	-0.03	-0.05	-0.04	-0.03
Portugal	0.01	0.01	0.01	0.00	0.00	0.01	0.00
Sweden	-0.02	-0.04	-0.04	-0.04	-0.05	-0.05	-0.03
Spain	0.00	-0.01	-0.01	-0.02	-0.03	-0.02	-0.03
UK	0.03	0.04	0.01	-0.10	-0.25	-0.24	-0.02

Table 3.13. Impact of migration from EU-2 to EU-15 on GDP (%)

	2004	2005	2006	2007	2008	2009	Long-run	Long-run GDP per capita
EU-2	-0.29	-0.54	-0.93	-1.75	-2.43	-3.15	-7.36	-0.52
Bulgaria	-0.08	-0.18	-0.39	-0.79	-1.38	-1.87	-4.04	-0.13
Romania	-0.37	-0.67	-1.11	-2.09	-2.80	-3.61	-8.52	-0.65
EU-15	0.01	0.03	0.07	0.12	0.19	0.24	0.31	-0.13
Belgium	0.01	0.02	0.04	0.06	0.08	0.09	0.22	-0.02
Denmark	0.00	0.01	0.01	0.01	0.02	0.03	0.09	-0.02
Finland	-0.02	-0.03	-0.05	-0.06	-0.06	-0.07	-0.05	-0.07
France	0.01	0.03	0.04	0.06	0.07	0.08	0.08	0.00
Germany	-0.01	-0.02	-0.02	-0.02	-0.02	-0.03	0.04	-0.02
Greece	0.04	0.10	0.16	0.21	0.27	0.33	0.45	-0.08
Ireland	0.00	0.00	0.02	0.04	0.06	0.08	0.22	-0.06
Italy	0.02	0.07	0.15	0.23	0.34	0.46	0.93	-0.29
Neths	0.01	0.02	0.02	0.03	0.02	0.01	0.07	-0.02
Austria	0.00	0.00	0.01	0.04	0.06	0.09	0.35	-0.10
Portugal	0.01	0.03	0.05	0.07	0.10	0.12	0.20	-0.02
Sweden	0.00	0.00	0.00	0.00	0.00	-0.01	0.04	-0.04
Spain	0.07	0.18	0.33	0.49	0.66	0.80	1.33	-0.21
UK	0.00	0.02	0.03	0.04	0.05	0.06	0.13	0.00

Table 3.14. Impact of migration from EU-2 to EU-15 on unemployment rate (percentage points)

	2004	2005	2006	2007	2008	2009	Long-run
EU-2	-0.32	-0.37	-0.51	-1.10	-0.86	-0.54	-0.01
Bulgaria	-0.21	-0.23	-0.31	-0.49	-0.66	-0.26	-0.01
Romania	-0.36	-0.42	-0.58	-1.32	-0.93	-0.64	-0.01
EU-15	0.03	0.03	0.04	0.08	0.05	0.02	0.01
Belgium	0.00	0.01	0.01	0.04	0.04	0.06	0.00
Denmark	0.00	0.00	0.00	0.01	0.02	0.03	0.00
Finland	0.00	0.01	0.02	0.02	0.01	0.01	0.01
France	0.01	-0.01	0.01	0.00	0.00	-0.01	0.00
Germany	0.00	0.01	0.01	0.02	0.01	0.02	0.00
Greece	0.03	0.01	-0.03	0.00	0.04	0.09	-0.01
Ireland	0.01	0.03	0.01	0.02	0.04	-0.04	0.00
Italy	0.07	0.04	0.00	0.23	0.15	-0.01	0.00
Neths	0.00	-0.01	-0.01	0.02	0.03	0.03	-0.01
Austria	0.01	0.00	-0.01	0.04	0.02	0.12	0.00
Portugal	0.00	-0.02	-0.01	0.04	0.05	0.02	0.00
Sweden	0.00	0.00	0.00	0.01	0.01	0.00	0.00
Spain	0.13	0.15	0.17	0.23	0.05	-0.07	0.00
UK	0.01	0.02	0.01	0.00	0.05	0.02	-0.01

Table 3.15. Impact of migration from EU-2 to EU-15 on real wages (%)

	2004	2005	2006	2007	2008	2009	Long-run
Belgium	0.00	0.00	0.00	-0.01	-0.03	-0.05	-0.09
Denmark	0.00	0.01	0.01	0.01	0.00	-0.05	-0.13
Finland	-0.01	-0.01	-0.02	-0.04	-0.06	-0.08	-0.22
France	0.00	0.00	0.00	-0.01	-0.01	-0.01	0.01
Germany	0.00	0.00	-0.01	-0.03	-0.05	-0.08	-0.13
Greece	0.00	-0.02	-0.02	-0.03	-0.05	-0.09	-0.22
Ireland	0.00	-0.02	-0.04	-0.06	-0.11	-0.15	-0.16
Italy	-0.04	-0.10	-0.12	-0.27	-0.54	-0.69	-0.71
Neths	0.00	0.00	0.01	0.01	-0.01	-0.03	-0.15
Austria	0.00	-0.01	-0.01	-0.03	-0.06	-0.19	-0.44
Portugal	0.00	0.01	0.01	0.01	0.01	-0.01	-0.06
Sweden	0.00	0.00	-0.01	-0.02	-0.03	-0.04	-0.09
Spain	0.00	-0.04	-0.13	-0.30	-0.53	-0.73	-0.69
UK	0.00	-0.01	-0.03	-0.03	-0.04	-0.07	-0.05
EU-15	-0.01	-0.02	-0.04	-0.09	-0.17	-0.24	-0.28

Table 3.16. Impact of migration from EU-2 to EU-15 on HICP inflation (percentage points)

	2004	2005	2006	2007	2008	2009	Long-run
EU-2	-0.13	-0.11	0.03	0.09	0.57	0.92	0.03
Bulgaria	0.20	0.30	0.36	0.56	0.83	0.96	-0.06
Romania	-0.24	-0.25	-0.08	-0.07	0.47	0.91	0.06
EU-15	0.00	-0.01	-0.01	-0.02	-0.04	-0.04	-0.01
Belgium	0.00	0.00	0.00	0.00	0.00	-0.01	-0.01
Denmark	0.00	0.00	0.01	0.00	-0.01	-0.02	-0.02
Finland	-0.01	-0.02	-0.02	-0.02	-0.03	-0.02	-0.04
France	0.01	0.01	0.02	0.01	0.01	0.01	0.00
Germany	0.00	-0.01	-0.01	-0.01	-0.02	-0.02	-0.01
Greece	0.01	0.01	0.01	0.02	0.02	0.00	-0.02
Ireland	-0.01	-0.02	-0.02	-0.02	-0.03	-0.02	0.00
Italy	-0.03	-0.06	-0.02	-0.06	-0.18	-0.15	-0.03
Neths	0.00	0.00	0.01	0.01	0.00	-0.01	-0.01
Austria	-0.01	-0.02	-0.01	-0.01	-0.03	-0.05	-0.03
Portugal	0.02	0.01	0.01	0.01	0.00	0.00	-0.01
Sweden	-0.01	-0.01	-0.01	-0.01	-0.02	-0.02	-0.03
Spain	-0.04	-0.07	-0.10	-0.14	-0.18	-0.14	-0.04
UK	0.00	0.00	0.00	0.01	0.00	-0.03	-0.01

Source: (Tables 3.10-3.17) NiGEM model simulation exercises

As regards the EU-15 economies, the first thing to note is that the impact of population flows from the EU-8 and EU-2 thus far has been small. The level of output in the EU-15 may have risen by about 0.7 per cent over the six year period to 2009 as a result of the population movements, adding about 0.1 percentage points to GDP growth per annum on average. This is based on the sum of the long-run impact on GDP of population flows from the EU-8 in table 3.10 (0.34) and the EU-2 in table 3.14 (0.31). We use the term 'long-run' to reflect the eventual shift that we would expect if all population flows since 2004 were permanent after allowing all short-term dynamic effects to feed through, and allow for no additional migration after 2009. The dynamics of adjustment differ across countries (that is the speed of adjustment to equilibria in different markets differs across countries), but as a general rule the model properties are such that we can assume that most countries reach their 'long-run' after about 7 years. By 2017, the impact of population flows from 2004-2009 will have probably mostly fed through into the economy.

Ireland and the UK have benefited more than others from populations flows from the EU-8, whereas Spain, Italy and Greece have benefited more from population flows from the EU-2. The impact on the unemployment rate in the EU-15 as a whole has been negligible, while we estimated that any temporary rise in unemployment rates in Ireland, the UK and Spain would have been more than offset by the rise in output by 2009. The 0.5 percentage point decline in the unemployment rate estimated for Ireland in 2009 partly reflects the short-term response to the net outflows of EU-8

migrants in that year. There should be no long-run impact on the unemployment rates in any country as a result of the population shifts. Real wages can be expected to fall in the receiving countries in order to bring the unemployment rate back into line, with negligible impact on inflation.

The shock to the sending countries is larger in magnitude than in the receiving countries, especially in Romania, Bulgaria and Lithuania. The loss of the labour force reduces potential output, and we estimate that GDP in Romania was 3.6 per cent lower in 2009 than it would have been had the population remained immobile. In the long-run there is a small negative impact on GDP per capita in Romania, reflecting a small rise in the long-term real interest rate. Unemployment rates in the sending countries are expected to have declined temporarily as a result of the population shifts, although as wages adjust this impact should dissipate over the next few years.

The tables above also report our estimated long-run impact on GDP and GDP per capita in each of the countries in our study. For the most part, the impact on GDP per capita of the shock is negligible. There is a significant positive impact expected in Poland, and a smaller negative impact in Ireland and Romania. Because we are working with an assumed underlying CES production function with an elasticity of substitution of about ½, factor prices and input shares adjust in response to the population shocks, so that the impact on output of the shock is generally slightly smaller than the population shock itself.

Adjusting for the age structure

Our initial base case estimates reported above are based on the simplifying assumption that the age structure of migrants is identical to that in the destination country. However, we know that the population flows from the EU-8 and EU-2 since 2004 have been strongly dominated by individuals of working age, particularly within the 15-34 age bracket. Our preliminary results, therefore, will underestimate the impact of migration on potential output, as the population flows have a disproportionately large impact on the size of the labour force, and the results will also overestimate the impact on public finances, as people of working age tend to be net contributors to the government coffers.

In order to adjust for this bias, we use information from the Eurostat LFS statistics on the age profile of citizens from the EU-8 and EU-2 countries resident in the EU-15 to calibrate the approximate share of migrant population flows that are of school age (0-14), working age (15-64) and retired age (65+), as reported in the Descriptive Statistics section of this report. The figures for the EU-27 as a whole were more comprehensive and easily accessible than those for the EU-15, which would have been a preferable set of figures to fine tune the age structure our results. However, as

the vast majority of EU-8 and EU-2 citizens living in another EU member state reside in one of the EU-15 countries, this is unlikely to affect our results significantly.

We apply this adjustment to our population simulations presented in the previous section in order to assess the impact of the age structure. The total population is disaggregated into the three main age groups. The working age population plays a key role on the model, as it determines the size of the labour force and hence drives potential output. The school age and retired populations affect government transfer payments, and so feed into the macro-economy through public sector expenditure, which must be matched by tax revenue if the budget balance is to remain stable. But tax receipts in this case will have already overcompensated for the extra transfer payments, as the newly arrived population of working age settles into employment and finds work.

Table 3.17. Long-run impact on output before and after age adjustment EU-8 migration to EU-15 countries

	Long-run impact on GDP		Long-run impact on GDP per capita	
	Unadjusted	Age adjusted	Unadjusted	Age adjusted
Czech Rep	-0.20	-0.24	0.10	0.05
Estonia	-2.45	-2.98	-0.11	-0.63
Hungary	-0.33	-0.41	0.29	0.21
Lithuania	-4.89	-5.95	-0.12	-1.23
Latvia	-2.80	-3.32	-0.06	-0.61
Poland	-1.46	-1.75	1.04	0.74
Slovenia	-0.34	-0.40	0.00	-0.08
Slovakia	-1.92	-2.33	-0.09	-0.50
EU-8	-1.31	-1.59	0.61	0.33
Belgium	0.28	0.36	-0.02	0.06
Denmark	0.42	0.56	-0.01	0.13
Finland	0.18	0.24	-0.09	-0.03
France	0.04	0.04	0.02	0.02
Germany	0.15	0.19	-0.02	0.02
Greece	0.07	0.08	0.03	0.04
Ireland	2.43	3.02	-0.59	0.19
Italy	0.12	0.15	-0.02	0.01
Neths	0.25	0.31	-0.02	0.05
Austria	0.30	0.39	-0.06	0.03
Portugal	0.06	0.06	0.04	0.04
Sweden	0.32	0.37	-0.06	0.00
Spain	0.17	0.21	-0.03	0.01
UK	0.91	1.24	-0.08	0.25
EU-15	0.34	0.44	0.01	0.11

Source: NiGEM model simulation exercise

Our results reported in tables 3.18-3.19 compare the unadjusted long-run impact on GDP and GDP per capita from tables 3.10 and 3.14 above to a population shift of the same magnitude after adjusting for the age structure of migrants. Given the bias towards migrants of working age, the impact on GDP is bigger in magnitude than in the preliminary scenario. GDP in the sending countries falls further below base, as the population loss is focused on the productive share of the population. The impact is particularly large in Bulgaria and Romania, where we estimate the population outflows have reduced potential output by 5.4 and 10.6 per cent, respectively. The impact on GDP per capita in the sending countries is also more likely to be negative, as the share of people contributing to GDP has declined relative to the size of the population. We expect a negative impact on GDP per capita in Estonia, Lithuania, Latvia, Slovakia, Bulgaria and Romania.

In the receiving countries, the impact on GDP is slightly more positive after adjusting for the age structure. The impact on GDP per capita is also more likely to be slightly positive than in the preliminary scenario, although again the impacts are small and negligible in most cases. Only in Ireland, the UK and Spain do we see GDP per capita more than 0.1 per cent higher in the long-run.

Table 3.18. Long-run impact on output before and after age adjustment EU-2 migration to EU-15 countries

	Long-run impact on GDP		Long-run impact on GDP per capita	
	Unadjusted	Age adjusted	Unadjusted	Age adjusted
Bulgaria	-4.04	-5.35	-0.13	-1.50
Romania	-8.52	-10.57	-0.65	-2.88
EU-2	-7.36	-9.22	-0.52	-2.54
Belgium	0.22	0.29	-0.02	0.05
Denmark	0.09	0.11	-0.02	0.01
Finland	-0.05	-0.06	-0.07	-0.08
France	0.08	0.09	0.00	0.02
Germany	0.04	0.05	-0.02	-0.01
Greece	0.45	0.62	-0.08	0.09
Ireland	0.22	0.28	-0.06	0.01
Italy	0.93	1.28	-0.29	0.04
Neths	0.07	0.09	-0.02	0.00
Austria	0.35	0.46	-0.10	0.02
Portugal	0.20	0.25	-0.02	0.03
Sweden	0.04	0.04	-0.04	-0.04
Spain	1.33	1.69	-0.21	0.19
UK	0.13	0.17	0.00	0.04
EU-15	0.31	0.41	-0.13	-0.03

Source: NiGEM model simulation exercise

Adjusting for productivity

Our initial base case scenario is based on the simplifying assumption that the average productivity level of mobile workers is the same as both the average level within the home economy and the average level within the destination economy. Both of these conditions, clearly, cannot hold at the same time, as we know that average levels of productivity differ across the sending and receiving regions.

Tables 3.21-3.22 below report the average educational level of native residents in each of the sending and receiving countries, as well as the average educational level of the outward migrant population from the EU-8 and EU-2 and the inward migrant population in the EU-15 countries from the EU-8 and EU-2.

A standard measure of the returns to education is a wage premium, calculated as the average wage of workers of a given education level relative to a worker with a minimal level of education. If we assume employees, on average, are paid their marginal product, this can also be viewed as a measure of the average level of productivity of workers of a given education level relative to workers with the minimal level of education.

Table 3.19. Wage premium for high and medium skills, 2005

	High	medium
Belgium	2.11	1.36
Denmark	2.17	1.53
Finland	1.76	1.12
France	1.96	1.21
Germany	3.06	1.63
Greece	3.31	2.15
Ireland	2.84	1.5
Italy	2.34	1.45
Neths	2.36	1.42
Austria	2.21	1.48
Portugal	2.34	1.45
Sweden	1.66	1.16
Spain	2.23	1.31
UK	2.4	1.53
EU-8 + 2 estimate	3	1.37

Source: Derived from EUKLEMS

Table 3.20. Educational attainment of resident population of the EU-8+2 and migrant population from the EU-8+2 to the EU-15, 2008

	Resident population			Migrant population			Resident/Migrant ratio		
	Low	Medium	High	Low	Medium	High	Low	Medium	High
Czech Rep.	0.16	0.71	0.13	0.19	0.51	0.29	0.80	1.39	0.44
Estonia	0.20	0.51	0.29	0.29	0.48	0.24	0.69	1.07	1.24
Hungary	0.26	0.58	0.17	0.20	0.47	0.33	1.27	1.24	0.50
Latvia	0.23	0.56	0.22	0.21	0.54	0.25	1.08	1.03	0.87
Lithuania	0.18	0.57	0.25	0.23	0.53	0.24	0.78	1.07	1.06
Poland	0.19	0.64	0.17	0.25	0.48	0.27	0.77	1.34	0.62
Slovakia	0.17	0.71	0.13	0.19	0.57	0.23	0.86	1.23	0.54
Slovenia	0.21	0.59	0.20	0.28	0.58	0.14	0.76	1.01	1.44
Bulgaria	0.28	0.53	0.19	0.33	0.44	0.23	0.84	1.21	0.82
Romania	0.30	0.59	0.11	0.33	0.48	0.19	0.89	1.25	0.58

Source: Derived from Eurostat LFS series

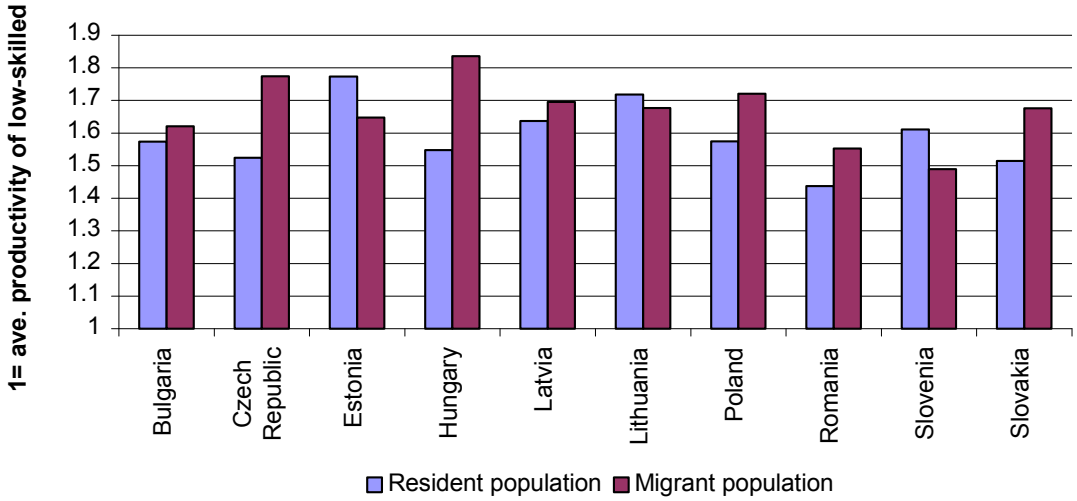
Table 3.21. Educational attainment of resident population of the EU-15 and migrant population from the EU-8+2 to the EU-15

	Resident population			Migrant population			Resident/Migrant ratio		
	Low	Medium	High	Low	Medium	High	Low	Medium	High
Austria	0.24	0.61	0.15	0.21	0.59	0.20	1.14	1.04	0.75
Belgium	0.33	0.38	0.29	0.32	0.38	0.30	1.04	1.00	0.96
Germany	0.22	0.56	0.22	0.22	0.55	0.24	1.01	1.03	0.92
Denmark	0.31	0.42	0.27	0.20	0.47	0.33	1.57	0.88	0.83
Spain	0.50	0.24	0.27	0.32	0.43	0.24	1.53	0.54	1.11
Finland	0.25	0.45	0.30	0.43	0.38	0.18	0.59	1.16	1.64
France	0.32	0.42	0.25	0.25	0.38	0.37	1.27	1.12	0.69
Greece	0.40	0.40	0.20	0.39	0.46	0.15	1.01	0.88	1.32
Ireland	0.32	0.37	0.31	0.21	0.49	0.31	1.53	0.77	1.01
Italy	0.47	0.40	0.13	0.34	0.52	0.14	1.37	0.77	0.96
Netherlands	0.31	0.40	0.28	0.40	0.31	0.28	0.78	1.30	0.99
Portugal	0.70	0.17	0.13	0.46	0.48	0.06	1.51	0.35	2.15
Sweden	0.25	0.48	0.28	0.25	0.38	0.37	0.96	1.27	0.75
United Kingdom	0.26	0.45	0.29	0.23	0.58	0.19	1.17	0.77	1.51
EU-27	0.32	0.47	0.22	0.26	0.48	0.26	1.23	0.97	0.83

Source: Derived from Eurostat LFS series

We use the wage premiums calculated above as an estimate of the level of productivity of the high- and medium-skilled workers relative to the low-skilled workers in each country. For example, high-skilled workers in the EU-8 and EU-2 economies are estimated to be roughly 3 times as productive as low-skilled workers, while medium skilled workers in these countries are estimated to be about 40 per cent more productive than low-skilled workers. Based on this information and the educational shares in each country we can estimate the average level of productivity in each country.

Figure 3.19. Average productivity estimates of resident and migrant populations



Note: Caution should be taken when comparing levels across countries
Source: Derived from tables 3.17 and 3.19

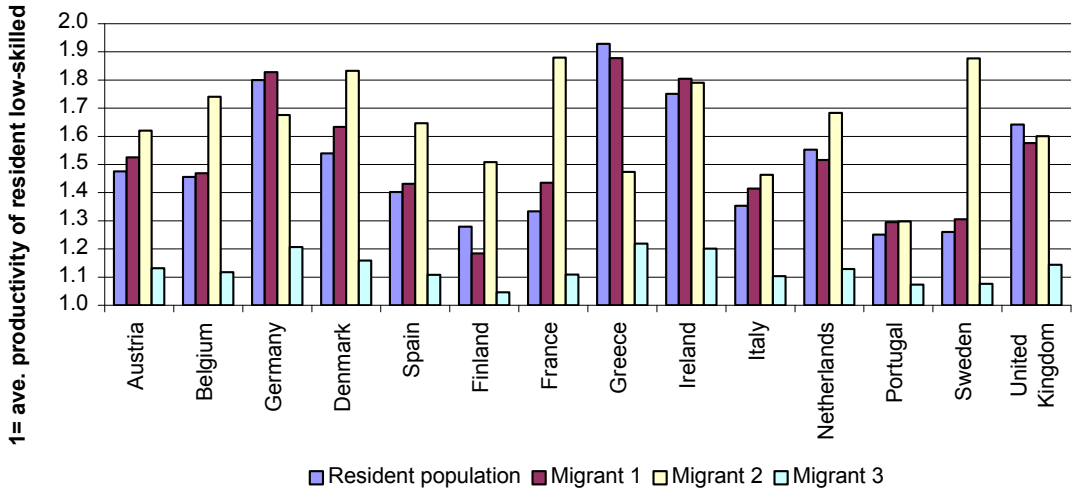
Figure 3.19 above illustrates the average productivity levels in each of the sending countries, and compares this to the average level in the fraction of the population that is emigrating to the EU-15. In the majority of countries, migrants tend to be biased towards the more highly educated, so that the average productivity level of outward migrants is somewhat higher than the average in the resident population. This does not appear to be the case in Estonia, Lithuania or Slovenia, however.

If the more productive workers are emigrating, this means that the average productivity level in the remaining resident population will be slightly lower than if they had remained at home, and illustrates the impact of a "brain drain" on the economy. This suggests that the base case estimates produced in the previous section on the impact of population flows on GDP may underestimate the actual impact on GDP, as average productivity will be slightly lower as a result. We can allow for this in our simulation, by shifting the average productivity level of the population in both sending and receiving countries.

It is not straightforward to establish the average productivity of inward migrants of a given education level once they arrive in their destination country. It may be that their average productivity level is the same as it was in their home country. Alternatively, as they may be working in a different sector, or with machinery of a different quality in the destination country compared to the home country, their productivity may be the same as a domestic resident in the host country with the same educational level. The European Integration Consortium (2009) highlights the fact that while migrants from the EU-8 tend to have a relatively high level of education, they have found work in the EU-15 countries predominantly in low-skilled occupations. This is confirmed by Kirby, Mitchell and Riley (2008) for the UK. This evidence of 'downskilling' suggests that the level of output produced by EU-8 migrants working in the EU-15 may be well below what we expect, given their level of educational attainment. The econometric estimates reported in table 6.8 of the European Integration Consortium (2009) report suggest that the return to education of new migrants from the EU-8 employed in the EU-15 is about 20-50 per cent that of the native population. While the lower bound of these estimates may seem implausibly low, we include this as a lower limit to our scenario. The difficulty of establishing the productive capacity of inward migrants is aggravated by the fact that the levels of returns to education should not strictly be compared across countries, as this imposes the assumption that the productive capacity of workers with low-skills is common across all the countries in our sample.

In order to allow for the potential measurement errors as well as conceptual approaches we establish three different scenarios. In all three cases, migrant workers with a low level of educational attainment are assumed to be as productive as native residents with a low level of educational attainment. The differences are in the productivity premiums applied to workers with medium and high levels of educational attainment, which are based on different assumptions regarding the wage premiums reported in table 3.20. In the first scenario we assume the returns to education are the same as they are for native residents in the host country, and apply the wage premiums of the individual EU-15 countries. In the second scenario we assume the returns to education are the same as in the home countries, so apply a premium of 37 per cent relative to the low-skilled to workers with a medium level of educational attainment and a premium of 200 per cent to workers with a high level of educational attainment. In the third scenario we adjust the wage premiums reported in table 3.20, and apply only 20 per cent of the premium to migrant workers from the EU-8 and EU-2. For example, workers with a medium level of education from the EU-8 and EU-2 residing in Ireland are treated as 10 per cent more productive than those with a low-level of education, rather than the 50 per cent return applied to native workers with a medium level of education. Figure 3.20 below illustrates average productivity of the resident population compared to our three scenarios for average productivity of inward migrants from the EU-8 and EU-2 economies.

Figure 3.20. Average productivity of resident and inward migrants – 3 estimates



Note: Migrant 1 assumes returns to education of inward migrants is the same as that of native residents; Migrant 2 assumes returns to education of inward migrants is the same as that in the home country; Migrant 3 assumes the return to education of inward migrants is 20 per cent that of native residents.
Source: Derived from tables 3.20-3.22.

The discrepancies are very large. In almost all countries (with the exceptions of Greece and the UK) in at least one of the scenarios the average productivity level of inward migrants is higher than in the resident population. Equally, there is at least one scenario in which the inward migrants are less productive. In tables 3.24-3.27 below we report the long-run impact on GDP before and after adjusting for productivity under the three scenarios. We run this with the age-adjusted population shocks to derive a set of final estimates that include both the age and productivity adjustments.

Notwithstanding the size of the discrepancies in the estimated productivity levels of migrants shown in the figures above, the impact of these differences on GDP and the macro-economy is marginal in most cases. Tables 3.23-3.26 report the expected impact on GDP and GDP per capita in both the home and host countries, after taking into account both the age profile and our three estimates of the impact on productivity. The biggest variance in the estimates is seen in the impact of population flows from the EU-8 to Ireland, with the long-run impact on GDP, after taking into account age and productivity, is expected to lie between 1.9 and 3.1 per cent. There are also some estimated differences in the impact of EU-8 flows to the UK and Denmark and of EU-2 flows to Spain, although the percentage point differences do not exceed 0.6 in any country other than Ireland.

Table 3.22. Long-run impact on output before and after productivity adjustment EU-8 migration to EU-15 countries

	Long-run impact on GDP			
	Age adjusted	**Productivity 1**	**Productivity 2**	**Productivity 3**
Czech Rep	-0.24	-0.28	-0.28	-0.28
Estonia	-2.98	-3.00	-3.00	-3.00
Hungary	-0.41	-0.50	-0.49	-0.50
Lithuania	-5.95	-5.96	-5.96	-5.96
Latvia	-3.32	-3.31	-3.31	-3.31
Poland	-1.75	-1.93	-1.93	-1.94
Slovenia	-0.40	-0.40	-0.40	-0.40
Slovakia	-2.33	-2.31	-2.31	-2.32
EU-8	-1.59	-1.67	-1.67	-1.68
Belgium	0.36	0.36	0.43	0.28
Denmark	0.56	0.59	0.66	0.42
Finland	0.24	0.23	0.28	0.20
France	0.04	0.04	0.05	0.04
Germany	0.19	0.19	0.18	0.12
Greece	0.08	0.08	0.06	0.05
Ireland	3.01	3.12	3.09	1.91
Italy	0.15	0.15	0.16	0.12
Neths	0.31	0.31	0.34	0.23
Austria	0.39	0.40	0.43	0.30
Portugal	0.06	0.06	0.06	0.05
Sweden	0.37	0.39	0.55	0.32
Spain	0.21	0.21	0.25	0.16
UK	1.24	1.19	1.21	0.87
EU-15	0.44	0.44	0.45	0.31

Source: NiGEM Model simulation exercises

Table 3.23. Long-run impact on GDP per capita before and after productivity adjustment EU-8 migration to EU-15 countries

	Long-run impact on GDP per capita			
	Age adjusted	**Productivity 1**	**Productivity 2**	**Productivity 3**
Czech Rep	0.05	0.02	0.02	0.01
Estonia	-0.63	-0.67	-0.67	-0.68
Hungary	0.21	0.13	0.13	0.12
Lithuania	-1.23	-1.24	-1.24	-1.24
Latvia	-0.61	-0.58	-0.58	-0.58
Poland	0.74	0.55	0.55	0.55
Slovenia	-0.08	-0.06	-0.06	-0.06
Slovakia	-0.50	-0.48	-0.48	-0.48
EU-8	0.33	0.22	0.22	0.21
Belgium	0.06	0.06	0.12	-0.02
Denmark	0.13	0.15	0.22	-0.01
Finland	-0.03	-0.05	0.01	-0.08
France	0.02	0.02	0.03	0.02
Germany	0.02	0.03	0.01	-0.05
Greece	0.04	0.03	0.02	0.01
Ireland	0.19	0.08	0.06	-1.09
Italy	0.01	0.02	0.02	-0.01
Neths	0.05	0.04	0.07	-0.04
Austria	0.03	0.04	0.07	-0.07
Portugal	0.04	0.04	0.04	0.04
Sweden	0.00	0.00	0.16	-0.07
Spain	0.01	0.01	0.04	-0.04
UK	0.25	0.20	0.22	-0.13
EU-15	0.11	0.11	0.12	-0.02

Source: NiGEM Model simulation exercises

The impacts on GDP per capita are again marginal in most cases, but the assumptions regarding the productivity of mobile workers have a significant impact on some results, especially in Ireland. These estimates suggest that if the return to education of EU-8 citizens resident in the EU-15 were as low as the lower bound estimated by the European Integration Consortium (2009), the moderation in average productivity could more than offset all of the positive impacts from inward migration, leaving GDP per capita somewhat lower in the long-run than it would have been in the absence of immigration. We consider this lower bound an extreme position, but include it in our results for completeness.

Our final set of estimates of the macro-economic impact of population flows from the EU-8 to the EU-15 between 2004-2009 suggest that the level of GDP can be expected to be 1.9-3.1 per cent higher in Ireland than it otherwise would have been, while than in the UK can be expected to be 0.9-1.2 per cent higher. Other fairly large impacts are estimated in Denmark and Sweden, while in the other EU-15 economies the impact can be expected to be small, at less than ½ per cent. The impact on GDP in the sending countries is expected to be negative everywhere, with the biggest impact expected in Lithuania, where the level of GDP is expected to be roughly 6 per cent below where it would have been had the migrant population remained at home. The impacts in Estonia and Latvia are also expected to be large, with GDP expected to be down by 3-3.3 per cent, while Poland and Slovakia can also expect a significant loss in potential output. Slovenia, Hungary and the Czech Republic have seen little emigration, and the impacts in these economies can be expected to be small.

The impact of outflows from the EU-2 economies have had very damaging effects on the level of potential output in the sending countries, with GDP in Bulgaria expected to by more than 5 per cent below where it would have been in the absence of emigration and the output loss in Romania nearly double that. The biggest impacts on the receiving countries have been in Italy and Spain, with the level of output in Italy up 1.1-1.4 per cent and that in Spain up 1.4-2 per cent.

Table 3.24. Long-run impact on output before and after productivity adjustment EU-2 migration to EU-15 countries

	Long-run impact on GDP			
	Age adjusted	**Productivity 1**	**Productivity 2**	**Productivity 3**
Bulgaria	-5.35	-5.34	-5.34	-5.33
Romania	-10.57	-10.52	-10.52	-10.70
EU-2	-9.22	-9.23	-9.23	-9.36
Belgium	0.29	0.29	0.34	0.23
Denmark	0.11	0.11	0.13	0.08
Finland	-0.06	-0.06	-0.06	-0.06
France	0.09	0.10	0.12	0.08
Germany	0.05	0.05	0.04	0.03
Greece	0.62	0.60	0.45	0.37
Ireland	0.28	0.29	0.28	0.18
Italy	1.28	1.33	1.37	1.08
Neths	0.09	0.09	0.10	0.06
Austria	0.46	0.48	0.51	0.36
Portugal	0.25	0.26	0.26	0.23
Sweden	0.04	0.04	0.07	0.03
Spain	1.68	1.72	1.96	1.35
UK	0.17	0.16	0.17	0.13
EU-15	0.41	0.42	0.45	0.33

Source: NiGEM Model simulation exercises

Table 3.25. Long-run impact on GDP per capita before and after productivity adjustment EU-2 migration to EU-15 countries

	Long-run impact on GDP per capita			
	Age adjusted	**Productivity 1**	**Productivity 2**	**Productivity 3**
Bulgaria	-1.50	-1.48	-1.48	-1.48
Romania	-2.88	-2.83	-2.83	-3.02
EU-2	-2.54	-2.49	-2.49	-2.63
Belgium	0.05	0.05	0.10	-0.01
Denmark	0.01	0.01	0.02	-0.03
Finland	-0.08	-0.08	-0.08	-0.08
France	0.02	0.02	0.04	0.01
Germany	-0.01	-0.01	-0.02	-0.03
Greece	0.09	0.07	-0.08	-0.16
Ireland	0.01	0.01	0.00	-0.10
Italy	0.04	0.10	0.14	-0.15
Neths	0.00	0.00	0.01	-0.02
Austria	0.02	0.03	0.06	-0.09
Portugal	0.03	0.03	0.03	0.00
Sweden	-0.04	-0.05	-0.01	-0.05
Spain	0.19	0.17	0.41	-0.20
UK	0.04	0.04	0.04	0.00
EU-15	-0.03	-0.02	0.01	-0.11

Source: NiGEM Model simulation exercises

Adjusting for remittances

Remittances also have a role to play in determining the impact of migration on both the home and host economies. Sending countries tend to benefit from remittances, which are sent back by workers to their families and boost private consumption, and this may partially offset the loss of productive capacity and potentially a decline in average productivity in the short-run. Remittances are not expected to have a permanent or long-run impact on output, as they do not shift the productive capacity of the economy. However, they may alter the composition of demand, toward domestic demand and away from net trade. They generally reflect a loss to the host country in the short-run, as consumption is lowered and the fiscal contribution of foreigners through indirect taxes decreases. The level of remittances has increased significantly to all EU-8 and EU-2 countries since accession. In particular the EU-2 countries have been benefiting from a high level of remittances.

Within the NiGEM modelling framework adopted for this study, we can directly adjust for remittances in Poland, Hungary and the Czech Republic, but not the other countries covered by this report. In table 3.27 below we report the remittances sent to these three countries over our sample period. These include remittances sent from all over the world, but for the purposes of our analysis we will assume that all remittances are sent from the EU-15 economies, which host the vast majority of migrants from these three countries. This may add an upward bias to our estimates of the impact of remittances in relation to EU expansion.

Table 3.26 Remittances, US$ Million

	2004	2005	2006	2007	2008	2009
Czech Republic	815	1026	1190	1332	1360	1201
Hungary	1717	1931	2079	2311	2509	2130
Poland	4728	6482	8496	10496	10447	8126

Source: World Bank

In order to capture the impact of remittances within our scenario, we assume remittances are split evenly between current income and saved income through a rise in financial assets. We raise the level of personal sector income by half the values reported in the table in each of the six years, with the remainder added to the stock of financial wealth. At the same time we reduce the level of personal sector income in the EU-15 countries by the same amount. This amount is distributed across countries according to their share of the total stock of citizens of the relevant country residing in the EU-15. Table 3.28 below reports the impact on GDP and GDP per capita by 2009 of age-adjusted migration from the EU-8 to the EU-15 between 2004 and 2009, after allowing for remittances sent to Poland, Hungary and the Czech Republic. The figures are compared to the impact excluding remittances. In both cases we adjust for the age profile of migrants, but not expected productivity, as we have no clear preference for one of the three productivity scenarios discussed in the previous section. We report the impact as of 2009 rather than the long-run impact, as remittances are not expected to shift the productive capacity of the economy, but affect demand in the short- to medium-run.

Our results suggest that remittances have a significant positive impact on the home countries (Poland, Hungary and the Czech Republic), but only a marginal impact on the host countries, as the effects are spread across 15 countries and the buying power of a given sum is smaller in the EU-15 than in Poland, Hungary or the Czech Republic. We would expect an even greater positive impact on output in Bulgaria and Romania once remittances are taken into account, given the magnitude of remittances to these countries relative to the size of their GDP. The impact on the EU-15, however, would remain small. The sum of remittances to Bulgaria and Romania have

been smaller than those to Poland since 2004 (although higher as a share of GDP, as shown in the Bulgarian case study).

Table 3.27. Impact on GDP and GDP per capita by 2009, with and without remittances (EU-8 migration to EU-15 countries)

	Cumulative impact on GDP by 2009		Cumulative impact on GDP per capita by 2009	
	Without remittances	With remittances	Without remittances	With remittances
Czech Rep	-0.06	0.10	0.23	0.40
Hungary	-0.05	0.51	0.56	1.12
Poland	-0.41	0.64	2.07	3.15
Belgium	0.23	0.27	-0.07	-0.03
Denmark	0.34	0.31	-0.09	-0.12
Finland	0.08	0.07	-0.20	-0.20
France	0.09	0.08	0.07	0.06
Germany	0.05	-0.02	-0.12	-0.19
Greece	0.16	0.06	0.12	0.01
Ireland	1.75	1.63	-1.25	-1.37
Italy	0.10	0.04	-0.04	-0.09
Neths	0.18	0.15	-0.09	-0.12
Austria	0.22	0.02	-0.15	-0.34
Portugal	0.11	0.06	0.09	0.04
Sweden	0.14	0.13	-0.24	-0.26
Spain	0.14	0.06	-0.06	-0.14
UK	0.94	0.86	-0.10	-0.18
EU-15	0.29	0.23	-0.08	-0.13

Source: NiGEM Model simulation exercises

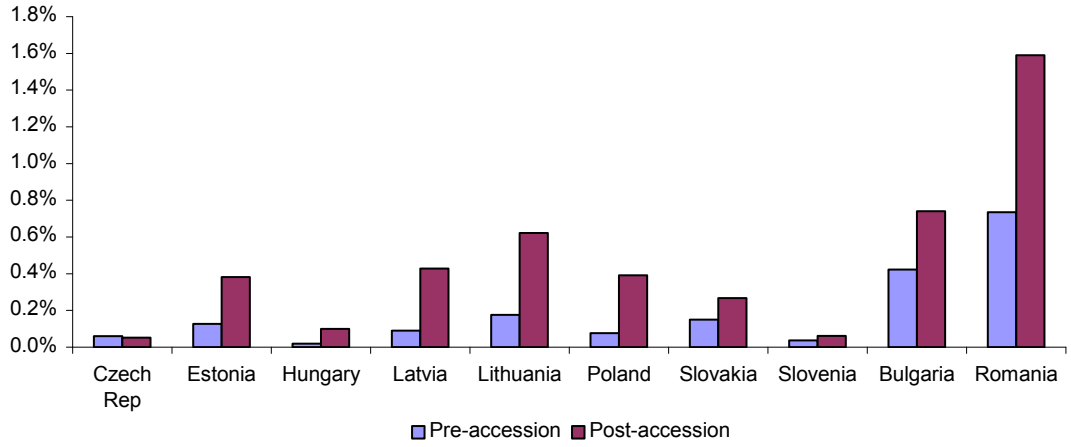
Quantifying the impact of the EU enlargements

Our baseline estimates reported above report estimates of the macro-economic impact of population shifts between the EU-8/EU-2 and EU-15 since 2004 under a very simple set of assumptions. However, we have not yet attempted to quantify the share of this impact that can be attributed to the enlargement of the EU in either 2004 or 2007. As our migrant stock matrix shows, there was a pre-existing stock of EU-8 and EU-2 citizens in each of the EU-15 economies prior to the enlargements, and these stocks had predominantly been rising over time. It is likely that net inflows to the EU-15 would have continued for some time given the opportunity for higher wages and in some cases employment opportunities in the EU-15 relative to the home economies, even in the absence of freer access to EU-15 labour markets following accession.

In order to quantify the macro-economic impact of the population movements directly related to the EU enlargements, we must establish a counter-factual scenario describing the population flows that might have occurred in the absence of the enlargements. One simple approach is to assume that the emigration from the EU-8/EU-2 would have continued at the same rate as in the preceding years. This

approach was adopted for the counter-factual analysis reported by Baas, Brucker, Hauptmann and Jahn for the European Integration Consortium (2009) and also by Barrell *et al* (2009). Figure 3.21 below illustrates the average rate of emigration (relative to the domestic population) in the 5 years prior to accession (1999-2003 for the EU-8 and 2002-2006 for the EU-2), compared to the average emigration rate since accession (2004-2009 for the EU-8 and 2007-2009 for the EU-9).

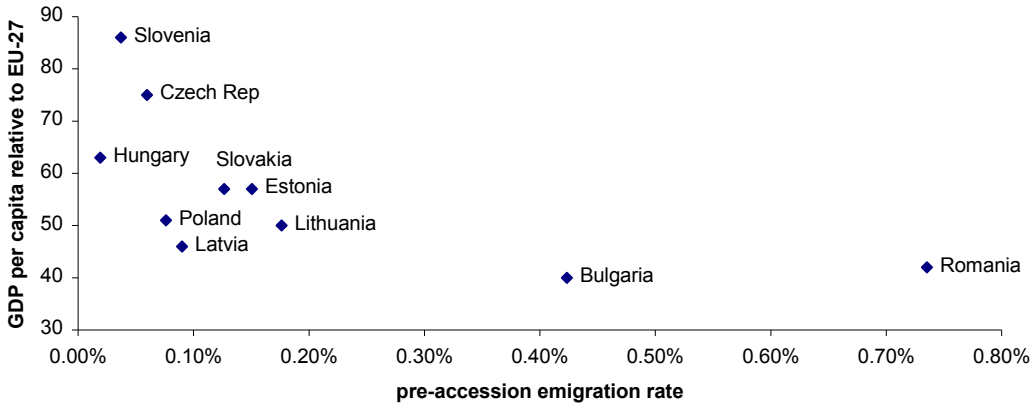
Figure 3.21. Average annual emigration rates to the EU-15



Source: Derived from Table 3.2 and Eurostat population statistics

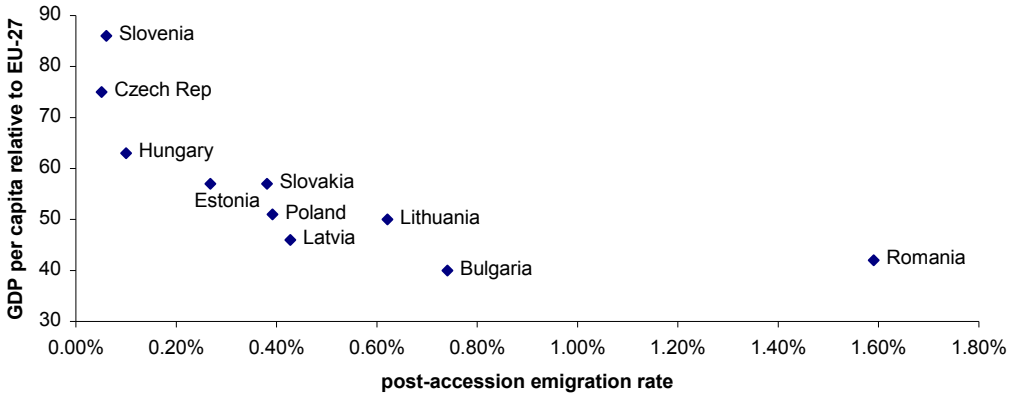
In most countries there has been a clear rise in the average emigration rate to the EU-15 since acceding to the EU. The impact in the Czech Republic and Slovenia is very small, where emigration rates are already very low. This may reflect the relatively high standards of living in these countries, which raises the costs of emigration. The propensity to emigrate towards the EU-15 shows a strong correlation with relative GDP per capita. Figures 3.22-3.23 below plot the pre-accession and post-accession emigration rates against GDP per capita in the year of accession relative to the EU-27 average. Romania is a clear outlier in both figures, showing a much higher propensity to emigrate towards the EU-15 than the other countries, given its relative GDP per capita.

Figure 3.22. Pre-accession annual emigration rate and relative GDP per capita



Source: Figure 3.21 and Eurostat GDP per capita

Figure 3.23. Post-accession annual emigration rate and relative GDP per capita



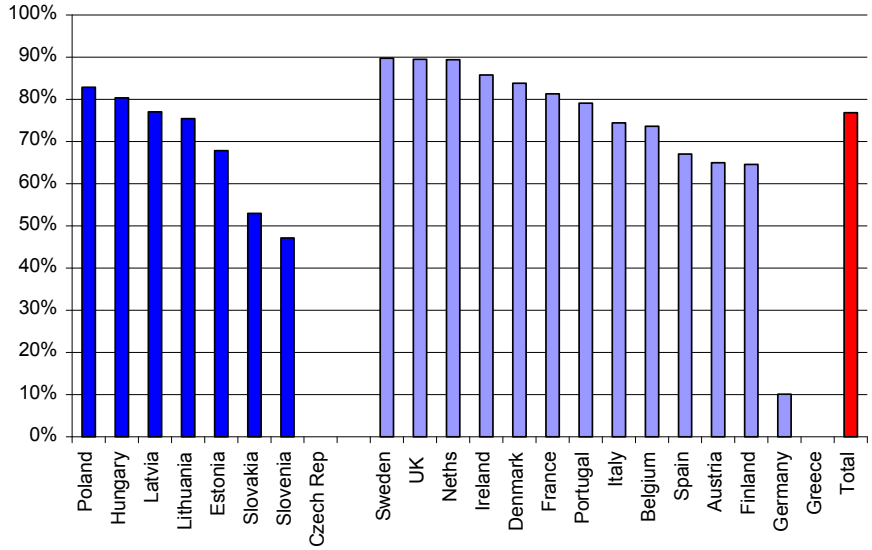
Source: Figure 3.21 and Eurostat GDP per capita

Based on the information presented above, we assume that accession to the EU had no impact on emigration from the Czech Republic and Slovenia to the EU-15. For the remaining countries, we assume that the share of migration since accession over and above the average emigration rate in the five years prior to accession is attributable to the accession process itself. This approach suggests that about 75 per cent of the population flows from the EU-8 since 2004, while just over 50 per cent of flows from the EU-2 since 2007 can be attributed to accession.

The impacts across both sending and receiving countries show stark differences. We see no rise in population flows from the EU-8 to Greece that can be attributed to the enlargement process, while only 10 per cent of population flows to Germany since 2004 can be attributed to the enlargement, compared to close to 90 per cent in the UK, Sweden and the Netherlands. More than 80 per cent of population outflows from Poland and Hungary are attributed to enlargement, compared to less than 50 per cent

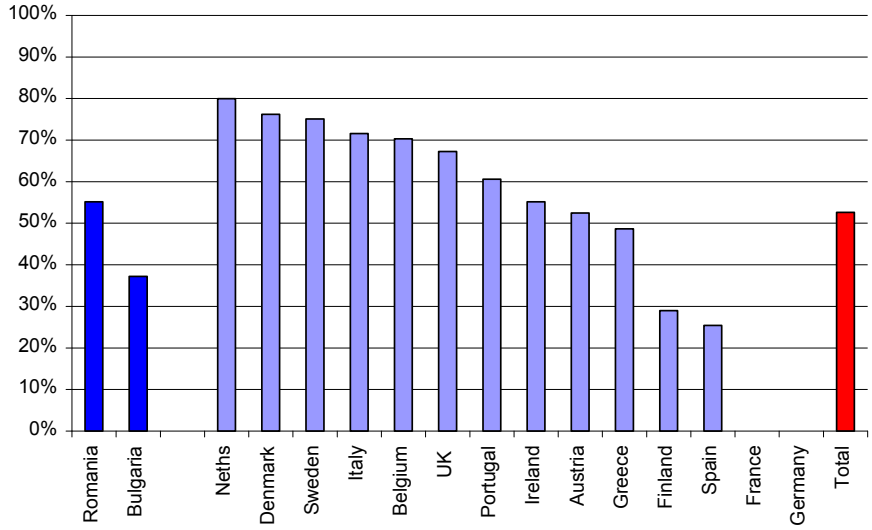
from Slovenia. We see no evidence that the 2007 enlargement affected population flows from the EU-2 to France or Germany, while more than 75 per cent of flows from the EU-2 to Sweden, the Netherlands and Denmark since 2007 can be attributed to the 2007 enlargement.

Figure 3.24. Share of population shifts from EU-8 to EU-15 2004-2009, attributed to 2004 enlargement (in %)



Source: Own calculations

Figure 3.25. Share of population shifts from EU-2 to EU-15 2007-2009, attributed to 2007 enlargement (in %)



Source: Own calculations

Estimates of the impact of transitional arrangements on migration

This section quantifies the impact of transitional arrangements on migration flows, and subsequently, the real economy. The two enlargement waves, 2004 and 2007, are dealt with separately to identify potential idiosyncrasies both across the sample period as well as across individual countries. We develop a simple model of the location decision, in order to produce a more accurate assessment of the role of transitional arrangements in the location decision, after factoring out macro-economic and demographic developments.

EU-8

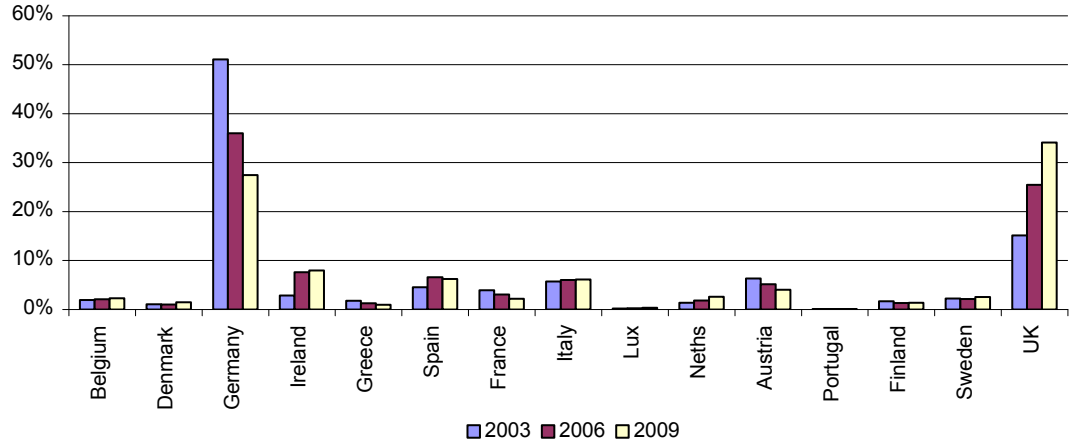
The analysis reported above highlights vast discrepancies in the share of population shifts attributable to the accession process across countries. For example, only 10 per cent in migration towards Germany since 2004 can be attributed to EU enlargement, whereas closer to 90 per cent of inward migration from the EU-8 to the UK is unlikely to have occurred in the absence of EU enlargement. There have clearly been significant shifts in the share of migrants from the EU-8 and EU-2 going to individual EU-15 countries. Most studies have found that an existing network or diaspora is the most important factor driving the destination decision of migrants (see for example Delbecq and Waldorf, 2010; Pedersen *et al*, 2008. Mayda, 2007 also finds an important role.) so all else equal, we would expect the distribution of EU-8 citizens across the EU-15 economies to remain largely constant over time. The distributional shifts that have occurred have been widely attributed to the differences in transitional arrangements across the EU-15 countries, with some countries maintaining restrictions on free mobility longer than others.

Figure 3.26 below illustrates the share of EU-8 citizens resident in each of the EU-15 economies in 2003 (just prior to the 2004 enlargement), in 2006 (at the end of the first stage of the transitional arrangements), and in 2009 (at the end of the second stage of the transitional arrangements). The most striking changes are in Germany and the UK. In 2003, just over 50 per cent of EU-8 citizens resident in the EU-15 were located in Germany, whereas by 2009 this share had fallen to less than 30 per cent. Over the same period the share of EU-8 citizens resident in the UK rose from about 15 per cent to over 35 per cent, overtaking Germany as the primary destination. As the UK was one of the few countries not to introduce transitional restrictions on the free mobility of labour from the EU-8, there would appear to be a clear link between these factors. Ireland, which along with Sweden was the only other country not to impose temporary restrictions on labour mobility, also exhibits a strong rise in its share.

As we showed above, given the size of the country in percentage terms the population shock in Ireland was far bigger than in any of the other EU-15 countries. Despite the

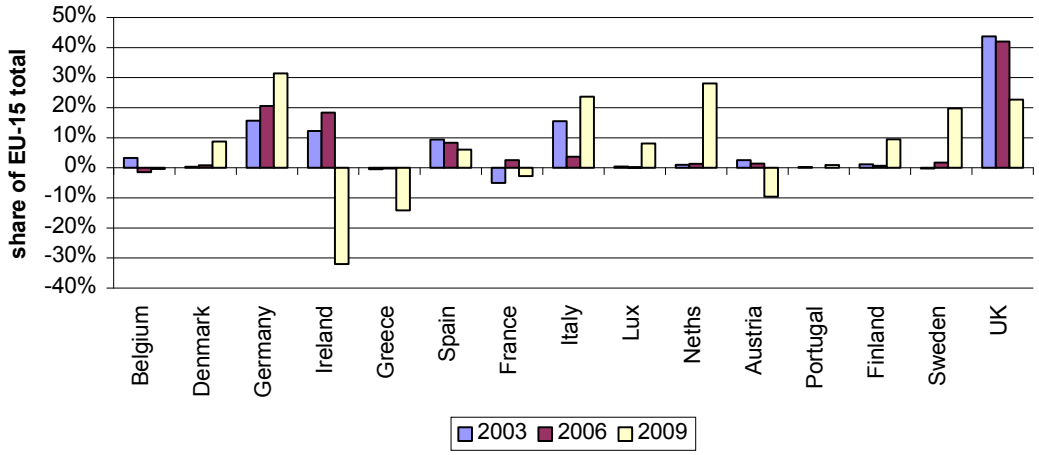
ease of access to the Swedish labour market, there was little shift in the share of EU-8 citizens resident in Sweden over this period, suggesting that the transitional arrangements cannot fully explain the changes we see. Transitional arrangements were lifted in Greece, Spain, Italy, Portugal and Finland in 2006, at the end of the first phase of the transitional arrangements. If the transitional restrictions prevented labour mobility to these countries during the first phase of the arrangements, we would expect to see some recovery in their shares in the second phase. However, there is not a clear rise in share in any of these countries between 2006 and 2009.

Figure 3.26. Distribution of EU-8 citizens resident in the EU-15 across destination countries in 2003, 2006 and 2009



Source: Derived from Table 3.2

Figure 3.27. Distribution of net flows of EU-8 citizens to the EU-15 across destination countries in 2003, 2006 and 2009



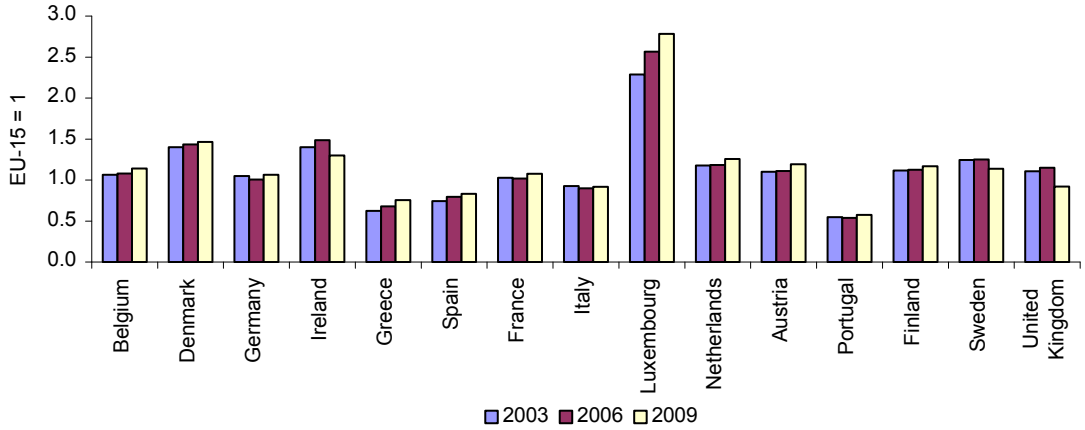
Source: Derived from Table 3.2

Figure 3.27 illustrates the distribution of flows of migrants from the EU-8 to the EU-15 across destination countries over the same period. It is interesting to note that the share of flows to the UK had already overtaken that of Germany before 2004. The UK received the highest inflows from the EU-8 economies in both 2002 and 2003, suggesting that the distributional shift was already an ongoing process, and we cannot attribute all of this shift to the presence of transitional restrictions.

Other factors that have been found to affect the location decision include employment opportunities, captured by variables such as the unemployment rate relative to elsewhere, and the earnings potential, captured for example by GDP per capita relative to elsewhere. Figures 3.28-3.29 illustrate the unemployment rates[4] and GDP per capita in each of the EU-15 economies relative to the EU-15 average in 2003, 2006 and 2009, to see if these can explain any of the unexplained shifts in the distribution of EU-8 citizens across the EU-15 over this period.

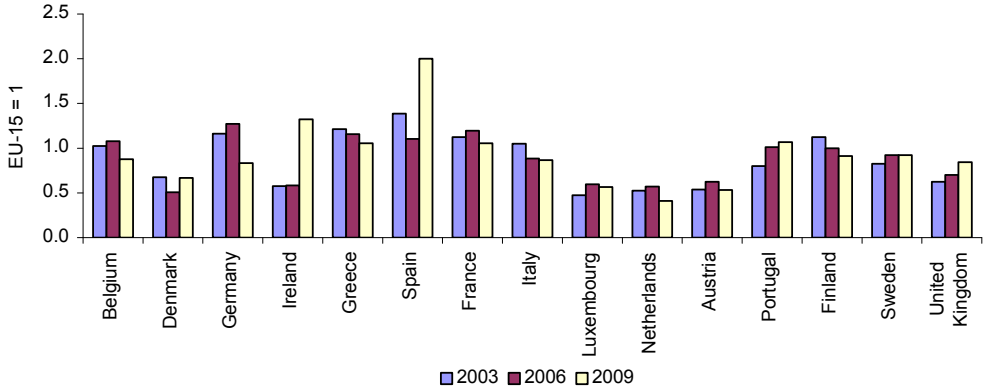
[4] We considered job vacancies as an alternative to the unemployment rate in the countries for which this data is available (Belgium, Germany, Greece, Spain, Luxembourg, Netherlands, Portugal, Finland, Sweden, UK). Vacancies were highest in Germany over most of the period, and do little to explain the pattern of migration.

Figure 3.28. GDP per capita relative to the EU-15 average in 2003, 2006, 2009



Source: Derived from Eurostat figures

Figure 3.29. Unemployment rate relative to the EU-15 average in 2003, 2006, 2009



Source: Derived from Eurostat figures

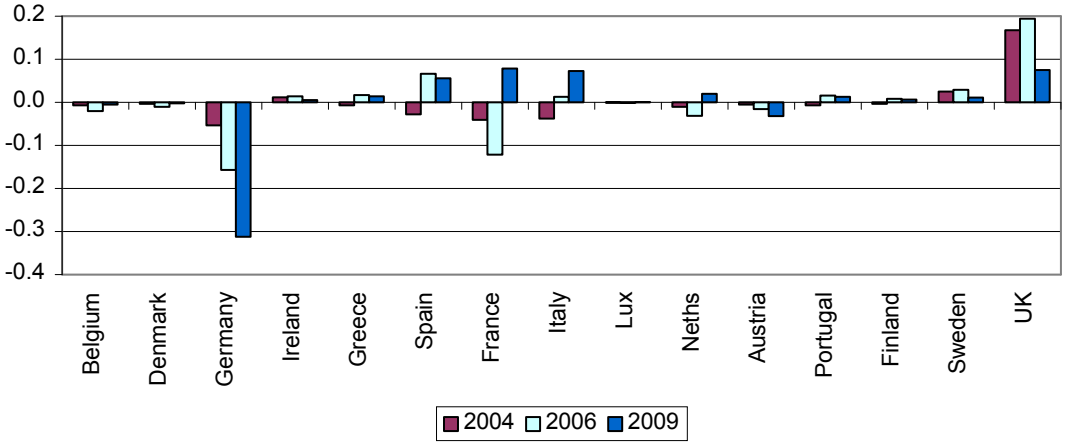
GDP per capita in Ireland and Denmark was higher than in Germany over this sample period, although in Ireland GDP per capita declined significantly between 2006 and 2009 relative to the EU-15 average. The unemployment rate in Ireland, Denmark and the UK was low over most of the sample period relative to Germany, and these factors may be partly related to the shift in location share from Germany towards these alternative destination countries.

In order to assess the likely impact of the transitional arrangements on the distribution of EU-8 citizens across the EU-15, we constructed a simple index to illustrate the degree of mobility restrictions in the host country compared to the EU average. The index gives a value of 1 where no restrictions are present, and a value of -1 where restrictions are present (and a weighted average of the two when restrictions were lifted part-way through the year). The average value across the 15 countries is calculated for the year, and a relative figure is calculated as the absolute difference between the host country value and the EU-15 average value in the given year. This

value is then multiplied by the EU-15 population share of the destination country, to account for the fact that larger countries, such as the UK, can absorb a higher level of immigrants than smaller countries, such as Ireland, for a given level of restriction.

This approach ensures that a host country is more attractive if it is one of few destinations that do not impose restrictions, while it becomes less attractive if it is one of few countries that continue to impose restrictions. This simple index does not take into account the complexities of situations in individual economies, as some restrictions are more binding or more stringent than others, but provides a useful estimate of the relative openness of the labour markets in each country. The constructed measure is illustrated in figure 3.30.

Figure 3.30. Restrictions on mobility from the EU-8 relative to the EU-15 average (population adjusted)



Source: Own calculations

Germany and Austria become increasingly less attractive destinations over time, as other countries lift restrictions on mobility. The UK in particular is highly attractive in 2004 and 2006, but relatively less attractive once other countries begin to lift their restrictions. As of 1 May 2011 the value of our restriction index fell to 0 in all countries, as the final restrictions on mobility from the EU-8 were lifted.

We ran a simple panel regression to assess the correlation between our relative restriction index and the change in share of EU-8 migrants in each of the EU-15 host countries, after factoring out the impact of other key variables. The estimated equation can be described as follows:

$$\Delta migsh_{it} = \alpha_1 \Delta popsh_{it} + \alpha_2 relycap_{it} + \alpha_3 relu_{it} + \alpha_4 relrestr_{it} + \varepsilon_{it}$$ [5]

[5] In an extension to this preliminary exercise it would be interesting to re-estimate the relationship, imposing a unit coefficient on *popsh*, and to test the results for sensitivity to the inclusion/exclusion of individual countries in the sample.

where:
t is the time operator, i is the EU-15 destination country, Δ is the absolute change operator and:
migsh is the share of country *i*, within EU-15, of resident EU-8 citizens,
popsh is the share of country *i*, within EU-15, of resident EU-15 citizens,
relycap is GDP per capita in country *i*, relative to the EU-15 average,
relu is the unemployment rate in country *i*, relative to the EU-15 average,
relrestr is the above index on relative restrictions on mobility.

The sample period runs from 2004-2009, for a panel of 15 countries, giving a total of 90 observations.

The equation is designed so that if the population of the destination is growing relative to the rest of the EU, that country will attract an increasing share of new migrants. If GDP per capita is above the EU-15 average, the destination country can be expected to gain share each year, while if the unemployment rate is high relative to the average the destination country can be expected to lose share each year. These shifts in share would be expected to be permanent, reflecting the network effects on destination choice. Similarly, if labour market restrictions are low relative to other potential destinations, the country can be expected to gain share on a permanent basis.

The results of this simple estimation procedure are reported below (t-statistics are reported below the coefficient estimates):

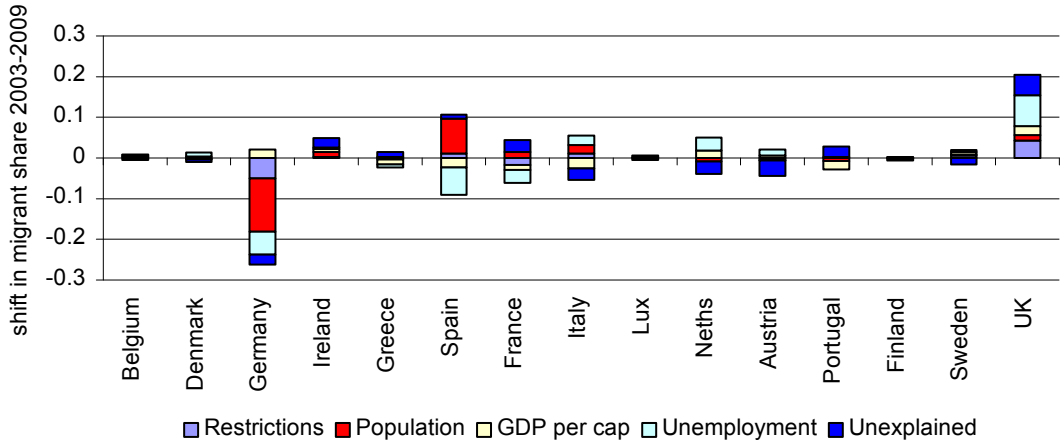
$$\Delta migsh_{it} = \underset{3.9}{15.2}\,\Delta popsh_{it} + \underset{1.6}{0.43}\,relycap_{it} - \underset{4.5}{0.27}\,\alpha_3 relu_{it} + \underset{2.2}{0.045}\,relrestr_{it}$$

All parameters in the estimation results are correctly signed, although relative GDP per capita is not significant at the 5 per cent level. Our equation can explain over 50 per cent of the share shifts over this period. The point estimates of the results suggest that if the UK lifts restrictions on mobility while the other 14 retain restrictions, the share of EU-8 citizens resident in that country can be expected to increase by about 1.2 percentage points per annum. Our econometric work suggests that the transitional arrangements can only partially explain the 20 percentage point increase in the EU-8 migrant share in the UK over the six year period to 2009.

Figure 3.31 below illustrates the results of the econometric estimates graphically. We disaggregate the total shift in the share of migrants from the EU-8 countries resident in the EU-15 economies that occurred between 2003 and 2009 into the fraction that can be explained by the transitional restrictions, the fraction that can be explained by population developments, the fraction attributable to relative GDP per capita, the part attributable to relative unemployment rates and the remainder of the shift in share, that cannot be explained by our simple model. It is interesting to note that our model suggests that population developments play a relatively large role in explaining the

loss of share in Germany in comparison to the transitional restrictions, while a low unemployment rate in the UK played a relatively bigger role in attracting inward migrants than the ease of access to the labour market. Nonetheless, the transitional restrictions continue to explain roughly 20 per cent of the shifts in share between 2003 and 2009 in the UK and Germany.

Figure 3.31. Sources of migrant share shifts from EU-8, 2003-2009



Source: Own calculations based on estimated equation, calibrated restrictions index in figure 3.30, Eurostat data on GDP per capita, unemployment rates and total population.

We use the information from the figure above to calibrate the impact of the transitional arrangements on the population shocks in the receiving countries, and run a model simulation to illustrate the macro-economic impact of these restrictions[6]. We would consider this to be a lower bound of the estimated impact of the transitional arrangements, as there remains a significant residual category in each country that cannot be explained by the simple model. It is possible that this partly reflects more refined distinctions between the types of labour market restrictions across countries that our simple index cannot capture. However, our estimates suggest that some earlier studies may have overestimated the role of transitional arrangement in the location decision, as they have not adequately accounted for some of the more traditional factors driving the location decision.

Table 3.29 below reports our estimates of the impact of transitional arrangements in place following the 2004 enlargement on the long-run level of GDP in each of the EU-15 economies and compares this to the total impact of the 2004 EU enlargement on output, as well as the impact of total population flows (including those that cannot

[6] It is possible that the transitional arrangements themselves have restrained the overall level of mobility from the EU-8 to the EU-15, as suggested by Brucker et al (2007). However, their estimates of this impact are very small in magnitude, and given the small magnitudes of the macro-economic impact overall we omit this potential source of bias in our calculations.

be attributed to the enlargement process itself) from the EU-8 to the EU-15 over the period 2004-2009. The impact of the 2004 enlargement is calculated as the impact of total population flows, adjusted by the share attributable to enlargement, as reported in figure 3.24 above. We adjust for the age structure of migrants, but not for productivity levels, as we do not have a clear preference for one of the three productivity scenarios we presented above.

The enlargement process itself raised the level of potential output in all the EU-15 economies with the exception of Greece. However, except in the cases of the UK and Ireland the estimated impacts were small. Our estimates suggest that the population flows associated with enlargement have raised the level of output in Ireland by about 2½ per cent and in the UK by just over 1 per cent. The transitional arrangements diverted some population flows away from Belgium, Denmark, Finland, France, Germany and Austria, towards the other EU-15 economies. However, the estimated impact of these restrictions on output is small, with the biggest impact of 0.15 per cent on the level of GDP in the UK.

Our results throw some doubt on the importance of the restrictions in the location decision of migrants. While we have observed a clear shift in the distribution of EU-8 citizens across the EU-15, this shift was already ongoing prior to the 2004 enlargement, and can by explained to a large extent by differences in the macro-economic developments within the potential destination countries.

Table 3.28. Long-run impact on GDP of 2004 enlargement and transitional restrictions

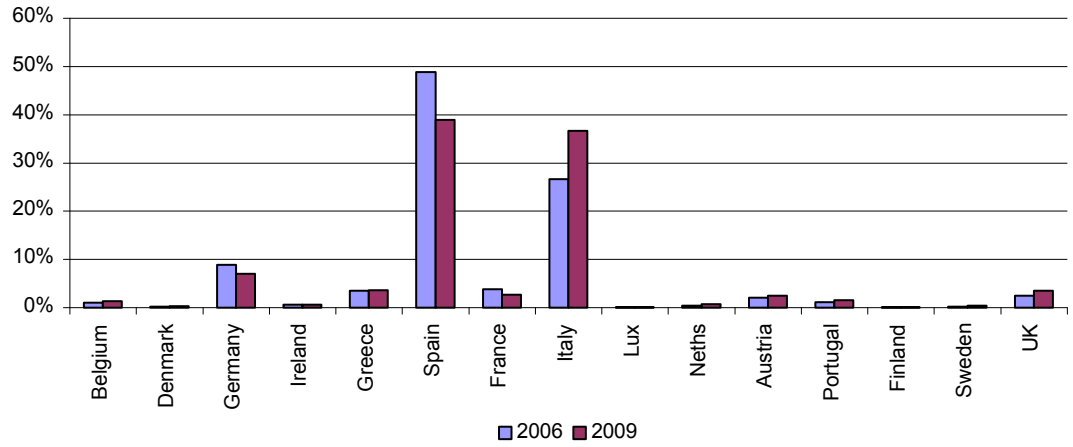
	Age adjusted population flows 2004-2009 from the EU-8	Of which attributable to 2004 enlargement	Impact of transitional restrictions
Belgium	0.36	0.27	-0.09
Denmark	0.56	0.47	-0.11
Finland	0.24	0.16	-0.01
France	0.04	0.03	-0.03
Germany	0.19	0.02	-0.11
Greece	0.08	0.00	0.08
Ireland	3.02	2.58	0.13
Italy	0.15	0.11	0.03
Neths	0.31	0.28	0.01
Austria	0.39	0.25	-0.13
Portugal	0.06	0.05	0.08
Sweden	0.37	0.33	0.12
Spain	0.21	0.14	0.03
UK	1.24	1.11	0.15

Source: Age adjusted impact from Table 3.18; enlargement adjustment from figure 3.24; NiGEM model simulation exercise

EU-2

The sample period for the 2007 enlargement is too short to produce a separate econometric analysis. However, we can apply the same model estimated above to the distribution shifts of EU-2 citizens across the EU-15 to see if it can capture part of the developments we have observed. Figure 3.32 illustrates the distribution of EU-2 citizens across the EU-15 countries in 2006, just prior to their accession to the EU, and in 2009, at the end of the first phase of the transitional arrangements. Nearly 80 per cent of EU-2 citizens in the EU-15 reside in either Spain or Italy. The share residing in Spain declined significantly between 2006 and 2009, while the share in Italy rose by a similar magnitude.

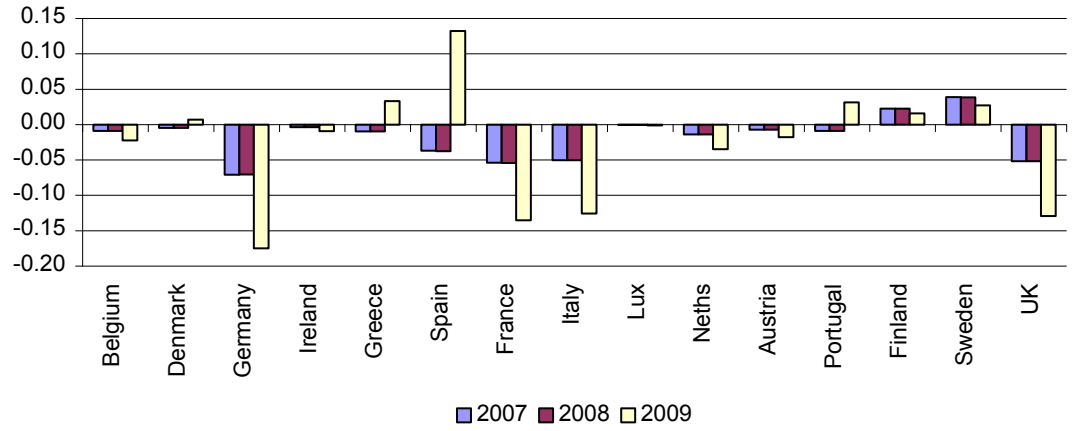
Figure 3.32. Distribution of EU-2 citizens resident in the EU-15 across destination countries



Source: Derived from Table 3.2

We calibrate a relative restrictions index for the EU-2 in the same way as for the EU-8 discussed above. This is illustrated in figure 3.33. Only Finland and Sweden allowed completely free access to their labour markets for citizens from Bulgaria and Romania in 2007, neither of which are traditional destinations for migrants from the EU-2 countries. Denmark, Greece, Spain and Portugal allowed free access in 2009.

Figure 3.33. Restrictions on mobility from the EU-2 to the EU-15 average (population adjusted)



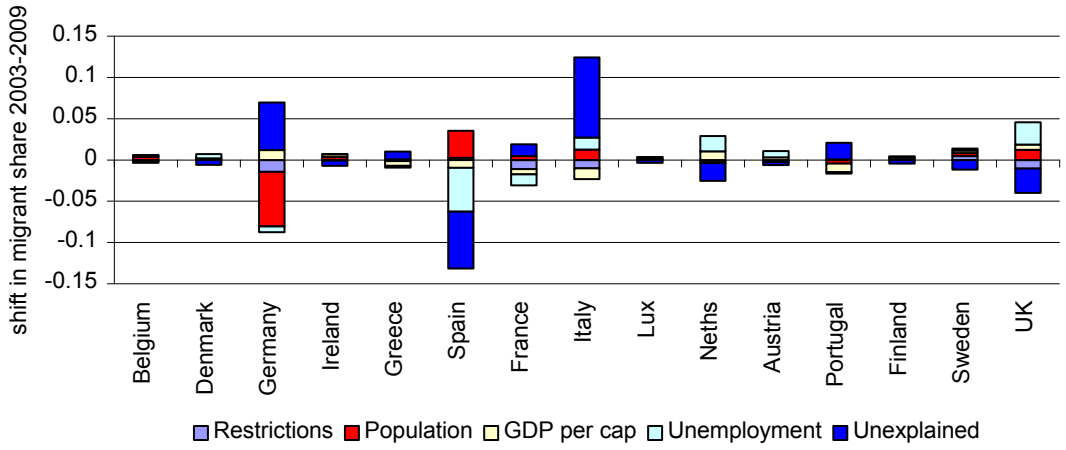
Source: Own calculations

It is not clear that the restrictions on labour market access through transitional arrangements had a significant impact on the location decision of migrants from the EU-2 in the same way as they did following the 2004 enlargement. To some extent this may reflect the simple construction method of our relative restrictions index, which only distinguishes between the presence and absence of restrictions. A more nuanced study would want to consider the type of restrictions in place and other

institutions that may encourage or discourage immigration. For example, in the case of Italy work permits are not required for EU-2 citizens to work in many sectors, such as domestic work and care services, construction, and seasonal work, which may partly explain it popularity as a destination.

In figure 3.34 we disaggregate the total shift in the share of migrants from the EU-2 countries resident in the EU-15 economies that occurred between 2006 and 2009 into the fraction that can be explained by the transitional restrictions (as captured by the index illustrated in figure 3.33), the fraction that can be explained by population developments, the fraction attributable to relative GDP per capita, the part attributable to relative unemployment rates and the remainder of the shift in share, that cannot be explained by our simple model. The bulk of the shift in share between Spain and Italy remains unexplained by our simple model, and there are clearly factors in addition to the key macro-economic developments and the ease of access to the labour markets that have determined the location decision of EU-2 mobile workers. These may include cultural and linguistic factors, which are likely, in particular, to make Italy and Spain attractive locations for Romanians.

Figure 3.34. Sources of migrant share shifts from EU-2, 2006-2009



Source: Own calculations based on estimated equation, calibrated restrictions index in figure 3.33, Eurostat data on GDP per capita, unemployment rates and total population.

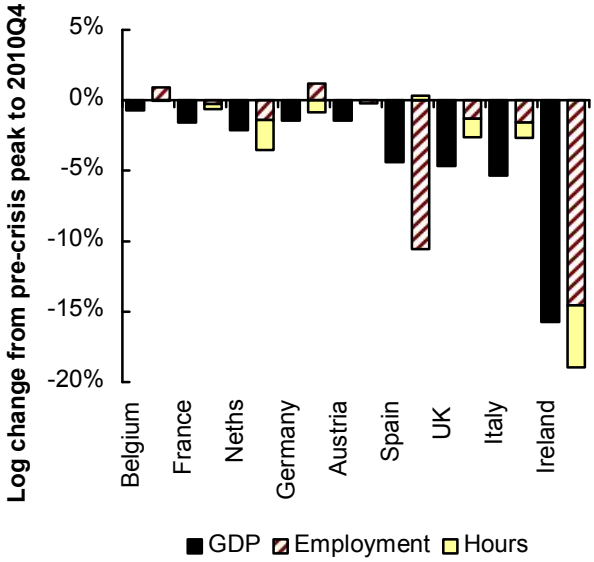
Prospects for transitional arrangements 2012-2013

From 1 May 2011, citizens of the EU-10 countries have full access to labour markets across the EU-27, as the final transitional arrangements were lifted at the end of the 7 year transitional period, and Bulgaria and Romania have not imposed any restrictions on access. As of June 2011, workers from the EU-2 still face some restrictions on access to labour markets in Belgium, Germany, Ireland, France, Italy, Luxembourg,

the Netherlands, Austria, the UK and Malta. The second phase of the transitional arrangements for the 2007 enlargement will come to an end on 31 December 2011, at which point the governments of these countries will have to decide whether or not to extend the restrictions for a further two years. In principle, restrictions can only be extended during the final phase if the country is facing a 'serious disturbance of its labour market or a threat thereof'. However, in practice there is no agreed definition of what constitutes a serious disturbance of the labour market. In particular it is unclear whether the disturbance should be directly related to an actual or expected increase in immigration. As shown above, it would be difficult for any receiving country to argue that past migration from the EU-8 or EU-2 had a strong negative effect on their labour market. Below we will consider whether EU-15 countries still restricting access of EU-2 workers can argue that they face some disturbances of their labour markets (not necessarily related to migration).

While we acknowledge that the decision to prolong transitional restrictions into the final phase of the transition may be as much political as it is economic, in figure 3.35 we illustrate the residual gap in GDP and labour input (total employment adjusted by average hours worked per employee) since the onset of the global financial crisis. This can help to identify where serious labour market disturbances may exist – albeit these disturbance are more likely to be related to the global financial crisis than immigration. The figure includes all the countries that retain labour market restrictions on citizens from Bulgaria and Romania (with the exceptions of Malta and Luxembourg). We also include Spain, although this country has already lifted labour market restrictions, as it is one of the countries that have suffered the most from the downturn. Ireland stands out clearly in the figure. Labour input remains nearly 20 per cent below its level in mid-2008. There is clearly a severe disturbance to the labour market in Ireland, and we could expect the restrictions in place to remain until 2013 in this country due to this significant 'disturbance of the labour market'. From these simple macro-level figures it would be difficult to identify a significant disturbance in Belgium, France, Germany or Austria. However, given the precedent of the 2004 enlargement, Germany and Austria may opt to retain their labour market restrictions for a further two years. This decision is likely to be influenced by any labour market impact of new migration flows from the EU-8 since May 2011, after the final transition restrictions on these countries was lifted. If the outturn proves more favourable than the government had feared, this may encourage them to lift restrictions on access for citizens from the EU-2. UK, Italy and, to a certain extent the Netherlands could argue that their labour markets have yet to recover from the economic downturn, but again their decision is unlikely to be based on the estimated labour market impact of immigration, which we have shown to be small, but on the slow recovery from the economic crisis.

Figure 3.35. Change in GDP and labour input from pre-crisis peak



Source: Derived from NiGEM database series

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