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Research Note

The Impact of Migration on Welfare Systems and Social Services in EU-15 Member States

Abstract:

The major aim of this research note was to review studies on the implications of immigration for welfare systems and social services in the EU-15 member states and how this impact depends on the characteristics of the immigrant population, immigration policies and the design of welfare systems and social services.

The impact of immigration on public finances varies among the EU-15 member states. The results for Austria, Germany, Italy and Spain suggest positive effects of immigration for public finances. In the case of Denmark, Sweden, the Netherlands and France immigrants represent on average a fiscal burden; only young (Sweden) or high-skilled immigrants (Denmark, the Netherlands, France) would be a fiscal gain. For the United Kingdom static analyses report that the contribution of immigrants to public finances is neutral to positive and one may draw the same conclusion as for Ireland: In both countries relatively large shares of highly skilled immigrants positively contribute to public finances.

Inward migration is estimated to amount to around 40 million cumulated from 2004 to 2050. Currently most research arrives at the conclusion that migration can only very partially offset demographic transformations, if it does not reach levels far above those experienced in the past and if education levels of the migrants are not significantly high. These limited findings are to a large extent due to the predominant use of growth accounting frameworks, which take migration only into account in relation to the size of the labour force. The available research does not reflect on macroeconomic processes related to price levels, employment rates, quality of the factor labour, phenomena such as "brain drain/gain", adjusting capital accumulation, as well as socio-economical effects (i.e. the costs of lacking integration policies, impacts on distribution etc.

From the literature survey in EU-15 Member States no general conclusion concerning the impact of immigration on the long-term financial stability of the provision of social services can be drawn: the findings of research point to the importance of the structure of immigration. The age at which immigrants arrive, their skills and the ease of integration into labour markets determine the final outcome.

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The Impact of Migration on Welfare Systems and Social Services[1]

I. Introduction

Population ageing in most of the Western world will entail problems in the sustainability of financing public social systems of many countries. This has led to a growing interest in studying the relationship between the fiscal burden and demographic changes in general. One factor that is accounted for in the public debate and in academic research is immigration. Immigration increases populations, and due to higher fertility rates of migrants' populations and the larger share of immigrant persons in working age, immigrants are expected to rejuvenate native populations. Several studies (like those of the EPC, the DG ECFIN or also the OECD) deal with the implications of immigration on public finances in European countries. They ask whether immigration puts a strain on or contributes positively to public finances and whether immigration may represent an alleviating factor to the fiscal burden on future generations.

This research note is a survey of the state of the art of research on the implications of immigration on the fiscal sustainability of the "old" member states (EU-15) conducted by the individual countries rather than international organizations. It also reviews how the effects of immigration depend on the characteristics of the immigrant population, on immigration policies and on the design of welfare systems and social services. The main focus is on studies that apply dynamic, long run analyses and capture direct as well as indirect effects. The method of General Accounting, that provides a dynamic analysis of the status quo, is used by the studies for Austria, France, Germany, Italy, the Netherlands and Spain. The studies for Denmark and Sweden apply Overlapping-Generations-Models that consider, just as Generational Accounting, the long-run dynamic effects of immigration. The studies for Ireland and the United Kingdom are static analyses that ignore indirect, dynamic and general equilibrium effects. For Belgium, Greece, Luxembourg and Portugal no studies could be found that explore the implications of migration on the host countries' social system. Therefore, some basic information on the countries' social systems and immigration profiles are given.

The next chapter provides information on the sustainability of the provision of public social services and finances in the EU-15 member states, on migration in these countries and on how migration may affect the sustainability of those social systems. The third chapter gives an overview over the methods employed in this research note. The fourth chapter comprises summaries of the different country studies. In the last chapter a conclusion of the effects of immigration on the host countries' social systems is given and in the annex there are some of the most important figures and tables concerning immigration and social systems.

[1] *The views expressed in this document are those of the authors and do not necessarily represent those of the European Commission.*

II. Motivation

The Sustainability of Provision of Public Social Services and Public Finances

In the coming decades, the size and age-structure of the population in the EU-15 will undergo large changes: low fertility rates below the replacement ratio of 2.1 needed to stabilise the population size and age structure; continuous increases in life expectancy (2050: males 82,1 and women 87 years); and the retirement of the baby-boom generation. The working-age population (15 to 64) in employment is projected to drop by 5,7 million (-3.5 %) between 2003 and 2050. In contrast, the elderly population aged 65+ will rise sharply by 49 million, the population of the very old (80 years plus) will increase by 27,9 million (more than 170 %). Europe will go from having four to only two persons of working-age for every elderly citizen.

The demographic change is expected to have a significant impact on growth: For the EU-15 the annual average potential GDP growth rate is expected to fall from 2.2 % in the period 2004-10 to 1.8 % in the period 2011-30, and to 1.3 % between 2031 and 2050. The sources of economic growth are expected to change, while employment will make a small positive contribution to growth up to 2010, it will become neutral in the period 2011-2030, and turn significantly negative thereafter. (The EU-15 will only reach the Lisbon employment targets around 2035.) Over time, labour productivity will become the dominant, and in some countries the only, source of growth. The growth rate of Total Factor Productivity will converge to 1.1 % (i.e. the US trend labour productivity growth) by 2030, with different speeds of convergence across Member States.

Overall the ageing of the population will result in significant budgetary effects, the last round of projections of the EPC (Report in 2006) has indicated that the ageing population will lead to an increase in public spending of 3.7 % of GDP between 2004 and 2050, if no corrective action is taken. Most of the projected increase in public spending will be on pensions (2.3 % of GDP), but i.e. for Spain, Luxembourg and Portugal the increase is projected to be over 5 percentage points of GDP between 2004 and 2050 (respectively 7.1 %, 7.4 % and 9.7 %), calling into question the financial sustainability of the pension systems in some countries. Health care (approximately 1.6 % of GDP) and long-term care (0.7 % of GDP) expenditures are also increasing, potential offsetting savings in terms of public spending on education (-0.6 % of GDP) and unemployment benefits (-0.2 % of GDP) are likely to be relatively small in comparison. Revenues analysis is less precise on the impact of demographic changes on tax revenue/GDP ratios for most components of tax systems, with the notable exception of revenues from taxation of pension income from second pillar pension schemes.

Projected changes in age-related public expenditure between 2004 and 2030/50 (% of GDP)

	Pensions			Health care			Long-term care			Unemployment benefits			Education			Total* (without long term care)		Total* (without education)	
	Level	Change from 2004 to:		Level	Change from 2004 to:		Level	Change from 2004 to:		Level	Change from 2004 to:		Level	Change from 2004 to:		Change from 2004 to:		Change from 2004 to:	
	2004	2030	2050	2004	2030	2050	2004	2030	2050	2004	2030	2050	2004	2030	2050	2030	2050	2030	2050
BE	10.4	4.3	5.1	6.2	0.9	1.4	0.9	0.4	1.0	2.3	-0.5	-0.5	5.6	-0.0	-0.7	4.1	5.3	5.1	7.0
DK	9.5	3.3	3.3	6.9	0.8	1.0	1.1	0.6	1.1	1.5	-0.3	-0.3	7.8	-0.4	-0.3	3.4	3.7	4.4	5.1
DE	11.4	0.9	1.7	6.0	0.9	1.2	1.0	0.4	1.0	1.3	-0.4	-0.4	4.0	-0.8	-0.9	0.6	1.7	1.8	3.6
GR				5.1	0.8	1.7				0.3	-0.1	-0.1	3.5	-0.5	-0.4	.	.	.	.
ES	8.6	3.3	7.1	6.1	1.2	2.2	0.5	0.0	0.2	1.1	-0.4	-0.4	3.7	-0.7	-0.9	3.3	8.3	4.0	9.1
FR	12.8	1.5	2.0	7.7	1.2	1.8				1.2	-0.3	-0.3	5.0	-0.5	-0.5	1.9	2.9	2.4	3.4
IE	4.7	3.1	6.4	5.3	1.2	2.0	0.6	0.1	0.6	0.7	-0.2	-0.2	4.1	-0.9	-1.0	3.2	7.2	4.3	8.8
IT	14.2	0.8	0.4	5.8	0.9	1.3	1.5	0.2	0.7	0.4	-0.1	-0.1	4.3	-0.8	-0.9	0.9	1.1	1.8	2.4
LU	10.0	5.0	7.4	5.1	0.8	1.2	0.9	0.2	0.6	0.3	-0.0	-0.1	3.3	-0.5	-0.9	5.2	7.6	6.0	9.1
NL	7.7	2.9	3.5	6.1	1.0	1.3	0.5	0.3	0.6	1.8	-0.2	-0.2	4.8	-0.2	-0.2	3.5	4.4	4.0	5.2
AT	13.4	0.6	-1.2	5.3	1.0	1.6	0.6	0.3	0.9	0.8	-0.1	-0.1	5.1	-0.9	-1.0	0.5	-0.7	1.8	1.2
PT	11.1	4.0	0.7	6.7	-0.1	0.5				1.0	-0.1	-0.1	5.1	-0.6	-0.4	4.1	0.7	4.7	10.1
FI	10.7	3.3	3.1	5.6	1.1	1.4	1.7	1.2	1.8	1.5	-0.4	-0.4	6.0	-0.6	-0.7	3.5	3.4	5.3	5.9
SE	10.6	0.4	0.6	6.7	0.7	1.0	3.8	1.1	1.7	1.1	-0.2	-0.2	7.3	-0.7	-0.9	0.3	0.5	2.0	3.1
UK	6.6	1.3	2.0	7.0	1.1	1.9	1.0	0.3	0.8	0.4	-0.0	-0.0	4.6	-0.5	-0.6	1.9	3.2	2.7	4.6
CY	6.9	5.3	12.0	2.9	0.7	1.1				0.4	-0.0	-0.0	6.3	-1.0	-2.2	4.1	11.8	6.0	14.1
CZ	8.5	1.1	5.0	6.4	1.4	2.0	0.3	0.2	0.4	0.2	-0.0	-0.0	3.8	-0.9	-0.7	1.6	6.8	2.6	7.9
EE	6.7	-1.9	-2.5	5.4	0.8	1.1				0.1	-0.0	-0.0	5.0	-1.1	-1.3	-2.3	-2.7	-1.2	-1.4
HU	10.4	3.1	6.7	5.5	0.8	1.0				0.2	-0.0	-0.0	4.5	-1.0	-0.7	2.8	7.0	3.8	7.7
LT	6.7	1.2	1.8	3.7	0.7	0.9	0.5	0.2	0.4	0.1	-0.1	-0.1	5.0	-1.6	-1.6	0.2	1.0	2.0	3.1
LV	6.8	-1.2	-1.2	5.1	0.8	1.1	0.4	0.1	0.3	0.3	-0.1	-0.1	4.9	-1.2	-1.4	-1.7	-1.6	-0.4	0.1
MT	7.4	1.7	-0.4	4.2	1.3	1.8	0.9	0.2	0.2	1.2	-0.2	-0.2	4.4	-1.2	-1.2	1.6	0.1	2.0	1.5
PL	13.9	-4.7	-5.0	4.1	1.0	1.4	0.1	0.0	0.1	0.5	-0.4	-0.4	5.0	-2.0	-1.9	-6.1	-6.5	-4.1	-4.5
SK	7.2	0.5	1.8	4.4	1.3	1.9	0.7	0.2	0.6	0.3	-0.2	-0.2	3.7	-1.5	-1.3	0.1	2.3	1.8	4.1
SI	11.0	3.4	7.3	6.4	1.2	1.6	0.9	0.5	1.2	0.5	-0.1	-0.1	5.3	-0.7	-0.4	3.9	8.4	5.1	10.1
EU25	10.6	1.3	2.2	6.4	1.0	1.6	0.9	0.2	0.6	0.9	-0.3	-0.3	4.6	-0.7	-0.9	1.3	2.8	2.2	4.0
EU15	10.6	1.5	2.3	6.4	1.0	1.6	0.9	0.3	0.7	0.9	-0.2	-0.2	4.6	-0.6	-0.8	1.6	3.0	2.5	4.3
EU12	11.5	1.0	2.0	6.3	1.0	1.5	0.7	0.2	0.5	1.0	-0.3	-0.3	4.4	-0.7	-0.9	1.7	3.2	2.5	4.4
EU10	10.9	-1.0	0.3	4.9	0.9	1.3	0.2	0.1	0.2	0.4	-0.2	-0.2	4.7	-1.5	-1.3	-1.8	0.0	-0.3	1.6
EU9 (EL00-PL)	8.8	1.0	4.8	5.5	0.9	1.3	0.3	0.2	0.3	0.3	-0.1	-0.1	4.4	-1.1	-0.9	1.4	5.1	2.0	6.4

*1) Total expenditure for GR does not include pension expenditure. The Greek authorities have agreed to provide the pension projections in 2006. In the context of the most recent assessment of the sustainability of public finances based on the Greek stability programme, public spending on pensions was projected to increase by 10.3% of GDP between 2004 and 2050.

2) Total expenditure for: GR, FR, PT, CY, EE, HU does not include long-term care

3) The projection results for public spending on long-term care for Germany does not reflect current legislation where benefit levels are fixed. A scenario which comes closer to the current setting of legislation projects that public spending would remain constant as a share of GDP over the projection period.

Note: these figures refer to the baseline projections for social security spending on pensions, education and unemployment transfers. For health care and long-term care, the projections refer to "AWG reference scenarios"

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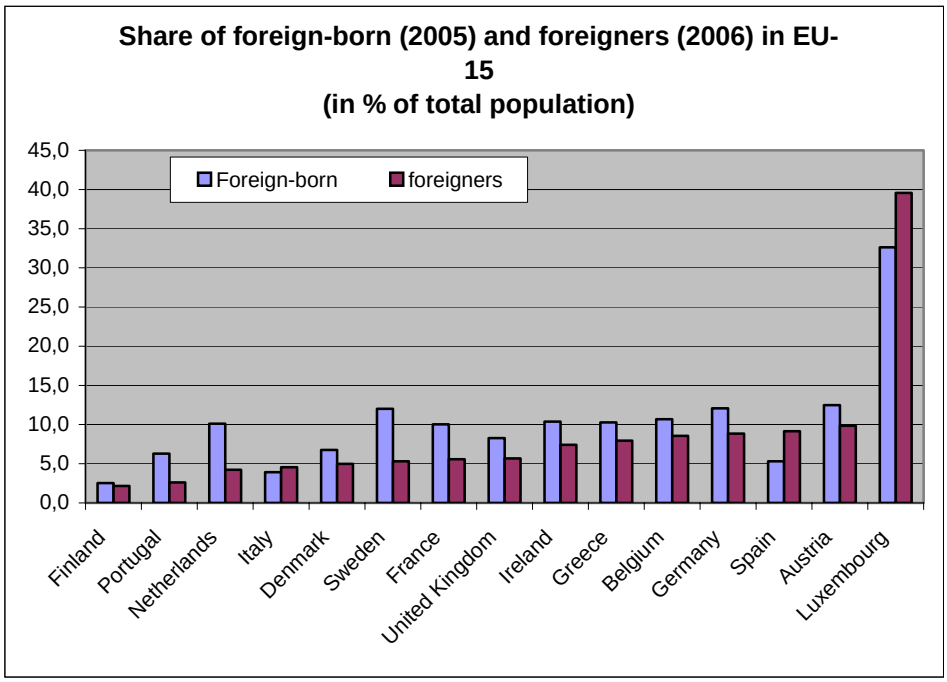
Migration in the EU-15 Member Countries

In 2006 about 26 million foreigners were residing in the EU-15 countries, i.e. 6.6 % of the total population of almost 390 million. The share of foreigners and foreign-born population varies considerably among the EU-15 countries. It is very high in Luxembourg with 39.6 % foreigners (32.6 % foreign born) and also significant in France, the Netherlands, Greece, Ireland, Belgium, Sweden, Germany and Austria (ranging from 10.0 to 12.5 % foreign-born population). In most EU-15 countries, except for Italy, Spain and Luxembourg, the number of foreign-born is higher than the number of foreigners as many immigrants acquired citizenship in their host country. (Figure 1)

Figure 1: Share of foreign-born (2005) and foreigners (2006) in EU-15 (in % of total population)



Source: OECD 2005, Eurostat 2006, IHS calculations

Some countries have a long history of immigration (France, Belgium, Germany, Netherlands), whereas others faced a rapid and considerable increase in the 1990s through humanitarian channels (Austria and Sweden) or work channels (Ireland, Greece). In all these countries the share of foreign-born is above 10 %. In the Nordic member states the share of foreign-born ranges from 2.5 % in Finland to 6.8 % in Denmark and 12.0 % in Sweden. In the Southern EU-15 countries immigration is a growing phenomenon. In 2005 3.9 % of the Italian population was foreign-born, in Spain it was 5.3 % and in Portugal 6.3 %. (Figure 1)

Moreover, there is a substantial difference between the EU-15 countries in respect to source countries. In 2006, about 26 million foreigners were residing in the EU-15; 7.6 million came from other EU-25 countries, i.e. 29.1 % of the total foreign population in the EU-15 in 2006. In Luxembourg (85.3 %), Belgium (68 %) and Ireland (67.7 %) the vast majority of foreigners comes from other EU-25 countries. In Italy and Greece, on the other hand, most foreigners are third-country nationals; only 8.4 % and 10 % come from other EU-25 countries, respectively. In the other EU-15 countries the share of foreigners originating from other EU-25 countries ranges from 20.9 % to 29.4 % in Spain, Denmark, Austria, Portugal and Germany.

Between 31.6 % and 44.4 % of the foreigners residing in France, Finland, the Netherlands, the United Kingdom and Sweden were from other EU-25 countries.

Concerning the impact of migration on welfare systems and social services, some characteristics of immigrants other than the country of origin are relevant. The participation and unemployment rates of immigrants influence the amount of taxes they pay and their dependency on social services. Educational levels affect wage levels and thereby also immigrants' net contribution to Western welfare states. Another factor that influences immigrants' fiscal contribution is their way of entry, i.e. whether they enter on humanitarian grounds, due to family reunification or as migrant workers. Data for these issues can be found in the annex.

Possible Impact of Migration on the Financing of Public Social Services

Between 2005 and 2006, the annual natural population change in the EU-15 member states was overall only slightly positive (Table 1). Germany and Italy experienced a population decrease and Greece, Portugal, Sweden and Austria exhibited only minimal population growth. This demographic trend puts the sustainability of the current pension and health systems of the countries concerned under pressure, and will pose serious burdens on their public finances. This raises the question whether immigration can help to cope with the economic consequences of population ageing. With the exception of the Netherlands, all EU-15 member states exhibited a positive migration balance, which means that more people have entered than left these countries. Italy showed population growth only because of positive net migration and in Germany the population decline would have been much larger without immigration. Thus, immigrants have a demographic effect in enlarging the population and by this, they also enlarge the tax base. Second, immigrants affect public finances as taxpayers contributors to social security and as beneficiaries of the welfare state. Therefore, by exhibiting higher or lower tax payments and by receiving higher or lower transfer payments than natives, immigrants have a fiscal effect on the public sector.

Population ageing will induce rising costs for governments on public pensions, and health; without adjustment, government policies will become unsustainable. In this setting, can immigration constitute an alleviating factor to public finances, and thereby to the resident population? This research note as a survey of literature, investigates current studies questioning whether immigration can provide a way to close part of the financing gap in the EU-15 member states.

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Table 1: Population change in EU-15 countries 2005-2006

	Population January 2005 (in thousands)	Natural population decrease/increase per 1,000 population	Net migration per 1,000 population	Total population change per 1,000 population	Population January 2006 (in thousands)
Austria	8,207	0.4	7.4	7.8	8,270
Belgium	10,446	1.4	3.2	4.6	10,494
Denmark	5,411	1.6	1.4	3.0	5,428
Finland	5,237	1.8	1.7	3.5	5,255
France	60,561	3.7	1.7	5.4	60,892
Germany	82,501	-1.7	1.2	-0.5	82,456
Greece	11,076	0.2	3.1	3.3	11,112
Ireland	4,109	8.8	11.4	20.2	4,193
Italy	58,462	-0.5	5.8	5.3	58,772
Luxembourg	455	3.9	3.4	7.3	458
Netherlands	16,306	3.1	-1.2	2.0	16,338
Portugal	10,529	0.8	3.9	4.7	10,579
Spain	43,038	2.1	15.0	17.1	43,781
Sweden	9,011	0.5	2.7	3.2	9,040
UK	60,035	2.0	3.3	5.3	60,354

Source: Münz (2006), EUROSTAT, Chronos Database

III. Methods

The studies discussed in this research note basically use three methods to assess the impact of migration on welfare systems and social services. Two studies (Ireland, UK) carry out static analyses of the contributions and benefits of immigrants for a given year. Most of the studies dealt with in this research note apply the method of Generational Accounting (Austria, France, Germany, Italy, the Netherlands, Spain). Two further papers (Denmark, Sweden) use Dynamic Equilibrium Models to measure the effects of immigration on the host countries.

Static Analysis of Contributions and Benefits

The straightforward approach for the analysis of the impact of migrants on social systems uses cross section data. This approach calculates the taxes immigrants pay and the amount of public expenditure they absorb at one point in time. Thus, the fiscal effect of migration is calculated as the total tax and national insurance revenue received from migrants minus government expenditure attributed to migrants' receipt of benefits and consumption of public services. Static Analyses only deal with one moment in time and are only concerned with the direct static effects of immigration. Indirect, dynamic and general equilibrium effects are ignored. This analysis fails to account for dynamic effects inherent in public social systems. During the life course the individual balance of financial contributions and benefits changes. Persons contributing to social security systems acquire future claims for benefits that should be taken into account in a comprehensive analysis. Consequently the static analysis may only capture part of the complete impact of migration.

Generational Accounting

For a meaningful evaluation of immigrants' fiscal impact, an inter-temporal analysis is necessary. Such a framework allows for changes in fiscal payments and benefits over time due to the ageing of populations. One method that has become popular in recent years is Generational Accounting. General Accounting is used to estimate the total costs and benefits to public finances caused by natives and immigrants, taking into account that these costs and benefits vary greatly during the life course. The calculations are based on assumptions about how much tax immigrants pay over their lifetime, how many public goods and services, including social benefits, they use and how long they live in the country. The total economic cost or benefit is the discounted difference between tax payments and income transfers received of a newly arrived immigrant over his/her entire life span or time spent in the host country. In this research note the studies for Austria, France, Germany, Italy, the Netherlands and Spain apply Generational Accounting.

Dynamic Equilibrium Models

As an extension to studies that use Generational Accounting dynamic equilibrium models also take into account general equilibrium effects, as for example the change of the wage level because of changes in labour supply. The method of generational accounting is based on the assumption that the basic economic conditions stay constant and the behaviour of economic agents remains unchanged. Changes in the composition of population and the

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work force, however, have direct implications for relative prices, wages and quantities of labour and goods supplied and demanded. Equilibrium models incorporate these effects and reveal the associated economic adjustment processes that accompany possible variations due to the inflow of migrant population.

IV. Country Reports

Austria

(Mayr 2004)

The study for Austria uses the tool of Generational Accounting to assess the fiscal impact of immigrants. Immigrants increase the population. By this they enlarge the (net) tax base and alter the age and gender composition of the population. They also change the fiscal characteristics of age cohorts, as the representative immigrant pays different amounts of taxes and social contributions and receives different transfers than the representative native. The results of the study are that until the age of 35 (men) and 20 (women), natives pay more taxes compared to immigrants but also receive more transfers, which is due to their higher participation rates and higher wages. For cohorts older than 35 the situation is different; foreigners' remaining lifetime tax payments are higher than those of natives. To test for the robustness of the findings, Mayr (2004) conducts a dynamic long-run analysis with a high and a low migration scenario. Higher net immigration leads to lower inter-temporal public liabilities, because there are more people in working age and so the group of net taxpayers is larger. The overall fiscal effect of immigration is positive under the assumption that the age and fiscal characteristics of future immigrants are those of immigrants today. A **screening by age or skill may increase the positive impact of immigrants on Austria's fiscal balance**. As higher skilled immigrants provide a higher net contribution to the public social systems, increasing their share would result in positive aggregate effects on fiscal sustainability. However, even then the effect would be too small to achieve inter-temporal fiscal balance.

Belgium

(Gsir, Martiniello, Meireman and Wets 2005)

No study on the impact of immigration on the Belgian social system could be found. There exists a pay-as-you-go pension scheme for employees with contribution-related benefits and rates dependent on the family situation.[2] According to the study by Gsir et.al. (2005) about the immigration debate in Belgium **the country would need 30,000 new migrants per year, increasing to 60,000 in the future** in order to maintain a sufficient number of working people. Today, Belgium has a net-immigration rate of 1.23 migrants/1.000 of population.[3]

Denmark

(Schou 2004)

The Danish survey of immigration, integration and fiscal sustainability uses an OLG model that incorporates dynamic effects. As an extension to studies that use Generational

[2] *http://ec.europa.eu/employment_social/missoc/2003/b_part1_de.htm (2008-04-21)*
[3] *http://www.migrationinformation.org/Resources/belgium.cfm (2008-04-21).*

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Accounting this model also considers general equilibrium effects, as for example the change of the wage level because of changes in labour supply. By macro-economic forecasts Schou (2004) computes changes in public finances due to a fall in total population and a rise in the share of immigrants. Public expenditures as a share of GDP also rise. Then an experiment is conducted where immigration increases. This results in an increase in employment and in GDP. Public finances do not change as much: the transfers are the same, only individual public consumption increases. The net impact of immigration on public balances is negative: the extra tax payments resulting from immigration are smaller than the extra costs. In another step the study shows that restricting immigration to immigrants from relatively developed countries would improve the fiscal sustainability of Denmark, a result that is in line with the findings of the study for Sweden (Storesletten 2003). Another **experiment tests the effects of a costless, immediate and full economic integration of immigrants**. The result is that GDP grows and also the sustainability of public finances increases. So, even if immigration does not solve the demographic problems of the ageing welfare states, improved integration of existing and future immigrants may be a very important tool in order to ease future financing problems, especially by increasing the participation rates. Furthermore, restricting immigration to targeted groups of immigrants may have a positive, but very small, effect on the sustainability of Danish fiscal policy.

Finland

(Vanne 2003)

Finland is a Nordic-type welfare economy with high tax rates and large scale social transfer schemes. Vanne (2003) employs a Generational Accounting analysis of Finnish fiscal policies. He does not conduct a separate immigrant population modelling because annual net immigration to Finland is only 0.1 percent. There are no other studies about the impact of immigrants on the fiscal sustainability of the Finnish welfare state. Thus, we assume that the **effects of currently observed immigration are too small to be of any larger importance**.

France

(Chojnicki 2006)

To study the impact of immigration on public finances Chojnicki (2006) uses Generational Accounting. Individual accounts for natives and immigrants are calculated. Different immigration scenarios and skill levels of immigrants are taken into account. Immigrants are by definition the current foreign-born residents in France. The results show rather considerable differences between natives and immigrants, indicating that the average net lifetime contribution to the social system of an immigrant is negative (in absolute terms). As in other countries (e.g. the Netherlands, Spain) this is mainly caused by significantly lower contribution of migrants. In the baseline scenario an annual net immigration of 50,000 individuals is assumed. Two alternative scenarios are tested to study the effects of a change in the migration policy: a “zero immigration” scenario and a rise in the annual net immigration limited to the age group 25-45. The results do not differ very much from the baseline scenario, e.g. assuming that the budgetary adjustment only takes places on the transfer side, then in the baseline scenario all transfers would have to be reduced by 13.0 %; with zero immigration this cut would amount to 12.4 %, with high immigration all transfers would have to be decreased by 13.0 %. **Thus, simply modifying the size of annual net immigration does not appear to be an appropriate means in fighting population ageing**. When **accounting for skill levels, considerable differences arise** among immigrants. For high-skilled immigrants the net lifetime contribution is positive in almost all age groups and lies con-

siderably above those of middle or low-skilled immigrants. In the light of the efforts that are necessary to reduce the budgetary imbalance in France, the impact of immigration remains rather small. Nevertheless, positive effects may arise from modifying immigration (more high-skilled immigrants). However, such a change in immigration policy faces certain constraints, i.e. free movement of persons, illegal immigration, family reunification, and humanitarian grounds.

Germany

(Bonin 2002)

Bonin (2002) explores the long-run fiscal effects of immigration for Germany by using Generational Accounting. The generational accounts for natives (citizens) and foreigners (non-citizens) display the characteristic lifetime pattern: The peak of an individual's remaining net contribution is between 20 and 30 years of age, due to the large tax burden at this age and because the present value of their future pension transfers is low. Between 50 and 55 years of age foreigners and natives become beneficiaries of the German welfare state. Within younger cohorts the current German tax and transfer system redistributes in favour of migrants, within older cohorts in favour of natives. Accounting for the whole lifetime, foreigners display larger net payments, especially because of lower pension claims. Tests for different integration scenarios lead to the conclusion that the longer the integration process takes, the smaller the net contribution of immigrants gets. **As long as the integration process is shorter than 12 years, immigration does not constitute a burden for the native population**. Thus, policies that aim at quick integration and at safeguarding the labour market success of immigrants could help to increase the contribution of immigrants to the sustainability problem. The study concludes that immigration can substantially alleviate the fiscal burden of the native population, which applies under the assumption that immigrants' labour market performance corresponds to that of the current migrant residents. This results from the favourable demographic structure of immigrants (consisting largely of age groups with positive lifetime contributions) and the fact that immigration raises the number of future taxpayers, thereby spreading the existing implicit debt. Nevertheless, the contribution of immigrants is too small to remove the inter-temporal fiscal imbalance.

Greece

(Lianos 2004, Avramopoulou, Karakatsanis and Pavlou 2005)

For Greece no study could be found that explores the effects of immigration on the social system. Huge immigration flows are a rather recent phenomenon for Greece, starting in the 1990s. Since then the number of illegal immigrants has risen dramatically. Within a decade, Greece's foreign population has increased from less than 3 percent to an estimated 10 percent of the total population; the majority of them are of third country origin. Most of the immigrants are male, semi-skilled or unskilled workers and on average about 33 years old. Like in other countries, the financing of the Greek social security system is under pressure. Immigration as a means to alleviate the fiscal burden is also discussed in Greece. It is argued that **immigrants to Greece have a favourable age structure and as a result, contribute to the revenues** of the social security funds with no financial demands at present or in the near future. However, there is so far no study that analyses these fiscal effects of immigration to Greece.

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Ireland

(Barrett and McCarthy 2007)

Since the mid-1990s Ireland has experienced an exceptional economic growth, which led to an influx of immigrants in recent years: Between 2002 and 2006 the share of foreign population rose from 7 to 10 percent, although as recently as the early 1990s Ireland was experiencing a net outflow of migrants. Another **unique feature of Ireland concerning migration is that immigrants have higher levels of education than the domestic population**. Barrett and McCarthy (2007) conduct an econometric analysis, where immigrants are defined as individuals who were born outside of Ireland and who are not Irish citizens. After investigating the earnings of immigrants and natives, a "welfare participation" dummy variable is constructed that displays whether or not individuals received unemployment benefits or assistance and disability benefits or assistance in the previous 12 months. 15 percent of the native population report participation in one of the four schemes; the correspondent figure for immigrants is just 7 percent. The study does not deal with taxes paid by immigrants and furthermore it is a static analysis. Hence, it cannot discuss the long-run fiscal impact of immigrants. In a last step the authors refer to Auerbach and Oreopoulos (2000) to mention that the fiscal impact of immigrants in the long run is dependent on education levels and that highly educated groups of immigrants are found to make a positive contribution, which is likely to apply to Ireland.

Italy

(Moscarola 2001)

Moscarola (2001) uses Generational Accounting to assess the effects of immigration inflows on the sustainability of the Italian welfare state. The study compares the transfer and tax age-profiles of Italians and immigrants, whereby Italian-born children of immigrants and immigrants who arrived before the age of 15 are treated as Italians. As immigrants have lower participation rates and are often employed in unskilled jobs, taxes and transfers that follow the wage profile are by and large lower for immigrants. Due to a lower average income and higher savings that are used for remittances to the countries of origin, consumption taxes are also lower for immigrants. The study concludes that **immigrants who arrive in Italy before the age of 55 (for men) or 45 (for women) are a net resource for the Italian welfare state**, as the total amount of taxes and contributions they are to pay for the rest of their life is larger than the total amount of expected welfare transfers. Immigrants' contribution is likely to be positive, but even high immigration would not be sufficient to make the current Italian fiscal policy sustainable. In another step the study conducts simulations with differences in the duration of stay. This analysis leads to the conclusion that the shorter the stay of immigrants in Italy is, the smaller their positive contribution.

Luxembourg

(Kollwelter 2003)

There was no study on the impact of immigration on the Luxembourgian social system. **Luxembourg's situation is not typical**: It has a population of 440,000, where foreigners make up 38 percent of the population. Most of them are EU citizens; only 5 percent come from third countries. There is little unemployment (2-3 percent) and the population of Luxembourg contributes more than is needed to pay for pensions, so there is no debate on the sustainability of the fiscal system as in other countries of the EU.

Netherlands

(Roodenburg, Euwals and ter Rele 2003)

To explore the long-run effects of immigration with respect to public finances the study for the Netherlands uses Generational Accounting. The study takes account of different characteristics of immigrants, i.e. "non-Western residents", "average Dutch", and "highly performing". The results indicate that the fiscal impact of immigration to the Netherlands depends very much on the entry age and the immigrants' characteristics. The study suggests the most favourable outcome for immigrants who arrive at age 25 and fare well on the Dutch labour market. On the other hand, immigrants with the characteristics of present average non-Western residents represent a burden to the public budget. This applies to all entry ages. It is not only the result of a weak labour market performance but also due to the generous Dutch social security system. Immigrants with a labour market performance comparable to average Dutch residents have positive net contributions provided they enter between 14 and 45 years. Immigrants with a labour market performance better than average Dutch residents represent a supporting factor for the sustainability of public finances for a wide range of entry ages. According to calculations of the Netherlands Bureau for Economic Policy Analysis it would be necessary to adjust the Dutch budget by up to 1.8 % of GDP to arrive at a sustainable system of public arrangements. Assuming an annual net immigration of 0.05 %, then immigrants with the characteristics of current non-Western residents in the Netherlands would raise the required adjustment by 0.34 % of GDP; immigrants with average Dutch characteristics would lower it by 0.01 % of GDP; **only "highly performing" immigrants would have an alleviating effect by reducing the required budgetary adjustment** by 0.22 % of GDP. The authors conclude that for the Netherlands immigration cannot offer a major contribution to safeguard the future sustainability of the social system.

Portugal

(Norte et al. 2004, Fonseca, Macaísta Malheiros and Silva 2005)

For a long time Portugal was traditionally an emigration country. The situation has changed in recent years. Since 1993 it has become an immigration country. Different immigration waves are reflected in the major groups of immigrants that reside in Portugal, i.e. immigrants from Portuguese Speaking African Countries, from Brazil and Asia and lately also from Eastern European countries. Third country immigrants are found to work mainly in low-skilled jobs. Norte et al. (2004) calculate the impact of immigration on the state budget by adding

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the revenues and deducting the expenditures incurred in 2001 for all immigrants. The result is that **immigrants in Portugal are net contributors**. However, this result has to be treated with care because it does not take into account the long run fiscal effects of immigration. Therefore, a dynamic approach like Generational Accounting should be used.

Spain

(Collado, Iturbe-Ormaetxe and Valera 2002)

The impact of immigration on the Spanish welfare state is studied by using Generational Accounting. Consequently, the authors calculate the net lifetime contribution to public finances (in present value terms) for a typical member of each generation and sex, considering different quotas of immigrants. The authors only take into account immigrants who arrived in Spain at the age of 12 or older and who come from underdeveloped countries. Differences in skill levels are not considered. The results indicate significant differences between natives and immigrants that mainly arise from the revenue side of the budget (lower incomes of immigrants, and thus lower tax revenues). **Different immigration policies are found to reduce the burden on future generations. The higher the annual net immigration, the lower gets the burden on future generations.** The reason for this is seen in the fact that the average immigrant arrives in Spain at the age of 34, and at this age the remaining lifetime contribution is very large. Overall, the results suggest that a higher number of immigrants to Spain would help to reduce the fiscal burden on future generations.

Sweden

(Storesletten 2003)

The study for Sweden was carried out in a dynamic framework (Overlapping-Generations-Model) and aimed at computing the “net public gain of a new immigrant”. In other words: What will a new immigrant of a certain type (gender, labour force status, national origin, age at time of immigration) contribute to and take out of the system in his/her remaining lifetime? Immigrants are defined as persons who are foreign-born. The results suggest that immigrants impose on average a substantial fiscal burden. It is important to stress that this general conclusion is not true for all age groups. **Young immigrants to Sweden (20-30 years old) represent a large fiscal gain, whereas the costs of older and very young immigrants are substantial.** The same structure applies to natives: During their working years they bring a surplus to public fiscal balances, whereas when young (1-20) and old (65+) they are net burdens. Although the young immigrants usually fare worse on the Swedish labour market than their native counterparts, the results suggest large positive fiscal effects. If immigration policy was considered as a means to alleviate fiscal problems, then young immigrants (20-30) should be targeted. Immigrants to Sweden have, on average, lower employment rates and wages than natives. A larger government sector, higher tax rates and more distribution to non-working individuals amplify these effects. Additionally, the complicated process of immigrating and obtaining labour market access in Sweden is mentioned as another potential reason for the substantially smaller gains of immigrants for Sweden.

United Kingdom

(Gott and Johnston 2002, Coleman and Rowthorn 2004)

Gott and Johnston (2002) conduct a cross section estimate calculation for the tax year 1999/2000 to compute the fiscal effects of migration for the United Kingdom. The cross section approach calculates the taxes immigrants pay and the amount of public expenditure they absorb. Migrants are defined as people who were born in a foreign country, which means that second generation immigrants are not defined as migrants, whereas international students are. According to this definition migrants constituted 8.4 percent of the UK population in 1999/2000. According to Gott and Johnston migrants contributed £ 31.2 billion in taxes and increased public expenditure by £ 28.8 billion, which leads to a net fiscal contribution of £ 2.5 billion after rounding. The reason for this is that there is a smaller proportion of people over 65 and a larger percentage of migrants of working age. Though there are more unemployed migrants, a higher percentage of them is employed in professional and other high-skilled occupations and they pay more taxes on average. This study hides the performance of subsections of the migrant population. The authors draw the following conclusions: **Current migrants do make a positive fiscal contribution. Policies that increase the rate of employment of immigrants, develop skills (especially language fluencies) and social inclusion are improving migrants' fiscal outcome.** The study by Gott and Johnston is only concerned with the direct static effects of immigration. Indirect, dynamic and general equilibrium effects are ignored. Coleman and Rowthorn (2004) apply the same method, but calculate the taxes and transfers differently. They estimate the net fiscal contribution of the migrant population between -£ 0.4 billion and £ 2.6 billion. Thus, according to Coleman and Rowthorn (2004) immigration to the UK does not lead to a significant fiscal burden on the rest of society, nor does it provide a significant surplus. It is seen as broadly neutral. In this respect, Britain is similar to other advanced countries.

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V. Conclusions

The major aim of this research note was to review studies on the implications of immigration for welfare systems and social services in the EU-15 member states and how this impact depends on the characteristics of the immigrant population, immigration policies and the design of welfare systems and social services.

The literature on the fiscal impact of immigration shows a variety of ways in which studies on that subject are carried out. Some studies focus on the long run fiscal effects of immigration whereas others only focus at one moment in time. Furthermore it may lead to different outcomes if diverging social and economic characteristics of immigrants are taken into account and whether distinctions between males and females and between generations within in the immigrant population are made. Additionally, immigration might not only have an impact on social systems but also change e.g. the wage level.

The impact of immigration on public finances varies among the EU-15 member states. The results for Austria, Germany, Italy and Spain suggest positive effects of immigration for public finances. In the case of Denmark, Sweden, the Netherlands and France immigrants represent on average a fiscal burden; only young (Sweden) or high-skilled immigrants (Denmark, the Netherlands, France) would be a fiscal gain. For the United Kingdom static analyses report that the contribution of immigrants to public finances is neutral to positive and one may draw the same conclusion as for Ireland: In both countries more immigrants are higher-skilled than natives and their contribution to public finances is positive.

Several studies stress that, even though the effect of immigration or of certain groups of immigrants is positive, their overall impact on public finances is too small to remove the intertemporal fiscal imbalance and to reach fiscal sustainability, which is in accordance with the AWG findings. Furthermore the differences in the fiscal impact between immigrants and natives mainly arise on the revenue side of the budget. This is associated with the poorer labour market performance of immigrants in many countries, which then leads to smaller tax revenues.

Inward migration is estimated to amount to around 40 million cumulated from 2004 to 2050. Currently most research arrives at the conclusion that migration can only very partially offset demographic transformations, if it does not reach levels far above those experienced in the past and if skills of the migrants remain at currently observed levels . Even this finding has to be interpreted with care as it is based predominantly on the use of growth accounting frameworks, which take migration only into account on the “ceteris paribus” assumption of stable economic conditions. It is reasonable to assume that changes in the levels and the structure of migration may have repercussions on price and wage levels, employment and unemployment rates and the quality of the labour force. In this respect the application of dynamic equilibrium models may improve the quality of conclusion that could be obtained.

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Annex

Table 2: Population by citizenship in the EU-15 member countries 2006

	Total	Nationals	Foreigners	Non nationals but citizens of other EU-25 countries	Non nationals but citizens of other EU-25 in % of all foreigners
Austria	8,265.925	7,451.860	814,065	227,405	27.9
Belgium	10,511.382	9,610.900	900,500	612,000	68.0
Denmark	5,427.459	5,157.408	270,051	71,994	26.7
Finland	5,255.580	5,141.728	113,852	37,923	33.3
France	62,999.000	59,489.000	3,510.000	1,110.000	31.6
Germany	82,437.995	75,148.846	7,289.149	2,144.648	29.4
Greece	11,125.179	10,241.000	884,000	88,000	10.0
Ireland	4,234.900	3,920.800	314,100	212,800	67.7
Italy	58,751.711	56,081.197	2,670.514	223,537	8.4
Luxembourg	459,500	277,700	181,800	155,000	85.3
Netherlands	16,334.210	15,642.853	691,357	233,867	33.8
Portugal	10,569.592	10,294.000	276,000	81,000	29.3
Spain	43,758.250	39,755.741	4,002.509	835,731	20.9
Sweden	9,047.752	8,567.853	479,899	213,168	44.4
United Kingdom	60,393.000	56,968.000	3,425.000	1,280.000	37.4
Total	389,571.435	363,748.886	25,822.796	7,527.073	

Source: Eurostat, IHS calculations

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Table 3: Foreign and foreign-born population in the EU-15 member countries (in %)

	Foreigners (2006)	**Foreign-born (2005)**
Austria	9.8	12.5
Belgium	8.6	10.7
Denmark	5.0	6.8
Finland	2.2	2.5
France	5.6	10.0
Germany	8.8	12.1
Greece	7.9	10.3
Ireland	7.4	10.4
Italy	4.5	3.9
Luxembourg	39.6	32.6
Netherlands	4.2	10.1
Portugal	2.6	6.3
Spain	9.1	5.3
Sweden	5.3	12.0
United Kingdom	5.7	8.3

Source: OECD 2007, Eurostat; IHS calclations

Table 4: Participation and Unemployment Rates of native and foreign born in the EU-15, 2005 (%)

	Participation Rates		Unemployment Rates	
	Native Born	**Foreign Born**	**Native Born**	**Foreign Born**
Greece	66.3	73.3	9.7	10.2
Portugal	72.7	79.9	7.5	9.0
Ireland 2002	69.8	73	4.1	6.0
Luxembourg	62.1	73.3	3.6	5.6
Italy 2003	61.9	70.1	7.4	9.5
Spain	68.6	78.7	9.1	11.3
United Kingdom	75.6	68.8	4.3	7.3
Denmark	80.4	66.5	4.5	9.8
France	69.6	66.6	8.6	14.7
Austria	71.8	68.8	4.3	10.8
Germany	74.8	68.7	10.4	17.0
Netherlands	78.2	67.9	4.0	10.8
Sweden 2004	81	71.3	7.9	14.9
Finland	74.9	69.8	8.2	18.3
Belgium	67.4	59.8	6.9	17.1

Note: The data on participation and unemployment rates refer to 2002 for Ireland, to 2003 for Italy and 2004 for Sweden.

Source: OECD 2007

Figure 2: Unemployment rates in EU-15 2005

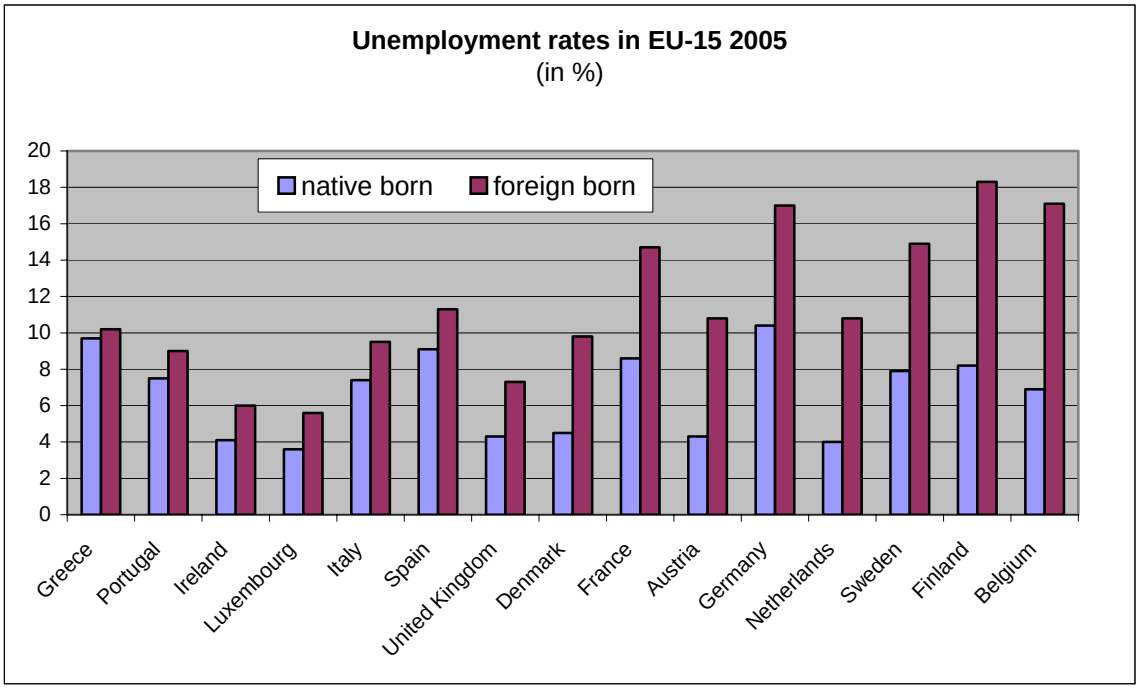

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Figure 3: Participation rates in EU-15 2005

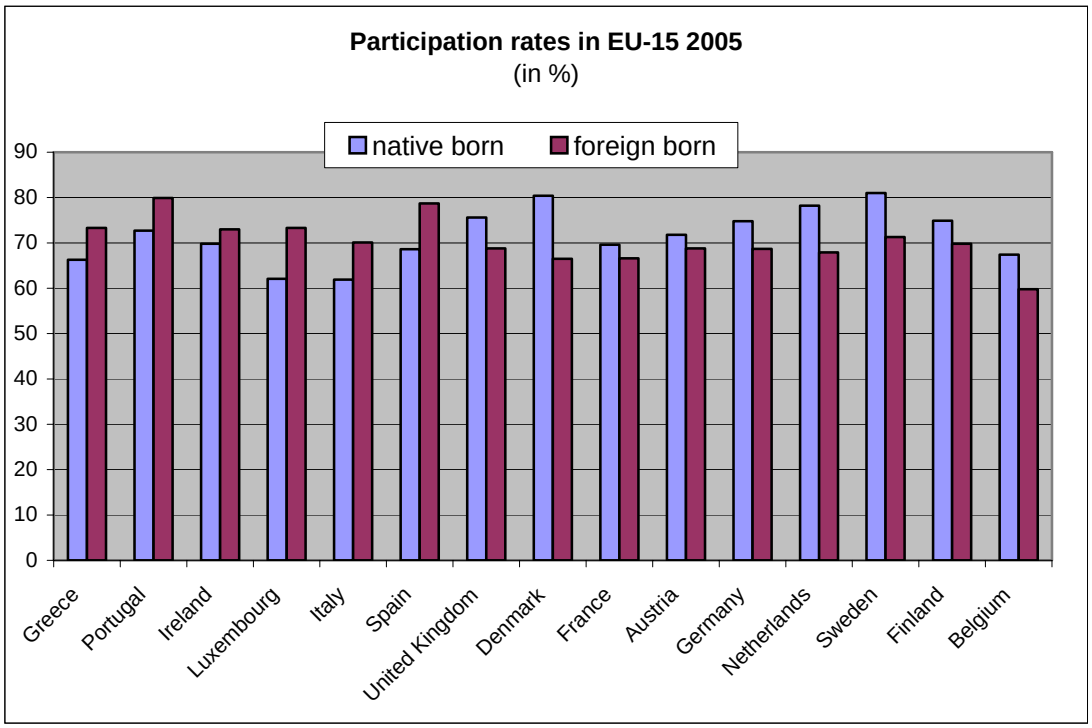

Table 5: Education level of foreign- and native-born aged 25 to 64 in the EU-15, 2003-2004 (in %)

	Foreign Born			Native Born		
	Less than upper secondary	**Upper secondary and post secondary non-tertiary**	**Tertiary**	**Less than upper secondary**	**Upper secondary and post secondary non-tertiary**	**Tertiary**
Austria	**36,7**	44,7	**18,5**	18,3	63,7	18,0
Belgium	**47,5**	27,1	25,4	35,9	34,6	29,6
Denmark	**23,8**	38,3	**37,9**	17,0	51,3	31,7
Finland	**24,3**	**47,9**	27,8	23,4	43,0	33,6
France	**51,1**	27,8	21,1	32,8	43,6	23,7
Germany	**37,4**	43,7	18,9	12,3	62,2	25,5
Greece	38,3	**42,3**	19,4	43,1	37,3	19,6
Ireland	23,9	30,7	**45,4**	39,2	35,3	25,5
Italy	48,7	**40,0**	**11,3**	52,2	36,7	11,1
Luxembourg	**36,7**	40,5	**22,8**	18,3	65,7	16,0
Netherlands	**43,5**	32,3	24,2	30,6	44,4	25,0
Portugal	52,0	**25,8**	**22,2**	78,0	11,2	10,8
Spain	40,9	**29,3**	**29,8**	57,1	17,5	25,4
Sweden	**21,7**	48,7	**29,5**	16,8	55,9	27,3
United Kingdom	**22,1**	43,6	**34,3**	15,9	54,8	29,4

Note: Bold figures indicate an overrepresentation of foreign-born at that level of education. Reference year is 2002 for the Netherlands. The ISCED variable specifies the level of education according to the International Standard Classification of Education.

Source: OECD 2007

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Figure 4: Educational level of foreign-born in EU-15 (2003-2004)

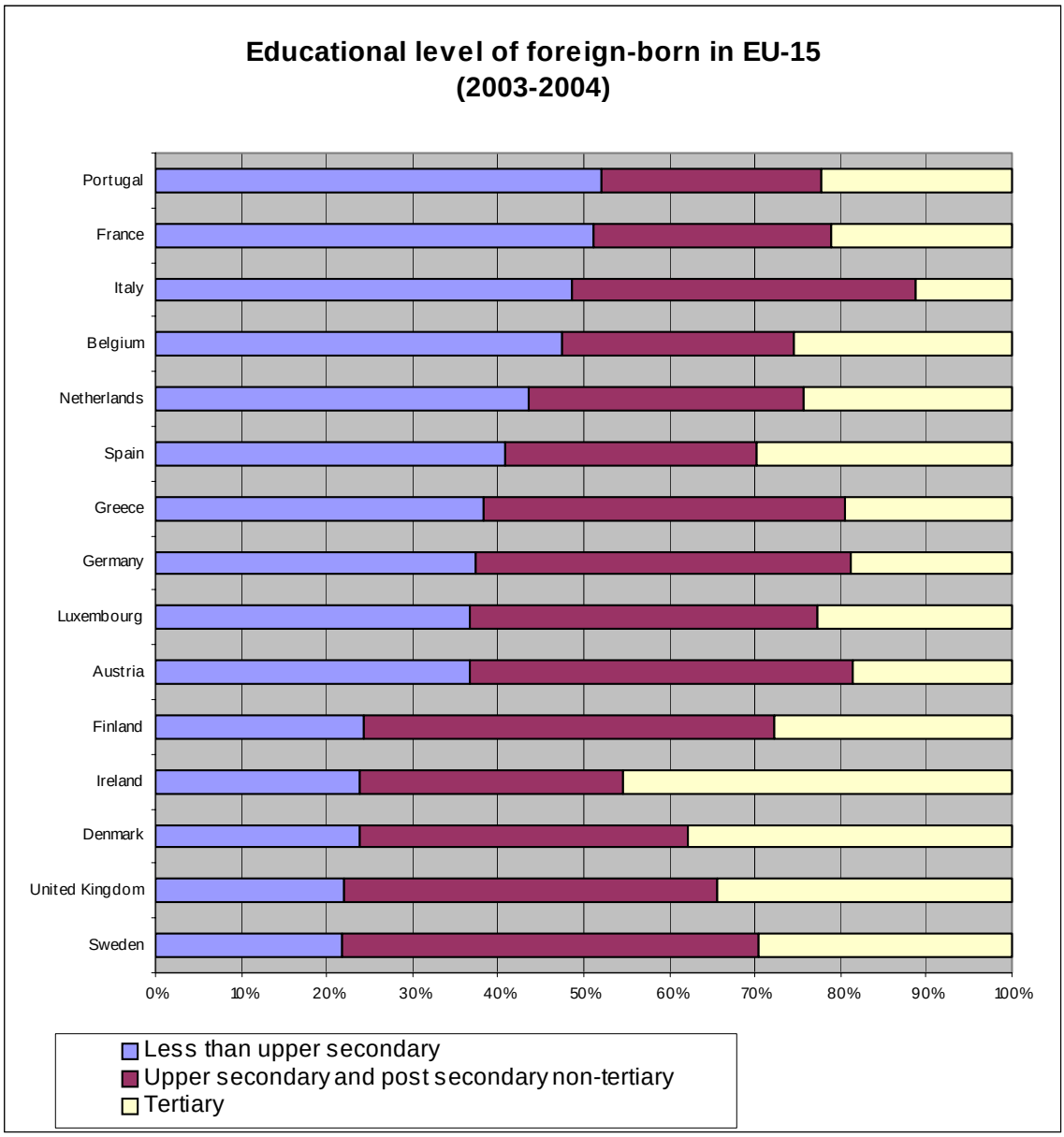
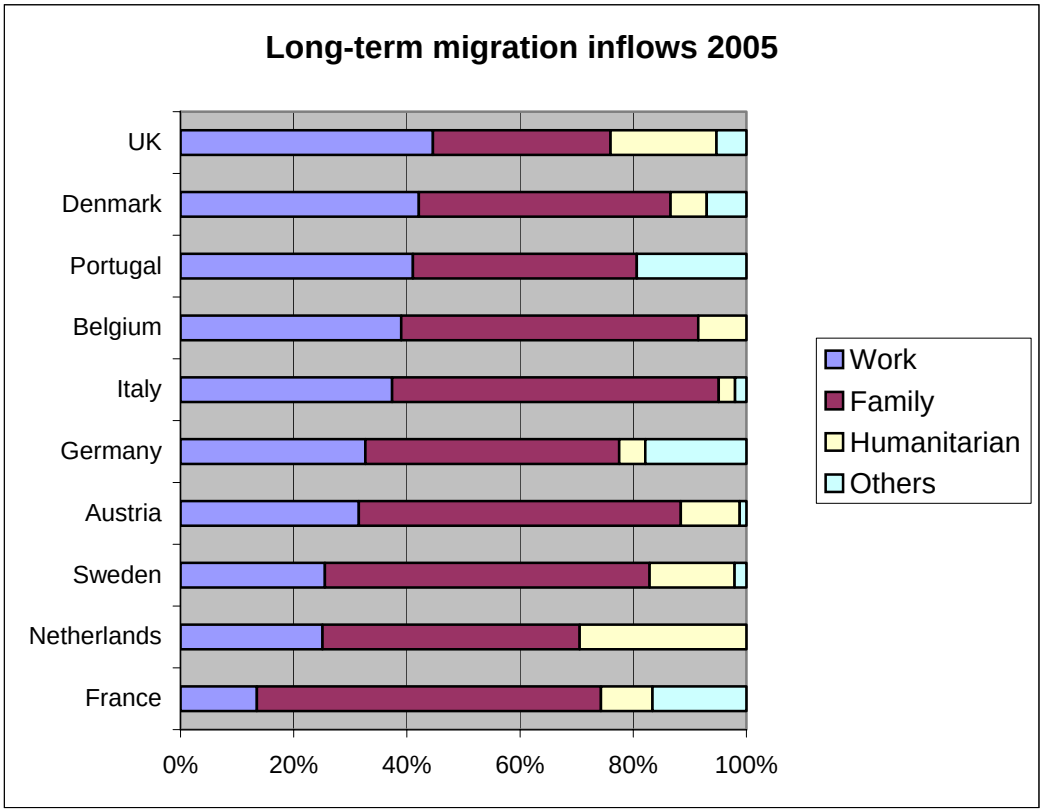


Table 6: Long-term migration inflows (foreigners) by type 2005
Permit based statistics (standardised)

	Work	Family	Humanitarian	Others
Austria	31.5	56.9	10.4	1.2
Belgium	39	52.5	8.5	-
Denmark	42.1	44.5	6.4	7
Finland	-	-	-	-
France	13.5	60.8	9.1	16.6
Germany	32.7	44.9	4.6	17.9
Greece	-	-	-	-
Ireland	-	-	-	-
Italy	37.4	57.7	2.9	2
Luxembourg	-	-	-	-
Netherlands	25.1	45.5	29.5	-
Portugal	41.1	39.6	-	19.4
Spain	-	-	-	-
Sweden	25.5	57.4	15	2.1
United Kingdom	44.6	31.4	18.7	5.3

Source: OECD 2007

Figure 5: Long-term migration inflows 2005



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