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DEMIFER
Demographic and migratory flows affecting European regions and cities

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Report on effects of demographic and migratory flows on European regions

Prepared by
Rob van der Erf, Joop de Beer and Nicole van der Gaag
Netherlands Interdisciplinary Demographic Institute (NIDI)
The Hague, Netherlands

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Executive summary

The population of Europe is increasing slowly. The number of inhabitants of the European Union equals about 500 million persons. Since 2000 the annual average growth rate has been below 0.5% per year. Migration has been the main source of population growth. Due to low fertility rates, the contribution of natural growth (the balance of births and deaths) to population growth has become very small. The low level of fertility has been the main cause of the ageing of the European population as well. This has been reinforced by the increase in life expectancy in most countries.

Since 2000 fertility rates have increased slightly. However, the rise has not been enough to change the direction of the trends in population growth and ageing. The percentage of NUTS2 regions experiencing population decline has increased further, from 27% in the 1990s to 30% in the years 2000-2006. And the percentage of regions with a high percentage of people aged 65 or over has increased as well. In the 1990s in 60% of the regions the number of people aged 65 or over was 15% or more of the total population. Since 2000 this has increased to over 70%.

Differences in population growth and ageing across regions are caused by differences in fertility, mortality, and internal and international migration. Each of these components of population change has a different effect on population growth and ageing. The level of fertility has a direct effect on population growth but only with a considerable time lag it has an effect on ageing. If fertility has been low for some time, it leads to a reduction in the growth of the working age population. Since most migrants are rather young, positive net migration has an immediate effect on the growth of the working age population. The level of mortality affects the growth of the number of elderly persons, but only a very small effect on the size of the working age population, except for some regions where mortality rates at middle ages are relatively high. High life expectancy has an upward effect on both population growth and ageing. Differences in the components of population change across European regions may reinforce each other. High out migration tends to go hand in hand with low fertility rates. Regions with low fertility, high life expectancy and negative net migration will experience more ageing than other regions. However, in many cases the demographic components may partially offset each other. Low fertility may be compensated for by net in-migration. Therefore for assessing the impact of fertility, mortality, and net migration on population growth and ageing it is important to examine the effects simultaneously.

DEMIFER builds on the results of the ESPON 1.1.4 project *The spatial effect of demographic trends and migration* by updating the data and extending the analyses. We compare the results described by the previous study for the 1990s with more recent data and examine to what extent demographic developments have changed since 2000.

Immigration and emigration numbers reported by the EU Member States generally are not consistent with each other. The main reasons are differences in definition, under coverage and measurement errors. As a result the number of emigrants from country A to B reported by country A does not correspond with the number of immigrants to country B from country A reported by country B.

One aim of the so-called MIMOSA project is to develop a methodology for estimating migration statistics that are based on the common definition according to the new regulation and that are internationally consistent (NIDI *et al.*, 2006). The MIMOSA project has started in January 2007 and will be completed in December 2009. At this stage the project has developed a method for estimating an origin-destination migration matrix for 31 European countries and has produced internationally consistent estimates of migration flows between those countries for the years 2002-2006. However, the model is still being improved. Thus the estimates produced at this stage are preliminary.

The provisional outcomes of MIMOSA indicate that the overall migration balance for the EU-27 in 2006 amounted to 1.1 million, resulting from about 4.7 million immigrants and some 3.6 million emigrants. More than half of the immigrants in the EU-27 arrived from outside the Union and consequently less than half of the immigrants came from other Member States. The large majority of immigrants, 3.8 million, settled in the (old) EU-15 Member States while the (new) EU-12 Member States attracted 0.9 million immigrants. Some 40% of the emigrants from the European Union left for destinations outside the Union, and somewhat more went to one of the EU-15 Member States.

For DEMIFER not only a consistent set of data *among* countries is needed, but also one *within* countries. Although MIMOSA estimates provide consistent matrices for intra ESPON migration flows, the resulting numbers are not necessarily consistent with other figures within the countries themselves, like population counts and internal migration data. Especially conclusions on the relative impact of internal versus international migration are highly sensitive on the figures used to make the comparison.

Since 2000 most NUTS2 regions have experienced low population growth. The low levels of fertility have only partly been compensated for by an increase in net international migration, particularly in western and southern parts of Europe. In one third of the regions annual average population growth has even been negative, whereas in almost 40% of the regions population growth has been positive but below 0.5 percent per year. Only one in eight regions has had a population growth above 1%. Population growth has been relatively high in several northern and southern regions. In the north-eastern part of Europe population growth has been high in Iceland, Ireland, and northern regions in Scotland. In the southern part of Europe population growth has been relatively high in south-eastern regions of Spain, several southern regions in France, northern regions of Italy, and Cyprus. In addition there are some scattered regions with high population growth in Switzerland, the Netherlands, Norway and Luxembourg.

Population has been declining in north-eastern and eastern NUTS2 regions as well as several regions in central parts of Europe and some scattered regions in western parts. In the north-eastern part population has been declining in several northern regions in Norway and Sweden and one eastern region in Finland. In the eastern part of Europe population has been declining in the majority of regions. However, in Poland some regions have had moderate positive population growth. Furthermore there has been population decline in a number of eastern German regions. In the other parts of Europe there are several scattered regions that have experienced negative population growth, e.g. some regions in England

and Wales, and several regions in Greece. Furthermore individual regions in Portugal, Spain, France, Belgium, the Netherlands and Denmark have had population decline.

In very broad lines the picture could be summarised as follows: population growth has been relatively high in several western and southern regions, and negative in several northern and eastern regions. In most other regions population growth has been moderate.

Whereas fertility has reached low levels in most regions, life expectancy has risen strongly in northern, western and southern regions. As a result, population has been ageing in those regions. Even though the development of life expectancy in many eastern regions has not been that favourable, population has been ageing in those regions as well due to very low fertility levels together with negative net international migration.

In 10% of the European NUTS2 regions one fifth of the population is aged 65 or over. In almost 60% of the regions the percentage of the population aged 65 or over ranges between 15 and 20%. The percentage of people aged 65 or over is high in several northern regions (mainly in Sweden), in central regions (mainly Germany) and in southern regions (several northern regions in Italy and Spain). The rate of ageing is relatively low in Poland, Ireland and Iceland.

At the regional level ageing may ask for policy interventions because of the decline in the growth of the working age population on the one hand and the increase in the demand of long-term care and health care due to the increase in the number of the oldest old on the other. Since long-term and health care tend to be labour intensive and are strongly related to the area where the oldest old are living, the combined effect of an increase in the number of oldest old and the decrease in the working age population are likely to lead to shortages of labour at the regional level. Thus the growth rate of the working age population and the growth of the number of oldest old are important indicators of ageing at the regional level.

In more than one quarter of the European NUTS2 regions the working age population has been declining since 2000. In one third of the regions the growth of the working age population has been positive, but very moderate, i.e. below 0.5%. Only 16% of the European regions has experienced annual growth of the working age population of higher than 1%. Since 2000 the size of the working age population has been declining in most regions in Germany, in the eastern regions more strongly than in the western regions. Furthermore, the working age population has been declining in northern regions in Norway and Sweden and in one eastern region in Finland and in the Baltic States. In the eastern part of Europe, several Slovak, Romanian and Bulgarian regions have witnessed a decline in the working age population. In contrast in most Polish regions there has been a moderate growth of the working age population. Growth rates above 1% have been observed in the eastern part of Spain and several southern regions of France as well as in several regions in Ireland, the UK, and Iceland.

Since 2000 the number of people aged 75 or over has risen in almost all NUTS2 regions. In 40% of the regions the annual average growth has been 3% or higher. In only 2% of the regions there has been a decline in the number of

oldest old persons. High rates of increase in the number of oldest old are not concentrated in specific geographical areas. Regions with high growth rates can be found in eastern parts of Europe (e.g. northern regions in Finland and in the Baltic states), in southern parts (e.g. several regions in Italy and Spain), in central parts (e.g. Austria and Switzerland) and in western parts (e.g. western regions in France and northern regions of Scotland).

In the 1990s 433 of the 1350 NUTS3 regions (32%) had a positive population growth due to both positive natural increase and positive net migration. In the period since 2000 the number of NUTS3 regions with population growth dropped to 344 (25%). On the other hand, the percentage of NUTS3 regions with population decline due to both more deaths than births and more out-migration than in-migration (type 4) went up from 15 to 21%. The most remarkable shifts took place in Germany: the percentage of NUTS3 regions with population growth went down from 73% in the 1990s to 41% in the period since the beginning of this century. Other trends are visible in Spain and Italy. The percentage of regions with population growth increased from 44 to 71% in Spain and from 50 to 76% in Italy. Especially an increase in the migration from abroad has been the main cause of these trends. In Spain only two regions are left in the 2000s with a negative net migration: the exclaves Melilla and Ceuta. In Italy this number went down from 36 to 20. Most of these latter regions are located in the southern part.

Because generally more homogeneous regions are obtained the degree of urbanisation is determined for NUTS3 regions, opposite to NUTS2 regions. For this purpose the NUTS3 regions of the countries of the EU-27 are split up into three groups: predominantly urban, intermediate rural and predominantly rural. For all types of urbanisation the percentage of regions with population growth has declined since the start of this millennium: for the urban regions from 70 to 66%, for the intermediate regions from 70 to 62% and for the rural regions from 53 to 46%. Hence, more than half of the rural NUTS3 regions are currently characterised by population losses. As regards natural growth there is an overall increase of the percentage of regions with an excess of deaths over births. This increase is strongest for the rural regions (from 55 to 74%), followed by the intermediate regions (from 51 to 65%) and the urban regions (from 49 to 55%). Especially the rural regions appear to have suffered from decreasing numbers of births and/or increasing numbers of deaths.It is remarkable that the percentage of regions with positive net migration has risen since the start of the 2000s for the rural regions (from 58 to 62%) whereas this percentage has declined for the intermediate regions (from 74 to 67%) and the urban regions (from 74 to 70%). This implies that, opposite to the level of natural increase, some convergence has occurred for the level of net migration.

The size and age composition of the working age population, defined here as the 20-64 year old population, is determined by the inflow due to migration and age, and by the outflow due to migration, age and mortality. With age is meant here the inflow of people who celebrate their 20^{th} birthday in a certain calendar year and the outflow of people who reach the age of 65 in that year. For the five-year period 1 January 2000 to 1 January 2005, the inflow corresponds with the persons 15-19 years old at the start of the period and the outflow with the persons 60-64 years old on that date. For labour market dynamics, in addition to changes in the size of the working age population, the age structure is important

as well. For that reason the 'young' part is distinguished, defined as 20-39, and the 'old' part defined as 40-64. In general, it is assumed that the younger working age population is more innovative. However, whether the younger working age population is also more productive than the older part is still an ongoing discussion.

During the period 1-1-2000 to 1-1-2005 the total working age population increased in 207 NUTS2 regions, 111 due to the age effect and 96 due to migration. The age effect clearly dominates in the Czech Republic, France, Norway, Poland, Romania, Slovakia and the United Kingdom. Migration is much more important for the regions in Switzerland, Germany, Spain and Italy. In only 69 NUTS regions the total working population shrunk, 26 primarily caused by mortality, 22 by the age effect and 21 by migration. Most of these regions are situated in Germany (30) and the United Kingdom (16). A remarkable difference between these countries is that in Germany the decrease by the age effect dominates and in the UK the decrease by migration. In most of the countries (15) the working age population of all NUTS2 regions went up during the period 2000-2004. The opposite is true for the three Baltic States, which all consist of only one NUTS2 region. In the remaining countries there is a mixture of regions with a growing working age population and regions with a shrinking working age population.

The young working age population decreased in two out of three NUTS2 regions the size of during the years 2000-2004. Most often this was caused by the age effect. Especially in many NUTS2 regions in western European countries this is the case (e.g. Austria, Belgium, Switzerland, Germany, Italy, the Netherlands, Norway, Sweden and the United Kingdom). On the other hand, a growth of the young working age population due to the age effect can be observed for various NUTS2 regions in central and eastern European countries (Poland, Romania, Czech Republic, Hungary and Slovakia). Because of a different fertility history the inflow of 15-19 year old persons in these regions exceeds the outflow of 35-39 year old persons during the period 1-1-2000 to 1-1-2005.

NUTS2 regions encompassing big cities show increasing young working age populations due to migration: for example, AT13 (Wien), BE10 (Brussels), CH01 (with Genève), CH04 (Zürich), FR10 (with Paris), HU10 (with Budapest), NO01 (with Oslo), RO31 (Bucharest) and UKI1 (inner London).

Primarily due to the age effect, in most of the NUTS2 regions (235 of the 276) the old working age population increased during the years 2000-2004. In only a few cases (19) the growth was primarily caused by migration. Five of these 'exceptional' regions are situated in Greece and another five in Italy. A decrease was observed in 22 regions, all due to mortality. Romania (all 8), Hungary (6) and Germany (4) account for most of these regions. For the central and eastern European countries this reflects the higher risks on mortality compared to the western European countries.

1 Introduction

The population of Europe is increasing slowly. The number of inhabitants of the European Union equals about 500 million persons. Since 2000 the annual average growth rate has been below 0.5% per year. Migration has been the main source of population growth. Due to low fertility rates, the contribution of natural growth (the balance of births and deaths) to population growth has become very small. The low level of fertility has been the main cause of the ageing of the European population as well. This has been reinforced by the increase in life expectancy in most countries.

Even though fertility rates are below replacement level in almost all European regions there are still considerable differences. Differences in migration across regions are even bigger. In addition to differences in the number of international migrants across regions, internal migration has a positive effect on population growth in some regions, and a negative effect on other regions within the same country.

The ESPON 1.1.4 study 'The spatial effect of demographic trends and migration' presented an overview of demographic trends in European regions in the 1990s (see Chapter 2 for more details on the main results). During that period 27% of the European regions experienced population decline. The main cause of population decline was negative natural growth, i.e. the annual number of births was smaller than the number of deaths. In 40% of the regions natural growth was negative. In most of these regions negative natural growth was compensated for by positive net migration, but in 10% of the regions this was not enough to cause population growth to be positive. Together with the decline in population growth, the population in most regions has been ageing. The main cause of both developments is the low level of fertility.

Since 2000 fertility rates have increased slightly. However, the rise has not been enough to change the direction of the trends in population growth and ageing. The percentage of NUTS2 regions experiencing population decline has increased further, from 27% in the 1990s to 30% in the years 2000-2006. And the percentage of regions with a high percentage of people aged 65 or over has increased as well. In the 1990s in 60% of the regions the number of people aged 65 or over was 15% or more of the total population. Since 2000 this has increased to over 70%.

Differences in population growth and ageing across regions are caused by differences in fertility, mortality, and internal and international migration. Each of these components of population change has a different effect on population growth and ageing. The level of fertility has a direct effect on population growth but only with a considerable time lag it has an effect on ageing. If fertility has been low for some time, it leads to a reduction in the growth of the working age population. Since most migrants are rather young, positive net migration has an immediate effect on the growth of the working age population. The level of mortality affects the growth of the number of elderly persons, but only a very small effect on the size of the working age population, except for some regions where mortality rates at middle ages are relatively high. High life expectancy has an upward effect on both population growth and ageing. Differences in the components of population change across European regions may reinforce each

other. High out migration tends to go hand in hand with low fertility rates. Regions with low fertility, high life expectancy and negative net migration will experience more ageing than other regions. However, in many cases the demographic components may partially offset each other. Low fertility may be compensated for by net in-migration. Therefore for assessing the impact of fertility, mortality, and net migration on population growth and ageing it is important to examine the effects simultaneously.

In the next chapter the assessment of results from previous studies will be discussed. In Chapter 3 we describe the inventory and collection of available demographic data. Chapter 4 focuses on the recent national and regional demographic developments and Chapter 5 on the assessment of the effect of demographic and migratory flows on the size and age structure of the working age population.

2 Assessment of results from previous studies

The main objective of the ESPON 1.1.4. project *The spatial effect of demographic trends and migration* was to describe and explain the demographic developments in the European ESPON countries. The study focused on population growth and decline with specific attention to the impact of migration and fertility on demographic sustainability, competitiveness and territorial and social cohesion.

In order to classify the regions with respect to the total population growth, natural population growth and net migration, a base typology consisting of six different combinations was constructed – see Map 1. For this purpose the size of net migration was not calculated from in-migration and out-migration data but calculated as the difference between population growth and natural growth.

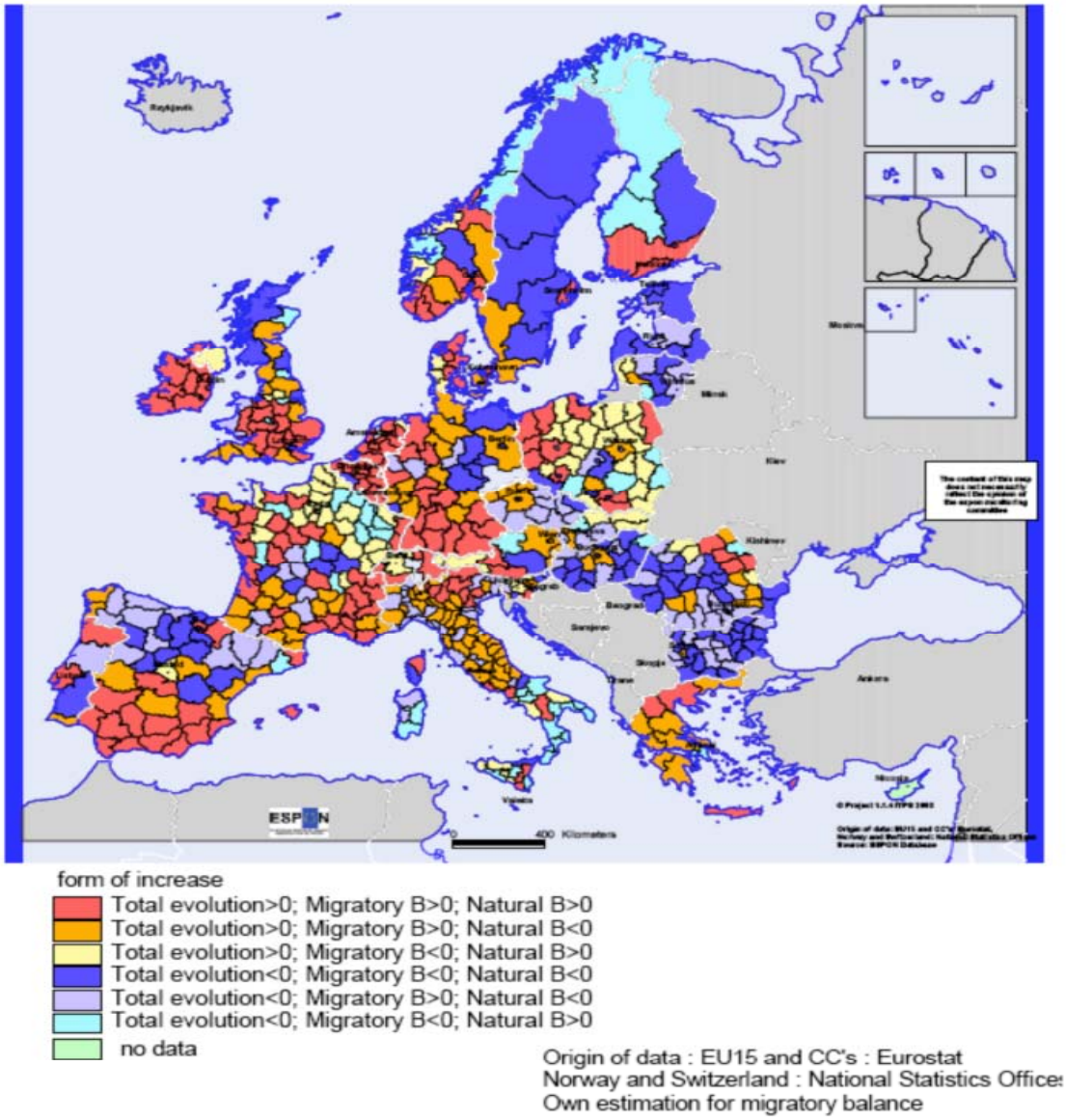
The six individual categories were determined by sharp thresholds, either positive or negative balances between 1990 and 2000:

1. population growth, positive net migration and natural increase: this type contains areas of in-migration with a young population and high fertility (high sustainability in the short and long term);
2. population growth, positive net migration and natural decrease: these are areas of in-migration and low fertility due to a disproportionate age structure or to low TFRs (no sustainability in long term);
3. population growth, negative net migration and natural increase: areas of out-migration with a young population and high fertility (sustainability in the short-term);
4. population decline, negative net migration and natural decrease: areas of out-migration with an old population and low fertility TFR (depopulation with no sustainability);
5. population decline, positive net migration and natural decrease: areas of in-migration with an old population and low fertility (depopulation with low sustainability in the short and long run);
6. population decrease, negative net migration and natural increase: areas of out-migration but still with a young population and high fertility (sustainability depending on persistent high TFRs).

To cover all regions, wherever possible NUTS3 regions were taken, otherwise NUTS2 or NUTS1 regions were included.

In addition to overall population development, special attention was paid to migration balances in the second half of the 1990s. Balances in three different age groups were distinguished: young actives (aged 17.5-27.5 years), middle ages (aged 32.5-37.5) and old active and pensioners (aged 52.5-67.5).

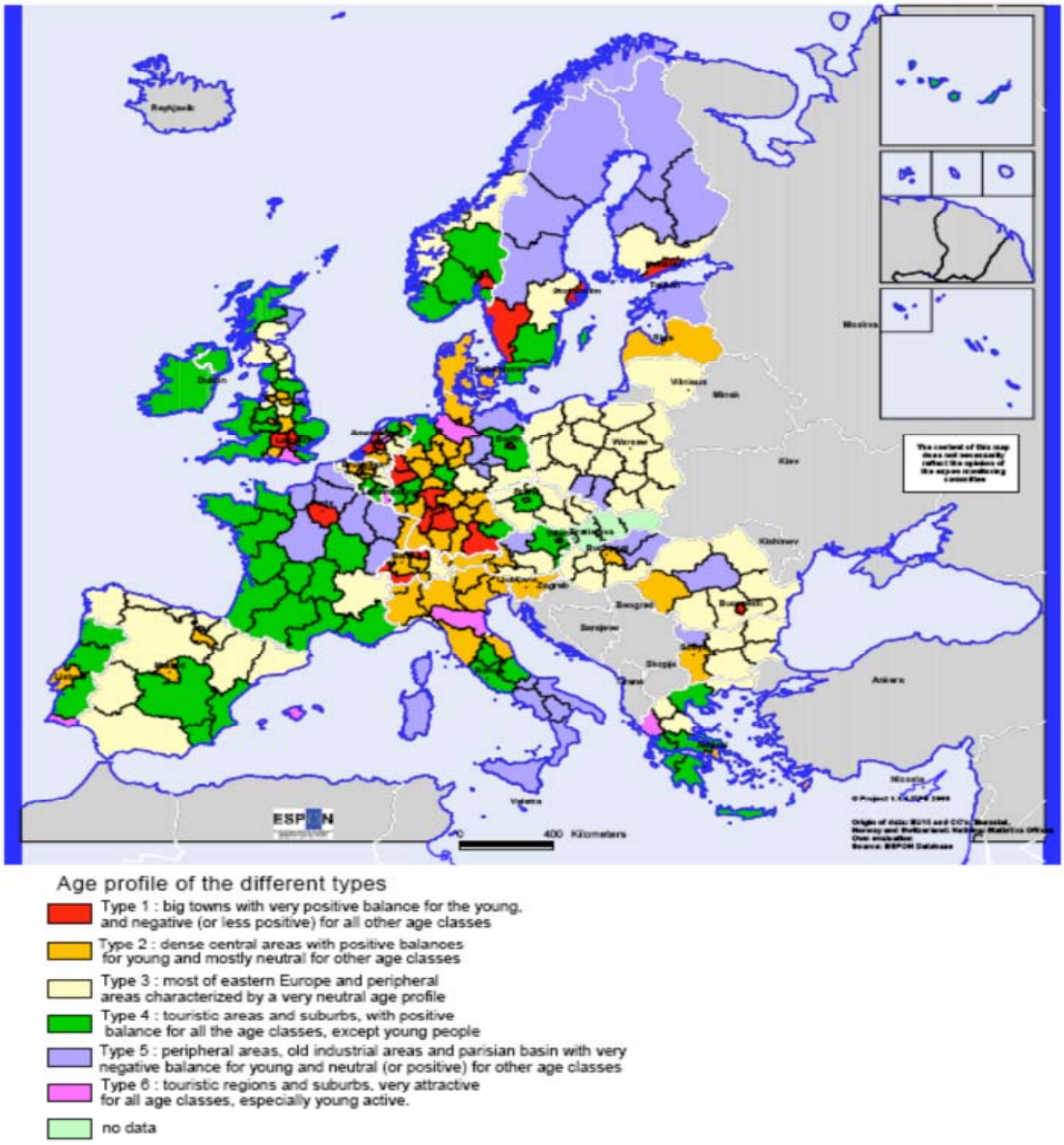
Map 1 Components of population increase, 1996-99 (taken from ESPON, 2005 – Map 3.2; p. 66)



Using migration balances, the following typology was developed (see Map 2):

1. big towns attractive to young people;
2. dense central areas attractive to young people;
3. large urban suburbs unattractive to the young;
4. touristic areas and suburbs attractive to all ages except the young;
5. areas with very limited mobility together with some departures of the young (most of Eastern Europe and peripheral areas);
6. economic dynamic areas of very high immigration, especially for young active people (touristic areas and suburbs attractive to all ages, especially the young).

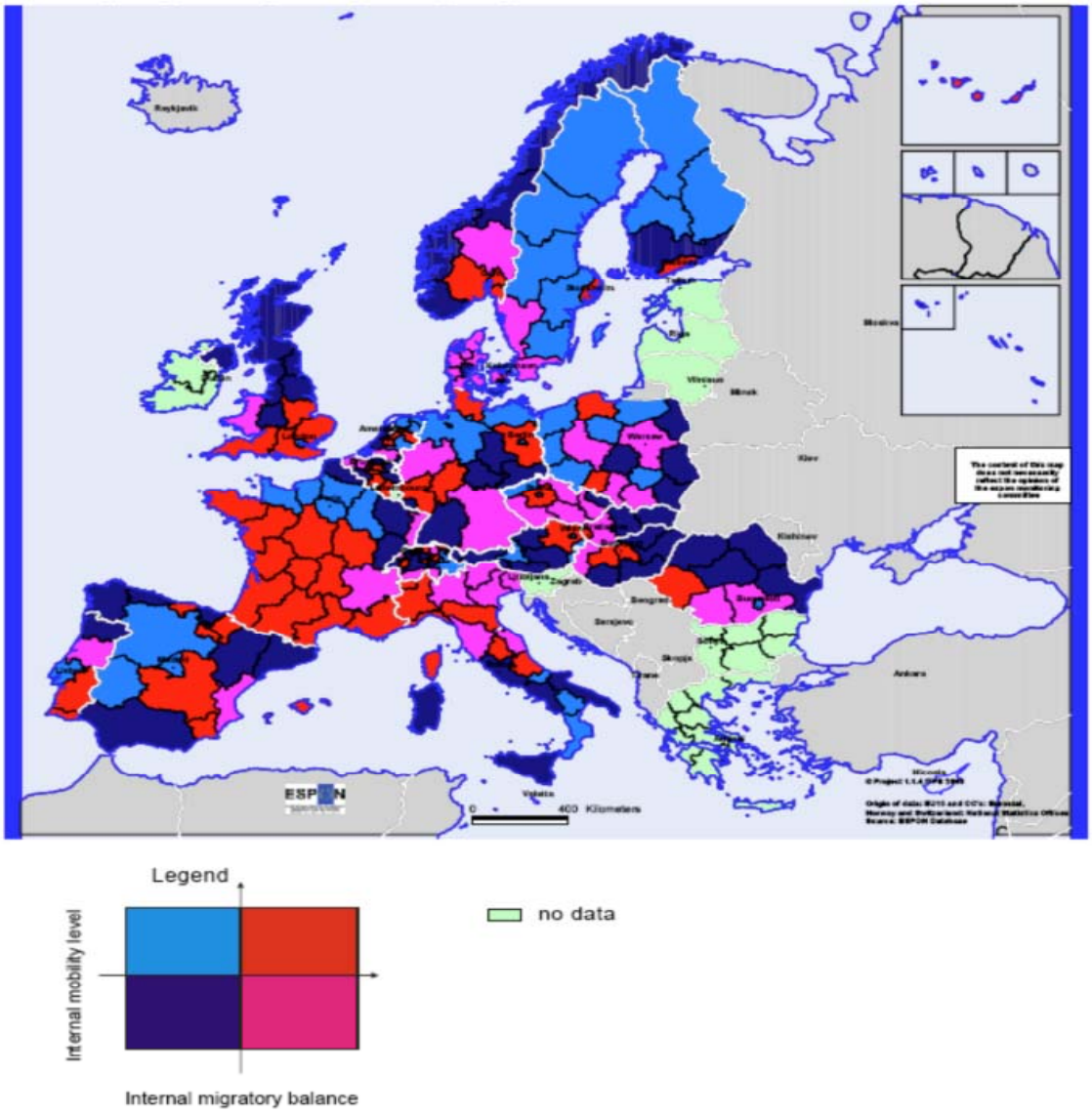
Map 2 Typology of migratory balances by age classes, 1995-2000 (taken from ESPON, 2005 – Map 3.12; p. 105)



In order to distinguish between attractive regions with a high level of mobility and regions with few in- and out-migrations only, a further typology was constructed combining migration balances and level of mobility (defined as the sum of the inflow and outflow divided by the total population). This resulted in four types (see Map 3):

1. regions with a positive migration balance and high mobility: peri-urban zones, Western and Southern France, Southern England;
2. regions with a positive migration balance and low mobility: for instance regions in the north of Italy, Bavaria;
3. regions with a negative migration balance and high mobility: some metropolitan areas (Paris, Berlin), Northern England, Northern Scandinavia;
4. regions with a negative migration balance and low mobility: old industrial regions, rural regions of Eastern Europe.

Map 3 Typology crossing mobility and migratory balances, 1995-2000 (taken from ESPON, 2005 – Map 3.13; p. 107)



The project assessed the effect of low fertility and migration flows on population growth. In short it showed that:

1. total fertility rates (TFR) was below the reproduction level of 2.1 child per women in all ESPON countries and in almost every NUTS2 and NUTS3 region; especially low TFRs were found in Southern and Eastern Europe;
2. a lot of regions experienced natural population decrease; this is not only dependent on total fertility rates, but also on the age structure of the population;
3. migration became the main source of changes in population size in many regions;
4. young persons migrated to large urban areas while persons in the upper middle age moved to areas with pleasant surroundings;
5. depopulation was caused by a combination of low fertility and high out-migration; many depopulation areas were in the peripheral parts of the EU;

6. regions with population growth will need a continuous in-migration to maintain growth, otherwise also these regions will be confronted with population decline;
7. the future need of immigrants from outside Europe will be higher in the new Member States than in the old, however, immigration from outside the EU cannot provide a solution to the decline in population size.

DEMIFER builds on the results of the ESPON 1.1.4 project by updating the data and extending the analyses. We compare the results described by the previous study for the 1990s with more recent data and examine to what extent demographic developments have changed since 2000. Since ageing is a process of change over time, our indicators focus on changes in the age structure rather than on the percentage of elderly people. Ageing does not only imply growth in the number of elderly people, but a decline in the growth of the size of the working age population as well. For that reason we include an indicator of the growth of the working age population. We will explain differences in population growth and ageing by comparing the levels of fertility, life expectancy and net migration. The total fertility rate and life expectancy are better indicators of the causes of differences in population growth and ageing than the natural growth rate, since the latter indicator is affected by ageing itself. In addition we will distinguish net migration by internal and international migration.

3 Inventory and collection of available demographic data

3.1 NUTS classification

Within the framework of this project demographic and migration data are collected on the so-called NUTS level. NUTS stands for Nomenclature of territorial units for statistics. The NUTS nomenclature was created and developed according to the following principles.[1]

- *The NUTS favours institutional breakdowns*
  Different criteria may be used in subdividing national territory into regions. These are normally split between normative and analytical criteria:
  - normative regions are the expression of a political will; their limits are fixed according to the tasks allocated to the territorial communities, according to the sizes of population necessary to carry out these tasks efficiently and economically, and according to historical, cultural and other factors;
  - analytical (or functional) regions are defined according to analytical requirements; they group together zones using geographical criteria (e.g. altitude or type of soil) or using socio-economic criteria (e.g., homogeneity, complementarity or polarity of regional economies).

  For practical reasons to do with data availability and the implementation of regional policies, the NUTS nomenclature is based primarily on the institutional divisions currently in force in the Member States (normative criteria).
- *The NUTS favours regional units of a general character*
  Territorial units specific to certain fields of activity (mining regions, rail traffic regions, farming regions, labour-market regions, etc.) may sometimes be used in certain Member States. NUTS excludes specific territorial units and local units in favour of regional units of a general nature.
- *The NUTS is a three-level hierarchical classification*
  Since this is a hierarchical classification, the NUTS subdivides each Member State into a whole number of NUTS1 regions, each of which is in turn subdivided into a whole number of NUTS2 regions and each of which is in turn subdivided into a whole number of NUTS3 regions.
  At a more detailed level, there are the districts and municipalities. These are called Local Administrative Units (LAU) and are not subject of the NUTS Regulation.

The latest review of the NUTS classification took place in 2006 and was extended in 2008 to accommodate the accession of Bulgaria and Romania. As far as possible the regional data refer to this 2006 classification.

The NUTS classification is defined only for the Member States of the European Union. For the candidate countries awaiting accession to the EU, for the other European Economic Area (EEA) countries and for Switzerland, a coding of

[1] Source: Eurostat - http://ec.europa.eu/eurostat/ramon/nuts/basicnuts_regions_en.html.

Statistical Regions has been defined by Eurostat in agreement with the countries concerned.

This project focuses on regions on the NUTS2 and the NUTS3 level. The current number of NUTS2 regions in the EU-27+4 (EU-27 and 4 EFTA) is 287, the number of NUTS3 regions 1350. According to Table 1, the highest numbers of NUTS3 regions can be found in Germany (429), United Kingdom (133), Italy (107) and France (100). In Cyprus, Luxembourg and Liechtenstein there is no distinction between the NUTS levels. For Estonia, Lithuania, Latvia, Malta, the Former Yugoslav Republic of Macedonia (FYROM) and Iceland, the NUTS2 level coincides with NUTS1 and NUTS0 (country level).

Table 1 NUTS2 and NUTS3 regions per country, 1 January 2006

	NUTS2	NUTS3		NUTS2	NUTS3		NUTS2	NUTS3		NUTS2	NUTS3
Austria	9	35	France	26	100	Luxembourg	1	1	Spain	19	59
Belgium	11	43	Germany	39	429	Malta	1	2	Sweden	8	21
Bulgaria	6	28	Greece	13	51	Netherlands	12	40	United Kingdom	37	133
Cyprus	1	1	Hungary	7	20	Poland	16	66	Iceland	1	2
Czech Republic	8	14	Ireland	2	8	Portugal	7	30	Liechtenstein	1	1
Denmark	5	11	Italy	21	107	Romania	8	42	Norway	7	19
Estonia	1	5	Latvia	1	6	Slovakia	4	8	Switzerland	7	26
Finland	5	20	Lithuania	1	10	Slovenia	2	12	EU-27+4	287	1 350

Some other characteristics of the NUTS2 and NUTS3 regions are presented in Table 2.

Table 2 Characteristics of the NUTS2 and NUTS3 regions, 1 January 2007*

Population size	NUTS2		NUTS3		Area	NUTS2		NUTS3		Population density	NUTS2		NUTS3	
x 1000	abs	%	abs	%	km^2	abs	%	abs	%	per km^2	abs	%	abs	%
<100	4	1	179	13	<100	2	1	66	5	<10	9	3	18	1
100-< 200	1	0	368	27	100-<500	7	2	182	13	10-<50	26	9	180	13
200-<300	9	3	232	17	500-<1 000	5	2	214	16	50-<100	77	27	273	20
300-<400	14	5	137	10	1 000-<2 000	13	5	232	17	100-<200	73	25	286	21
400-<500	10	3	88	7	2 000-<5 000	50	17	282	21	200-<500	69	24	231	17
500-<1 000	47	16	203	15	5 000-<10 000	68	24	237	18	500-<1 000	15	5	104	8
1 000-<2 000	117	41	71	5	10 000-<20 000	71	25	57	4	1 000-<2 000	7	2	81	6
2 000-<5 000	74	26	10	1	20 000-<50 000	57	20	13	1	2 000-<5 000	8	3	62	5
5 000-<10 000	10	3	2	0	50 000-<100 000	10	3	4	0	5 000-<10 000	3	1	7	1
10 000+	1	0	0	0	100 000+	4	1	1	0	10 000+	0	0	2	0
Unknown			60	4	Unknown			62	5	Unknown			106	8
Total	287	100	1 350	100	Total	287	100	1 350	100	Total	287	100	1 350	100

* Or, if not available, 1 January 2006.

The population size of NUTS2 regions varies from 27 thousand in Åland (Finland) to 11.5 million in Île de France. The average size is 1.8 million. The NUTS3 region with the smallest number of people is Appenzell Innerrhoden in Switzerland with 15 thousand. The highest number can be found in Madrid (5.9 million). For NUTS3 regions the average population size is 370 thousand.

Looking at the number of square kilometres the smallest NUTS2, and at the same time NUTS3 region, is Melilla one of the two Spanish exclaves in Morocco (13 km^2). The largest NUTS2 region is Övre Norrland in Sweden (153 thousand km^2) and the largest NUTS3 region Landsbyggd in Iceland (102 thousand km^2). On average a NUTS2 region is 17 thousand km^2 and a NUTS3 region almost 4 thousand km^2.

The lowest population density for a NUTS2 region can be found in Guyane, one of the French overseas departments, with less than three people per square

kilometer. For NUTS3 regions an even lower density can be found, i.e. in the already mentioned Landsbyggd in Iceland (1.1 person per km^2). Because NUTS2 regions are aggregates of NUTS3 regions the most extreme values can be found in the latter regions. Hence, the NUTS2 region with the highest population density, Inner London, with 9.3 thousand people per km^2, is less densely populated than the NUTS3 region that is on top, i.e. Paris with more than 20 thousand people per km^2. Evidently, the average population density is the same for NUTS2 and NUTS3 regions (107 per km^2).

3.2 Availability of demographic data

Table 3 presents an overview of the data that have been collected so far on the NUTS2 level and Table 4 on the NUTS3 level. The main source of these data is Eurostat. In case of missing data, the main source for data were the national statistical institutes (NSIs). Mainly because of changes in the NUTS classification estimates were sometimes necessary to comply for older years with the latest classification.

Table 3 for the NUTS2 regions relates to the following data:

Popage:	population on 1 January by sex and 5 year age group (up to 85+);
OD int:	origin/destination matrix for internal migration (from and to NUTS2 regions);
In-mig:	internal in-migration by sex and, if available, 1 year age group (up to 85+ or higher);
Out-mig:	internal out-migration by sex and, if available, 1 year age group (up to 85+ or higher);
Immigration:	external in-migration by sex and, if available, 1 year age group (up to 85+ or higher);
Emigration:	external out-migration by sex and, if available, 1 year age group (up to 85+ or higher);
E0, E65, E85:	life expectancy by sex at birth, age 65 and age 85;
Gfr:	general fertility rate (births per 1 000 women aged 20-44);
Tfr:	total fertility rate (sum of age-specific fertility rates).

For most of the NUTS2 regions the population size and structure by sex and age is available for January 1st 2000 up to January 1st 2007. Main exceptions to this general rule are the NUTS2 regions in Turkey (2007 only), Bulgaria, FYROM, Slovenia (all 2006 and 2007) and the United Kingdom (2000-2004).

The availability of data on internal and external migration is limited and fluctuates strongly. Nevertheless, the available data are generally very detailed and robust. Therefore, they will be useful for the analyses of migration on the NUTS2 level and the preparation of migration scenarios.

Life expectancies at birth, age 65 and age 85 by sex were calculated by NIDI within the framework of a Eurostat project on mortality. They refer to the period 2002-2004 and only the regions of Iceland, Liechtenstein, FYROM and Turkey are missing as well as the French part of Belgium.

Table 3 Demographic and migration data availability, NUTS2 level

	Variables/notes NUTS2 level																	
	Popage		OD int		In-mig		Out-mig		Immigration		Emigration		E_0 E_{65} E_{85}		Gfr		Tfr	
Austria	00-06		00-07		00-07		00-07		01,03,04		01,03,04		02/04		00-07		90,95,99,05	
Belgium	00-06		00-06		01-04		01-04		02,04		02,04		02/04	1	00-07		90,95,99,05	2
Bulgaria	06-07	3	00-07		00-07		00-07						02/04		00-07		05	
Cyprus	00-07		n.a.										02/04		00-05		90,95,99,05	
Czech Republic	00-07		00-07		00-07		00-07		01-04		01-04		02/04		00-07		05	
Denmark	01-07		06-07		00,01,06,07		00,01,06,07		00,01		00,01		02/04		07		90,95,99,05	4
Estonia	00-07		n.a.										02/04		00-07		90,95,99,05	
Finland	00-07		00-07		00-07		00-07		00-04		00-04		02/04		00-07		90,95,99,05	
France	00-06												02/04		00-06		90,95,00,05	
Germany	00-07		02-07		03,06,07		03,06.07		03		03		02/04		00-07	5	91,95,99,05	
Greece	00-07								00				02/04		00-07		90,95,99,05	4
Hungary	00-07		00-07		00-05,07		00-05,07		00,01		00,01		02/04		00-07		90,95,00,05	
Ireland	00-07			6									02/04		00,01,04,05,07		00,05	
Italy	00-07		00-07	7	00-07		00-07		02		02		02/04		00-07		90,95,99,05	4
Latvia	00-07		n.a.										02/04		00-06		90,95,99,05	
Lithuania	00-07		n.a.		01	8	01	8	01	8	01	8	02/04		00-06		90,95,99,05	
Luxembourg	00-07		n.a.										02/04		00-05		90,95,99,05	
Malta	00-07		n.a.										02/04		03-05		90,95,99,05	
Netherlands	00-07		00-07		01-05		01-05		02-04		02-04		02/04		00-07		90,95,99,05	
Poland	00-07		00-07		00-07		00-07		02-04		02-04		02/04		00-05		90,95,99,05	
Portugal	00-07								02-04		01	9	02/04		00-07		90,95,99,05	4
Romania	00-07		00-07		00-07		00-07		01-04		01-04		02/04		00-07		90,95,99,05	4
Slovakia	00-07		00-07		00-07		00-07		01-04		01-03		02/04		00-07		90,95,99,05	
Slovenia	06-07		00-07		00-07		00-07		02	10	02	10	02/04		00-07		90,95,99,05	
Spain	00-07		00-07		00-07		00-07		01,03,04		03,04		02/04		00-06		90,95,99,05	
Sweden	00-07		00-07		00-07		00-07		00-04		00-04		02/04		00-07		91,95,99,05	
United Kingdom	00-04	5											02/04		01-03	5	90,95,99,04	4
Iceland	00-07		n.a.												00-05		05	
Liechtenstein	00-07		n.a.										na		00-05		05	
Norway	00-07		00,02,03,05,06		00-03,05-07		00-03,05-07		00-03		00-03		02/04		00-06		90,95,99,05	11
Switzerland	00-07				01-04		01-04		01-04		01-04		02/04		00-07		90,95,99,05	4
Croatia	06-07		n.a.										02/04		02-07			
FYROM	06-07		n.a.		07	8,9,12	07	8,9,12							00-07			
Turkey	07		95-00	13,14	95-00	9,13	95-00	9,13										

Source: Eurostat. NB Changes in NUTS classifications may trouble the comparability of figures.

Notes

n.a. not applicable.

1 Many regions are missing.
2 Estimates.
3 For BG41 00-07.
4 Includes estimates.
5 For a small number of regions/years not available.
6 Source: NSI Ireland; migration data available on county level.
7 Source: NSI Italy; data for period 06-07 not distinguished by age.
8 Data refer tot NUTS3.
9 No age distribution.
10 Only for NUTS0.
11 Average values for 1986-1990, 1991-1995 and 1996-2000.
12 Source: NSI FYROM; data refer to total (internal plus external).
13 Source: NSI Turkey; data for period 95-00
14 Only for NUTS1.

Two fertility indicators have been calculated by NIDI, the general fertility rate and the total fertility rate. The first rate is easy to calculate for a number of years because this rate only makes adjustments for the total number of women of childbearing age, but not for the age structure of these women, as the total fertility rate does. However, the outcomes of the less precise general fertility rate will not significantly change the overall picture of fertility differences between EU regions. General fertility rates were calculated for the years 2000 up to 2007. They are missing for the Turkish regions and for the 'new' Danish regions only available for 2007.

On the basis of age-specific fertility rates the total fertility rates for NUTS2 regions have been calculated for the year 2005 (UK: 2004). They are missing for Croatia, FYROM and Turkey. The source of the available total fertility rates for older years (1990, 1995 and 1999) is ESPON project 1.1.4 (The Spatial Effects of Demographic Trends and Migration).

Table 4 presents a review of the available data for the NUTS3 regions:

Pop total:	total population on 1 January;
Births:	absolute number of live births;
Deaths:	absolute number of deaths;
Natural inc:	natural increase (births minus deaths);
Net mig:	net migration (total increase minus natural increase);
Total inc:	total increase (population on 1 January year t+1 minus population on 1 January year t).

For most of the NUTS3 regions the total population figures are available for the years 1990 up to 2007. Main exceptions are Switzerland, Croatia (both 2001-2007) and Malta (2000-2006). Furthermore, the population figures for a considerable number of NUTS3 regions are missing for Poland.

Due to the fact that the population figures for NUTS3 regions in the Eurostat database are averages for calendar years, the situation on 1 January had to be estimated. Besides, they had to be consistent with the available 1 January population figures for the NUTS2 regions. Alternatively, for several countries (e.g. Finland, Netherlands and Norway) the 1 January figures for NUTS3 regions could be provided by the NSI.

Data on births and deaths are generally available for the years 1990 up to 2006. For Germany and Italy there are important gaps in this series. For NUTS3 regions in some other countries the first year for which figures on births and deaths are available is obviously later than 1990 (e.g. Switzerland, Croatia and Malta). Again in Poland the data for many NUTS3 regions are missing.

Table 4 Demographic and migration data availability, NUTS3 level

	Variables/notes NUTS3 level											
	Pop total		Births		Deaths		Natural inc		Net mig		Total inc	
Austria	90-06	1	90-05		90-05		90-05		90-05		90-05	
Belgium	90-06	1	90-05		90-05		90-05		90-05		90-05	
Bulgaria	95-07	1,2	95-06		95-06		95-06		95-06		95-06	
Cyprus	90-07		90-05		90-05		90-05		90-05		90-06	
Czech Republic	93-07	1	93-06		93-06		93-06		93-06		93-06	
Denmark	90-08	3	90-07	3	90-07	3	90-07		90-07		90-07	
Estonia	90-07	1	90-06		90-06		90-06		90-06		90-06	
Finland	90-08		90-07		90-07		90-07		90-07		90-07	
France	90-06	1	90-05	4	90-05	4	90-05	4	90-05	4	90-05	
Germany	90-07	1,4	90-99,03-06	4	90-99,03-06	4	90-99,03-06	4	90-99,03-06	4	90-06	4
Greece	90-07	1	90-06		90-06		90-06		90-06		90-06	
Hungary	90-07	1	90-06		90-06		90-06		90-06		90-06	
Ireland	90-07	1,5	98-01,04,05	6	98-01,04,05	6	98-01,04,05	6	98-01,04,05	6	90-06	
Italy	90-07	1,4	90-01,03-05	4	90-01,03-05	4	90-01,03-05	4	90-01,03-05	4	90-06	4
Latvia	90-07	1	90-06		90-06		90-06		90-06		90-06	
Lithuania	90-07	1	90-06		90-06		90-06		90-06		90-06	
Luxembourg	90-07		90-05		90-05		90-05		90-05		90-06	
Malta	00-06	1,7	03-05		03-05		03-05		03-05		00-05	
Netherlands	90-07		90-07		90-07		90-07		90-06		90-06	
Poland	95-06	1,8	95-05	8	95-05	8	95-05	8	95-05	8	95-05	8
Portugal	90-07	1	90-06		90-06		90-06		90-06		90-06	
Romania	90-07	1	90-06		90-06		90-06		90-06		90-06	
Slovakia	95-07	1,9	96-06		96-06		96-06		96-06		95-06	
Slovenia	90-07	1	90-06		90-06		90-06		90-06		90-06	
Spain	90-06	1,4	90-06	4	90-06	4	90-06	4	90-05	4	90-05	4
Sweden	90-08		90-07		90-07		90-07		90-07		90-07	
United Kingdom	93-06	1,4	97-99,01-03	4,6	97-99,01-03	4,6	97-99,01-03	4,6	97-99,01-03	4,6	93-05	4
Iceland	90-08	10	90-07		90-07		90-07		90-07		90-07	
Liechtenstein	90-07		00-05		00-05		00-05		00-05		90-06	
Norway	90-08		90-07		90-07		90-07		90-07		90-07	
Switzerland	01-07	1,2	01-06		01-06		01-06		01-06		01-06	
Croatia	01-07	1,11	02-06		02-06		02-06		02-06		01-06	
FYROM	94-07	1	94-06		94-06		94-06		94-06		94-06	
Turkey	91-07	1			98-07	12					91-06	

Source: Eurostat
Notes
1 For NUTS3 regions estimated (on the basis of available average figures, consistent with population NUTS2 regions)
2 For NUTS2 regions 1991-2007
3 Includes estimates
4 For a small number of regions/years not available
5 Population NUTS2 for 1990-1996 estimated as well
6 For some regions other years available
7 For NUTS2 region 1990-2007
8 Many regions are missing
9 Population NUTS2 for 1995 estimated as well
10 NUTS3 population estimated for 1990-1996
11 All population figures for 2001 are estimates
12 Source: NSI Turkey
NB Changes in NUTS classifications may trouble the comparability of figures

On the basis of differences in the size of population on 1 January of year t+1 and the size of the population on 1 January of year t the total increase is calculated. The difference between the number of births and the number of deaths results in the natural increase. The remaining part of the increase is called net migration. Hence, net migration is a rest post that may include all kinds of administrative corrections. It is important to keep this in mind when analysing and interpreting the figures in due course. For example, net migration in Poland is more than -400 thousand in 2001 due to census corrections. It may also explain significant differences between the net migration resulting from the flows on NUTS2 level (see Table 3) and the surplus or deficit that remains after comparing total increase and natural increase.

3.3 Definitions and measurement of migration

A main problem with the measurement of migration is the lack of international comparability. There are several reasons for that. Firstly, different data sources are used to collect statistical information. Second, the registration of migration events and recorded characteristics depend on national migration policies and as a consequence the definition of international migrants and migration may differ. For example, the duration of living in a country or abroad required for registration as migrant may differ by countries. EU citizens are often not included in migration statistics in Europe, since it is nowadays easy for EU citizens to live in another EU country without asking for a residence permit (or without registration of his residence). Accordingly the reliability of migration statistics concerning EU citizens is certainly lower than for non-EU citizens. Finally, it is not easy to estimate illegal migration and it is not possible to include the measurement of illegal migration in administrative data collection as this aims usually measuring only legal immigration (Nowok and Kupiszewska, 2005 and Thierry *et al*., 2006).

Data sources used to produce statistics on international migration flows in the EU countries are very diverse:

- population registration systems including centralised population registers and local population registers;
- statistical forms filled for all changes of residence;
- other administrative registers or databases related to foreigners, like aliens registers, residence permits registers or registers of asylum seekers;
- sample surveys like special migration surveys or household surveys;
- other sources including censuses.

A centralised and computerised, comprehensive and complete population registration system seems to be the best source of reliable statistics. However, the same statistics may be usually derived from population registers run locally or based on forms (administrative or statistical) filled in when registering changes of residence. If there is no administrative data source covering the whole population or available data on some population categories are considered unreliable, other registers are used that contain only subsets of the population, e.g. register of foreigners or register of residence permits. Some countries rely on statistical surveys carried out during border controls or among households inside the country. Some information on international migration flows could be derived also from population censuses, but this source has a number of well known limitations. For instance, it is carried out at long intervals, and is not able to capture all migration events that occurred between subsequent enumerations. Moreover only international immigrants may be easily identified while international emigrants are no more part of the enumerated population.

3.4 MIMOSA estimates on international migration

Immigration and emigration numbers reported by the EU Member States generally are not consistent with each other. The main reasons are differences in definition, undercoverage and measurement errors. As a result the number of emigrants from country A to B reported by country A does not correspond with the number of immigrants to country B from country A reported by country B. One aim of the so-called MIMOSA project is to develop a methodology for estimating migration statistics that are based on the common definition according to the new regulation and that are internationally consistent (NIDI *et al.*, 2006).

The MIMOSA project has started in January 2007 and will be completed in December 2009. At this stage the project has developed a method for estimating an origin-destination migration matrix for 31 European countries and has produced internationally consistent estimates of migration flows between those countries for the years 2002-2006. However, the model is still being improved. Thus the estimates produced at this stage are preliminary.

The MIMOSA method for estimating the migration matrix consists of three steps. The first step includes countries with reasonably reliable data, the second step includes countries with less reliable data, and the third step includes countries with missing data.

3.4.1 First step

In the first step adjustment factors for immigration and emigration for the countries with reasonably reliable data are estimated. These countries include Sweden, Denmark, Germany, Spain, Latvia, Lithuania, Netherlands, Austria, Finland and Norway.[2] The adjustment factors are needed because even for countries with reliable immigration and emigration data, the reported numbers are not internationally consistent as they are based on different definitions. In addition there are differences in coverage and registration. Moreover, statistics in some countries include a relatively large proportion of unknown countries of destination (emigration data) or unknown countries of origin (immigration data).[3] For each country the MIMOSA method estimates one adjustment factor for immigration and one adjustment factor for emigration. These adjustment factors are estimated in such a way that when the reported immigration and emigration numbers are multiplied by the adjustment factors the differences between the resulting immigration and emigration numbers are as small as possible.

Table 5 shows the estimated adjustment factors for 10 Member States for the years 2002-2006. The table shows that the adjustment factors for Sweden are close to 1. The reason is that Swedish migration data correspond with the definition according to the new regulation and are assumed to have small measurement errors.

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[2] This list is not yet definitive. The final list may include some other countries as well. One part of the project is to develop a criterion for deciding which data may be considered as 'reasonably reliable'.

[3] For the Netherlands net administrative corrections are added proportionally to emigration numbers.

Table 5 Adjustment factors for immigration and emigration for countries with reasonably reliable data

	Immigration					Emigration				
	2002	2003	2004	2005	2006	2002	2003	2004	2005	2006
Sweden	1.01	1.02	1.01	1.01	1.00	1.07	1.05	1.02	1.01	1.02
Denmark	0.76	0.83	0.83	0.78	0.81	0.82	0.83	0.82	0.84	0.88
Germany	0.71	0.71	0.66	0.74	0.86	0.71	0.76	0.71	0.86	0.99
Spain	0.88	0.69	0.75	0.76	0.82	3.53	2.18	2.75	2.47	3.42
Latvia	5.57	5.95	3.76	3.68	3.84	6.75	8.58	5.78	6.98	4.20
Lithuania	6.06	4.89	2.81	2.68	4.44	4.29	2.32	2.47	3.03	4.09
Netherlands	0.93	0.95	0.97	0.95	1.01	0.67	0.67	0.71	0.77	0.82
Austria	0.87	0.84	0.79	0.85	0.97	1.05	1.11	0.97	1.14	1.15
Finland	1.29	1.25	1.20	1.15	1.24	1.17	1.15	1.14	1.17	1.22
Norway	1.02	1.04	1.00	0.95	0.99	0.98	0.91	0.90	0.89	0.92

Source: MIMOSA, 2008.

In contrast, immigration and emigration numbers reported by Latvia and Lithuania seem to be too low if they are compared with emigration and immigration numbers of the other countries. For example, Latvia reports on average 560 immigrants per year from the 9 other countries included in the table. However, these 9 countries report on average 2240 emigrants to Latvia. Thus the immigration number of Latvia seems to be about one quarter of the number one would expect on the basis of emigration numbers. By multiplying the immigration number of Latvia by an adjustment factor of about 4 the estimated immigration numbers of Latvia correspond more closely to the emigration numbers reported by other countries.[4]

3.4.2 Second step

In the second step of the estimation procedure the adjustment factors for emigration are used to estimate emigration from the countries with reliable data to the countries with less reliable data. Similarly the adjustment factors for immigration are used to estimate immigration to the countries with reliable data from the countries with less reliable data. This second group of countries includes Cyprus, Czech Republic, Iceland, Italy, Luxembourg, Poland, Slovenia and Slovakia. For each of the countries with less reliable data the immigration data are adjusted so that the total immigration number of these countries with the countries with reliable data as country of origin will correspond with the total adjusted emigration number from the countries with reliable data. Similarly the emigration data of countries with less reliable data are adjusted on the basis of estimated immigration numbers of countries with reliable data. For example, if one of the countries with less reliable data, say country A, reports that 10,000 emigrants moved to the countries with reliable data, whereas on the basis of the adjusted immigration numbers of the latter countries it is estimated that 15,000 immigrants arrived from country A, the emigration numbers of country A are multiplied by 1.5. This adjustment factor is used to estimate emigration from country A to the countries with missing data which yields estimates of immigration for the latter countries. Accordingly immigration to country A from the countries with missing data is estimated which yields estimates of emigration from the latter countries.

[4] Note that MIMOSA estimates the adjustment factors for immigration and emigration simultaneously. Thus the estimated immigration numbers are compared with the corresponding estimated emigration numbers rather than with the corresponding reported emigration numbers.

3.4.3 Third step

In the third step estimates of migration flows between the countries with missing data are made. This requires estimates of total migration flows to and from these countries as well as estimates of origin-destination patterns. Regression analysis is used to estimate total immigration from the 30 other European countries and total immigration from the rest of the world to each of the countries with missing data. Accordingly, emigration to the 30 other European countries and to the rest of the world is estimated. The regression equations include variables such as population size and GDP per capita. The regression equations are estimated on the basis of the adjusted immigration and emigration numbers of the countries with migration data. In order to estimate migration flows between countries with missing data origin-destination patterns need to be estimated as well. On the basis of the estimated immigration and emigration totals, 'expected' migration flows between the countries with missing data can be estimated. However, these expected flows do not take into account origin-destination interactions. For example, if the total number of immigrants in country B is twice the number of immigrants in country C, the expected emigration from country A to B is twice that to country C. However, if countries A and C are neighbouring countries and have the same language, the actual emigration from country A to C may be larger than that from A to B. For that reason origin-destination interactions need to be estimated. If the migration between country A and B is larger than the expected number, the origin-destination interaction is larger than 1. On the basis of estimated migration flows between the countries with migration data, regression equations are estimated in which origin-destination interactions are the independent variable and variables such as contiguity and language family are explanatory variables. These regression equations are used to estimate the origin-destination interactions between the countries with missing data. Multiplying the expected migration flows between these countries by the estimated interactions yields estimates of the migration numbers between the countries with missing data.

3.4.4 MIMOSA estimates versus reported migration data for 2006

The provisional outcomes of MIMOSA indicate that the overall migration balance for the EU-27 in 2006 amounted to 1.1 million, resulting from about 4.7 million immigrants and some 3.6 million emigrants (Table 6).

More than half of the immigrants in the EU-27 arrived from outside the Union and consequently less than half of the immigrants came from other Member States. The large majority of immigrants, 3.8 million, settled in the EU-15 Member States while the EU-12 Member States attracted 0.9 million immigrants. Some 40% of the emigrants from the European Union left for destinations outside the Union, and somewhat more went to one of the EU-15 Member States.

Table 6 Estimated EU migration flows, 2006 (millions)

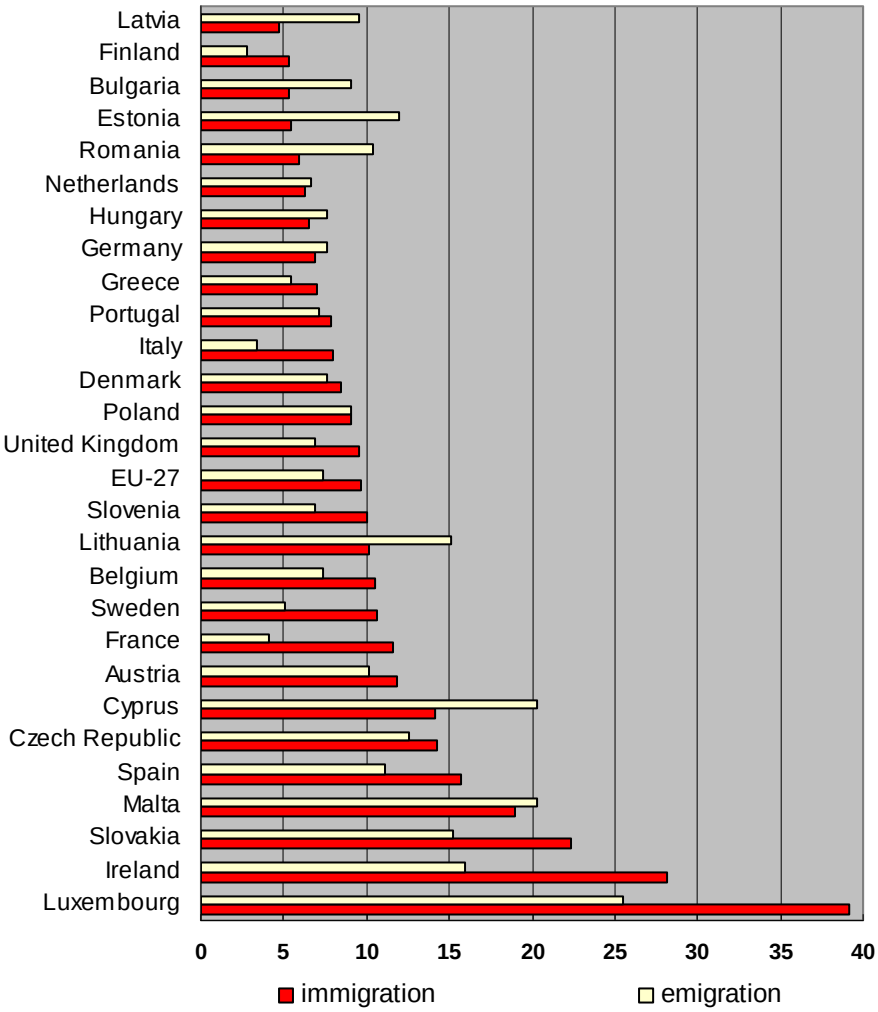
	To				
From	EU-27	EU-15	EU-12	Rest	Total
EU-27	2.15	1.61	0.53	1.48	3.63
EU-15	1.38	0.99	0.39	1.19	2.57
EU-12	0.77	0.62	0.15	0.29	1.06
Rest	2.58	2.18	0.41		
Total	4.73	3.79	0.94		

Source: MIMOSA, 2008.

According to the provisional MIMOSA estimates, in 2006 from all EU Member States immigration as a share of the total population was highest in Luxembourg and Ireland (at 39 and 28 per thousand respectively), followed by Slovakia (22), Malta (19) and Spain (16) (Figure 1).

The lowest inflow of immigrants was recorded for Latvia, Finland and Bulgaria (all 3 per thousand). As for emigration, Luxembourg, Malta and Cyprus recorded the highest shares (at 26, 20 and 20 per thousand respectively). Luxembourg stands out, both with respect to in- and outflow, as a centre of international institutions. The relatively lowest shares of persons leaving the country occurred in Italy and Finland (both 2 per thousand).

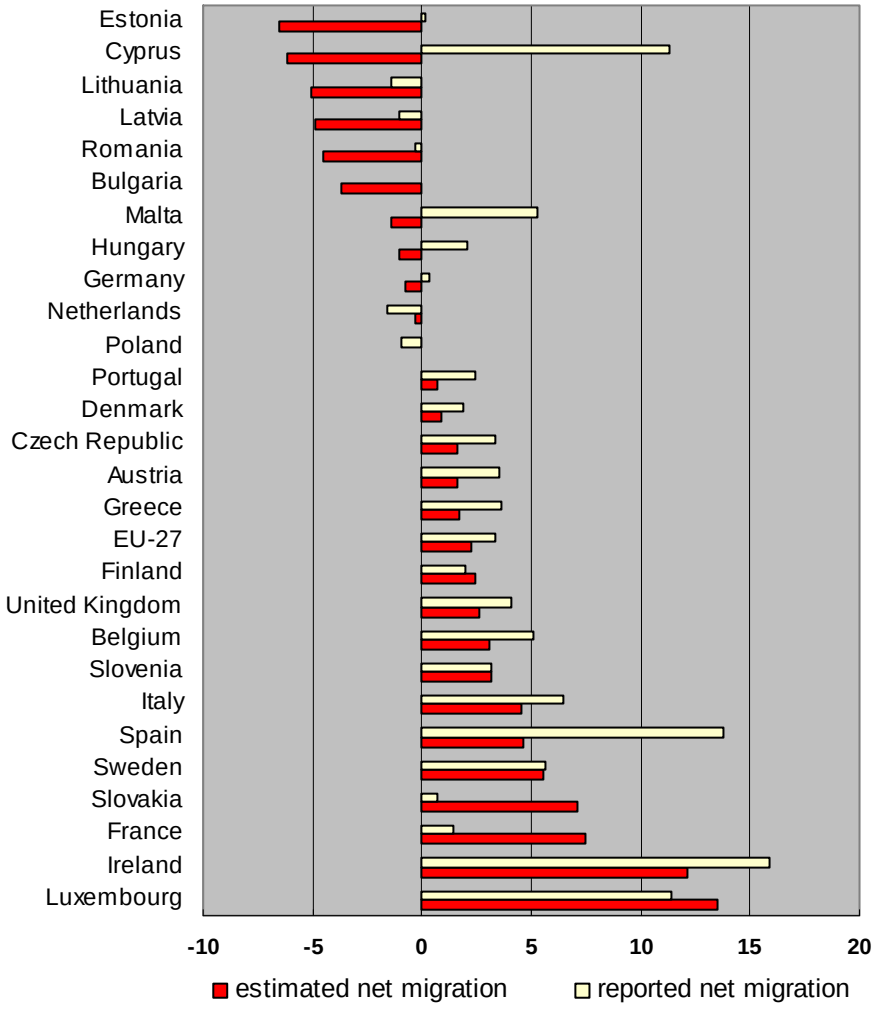
Figure 1 Estimated immigration and emigration per 1 000 population, 2006



Sorted by immigration.
Source: MIMOSA, 2008.

The comparison of reported figures with estimated figures gives an impression of the order of magnitude of the revisions due to different definitions and data collection systems. On the level of relative net migration figures the comparison of reported and estimated figures is presented in Figure 2.

Figure 2 Estimated and reported net migration per 1 000 population, 2006



Sorted by estimated net migration.
Source: Eurostat, 2009 and MIMOSA, 2008.

The differences in migration balance between the original data, reported by the countries, and the MIMOSA estimates vary from hardly anything (Sweden) to huge (Cyprus). In most countries the original data outnumber the estimates. Exceptions to this rule are Luxembourg, France, Slovakia, Slovenia, Finland, Poland and the Netherlands.

In most cases the two different balances point into the same direction (either positive or negative). For example in 2006, only for Germany, Malta, Cyprus and Estonia, the original migration balance was positive, while the MIMOSA estimate turned out to be negative. The reverse, the original balance positive and the MIMOSA estimate negative, was not found in this year.

On the level of flows between (selected) EU countries, the matrix with reported figures is given in Table 7 and the corresponding matrix with MIMOSA estimates in Table 8.

Table 7 Reported migration flows for selected EU countries, 2006 (x 1 000)

From		To AT	BE	BG	CZ	DK	FI	FR	DE	GR	HU	IE	IT	NL	PL	PT	RO	SK	ES	SE	UK
Austria	I				0.1	0.3	0.1		14.7					0.6	0.2	0.0		0.3	1.0	0.3	3.1
	E		0.3	1.0	1.1	0.2	0.3	0.7	9.2	0.4	2.5	0.2	1.2	0.6	3.0	0.3	3.7	2.3	0.6	0.4	1.1
Belgium	I	0.3			0.0	0.5	0.2		4.1					6.1	0.1	0.1		0.0	3.4	0.4	2.8
	E																				
Bulgaria	I	1.3			0.8	0.1	0.0		7.7					0.5	0.0	0.4		0.0	17.7	0.1	3.0
	E																				
Czech Republic	I	1.4				0.3	0.1		8.5					0.6	0.0	0.0		1.2	1.2	0.2	6.6
	E	0.0	0.0	0.7		0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.6	0.0	0.0	0.0
Denmark	I	0.2			0.0		0.4		2.6					0.5	0.1	0.0		0.0	1.1	6.4	4.1
	E	0.2	0.4	0.1	0.2		0.4	1.1	2.7	0.2	0.2	0.3	0.7	0.6	1.1	0.1	0.2	0.1	1.6	6.4	3.5
Finland	I	0.3			0.0	0.5			2.0					0.3	0.0	0.0		0.0	0.8	3.1	1.0
	E	0.1	0.2	0.0	0.0	0.4		0.3	0.7	0.0	0.1	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.5	3.1	1.2
France	I	1.0			0.2	1.8	0.4		19.1					3.4	0.4	0.2		0.1	15.6	1.2	21.8
	E																				
Germany	I	18.5			0.8	4.5	1.0							10.4	3.2	0.3		0.7	18.4	4.1	20.5
	E	18.6	4.5	7.2	7.2	3.1	2.1	17.8		15.7	15.6	2.3	26.8	9.2	112.5	7.0	20.9	9.4	16.7	3.9	17.3
Greece	I	0.4			0.0	0.3	0.1		9.0					1.2	0.1	0.0		0.0	0.7	0.6	3.3
	E																				
Hungary	I	3.9			0.0	0.3	0.1		19.3					0.7	0.0	0.0		0.3	1.2	0.5	4.1
	E																				
Ireland	I	0.1			0.0	0.3	0.1		1.7					0.5	0.2	0.0		0.0	2.0	0.3	0.0
	E																				9.6
Italy	I	1.7			0.1	1.0	0.3		20.1					2.0	0.4	0.1		0.2	12.6	0.8	6.6
	E																				
Netherlands	I	0.9			0.2	0.9	0.3		14.1						0.2	0.2		0.1	6.0	1.3	3.2
	E	0.7	12.0	0.1	0.4	0.6	0.4	3.8	11.0	0.6	0.4	0.7	1.4		1.4	1.0	0.3	0.2	4.4	1.2	9.0
Poland	I	6.1			0.9	3.7	0.2		163.6					8.2		0.1		0.6	13.8	6.4	58.5
	E	0.9	0.3	0.0	0.1	0.2	0.0	0.6	15.0	0.2	0.0	2.3	0.9	0.9		0.0	0.0	0.0	0.6	0.6	18.0
Portugal	I	0.3			0.0	0.3	0.1		5.6					1.7	0.0			0.0	19.3	0.2	2.0
	E																				
Romania	I	4.8			0.4	0.3	0.1		23.8					0.7	0.0	1.6		0.1	112.0	0.3	2.2
	E	0.6	0.1	0.0	0.1	0.0	0.0	0.5	3.1	0.1	0.9	0.1	3.4	0.1	0.0	0.0		0.0	0.3	0.0	0.2
Slovakia	I	3.7			6.8	0.2	0.0		11.4					0.7	0.0	0.0			1.2	0.1	8.8
	E	0.2	0.0	0.0	0.7	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0		0.0	0.0	0.1
Spain	I	0.8			0.0	1.8	0.7		14.2					3.4	0.1	0.3		0.1		1.5	14.7
	E	0.2	1.1	0.8	0.1	0.2	0.1	2.9	2.7	0.1	0.1	0.5	1.2	0.9	0.5	1.3	3.4	0.1		0.2	3.5
Sweden	I	0.6			0.0	3.6	3.4		3.2					0.8	0.1	0.0		0.0	2.1		2.4
	E	0.4	0.4	0.0	0.1	3.5	3.4	1.1	1.8	0.6	0.2	0.3	0.5	0.6	0.4	0.1	0.1	0.0	1.5		4.5
United Kingdom	I	1.3			0.3	3.2	1.0		12.9			12.6		5.6	1.6	0.8		0.2	41.9	3.3	
	E	0.8	2.6	0.0	4.0	1.0	0.5	26.0	12.6	4.3	2.1	0.0	4.1	8.3	11.5	3.0	3.2	0.0	35.3	1.7	

NB The columns present data reported by the country of immigration (I), the rows data reported by the country of emigration (E).
For example: Germany reports 14.7 thousand migrants coming from Austria, whereas Austria reports 9.2 thousand migrants heading for Germany.
Source: Eurostat.

Table 8 Estimated migration flows for selected EU countries, 2006 (x 1 000)

From	To AT	BE	BG	CZ	DK	FI	FR	DE	GR	HU	IE	IT	NL	PL	PT	RO	SK	ES	SE	UK
Austria		0.4	1.4	1.5	0.3	0.3	1.0	13.3	0.6	3.5	0.2	1.7	0.7	4.2	0.4	5.2	3.3	0.9	0.5	1.5
Belgium	0.3		0.1	0.3	0.4	0.3	18.8	3.6	0.1	0.1	0.3	2.4	6.2	3.4	0.2	0.1	0.3	3.3	0.4	7.7
Bulgaria	1.4	0.2		3.2	0.1	0.1	1.9	6.8	0.6	0.1	0.1	2.6	0.5	0.7	0.1	0.7	0.2	17.0	0.1	3.1
Czech Republic	1.5	0.4	3.7		0.3	0.1	1.7	7.5	0.4	0.2	0.2	1.1	0.6	3.4	0.1	1.5	59.3	1.1	0.2	2.3
Denmark	0.2	0.4	0.1	0.2		0.4	1.1	2.5	0.2	0.2	0.2	0.6	0.5	1.1	0.1	0.2	0.1	1.3	6.4	3.3
Finland	0.2	0.2	0.0	0.0	0.4		0.4	1.3	0.1	0.1	0.3	0.2	0.3	0.1	0.0	0.0	0.0	0.7	3.3	1.5
France	1.1	14.7	0.5	1.6	1.4	0.5		16.9	0.9	0.7	2.1	13.1	3.4	11.3	5.3	0.9	1.6	15.0	1.2	57.9
Germany	20.2	4.9	7.7	7.7	3.6	1.7	19.1		16.8	16.8	2.5	28.7	10.2	120.6	7.5	22.4	10.1	18.1	4.2	18.6
Greece	0.4	0.2	0.3	0.2	0.2	0.1	1.8	7.9		0.1	0.1	2.3	1.2	3.2	0.1	0.3	0.2	0.7	0.6	6.7
Hungary	4.2	0.7	0.2	0.1	0.3	0.1	5.5	17.1	0.2		0.7	1.6	0.7	0.4	0.2	1.1	3.9	1.1	0.5	6.8
Ireland	0.2	1.5	0.1	0.1	0.2	0.2	7.4	1.5	0.2	0.1		2.0	0.5	6.7	0.3	0.2	0.3	1.9	0.3	27.9
Italy	1.8	4.9	0.4	0.5	0.9	0.4	16.0	17.8	0.4	0.4	0.7		2.0	12.0	0.3	1.3	2.0	12.1	0.8	16.0
Netherlands	0.9	14.3	0.1	0.5	0.8	0.4	4.6	12.8	0.8	0.5	0.8	1.7		1.7	1.2	0.3	0.3	5.5	1.4	10.7
Poland	6.7	3.2	0.1	3.8	3.1	0.3	6.0	144.9	1.6	0.1	23.9	9.2	8.3		0.1	0.0	3.8	13.2	6.5	58.5
Portugal	0.3	0.1	0.0	0.1	0.2	0.1	5.2	5.0	0.0	0.0	0.0	0.5	1.7	0.2		0.0	0.2	18.5	0.2	4.8
Romania	5.2	0.2	0.2	1.7	0.3	0.1	2.9	21.1	0.3	0.6	0.1	24.0	0.7	0.3	0.1		1.1	107.4	0.4	2.3
Slovakia	4.0	0.2	0.1	43.1	0.1	0.0	0.6	10.1	0.1	0.8	0.7	2.1	0.7	0.8	0.2	0.0		1.2	0.2	2.1
Spain	0.9	5.3	4.0	0.3	1.2	0.7	13.9	12.7	0.4	0.4	2.5	5.7	3.8	2.5	6.2	16.4	0.3		1.2	16.8
Sweden	0.6	0.5	0.0	0.1	3.5	3.9	1.3	2.4	0.7	0.2	0.4	0.6	0.7	0.5	0.2	0.1	0.0	1.9		5.2
United Kingdom	1.4	5.4	0.3	2.1	2.7	1.2	112.3	11.4	7.9	7.1	52.4	10.5	5.6	50.6	3.6	1.7	2.3	40.2	3.3	

Source: MIMOSA, 2008.

Table 7 indicates that here are huge differences in the availability, reliability and coverage of international migration statistics across European countries. As mentioned before, one explanation for these differences is that countries have different definitions of migration. The Czech Republic, Slovakia, Poland and Romania, for instance, have a narrow definition of a migrant: they only register someone as a migrant when that person plans to leave the country forever. As a result these countries report very low numbers of migrants. For Germany and Spain the opposite is true. These countries use a broad definition, i.e. without a time limit. As a consequence German and Spanish numbers are much higher than the Polish and Romanian.

Another source of differences across countries are measurement errors. The immigration numbers reported, e.g., by Cyprus, Ireland and the United Kingdom are based on surveys and thus affected by sampling errors. Emigration statistics of Luxembourg and the Netherlands are affected by a high proportion of emigrants not reporting their country of destination.

For DEMIFER not only a consistent set of data *among* countries is needed, but also one *within* countries. Although MIMOSA estimates provide consistent matrices for intra ESPON migration flows, the resulting numbers are not necessarily consistent with other figures within the countries themselves, like population counts and internal migration data. Especially conclusions on the relative impact of internal versus international migration are highly sensitive on the figures used to make the comparison. An important question to answer, therefore, is 'how serious are the inconsistencies between the different sources of data for the purposes of DEMIFER?'

4 National and regional demographic developments and migration in Europe

4.1 Demographic developments since 2000

4.1.1 Population growth

In Europe the main demographic developments are the low rate of population growth and the ageing of the population. The current number of inhabitants of the European Union equals 500 million (Table 9). The average annual growth rate is below 0.5% per year. Since the 1990s European population growth has mainly been caused by international migration. Some 80% of overall population growth results from migration. The low level of fertility is the main cause of both the slow pace of population growth and population ageing.

Population growth is unevenly distributed across Europe with, apart from Germany, overall positive growth in western Europe and negative growth in central and eastern Europe. Seven Member States of the European Union reported population decrease during the years 2000-2008: the three Baltic states, Bulgaria, Romania, Hungary and Poland. In Germany population size increased between 2000 and 2002, but has decreased since. Average population growth has been above 1.5% per year in only three EU Member States: Ireland, Cyprus and Spain.

Since 2000 average natural growth has been negative in ten EU Member States and very small (i.e. below 0.1% of population size per year) in six others. Thus in more than one half of the EU countries natural growth has been negligible or negative. Ireland was the only country where natural growth exceeded 0.5% of population size per year.

Net migration has been negative in five countries. On the other hand, in three countries average annual net migration exceeded 1% of population size: Ireland, Cyprus, and Spain. Since 2000 four countries have reported both negative natural growth and negative net migration: Bulgaria, Latvia, Lithuania and Romania. In three other countries negative natural growth has been compensated for by positive net migration: Czech Republic, Italy and Slovenia. In another three countries positive net migration was not high enough to counterbalance negative natural growth: Estonia, Germany and Hungary.

Total population size of the four EFTA countries equals 12.9 million. In these countries the population growth rate exceeds the average of the EU Member States. Both natural growth and net migration are higher than in the EU countries. Croatia and FYROM show a varied picture of different combinations of positive and negative natural growth and net migration. In Turkey the natural growth rate is considerably higher than in the EU countries.

Differences in the natural growth rate can be explained by differences in the level of fertility, mortality and the age structure. The level of fertility explains the main part of differences in natural growth across European countries. However, the effect of the age structure is not negligible.

Table 9 Demographic indicators, 2000-2008

	1-1-2009	2000-2008			2000-2007*		
	population size	average total growth rate	average natural growth rate	average net migration rate	average total fertility rate	average life expectancy males	average life expectancy females
	x 1 000	%	%	%	children per woman	years	years
Austria	8 355	0.49	0.03	0.46	1.38	76.3	82.0
Belgium	10 755	0.55	0.13	0.42	1.74	75.7	81.6
Bulgaria	7 607	-0.80	-0.51	-0.29	1.29	68.9	75.9
Cyprus	794	1.64	0.45	1.19	1.49	76.9	81.4
Czech Republic	10 468	0.20	-0.06	0.27	1.24	72.6	79.1
Denmark	5 511	0.38	0.16	0.22	1.79	75.3	80.0
Estonia	1 340	-0.26	-0.27	0.01	1.45	66.2	77.5
Finland	5 326	0.33	0.17	0.16	1.78	75.2	82.2
France	64 351	0.69	0.44	0.25	1.92	76.1	83.4
Germany	82 002	-0.02	-0.15	0.13	1.35	76.2	81.8
Greece	11 257	0.36	0.02	0.34	1.31	76.5	81.3
Hungary	10 031	-0.21	-0.35	0.15	1.31	68.6	77.0
Ireland	4 466	1.97	0.88	1.10	1.93	76.0	81.0
Italy	60 053	0.61	-0.02	0.63	1.30	77.6	83.4
Latvia	2 261	-0.57	-0.47	-0.10	1.31	65.5	76.2
Lithuania	3 350	-0.52	-0.30	-0.22	1.30	65.9	77.5
Luxembourg	494	1.50	0.39	1.11	1.65	75.7	81.6
Malta	414	0.69	0.23	0.46	1.46	76.8	81.3
Netherlands	16 487	0.43	0.35	0.08	1.72	76.7	81.4
Poland	38 136	-0.15	0.01	-0.16	1.27	70.5	79.0
Portugal	10 627	0.47	0.05	0.42	1.43	74.5	81.2
Romania	21 499	-0.47	-0.18	-0.29	1.29	68.3	75.5
Slovakia	5 412	0.03	0.02	0.01	1.23	70.0	77.9
Slovenia	2 032	0.33	-0.01	0.34	1.26	73.3	80.8
Spain	45 828	1.57	0.19	1.38	1.31	76.8	83.5
Sweden	9 256	0.49	0.09	0.40	1.72	78.2	82.6
United Kingdom	61 635	0.53	0.21	0.32	1.71	76.4	80.8
EU-27	499 747	0.39	0.07	0.32	1.49	75.1	81.3
Iceland	319	1.57	0.86	0.71	2.03	79.0	82.9
Liechtenstein	36	1.07	0.48	0.59	1.46	77.5	82.8
Norway	4 799	0.78	0.34	0.45	1.83	77.2	82.2
Switzerland	7 700	0.82	0.17	0.65	1.43	78.3	83.6
Croatia	4 435	-0.15	-0.21	0.06	1.37	71.8	78.8
FYROM	2 049	0.15	0.34	-0.19	1.64	71.2	75.8
Turkey	71 517	1.37	1.34	0.03	:	:	:

* Or part of this period.
Source: Eurostat.

For example, even though the total fertility rate (TFR) in France equals the one of Ireland and life expectancy is even higher, in Ireland the natural growth rate is twice as high as the rate in France, due to the young age structure. Another example is the case of Spain and Sweden. In Sweden the TFR is considerably higher than in Spain, but the natural growth rate is lower. The limited effect of mortality on the rate of natural growth is reflected by the fact that several countries with high life expectancies such as Italy and Greece have a very low natural growth rate.

Since the mid 1970s the TFR has been below the so-called replacement level of 2.1 in most European countries. This implies that in the long run natural growth will become negative. The average TFR for the period 2000-2007 ranges from 1.2 in Slovakia and the Czech Republic to 2.0 in Iceland. The fertility levels in central and eastern European countries declined very sharply in the 1990s due to

economic insecurities and the demise of family policies. Part of the decline in the TFR was caused by postponement of childbirth. Since 2000 the TFR has been increasing in most European countries since the decline in fertility rates at young ages due to postponement has been slowing down, whereas fertility rates at older ages has been increasing due to a catching up of postponed births. Increasing population diversity through international migration may have an impact on fertility levels. However, even though several migrant groups have higher fertility than the native population, the impact of migrant fertility on the national fertility level tends to be rather small, since migrants form a small fraction of total population, migrant fertility is diverse and fertility rates of many migrant groups are declining.

During the last decades most European countries have observed increases in life expectancy. During the last two decades life expectancy at birth has increased by 0.2 years per year on average, thus an increase by one year every five years. However, in central and eastern European countries the development of life expectancy has not been favourable since the 1990s, particularly for men. In many eastern European countries life expectancy of men is below 70 years, whereas in most western countries it exceeds 75 years. Women live longer than men, but the gender difference varies strongly across Europe. In the Baltic States women live 11 years longer than men, whereas in many western and northern European countries the difference is below 5 years.

4.1.2 Ageing

Because of the low TFR and the improved life expectancies the population is ageing in all countries of the European Union. On the one hand the proportion of children is going down and on the other hand the proportion of elderly is increasing (Table 10).

In the whole EU the share of people aged 0-14 declined from 17.3 at the start of 2000 to 15.7 on 1 January 2008. As a consequence of the sharp decline of the fertility levels in the newly accessed Member States, the strongest decreases of the share of children in the total population, more than 3 percent points, can be observed in those countries. For only one country, Denmark, the percentage 0-14 did not decrease. Ireland remained the country with the highest proportion children whereas Bulgaria took over the last position from Italy. The share of older people (65+) went up in the EU from 15.6% to 17.0%. The increase has been particularly high in Germany, the Baltic States, Slovenia and Greece. A slight decease occurred in Ireland, Luxembourg and Spain, countries with a relatively high fertility level.

4.2 Characteristics of migrant stocks

4.2.1 Foreign born versus foreign citizen

- Immigrant stocks are defined in different ways by countries. Immigrants may be considered to be persons who are foreign born and who at some stage have immigrated into the country of residence. Another way to describe immigrant populations is to look at foreign nationality.

Table 10 Age structure on 1 January 2000 and 1 January 2008

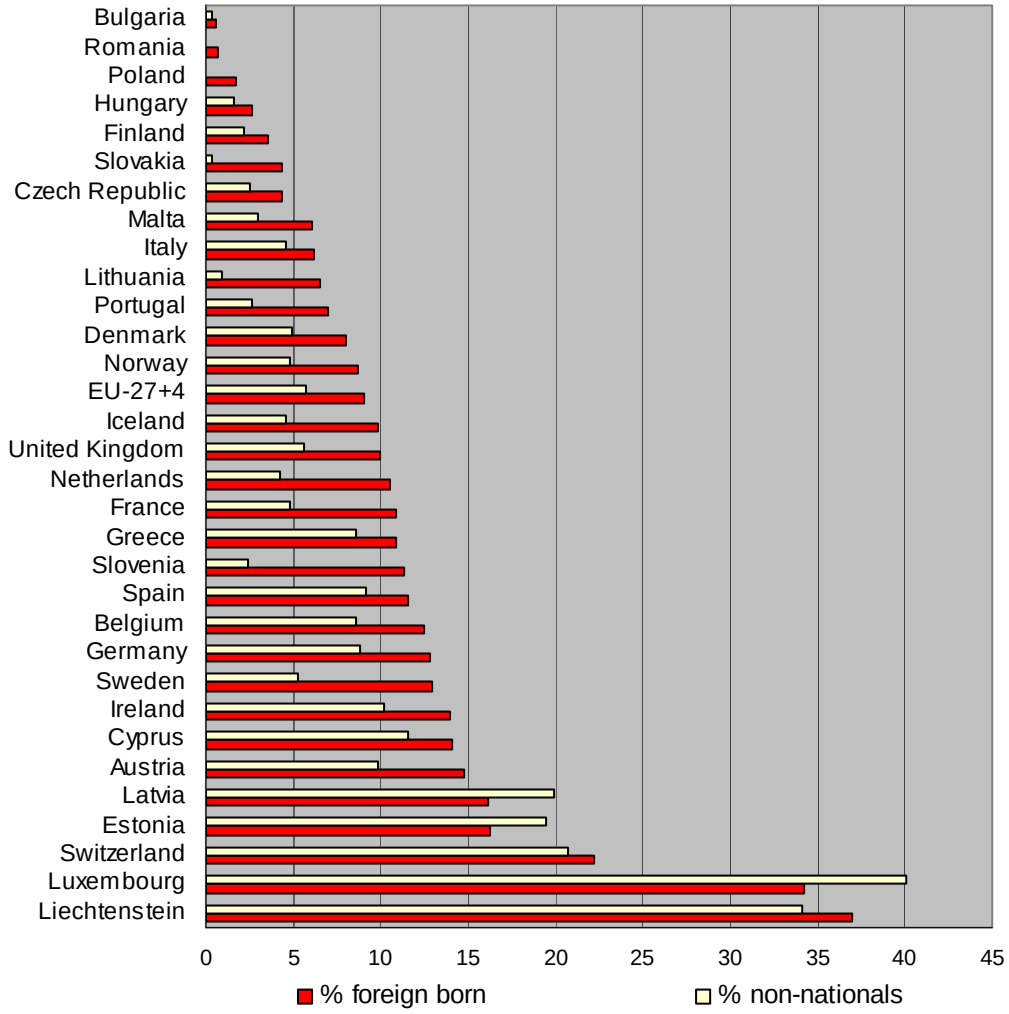
	0-14		15-64		65+	
	1-1-2000	1-1-2008	1-1-2000	1-1-2008	1-1-2000	1-1-2008
Austria	17.1	15.3	67.5	67.6	15.4	17.1
Belgium	17.6	16.9	65.6	66.0	16.8	17.1
Bulgaria	15.9	13.4	67.9	69.3	16.2	17.3
Cyprus	22.8	17.4	66.0	70.1	11.2	12.5
Czech Republic	16.6	14.2	69.6	71.2	13.8	14.6
Denmark	18.4	18.4	66.8	66.0	14.8	15.6
Estonia	18.3	14.8	66.7	68.0	15.0	17.2
Finland	18.2	16.9	67.0	66.6	14.8	16.5
France	19.1	18.5	65.1	65.2	15.8	16.3
Germany	15.7	13.7	68.1	66.2	16.2	20.1
Greece	15.5	14.3	68.0	67.1	16.5	18.6
Hungary	16.9	15.0	68.1	68.8	15.0	16.2
Ireland	21.9	20.6	66.9	68.5	11.2	10.9
Italy	14.3	14.0	67.6	66.0	18.1	20.0
Latvia	18.0	13.8	67.2	69.0	14.8	17.2
Lithuania	20.2	15.4	66.1	68.8	13.7	15.8
Luxembourg	18.9	18.2	66.8	67.8	14.3	14.0
Malta	20.4	16.2	67.5	70.0	12.1	13.8
Netherlands	18.6	17.9	67.8	67.4	13.6	14.7
Poland	19.6	15.5	68.3	71.0	12.1	13.5
Portugal	16.2	15.3	67.8	67.3	16.0	17.4
Romania	18.8	15.2	67.8	69.9	13.4	14.9
Slovakia	19.8	15.8	68.8	72.2	11.4	12.0
Slovenia	16.1	13.9	70.0	70.0	13.9	16.1
Spain	14.9	14.6	68.4	68.8	16.7	16.6
Sweden	18.5	16.8	64.2	65.7	17.3	17.5
United Kingdom	19.1	17.6	65.1	66.3	15.8	16.1
EU-27	17.3	15.7	67.1	67.3	15.6	17.0
Iceland	23.3	20.9	65.1	67.6	11.6	11.5
Liechtenstein	18.7	16.8	70.8	70.8	10.5	12.4
Norway	20.0	19.2	64.7	66.2	15.3	14.6
Switzerland	17.4	15.5	67.3	68.1	15.3	16.4
Croatia	16.4	15.4	67.2	67.4	16.4	17.2
FYROM	22.5	18.5	67.7	70.1	9.8	11.4
Turkey	30.1	26.4	64.5	66.5	5.4	7.1

Source: Eurostat.

As shown in Figure 3, for several reasons statistics on the foreign born population may differ substantially from statistics based on foreign citizens:

- before migrating, people may already possess the nationality of the country of destination (e.g. when living in colonies or former colonies);
- after migrating, people may have acquired the nationality of the country of residence (e.g. by naturalisation);
- people who never migrated may acquire the foreign citizenship of their parent(s) at birth.

Figure 3 Percentage foreign born (2007) and non-nationals (2006)



Sorted by percentage foreign born.
Source: Eurostat, supplemented by MIMOSA estimates.

Apart from some exceptions, Luxembourg and two Baltic states, the percentage foreign born exceeds the percentage non-nationals. Partly, the differences are caused by varying requirements for obtaining the citizenship of the country of residence (see e.g. Cantisani and Greco, 2006). For example, in general, it is easier to acquire the French citizenship than the German citizenship. On the other hand, the role of ex-colonies is clearly visible in countries such as Portugal, the Netherlands and France. The no-citizenship population and Russian citizenship among Russian minorities explain the deviating figures for Latvia and Estonia.

Note that due to a restrictive definition of a migrant (only 'permanent') the coverage of the foreign born population and the non-national population is limited in several central and east-European countries, such as Poland, the Czech Republic and Slovakia (for example see Poulain *et al.*, 2006).

In Table 11 it is shown that for the total (EU-27 plus 4 EFTA countries) the percentage foreign born outside the EU almost equals the percentage non-nationals born outside the EU (65 and 64). Also the sex distribution does not differ substantially.

Table 11 Foreign born and non-nationals by country of birth and by sex (%)

	Foreign born, 2007				Non-nationals, 2006			
	EU	non-EU	men	women	EU	non-EU	men	women
Austria	39	61	48	52	32	68	52	48
Belgium	51	49	48	52	69	31	51	49
Bulgaria	27	73	42	58	15	85	42	58
Cyprus	46	54	43	57	59	41	44	56
Czech Republic	79	21	47	53	36	64	59	41
Denmark	27	73	48	52	27	73	49	51
Estonia	4	96	39	61	2	98	49	51
Finland	37	63	50	50	35	65	51	49
France	30	70	49	51	39	61	52	48
Germany	40	60	50	50	34	66	52	48
Greece	25	75	51	49	19	81	54	46
Hungary	71	29	44	56	59	41	50	50
Ireland	71	29	52	48	69	31	53	47
Italy	27	73	48	52	20	80	51	49
Latvia	9	91	41	59	1	99	47	53
Lithuania	11	89	44	56	6	94	56	44
Luxembourg	81	19	50	50	91	9	50	50
Malta	47	53	49	51	58	42	49	51
Netherlands	21	79	48	52	39	61	50	50
Poland	35	65	40	60	45	55	49	51
Portugal	24	76	50	50	29	71	54	46
Romania	31	69	48	52	23	77	65	35
Slovakia	78	22	50	50	59	41	58	42
Slovenia	12	88	55	45	6	94	70	30
Spain	35	65	52	48	33	67	53	47
Sweden	38	62	48	52	45	55	50	50
United Kingdom	30	70	49	51	40	60	48	52
Iceland	60	40	55	45	60	40	55	45
Liechtenstein	51	49	47	53	49	51	51	49
Norway	35	65	49	51	45	55	49	51
Switzerland	57	43	48	52	58	42	53	47
EU-27+4	35	65	49	51	36	64	51	49

NB. Latvian non-citizens are included in non-EU citizens.
Source: Eurostat, supplemented by MIMOSA estimates.

On the country level the percentage foreign born outside the EU varies from 19 in Luxembourg to 96 in Estonia, and the percentage non-nationals from 9 in Luxembourg to 99 in Latvia. A clearly uneven sex distribution occurs in Estonia for the foreign born (61% women) and in Slovenia for the non-nationals (70% men).

Information on the age distribution of the foreign born and non-nationals is presented in Table 12. On the whole, the youngest age group (0-14) is relatively better represented among the non-nationals than among the foreign born. The opposite is true for the oldest age group (65+). As regards the foreign born, the central and east-European countries generally show deviating age patterns, in the sense that older ages are over represented. Particularly, the Polish figures are remarkable. The country-specific fluctuations around the average age distribution of the non-nationals are less spectacular.

Table 12 Foreign born and non-nationals by age (%)

	Foreign born, 2007					Non-nationals, 2006				
	0-14	15-24	25-39	40-64	65+	0-14	15-24	25-39	40-64	65+
Austria	6	13	30	37	13	17	15	33	30	5
Belgium	7	10	28	40	14	12	11	30	34	12
Bulgaria	7	10	26	35	21	8	13	34	37	7
Cyprus	10	18	36	30	7	14	14	38	29	5
Czech Republic	3	5	21	42	29	9	13	41	33	3
Denmark	9	16	33	35	8	18	16	33	27	5
Estonia	1	2	10	49	38	11	14	20	37	18
Finland	10	17	38	29	6	16	14	36	28	6
France	5	8	23	45	19	8	9	29	41	12
Germany	4	13	31	40	12	14	15	33	31	7
Greece	9	14	38	31	8	19	15	38	25	3
Hungary	3	9	25	36	27	8	14	38	31	8
Ireland	13	16	44	24	4	12	18	44	21	4
Italy	7	10	36	37	10	19	12	41	25	2
Latvia	1	3	11	49	36	14	15	21	32	18
Lithuania	5	4	13	51	26	5	9	30	39	17
Luxembourg	8	10	31	40	10	21	11	30	31	7
Malta	8	13	34	34	11	11	11	26	38	15
Netherlands	6	12	33	39	10	15	16	38	27	5
Poland	5	3	3	26	63	13	12	27	37	11
Portugal	9	13	43	29	6	16	17	36	24	6
Romania	9	9	15	24	43	9	28	35	24	2
Slovakia	3	8	18	49	23	6	11	34	42	7
Slovenia	4	7	22	53	14	7	11	36	42	5
Spain	9	15	41	27	8	14	15	42	25	5
Sweden	6	12	27	40	15	14	12	33	32	8
United Kingdom	7	13	34	33	12	13	15	40	24	8
Iceland	15	16	38	27	4	11	14	45	28	3
Liechtenstein	4	6	24	51	15	14	10	27	41	8
Norway	11	14	35	34	6	17	13	38	27	5
Switzerland	6	10	26	42	15	17	12	30	33	8
EU-27+4	6	12	31	37	14	14	14	36	30	7

Source: Eurostat, supplemented by MIMOSA estimates.

4.2.2 OECD database

Another source for characteristics of international migrants is the database that the OECD developed on the basis of census results (or likewise data) around the year 2000 (see e.g. Dumont and Lemaître, 2004). This database provides detailed information on the country of birth and on the level of education for natives and foreign born people aged 15+ in the OECD countries.[5]

To illustrate the variety of most sizeable foreign countries of birth, Table 13 presents the top 3 for almost all European OECD countries. The 'number ones' are often due to geographical nearness. 'First places' due to geographical nearness can be observed for Austria (former Yugoslavia), Belgium (France), Czech Republic (Slovakia), Finland (former USSR), Greece (Albania), Hungary (Romania), Ireland (United Kingdom), Italy (Switzerland), Norway (Sweden), Poland (former USSR), Slovakia (Czech Republic), Spain (Morocco), Sweden (Finland), Switzerland (former Yugoslavia), Turkey (Bulgaria) and the United Kingdom (Ireland).

For some other countries the 'number ones' are related to historical ties (colonies): France (Algeria), the Netherlands (Suriname) and Portugal (Angola). Finally, in two countries the recruitment of 'guest workers' about 40 years ago still determines the current most sizeable foreign born country: Turkey for Denmark and Portugal for Luxembourg.

[5] In this report only the European OECD countries will be discussed.

Table 13 Top 3 foreign born countries for European OECD countries, around 2000, population 15+

	Country of residence																				
Country of birth	AT	BE	CZ	DK	FI	FR	GR	HU	IE	IT	LU	NL	NO	PL	PT	SK	ES	SE	CH	TR	UK	Tot
Albania							1															
Belgium											3											
Bulgaria																				1		
Denmark													3									
Finland																		1				
Former Czechoslovakia			1					2								1						
Former Yugoslavia	1			2	3			3		2			2					2	1	3		
Former USSR			2		1		2		3					1		3						
France		1									2			3	2		3					
Germany	2			3			3			3				2					3	2		1
Hungary																2						
Ireland																					1	
Italy		2																	2			
Poland			3																			
Portugal						3					1											
Romania								1														
Sweden					2								1									
Switzerland										1												
Turkey	3			1								2										
United Kingdom									1													
Algeria						1																3
Angola															1							
Morocco		3				2											1					2
Mozambique															3							
India																					2	
Indonesia												3										
Iraq																		3				
Pakistan																					3	
Ecuador																	2					
Suriname												1										
USA									2													

Source: OECD database (consulted in July 2009).
No data for country of residence Germany.

The OECD database also allows for a link between foreign born people and citizenship in the sense that the percentage foreign born with the citizenship of the country of residence can be determined (Table 14). This percentage varies strongly: from less than 40 in Spain, Switzerland and Luxembourg to more than 80 in the Czech Republic, Turkey and Poland. For the continent of birth Oceania the general percentage is lowest (36) for Europe highest (58).

Some information of the educational attainment of natives and foreign born is presented in Table 15. According to the ISCED 1997 (International Standard Classification of Education, UNESCO 1997) three levels of education have been distinguished:

- Low – pre-primary education (ISCED 0), primary education (ISCED 1) and lower secondary education (ISCED 2);
- Middle – (upper) secondary education (ISCED 3) and post-secondary non tertiary education (ISCED 4);
- High – first stage of tertiary education (ISCED 5) and second stage of tertiary education (ISCED 6).

Table 14 Foreign born and citizen of the country of residence, by continent of birth, around 2000, population 15+ (%)

	Foreign born					
	Africa	Asia	Europe	America	Oceania	total
Austria	43	46	42	41	56	42
Belgium	53	53	35	40	23	40
Czech Republic	34	11	85	45	58	81
Denmark	34	48	35	48	39	40
Finland	32	30	43	45	55	41
France	59	61	45	48	49	53
Greece	72	40	39	67	82	43
Hungary	34	16	75	55	72	72
Ireland	16	14	49	47	27	44
Italy	27	11	58	57	82	47
Luxembourg	26	27	12	18	3	13
Netherlands	51	80	50	91	73	66
Norway	47	58	39	59	38	48
Poland	61	62	97	88	82	96
Portugal	73	62	62	50	72	67
Slovakia	48	30	84	80	63	83
Spain	26	21	39	28	63	32
Sweden	63	65	61	62	26	62
Switzerland	40	35	30	49	47	30
Turkey	73	55	90	37	71	86
Total	55	52	58	49	36	55

Source: OECD database (consulted in July 2009).
No data for Germany and the United Kingdom.

Table 15 Natives (15+) by level of education and foreign born (15+) by level of education and continent of birth, around 2000 (%)

	Natives			Foreign born														
	total			total			Africa			Asia			Europe			America		
	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H
Austria	33	56	11	49	39	11	47	32	21	51	30	18	50	40	10	39	33	28
Belgium	47	30	23	53	24	23	49	25	26	34	31	35	58	22	20	28	28	44
Czech Republic	23	67	10	39	49	13	12	43	46	27	52	21	39	49	12	17	37	46
Denmark	38	43	20	37	39	24	41	39	20	44	37	19	34	40	26	23	40	37
Finland	40	36	23	53	29	19	59	26	15	69	19	12	49	31	20	58	21	21
France	46	37	17	55	27	18	54	29	18	43	28	30	60	25	15	30	27	43
Germany	24	57	19	46	39	15	49	41	10	43	39	18	48	39	13	11	50	39
Greece	52	34	14	43	41	16	23	49	27	46	40	15	45	40	14	19	53	28
Hungary	45	44	11	41	39	20	32	31	37	41	29	29	41	40	19	35	31	34
Ireland	48	29	23	30	29	41	19	30	52	17	25	58	33	30	37	18	25	57
Italy	64	28	8	54	33	12	66	25	9	59	26	15	52	37	12	45	38	17
Luxembourg	29	59	13	37	42	22	37	43	20	22	45	33	38	41	21	15	42	44
Netherlands	41	41	19	49	32	19	66	23	11	40	35	25	49	31	19	48	35	17
Norway	20	57	23	18	51	30	21	56	23	23	54	23	17	49	35	13	52	36
Poland	31	58	10	48	40	12	14	37	49	13	44	44	48	40	11	56	27	17
Portugal	80	12	8	55	26	19	58	24	18	56	22	21	49	30	21	52	28	19
Slovakia	28	61	11	29	55	16	13	45	42	15	50	34	29	55	15	51	30	19
Spain	66	16	18	56	23	21	77	13	11	57	23	20	52	24	24	50	26	23
Sweden	25	52	23	30	46	24	31	48	22	31	42	27	30	48	23	23	47	30
Switzerland	26	56	18	42	35	24	37	33	30	42	28	30	42	36	22	30	31	40
Turkey	76	18	7	54	31	15	43	37	20	42	31	27	55	31	14	9	30	61
United Kingdom	51	29	20	41	25	35	29	32	39	49	20	32	42	26	32	38	23	39
Total	49	37	15	48	33	20	52	28	20	45	30	25	48	35	17	41	31	28

Source: OECD database (consulted in July 2009).
L=less than upper secondary (ISCED 0/1/2).
M=upper secondary and post-secondary non-tertiary (ISCED 3/4).
H=tertiary (ISCED 5/6).

Looking at the total for the European OECD countries, the level of education of foreign born (15+) is according to the OECD database somewhat higher than the level of education of the native population (15+). This is certainly true for countries such as Ireland, Portugal, Turkey and the United Kingdom. On the other hand, there are also several countries where the opposite is true, e.g. in Austria, Belgium, the Czech Republic, Finland, France, Germany, the Netherlands, Poland, Sweden and Switzerland.

Generally spoken, distinguished by continent of birth, people born in America tend be the highest educated, followed by those born in Asia. However, there are significant differences between the countries of residence.

4.3 Settlement patterns of different groups of migrants: an example of the Netherlands

In the sixties and seventies the Netherlands received many labour migrants coming from Mediterranean countries (e.g. Portugal, Spain, Morocco and Turkey). Economic downturn, such as the oil crises of the seventies, brought an end to the inflow of this type of migrant. However, migrants from this region continued to come to the Netherlands in the eighties and nineties, due to the arrival of the wives and children of the mainly male labour migrants (reunification of the family). After the turn of the century, a new type of migrant became important: grown-up children of the immigrants seeking a partner for marriage in the former country of origin of the parents. Looking at the region where they settled, a clear preference for the economic heart of the Netherlands (the so called 'Randstad') is apparent. Especially the larger cities as Amsterdam, The Hague and Rotterdam were and are popular. This pattern can be explained by the fact that in the sixties the industries located in the 'Randstad', were in need of (cheap) labour migrants. Later in time the industrial sector gradually shrunk and was replaced by the service sector. However, the existing concentration of migrants groups in this region attracted new migrants as the pioneers provided help and guidance to new migrants in finding houses and jobs. This network-function is today still of importance (De Jong *et al*., 2005).

Three important migration flows are caused by historic bounds with other countries. The independency of former colonies such as Indonesia (after the 2nd World War) and Surinam (1975) led to the arrivals of many migrants. Again the three large cities of the Netherlands (Amsterdam, Rotterdam and The Hague) received many immigrants from these countries. Historic bounds also apply to migrants coming from the Netherlands Antilles and Aruba. These islands are still part of the Kingdom of the Netherlands and for this reason the inhabitants have free access to the Netherlands. Again the three large cities are favourite choices of settlement.

Especially in the nineties turbulence in the world caused a steep increase in the number of asylum seekers. They came from countries such as the former Yugoslavia, several African countries and countries from the Middle East (such as Iraq and Iran). So, largely these immigrants have a non-western origin. The reaction of the government was to try to curtail this immigration flow and especially the new law of 2004 with respect to foreigners led to a decrease of asylum seekers. After their arrival in the Netherlands, they were usually send to

'asylum seeker centres' mainly located in the peripheral municipalities of the Netherlands. After receiving a permit to stay permanent in the Netherlands, they showed a strong inclination to move to the central part of the Netherlands, the 'Randstad'.

Another large group of immigrants consists of 'western' immigrants and they come to the Netherlands for reasons of labour and study. A significant part of the labour migrants comes from the United States and Japan (especially the 'managers'), but the greater part comes from other countries of the European Union. In the last couple of years the number of immigrants from the new countries of the European Union (such as Poland, Hungary and Rumania) has shown a impressive increase. Again, the economic heart of the Netherland, the 'Randstad' and especially the large cities located inside this region, attract most labour migrants and students (as many universities are located in the larger cities). Recently, this tendency is even increased as the government is trying to promote the 'Randstad' as economic and cultural centre of the Netherlands, in the hope to attract multinationals and international organisations. Several decades ago policies were oriented at stimulating peripheral regions, but nowadays this policy has been abandoned. It is striking that the pattern of arrival of western migrants (but also non-western migrants) shows a strong parallel with the business cycle. Especially around the turn of the century, when economic growth figures were high, this went together with high numbers of immigrants. Five years later an economic depression led to a collapse of immigration figures and a steep increase of the emigration figures (to a level that was hardly seen before). For a number of years the Netherlands had an emigration surplus instead of an immigration surplus, which was the case for almost the whole of the second half of the twentieth century.

Another part of the western migrants stem from marrying a partner living over the country border. Especially in municipalities near the country border (with Belgium and Germany), many couples have a partner coming from the neighbouring country. In this way municipalities in the provinces Limburg, Noord-Brabant, Zeeland en Gelderland have received many immigrants from the neighbouring countries.

In the Netherlands about 1.5 million people move yearly to another house, that is about 10% of the Dutch population (Ekamper and Van Huis, 2004; Feijten and Visser, 2005). A large part consists of people aged between 15 and 30 years; this is linked to processes of the life cycle as leaving the parental house, going to live together and separation of (consensual) unions. Another part of the moves are explained by housing reasons: moving to a better house and better housing conditions. The tendency to move is linked with the business cycle: when economic growth is low the number of moves (per 1000 of the population) is much lower than in years of high economic growth. About 60% of the moves consist of people who find another house in the same municipality they are living now. The persons who move to other municipalities can be split up in two groups: long distance migrants who move for reasons as finding another job and going to study somewhere, and short distance migrants who move primarily for housing reasons (possibly linked to changes in the life cycle). In the Netherlands the long distance flows are oriented at the economic heart of the Netherlands: the 'Randstad' with its large cities Amsterdam, Rotterdam, The Hague and Utrecht (all having a university). Large university cities outside the Randstad

such as Groningen, Tilburg, Nijmegen, Enschede, Eindhoven and Maastricht also attract many students.

In the last decades most large cities lost many inhabitants due to internal migration. Especially couples went to smaller, rural cities and places, where they could find owner occupied, single-family houses. This was especially the case for Amsterdam where inhabitants went to near municipalities such as Almere (in the new province Flevoland), Haarlemmermeer and Amstelveen. In these region many houses were built, due to the policy of the government to accommodate here the population growth (the suburbanisation policy, also called the 'VINEX-policy' in the Netherlands). However, in the last years the focus of the spatial planning policy discussion has shifted to the large urban regions of the Netherland. Especially cities as Amsterdam and Utrecht try to accommodate population growth within the borders of the municipality by building large new housing estates. In this way they hope to prevent the departure of highly educated young couples, with much earning capacity. This may prevent problems such as the concentration of poverty and deterioration of the housing stock in certain districts (where many foreigners are living). This trend may be placed under the heading of 're-urbanisation', and is also seen in other countries such as Germany.

4.4 Demographic differences across NUTS2 regions

In the ESPON 1.1.4 project 'The spatial effect of demographic trends and migration' regions were classified on the basis of the criterion whether total population growth, natural increase and net migration were positive or negative (ESPON, 2005). The typology distinguishes six types of regions depending on the question whether total population growth, natural growth (births minus deaths) and net migration (in-migration minus out-migration) are positive or negative. The results for the 1990s will be compared with developments since 2000. Subsequently, differences in fertility, mortality, and migration will be analysed. Next, differences in population growth and ageing will be explained by differences in the levels of fertility, mortality and migration.

4.4.1 Comparisons of 1990s and the period since 2000

Table 16 shows that in the 1990s almost three quarters of all NUTS2 regions had positive total population growth. Most of these regions had both positive natural increase and positive net migration, but 20% of the regions (category 2) had positive population growth even though natural increase was negative. Thus, in 20% of the regions net migration compensated for the excess of deaths over births. In contrast, category 5 shows that in 9% of the regions positive net migration was not high enough to compensate for negative net migration. Some regions have positive natural increase but negative net migration (categories 3 and 6), but they are only a minority.

The table shows that net migration has been the main source of population growth since the 1990s. In the 1990s in 69% of the regions net migration was positive, whereas in only 57% of the regions natural increase was positive. Since 2000 the percentage of regions with positive net migration has hardly changed, but the percentage of regions with positive natural increase has declined to 48%, i.e. less than one half of all NUTS2 regions.

The main cause of the decline in the number of regions with positive natural increase since 2000 has been ageing. The main cause of ageing was the sharp decline in the level of fertility in the last decades of the 20th century. Since 2000 the level of fertility has risen in a number of regions. The percentage of regions with a very low total fertility rate (below 1.25) has decreased from 21 to 12%., whereas the percentage of regions with relatively high TFR (i.e. above 1.75) has increased from 17 to 25%.

Table 16 Type of population growth of NUTS2 regions (%)

Type	Population growth	Natural increase	Net migration	1990-1999*	2000-2006*
1	+	+	+	40	37
2	+	-	+	20	25
3	+	+	-	11	8
4	-	-	-	11	16
5	-	-	+	9	10
6	-	+	-	5	4
Unknown				4	1
Total				100	100

* Or part of this period.
NB. NUTS2 regions in 27 EU countries and 4 EFTA countries.

In a minority of regions the level of the TFR has declined. However, even though the rate of fertility may not decrease further, ageing leads to a reduction in natural increase. Due to the increase in the proportion of elderly people, the annual number of deaths has been increasing. In the 1990s, in one quarter of all regions the percentage of people aged 65 or over exceeded 17.5%. Since 2000 this has increased to 43%. The percentage of the oldest old has increased even more strongly. In the 1990s in 31% of the regions the percentage of people aged 75 or over exceeded 7.5%. Since 2000 this has increased to 57%.

In Table 17 the type of population growth of NUTS2 regions is presented per country. In particular in Germany and the UK important shifts have occurred. A closer look (Table 18) learns that in Germany only 3 of the 14 regions with type 1 in the 1990s remain in this category in the 2000s: Stuttgart, Tübingen and Oberbayern, all situated in the southern part. In contrast, 5 of them see the population growth turn into population loss, 1 caused by negative natural increase and negative net migration (Gießen) and 4 caused by negative natural increase that is not compensated by positive net migration (Oberpfalz, Unterfranken, Münster and Detmold).

Table 17 Type of population growth of NUTS2 regions per country

	1		2		3		4		5		6		Unknown		Total
	90-99*	00-06*	90-99*	00-06*	90-99*	00-06*	90-99*	00-06*	90-99*	00-06*	90-99*	00-06*	90-99*	00-06*	
AT	6	4	3	4						1					9
BE	9	9	1	2							1				11
BG							5	5	1	1					6
CH		6		1									7		7
CY	1	1													1
CZ			2	3			1	3	5	2					8
DE	14	3	17	15			5	13	3	8					39
DK	4	3	1	1								1			5
EE							1			1					1
ES	10	11	3	5		2	2		2	1	2				19
FI	3	3			1	1		1			1				5
FR	15	15		2	8	8			2		1	1			26
GR	5	4	8	4						5					13
HU			2	1				3	5	3					7
IE	2	2													2
IS		1			1										1
IT	2	5	7	10	5	3	1	1	4	1	2	1			21
LI		1											1		1
LT								1			1				1
LU	1	1													1
LV							1	1							1
MT		1											1		1
NL	11	10			1	1						1			12
NO	3	5	1	1	3							1			7
PL	5	1	1	1	4	2	4	7			2	5			16
PT	2	4	1	2					2	1	2				7
RO				1			6	5		1	2	1			8
SE	4	3		2	2		2	2		1					8
SI		1		1	1		1								2
SK	1		1		1	1		2	1	1					4
UK	18	12	9	16	5	4	2	1		2	1		2	2	37
Total	116	106	57	72	32	22	31	45	25	29	15	11	11	2	287

Table 18 Change of type of population growth from the 1990s to the 2000s, NUTS2 regions of Germany

	To						
From	1	2	3	4	5	6	Total
1	3	6		1	4		14
2		7		7	3		17
3							
4				5			5
5		2			1		3
6							
Total	3	15		13	8		39

NB. 2000s is for Germany 2003-2006.

Furthermore, 7 of the 17 regions with type 2 in the 1990s (population growth through more positive net migration than excess of deaths over births) turn into type 4 in the 2000s (population loss through both negative migration and natural decrease (Oberfranken, Brandenburg–Nordost, Brandenburg–Südwest, Kassel, Braunschweig, Arnsberg and Saarland).

For the United Kingdom the changes in type of population growth are less spectacular (Table 19). The regions in the central part with population losses remain the same, although the type has changed: from 4 to 5 in the region Northumberland, Tyne and Wear and the region South Western Scotland, and from 6 to 4 in Merseyside. On the other hand, for three regions type 3 in the 1990s has been replaced by type 1 in the 2000s (Greater Manchester, South Yorkshire and West Yorkshire).

Table 19 Change of type of population growth from the 1990s to the 2000s, NUTS2 regions of the United Kingdom

	To						
From	1	2	3	4	5	6	Total
1	9	6	3				18
2		9					9
3	3	1	1				5
4					2		2
5							
6				1			1
Total	12	16	4	1	2		35

NB. 2000s is for the UK 2001-2003; two regions are unknown.

4.4.2 Fertility, mortality and migration

In the last decades of the 20th century fertility rates have declined all across Europe. As a result fertility levels have become rather low in most European regions. In 55% of the regions the TFR is lower than 1.5 (Map 4). Only nine European NUTS2 regions have a TFR of 2 or higher.

TFRs are relatively high in northern regions, and in most regions of France, Ireland and the UK. Low levels of fertility can be observed in most southern, central and eastern regions.

Whereas the low level of fertility is the main cause of ageing, the rate of ageing is reinforced by the increase in life expectancy. In 23% of the European regions average life expectancy is 80 years or over (Map 5). In contrast, 15% of regions have a life expectancy lower than 75 years or younger. The latter regions can

mainly be found in eastern parts of Europe. High life expectancies can be found in both northern and southern regions.

To some extent positive net migration may compensate for the effects of low fertility and high life expectancy on ageing. In over 70% of all regions net migration has been positive (Map 6). Since 2000 net migration has been high in several southern regions, especially in south-eastern regions in Spain and northern regions in Italy. Moreover, Ireland has had high positive net migration. About one quarter of European regions has experienced negative net migration. This applies to many regions in eastern Europe, but several French regions have had negative net migration as well. Furthermore, negative net migration has occurred in southern regions of Italy and northern regions of Norway, Sweden and Finland.

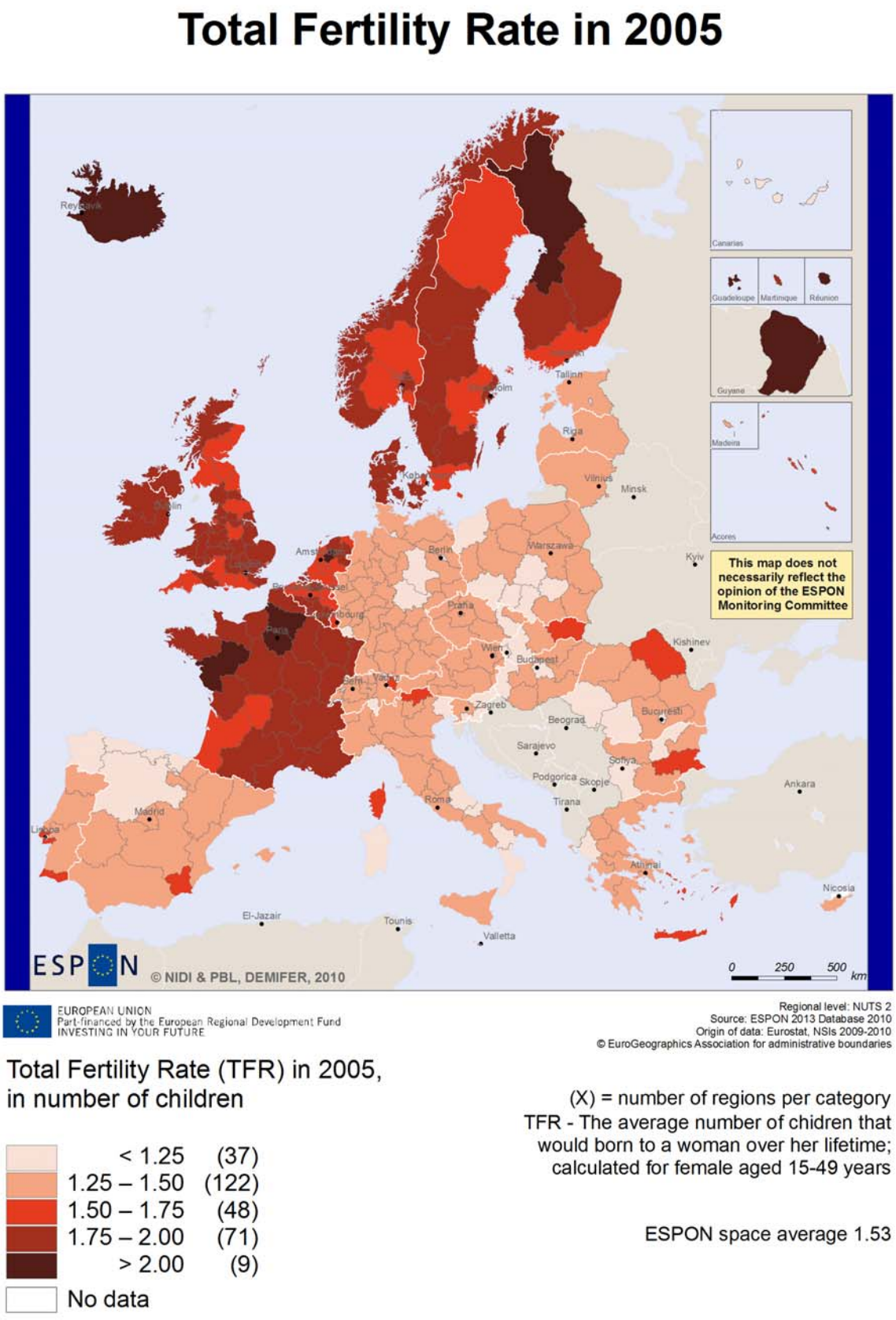
Based on recent data and DEMIFER estimates Map 7 shows the pattern of net internal migration. Most regions with a positive overall net migration balance have had net positive internal migration. However, in several regions in Spain negative internal migration has been compensated for by high international migration.

4.4.3 Population growth

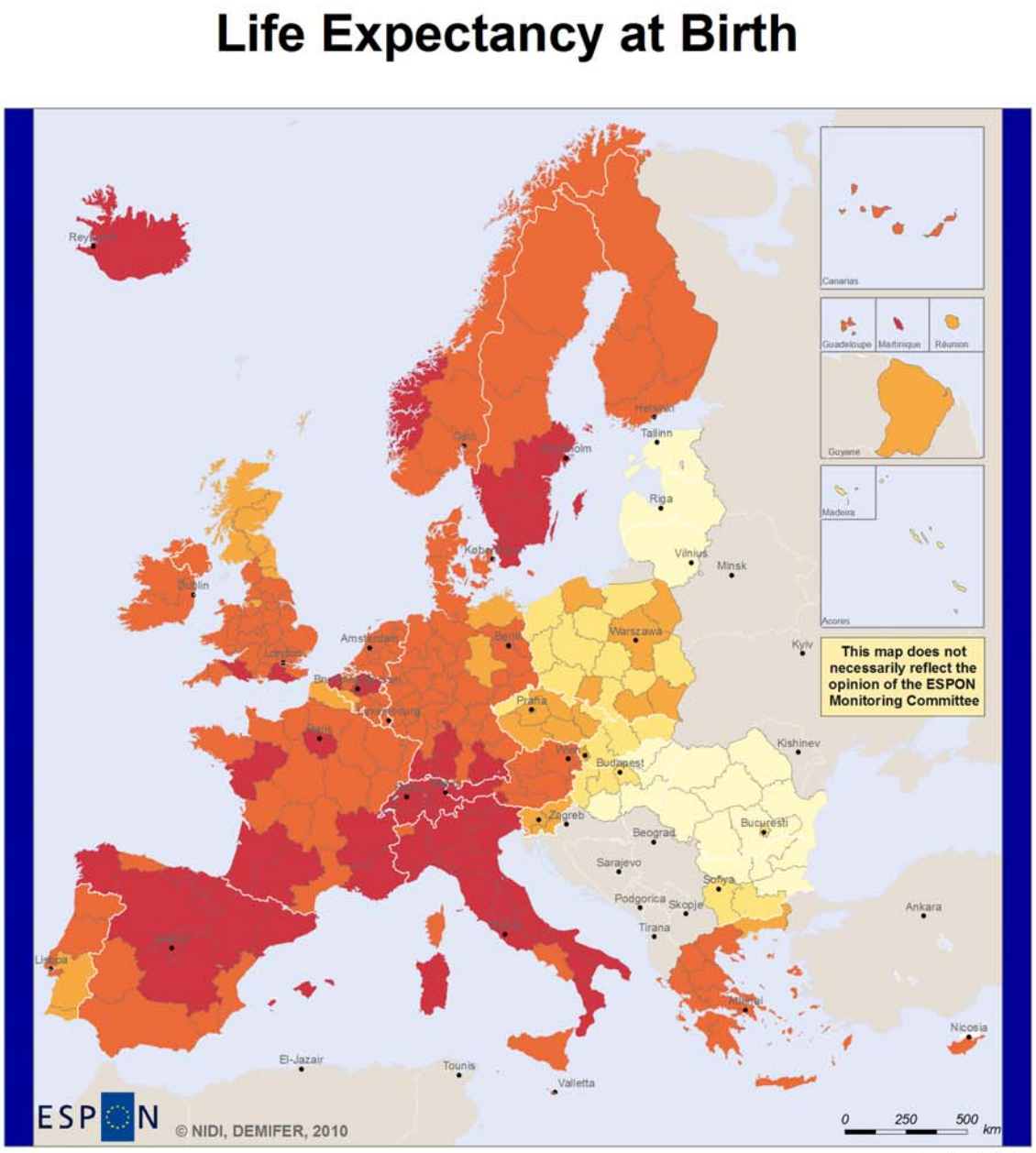
Since 2000 most European regions have experienced low population growth. The low levels of fertility have only partly been compensated for by an increase in net international migration, particularly in western and southern parts of Europe. In slightly more than one quarter of the regions annual average population growth has been negative, whereas in almost 40% of the regions population growth has been positive but below 0.5 percent per year (Map 8). Only one in eight regions has had a population growth above 1%. Population growth has been relatively high in several northern and southern regions. In the north-western part of Europe population growth has been high in Iceland, Ireland, and northern regions in Scotland. In the southern part of Europe population growth has been relatively high in south-eastern regions of Spain, several southern regions in France, northern regions of Italy, and Cyprus. In addition there are some scattered regions with high population growth in Switzerland, the Netherlands, Norway and Luxembourg.

Population has been declining in north-eastern and eastern European regions as well as several regions in central parts of Europe and some scattered regions in western parts. In the north-eastern part population has been declining in several northern regions in Norway and Sweden and one eastern region in Finland. In the eastern part of Europe population has been declining in the majority of regions. However, in Poland some regions have had moderate positive population growth. Furthermore there has been population decline in a number of eastern German regions. In the other parts of Europe there are several scattered regions that have experienced negative population growth, e.g. some regions in England and Wales, and several regions in Greece. Furthermore individual regions in Portugal, Spain, France, Belgium, the Netherlands and Denmark have had population decline.

Map 4 Total fertility rate (TFR), NUTS2 regions, 2005



Map 5 Life expectancy at birth (e_0), NUTS2 regions, average 2002-2004



EUROPEAN UNION
Part-financed by the European Regional Development Fund
INVESTING IN YOUR FUTURE

Regional level: NUTS 2
Source: ESPON 2013 Database 2010
Origin of data: Eurostat, NSIs 2009-2010
© EuroGeographics Association for administrative boundaries

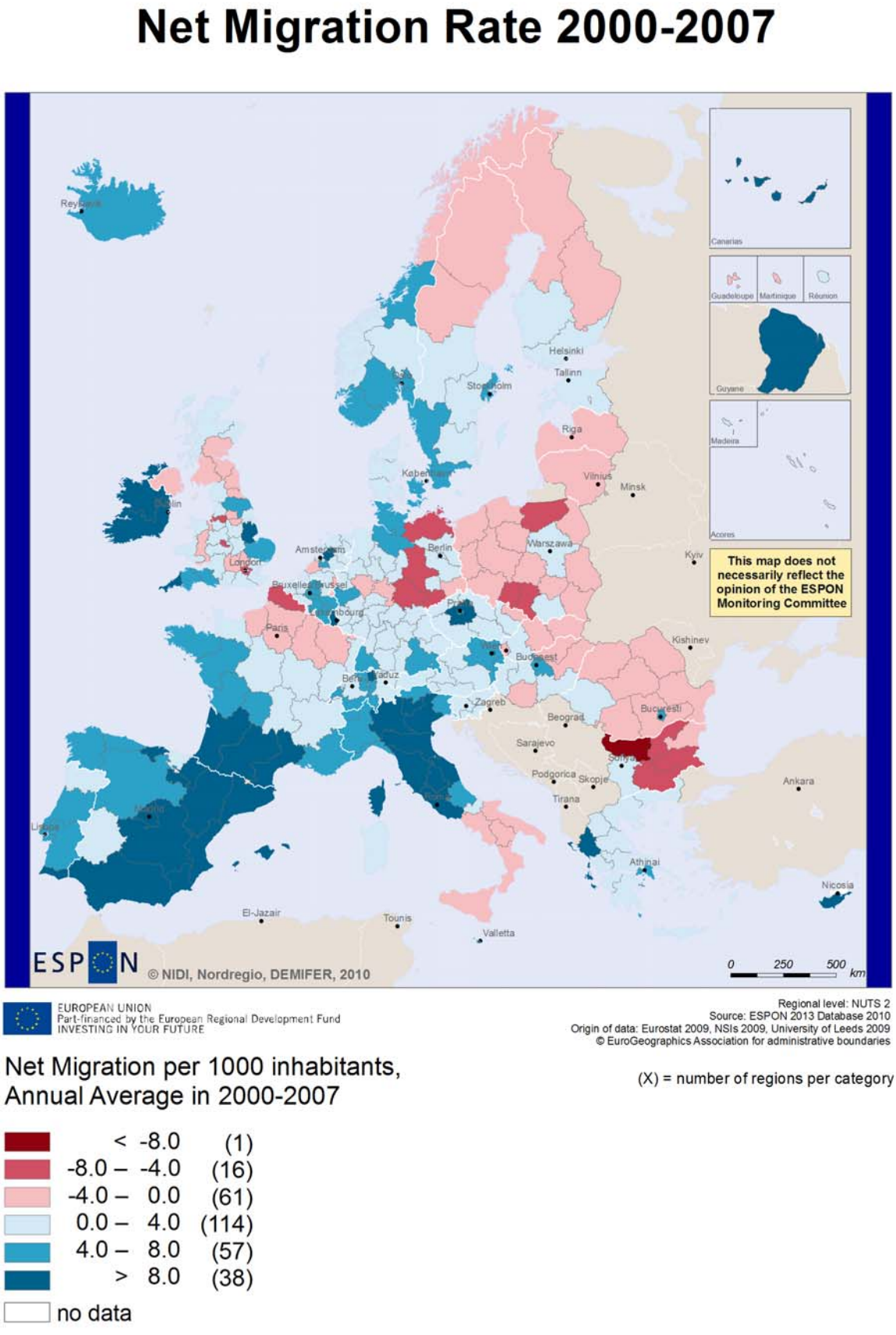
Life Expectancy at Birth
2002-2004 Average in Years

- 70.8 – 72.5 (20)
- 72.5 – 75.0 (23)
- 75.0 – 77.5 (32)
- 77.5 – 80.0 (146)
- 80.0 – 82.4 (66)
- No data

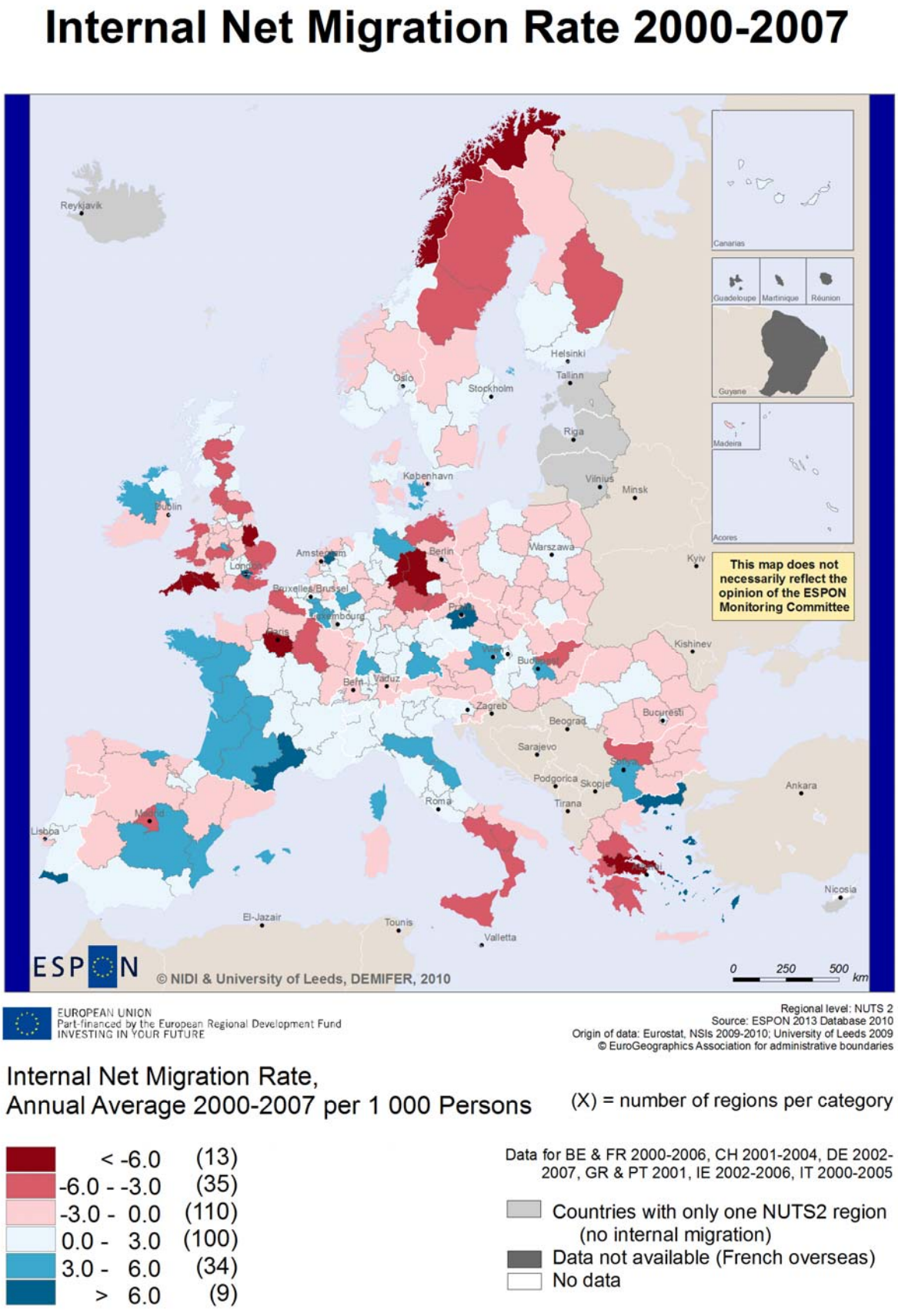
(X) = number of regions per category
Data for BG (avg. 2003-2005), RO (avg. 2006-2007)

ESPON space average 77.9

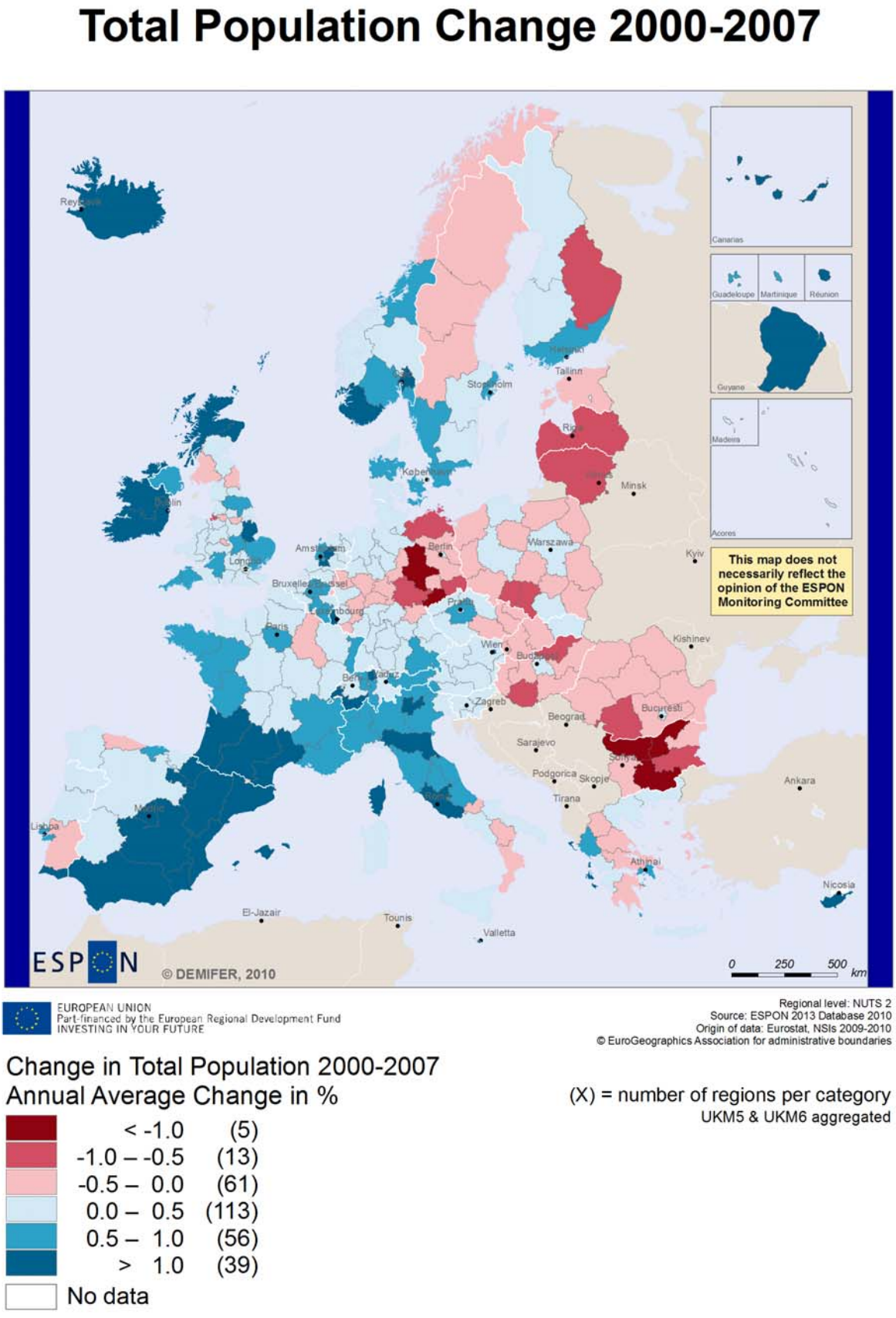
Map 6 Annual net migration per 1000 inhabitants, NUTS2 regions, average 2000-2006



Map 7 Annual net internal migration per 1000 inhabitants, NUTS2 regions, average 2000-2007



Map 8 Annual population growth rate, NUTS2 regions, average 2000-2007



In 20% of the regions total population growth has been positive, but natural growth has been negative. In those regions population growth would have declined without migration. This has been the case in western regions of Germany, eastern regions in Austria, northern regions in Italy, and scattered regions in Spain, Greece and the United Kingdom.

In very broad lines the picture could be summarised as follows: population growth has been relatively high in several western and southern regions, and negative in several northern and eastern regions. In most other regions population growth has been moderate.

4.4.4 Population ageing

Whereas fertility has reached low levels in most regions, life expectancy has risen strongly in northern, western and southern regions. As a result, population has been ageing in those regions. Even though the development of life expectancy in many eastern regions has not been that favourable, population has been ageing in those regions as well due to very low fertility levels together with negative net international migration.

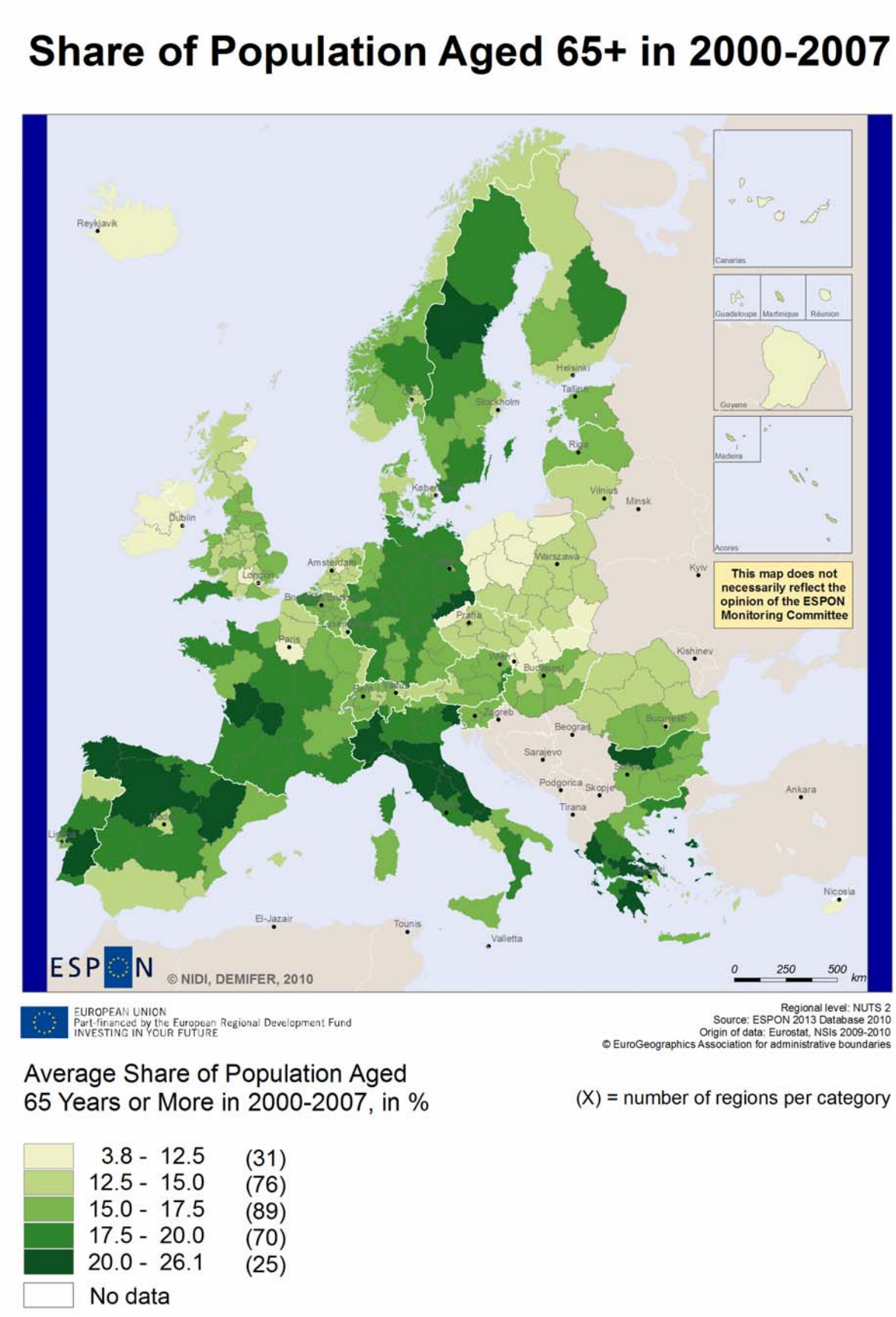
In 9% of the European regions more than one fifth of the population is aged 65 or over (Map 9). In 55% of the regions the percentage of the population aged 65 or over ranges between 15 and 20%. The percentage of people aged 65 or over is high in several northern regions (mainly in Sweden), in central regions (mainly Germany) and in southern regions (several northern regions in Italy and Spain). The rate of ageing is relatively low in Poland, Ireland and Iceland.

Ageing will have many effects on European societies. Three main affects are the increase in costs of retirement schemes, the slowing down of the growth of the working age population and the increase in the demand of health care and long term care due to the increase in the number of the oldest old. At the national level the increase in the number of people receiving retirement benefits compared with the size of the working age population will be one main challenge for policy makers. Since the financing of retirement schemes is usually organised at the national rather than the regional level, these problems are not so much the object of regional policies.

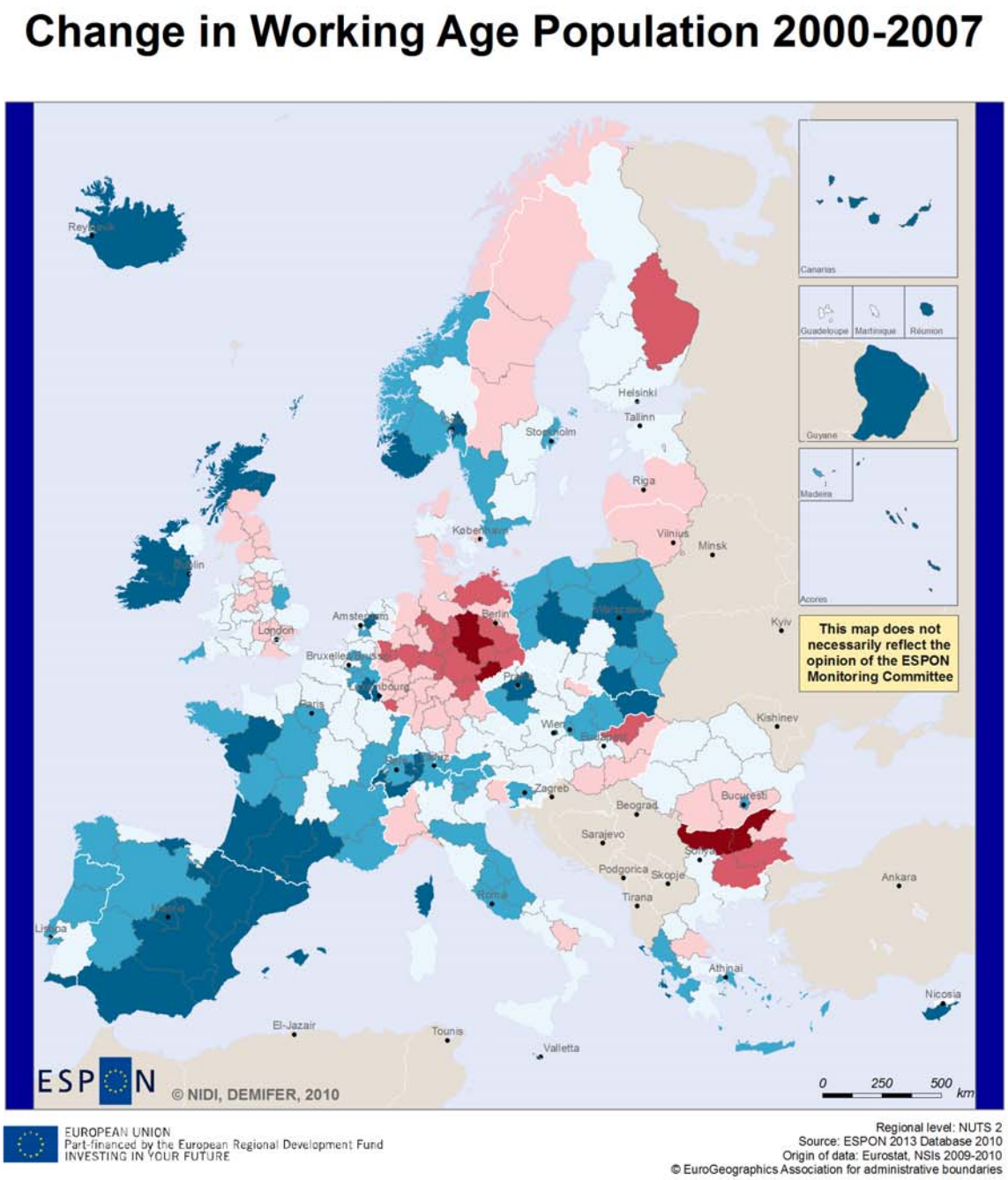
At the regional level ageing may ask for policy interventions because of the decline in the growth of the working age population on the one hand and the increase in the demand of long-term care and health care due to the increase in the number of the oldest old on the other. Since long-term and health care tend to be labour intensive and are strongly related to the area where the oldest old are living, the combined effect of an increase in the number of oldest old and the decrease in the working age population are likely to lead to shortages of labour at the regional level. Thus the growth rate of the working age population and the growth of the number of oldest old are important indicators of ageing at the regional level.

In more than one quarter of the European NUTS2 regions the working age population has been declining since 2000 (Map 10). In one third of the regions the growth of the working age population has been positive, but very moderate, i.e. below 0.5%. Thus in more than one half of European regions the growth rate of the working age population has not contributed much to economic growth.

Map 9 Percentage of population aged 65+, NUTS2 regions, average 2000-2007



Map 10 Annual working age population growth rate, NUTS2 regions, average 2000-2007



Only 16% of the European regions has experienced annual growth of the working age population of higher than 1%. Since 2000 the size of the working age population has been declining in most regions in Germany, in the eastern regions more strongly than in the western regions. Furthermore, the working age population has been declining in northern regions in Norway and Sweden and in one eastern region in Finland and in the Baltic States.

In the eastern part of Europe, several Slovak, Romanian and Bulgarian regions have witnessed a decline in the working age population. In contrast in most Polish regions there has been a moderate growth of the working age population. Growth rates above 1% have been observed in the eastern part of Spain and several southern regions of France as well as in several regions in Ireland, the UK, and Iceland.

The demand of health care and long-term care increases sharply above age 75. For assessing the effect of ageing on the increase in the demand of care the rise in the number of persons aged 75 or over is a better indicator than the number of people aged 65 or over. Since 2000 the number of people aged 75 or over has risen in almost all European regions. In 36% of the regions the annual average growth has been 3% or higher (Map 11). In only 1% of the regions there has been a decline in the number of oldest old persons. High rates of increase in the number of oldest old are not concentrated in specific geographical areas. Regions with high growth rates can be found in eastern parts of Europe (e.g. northern regions in Finland and in the Baltic states), in southern parts (e.g. several regions in Italy and Spain), in central parts (e.g. Austria and Switzerland) and in western parts (e.g. western regions in France and northern regions of Scotland).

4.5 Demographic differences across NUTS3 regions

NUTS3 regions are a further specification of NUTS2 regions. On average, one NUTS2 region consists of almost five NUTS3 regions. Depending on the level of analysis, the kind of research, the kind of policy goals, etc., one may choose for NUTS3 regions rather than for NUTS2 regions or vice versa.

4.5.1 Population growth

In the 1990s, according to the growth typology presented by the ESPON 1.1.4 project, 433 of the 1350 NUTS3 regions (32%) had a positive population growth due to both positive natural increase and positive net migration (Table 20).

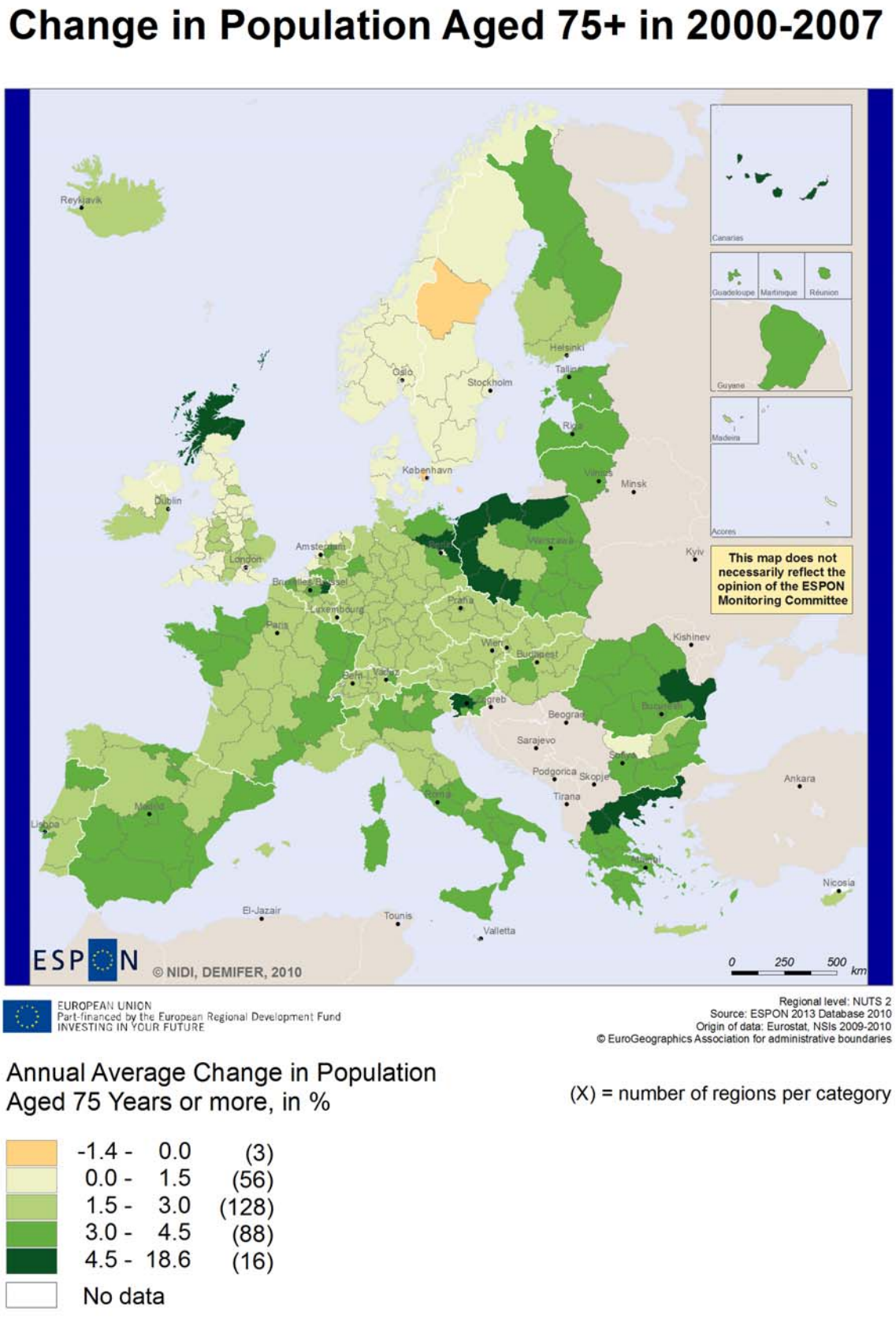
Table 20 Type of population growth of NUTS3 regions (%)

Type	Population growth	Natural increase	Net migration	1990-1999*	2000-2006*
1	+	+	+	32	25
2	+	-	+	23	26
3	+	+	-	5	5
4	-	-	-	15	21
5	-	-	+	9	12
6	-	+	-	8	5
Unknown				7	5
Total				100	100

* Or part of this period.

NB. NUTS3 regions in 27 EU countries and 4 EFTA countries.

Map 11 Percentage of population aged 75+, NUTS2 regions, average 2000-2007



In the period since 2000 the number of NUTS3 regions with population growth dropped to 344 (25%). On the other hand, the percentage of NUTS3 regions with population decline due to both more deaths than births and more out-migration than in-migration (type 4) went up from 15 to 21%. The most frequent type was number 1 in the 1990s and has become number 2 since 2000, i.e. a positive population growth caused by positive net migration that compensated the excess of deaths over births.

Compared to the similar results for NUTS2 regions (see Table 16) there are significant differences. For example, type 1 is better represented by NUTS2 regions (41% for the 1990s and 37% for the 2000s) than by NUTS3 regions (32% and 25% respectively). Hence, conclusions on regional population growth are dependent on the chosen regional distribution. By way of illustration, Table 21 shows the differences for the two NUTS levels for Austria. Most remarkable in the Austrian case is NUTS2 region Steiermark. This region with growth type 1 in the 1990s and type 2 in the 2000s consists of six NUTS3 regions with various types of growth, even negative ones.

Table 21 Type of growth of NUTS2 and NUTS3 regions, Austria

	1990s							2000s						
	NUTS2	NUTS3 type						NUTS2	NUTS3 type					
	type	1	2	3	4	5	6	type	1	2	3	4	5	6
NUTS2	number NUTS3 regions							number NUTS3 regions						
Burgenland	2		2			1		2		1		2		
Niederösterreich	2		6	1				2	1	4		2		
Wien	2		1					2		1				
Kärnten	1	2		1				5		1		1		1
Steiermark	1	1	2	2			1	2	1	3		2		
Oberösterreich	1	4		1				1	4		1			
Salzburg	1	3						1	2					1
Tirol	1	4		1				1	3					2
Vorarlberg	1	2						1	2					

More details on the type of population growth are presented in Table 22. Again, it appears that the most remarkable shifts took place in Germany: the percentage of NUTS3 regions with population growth went down from 73% in the 1990s to 41% in the period since the beginning of this century. Germany also fully accounts for the rise of number of regions with type 4 (negative growth due to an excess of deaths over births and more out-migration than in-migration).

A specified picture of the changes in population growth type of German NUTS3 regions is shown in Table 23. Going from the 1990s to the 2000s 40% of all regions has kept the same type population growth type. In 103 regions positive natural increase has changed into negative while the opposite applied to only 5 regions. The number of regions where population decline turned in population growth is very small (15). Net migration went from plus to minus in 127 regions and from minus to plus in 12 regions. For two regions type 4 (double negative) has been replaced by type 1 (double positive: München and Potsdam).

Other trends are visible in Spain and Italy (see also Tables 24 and 25). The percentage of regions with population growth increased from 44 to 71% in Spain and from 50 to 76% in Italy. Especially an increase in the migration from abroad has been the main cause of these trends.

Table 22 Type of population growth of NUTS3 regions per country

	1		2		3		4		5		6		Unknown		Total
	90-99*	00-06*	90-99*	00-06*	90-99*	00-06*	90-99*	00-06*	90-99*	00-06*	90-99*	00-06*	90-99*	00-06*	
AT	16	13	11	10	6	1		7	1		1	4			35
BE	26	27	9	14	3		2			1	3	1			43
BG			2	2			17	23	9	3					28
CH		17		3		2		1		2		1	26		26
CY	1	1													1
CZ	1		4	5			1	4	8	5					14
DE	165	57	150	117		3	75	168	32	70	1	8	6	6	429
DK	8	5	2	1		3	1			1		1			11
EE							5			5					5
ES	14	24	9	16	3	2	14		4	7	5		10	10	59
FI	7	8		1	4	1	3	7		1	6	2			20
FR	38	42	16	25	25	25	4		7	4	10	4			100
GR	14	15	28	14		1	9	4		17					51
HU	1		5	3			1	10	13	7					20
IE	8	8													8
IS	1	2									1				2
IT	15	24	31	56	7	1	7	6	25	7	22	13			107
LI		1											1		1
LT							2	9		1	8				10
LU	1	1													1
LV				1			6	4		1					6
MT		1		1									2		2
NL	32	24	1	2	2	8		1			5	5			40
NO	11	11	2	3	4	2					2	3			19
PL	2	1	1	1	5			6	4	2	6	12	48	44	66
PT	8	11	3	8	1		9	1	7	10	2				30
RO			1	6	1	3	24	22		7	16	4			42
SE	9	5	2	8	3		6	2		6	1				21
SI	1	3	2	5	2		4	3	1	1	2				12
SK	1		1	1	2	3		3	3	1	1				8
UK	53	43	31	44	5	15	16	8	7	9	19	12	2	2	133
Total	433	344	311	347	73	70	206	289	121	168	111	70	95	62	1 350

* Or part of this period.

Table 23 Change of type of population growth from the 1990s to the 2000s, NUTS3 regions of Germany

	To						
From	1	2	3	4	5	6	Total
1	52	56	3	35	12	7	165
2	2	49		52	46	1	150
3							
4	2	9		58	6		75
5		3		23	6		32
6	1						1
Total	57	117	3	168	70	8	423

NB. 2000s is for Germany 2003-2006. Unknown for 6 regions.

Table 24 Change of type of population growth from the 1990s to the 2000s, NUTS3 regions of Spain

	To						
From	1	2	3	4	5	6	Total
1	13		1				14
2	4	5					9
3	3						3
4	1	8			5		14
5		2			2		4
6	3	1	1				5
Total	24	16	2		7		49

NB. 2000s is for Spain 2000-2006. Unknown for 10 regions.

Table 25 Change of type of population growth from the 1990s to the 2000s, NUTS3 regions of Italy

	To						
From	1	2	3	4	5	6	Total
1	12	2			1		15
2	4	27					31
3	5		1			1	7
4	1	4			2		7
5		21			4		25
6	2	2		6		12	22
Total	24	56	1	6	7	13	107

NB. 2000s is for Italy 2000-2005, excluding 2002.

In Spain only two regions are left in the 2000s with a negative net migration: the exclaves Melilla and Ceuta. In Italy this number went down from 36 to 20. Most of these latter regions are located in the southern part. One of the most extreme changes, from type 1 to type 6, did not occur in both countries. The other one, from 4 to 1, happened once in Spain (Guipúzcoa) and once in Italy (Milano).

Finally, Table 22 shows that population growth is rare in NUTS3 regions of central and eastern European countries. For example, in Bulgaria this was only the case for two regions (7%).

4.5.2 Degree of urbanisation

Because generally more homogeneous regions are obtained the degree of urbanisation is determined for NUTS3 regions, opposite to NUTS2 regions. For this purpose the NUTS3 regions of the countries of the EU-27 are split up into three groups: predominantly urban, intermediate rural and predominantly rural. The changes of population growth type from the 1990s to the 2000s are presented in the tables 26-28.

For all types of urbanisation the percentage of regions with population growth has declined since the start of this millennium: for the urban regions from 70 to 66%, for the intermediate regions from 70 to 62% and for the rural regions from 53 to 46%. Hence, more than half of the rural NUTS3 regions are currently characterised by population losses.

As regards natural growth there is an overall increase of the percentage of regions with an excess of deaths over births. This increase is strongest for the rural regions (from 55 to 74%), followed by the intermediate regions (from 51 to 65%) and the urban regions (from 49 to 55%). Especially the rural regions appear to have suffered from decreasing numbers of births and/or increasing numbers of deaths.

It is remarkable that the percentage of regions with positive net migration has risen since the start of the 2000s for the rural regions (from 58 to 62%) whereas this percentage has declined for the intermediate regions (from 74 to 67%) and the urban regions (from 74 to 70%). This implies that, opposite to the level of natural increase, some convergence has occurred for the level of net migration.

Table 26 Change of type of population growth from the 1990s to the 2000s, predominantly urban regions (%)

	To						
From	1	2	3	4	5	6	Total
1	22	6	6	2	1	2	40
2	2	12	0	4	7	0	26
3	2		2			1	4
4	1	4		6	2	0	14
5		3		4	2		9
6	4	0	1		0	2	8
Total	31	26	9	17	12	5	100

Total number of regions 422, of which 12 unknown.

Table 27 Change of type of population growth from the 1990s to the 2000s, intermediate rural regions (%)

	To						
From	1	2	3	4	5	6	Total
1	21	7	1	3	2	1	36
2	1	17		5	4		28
3	3	0	3				6
4		2		9	2		13
5		4		4	2		10
6	1	0	0	2		3	7
Total	26	31	5	24	10	4	100

Total number of regions 470, of which 28 unknown.

Table 28 Change of type of population growth from the 1990s to the 2000s, predominantly rural regions (%)

	To						
From	1	2	3	4	5	6	Total
1	13	6	1	4	1	2	26
2	1	10	0	5	5		21
3	3	1	0	1		2	6
4		4		11	8		23
5		3		4	3		11
6	1	1	1	5		3	12
Total	18	26	2	30	18	7	100

Total number of regions 410, of which 28 unknown.

4.5.3 Demographic specificities of the cities

For demographic specificities of the cities reference is made to the interim report of the current ESPON project FOCI (Future Orientations for Cities; ESPON, 2009). Below some of the preliminary conclusions are summarized.

Cities demographic dynamics, especially when not considering the biggest ones, are very much in accordance with the regional and national trends in which they are embedded. However, cities in general, at least from beyond a certain level of the urban hierarchy, have a specific place in the migratory process. They attract young populations (students, young active and foreigner immigrants) and expulse older active (active adult's households with children, old active people, and young pensioners).

Depending on the level of the cities in the urban hierarchy and contextual factors, this process occurs at the different scales: major cities such as London or Paris and many other capital cities play this role at the national and growingly at

the international level (migration of wealthy pensioners to Spain for example); at a lower level, cities could play this role at the regional level; for the small cities, this process could be reduced to the suburbanization process which is of course also taking place in the bigger cities. As a result of these processes, metropolitan areas are younger than average and have a higher natural growth rate.

The official literature treats in a more marginal way major trends of the internal evolutions of the cities. On this aspect of intra-urban dynamics, the huge scientific literature is structured around two major paradigms, strongly related to the social and territorial cohesion: suburbanisation (Harvey, 1990; Donzelot, 2004) and gentrification (e.g. Smith, 2002; Lees *et al*., 2007; Van Criekingen, 2008).

The demographic results of the intra-urban migratory movements can be synthesized as follows:

- a younger population in centre of the cities, especially in the most central areas where a gentrification process has taken place;
- a higher share of active households with children in the suburban areas. These middle class populations are the most concerned by the urban sprawl process through suburbanization;
- poor immigrants, new comers as well as the second or third generation of ancient immigration, are concentrated in some specific areas of the cities. Two types of geographical structures can be observed regarding the location of immigrant in the cities: concentrations near to the centres (e.g. in Belgium, Germany and the United Kingdom) or in specific parts of the suburbs (France, Mediterranean countries).

Demographic trends will mainly be tackled as driving forces for the themes competitivity, social cohesion and environmental aspects. From the literature several hypotheses can be explored concerning theses impacts:

1. competitivity is for a part dependent on dependency ratio and activity rates;
2. social cohesion depends among others on three interrelated major demographic evolutions: the concentration of poor immigrants in the big cities where they generally occupy the low qualified segments of production (Sassen, 2001; Cox and Watt, 2002), the evolution of the household composition (Van Criekingen, 2008) and the gentrification process (e.g. Smith, 2002; Lees *et al*., 2007);
3. as far as sustainable development is concerned, demographic trends are of major importance: the population growth, the household (de)composition and the suburbanization process are factors producing urban sprawl.

5 Assessing the impact of migration, mortality and ageing on the working age population

5.1 Introduction

The size and age composition of the working age population, defined here as the 20-64 year old population, is determined by the inflow due to migration and age, and by the outflow due to migration, age and mortality. With age is meant here the inflow of people who celebrate their 20th birthday in a certain calendar year and the outflow of people who reach the age of 65 in that year. For the five-year period 1 January 2000 to 1 January 2005, the inflow corresponds with the persons 15-19 years old at the start of the period and the outflow with the persons 60-64 years old on that date.

For labour market dynamics, in addition to changes in the size of the working age population, the age structure is important as well. For that reason the 'young' part is distinguished, defined as 20-39, and the 'old' part defined as 40-64. In general, it is assumed that the younger working age population is more innovative. However, whether the younger working age population is also more productive than the older part is still an ongoing discussion. The changes in these populations during 1 January 2000 to 1 January 2005 can be described as follows:

$$\Delta P_{20\text{-}39} = \Delta P_{15\text{-}19,20\text{-}39} + M_{20\text{-}39} - D_{20\text{-}39} - \Delta P_{35\text{-}39,40\text{-}64}$$

and

$$\Delta P_{40\text{-}64} = \Delta P_{35\text{-}39,40\text{-}64} + M_{40\text{-}64} - D_{40\text{-}64} - \Delta P_{60\text{-}64,65+}$$

where

$\Delta P_{20\text{-}39}$ = change in 'young' working age population during 1-1-2000 to 1-1-2005

$\Delta P_{15\text{-}19,20\text{-}39}$ = number of persons that age from age group 15-19 into age group 20-39 during the time interval 1 January 2000 to 1 January 2005

$M_{20\text{-}39}$ = migration surplus of 20-39 year old during the time interval 1 January 2000 to 1 January 2005

$D_{20\text{-}39}$ = deaths of 20-39 year old during the time interval 1 January 2000 to 1 January 2005

$\Delta P_{35\text{-}39,40\text{-}64}$ = number of persons that age from age group 35-39 into age group 40-64 during the time interval 1 January 2000 to 1 January 2005

and

$\Delta P_{40\text{-}64}$ = change in 'old' working age population during 1-1-2000 to 1-1-2005

$M_{40\text{-}64}$ = migration surplus of 40-64 year old during the time interval 1 January 2000 to 1 January 2005

$D_{40\text{-}64}$ = deaths of 40-64 year old during the time interval 1 January 2000 to 1 January 2005

$\Delta P_{60\text{-}64,65+}$ = number of persons that age from age group 60-64 into age group 65+ during the time interval 1 January 2000 to 1 January 2005

From the (available) age structures on 1-1-2000 on the level of NUTS2 regions we can determine:

$\Delta P_{15\text{-}19,20\text{-}39}$, $\Delta P_{35\text{-}39,40\text{-}64}$ and $\Delta P_{60\text{-}64,65+}$

Together with the age structures on 1-1-2005 we can calculate:

$\Delta P_{20\text{-}39}$ and $\Delta P_{40\text{-}64}$

Mortality statistics by age on the NUTS2 level for the years 2000-2004 result in:

$D_{20\text{-}39}$ and $D_{40\text{-}64.}$

By rewriting the foregoing equations we can estimate the net migration (internal plus external) per NUTS2 region for the period 2000-2004:

$\Delta M_{20\text{-}39} = \Delta P_{20\text{-}39} - \Delta P_{15\text{-}19,20\text{-}39} + \Delta P_{35\text{-}39,40\text{-}64} + D_{20\text{-}39}$

and

$\Delta M_{40\text{-}64} = \Delta P_{40\text{-}64} - \Delta P_{35\text{-}39,40\text{-}64} + \Delta P_{60\text{-}64,65} + D_{40\text{-}64}$

After dividing all components by the size of the working age population on 1-1-2000 ($P_{x\text{-}y,2000}$) we get growth rates. The total growth rate of the working age population in a NUTS2 region (t) is then the result of an age effect (a), a mortality effect (d) and a migration effect (m):

$t = a+d+m$

$t_{20\text{-}39} = (\Delta P_{20\text{-}39}/P_{20\text{-}39,2000})*100$

$a_{20\text{-}39} = ((\Delta P_{15\text{-}19,20\text{-}39} - \Delta P_{35\text{-}39,40\text{-}64})/P_{20\text{-}39,2000})*100$

$d_{20\text{-}39} = (D_{20\text{-}39}/P_{20\text{-}39,2000})*100$

$m_{20\text{-}39} = (M_{20\text{-}39}/P_{20\text{-}39,2000})*100$

and similarly

$t_{40\text{-}64} = (\Delta P_{40\text{-}64}/P_{40\text{-}64,2000})*100$

$a_{40\text{-}64} = ((\Delta P_{35\text{-}39,40\text{-}64} - \Delta P_{60\text{-}64,65+})/P_{40\text{-}64,2000})*100$

$d_{20\text{-}39} = (D_{40\text{-}64}/P_{40\text{-}64,2000})*100$

$m_{20\text{-}39} = (M_{40\text{-}64}/P_{40\text{-}64,2000})*100$

5.2 Results

By way of illustration the changes in the working age population for the NUTS2 regions in Austria are considered during the years 2000-2004 (Figures 4-6).

In Austria as a whole as well as in all but one Austrian NUTS2 region the 'young' working age population decreased during the years 2000-2004 due to the age effect (i.e. more outflow of 35-39 than inflow of 15-19). The opposite is true for the 'old' working age population. NUTS2 region Wien differs from other regions through a positive growth of the young working age population. The strong negative age effect of Wien is more than compensated by the surplus of (internal and external) migration. This phenomenon occurs in similar regions in other countries as well, indicating the attractiveness of big cities (in this context NUTS2 regions encompassing big cities) for young migrants.

On balance the changes in the total working age population are modest for Austria. Hence, the picture of changes for the total group hides contrasting changes related to the age structure.[6]

It appears that the working age population in all Austrian NUTS2 regions increased between 1-1-2000 and 1-1-2005, primarily due to the age effect in five regions and primarily due to migration in the four other regions with a very obvious pattern for Wien. In contrast with other regions, ageing hardly affects the size of the working age population in Wien.

A summary of the changes in the working age population on the NUTS2 level is shown in Table 29. During the period 1-1-2000 to 1-1-2005 the total working age population increased in 207 regions, 111 due to the age effect and 96 due to migration. The age effect clearly dominates in the Czech Republic, France, Norway, Poland, Romania, Slovakia and the United Kingdom. Migration is much more important for the regions in Switzerland, Germany, Spain and Italy.

In only 69 regions the total working population shrunk, 26 primarily caused by mortality, 22 by the age effect and 21 by migration. Most of these regions are situated in Germany (30) and the United Kingdom (16). A remarkable difference between these countries is that in Germany the decrease by the age effect dominates and in the UK the decrease by migration.

In most of the countries (15) the working age population of all NUTS2 regions went up during the period 2000-2004. The opposite is true for the three Baltic States, which all consist of only one NUTS2 region. In the remaining countries there is a mixture of regions with a growing working age population and regions with a shrinking working age population. Apart from Germany and the UK, Denmark is worth mentioning (2 plus, 3 minus), Hungary (4 plus, 3 minus), Italy (17 plus, 4 minus), Romania (6 plus, 2 minus) and Sweden (5 plus, 3 minus). Especially in the case of the UK, internal migration contributed significantly to the split into positive and negative regions.

[6] This is confirmed by the increase in the median age, i.e. the age that splits the total working age population in two (one half being older and the other half younger). E.g. in Kärnten the median age rose from 40.6 to 42.2.

Figure 4 Austria: growth of the 'young' working age population (20-39) (%)

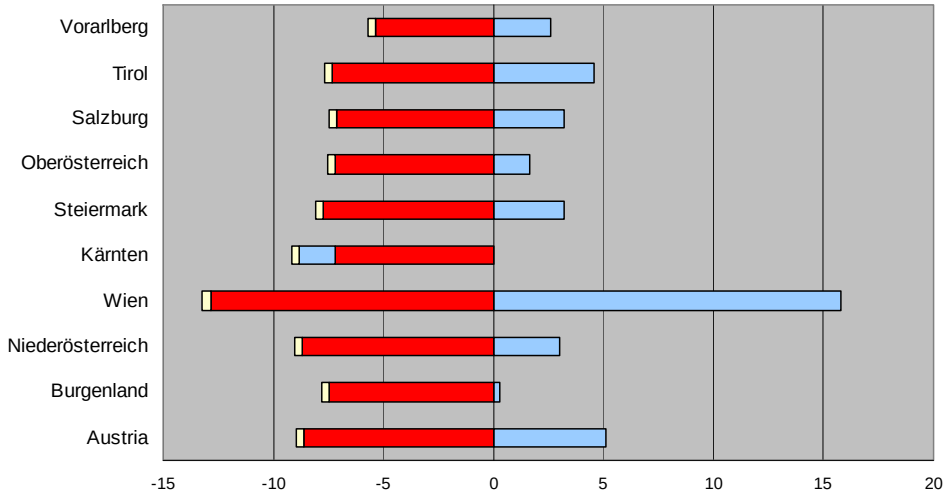


Figure 5 Austria: growth of the 'old' working age population (40-64) (%)

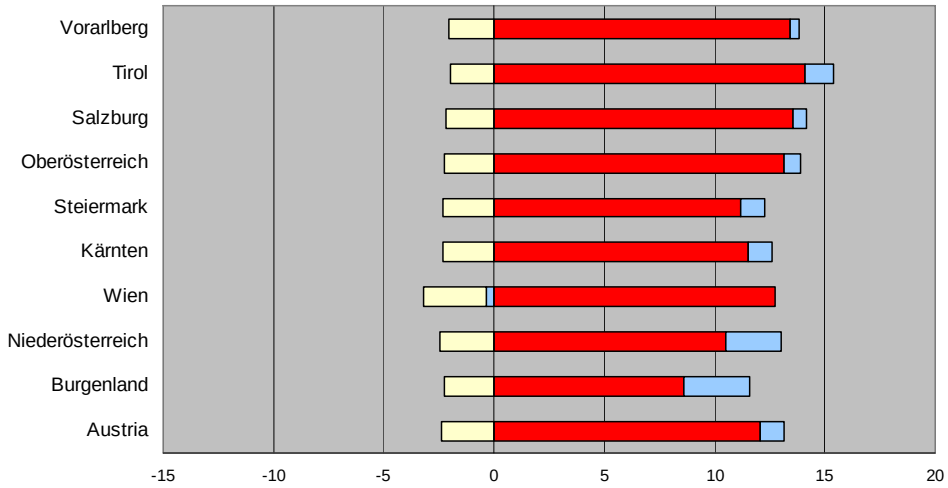
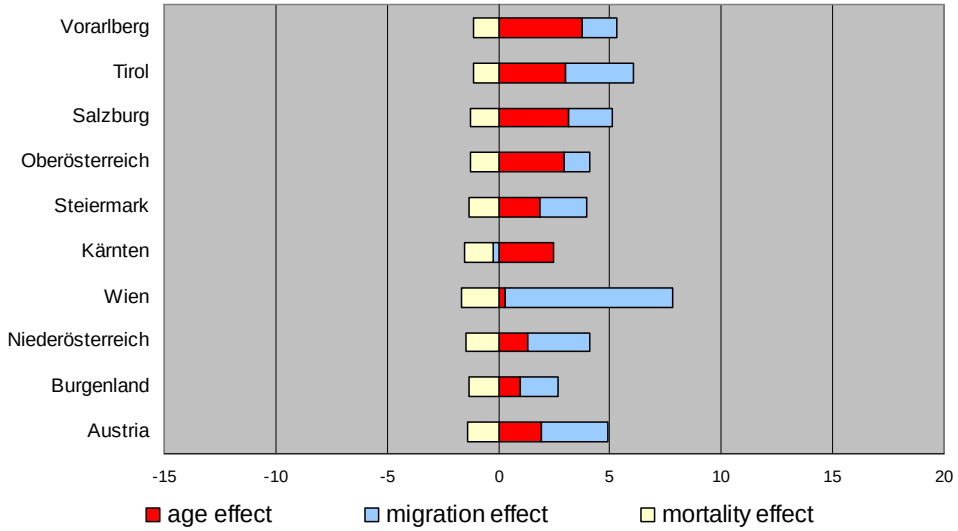


Figure 6 Austria: growth of the total working age population (20-64) (%)



Source: Eurostat; calculations by NIDI.

Table 29 Growth components of the working age population in NUTS2 regions, 2000-2004

	AT	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HU	IE	IS	IT	LI	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SK	UK	Total
Young - 20-39																															
Increase primarily due to age effect						4			1			1	3	4											14	2	7		4		40
Increase primarily due to migration	1	1	1	2	1	2				13		7	8	1	2	1	1					1	1	1		4	1	1		1	51
Decrease primarily due to mortality																					1										1
Decrease primarily due to age effect	8	10		5			33	5		4	3	9	2				19	1		1			11	5		1		3		31	151
Decrease primarily due to migration						2	4			2	2	9		2			1		1					1	2			4		3	33
Old - 40-64																															
Increase primarily due to age effect	9	11	1	7	1	8	33	5		18	5	24	6	1	2	1	16	1	1	1		1	12	7	16	4		8	4	32	235
Increase primarily due to migration										1		2	5				5									3				3	19
Decrease primarily due to mortality							4		1				2	6							1						8				22
Decrease primarily due to age effect																															
Decrease primarily due to migration																															
Total - 20-64																															
Increase primarily due to age effect	5	5	1	1		7		1		3	2	18	5	3	1	1	5						6	5	15	3	6	2	4	12	111
Increase primarily due to migration	4	6		6	1	1	7	1		16	2	8	7	1	1		12	1		1		1	5	1		4		3		7	96
Decrease primarily due to mortality							7	3	1				1	3					1		1		1				2	2		4	26
Decrease primarily due to age effect							19										3														22
Decrease primarily due to migration							4				1						1							1	1			1		12	21
Total number of regions	9	11	1	7	1	8	37	5	1	19	5	26	13	7	2	1	21	1	1	1	1	1	12	7	16	7	8	8	4	35	276

Source: Eurostat; calculations by NIDI.
NB The period is 2001-2005 for Denmark, and 2000-2003 for the United Kingdom.
No data available for Slovenia and Turkey.
Some NUTS2 regions are missing for Bulgaria (5), Germany (2) and the United Kingdom (2).

The young working age population decreased in two out of three NUTS2 regions the size of during the years 2000-2004. Most often this was caused by the age effect. Especially in many NUTS2 regions in western European countries this is the case (e.g. Austria, Belgium, Switzerland, Germany, Italy, the Netherlands, Norway, Sweden and the United Kingdom).

On the other hand, a growth of the young working age population due to the age effect can be observed for various NUTS2 regions in central and eastern European countries (Poland, Romania, Czech Republic, Hungary and Slovakia). Because of a different fertility history the inflow of 15-19 year old persons in these regions exceeds the outflow of 35-39 year old persons during the period 1-1-2000 to 1-1-2005.

Similar to the region Wien in Austria, other NUTS2 regions encompassing big cities show increasing young working age populations due to migration: for example, BE10 (Brussels), CH01 (with Genève), CH04 (Zürich), FR10 (with Paris), HU10 (with Budapest), NO01 (with Oslo), RO31 (Bucharest) and UKI1 (inner London). Several other NUTS2 regions where the young working age populations increased by migration can be found in Spain, France, Greece and Portugal.

Primarily due to the age effect, in most of the NUTS2 regions (235 of the 276) the old working age population increased during the years 2000-2004. In only a few cases (19) the growth was primarily caused by migration. Five of these 'exceptional' regions are situated in Greece and another five in Italy. A decrease was observed in 22 regions, all due to mortality. Romania (all 8), Hungary (6) and Germany (4) account for most of these regions. For the central and eastern European countries this reflects the higher risks on mortality compared to the western European countries.

Full details per country are given in the annex.

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7 Annex: Growth of population in working ages, 2000-2004, NUTS0 and NUTS2 (%)

Table 30 Growth of the working age population, NUTS0 and NUTS2, 2000-2004

		20-39				40-64				20-64			
		total	age	mor	mig	total	age	mor	mig	total	age	mor	mig
at	Austria	-3.9	-8.6	-0.4	5.1	10.7	12.1	-2.4	1.0	3.5	1.9	-1.4	3.0
at11	Burgenland (A)	-7.5	-7.5	-0.3	0.3	9.3	8.6	-2.3	3.0	1.3	1.0	-1.4	1.7
at12	Niederösterreich	-6.0	-8.7	-0.4	3.0	10.6	10.5	-2.5	2.5	2.6	1.3	-1.4	2.7
at13	Wien	2.6	-12.8	-0.4	15.8	9.5	12.8	-2.9	-0.3	6.1	0.3	-1.7	7.5
at21	Kärnten	-9.1	-7.2	-0.3	-1.6	10.3	11.5	-2.3	1.1	0.9	2.4	-1.3	-0.2
at22	Steiermark	-4.9	-7.7	-0.4	3.2	9.9	11.2	-2.3	1.1	2.6	1.9	-1.4	2.1
at31	Oberösterreich	-5.9	-7.2	-0.3	1.7	11.7	13.1	-2.2	0.7	2.8	2.9	-1.3	1.2
at32	Salzburg	-4.2	-7.1	-0.4	3.2	12.0	13.5	-2.2	0.6	3.8	3.2	-1.3	1.9
at33	Tirol	-3.1	-7.4	-0.3	4.6	13.4	14.1	-2.0	1.3	4.9	3.0	-1.1	3.0
at34	Vorarlberg	-3.0	-5.4	-0.3	2.6	11.8	13.4	-2.0	0.4	4.1	3.7	-1.2	1.6
be	Belgium	-3.8	-6.8	-0.4	3.4	7.4	8.9	-2.4	0.9	2.1	1.5	-1.5	2.1
be10	Brussels Hoofdstedelijk Gewest	6.4	-6.8	-0.4	13.6	6.7	11.5	-2.7	-2.1	6.5	1.9	-1.5	6.1
be21	Prov. Antwerpen	-4.3	-7.7	-0.3	3.7	7.3	8.5	-2.0	0.8	1.9	1.0	-1.2	2.2
be22	Prov. Limburg (B)	-6.1	-6.9	-0.4	1.2	9.9	10.1	-1.9	1.8	2.3	2.0	-1.2	1.5
be23	Prov. Oost-Vlaanderen	-5.0	-7.7	-0.4	3.1	6.3	8.1	-2.2	0.4	0.9	0.6	-1.4	1.7
be24	Prov. Vlaams Brabant	-5.4	-8.9	-0.3	3.8	7.5	9.3	-2.0	0.3	1.6	0.9	-1.2	1.9
be25	Prov. West-Vlaanderen	-7.1	-6.1	-0.4	-0.6	6.7	6.3	-2.2	2.6	0.3	0.6	-1.4	1.1
be31	Prov. Brabant Wallon	-2.5	-5.7	-0.5	3.6	8.9	10.1	-2.2	1.0	3.7	3.0	-1.4	2.2
be32	Prov. Hainaut	-5.0	-5.3	-0.5	0.9	6.6	9.2	-3.2	0.7	1.1	2.3	-2.0	0.8
be33	Prov. Liège	-4.3	-6.1	-0.5	2.3	7.0	8.5	-2.8	1.2	1.7	1.6	-1.7	1.7
be34	Prov. Luxembourg (B)	-2.2	-4.6	-0.5	3.0	10.9	11.1	-2.9	2.8	4.4	3.3	-1.7	2.9
be35	Prov. Namur	-3.2	-5.0	-0.6	2.4	9.5	9.8	-2.9	2.6	3.4	2.7	-1.8	2.5
bg	Bulgaria	-5.0	0.5	-0.6	-4.9	-1.8	3.8	-4.3	-1.3	-3.3	2.2	-2.5	-3.0
bg31	Severozapaden												
bg32	Severen tsentralen												
bg33	Severoiztochen												
bg34	Yugoiztochen												
bg41	Yugozapaden	1.9	-0.5	-0.6	2.9	0.2	4.5	-4.2	0.0	1.0	2.1	-2.5	1.4
bg42	Yuzhen tsentralen												
ch	Switzerland	-1.8	-9.3	-0.3	7.9	10.0	11.3	-1.8	0.5	4.4	1.5	-1.1	4.0
ch01	Région lémanique	0.1	-9.9	-0.3	10.3	10.9	11.5	-1.9	1.3	5.7	1.2	-1.1	5.6
ch02	Espace Mittelland	-3.7	-8.5	-0.3	5.2	9.3	10.9	-1.8	0.3	3.3	1.8	-1.1	2.6
ch03	Nordwestschweiz	-3.1	-9.7	-0.3	7.0	9.5	10.7	-1.8	0.5	3.6	1.2	-1.1	3.5
ch04	Zürich	2.7	-11.1	-0.3	14.2	8.5	10.3	-1.8	0.0	5.8	0.2	-1.1	6.7
ch05	Ostschweiz	-3.9	-7.7	-0.3	4.1	10.8	13.1	-1.8	-0.5	3.7	3.1	-1.1	1.7
ch06	Zentralschweiz	-2.7	-8.1	-0.3	5.7	14.0	14.3	-1.7	1.4	5.7	3.2	-1.0	3.6
ch07	Ticino	-4.3	-11.1	-0.4	7.2	8.2	7.4	-1.7	2.6	2.4	-1.3	-1.1	4.7
cy	Cyprus	13.5	2.0	-0.4	11.9	17.0	12.5	-1.9	6.3	15.2	7.2	-1.1	9.1
cz	Czech Republic	1.0	0.9	-0.4	0.5	3.5	6.4	-3.4	0.4	2.3	3.8	-2.0	0.5
cz01	Praha	4.6	-1.6	-0.4	6.6	0.8	5.9	-2.9	-2.1	2.5	2.5	-1.8	1.9
cz02	Strední Cechy	6.5	1.4	-0.4	5.5	5.9	5.4	-3.4	3.9	6.1	3.5	-2.0	4.7
cz03	Jihozápad	0.8	1.0	-0.4	0.2	4.0	6.1	-3.1	1.0	2.5	3.7	-1.8	0.6
cz04	Severozápad	0.0	1.6	-0.5	-1.1	3.1	6.4	-3.9	0.6	1.6	4.1	-2.2	-0.2
cz05	Severovýchod	0.5	1.8	-0.4	-0.9	3.5	6.0	-3.2	0.6	2.1	4.0	-1.8	-0.1
cz06	Jihovýchod	0.5	1.5	-0.4	-0.6	3.5	6.7	-3.1	-0.1	2.0	4.2	-1.8	-0.3
cz07	Strední Morava	-0.7	1.3	-0.4	-1.5	3.7	6.9	-3.4	0.3	1.6	4.1	-2.0	-0.6
cz08	Moravskoslezsko	-3.0	-0.2	-0.4	-2.4	3.8	8.0	-4.0	-0.3	0.5	4.0	-2.2	-1.3
de	Germany	-8.3	-10.5	-0.3	2.6	4.1	5.9	-2.4	0.6	-1.7	-1.7	-1.4	1.5
de11	Stuttgart	-6.2	-10.9	-0.3	5.0	5.2	6.7	-2.0	0.4	-0.2	-1.7	-1.2	2.6
de12	Karlsruhe	-7.5	-12.5	-0.3	5.3	6.3	7.6	-2.2	0.9	-0.2	-2.0	-1.3	3.0
de13	Freiburg	-6.8	-10.8	-0.3	4.3	7.8	7.8	-2.1	2.1	0.8	-1.2	-1.2	3.2
de14	Tübingen	-7.0	-9.8	-0.3	3.1	8.0	8.5	-1.9	1.5	0.7	-0.4	-1.1	2.2
de21	Oberbayern	-2.2	-13.0	-0.3	11.1	6.1	7.0	-2.1	1.2	2.2	-2.4	-1.3	5.8
de22	Niederbayern	-7.9	-9.9	-0.3	2.4	9.4	8.7	-2.3	3.0	1.1	-0.3	-1.3	2.7
de23	Oberpfalz	-8.3	-10.6	-0.3	2.7	8.0	8.6	-2.4	1.8	0.1	-0.7	-1.4	2.2
de24	Oberfranken	-11.1	-10.6	-0.3	-0.1	4.7	6.0	-2.5	1.3	-2.7	-1.8	-1.5	0.6
de25	Mittelfranken	-7.6	-12.0	-0.3	4.7	5.6	6.8	-2.4	1.2	-0.6	-2.0	-1.4	2.9
de26	Unterfranken	-9.1	-10.3	-0.3	1.5	6.8	7.8	-2.1	1.1	-0.8	-0.9	-1.2	1.3
de27	Schwaben	-7.0	-10.1	-0.3	3.4	7.4	7.2	-2.2	2.4	0.6	-1.0	-1.3	2.9

Table 30 continued

		20-39				40-64				20-64			
		total	age	mor	mig	total	age	mor	mig	total	age	mor	mig
de30	Berlin	-5.7	-12.9	-0.3	7.6	3.2	8.6	-2.6	-2.8	-1.1	-1.7	-1.5	2.2
de41	Brandenburg - Nordost												
de42	Brandenburg - Südwest												
de50	Bremen	-4.2	-10.8	-0.4	6.9	-0.3	2.8	-2.9	-0.2	-2.1	-3.4	-1.8	3.1
de60	Hamburg	-1.4	-13.7	-0.3	12.6	2.0	7.1	-2.6	-2.5	0.3	-3.2	-1.5	5.0
de71	Darmstadt	-7.2	-13.7	-0.3	6.8	4.3	7.3	-2.2	-0.9	-1.1	-2.5	-1.3	2.7
de72	Gießen	-10.8	-11.3	-0.3	0.9	6.8	8.6	-2.3	0.5	-1.8	-1.1	-1.3	0.7
de73	Kassel	-10.3	-9.5	-0.3	-0.4	3.1	4.5	-2.4	0.9	-3.1	-1.9	-1.4	0.3
de80	Mecklenburg-Vorpommern	-13.8	-4.7	-0.4	-8.7	3.1	5.9	-2.8	0.1	-4.5	1.1	-1.7	-3.9
de91	Braunschweig	-10.0	-11.2	-0.3	1.5	2.6	4.5	-2.5	0.5	-3.2	-2.8	-1.5	1.0
de92	Hannover	-8.7	-12.0	-0.3	3.6	2.8	4.2	-2.5	1.1	-2.5	-3.3	-1.5	2.3
de93	Lüneburg	-9.0	-11.5	-0.3	2.9	5.6	5.0	-2.4	3.1	-1.0	-2.5	-1.5	3.0
de94	Weser-Ems	-8.2	-8.8	-0.3	1.0	7.4	6.9	-2.4	3.0	-0.1	-0.7	-1.4	2.0
dea1	Düsseldorf	-9.7	-12.5	-0.3	3.0	1.5	4.2	-2.6	-0.1	-3.5	-3.3	-1.5	1.3
dea2	Köln	-6.3	-12.9	-0.3	6.8	5.4	7.1	-2.3	0.5	-0.2	-2.3	-1.3	3.5
dea3	Münster	-9.5	-9.6	-0.3	0.4	5.7	7.2	-2.5	0.9	-1.6	-0.9	-1.4	0.7
dea4	Detmold	-7.7	-9.1	-0.3	1.7	4.6	5.9	-2.3	1.1	-1.3	-1.3	-1.3	1.4
dea5	Arnsberg	-9.9	-10.3	-0.3	0.6	2.0	4.6	-2.5	-0.1	-3.5	-2.3	-1.5	0.2
deb1	Koblenz	-9.3	-10.3	-0.3	1.3	5.0	5.1	-2.3	2.3	-1.5	-1.9	-1.4	1.8
deb2	Trier	-8.7	-9.5	-0.3	1.2	6.0	6.4	-2.3	1.9	-1.0	-1.2	-1.4	1.6
deb3	Rheinhessen-Pfalz	-9.2	-12.3	-0.3	3.4	5.5	6.8	-2.3	1.0	-1.3	-2.0	-1.4	2.1
dec0	Saarland	-11.5	-12.2	-0.3	1.0	1.8	3.8	-2.7	0.7	-4.1	-3.3	-1.6	0.8
ded1	Chemnitz	-12.0	-4.4	-0.3	-7.3	-2.3	1.0	-2.4	-0.9	-6.3	-1.3	-1.5	-3.5
ded2	Dresden	-9.0	-4.4	-0.3	-4.2	-0.7	2.6	-2.4	-1.0	-4.4	-0.5	-1.4	-2.4
ded3	Leipzig	-6.8	-7.0	-0.4	0.5	0.3	3.6	-2.5	-0.7	-2.9	-1.2	-1.6	-0.2
dee0	Sachsen-Anhalt	-14.5	-5.7	-0.4	-8.5	-1.0	3.3	-2.7	-1.5	-6.9	-0.6	-1.7	-4.5
def0	Schleswig-Holstein	-9.0	-11.7	-0.3	3.0	3.5	3.4	-2.5	2.6	-2.2	-3.5	-1.5	2.8
deg0	Thüringen	-10.8	-4.9	-0.3	-5.5	1.0	4.1	-2.4	-0.6	-4.2	0.1	-1.5	-2.8
dk	Denmark	-5.9	-8.8	-0.4	3.2	4.7	8.3	-2.8	-0.9	-0.2	0.4	-1.6	1.0
dk01	Hovedstaden	-5.0	-11.5	-0.4	6.8	4.2	10.5	-2.8	-3.6	-0.4	-0.6	-1.5	1.7
dk02	Sjælland	-6.5	-9.2	-0.4	3.1	4.7	6.0	-2.8	1.4	0.1	-0.3	-1.8	2.1
dk03	Syddanmark	-7.3	-7.1	-0.4	0.1	4.8	7.1	-2.8	0.4	-0.7	0.8	-1.7	0.3
dk04	Midtjylland	-4.8	-7.0	-0.4	2.6	5.5	8.8	-2.8	-0.6	0.6	1.4	-1.6	0.9
dk05	Nordjylland	-7.8	-6.6	-0.4	-0.9	4.5	7.2	-2.8	0.0	-1.0	1.0	-1.7	-0.4
ee	Estonia	0.7	1.6	-1.0	0.1	-1.3	3.5	-5.4	0.6	-0.4	2.6	-3.4	0.4
es	Spain	7.2	-3.5	-0.4	11.1	13.7	10.0	-2.1	5.8	10.3	2.9	-1.2	8.5
es11	Galicia	1.9	-1.9	-0.4	4.3	5.3	5.1	-2.2	2.4	3.6	1.6	-1.3	3.3
es12	Principado de Asturias	-2.4	-5.3	-0.4	3.3	6.5	6.9	-2.2	1.8	2.2	1.0	-1.3	2.5
es13	Cantabria	2.9	-4.0	-0.4	7.2	11.5	9.9	-2.0	3.6	7.1	2.9	-1.2	5.4
es21	Pais Vasco	-4.5	-6.9	-0.4	2.7	8.3	9.0	-2.0	1.4	1.9	1.0	-1.2	2.0
es22	Comunidad Foral de Navarra	2.5	-6.1	-0.4	9.0	13.1	11.0	-1.8	3.9	7.6	2.1	-1.0	6.5
es23	La Rioja	11.7	-5.6	-0.4	17.6	15.1	9.4	-1.9	7.6	13.4	1.8	-1.1	12.6
es24	Aragón	2.3	-6.2	-0.4	8.9	10.1	8.1	-1.9	3.9	6.2	0.9	-1.1	6.4
es30	Comunidad de Madrid	11.3	-4.4	-0.4	16.1	17.6	11.3	-1.9	8.1	14.2	2.9	-1.1	12.4
es41	Castilla y León	-2.5	-5.2	-0.4	3.1	7.3	7.6	-1.9	1.6	2.4	1.2	-1.1	2.3
es42	Castilla-la Mancha	8.4	-3.8	-0.4	12.5	15.7	10.7	-1.8	6.9	11.8	2.9	-1.0	9.9
es43	Extremadura	-0.9	-2.5	-0.4	2.0	10.0	10.4	-2.1	1.8	4.2	3.5	-1.2	1.9
es51	Cataluña	8.8	-4.8	-0.4	14.0	13.3	8.9	-2.0	6.4	11.0	1.9	-1.2	10.3
es52	Comunidad Valenciana	15.8	-3.2	-0.4	19.4	16.8	9.2	-2.2	9.8	16.2	2.7	-1.3	14.8
es53	Illes Balears	17.7	-4.9	-0.4	22.9	23.1	12.8	-2.1	12.4	20.2	3.3	-1.2	18.1
es61	Andalucia	5.6	-0.6	-0.4	6.6	14.4	12.2	-2.2	4.4	9.6	5.2	-1.2	5.6
es62	Región de Murcia	15.5	-0.4	-0.4	16.3	20.4	12.5	-2.0	10.0	17.6	5.2	-1.1	13.5
es63	Ciudad Autónoma de Ceuta (ES)	-5.7	-1.0	-0.4	-4.3	12.9	17.0	-2.3	-1.8	2.2	6.6	-1.2	-3.3
es64	Ciudad Autónoma de Melilla (ES)	-2.3	0.4	-0.4	-2.3	16.7	18.7	-2.3	0.3	5.7	8.0	-1.2	-1.2
es70	Canarias (ES)	12.8	-3.3	-0.4	16.5	23.6	15.6	-2.5	10.5	17.5	4.9	-1.3	13.9
fi	Finland	-3.1	-3.6	-0.5	0.9	5.0	6.9	-2.5	0.5	1.4	2.3	-1.6	0.7
fi13	Itä-Suomi	-10.7	-1.2	-0.6	-9.0	2.5	4.5	-2.8	0.7	-2.8	2.3	-1.9	-3.1
fi18	Etelä-Suomi	-2.1	-6.3	-0.4	4.7	6.4	8.5	-2.5	0.4	2.6	1.8	-1.6	2.3
fi19	Länsi-Suomi	-1.7	-1.5	-0.4	0.3	3.7	5.1	-2.3	0.9	1.4	2.3	-1.5	0.6
fi1a	Pohjois-Suomi	-3.4	1.9	-0.5	-4.8	4.7	7.2	-2.5	0.0	1.1	4.9	-1.6	-2.1
fi20	Åland	-3.1	-4.9	-0.3	2.1	8.8	6.7	-1.8	3.9	3.6	1.7	-1.2	3.1

NB Denmark: 1 January 2001 - 1January 2005.

Table 30 continued

		20-39				40-64				20-64			
		total	age	mor	mig	total	age	mor	mig	total	age	mor	mig
fr	France	-0.9	-2.4	-0.4	1.9	8.3	9.4	-2.4	1.3	3.9	3.7	-1.4	1.6
fr10	Île de France	-0.3	-4.9	-0.4	5.0	6.5	13.5	-2.2	-4.8	3.0	4.1	-1.2	0.2
fr21	Champagne-Ardenne	-4.4	-0.6	-0.5	-3.4	4.9	8.8	-2.6	-1.3	0.4	4.3	-1.6	-2.3
fr22	Picardie	-3.1	-0.5	-0.5	-2.1	7.1	10.7	-2.8	-0.8	2.2	5.3	-1.7	-1.4
fr23	Haute-Normandie	-2.3	-0.1	-0.4	-1.7	6.8	10.1	-2.7	-0.6	2.4	5.2	-1.6	-1.1
fr24	Centre	-2.7	-2.0	-0.4	-0.3	6.9	7.4	-2.4	1.9	2.5	3.1	-1.5	0.9
fr25	Basse-Normandie	-3.7	-0.1	-0.4	-3.1	7.0	7.3	-2.5	2.1	2.0	3.8	-1.5	-0.3
fr26	Bourgogne	-4.1	-1.6	-0.5	-2.0	5.9	6.0	-2.5	2.4	1.4	2.6	-1.6	0.4
fr30	Nord - Pas-de-Calais	-1.2	2.2	-0.4	-3.1	5.8	10.6	-3.3	-1.5	2.3	6.4	-1.9	-2.3
fr41	Lorraine	-3.4	-1.8	-0.4	-1.1	6.1	8.8	-2.5	-0.3	1.5	3.7	-1.5	-0.7
fr42	Alsace	-1.7	-4.4	-0.3	3.0	9.7	11.3	-2.1	0.5	4.1	3.6	-1.3	1.8
fr43	Franche-Comté	-2.1	-0.5	-0.6	-0.9	6.5	8.2	-3.0	1.3	2.4	4.0	-1.9	0.2
fr51	Pays de la Loire	0.3	0.0	-0.4	0.8	9.8	8.4	-2.3	3.7	5.2	4.3	-1.4	2.3
fr52	Bretagne	-0.5	-1.2	-0.5	1.2	9.4	6.6	-2.7	5.5	4.8	2.9	-1.7	3.5
fr53	Poitou-Charentes	-1.6	-2.1	-0.5	0.9	8.6	5.6	-2.3	5.3	4.0	2.1	-1.5	3.3
fr61	Aquitaine	-0.4	-3.5	-0.4	3.6	10.6	6.9	-2.3	5.9	5.6	2.2	-1.4	4.8
fr62	Midi-Pyrénées	0.1	-5.0	-0.4	5.5	11.5	7.7	-2.0	5.8	6.1	1.8	-1.3	5.7
fr63	Limousin	-2.8	-4.1	-0.4	1.8	5.6	3.8	-2.5	4.3	1.9	0.3	-1.6	3.2
fr71	Rhône-Alpes	0.7	-2.3	-0.4	3.3	9.1	10.0	-2.1	1.2	5.0	4.0	-1.2	2.2
fr72	Auvergne	-3.6	-2.9	-0.4	-0.3	5.7	5.4	-2.5	2.8	1.5	1.7	-1.6	1.4
fr81	Languedoc-Roussillon	2.9	-2.6	-0.5	6.0	13.4	6.5	-2.4	9.3	8.5	2.3	-1.5	7.7
fr82	Provence-Alpes-Côte d'Azur	0.5	-3.7	-0.5	4.7	9.1	7.2	-2.3	4.2	5.2	2.2	-1.5	4.4
fr83	Corse	2.2	-5.6	-0.5	8.3	10.7	6.5	-2.3	6.5	6.9	1.1	-1.5	7.3
fr91	Guadeloupe (FR)	-8.5	-2.1	-0.6	-5.8	18.1	17.9	-2.6	2.8	3.8	7.2	-1.5	-1.8
fr92	Martinique (FR)	-9.9	-3.7	-0.5	-5.6	16.5	15.4	-2.1	3.2	2.8	5.4	-1.3	-1.4
fr93	Guyane (FR)	16.9	3.3	-1.0	14.7	26.0	29.6	-2.9	-0.7	20.5	13.7	-1.8	8.6
fr94	Reunion (FR)	1.1	1.9	-0.6	-0.3	21.8	23.3	-3.3	1.7	9.8	10.9	-1.7	0.6
gr	Greece	1.2	-1.1	-0.4	2.7	4.6	4.0	-2.0	2.6	2.9	1.5	-1.2	2.6
gr11	Anatoliki Makedonia, Thraki	4.3	2.8	-0.5	2.0	-1.7	-0.3	-2.3	1.0	1.2	1.2	-1.4	1.4
gr12	Kentriki Makedonia	1.2	-1.3	-0.4	2.8	3.3	2.7	-2.0	2.6	2.2	0.7	-1.2	2.7
gr13	Dytiki Makedonia	0.3	-0.3	-0.3	0.9	1.7	3.0	-1.9	0.7	1.0	1.4	-1.2	0.8
gr14	Thessalia	0.3	0.5	-0.4	0.2	-0.9	-0.1	-2.0	1.3	-0.4	0.2	-1.3	0.8
gr21	Ipeiros	7.3	3.7	-0.4	3.9	1.6	-0.8	-1.8	4.2	4.2	1.3	-1.2	4.1
gr22	Ionia Nisia	3.4	-4.1	-0.4	7.9	11.1	3.9	-1.8	8.9	7.4	0.1	-1.1	8.4
gr23	Dytiki Ellada	3.7	2.0	-0.3	2.1	5.4	4.0	-1.9	3.4	4.6	3.0	-1.1	2.7
gr24	Sterea Ellada	-0.8	-0.9	-0.4	0.5	2.6	1.5	-2.1	3.1	0.9	0.3	-1.3	1.8
gr25	Peloponnisos	-1.4	-2.0	-0.4	0.9	3.7	1.9	-1.8	3.6	1.2	0.0	-1.1	2.3
gr30	Attiki	0.1	-3.1	-0.4	3.6	7.5	6.8	-2.0	2.7	3.7	1.8	-1.2	3.1
gr41	Voreio Aigaio	6.9	5.1	-0.3	2.1	0.2	1.0	-1.9	1.1	3.5	3.0	-1.1	1.6
gr42	Notio Aigaio	2.1	-0.2	-0.3	2.6	8.1	8.4	-1.9	1.6	5.0	3.9	-1.1	2.1
gr43	Kriti	2.9	0.6	-0.4	2.6	5.3	6.0	-1.8	1.1	4.0	3.2	-1.0	1.9
hu	Hungary	2.4	2.1	-0.5	0.8	-1.3	2.8	-5.1	1.0	0.4	2.5	-3.0	0.9
hu10	Közép-Magyarország	6.3	1.7	-0.4	5.0	-2.6	1.8	-4.6	0.2	1.5	1.8	-2.7	2.4
hu21	Közép-Dunántúl	2.0	1.6	-0.5	0.9	-0.1	3.6	-5.1	1.4	0.9	2.7	-3.0	1.2
hu22	Nyugat-Dunántúl	3.6	2.6	-0.5	1.5	0.8	3.6	-4.7	1.9	2.1	3.1	-2.8	1.7
hu23	Dél-Dunántúl	-0.4	1.5	-0.5	-1.4	-1.0	3.0	-5.1	1.1	-0.8	2.3	-3.0	0.0
hu31	Észak-Magyarország	-1.4	1.9	-0.6	-2.7	-2.1	2.5	-5.5	0.9	-1.8	2.2	-3.3	-0.7
hu32	Észak-Alföld	0.6	3.1	-0.6	-2.0	0.0	4.4	-5.4	1.0	0.3	3.8	-3.1	-0.4
hu33	Dél-Alföld	1.1	2.5	-0.6	-0.9	-1.7	2.0	-5.0	1.3	-0.4	2.3	-3.0	0.3
ie	Ireland	14.6	4.6	-0.3	10.3	13.6	12.5	-2.3	3.4	14.1	8.3	-1.3	7.0
ie01	Border, Midlands and Western	21.0	8.0	-0.4	13.4	14.3	10.9	-2.6	5.9	17.6	9.5	-1.5	9.6
ie02	Southern and Eastern	12.6	3.6	-0.3	9.4	13.4	13.0	-2.2	0.3	13.0	8.0	-1.2	5.2
is	Iceland	0.8	0.4	-0.3	0.7	15.0	15.3	-1.7	1.4	7.6	7.5	-1.0	1.1
it	Italy	-3.4	-8.1	-0.3	5.0	6.0	5.9	-1.8	2.0	1.4	-0.9	-1.1	3.4
itc1	Piemonte	-4.2	-11.4	-0.3	7.5	3.0	2.5	-1.9	2.4	-0.3	-3.8	-1.2	4.7
itc2	Valle d'Aosta/Vallée d'Aoste	-6.0	-13.3	-0.3	7.6	6.7	6.4	-2.2	2.5	0.7	-3.0	-1.3	4.9
itc3	Liguria	-8.8	-14.2	-0.3	5.7	1.1	0.5	-1.9	2.5	-3.2	-5.9	-1.2	3.9
itc4	Lombardia	-2.6	-11.3	-0.3	9.0	5.9	5.3	-1.8	2.5	1.9	-2.6	-1.1	5.6
itd1	Provincia Autonoma Bolzano-Bozen	-4.5	-8.6	-0.3	4.4	10.9	11.4	-1.7	1.3	2.9	1.0	-1.0	2.9
itd2	Provincia Autonoma Trento	-2.6	-11.2	-0.2	8.8	10.9	8.7	-1.7	3.9	4.4	-0.9	-1.0	6.3
itd3	Veneto	-3.4	-11.4	-0.3	8.2	8.5	7.3	-1.8	2.9	2.7	-1.8	-1.0	5.5
itd4	Friuli-Venezia Giulia	-5.7	-12.7	-0.3	7.3	4.4	3.5	-2.0	2.9	-0.2	-3.9	-1.2	4.9
itd5	Emilia-Romagna	-1.2	-13.4	-0.3	12.4	6.3	3.9	-1.8	4.3	2.8	-4.2	-1.1	8.1

Table 30 continued

		20-39				40-64				20-64			
		total	age	mor	mig	total	age	mor	mig	total	age	mor	mig
ite1	Toscana	-3.4	-11.5	-0.3	8.4	4.5	2.9	-1.7	3.3	0.9	-3.7	-1.0	5.6
ite2	Umbria	1.0	-9.4	-0.3	10.6	5.6	2.8	-1.7	4.5	3.5	-2.8	-1.0	7.3
ite3	Marche	-0.5	-9.3	-0.2	9.1	5.8	3.7	-1.6	3.8	2.9	-2.5	-1.0	6.3
ite4	Lazio	-3.8	-9.5	-0.3	6.0	5.9	6.2	-1.9	1.5	1.2	-1.4	-1.1	3.7
itf1	Abruzzo	-1.1	-6.4	-0.3	5.6	6.9	5.2	-1.6	3.3	3.0	-0.4	-1.0	4.4
itf2	Molise	-3.9	-5.0	-0.3	1.5	4.6	5.1	-1.9	1.4	0.5	0.2	-1.1	1.4
itf3	Campania	-3.3	-1.6	-0.3	-1.4	7.9	10.2	-2.1	-0.1	2.0	4.0	-1.2	-0.8
itf4	Puglia	-3.6	-2.0	-0.3	-1.3	6.1	7.7	-1.7	0.2	1.2	2.7	-1.0	-0.6
itf5	Basilicata	-6.1	-3.6	-0.3	-2.2	4.9	6.7	-1.7	-0.1	-0.7	1.4	-1.0	-1.2
itf6	Calabria	-4.7	-1.5	-0.3	-2.9	5.6	8.0	-1.8	-0.6	0.3	3.1	-1.0	-1.8
itg1	Sicilia	-3.9	-2.4	-0.3	-1.2	5.8	7.6	-1.8	0.1	0.9	2.5	-1.0	-0.6
itg2	Sardegna	-5.3	-5.1	-0.4	0.2	8.2	8.9	-2.0	1.3	1.4	1.8	-1.2	0.7
li	Liechtenstein	-2.0	-8.0	-0.3	6.3	17.3	15.1	-2.2	4.4	7.8	3.7	-1.3	5.3
lt	Lithuania	-5.0	-1.9	-1.0	-2.1	4.0	9.1	-5.1	0.0	-0.5	3.6	-3.1	-1.0
lu	Luxembourg (Grand-Duché)	-0.9	-10.3	-0.4	9.8	10.4	12.1	-2.4	0.7	4.8	1.1	-1.4	5.2
lv	Latvia	-1.6	0.2	-1.1	-0.7	-1.6	4.0	-5.6	0.0	-1.6	2.2	-3.5	-0.3
mt	Malta	7.4	1.5	-0.4	6.2	11.3	7.5	-1.7	5.5	9.5	4.8	-1.1	5.8
nl	Netherlands	-6.2	-8.1	-0.3	2.3	9.5	11.7	-2.2	0.1	1.9	2.1	-1.3	1.1
nl11	Groningen	-4.1	-5.1	-0.3	1.3	8.2	10.0	-2.3	0.5	2.1	2.5	-1.3	0.9
nl12	Friesland (NL)	-4.7	-3.9	-0.3	-0.5	9.0	8.8	-2.1	2.3	2.6	2.9	-1.3	1.0
nl13	Drenthe	-8.1	-7.7	-0.3	0.0	9.1	8.3	-2.2	3.1	1.6	1.2	-1.4	1.7
nl21	Overijssel	-4.8	-5.1	-0.3	0.6	8.9	10.5	-2.3	0.7	2.2	2.8	-1.3	0.6
nl22	Gelderland	-7.3	-7.2	-0.3	0.2	9.6	10.9	-2.2	0.9	1.5	2.3	-1.3	0.6
nl23	Flevoland	7.6	-8.3	-0.3	16.2	26.8	21.8	-2.0	7.1	16.8	6.1	-1.1	11.8
nl31	Utrecht	-2.5	-8.4	-0.3	6.1	12.4	14.2	-2.1	0.2	4.7	2.7	-1.1	3.2
nl32	Noord-Holland	-6.3	-11.1	-0.3	5.0	10.8	13.8	-2.1	-0.9	2.3	1.4	-1.2	2.1
nl33	Zuid-Holland	-5.3	-7.6	-0.3	2.6	8.5	12.4	-2.2	-1.7	1.7	2.5	-1.2	0.5
nl34	Zeeland	-6.3	-5.6	-0.3	-0.5	8.7	7.4	-2.0	3.4	2.0	1.6	-1.3	1.7
nl41	Noord-Brabant	-8.2	-8.7	-0.3	0.8	8.7	10.9	-2.1	-0.1	0.7	1.6	-1.3	0.3
nl42	Limburg (NL)	-12.9	-10.4	-0.3	-2.1	6.5	9.1	-2.3	-0.2	-2.1	0.4	-1.4	-1.1
no	Norway	-2.3	-4.8	-0.4	2.9	9.3	10.8	-1.8	0.3	3.6	3.2	-1.1	1.6
no01	Oslo og Akershus	0.5	-10.2	-0.4	11.2	10.9	15.0	-1.8	-2.3	5.5	1.9	-1.1	4.7
no02	Hedmark og Oppland	-6.2	-3.8	-0.4	-1.9	6.9	6.9	-2.1	2.1	1.0	2.1	-1.3	0.3
no03	Sør-Østlandet	-3.1	-4.4	-0.4	1.7	9.0	8.5	-1.9	2.5	3.4	2.5	-1.2	2.1
no04	Agder og Rogaland	-0.3	-1.9	-0.4	2.0	11.5	12.2	-1.8	1.1	5.5	5.1	-1.1	1.5
no05	Vestlandet	-3.0	-1.8	-0.3	-0.8	8.6	10.2	-1.6	0.0	2.9	4.4	-1.0	-0.4
no06	Trøndelag	-1.4	-3.7	-0.3	2.6	9.1	10.3	-1.7	0.5	4.0	3.5	-1.0	1.5
no07	Nord-Norge	-7.5	-3.6	-0.4	-3.6	6.8	9.5	-1.9	-0.8	-0.1	3.2	-1.2	-2.1
pl	Poland	3.4	6.3	-0.5	-2.3	2.9	7.9	-3.7	-1.2	3.2	7.1	-2.2	-1.7
pl11	Lódzkie	2.4	5.1	-0.6	-2.1	1.4	6.1	-4.4	-0.3	1.8	5.6	-2.7	-1.1
pl12	Mazowieckie	9.9	5.8	-0.6	4.7	2.8	6.0	-3.7	0.5	6.1	5.9	-2.3	2.4
pl21	Malopolskie	6.0	5.8	-0.4	0.6	4.7	8.0	-3.2	-0.1	5.3	6.9	-1.8	0.3
pl22	Slaskie	0.1	4.2	-0.5	-3.6	0.2	7.6	-3.9	-3.5	0.1	6.0	-2.3	-3.6
pl31	Lubelskie	2.7	8.9	-0.6	-5.6	3.1	7.0	-3.8	-0.1	2.9	7.9	-2.3	-2.7
pl32	Podkarpackie	1.7	7.5	-0.4	-5.3	5.2	9.6	-3.2	-1.2	3.5	8.5	-1.8	-3.3
pl33	Swietokrzyskie	0.7	7.6	-0.5	-6.3	2.8	6.5	-3.5	-0.2	1.8	7.0	-2.1	-3.1
pl34	Podlaskie	1.3	6.1	-0.6	-4.2	5.0	9.1	-3.6	-0.6	3.2	7.6	-2.1	-2.3
pl41	Wielkopolskie	6.5	7.3	-0.5	-0.3	5.0	9.0	-3.7	-0.3	5.7	8.2	-2.1	-0.3
pl42	Zachodniopomorskie	1.1	6.9	-0.5	-5.3	3.0	8.7	-3.7	-2.0	2.1	7.8	-2.2	-3.5
pl43	Lubuskie	3.1	8.2	-0.6	-4.6	5.0	9.5	-3.7	-0.8	4.0	8.9	-2.2	-2.6
pl51	Dolnoslaskie	2.4	6.3	-0.6	-3.3	0.7	7.5	-3.7	-3.0	1.5	7.0	-2.3	-3.2
pl52	Opolskie	-2.1	3.0	-0.4	-4.7	1.3	8.5	-3.4	-3.8	-0.4	5.8	-1.9	-4.2
pl61	Kujawsko-Pomorskie	2.3	7.0	-0.5	-4.2	3.7	8.7	-3.8	-1.3	3.0	7.9	-2.2	-2.7
pl62	Warminsko-Mazurskie	-0.7	7.4	-0.6	-7.5	5.0	11.0	-3.8	-2.3	2.1	9.2	-2.2	-4.9
pl63	Pomorskie	4.7	6.8	-0.5	-1.6	3.8	8.5	-3.5	-1.3	4.2	7.7	-2.0	-1.4
pt	Portugal	1.7	-1.7	-0.6	3.9	7.7	6.5	-2.5	3.7	4.7	2.4	-1.6	3.8
pt11	Norte	-0.2	-1.4	-0.5	1.7	11.1	10.5	-2.4	3.0	5.2	4.3	-1.4	2.3
pt15	Algarve	8.8	-3.3	-0.8	12.8	13.9	5.0	-2.7	11.6	11.4	1.0	-1.8	12.2
pt16	Centro (PT)	2.0	-0.9	-0.5	3.5	6.7	3.9	-2.4	5.2	4.4	1.6	-1.5	4.3
pt17	Lisboa	3.6	-3.2	-0.7	7.4	4.5	4.3	-2.6	2.7	4.0	0.7	-1.7	4.9
pt18	Alentejo	0.5	-1.6	-0.6	2.8	2.0	0.8	-2.6	3.8	1.3	-0.3	-1.7	3.3
pt20	Região Autónoma dos Açores (PT)	3.2	3.3	-0.6	0.6	12.3	14.1	-3.7	1.8	7.3	8.1	-2.0	1.1
pt30	Região Autónoma da Madeira (PT)	0.6	1.2	-0.7	0.0	10.6	13.8	-4.1	1.0	4.9	6.7	-2.2	0.4

Table 30 end

		20-39				40-64				20-64			
		total	age	mor	mig	total	age	mor	mig	total	age	mor	mig
ro	Romania	4.6	5.4	-0.6	-0.2	-3.1	0.9	-4.6	0.6	0.7	3.1	-2.7	0.2
ro11	Nord-Vest	4.7	5.2	-0.6	0.1	-1.8	2.9	-5.2	0.4	1.4	4.0	-2.9	0.3
ro12	Centru	5.5	6.5	-0.6	-0.4	-1.2	3.0	-4.4	0.2	2.1	4.7	-2.5	-0.1
ro21	Nord-Est	4.8	7.7	-0.7	-2.2	-2.9	0.7	-4.5	1.0	1.0	4.2	-2.6	-0.6
ro22	Sud-Est	3.8	5.5	-0.7	-0.9	-2.7	1.3	-4.7	0.7	0.5	3.3	-2.7	-0.1
ro31	Sud - Muntenia	2.9	5.1	-0.6	-1.6	-5.6	-2.1	-4.7	1.2	-1.5	1.4	-2.7	-0.2
ro32	Bucuresti - Ilfov	9.6	4.0	-0.5	6.0	-2.1	2.3	-4.1	-0.3	3.5	3.2	-2.3	2.7
ro41	Sud-Vest Oltenia	2.5	4.6	-0.6	-1.5	-4.9	-1.5	-4.5	1.0	-1.3	1.5	-2.6	-0.2
ro42	Vest	3.9	3.0	-0.6	1.6	-2.7	1.6	-4.8	0.5	0.5	2.3	-2.8	1.0
se	Sweden	-1.5	-4.5	-0.3	3.2	5.4	6.4	-1.8	0.8	2.2	1.4	-1.1	1.9
se11	Stockholm	-1.0	-9.1	-0.3	8.4	8.3	11.5	-1.9	-1.4	3.7	1.3	-1.1	3.4
se12	Östra Mellansverige	-1.6	-3.2	-0.3	1.8	5.0	5.5	-1.8	1.3	2.0	1.6	-1.1	1.5
se21	Småland med öarna	-2.8	-0.8	-0.2	-1.8	4.0	4.1	-1.8	1.7	1.0	2.0	-1.1	0.2
se22	Sydsverige	1.2	-4.1	-0.3	5.6	5.7	5.5	-1.9	2.1	3.7	1.1	-1.1	3.7
se23	Västsverige	-0.1	-4.4	-0.2	4.5	6.4	6.8	-1.8	1.3	3.4	1.7	-1.1	2.8
se31	Norra Mellansverige	-5.9	-2.4	-0.3	-3.3	2.8	3.4	-1.9	1.3	-0.8	1.0	-1.2	-0.6
se32	Mellersta Norrland	-6.9	-1.7	-0.3	-5.0	1.4	2.5	-1.7	0.6	-2.1	0.7	-1.1	-1.8
se33	Övre Norrland	-3.8	-1.5	-0.3	-2.0	1.6	3.7	-1.7	-0.4	-0.8	1.4	-1.1	-1.1
si	Slovenia	-1.7	-2.3	-0.5	1.1	5.8	8.0	-3.1	0.9	2.2	3.0	-1.8	1.0
si01	Vzhodna Slovenija												
si02	Zahodna Slovenija												
sk	Slovakia	2.6	3.4	-0.5	-0.3	7.0	11.0	-3.9	-0.1	4.8	7.1	-2.1	-0.2
sk01	Bratislavský kraj	3.0	1.9	-0.5	1.6	3.1	10.4	-3.2	-4.1	3.1	6.4	-1.9	-1.4
sk02	Západné Slovensko	2.2	2.9	-0.5	-0.3	6.9	9.8	-3.9	1.0	4.6	6.4	-2.2	0.3
sk03	Stredné Slovensko	2.1	3.2	-0.5	-0.6	7.5	11.1	-4.1	0.5	4.7	7.1	-2.3	-0.1
sk04	Východné Slovensko	3.3	4.6	-0.5	-0.9	8.6	12.5	-3.9	0.0	5.8	8.4	-2.1	-0.5
uk	United Kingdom	-4.6	-6.2	-0.4	1.9	5.0	10.5	-2.3	-3.3	0.3	2.4	-1.3	-0.7
ukc1	Tees Valley and Durham	-8.4	-3.7	-0.4	-4.3	4.4	8.4	-2.3	-1.6	-1.6	2.7	-1.4	-2.9
ukc2	Northumberland, Tyne and Wear	-7.2	-5.4	-0.4	-1.4	3.6	9.3	-2.5	-3.3	-1.5	2.4	-1.5	-2.4
ukd1	Cumbria	-10.6	-6.3	-0.5	-3.8	7.1	6.0	-2.4	3.4	-0.7	0.6	-1.5	0.2
ukd2	Cheshire	-6.7	-6.6	-0.4	0.2	5.8	8.4	-2.1	-0.4	0.1	1.5	-1.3	-0.1
ukd3	Greater Manchester	-4.7	-5.2	-0.4	0.8	2.4	11.5	-2.4	-6.7	-1.2	3.1	-1.4	-2.9
ukd4	Lancashire	-6.1	-4.0	-0.4	-1.6	5.4	8.2	-2.5	-0.3	0.0	2.5	-1.5	-0.9
ukd5	Merseyside	-10.0	-5.0	-0.4	-4.5	3.1	9.9	-2.6	-4.2	-3.2	2.6	-1.5	-4.3
uke1	East Yorkshire and Northern Lincolnshi	-7.1	-5.1	-0.4	-1.6	6.4	8.2	-2.3	0.5	0.2	2.0	-1.4	-0.4
uke2	North Yorkshire	-4.1	-5.5	-0.4	1.8	6.3	6.6	-2.2	2.0	1.7	1.2	-1.4	1.9
uke3	South Yorkshire	-8.6	-6.8	-0.4	-1.4	2.9	10.9	-2.4	-5.5	-2.7	2.2	-1.4	-3.5
uke4	West Yorkshire	-5.3	-5.4	-0.3	0.4	3.1	11.8	-2.3	-6.5	-1.1	3.2	-1.3	-3.0
ukf1	Derbyshire and Nottinghamshire	-5.0	-6.4	-0.4	1.8	4.5	9.8	-2.3	-3.1	-0.1	2.0	-1.4	-0.7
ukf2	Leicestershire, Rutland and Northants	-3.2	-4.9	-0.3	1.9	7.1	11.1	-2.1	-1.9	2.1	3.4	-1.2	-0.1
ukf3	Lincolnshire	-2.6	-4.9	-0.5	2.8	13.1	4.9	-2.5	10.7	6.2	0.6	-1.6	7.2
ukg1	Herefordshire, Worcestershire and War	-2.8	-6.2	-0.4	3.8	6.4	6.8	-2.1	1.7	2.3	1.1	-1.4	2.6
ukg2	Shropshire and Staffordshire	-7.8	-5.1	-0.4	-2.3	5.2	7.9	-2.2	-0.6	-0.8	1.9	-1.4	-1.4
ukg3	West Midlands	-4.6	-4.2	-0.4	-0.1	0.3	10.9	-2.4	-8.2	-2.2	3.2	-1.3	-4.1
ukh1	East Anglia	-6.0	-5.2	-0.4	-0.4	7.3	7.8	-2.3	1.8	1.0	1.7	-1.4	0.8
ukh2	Bedfordshire, Hertfordshire	-6.7	-8.0	-0.3	1.5	5.9	12.3	-2.0	-4.5	-0.4	2.3	-1.2	-1.5
ukh3	Essex	-7.9	-6.0	-0.4	-1.5	6.0	8.4	-2.2	-0.2	-0.6	1.5	-1.3	-0.8
uki1	Inner London	11.6	-12.3	-0.2	24.1	1.5	26.6	-1.8	-23.2	7.7	2.9	-0.8	5.6
uki2	Outer London	-1.3	-9.1	-0.3	8.1	2.5	15.7	-2.0	-11.2	0.5	2.5	-1.1	-0.9
ukj1	Berkshire, Bucks and Oxfordshire	-5.9	-6.8	-0.3	1.2	4.7	13.6	-1.8	-7.1	-0.6	3.3	-1.0	-2.9
ukj2	Surrey, East and West Sussex	-8.2	-7.6	-0.4	-0.2	4.9	9.2	-2.4	-1.8	-1.2	1.3	-1.5	-1.1
ukj3	Hampshire and Isle of Wight	-5.1	-6.0	-0.4	1.3	6.4	10.5	-2.2	-2.0	0.8	2.5	-1.3	-0.4
ukj4	Kent	-6.7	-5.4	-0.4	-1.0	6.1	8.3	-2.2	0.1	0.1	1.9	-1.4	-0.4
ukk1	Gloucestershire, Wiltshire and Bristol/B	-5.3	-6.9	-0.3	2.0	6.2	10.8	-2.2	-2.4	0.6	2.1	-1.3	-0.3
ukk2	Dorset and Somerset	-8.1	-4.6	-0.5	-3.0	9.3	5.8	-2.6	6.2	1.6	1.2	-1.7	2.1
ukk3	Cornwall and Isles of Scilly	-4.0	-4.1	-0.5	0.7	10.5	3.8	-2.5	9.2	4.5	0.5	-1.7	5.6
ukk4	Devon	-4.9	-4.2	-0.5	-0.2	7.8	5.8	-2.6	4.6	2.2	1.4	-1.7	2.5
ukl1	West Wales and The Valleys	-5.9	-2.7	-0.5	-2.8	5.5	6.0	-2.6	2.1	0.4	2.1	-1.6	-0.1
ukl2	East Wales	-3.1	-4.3	-0.4	1.6	4.7	9.1	-2.3	-2.1	1.0	2.7	-1.4	-0.4
ukm2	Eastern Scotland	-8.9	-6.7	-0.4	-1.8	3.2	9.9	-2.3	-4.3	-2.7	1.8	-1.4	-3.1
ukm3	South Western Scotland	-9.7	-6.0	-0.4	-3.3	4.6	10.3	-2.6	-3.1	-2.4	2.3	-1.5	-3.2
ukn0	Northern Ireland	-4.4	-0.4	-0.3	-3.7	7.6	11.8	-2.1	-2.0	1.4	5.5	-1.2	-2.9

NB United Kingdom: 1 January 2000 – 1 January 2004.
total=total effect; age=age effect; mor=mortality effect; mig=migration effect.
Source: Eurostat; calculations NIDI.

Figure 7 Austria: Growth of the 'young' working age population (20-39)

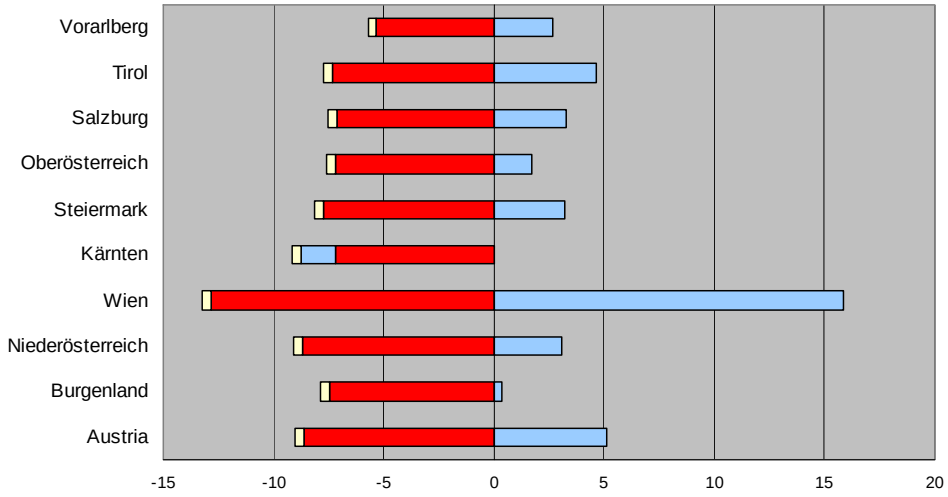


Figure 8 Austria: Growth of the 'old' working age population (40-64)

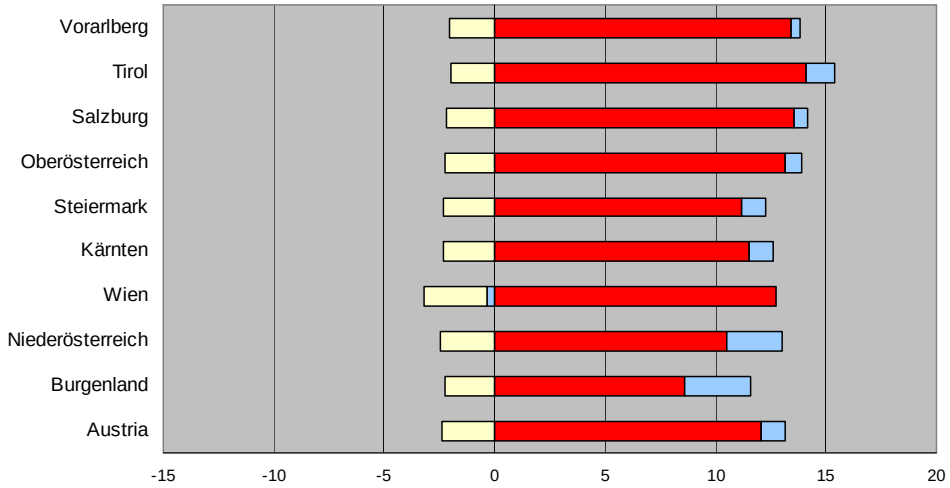
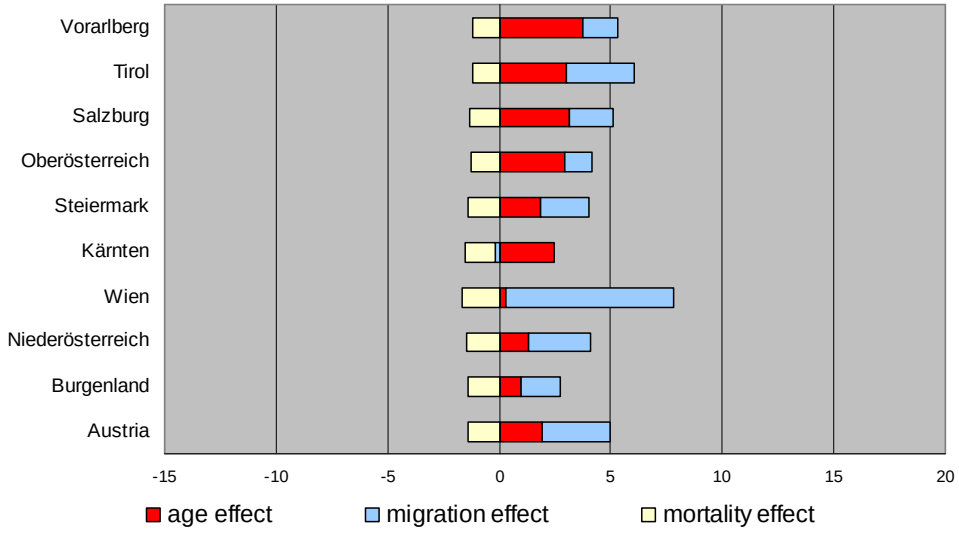


Figure 9 Austria: Growth of the total working age population (20-64)



Source: Eurostat; calculations NIDI.

Figure 10 Belgium: Growth of the 'young' working age population (20-39)

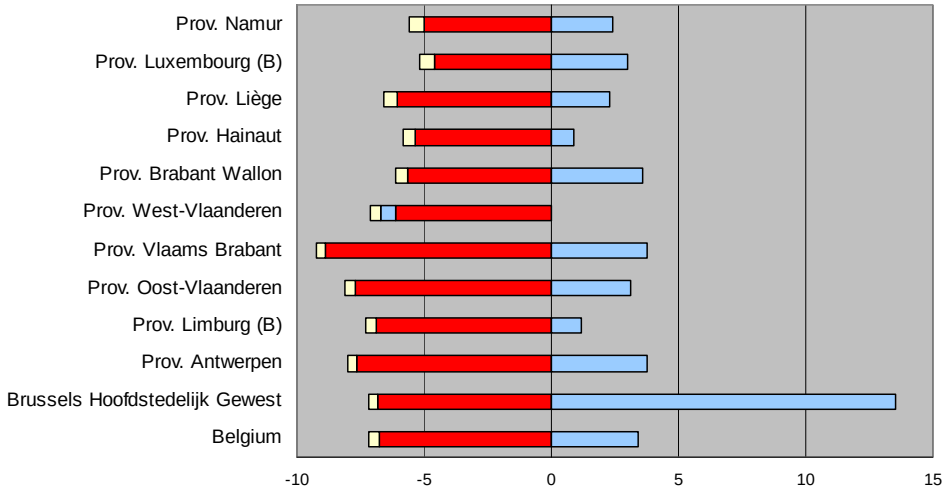


Figure 11 Belgium: Growth of the 'old' working age population (40-64)

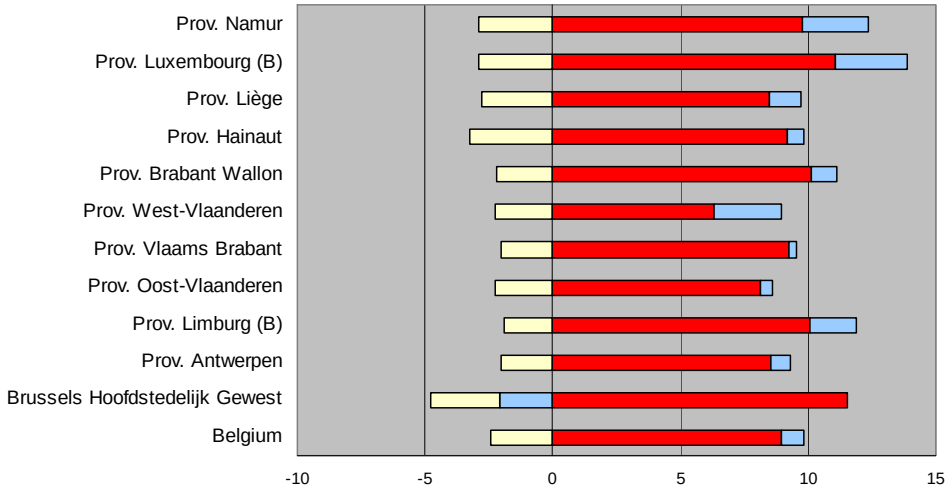
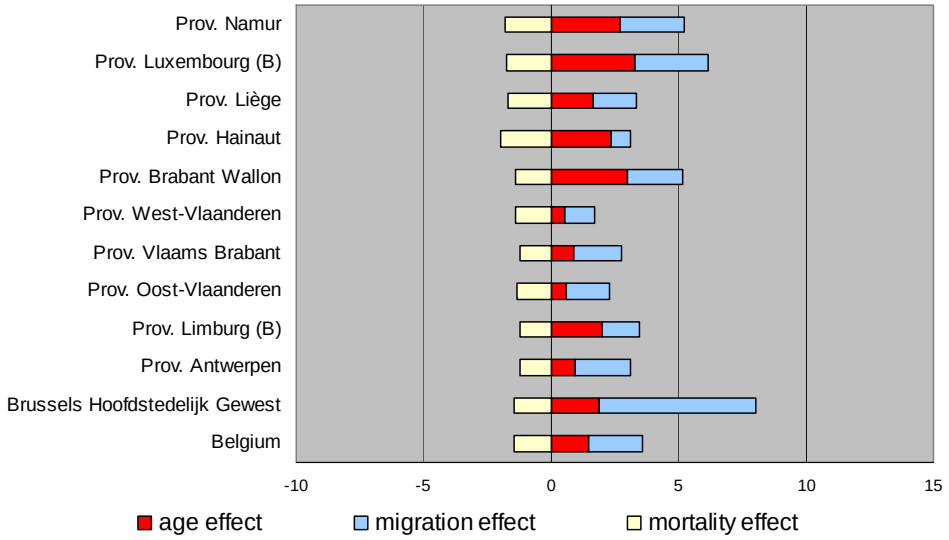
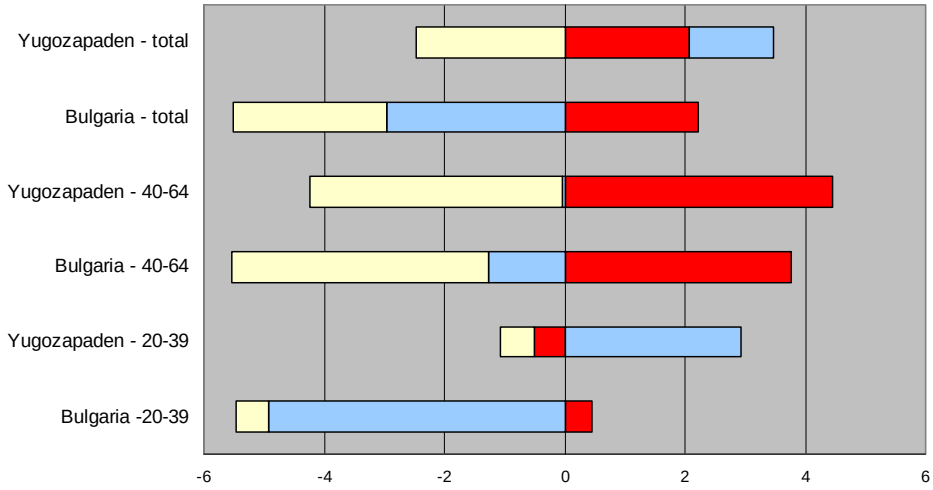


Figure 12 Belgium: Growth of the total working age population (20-64)



Source: Eurostat; calculations NIDI.

Figure 13 Bulgaria: Growth of the working age population



NB. 5 NUTS2 regions are missing for Bulgaria.

Figure 14 Cyprus: Growth of the working age population

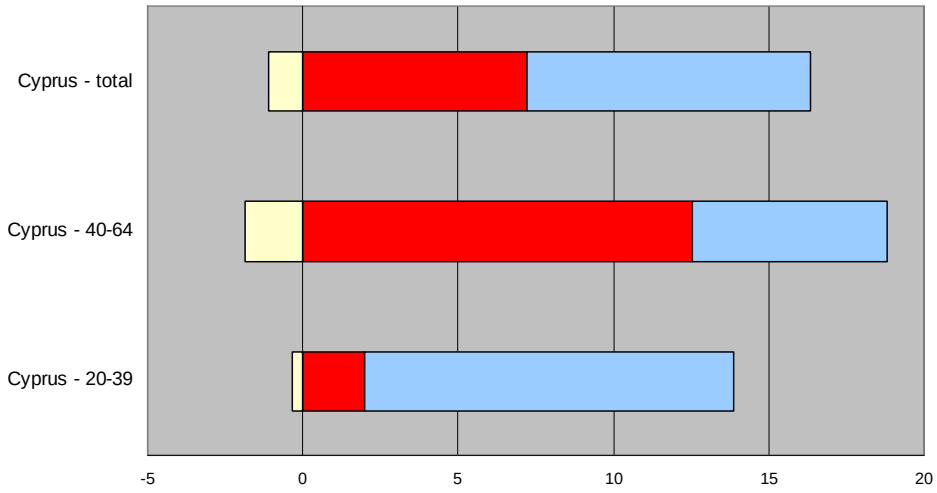
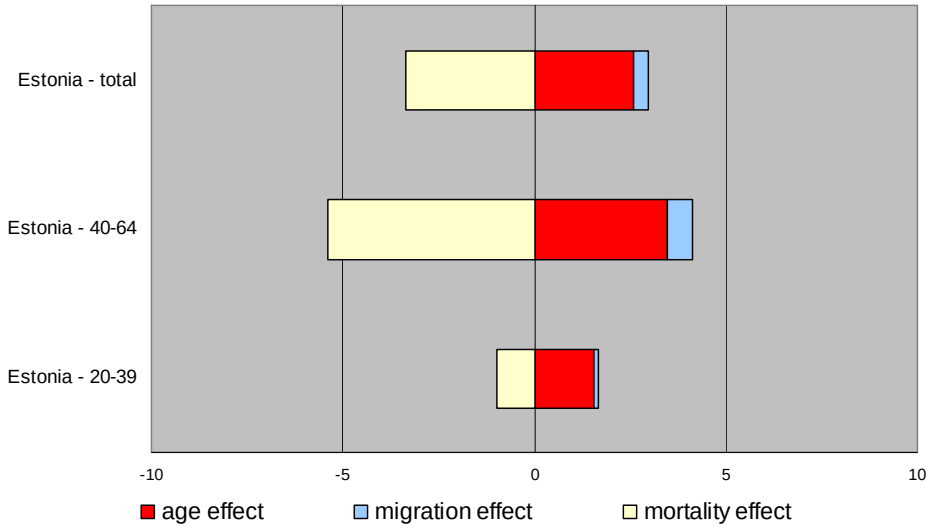


Figure 15 Estonia: Growth of the working age population



Source: Eurostat; calculations NIDI.

Figure 16 Switzerland: Growth of the 'young' working age population (20-39)

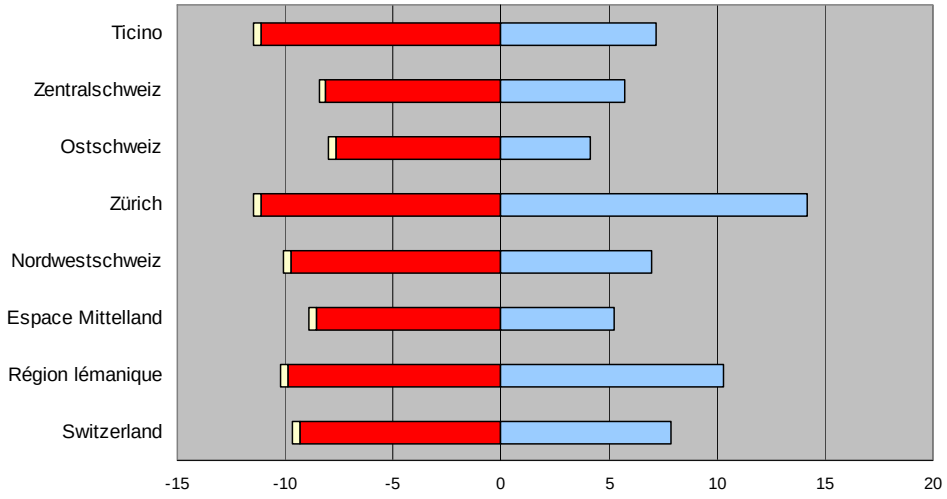


Figure 17 Switzerland: Growth of the 'old' working age population (40-64)

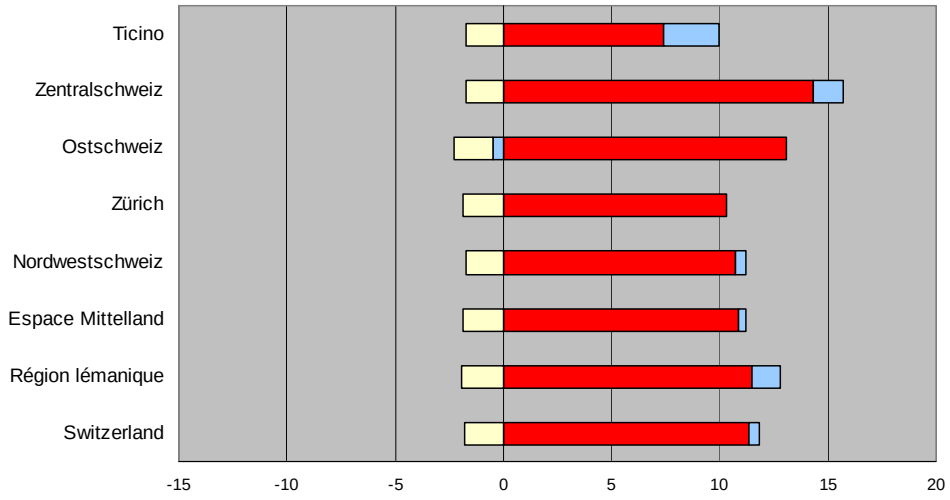
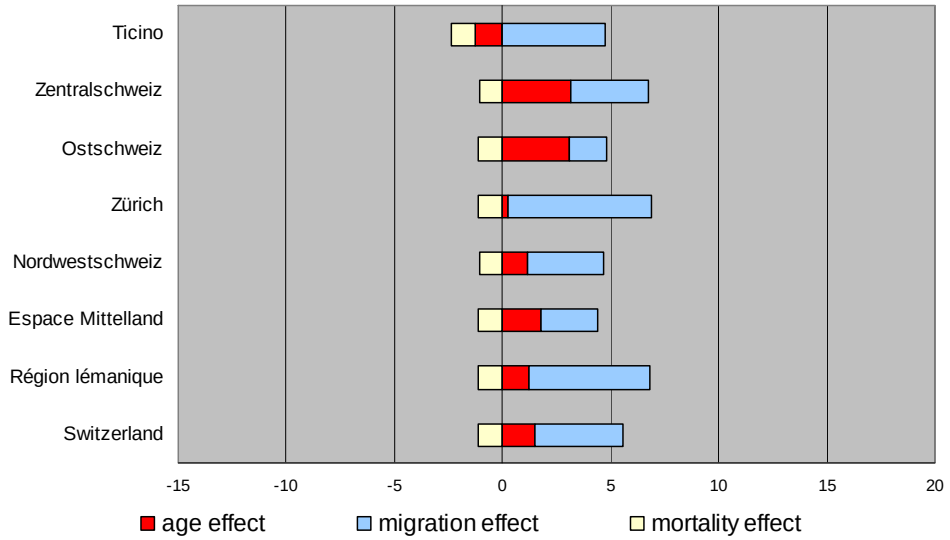


Figure 18 Switzerland: Growth of the total working age population (20-64)



Source: Eurostat; calculations NIDI.

Figure 19 Czech Republic: Growth of the 'young' working age population (20-39)

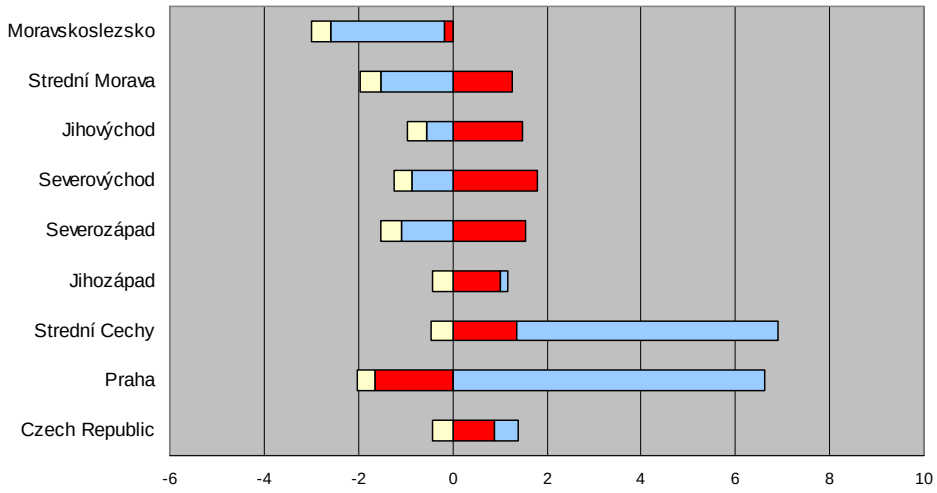


Figure 20 Czech Republic: Growth of the 'old' working age population (40-64)

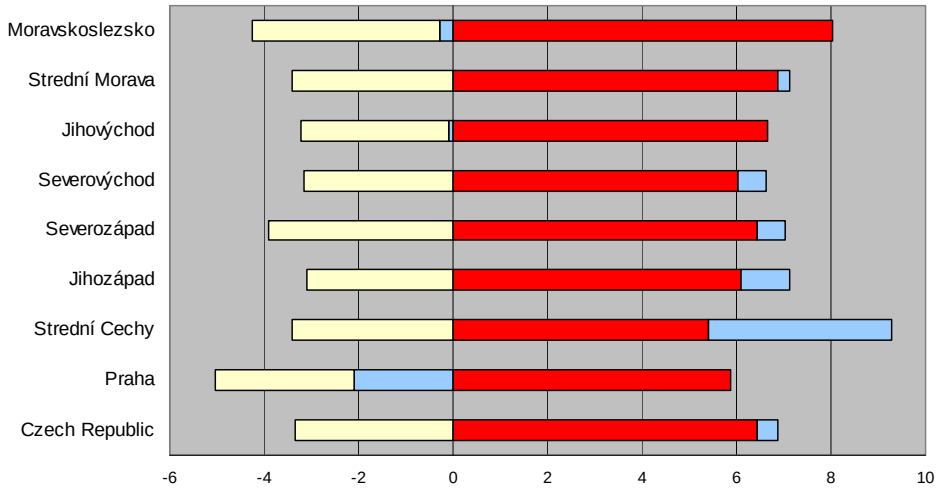
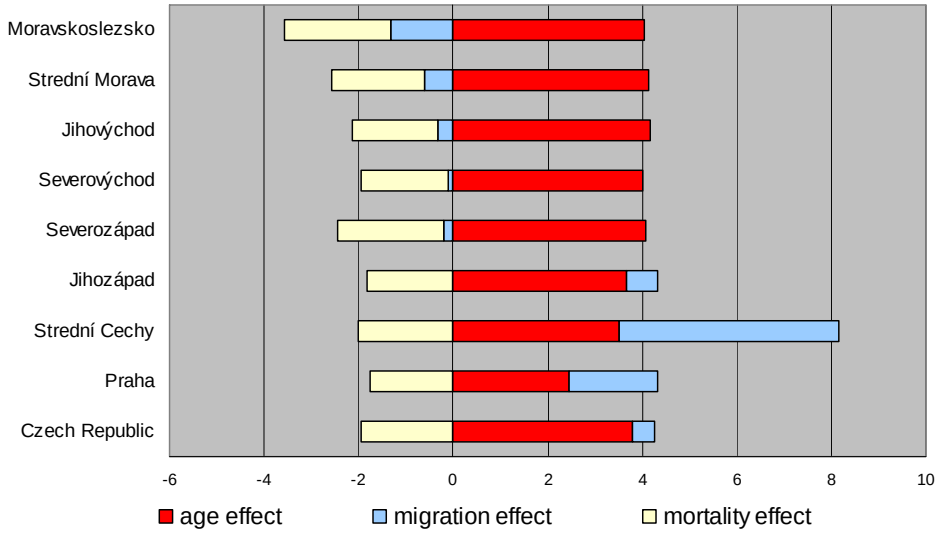


Figure 21 Czech Republic: Growth of the total working age population (20-64)



Source: Eurostat; calculations NIDI.

Figure 22 Germany: Growth of the 'young' working age population (20-39)

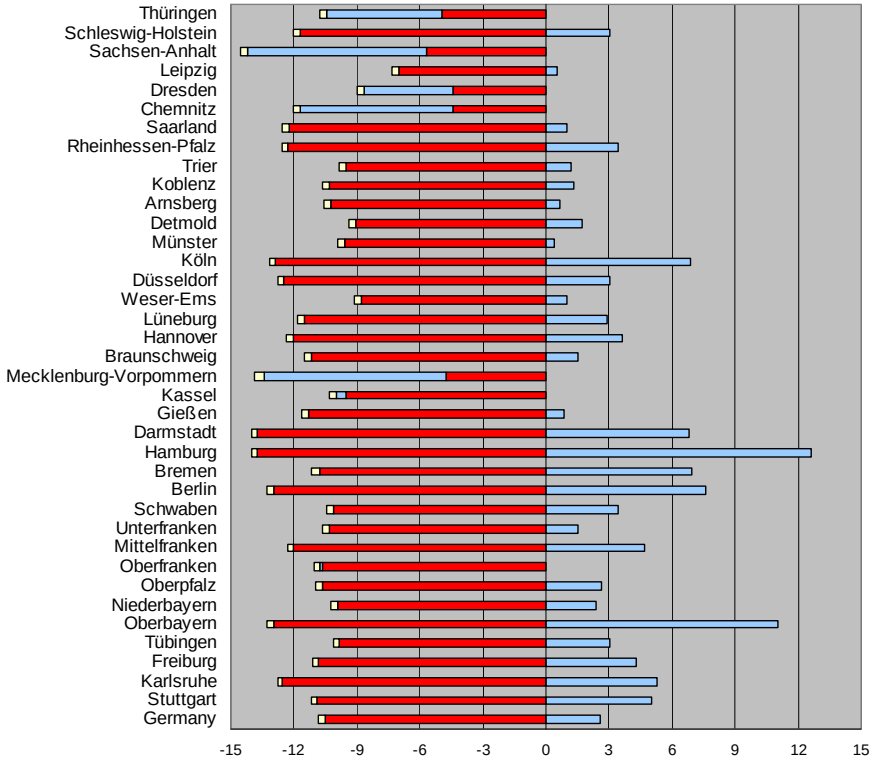
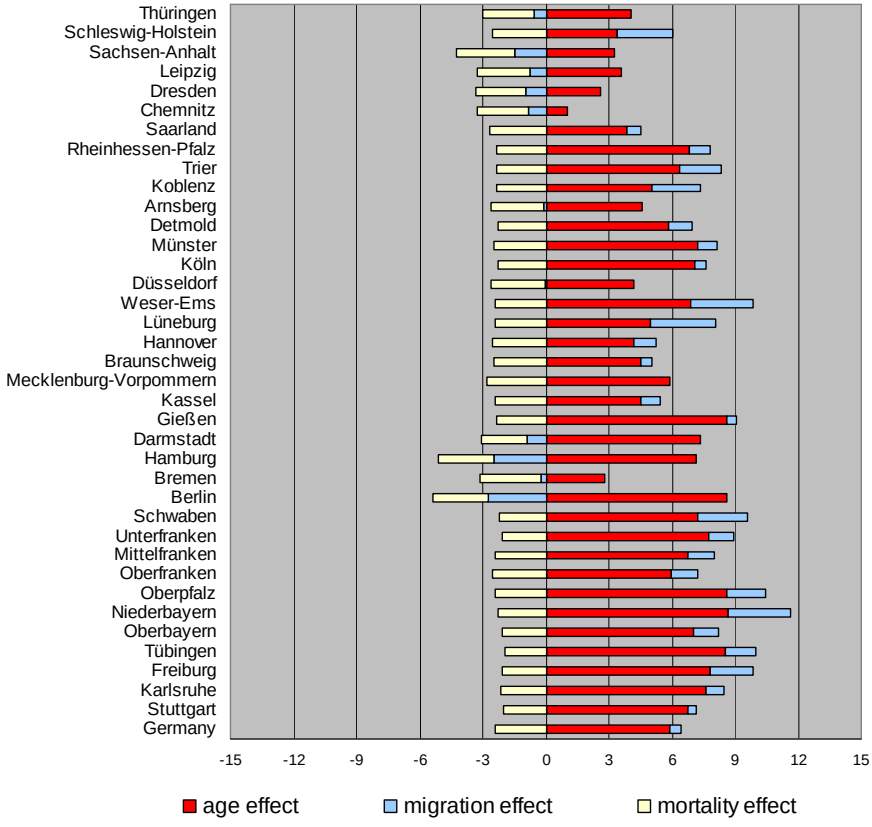
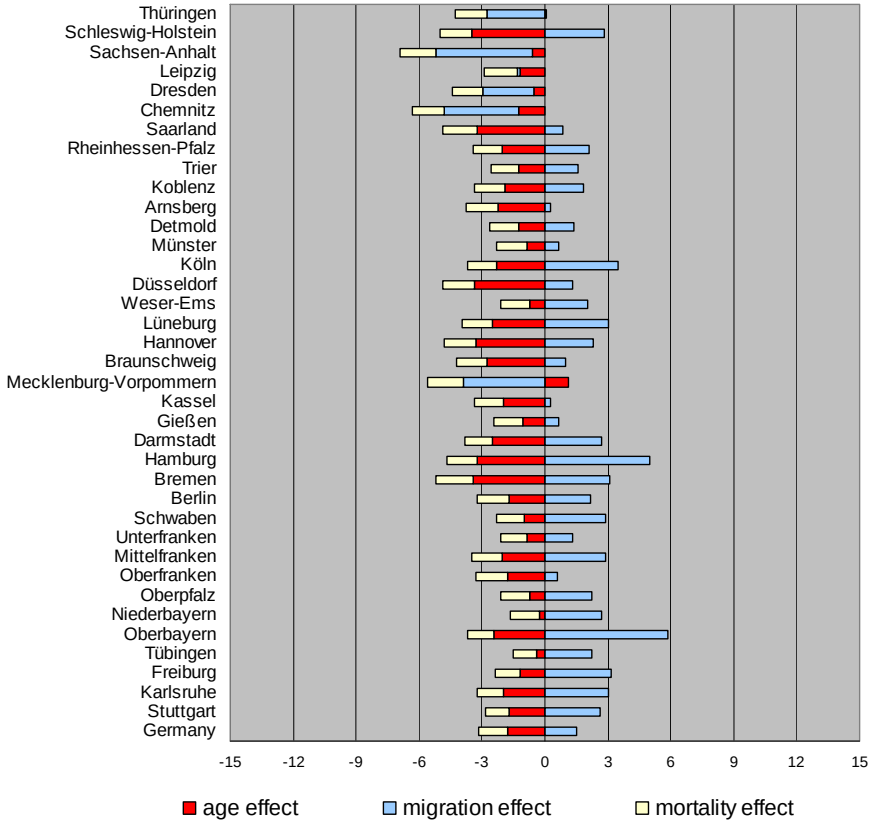


Figure 23 Germany: Growth of the 'old' working age population (40-64)



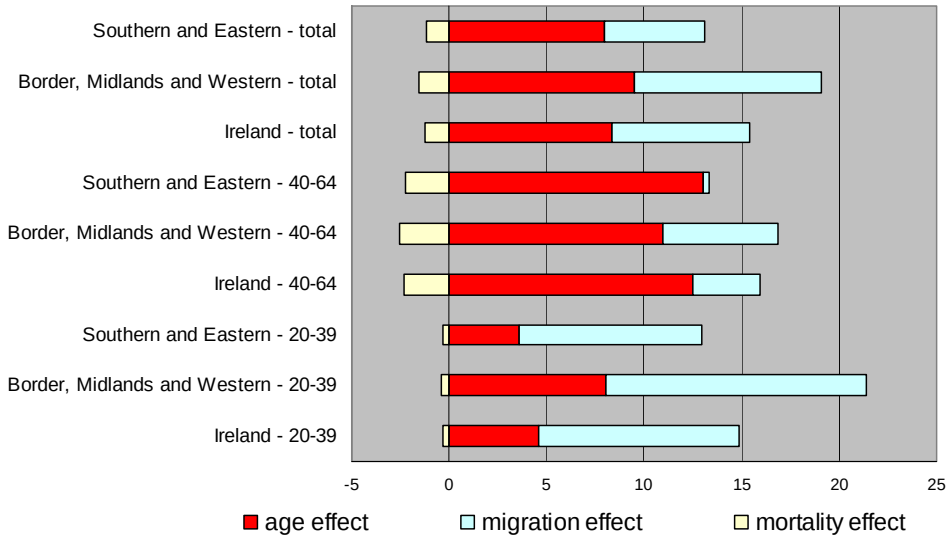
NB. No data for Brandenburg–Nordost and Brandenburg–Südwest.
Source: Eurostat; calculations NIDI.

Figure 24 Germany: Growth of the total working age population (20-64)



NB. No data for Brandenburg–Nordost and Brandenburg–Südwest.

Figure 25 Ireland: Growth of the working age population



Source: Eurostat; calculations NIDI.

Figure 26 Denmark: Growth of the 'young' working age population (20-39)

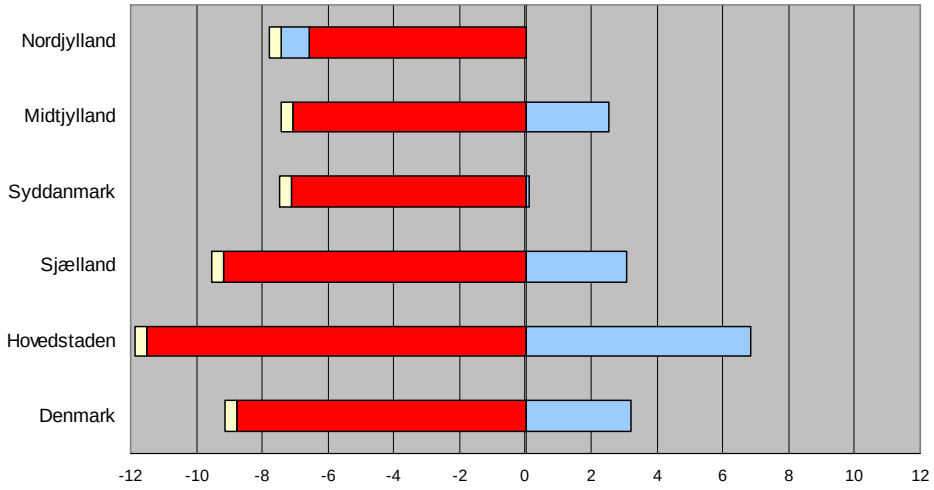


Figure 27 Denmark: Growth of the 'old' working age population (40-64)

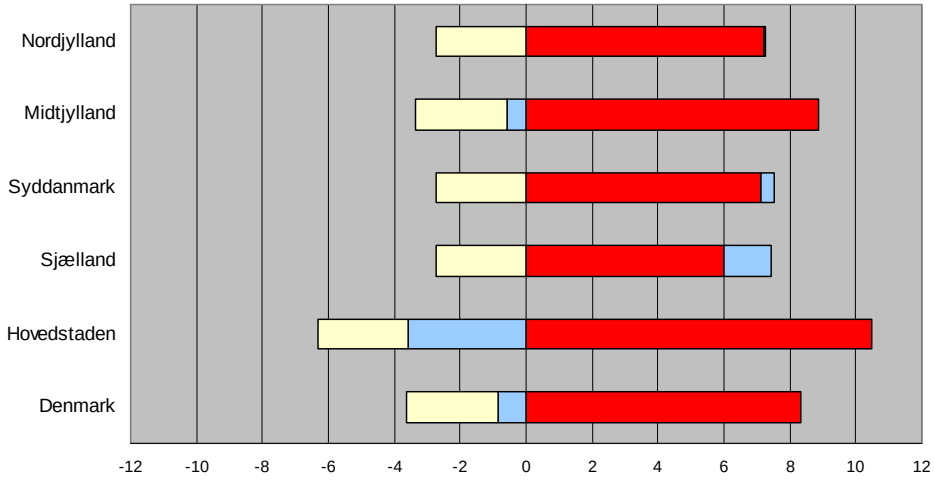
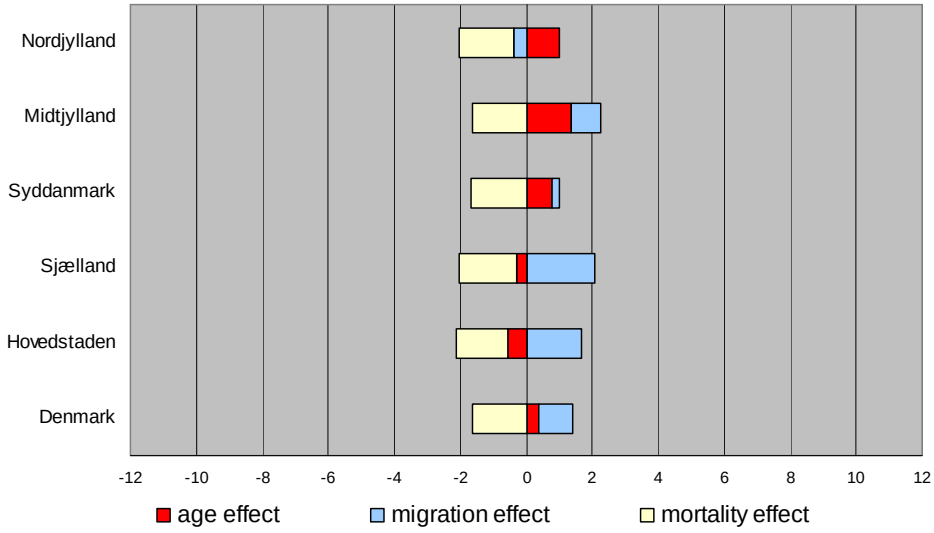


Figure 28 Denmark: Growth of the total working age population (20-64)



NB Period is 1 January 2001 – 1 January 2005.
Source: Eurostat; calculations NIDI.

Figure 29 Spain: Growth of the 'young' working age population (20-39)

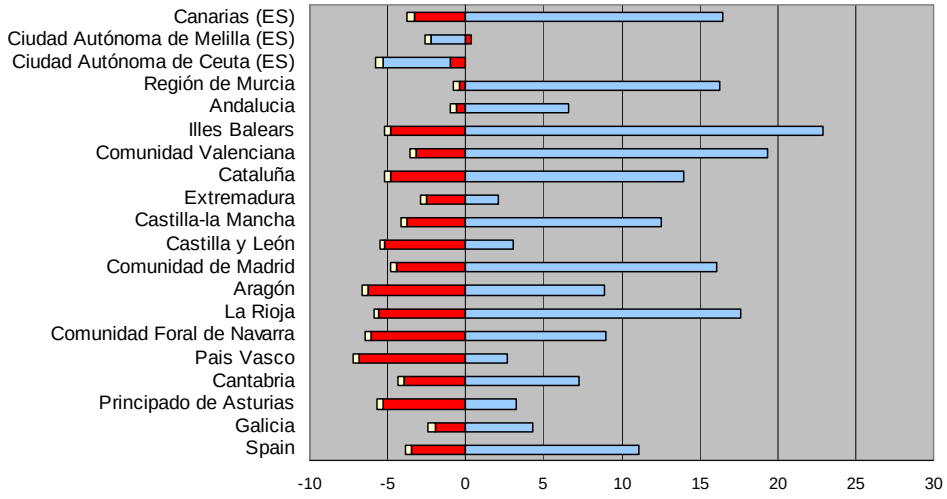


Figure 30 Spain: Growth of the 'old' working age population (40-64)

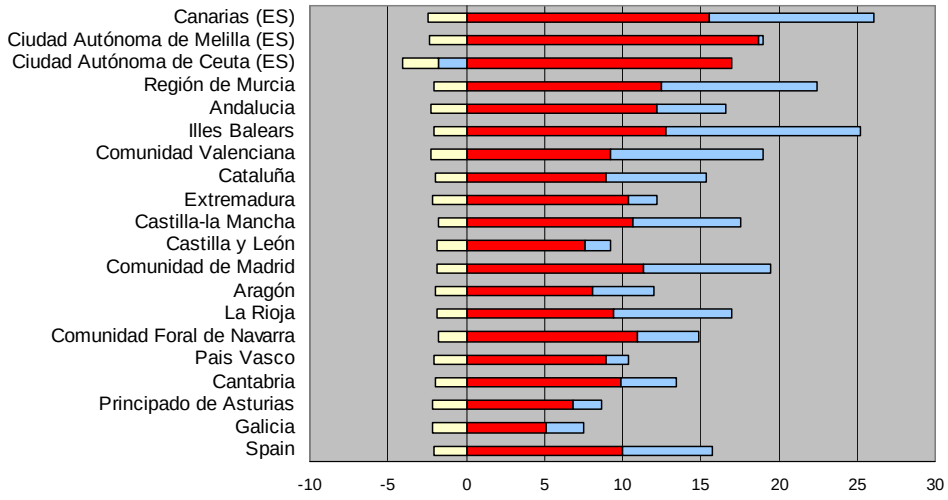
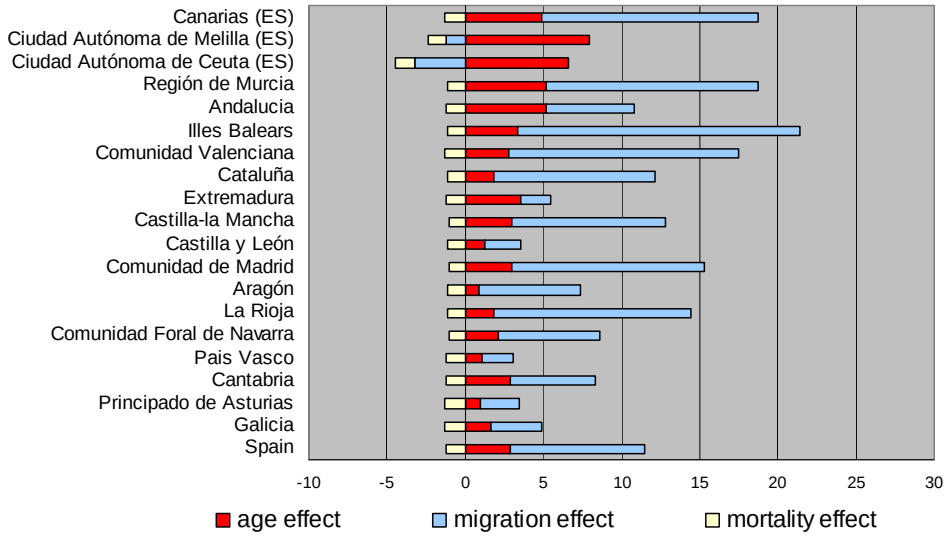


Figure 31 Spain: Growth of the total working age population (20-64)



Source: Eurostat; calculations NIDI.

Figure 32 Finland: Growth of the 'young' working age population (20-39)

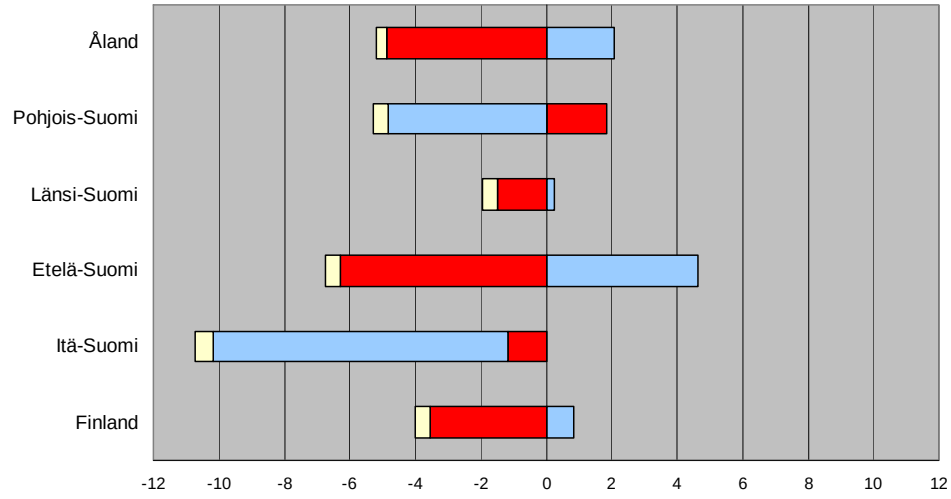


Figure 33 Finland: Growth of the 'old' working age population (40-64)

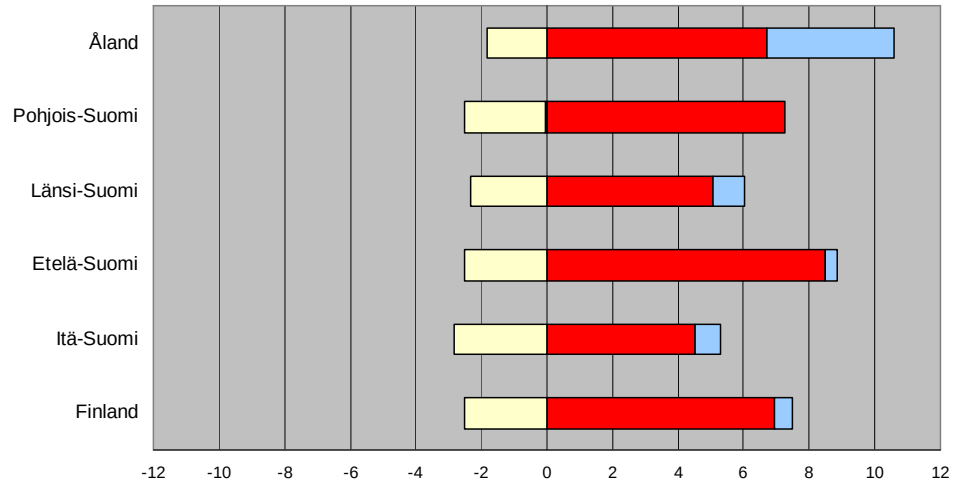
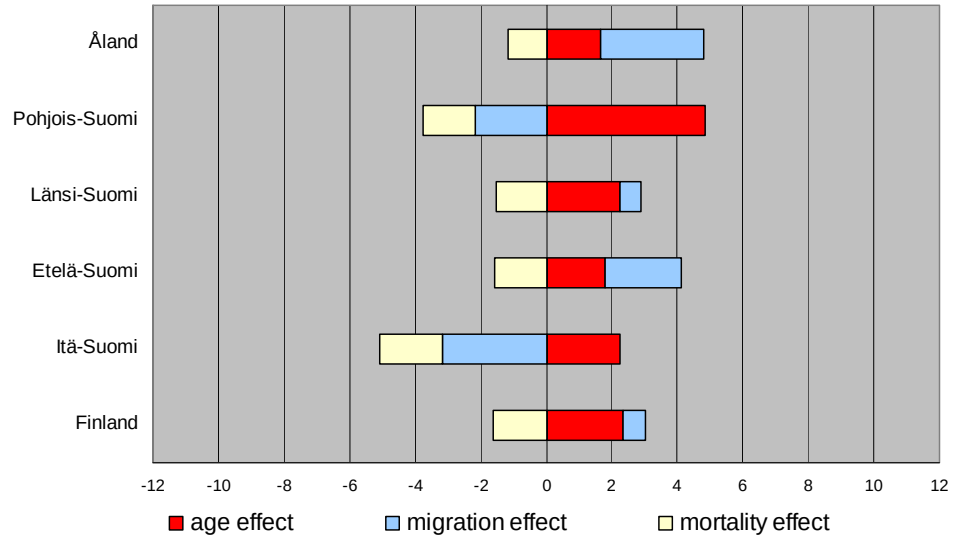


Figure 34 Finland: Growth of the total working age population (20-64)



Source: Eurostat; calculations NIDI.

Figure 35 France: Growth of the 'young' working age population (20-39)

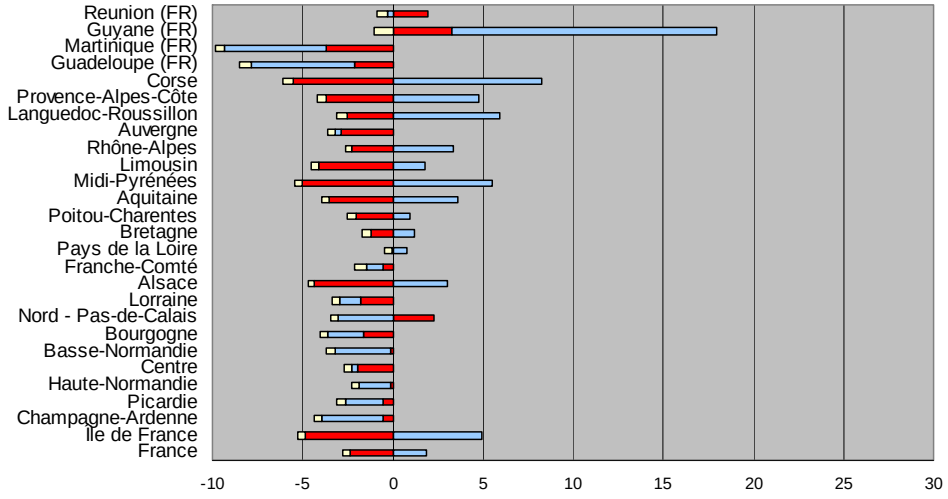


Figure 36 France: Growth of the 'old' working age population (40-64)

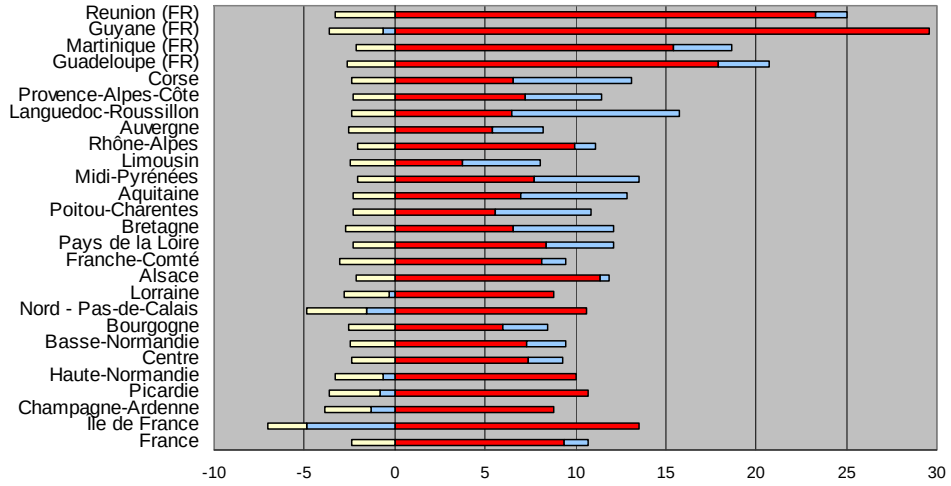
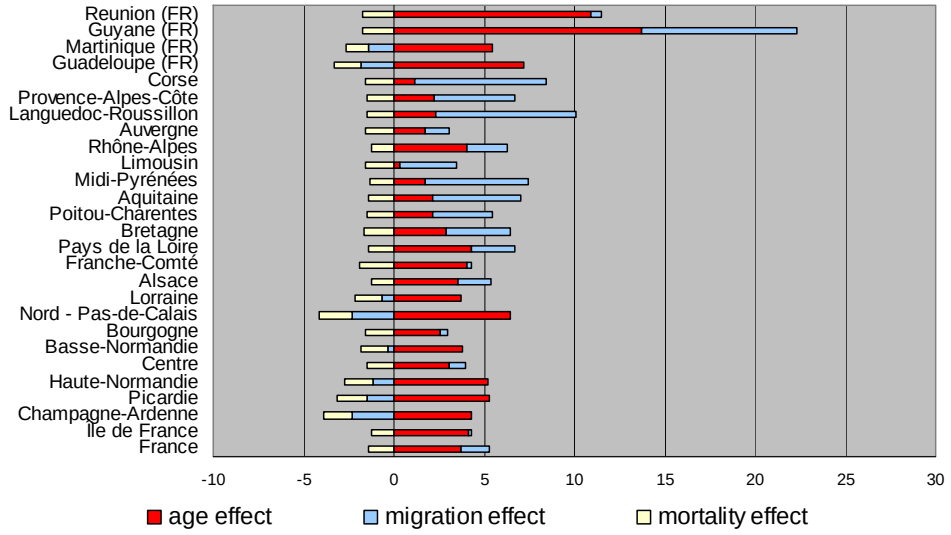


Figure 37 France: Growth of the total working age population (20-64)



Source: Eurostat; calculations NIDI.

Figure 38 Greece: Growth of the 'young' working age population (20-39)

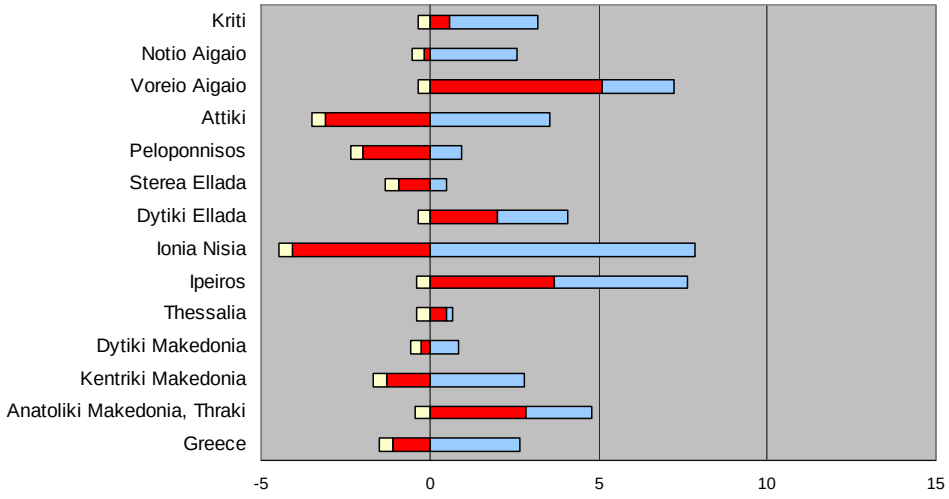


Figure 39 Greece: Growth of the 'old' working age population (40-64)

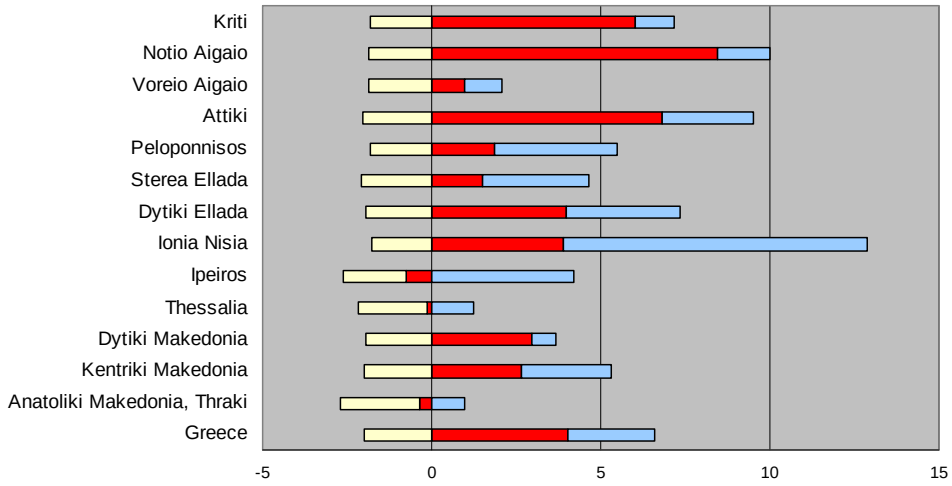
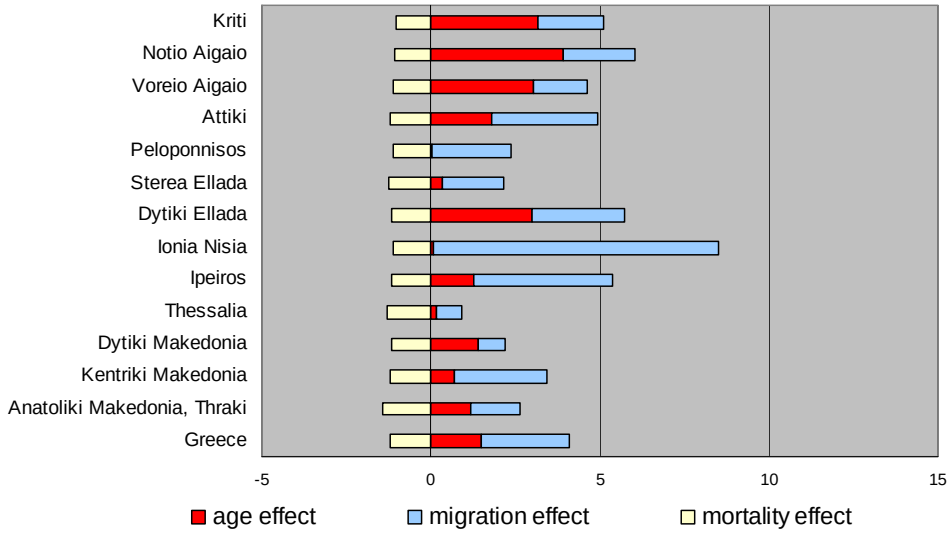


Figure 40 Greece: Growth of the total working age population (20-64)



Source: Eurostat; calculations NIDI.

Figure 41 Hungary: Growth of the 'young' working age population (20-39)

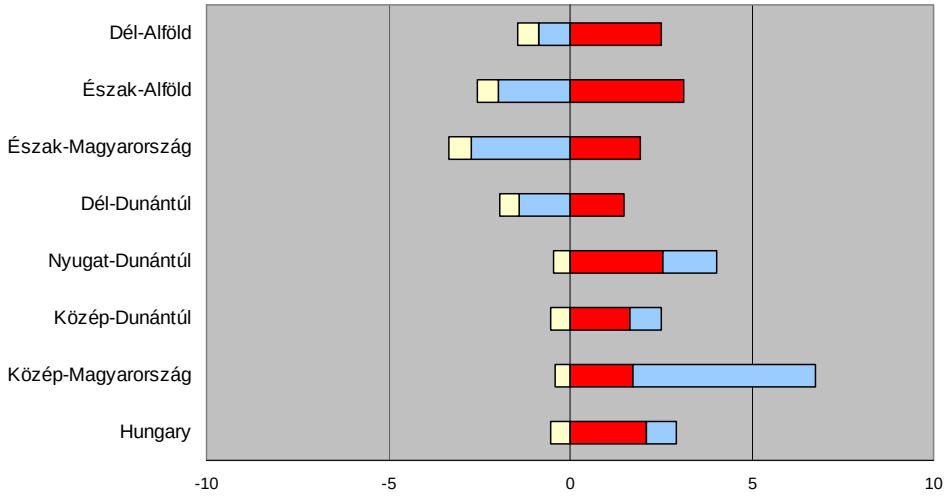


Figure 42 Hungary: Growth of the 'old' working age population (40-64)

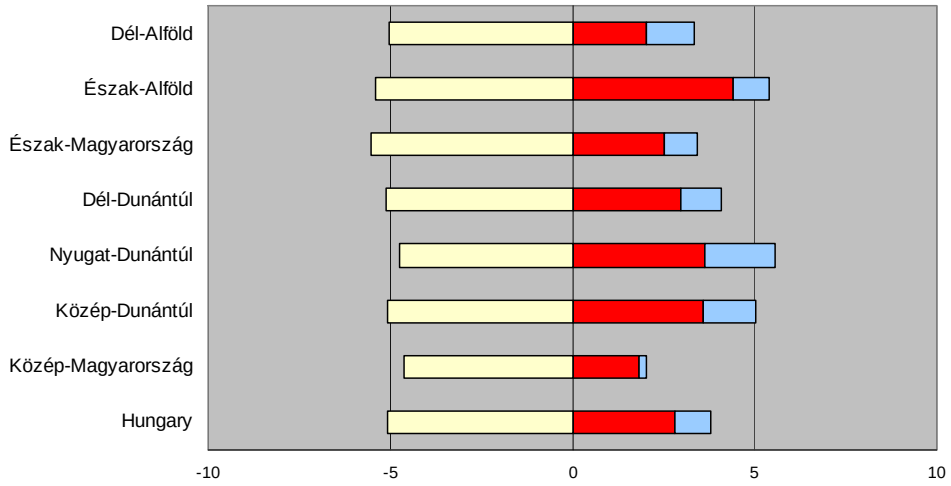
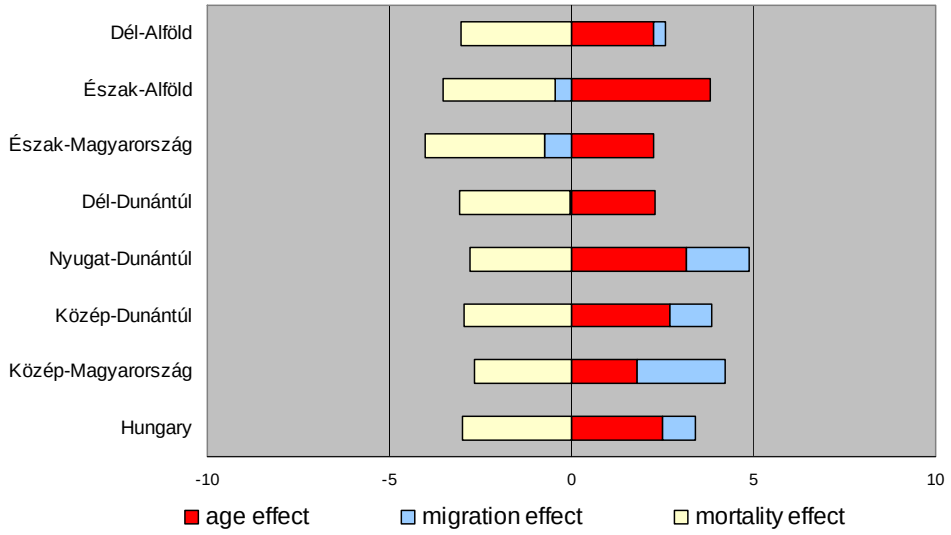


Figure 43 Hungary: Growth of the total working age population (20-64)



Source: Eurostat; calculations NIDI.

Figure 44 Iceland: Growth of the working age population

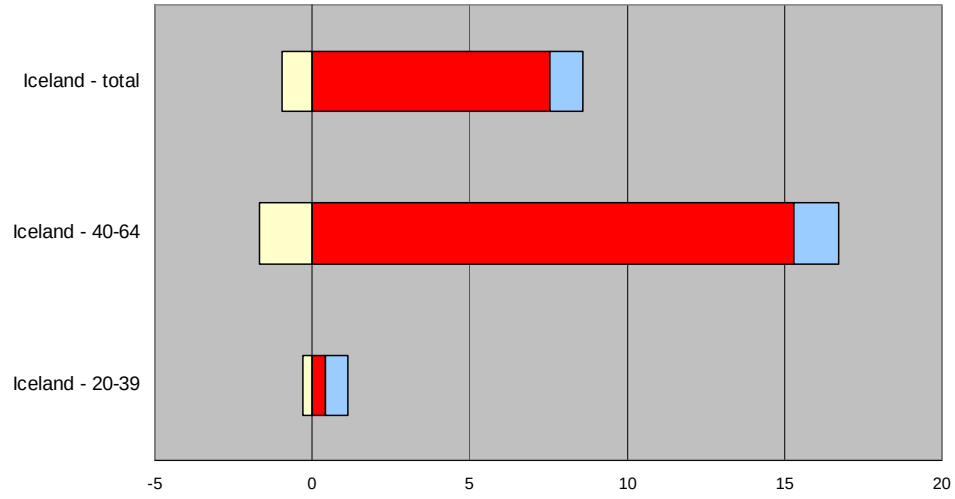


Figure 45 Liechtenstein: Growth of the working age population

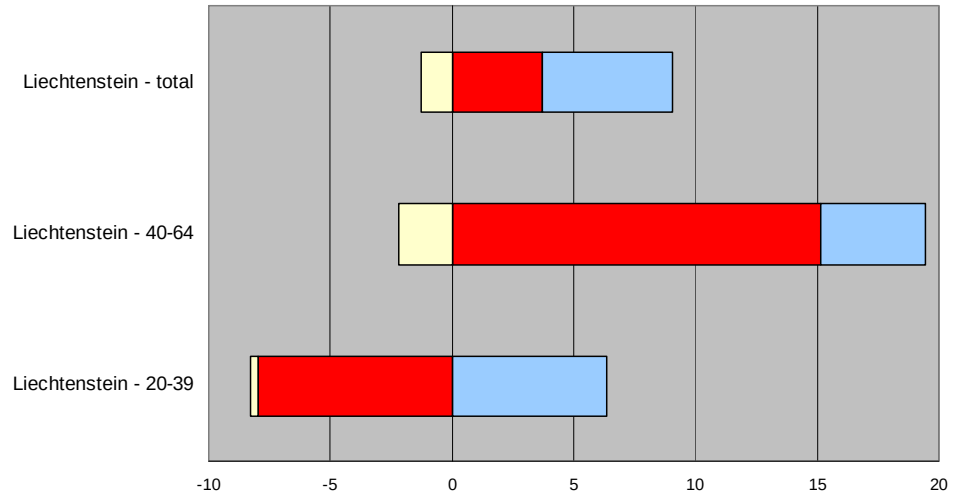
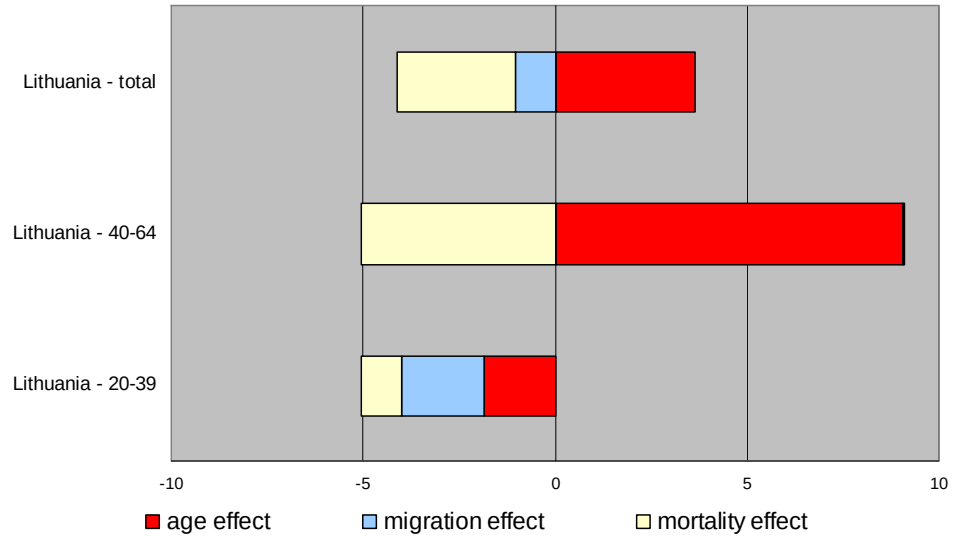


Figure 46 Lithuania: Growth of the working age population



Source: Eurostat; calculations NIDI.

Figure 47 Italy: Growth of the 'young' working age population (20-39)

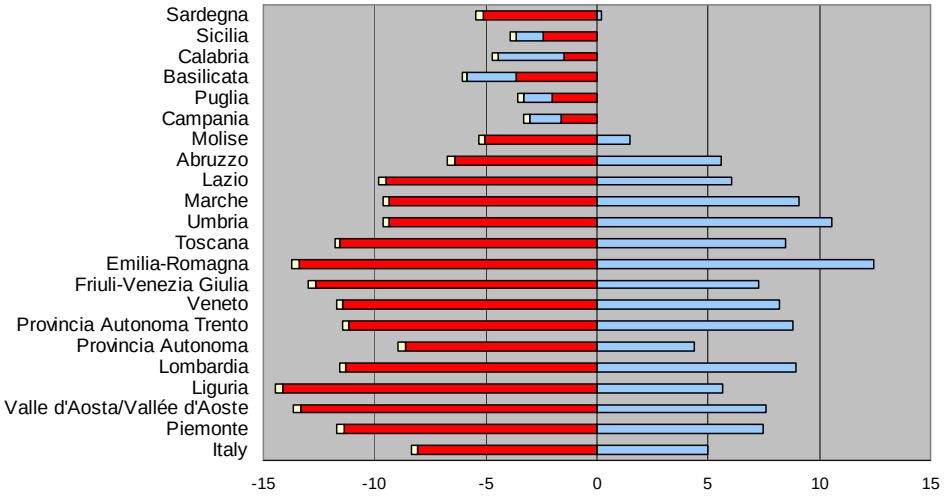


Figure 48 Italy: Growth of the 'old' working age population (40-64)

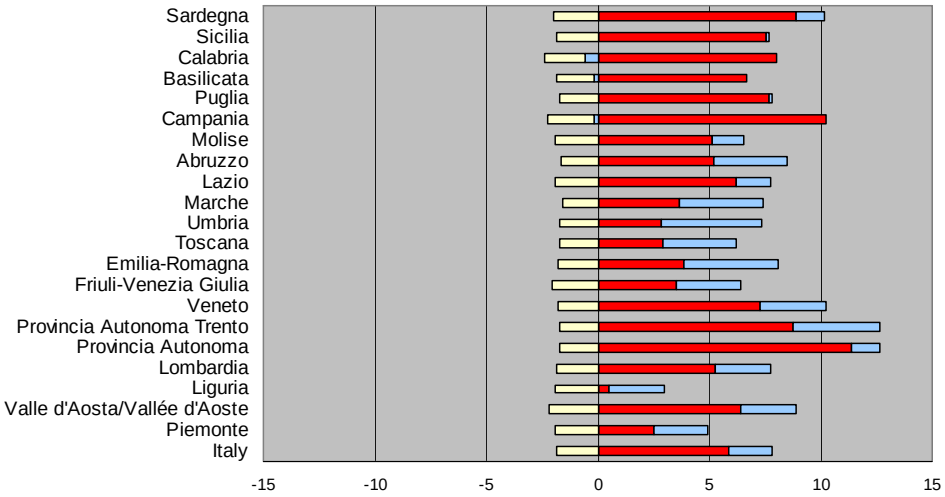
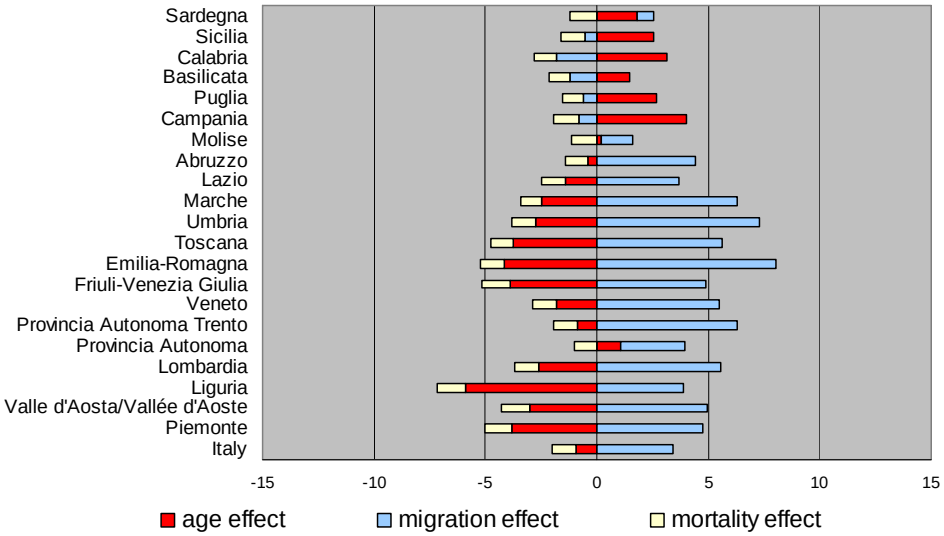


Figure 49 Italy: Growth of the total working age population (20-64)



Source: Eurostat; calculations NIDI.

Figure 50 Luxembourg: Growth of the working age population

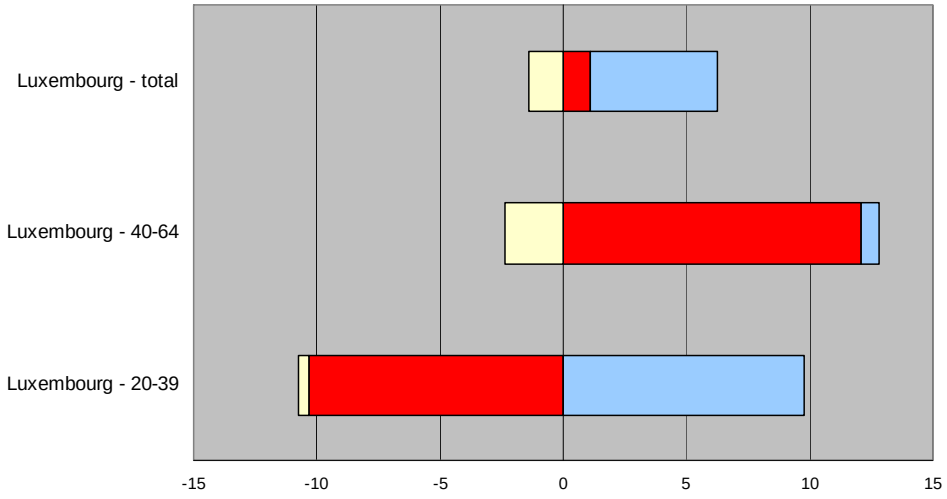


Figure 51 Latvia: Growth of the working age population

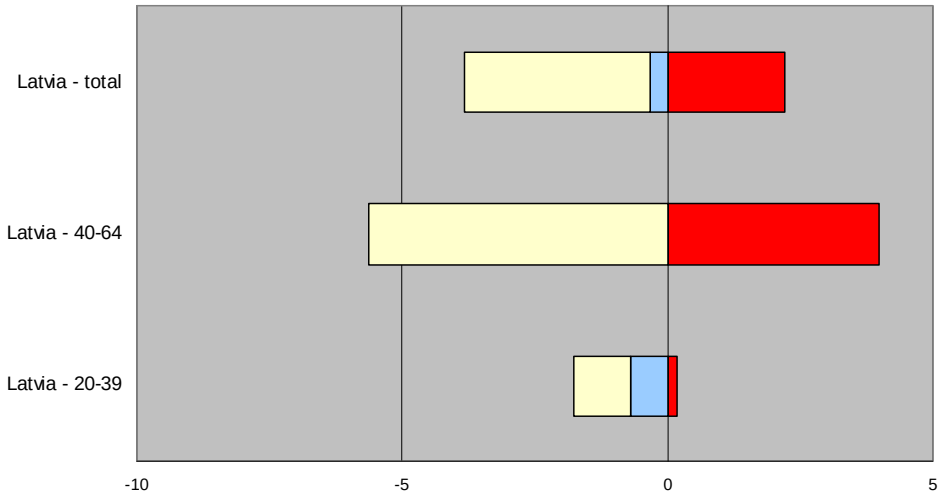
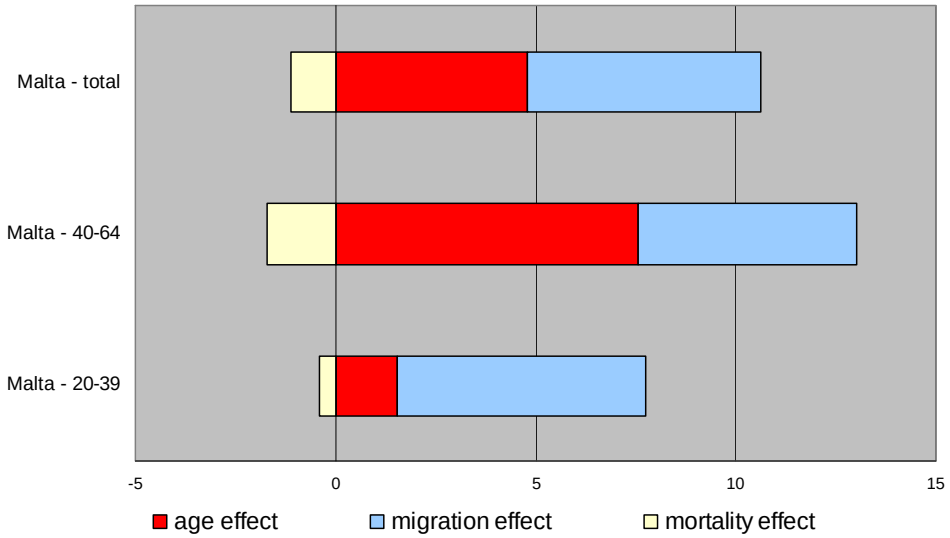


Figure 52 Malta: Growth of the working age population



Source: Eurostat; calculations NIDI.

Figure 53 Netherlands: Growth of the 'young' working age population (20-39)

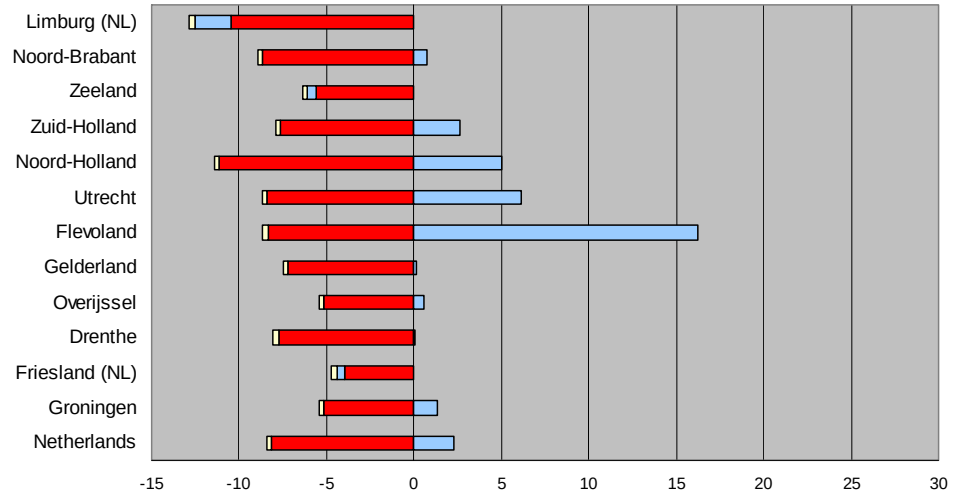


Figure 54 Netherlands: Growth of the 'old' working age population (40-64)

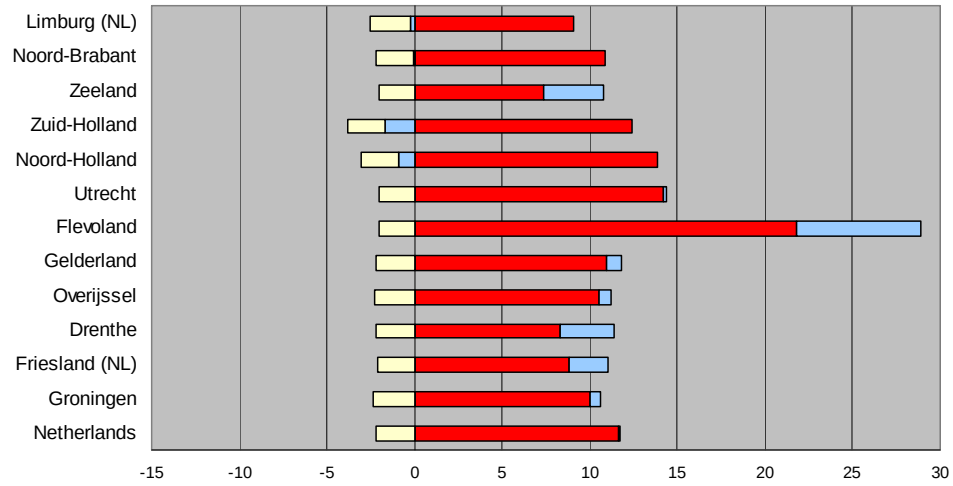
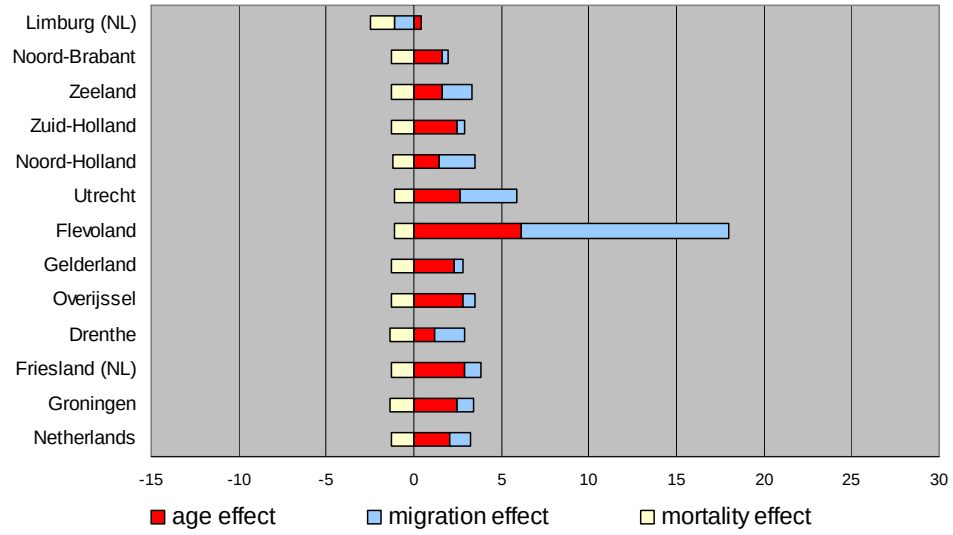


Figure 55 Netherlands: Growth of the total working age population (20-64)



Source: Eurostat; calculations NIDI.

Figure 56 Norway: Growth of the 'young' working age population (20-39)

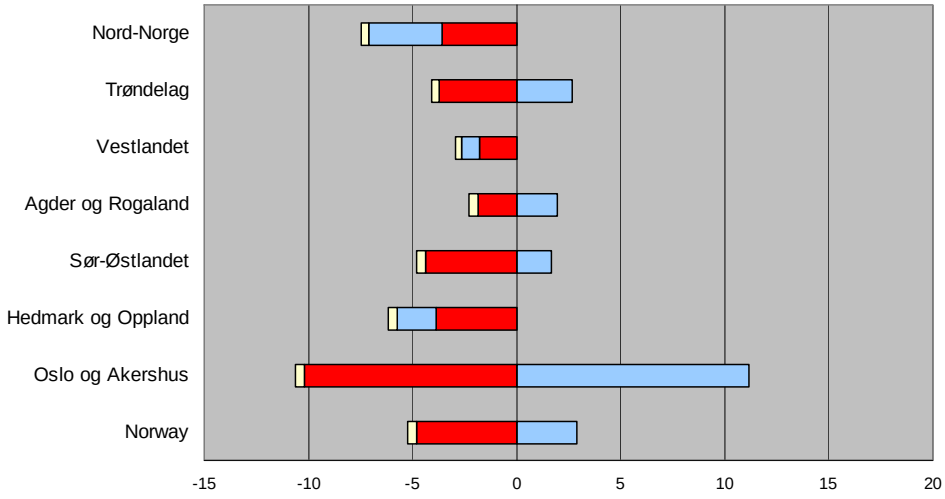


Figure 57 Norway: Growth of the 'old' working age population (40-64)

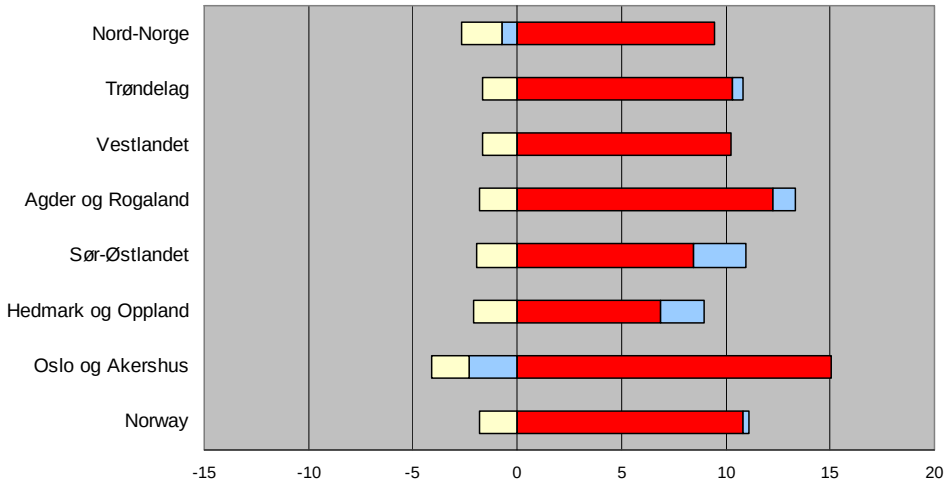
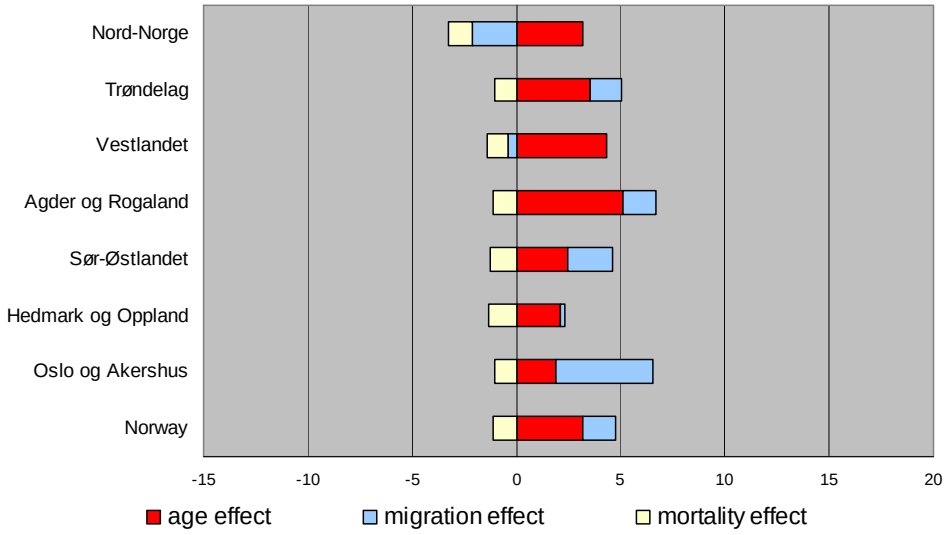


Figure 58 Norway: Growth of the total working age population (20-64)



Source: Eurostat; calculations NIDI.

Figure 59 Poland: Growth of the 'young' working age population (20-39)

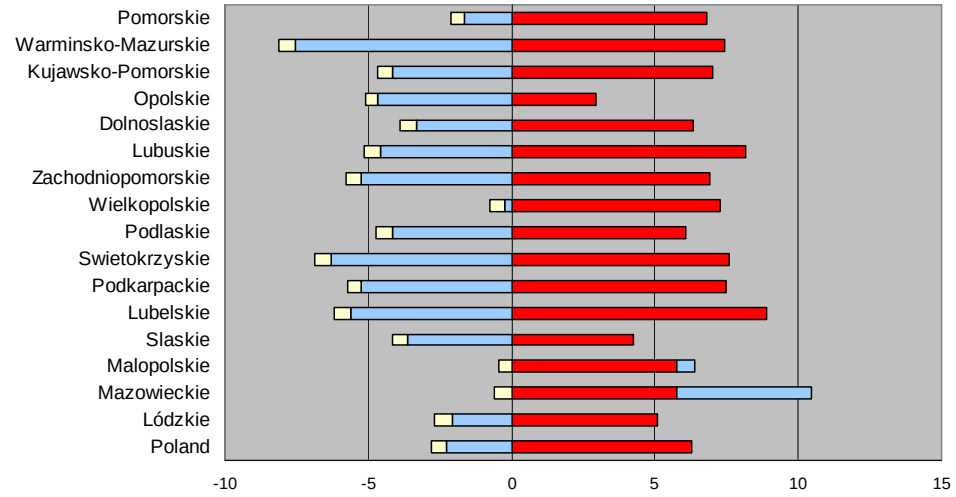


Figure 60 Poland: Growth of the 'old' working age population (40-64)

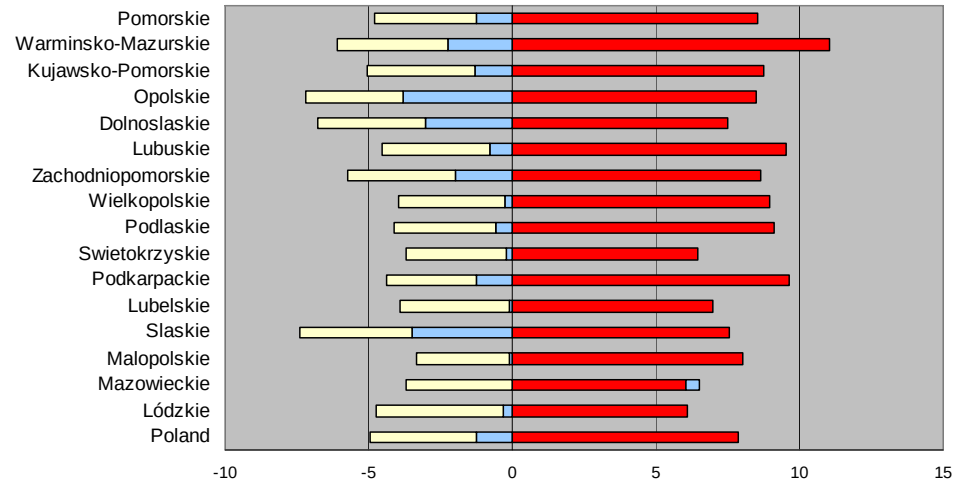
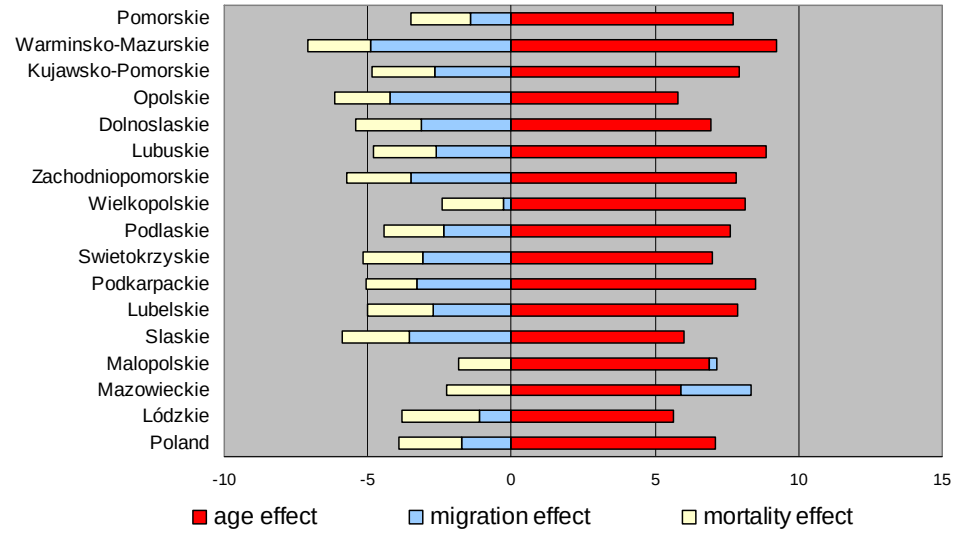


Figure 61 Poland: Growth of the total working age population (20-64)



Source: Eurostat; calculations NIDI.

Figure 62 Portugal: Growth of the 'young' working age population (20-39)

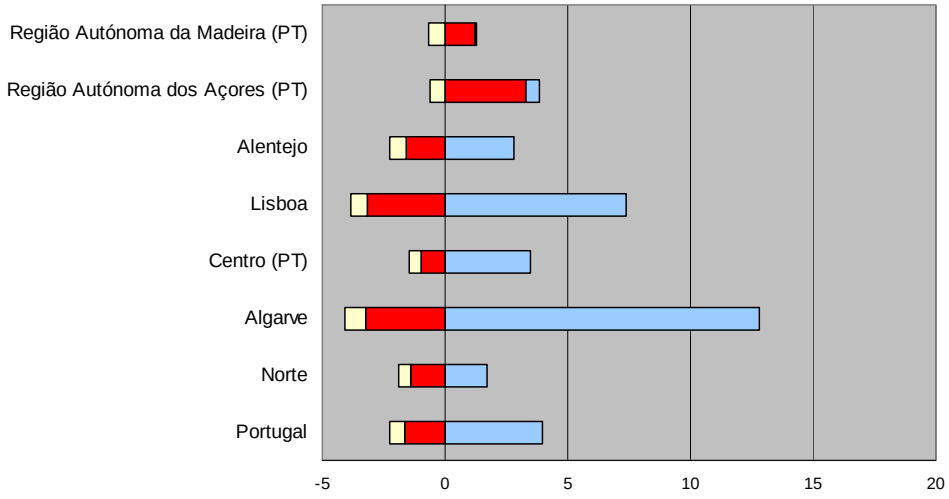


Figure 63 Portugal: Growth of the 'old' working age population (40-64)

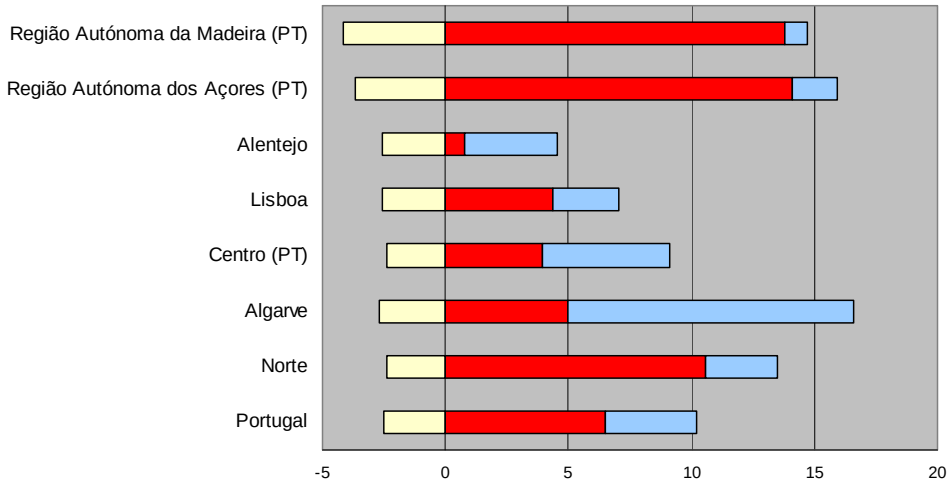
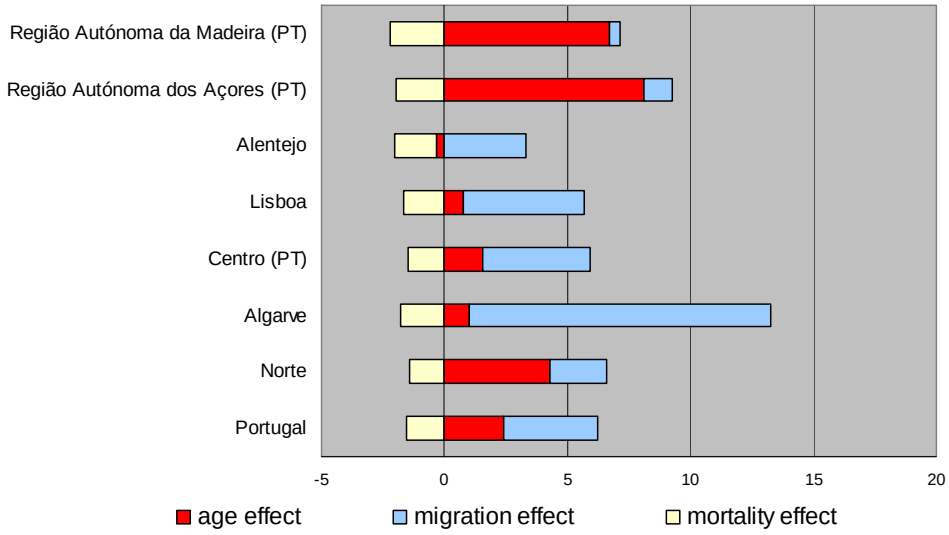


Figure 64 Portugal: Growth of the total working age population (20-64)



Source: Eurostat; calculations NIDI.

Figure 65 Romania: Growth of the 'young' working age population (20-39)

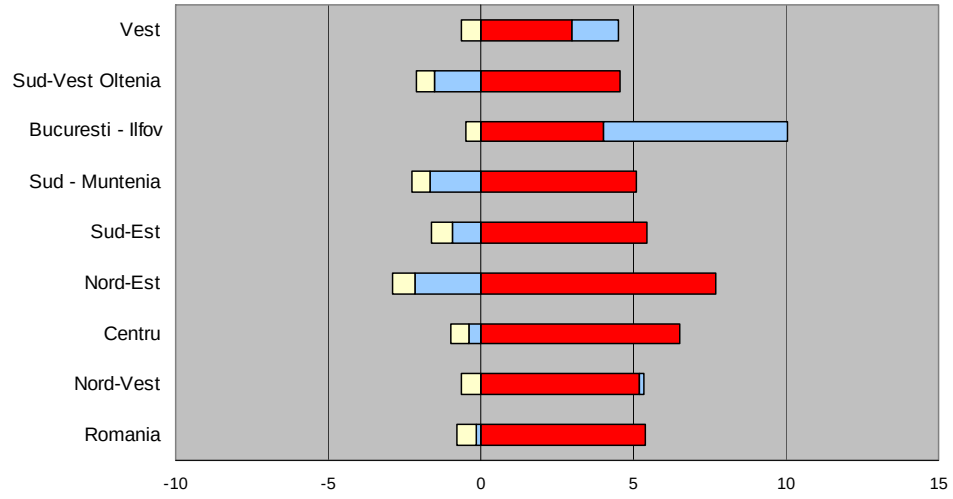


Figure 66 Romania: Growth of the 'old' working age population (40-64)

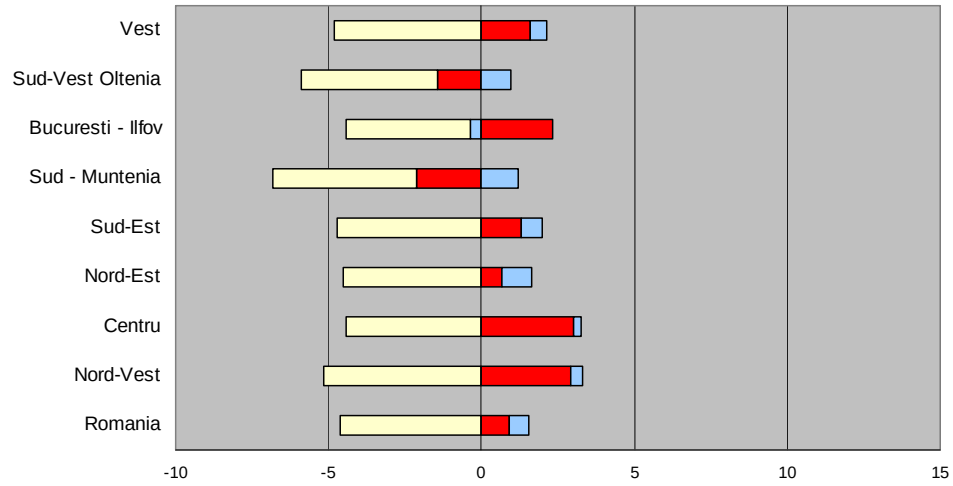
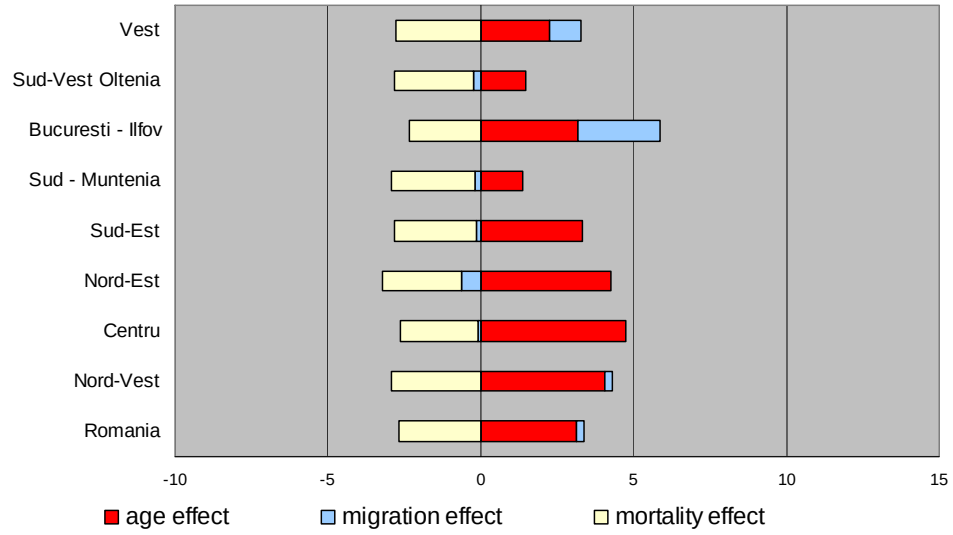


Figure 67 Romania: Growth of the total working age population (20-64)



Source: Eurostat; calculations NIDI.

Figure 68 Sweden: Growth of the 'young' working age population (20-39)

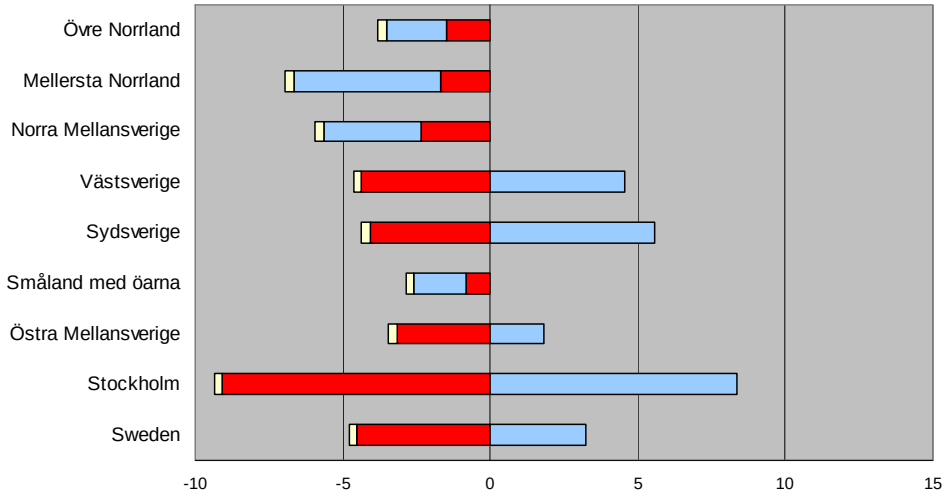


Figure 69 Sweden: Growth of the 'old' working age population (40-64)

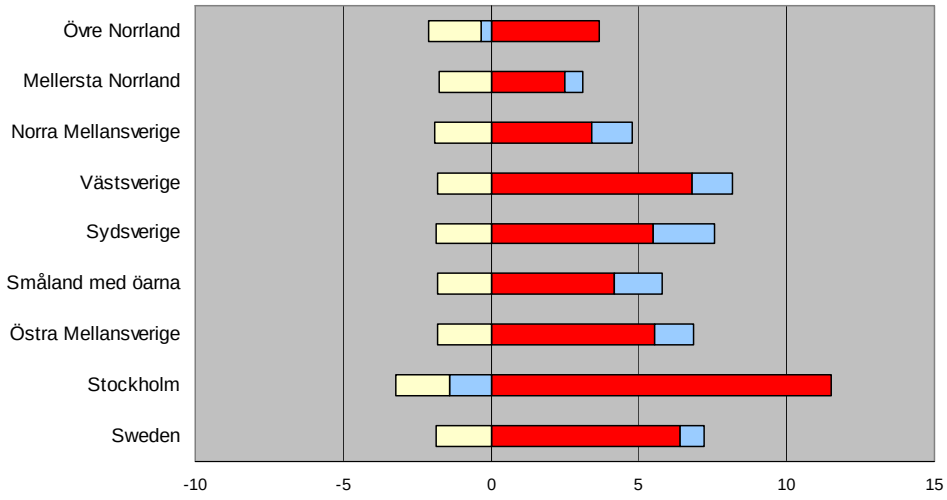
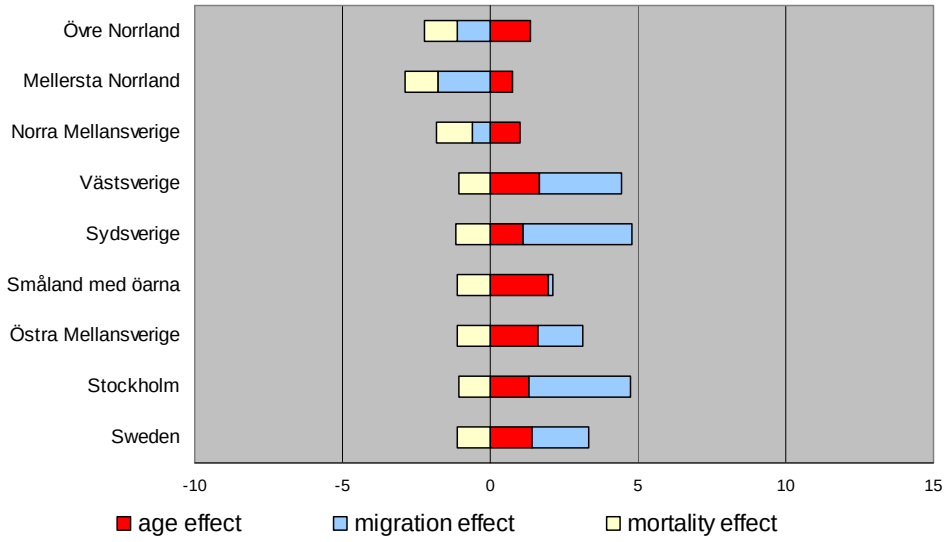


Figure 70 Sweden: Growth of the total working age population (20-64)



Source: Eurostat; calculations NIDI.

Figure 71 Slovakia: Growth of the 'young' working age population (20-39)

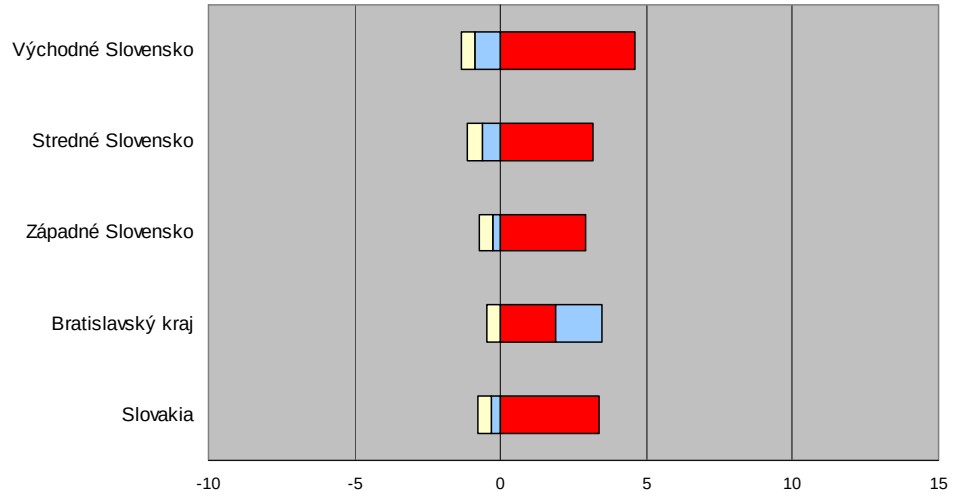


Figure 72 Slovakia: Growth of the 'old' working age population (40-64)

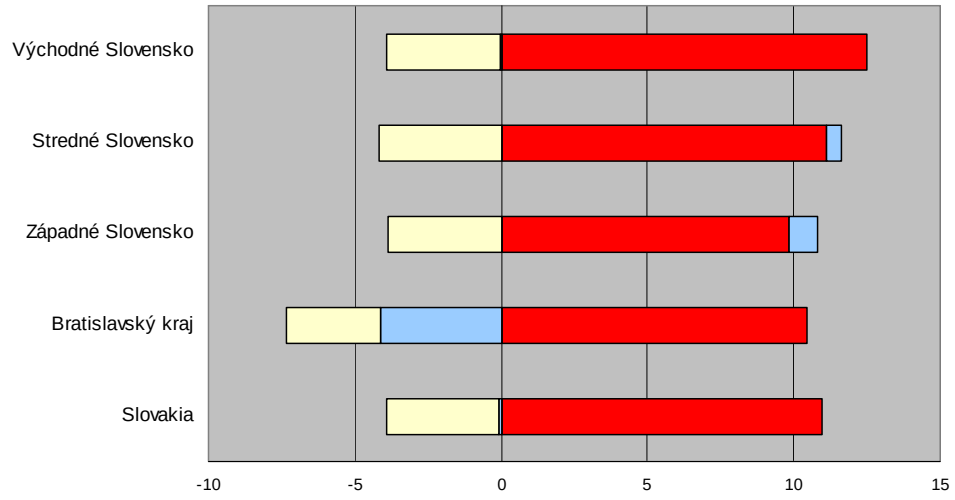
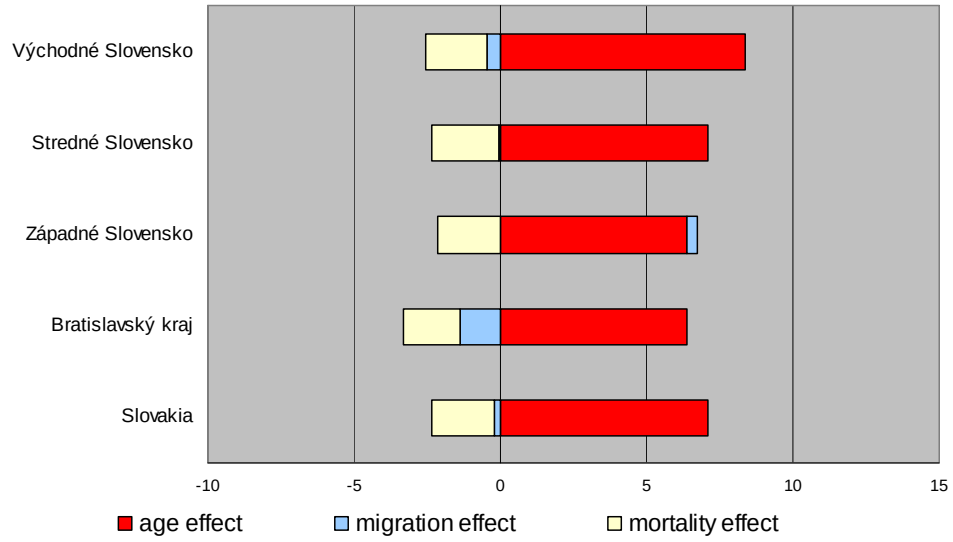


Figure 73 Slovakia: Growth of the total working age population (20-64)



Source: Eurostat; calculations NIDI.

Figure 74 United Kingdom: Growth of the 'young' working age population (20-39)

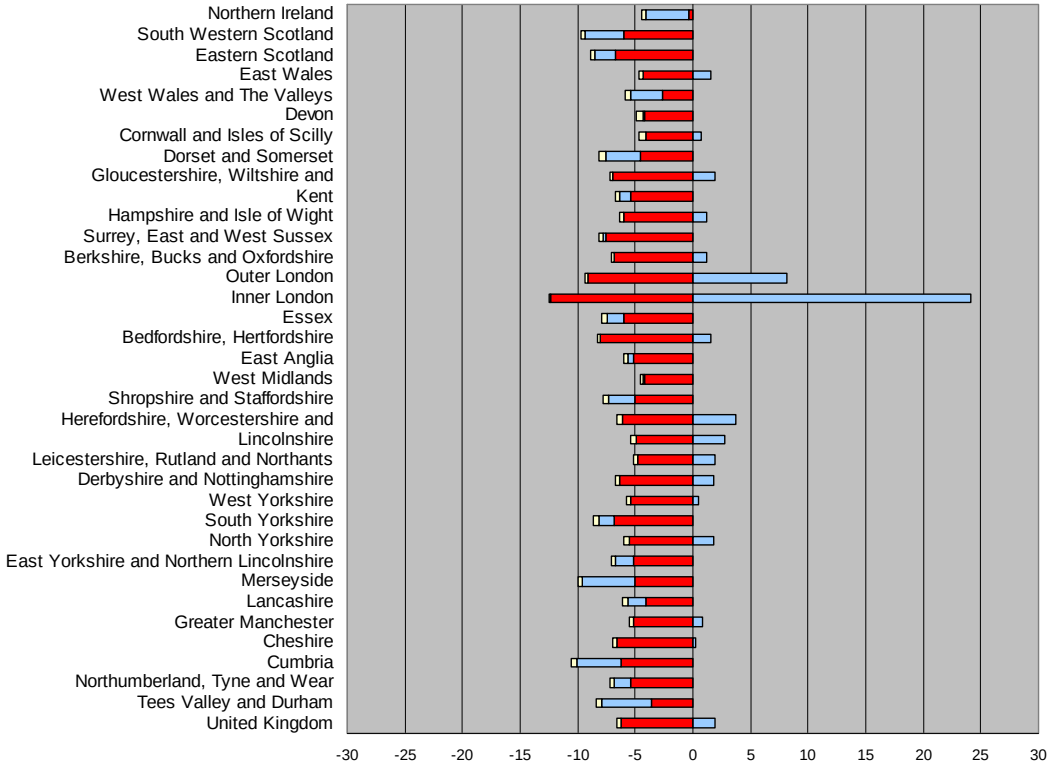
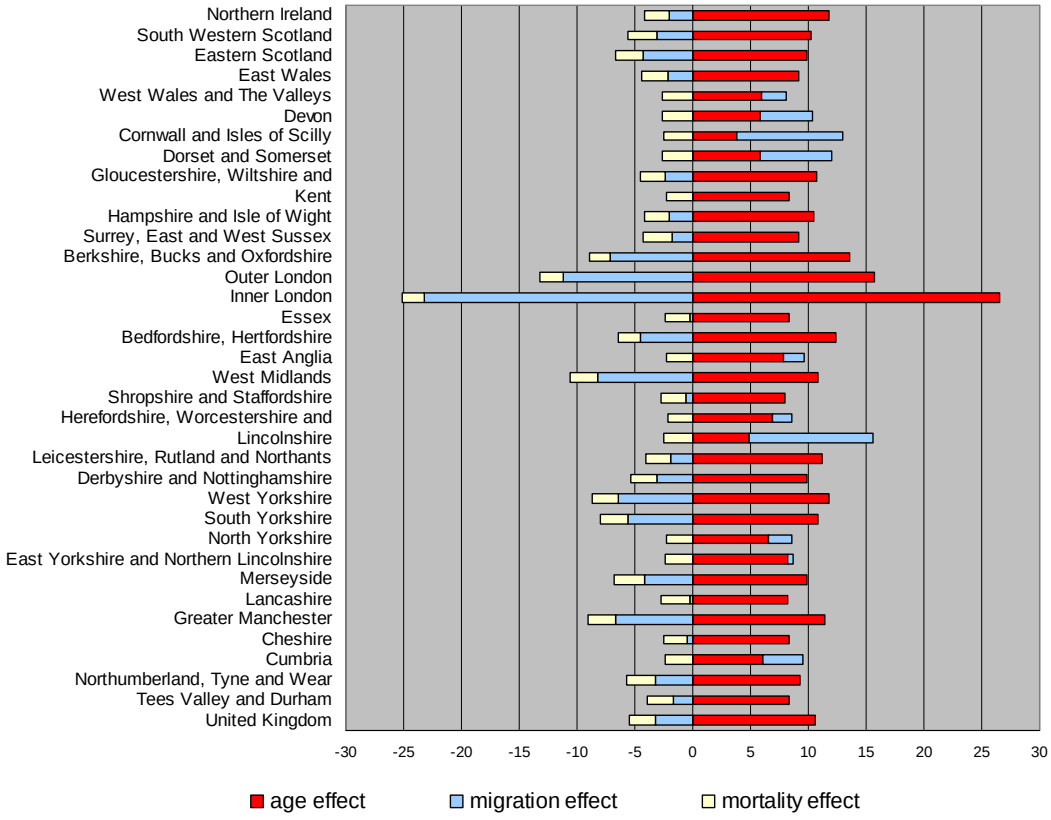
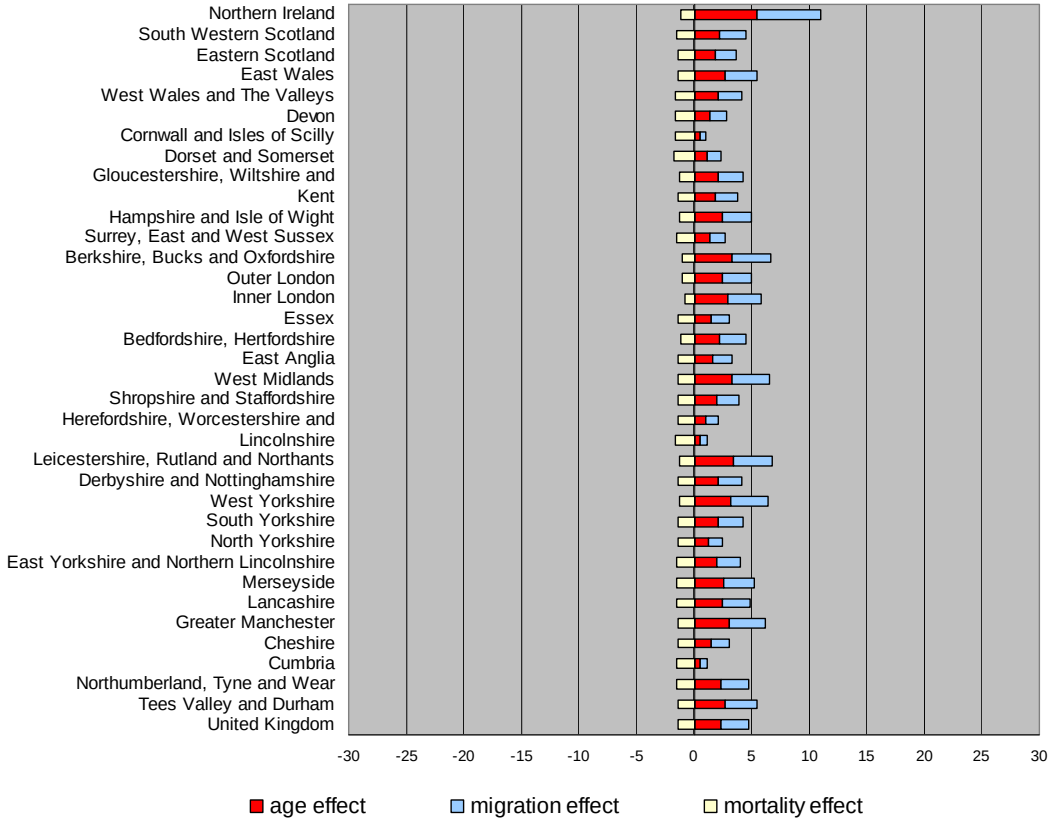


Figure 75 United Kingdom: Growth of the 'old' working age population (40-64)



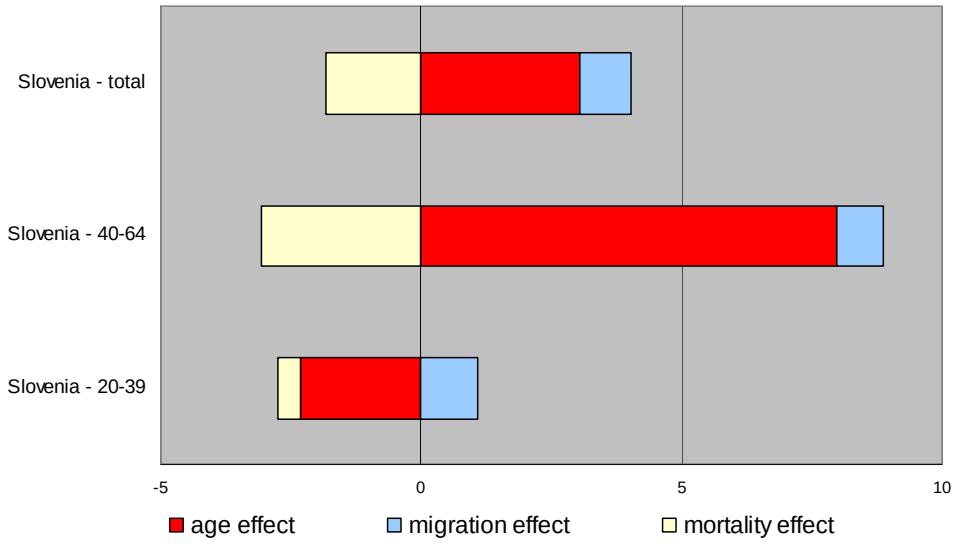
NB Period is 1 January 2000 – 1January 2004.
Source: Eurostat; calculations NIDI.

Figure 76 United Kingdom: Growth of the total working age population (20-64)



NB Period is 1 January 2000 – 1January 2004.

Figure 77 Slovenia: Growth of the working age population



Source: Eurostat; calculations NIDI.