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EXECUTIVE SUMMARY

There is a great diversity of demographic dynamics across the globe. Some world regions will experience steady population growth, whilst others will face severe population decline. Population growth in Europe will slow down considerably relative to the United States and the emerging economies of China and India and Europe is the second most rapidly ageing world region, after Japan.

Europe's immediate neighbourhood, the Middle East and North Africa region has the world's second fastest growing population, after sub-Saharan Africa. Demographic developments in South East Europe and in the European CIS countries will be similar to that in the EU. Future migration flows towards the EU will mainly arrive from the Mediterranean region, in view of differences in living standards and population trends exacerbated by natural resource constraints.

There are however wide variations in demographic patterns between and within Member States. Regional variability will depend on various factors such as fertility rates, migration flows, gender, health, disability and the demographic patterns of ethnic groups. Three important processes – notably population decline, shrinking working-age population and an ageing population - will have a marked effect on regions. These variables have been combined in a demographic vulnerability index, mapping the regions which will be particularly vulnerable to demographic challenges.

Around one third of European regions will face population decline, located mainly in Central and Eastern Europe, Eastern Germany, Southern Italy and Northern Spain. The highest shares of elderly population will be found in Eastern Germany, North-West of Spain, Italy and some parts of Finland. In Central and Eastern Europe, the impacts of ageing will be delayed owing to their younger population. However, significant increases in their old-age population are expected in the long run.

The share of working-age population is expected to be particularly low in several of the Finnish, Swedish and German regions. The magnitude of decline in the working-age population shows significant variations. Some regions in Bulgaria, Eastern Germany and Poland will be particularly hard hit, with a decline exceeding 25% by 2020.

Demographic change will potentially impact on regional growth through a shrinking labour force. The extent to which a shrinking labour force will constitute a drag on growth will largely depend on the educational attainment, productivity of the labour force and on future participation rates. Ageing will lead to significant increases in public expenditure, in particular on pension, health and long-term care. Ensuring access to high quality public services will constitute a major challenge for European Member States and regions. Increasing urbanisation will impact on environmental sustainability, in particular on the use of natural resources and eco-systems. The socio-economic integration of migrants and marginalised groups of society will be precondition to mitigate the complex effects of an ageing population.

The significant regional divergence in demographic patterns will most likely generate a substantial asymmetric socio-economic impact on European territories, which might further increase regional disparities in Europe.

INTRODUCTION

The challenge of demographic change and its widespread economic and social implications have received considerable attention in Europe in recent years. All Member States and regions will be increasingly confronted with the complex effects of population change in the coming years and decades. The nature and the scale of the demographic developments will however differ substantially across European territories.

This paper explores the main underlying factors influencing the magnitude of *regional variations* of population change in Europe and examines the implications of demographic change for regional growth, equity and environmental sustainability. The paper reveals significant divergence in regional demographic patterns in Europe, which will most likely generate a substantial *asymmetric impact* on European territories.

The paper is structured along the following lines:

Section 1 describes how Europe stands with regard to global population growth. Global benchmarking reveals that population growth in the EU will slow down considerably compared to the Union's key competitors, notably the United States, China and India. Europe will also face the second largest increase in old-age dependency ratios after Japan. The section also examines the dynamics of population change in Europe's neighbourhood. It shows that most countries in the Middle East, North Africa and Central Asia will face steady population growth, while the demographic situation in the European CIS region and in South East Europe will be similar to that in the EU.

Section 2 examines the variations in the main components of population change, notably fertility, life expectancy and net migration. It reveals that many regions in Central and Eastern Europe, Eastern Germany and Southern Italy will face population decline, while others located in Western Europe will gain population. It shows the influence of further factors in regional demographics, as well such as gender, health, disability and the demographic patterns of ethnic groups. Finally, a composite index maps the regions which will be particularly vulnerable to demographic challenges through a shrinking labour force, an ageing society and population decline.

Section 3 explores the economic, social and environmental implications of demographic change. It shows how population change will potentially impact on growth and influence key factors of competitiveness. It shows that demographic change will lead to increases in public expenditure and has particular implications for equity. Finally, it concludes that demographic change may impact on social polarisation as well dependent upon the socio-economic status of elderly people, immigrants and minority groups.

The paper draws from the 2004 national and regional population projections produced by Eurostat, which were the latest available on a regional scale, during the preparation of the paper². The figures are adjusted to EU27 as far as possible. A detailed methodological section is included.

² The 2008 national population projections released by Eurostat in August 2008 are based on a so-called Convergence scenario, in contrast to the trend scenario applied for EUROPOP 2004.

1. DEMOGRAPHIC CHALLENGES FOR EUROPE

1.1. Dynamics of global population growth

Following an increase from 2.5 billion in 1950 to 6.7 billion in 2005, global population growth is projected to continue and reach 9.1 billion by 2050. Around 95% of the population growth will occur in the less developed world regions, in particular in the 50 least developed countries, whose population is set to double. The fastest population growth will take place in Africa. The population of the more developed regions is however expected to remain largely unchanged at 1.2 billion, including the growing contribution of international migration. Net migration from developing to developed countries is expected to average 2.3 million persons a year after 2010.

As a result of declining fertility and increasing longevity, a growing number of countries are rapidly ageing. Between 2005 and 2050, half of the increase in the world population will be accounted for by a rise in the population aged 60 years or above, whereas the share of population under age 15 will decline from 28% in 2005 to 20% in 2050.

Population growth in the EU will slow down considerably compared to key competitors and start to decline after 2025³. By 2050, there will be 48 million fewer 15-64 year old people and 58 million more above 65. A shrinking labour force will potentially reduce overall employment and act as a break on growth. EU population will account for 6.4% of the world's population in 2020 and 5.2% in 2050 compared to 7.5% in 2005.

Europe however will not be ageing alone. Significant increases in the old-age dependency ratios are projected by 2020 in other developed countries as well, like the United States and Japan or China and India. Nevertheless, the Union's old-age dependency ratio (defined as the number of people aged 65 year and above relative to the working-age population aged between 15-64 years) will be well above the corresponding ratios of its global competitors, such as the United States, China and India, with exception of Japan.

Table 1 Global population growth

	Population (million)			Share of world population (%)			Old-age dependency ratio		
	2005	2020	2050	2005	2020	2050	2005	2020	2050
EU27	490	496	479	7,5	6.4	5.2	22	29	48
USA	299	342	402	4.5	4.4	4.3	18	24	34
China	1312	1421	1408	20.1	18.5	15.3	11	17	39
India	1134	1379	1658	17.4	17.9	18	8	10	21
Japan	127	124	102	1.9	1.6	1.1	30	47	74
Africa	922	1270	1997	14.1	16.5	21.7	6	7	11

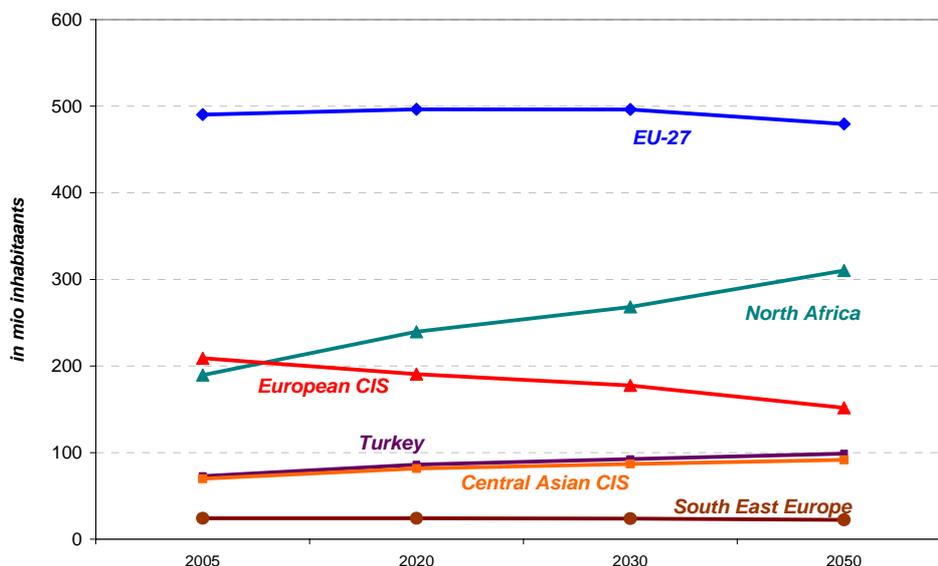
Source: United Nations World Population Prospects. The 2006 revision.

³ According to EUROPOP2004

1.2. Population Change in Europe's Neighbourhood

Europe's neighbourhood shows great diversity of demographic patterns. The European CIS region and South East Europe, similarly to the EU, will face stagnating or declining working-age populations. At the same time, the Middle East and North Africa region (MENA), Turkey and Central-Asia will experience sustained population growth with a growing number of young people entering the labour force.

Graph 1 Population change in Europe's neighbourhood



Source: United Nations World Population Prospects (2006) and DG REGIO staff calculations

Among the **European CIS countries**, the largest relative population decline by 2025 will take place in Ukraine (-24%), Georgia (-17%), Belarus (-14%) in view of low fertility and increasing longevity. Russia is projected to face a population decline of 12%.

The **Caspian and Central Asian CIS** countries will experience steady population growth, due to fertility levels, which are above natural replacement. The magnitude of population growth by 2025 will range from 42% in Tajikistan, 38% in Uzbekistan to 18% in Azerbaijan.

Migration in the CIS region is significant. Russia is the second largest migrant receiving country in the world (with 75% of immigrants coming from other CIS), while Ukraine the fourth and Kazakhstan the ninth largest receiver of migrants. The majority of migrants from poorer CIS economies travel to resource-rich CIS countries, but migrants also move towards the EU and Turkey. Germany is the major receiver of migrants from CIS countries and Ukraine and Kazakhstan the major senders (map-Annex).

Demographic developments in **South East Europe** will be similar to that in the EU. Most countries will face population decline with the exception of Albania.

Population growth in **Turkey** is projected to reach 23% by 2025 due to its young age structure and high fertility. The **Middle East and North Africa** (MENA) has the world's second fastest growing population, after sub-Saharan Africa (1 in every 3 people in the MENA region is aged between 10 and 24). Total population is projected to grow from 313 million in 2005 to 438 million by 2025 (+40%) and to 557 million by 2050 (+78%).

Governments in the MENA region are increasingly confronted with the challenge to provide basic services for a steadily growing population, including education, health, sanitation and housing. Population growth has exacerbated natural resource constraints in the region as well. Most countries are already designated as water scarce, falling below the international threshold of 1,000 cubic meters of fresh water per capita per year. Climate change will potentially further aggravate the situation.

The MENA region also exhibits the world's highest unemployment rates, in particular for the youth. According to ILO estimates, over 20% of young men and 30% of young women were unemployed in the MENA region in 2005 (Annex). (In Algeria, the respective figure is 43% and 46%). Insufficient job opportunities exert a strong pressure to emigration. Migration is significant both within the MENA region itself (migrants seeking jobs in the oil-producing Gulf states) and towards the EU. Remittances are an important source of national income for labour-sending countries. Some MENA countries encourage emigration, in view of 'benefits' and to mitigate the high unemployment.

Examining population trends in the global context and in Europe's neighbourhood, revealed that Europe will experience one of the slowest population growth rates in the world and one of the largest increases in old-age dependency ratios, after Japan.

Steady population growth in the MENA region, will contribute to increasing migratory pressure on Europe, in view of the differences in living standards and population trends, exacerbated by natural resources constraints.

2. SPATIAL EFFECTS OF DEMOGRAPHIC CHANGE

2.1. Variations of regional demographic patterns

Within the context of the aforesaid global population trends, European territories show a great diversity of demographic trends and dynamics. Some European regions will experience steady population growth, whilst others will face severely declining or stagnating populations.

Projections (Map 1)⁴ suggest the following trends in regional population dynamics in 2020 (*see also* chapter 2.3. *on regional demographic vulnerability index*):

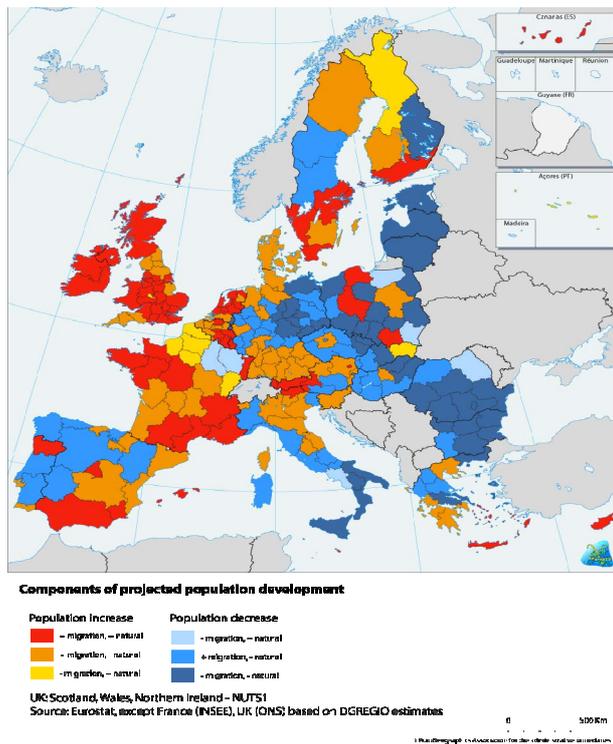
- Many regions in Northern and Western Europe (with the exception of Eastern Germany) and the French outermost regions will gain population as a consequence of natural population growth and high inward migration.
- Southern Europe shows a heterogeneous picture comprising of both regions with high population growth (Southern Spain, Southern France, Cyprus, Malta) and regions with declining populations (Southern Italy, some regions in Greece).
- Many Convergence regions of Central and Eastern Europe will face population decline, as a consequence of low fertility rates and high net outward migration.

⁴ EUROPOP2004 produced by Eurostat based on assumed patterns in fertility, mortality and migration (the main components of population change).

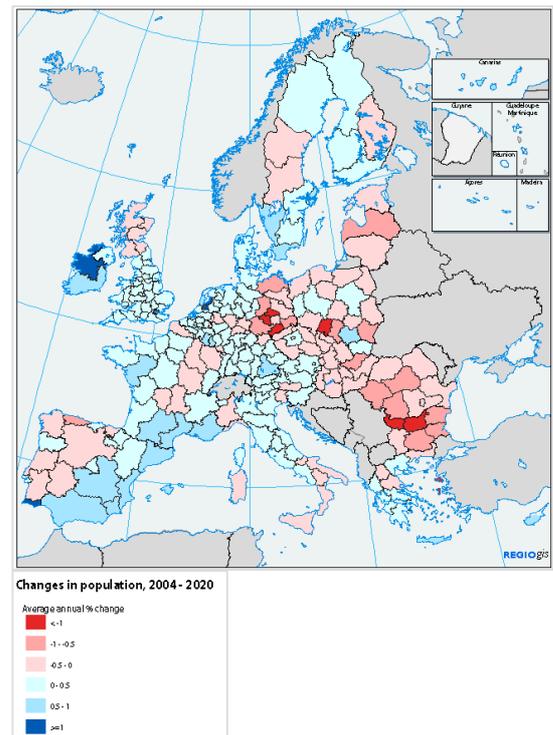
- Metropolitan regions in general show a more favourable demographic situation, as a consequence of high inward migration of working-age population (both interregional and international).

Population change will occur at a particular high pace in some European regions (Map 2). The average annual rate of population decline will exceed 1% in 6 regions (*Severozapaden, Dessau, Opolskie, Voreio Aigaio, Severen tsentralen, Chemnitz*). On the opposite end, 4 regions (*Flevoland; Border, Midland and Western; Utrecht, Algarve*) will experience an annual average population growth rate of more than 1%. Rapid population change (both population growth and decline) will constitute specific challenges for regional planning and natural resource.

Map 1
Migration, natural growth 2020



Map 2
Rate of population change 2020

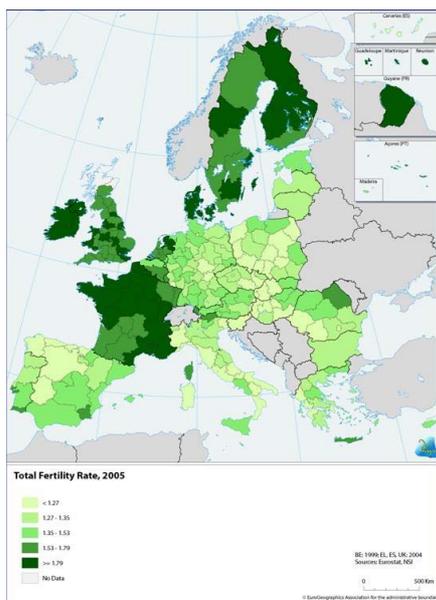


Regional variability in demographic patterns will depend on a combination of factors, such as differences in the main components of population change (fertility, mortality and migration) as well as the gender composition in regions, health status, disability and the demographic patterns of ethnic groups.

Fertility rates

Fertility rates, one of the main drivers of population change, are projected to remain well below the natural replacement rate of 2.1 children per woman across Europe. Significant variations in fertility rates remain between Member States. In 2020, France is projected to have the highest rates (1.86), while Italy and Spain the lowest (1.40). In most EU12 countries, fertility rates are assumed to currently reach their lowest level and are expected to rise (from 1.25 to 1.58 by 2020) as most of them enter into the third stage of the postponement process. In EU15 fertility is projected to increase from 1.55 to 1.61 by 2020.

Map 3 Regional fertility rates



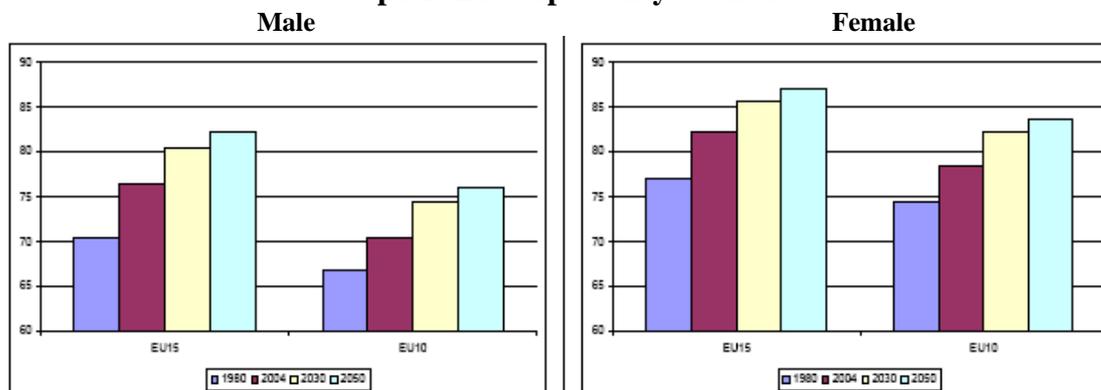
Considerable differences are observable in fertility rates among European regions. The degree of variability of regional fertility rates within Member States differs significantly. Spain and Romania show the largest regional variations.

The main underlying causes of differences in regional fertility in Europe are related to the socio-economic structure of the population, in particular to educational attainment, occupational status and income. Contextual factors linked to the place of residence (availability of infrastructure, housing, cultural features) also influence regional fertility levels.

Life expectancy

Life expectancy at birth, the other main component of population change, is projected to further increase by 3 years for male and 2.6 years for female in EU25 by 2020, and by 6.3 years for male and 5.1 years for female by 2050. The largest gains in life expectancy are projected to take place in the Central and Eastern Europe, where current levels are significantly lower than in Western Europe. Nevertheless, life expectancy at birth in the CEECs is projected to remain below that in Western and Northern Europe.

Graph 2. Life expectancy at birth



Source: EPC and ECFIN

Migration flows

Migration has become a major determinant of demographic change in the Union. Annual net migration inflows reached 1.3 million people in 2004 (0.35% of the population) and are projected to fall to 800 000 people between 2015 and 2050 (0.2%).⁵ This represents an inflow of 40 million people between 2004 and 2050. International migration is however only expected to partially offset the process of population ageing in Europe.

Other projections⁶ suggest that in 2005-2010 net migration more than doubles the contribution of natural increase to population growth in Belgium and Spain, and that net migration counterbalanced the excess of deaths over births in Austria, Greece, Italy, Portugal, Slovakia and in Slovenia. In terms of annual averages, the major net receivers of international migrants in Europe between 2005 and 2050 are projected to be Germany (150.000), Italy (139.000), the UK (130.000) and Spain (123.000).

Migration is influenced by various economic, political and social factors acting as 'push' factors in the country of origin and 'pull' factors in the destination country of migrants. Economic possibilities, expectations about differences in income and quality of life as well as rising demand for labour induced by an ageing population in Europe represent a considerable pull factor for international migration. High population growth in Europe's neighbouring continent, in particular in Africa coupled with poor economic performance, and political instability is among the main push factors for migrants.

Migration involves both *costs* and *benefits* for sending and receiving countries. For sending countries, large-scale migration can deprive the economy from needed human capital and disrupt community and family structures. For receiving countries, it may lead to falling wages induced by new competition (for lower skills) and may put a strain on social services and create social friction. The benefits for sending countries are the remittances (in many emigration countries, household income and national output are strongly tied to remittances) and the relieved pressures on domestic labour markets. For receiving countries migration can address labour market shortages and attract new skills.

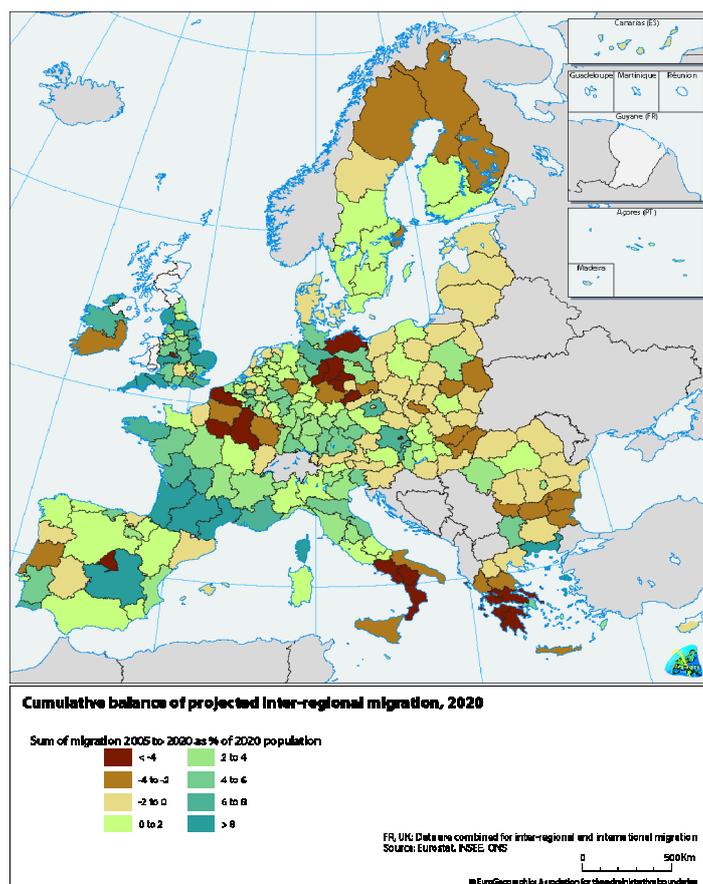
Regional variations in international and interregional migration flows

There are significant regional variations in terms of international migration flows (Map 2). The majority of international migration is expected to go to regions in Western and Southern Europe, in particular to regions in the United Kingdom, Southern France, Greece and Spain. Many Central and Eastern European regions will however experience significant outward migration, in particular regions in Romania, Bulgaria and Poland.

⁵ According the Ageing Working Group (AWG) scenario

⁶ United Nations World Population Prospects., The 2006 revision.

Map 5 Projected interregional migration



Source: Eurostat and DG REGIO staff calculations

2.2. Article Specific factors in regional demographics

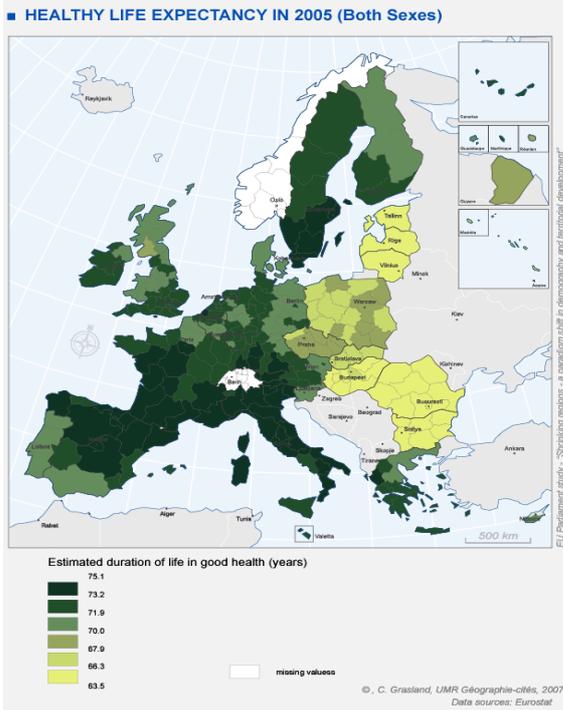
In addition to low fertility, increasing life expectancy and migration, various other factors will also influence the demographic composition of European regions. These include the health status of the population, disability rates, gender composition of regions as well as the demographic patterns of ethnic groups.

Health status and disability

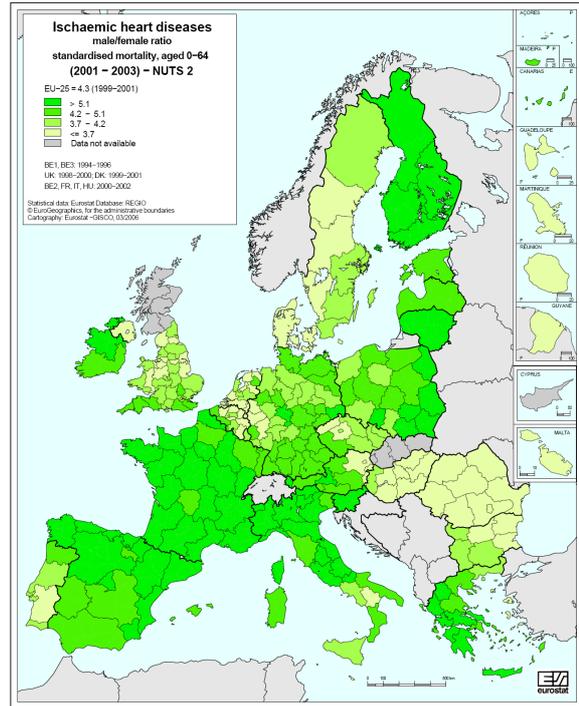
Although life expectancy is projected to increase throughout Europe, the extent to which the future gains in life expectancy will be spent in good health and free of disability is expected to vary. Health outcomes differ considerably between European regions. Health inequalities are in many cases larger within countries than between Member States.

Gender inequalities in health are also significant (map). Regional disparities in health outcomes can be attributable to differences in socio-economic status and working conditions, behavioural, cultural factors and differences in public health policies between Member States and regions.

Map 6 Healthy life expectancy, 2005



Map 7 Ischaemic heart disease, male/female



Gender composition of regions

Gender composition is a main determinant in regional demographics. A number of regions in Eastern Germany, the Nordic and Baltic countries and in Southern Europe face a strong rural-urban migration of high skilled females in the economically active age groups. This phenomenon exacerbates the low fertility trend and in many cases results in a high degree of 'masculinisation' of rural areas.

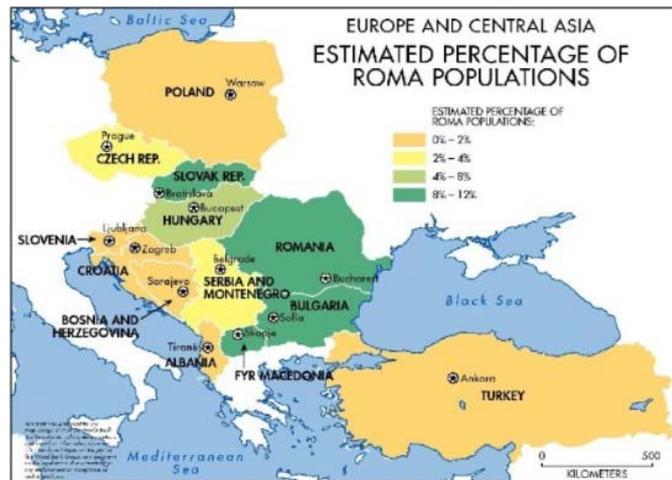
Ethnic consequences of population change

A further factor influencing the demographic composition of regions is the location and demographic patterns of ethnic groups. Some Member States and regions will experience a rapid alteration in the composition of their population according to ethnic origin arising from the effects of immigration. (Research suggests that the foreign-origin proportions⁸ of total populations will increase significantly in several countries). The socio-economic integration of migrants constitutes an important challenge for Member States and regions, especially in metropolitan regions, which are primary targets for international migration flows.

⁸ The foreign-origin proportions include the first generation immigrant population and the second generation born in the host country.

Map 8 Estimated percentage of Roma populations

Europe's largest minority population, the Roma, living in Central and Eastern Europe and Spain shows diverging demographic patterns compared to the majority population. Currently the proportion of Roma is estimated to range from 3% in Czech regions to 6% in Hungarian and 8-12% in Slovak, Bulgarian and Romanian regions. While fertility rates are projected to remain well below the natural



Source: World Bank

replacement rate of 2.1 children per women across Europe, the Roma shows above replacement fertility. At the same time, mortality rates among the Roma remain high. These characteristics indicate that the Roma is in another phase of demographic development than the majority population. A large segment of the Roma is concentrated in socially and economically backward regions, has low educational attainment, poor health and is economically inactive. The socio-economic integration of the Roma is a precondition for long-term sustainable growth in many Central and Eastern European regions.

Regional variability of demographic patterns will be therefore be influenced by a combination of often mutually intertwined factors.

2.3. Regional exposure to demographic change

Three important processes of a shrinking working age population, an ageing society and population decline will affect many regions strongly. These have been combined to create a composite demographic vulnerability index. The following conclusions can be drawn:

Population decline

In total, 93 European regions, located mainly in Central and Eastern Europe, Eastern Germany, Southern Italy and Northern Spain, are projected to experience population decline by 2020. These regions will account for 29.8% of the EU27 population in 2020, compared to 32.2% in 2004. The degree of decline shows high variability. 18 European regions, are projected to face a decline of more than 10% by 2020 (namely, *in order from highest decline: Severozapaden, Dessau, Opolskie, Voreio Aigaio, Severen tzentrale, Chemnitz, Halle, Vest, Yuzhen tsentralen, Magdeburg, Severoiztochen, Yugoiztochen, Slaskie, Thüringen, Podkarpackie, Mecklenburg-Vorpommern, Centru, Desdren*).

At the other end of the spectrum, 42 regions located in the United Kingdom, Southern France, Southern Spain, the Netherlands, Malta, Cyprus, will experience a population growth of more than 10% by 2020.

Old-age population

The highest shares of old age population are projected to be reached in Eastern Germany, Northern Spain, Italy and some parts of Finland. In Central and Eastern Europe, the impacts of ageing will be delayed due to their younger population and lower life expectancy. However, significant increases in old age population are expected in the longer term in these regions.

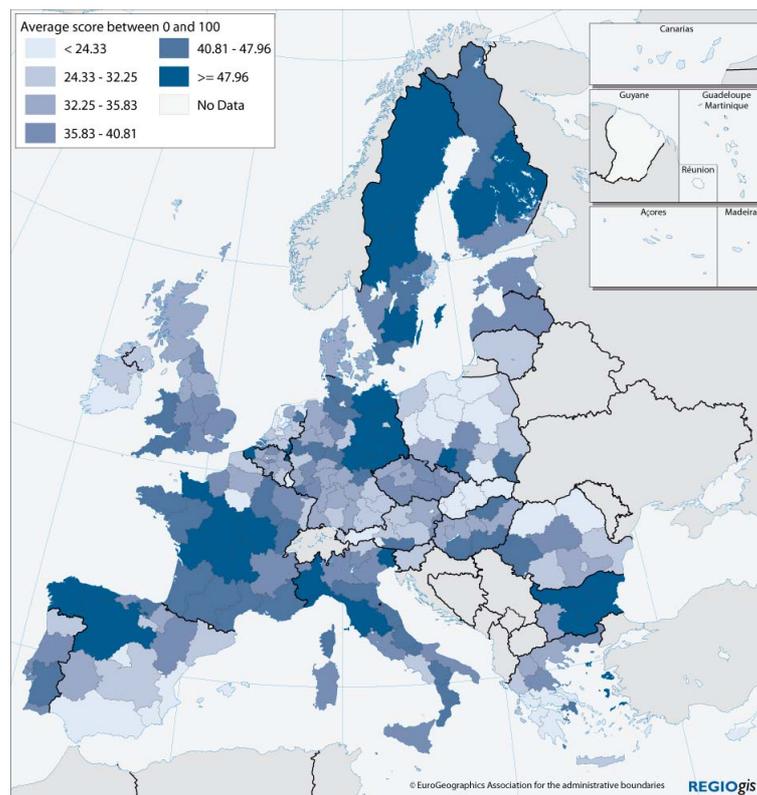
Working-age population

The share of working age population is expected to be particularly low in several of the Finnish, Swedish and German regions. It is noteworthy that the magnitude of decline in the working-age population shows significant variations: 44 European regions will experience a decline of more than 10%. Some will be particularly hardly hit with the decline exceeding 25% (*Severozapaden, Dessau, Chemnitz, Halle, Opolskie*) and reaching 20% (*Magdeburg, Thüringen, Mecklenburg-Vorpommern, Severen tsentralen*). Shrinking working-age population is expected to negatively impact on regional growth. The extent to which a shrinking labour force will constitute a drag on growth will largely depend on the educational attainment, productivity of the labour force and on future participation rates

Around 40 regions will experience a decline of more than 10% by 2020. Some regions in Bulgaria, Eastern Germany and Poland will be hit particularly hard with a decline exceeding 25% by 2020. These regions suffer from a combined effect of low fertility and high out migration.

Map 9 Demographic vulnerability index, 2020

Demography vulnerability index, 2020



Source: Eurostat, DG REGIO staff calculations

3. IMPACT ON GROWTH, SUSTAINABILITY AND EQUITY

Demographic change has widespread economic, social and environmental implications. Population ageing may affect such macroeconomic variables as productivity, investment, consumption, and savings. This chapter reviews how demographic developments will impact on growth, environmental sustainability, equity and social polarisation.

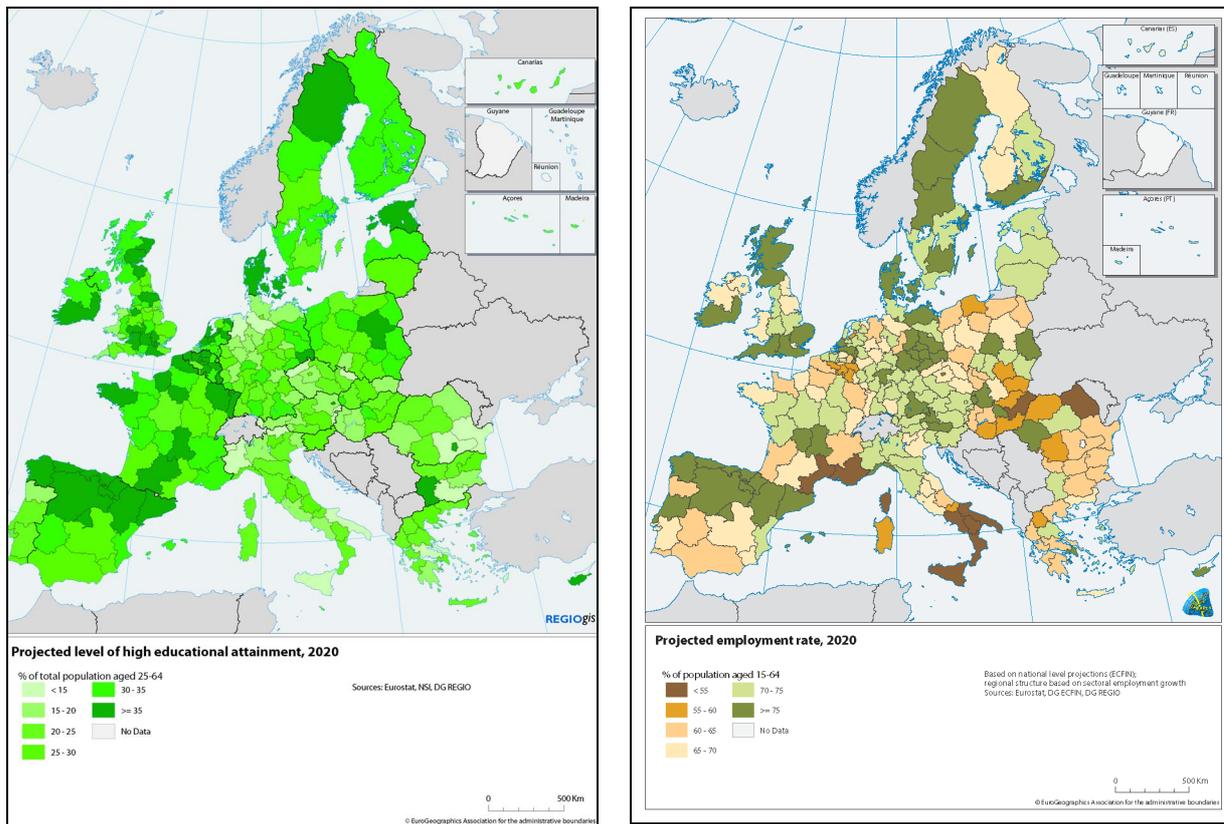
3.1. Impact on growth and competitiveness

Population change may potentially impact on regional growth, mainly due to a shrinking working age-population. A large share of the regions facing population decline are predominantly less affluent, in many cases rural and remote regions characterised by relatively low income levels, high unemployment and a large proportion of the workforce employed in declining economic sectors.

The impact on regional growth will depend on various factors such as the composition, skills and productivity and participation rates of the future labour force. Regions with high educational attainment, will be able to partially offset the effects of demographic change through higher labour productivity (Northern Spain, Sweden, Finland). However, in regions where the sharp decline in working-age population is coupled with a relatively low educational attainment will be particularly hard hit by demographic challenges (Italy, Romania, Bulgaria). High participation rates can also contribute to mitigate the complex effects of population change. Demographic change however will also represent new economic opportunities, for instance the 'silver economy'.

Map 10 High educational attainment, 2020

Map 11 Employment rate 2020



Source: Eurostat, DG REGIO staff calculations

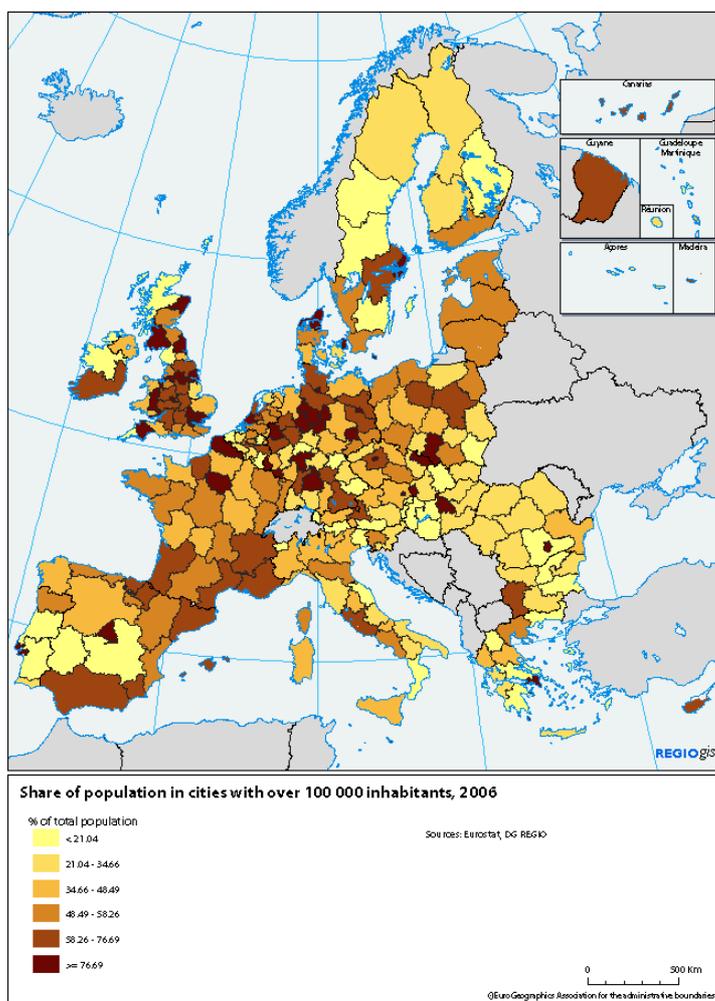
Demographic change strongly influences key factors of competitiveness of European regions. A recent study⁹ assessed the risks of demographic change from a business perspective, through combining population change with location and contextual factors, such as labour supply, human capital, labour productivity and R&D performance. The composite Regional Demographic Location Risk measure showed an unfavourable demographic-contextual-location link for many Central and Eastern and Southern European regions, while a more favourable situation for Northern and Western European regions with some variations. It also revealed how contextual factors can influence the demographic composition of regions.

3.2. Environmental sustainability

Demographic change can be considered as a major driving force behind the growth or decline pathways in urban and rural areas. Map 12 below shows the share of population living in cities over 100 000 inhabitants. Urban population is projected to further increase throughout Europe, albeit at a much slower pace than during the past decades. While some cities will experience population growth, others will however experience increasing sub-urbanisation. Rural population will continue to decline as a result of the continuing migration from rural to urban areas.

Map 12 Share of population in cities with over 100 000 inhabitants, 2006

⁹ Mapping Regional Demographic Change and Regional Demographic Location Risk in Europe, Rostock Center for the Study of Demographic Change



Increasing urbanisation has widespread implications for environmental sustainability. It affects the use of natural resources, eco-systems and impacts on nature conservation. It has particular implications for urban land use, infrastructure, housing markets and greenery. Ageing-induced public infrastructure needs will constitute specific challenges to cities in relation to sustainable urban development.

3.3. Public finances and equity

Ensuring sustainable and quality public finances to guarantee adequate social protection and intergenerational equity will constitute a major challenge for Member States and regions.

Increases in public expenditure

Population ageing puts pressure on social expenditure. On the basis of current policies, total age-related public expenditure is projected to increase by 3.4 percentage points of GDP for EU25. Expenditure on pensions, health and long-term care alone is projected to increase by 4.4 percentage points for EU25 and up to 10 percentage points in some Member States.

Providing affordable long-term care will constitute a major challenge, especially in view of the underprovision of such services in several Member States. Ageing will put pressure on other social expenditure items as well such as disability benefits and various

transfer payments. In this context, ensuring access to essential public services will constitute a major challenge for Member States and regions. Regions with declining populations consisting mainly of elderly citizens will need to meet increasing demand for public goods and services, such as health care, long-term care, housing, transport and tourism. Regions facing an influx of elderly people preparation for retirement will need to meet increased demand for certain public services and utilities.

Integration of immigrants and other minority groups

The social and economic integration of immigrants will constitute specific challenges for regions receiving large scale international migration (in particular in Western and Southern Europe). Similarly, the integration of disadvantaged minority groups (Roma) will be a precondition for sustainable growth in many regions in Central and Eastern Europe. Access to the labour market, education and training (language skills) are generally considered to be among the main barriers to integration. Cultural factors and labour market discrimination are likely to have an impact as well. (*See point 3.4. on social polarisation*)

3.4. Ageing and employment policy

The implications of demographic change for the relative size of the working population in Europe will depend on participation rates, in particular for the elderly. Policies to foster human capital by supporting lifelong learning should accompany labour market policies, taxes, benefit systems and pension schemes. “Human capital” is the guiding principle to sustainable economic development, since it makes easier the processes of learning and skill retention that bear such high returns in the information age. Training and higher education facilitate sustained productivity growth, material advance and good health during the working age. What younger workers experience now will have an impact on their labour market decisions and outcomes when older.

In an era of rapid population ageing, many public policy measures and private employment practices which discourage the employment at older age represents a waste of valuable resources for contemporary society.

Regions with a particularly high score in lifelong learning include Denmark, most Swedish regions, Etelä-Suomi in Finland (where Helsinki is situated), regions in the South-East of the UK, Noord-Holland and Bayern in Germany. All of these regions were ranked in the top quintile as regards at least five of the six indicators. The regions with the lowest scores can be found in Romania, Poland and Slovakia, where this reflects a combination of low productivity, low employment and low expenditure on R&D¹⁰, even if the general trend in Europe is a decline of training by age.

¹⁰ 4th Report on Economic and Social Cohesion

The importance of tertiary education for regional competitiveness and the capacity for growth is reflected in the uniformly high employment rates of university graduates which prevail across the EU. Some 84% of those aged 25–64 were in work in the EU as a whole in 2005, the proportion varying from a high of 88% in the UK and Lithuania to a low of 81% in Italy and Bulgaria. The variation is slightly wider across regions. Nevertheless, there are no regions in the EU where the proportion of university graduates in employment fell below 70% and only 6 where it fell below 75%, four of these being in southern Italy, reflecting the generally low employment rates among women (the other two were Corse and Mecklenburg-Vorpommern in Germany). By contrast, the employment rate of 25–64 year-olds with no education beyond basic schooling averaged just 56%, 28 percentage points below the rate for graduates. It was over 75% in only two regions in the EU, both in the UK (Berkshire, Buckinghamshire and Oxfordshire and Essex), while it was below 25% in four regions (Severozapaden in Bulgaria, Slaskie in Poland, Leipzig in Germany and Vychodne Slovensko in Slovakia).¹¹

3.5. Impact on social polarisation

Demographic change might lead to further increases in social polarisation in Europe. The impact on social polarisation will largely depend on the geographical location and socio-economic status (education, occupation, income as well as health, disability) of elderly people, immigrants and minority groups.

Poverty risks among *elderly people* are particularly high. The at-risk-of poverty rate¹² (after social transfers) for persons aged 65 years and above is in most Member States higher than that for the rest of the population. The social impact of ageing varies *spatially*. Elderly people with low income living in deprived urban areas or peripheral rural areas are increasingly exposed to the risk of poverty and social exclusion.

The impact on social polarisation will also depend on the extent to which *immigrants* and other *minority groups* are integrated in the economy and society. The average employment rate of immigrants from countries outside EU27 was 4.3% lower than of natives (60.3% and 64.5% respectively). The employment rates for non-naturalised immigrants (third country nationals) lagged 10.5% behind that of citizens of the country of residence and their unemployment rates reached 18%. (Employment rates for immigrant women are even lower¹³). The low employment rates of immigrants are highly related to their low educational attainment.

The social exclusion and marginalisation of migrants is associated with particular risks. The risk of disadvantaged and segregated migrant communities is that their members may retreat from society and look for other ways of asserting their identity. The growing proportion of economically inactive and lowly educated minorities (ie. Roma communities) in certain regions may lead to further increase in social polarisation.

¹¹ 4th Report on Economic and Social Cohesion

¹² At-risk-of poverty rates are defined as the share of persons with an equivalised disposable income below an at-risk-of poverty threshold, which is set at 60% of the national median equivalised disposable income.

¹³ For instance, in 2005 immigrant women with citizenship of Turkey or countries of the Middle East and North Africa had the lowest employment rates in EU25 reaching 30.3% and 22.4% respectively.

3.6. Child poverty

Child poverty is a key area of policy concern. The share of children in the total EU population is projected to decrease further to around 15% in 2050, as a result of the ageing of European societies. Yet, in 2005, 19 million children lived under the poverty threshold in the EU-27, meaning that 19% of children were at risk⁶ of poverty, against 16% for the total population. In 2005, there were 97.5 million children aged 0-17 in the EU-27 (20% of the population), that is 10 million less than in 1995 when they still represented 22% of the population.

Children living in a migrant household (defined as household where at least 1 parent is born abroad) face a much higher risk of poverty than children whose parents were born in the host country. In most countries the risk of poverty rate they face reaches 30% or more and is two to five times higher than the risk faced by children whose parents were born in the country of residence. In most EU countries children are at greater risk of poverty than the rest of the population, except in the Nordic countries (where 9 to 10% of children live below the poverty threshold), SI (12%), CY (13%), and EL (20%) where the child poverty rate is lower or equivalent to that of the overall population. In almost half of the EU countries, the risk of poverty for children is above 20%, reaching the highest levels in Eastern Europe.

3.7. Synthesis matrix of drivers and impact

Drivers/impacts	Interregional disparities in growth potential	Environmental sustainability	Intraregional social disparities
<p>Ageing</p> <p><i>Indicator:</i> - changes in population above 65</p>	<p style="text-align: center;">+</p> <p>Population ageing may affect key drivers of regional growth such as productivity, investment and consumption.</p>	<p style="text-align: center;">+</p> <p>Age-related infrastructure needs (health, long-term care, housing and other urban infrastructure) constitute challenges for regions in terms of sustainable urban development.</p>	<p style="text-align: center;">+</p> <p>Poverty risks for persons aged 65 and above are high. Elderly people with low socio-economic status in deprived urban or peripheral rural areas are increasingly exposed to the risk of poverty and social exclusion.</p>
<p>Working-age population</p> <p><i>Indicators:</i> - changes in working-age population</p>	<p style="text-align: center;">++</p> <p>Shrinking labour force can constitute a drag on regional growth, dependent on the productivity of the labour force and participation rates.</p>	<p style="text-align: center;">0</p> <p>No clear link</p>	<p style="text-align: center;">0</p> <p>No clear link</p>
<p>Migration</p>	<p style="text-align: center;">+</p> <p>Migrants' contribution to growth-skills composition</p>	<p style="text-align: center;">+</p> <p>Infrastructure development needs for immigrants?</p>	<p style="text-align: center;">+</p> <p>The impact will depend on the extent to which immigrants are integrated in the regional economy and society.</p>

4. CONCLUSION

All European regions will be increasingly confronted with the complex effects of demographic change, however with different intensity and divergent patterns. Regional variability will depend on a combination of factors such as differences in fertility rates, migration flows, life expectancy, gender composition, health status, disability and the location and demographic patterns of ethnic groups.

Around one third of European regions will experience population decline by 2020. Many of them are less affluent regions characterised by relatively low levels of income, low participation rates and a high proportion of the workforce employed in declining economic sectors. A shrinking labour force will potentially impact on regional growth potentials in these areas. At the other end of the spectrum, some European regions will face steady population growth, which will pose particular challenges in terms of sustainable urban development.

Population change is also expected to lead to large increases in public spending, mainly on pension, health care and long-term care as well as on other public infrastructure. Ensuring access to high quality public services will constitute a major challenge for European Member States and regions. The socio-economic integration of migrants and marginalised groups of society will be preconditions to mitigate the effects of a rapidly ageing population in several regions.

This paper revealed significant divergence in regional patterns of population change which will most likely generate a substantial asymmetric impact on the European territory. Such an impact would further increase economic and social disparities between different geographical areas in Europe.

METHODOLOGICAL NOTES

The paper draws from the 2004 national and regional population projections produced by Eurostat (EUROPOP 2004), since the 2004 regional population projections were the latest available at a regional scale when the paper was prepared. Regional data for France and the United Kingdom were calculated on the basis of data provided by national statistical institutes. Global benchmarking is based on the 2006 World Population Prospects produced by the United Nations.

The *demographic challenge index* is composed of three variables: share of working-age population aged 15-64 years in 2020, share of population aged 65 years and above in 2020 and population decline by 2020. The indicators represent important structural indicators of demographic processes. Other factors will also influence the demographic composition of regions, such as health status, disability and ethnicity. These variables are however not included in the index in view of data limitations.

Since these indicators have different measurement units, they had to be normalised before aggregated in the following way: Standardized value = (Value for region - minimum value)/(maximum value - minimum value). In the case of the working-age population and the old-age population, a weight of 0.75 has been applied.

The standardized indicators have no unit and lie between 0 and 100. The standardized indicator on the share of the working-age population is subtracted from 1 so that higher values indicate a less favourable situation. The obtained values for the three indicators have been summed and divided by the sum of their weights (0.75+0.75+1). The final value is the arithmetic average of the three standardised indicators using their weights and standardised according to the above formula.

Given the standardization each region is compared relative to the situation of the total group of European regions. The obtained index allows for ranking the regions according to the severeness of the demographic challenges they will be facing in 2020.

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