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Europe: Population Change and its Consequences – An Overview

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Abstract

This paper provides a demographic overview. It looks at our recent past, at current demographic trends and projected population change in Europe. The main focus of the analysis is on Western and Central Europe (EU27/EEA). Today this world region has a total population of more than 500 million growing by almost two million per year. Available forecasts until the year 2050 project both substantial aging as well as a declining population at working age and a substantial increase in the number of retired people. The paper discusses the main drivers of population change in Europe, possible consequences of demographic aging as well as the main policy options. The paper also looks at neighboring regions and their demographic situation.

Today, three major trends shape Europe's population: longevity, a declining number of children and increasing numbers of migrants. In this respect Europe combines demographic "extremes": Many of the 27 EU member states and other parts of Europe experience the lowest fertility ever recorded in human history. At the same time many EU member states together with other parts of Western Europe now report the highest life expectancy in the world. As a result Europe's population is aging. And the European Union has entered the stage of very slow demographic growth. During the 21st century, the number of people living in this world region will most likely reach a historical maximum followed by some decline. The age group 0-15 is already shrinking. Subsequently Europe faces declining working age populations and the prospect of declining native labor forces. As a result prospects as well as consequences of demographic aging are widely discussed throughout Europe.

Total population

Since the mid-19th century Europe's population has more than doubled. During the last decades this increase was less pronounced. In 1960 today's 27 EU member states had some 415 million inhabitants altogether. Since then, this number has increased by 80 millions.

In early 2007, the European Union had 495 million inhabitants – more than ever before: of these, 393 million were either citizens or foreign residents of the 15 pre-enlargement member states. The other 102 million were citizens or foreign residents of the 12 new EU member

states.[1] Some 12 million people were living in four countries directly associated with the European Union[2] and another 80 million people in EU candidate countries.[3]

Population change in 2006

Overall population growth is decreasing. But the number of people living in the macro region of Western and Central Europe as a whole is still growing. In 2006, total population in the 27 EU member states and 4 associated countries[4] (=EU27+4) grew by +1.9 million people.

The smaller part of this increase is caused by "natural growth". During the year 2006, some 5.3 million children were born in Western and Central Europe (EU27+4) while 4.9 million people died. This excess of births over deaths (+400.000 people) accounted for one fifth of overall growth. The larger part of increase in total population was based on international migration. The number of people entering Western and Central Europe in 2006 exceeded the number of people leaving this macro region by some 1.5 million people. This caused the other four fifths of recent European population growth. Not included in this figure are several hundred thousand intra-EU migrants moving from one member state to another.

In 2006, 22 out of 31 EU member states and directly associated countries still experienced some natural population growth. The remaining 9 countries, however, reported more deaths than births. In the coming years the number of countries with declining domestic population will inevitably increase.

In sharp contrast to historical periods prior to the 1960s and 1970s, today most countries of Europe register more immigrants than emigrants. This leads to a positive migration balance. In 2006, this was the case in 24 of the 31 EU member states and directly associated countries. Out-migration only prevailed in 7 countries.

A considerable number of Western and Central European countries – 19 out of 31 – had both an excess of births over deaths and a positive migration balance. Several countries, in particular the Czech Republic, Italy, Greece, Slovenia and Slovakia, only reported population growth because of immigration. In other countries, for example Germany and Hungary, gains from migration were not large enough to stop population decline; but recent population decline would have been much larger without a positive migration balance. Only 6 out of 31 countries, – the Baltic States, Bulgaria, Poland, and Romania experienced both an excess of deaths over births a negative migration balance.

Despite such differences in recent population change, the countries of Western and Central Europe (EU27+4) form an aggregate of societies with somewhat different but not totally divergent demographic characteristics.

Births and the average number of children per woman

During the 19th century Europe's woman on average had 4.5 children. That family size was less than half of what would have been possible biologically. This clearly hints at historical birth control long before the introduction of hormone-based contraceptives, IUD's and the legalization of abortion in most of today's EU member states.

The last big wave of births occurred during the 1950s and 1960s when most countries of Europe experienced a post-war baby boom. After reaching a maximum in the mid-1960s, the number of births has fallen considerably. During the 1970ies the average number of children fell below the "magic" threshold of two per woman. Demographers call this "below replacement fertility". This term describes the situation that Europe's parent generation is no longer completely being replaced by next generation of their children. For quite some time, this deficit did not become visible, because the large cohort of the baby boomer had children themselves. But this period is over. Now the birth decline of the past is reducing the number of potential parents leading to a further decline in the number of births. In contrast to Western European patterns several countries of Central Europe reported increasing numbers of births during the 1970, but showed rapid decline since 1990 reaching the lowest historical levels in the early 21st century. In part this is due to a rapid increase in childbearing age which could eventually lead to a small fertility catch up once this trend is leveling off.

Today all societies of Western and Central Europe have fewer than 2 children par family. On average women in Europe give birth to 1.5 children. In a parallel development the proportion of woman without children is growing.

Within EU27, the highest number of children per woman can be found in France, Denmark, Ireland and Sweden (1.7-2.0 children). There fertility is just below replacement level. In a few countries of Europe – including the Czech Republic, Lithuania, Poland and Slovenia – the number of children per woman has even been falling below 1.3. This is the lowest fertility ever recorded in the history of mankind. In Germany, Italy and Spain the average is only slightly above 1.3 children. In Russia and Ukraine fertility levels are similar to the ones in neighboring Central Europe. After a certain transitional period such low numbers of newborn children inevitably lead to shrinking native populations. As described above, several EU member states have already reached this stage.

Over the last 2-3 decades Europe has experienced a reversal of traditional fertility patterns. Until the 1980s countries with a large proportion of Roman Catholics and a low labor force participation of women usually reported the highest numbers of children per family. Today the highest fertility is recorded both in countries with high female labor force participation and with a dominantly Protestant population. On the other hand some countries with an extended Muslim population also report relatively high fertility.

Mortality and life expectancy

Some 150 years ago people in Europe died at all ages. Since the late 19th century, life expectancy has doubled. This has dramatically changed our lives. Today we can assume that Europeans reaching the age of 1 will also be alive at their 60th birthday. The main reason for this are improved food supply, hygiene, and living conditions. Medical and pharmaceutical progress also played a role. As a result Europeans no longer die from infectious diseases. Instead the main killers now are cardiovascular diseases, in particular heart attacks, and cancer. If we manage to overcome today's major killers based on a mix of prevention, improved early stage diagnosis and more efficient therapies, a considerable part of the next generation would almost inevitably suffer (and eventually die) from Alzheimer's disease, Parkinson's disease, geriatric diabetes, and other types of chronic illness.

In all countries of Western Europe life expectancy meanwhile has reached its highest historical levels. In contrast, most countries of Central and Southeastern Europe have seen periods of increasing life expectancy as well as periods of stagnation and even decline. Today Europeans on average have a life expectancy at birth of 75 years for men and of 82 years for woman. European men on average enjoy the longest life span in Switzerland and Sweden, European women in Switzerland, Spain and Italy. In Central Europe, life expectancy is lagging behind EU-15 average by 5 to 10 years. Some new EU member states, however, in particular the Czech Republic, Slovakia and Slovenia are clearly catching up, while life expectancy continues to increase in Western Europe at a pace of 2-3 months per year. Since infant and child mortality have now reached very low levels, this essentially translates into a gain in life expectancy above the age of 50. If this trend would continue throughout the 21st century we could expect a further increase of our life span by some 15-20 years.

In sharp contrast to EU27 life expectancy in neighboring CIS countries is stagnating or even declining. Russian and Ukrainian men, for example, now die on average below age 60 – almost 20 years earlier than their Western European peers.

International migration

Between 1750 and 1960 Europe was the prime source region of world migration, sending some 70 million people—the equivalent of almost one quarter of continental population growth—overseas. During the last 50 years, however, all countries of Western Europe[5] gradually became destinations for international migrants. Several of the new EU member states in Central Europe and the Mediterranean also follow that pattern.[6] It is very likely that, sooner or later, this will be the case in other new EU member states and candidate countries[7] as well. In contrast to this demographic reality, many Europeans still do not see their homelands as immigration countries—in particular not as destinations of permanent immigrants.

Today 42 million people residing in the European Union (EU27) and associated countries (other EEA, CH) are regular international migrants. They represent 8.3% of Western and Central Europe's total population. Some 14 million of these migrants have come from other EU member states (in some cases prior to the EU accession of their home countries). The remaining 28 million have come from other parts of Europe and other world regions. Among them some 19 million are immigrants from Asia, the Middle East and North-Africa, sub-Saharan Africa, Latin America and the Caribbean. During the last decade the main European sending countries were Poland, Romania and Ukraine.

A comparison of all EU/EEA countries shows: In absolute terms Germany has by far the largest foreign-born population, followed by France, the UK, Spain and Italy. Relative to population size, two of Europe's smallest countries – Luxembourg and Liechtenstein – have the largest stock of immigrants, followed by Switzerland, two Baltic States – Latvia and Estonia – and Austria. In the majority of West European countries the foreign-born population accounts for 7-15% of total population. Among the new EU member states of Central Europe, Slovenia has the highest share of foreign-born residents followed by the Czech Republic.

We can assume that the number of intra-EU migrants and migrants from third countries moving to EU27 is likely to grow. The main reason for this is the prospect of demographic aging and labor shortages in Europe that will eventually lead to a pro-active migration policy.

Shifting age structure

In the past Europe was home to significantly more young people than old people. Until the late 19th century those below age 20 made up for 50 percent of total population while those over age 60 only constituted a small minority. The result was a pyramid-shaped age distribution with a large base among the younger cohorts and a small top. Such age pyramids arise, among other things, from high fertility and mortality pattern where people die at all ages, but predominantly during infancy and later stages of childhood. Today such age structures and mortality pattern can still be found in some developing countries.

In Europe, during the last decades, low fertility and increasing life expectancy both reversed the age structure, leading to a shrinking number of younger people, to an aging and eventually shrinking work force, and to an increasing number and share of older people. Such an age structure can no longer be described as a "pyramid" as the gravity has shifted from the young to the old. This trend usually is called "demographic aging". As a result the mean age of Western and Central Europe's population has risen from 31 years in 1950 to 38 years in 2005. During the period 2005-2050, the mean age of the European Union's population (EU27) is projected to rise by 10 another years: from 38 to 48 years. Even immigration could not alter this change, since as a rule migrants come as adults, usually as young adults; and after arrival they are aging at the same pace as the locals.

Population forecasts for Europe and neighboring regions

Today the European Union has 495 million inhabitants. According to medium-term population projections published by EUROSTAT,[8] total population in EU27 will continue to increase until 2025 at a reduced pace. During the following period EUROSTAT expects a subsequent decline to 472 million in 2050, with all new and many old EU member states facing a marked decrease of native populations. The projection assumes continuing net gains from migration in the order of 40 million people during the period 2005-2050. In the absence of mass migration EU27's total population would already start to decline after the year 2010. By 2050 this number would have dropped to 422 million (Table 5).[9]

UN projections indicate that this decline will be even larger in the European CIS countries including Russia.[10] Sustained endogenous population growth – at least until 2030 – is expected for Albania, Kosovo, Macedonia, and Turkey. In the Middle East and North Africa populations will continue to grow also beyond that year. Labor importing Gulf States will double their total population to 71 million by 2050. In the remaining countries of North Africa and the Middle East (MENA14)[11] total population will grow from 313 million people (2005) to 432 million in 2025 and to 542 million in 2050.[12]

Projected demographic change has a significant impact on future age structure. In the European Union the size of the working age population (age group 15-64) was 328 million in 2005. This group will start to shrink after the year 2015 reaching 314 million in 2025 and 268 million in 2050. Within this group the momentum will also shift from younger to older people at employable age. At constant labor force participation rates the number of economically active people would shrink from 235 to 188 million in 2050. In the absence of any international migration this decline would be even larger. Under such – rather unrealistic assumptions – Europe's working age population would fall to 233 million; and the number of economically active people would drop to 163 million by 2050 (Table 5) if labor force participation

remain constant over time. On the other hand, as a result of increasing life expectancy and the aging of the baby boom generation the age group 65+ will grow from 81 million (2005) to 111 million in 2025 and to 141 million in 2050. This is an increase of some 60 million people (Table 3).

For Western and Central Europe the demographic process analyzed here can be characterized as shift from a society with quantitatively dominant younger cohorts to a society in which the elderly form a solid majority. This is reflected in the so-called "old age dependency ratio": Today for every 100 Europeans in working age group 15-65 there are 25 senior citizens in age group 65+. By 2050 this ratio will "deteriorate" to 53 senior citizens per 100 Europeans at working age. In that year Italy, Spain and Bulgaria are expected to have the highest old age dependency. The development is even more dramatic if we look at the ratio between the actual work force and the older population. Today in EU27 there are 35 senior citizens in age group 65+ per 100 Europeans actually working and contributing to the public coffer. Until 2050 (at constant labor force participation rates) this ratio would rise to 75 senior citizens per 100 people in the work force. This would constitute a dramatic old age burden for those still economically active and a threat to future pension levels (Table 4).

During the analyzed period, in neighboring countries of the Middle East and North Africa (MENA14) the number of people between ages 15 and 64 will almost double: from 195 million in 2000 to 289 million by 2025 and to 365 million by 2050. This neighboring Mediterranean region also faces an aging problem. Its population over age 65 will grow almost fivefold over the next 45 years (Table 6).

Policy options

For Europe the most obvious strategies coping with demographic aging and the eventual decline of native work forces are:

- *Higher retirement age*: In aging societies a considerable potential to increase domestic labor forces and to reduce the number of retirees rests in the reversal of a very common behavioral pattern: We would have to end early retirement. This strategy particularly applies to countries where actual retirement age is well below legal retirement age. In more than half of EU27 countries actual male retirement age has fallen to or even below age 60 whereas female retirement age already is well below age 60. As a result the employment rate in the age group 55-65 is only 40%. Taking into account ever increasing life expectancies room for the prolongation of life working time has widened over the past years. This option, however, demands a shift in attitudes both at employees' and employers' sides. In this respect current adult education and training programs, salary schemes, and pension systems must be reformed in order to make employment of older worker more attractive. It should also be publicly questioned whether the general attitude of systematically draining the pension systems at individual level is a responsible behavior.

- *Higher labor force participation rates of women*: In many European societies women do not only enter retirement earlier, but their overall employment rates are significantly lower than those of men. Policies supporting higher female employment have to focus on equal opportunities as well as on child care programs and school systems that help mothers to stay in the work force. In many EU countries – particularly in Southern

Europe and in the new member states of Central Europe –current labor force participation rates of women leave room for better utilization of an already available domestic potential.

- *Higher labor force participation rates of migrants*: In several EU countries immigrants have lower employment rates than the native-born population. In North-Western Europe this is true for immigrants from middle- and low-income countries – particularly for migrant women.

- *Active family policy*: In the long run, there may be no better strategy than improving domestic fertility rates and eventually reverse current downward trend. The examples of France and some Scandinavian countries show that this is not impossible. This requires a mix of material incentives provided by the state and institutional arrangement that allow mothers th stay in the work force and to secure their own income and, later on, an independent claim to an old age pension. In the short and medium term, however, shortages in the labor market cannot be met by means of family policy as children born in 2008 will not enter the labor market before 2028.

- *Pro-active economic migration policy*: This strategy obviously applies to countries with current and future shortages of labor and skills. Such gaps could obviously be solved with significant inflows of young adults from abroad. At the same time many of us have not yet realized that we are already competing for attractive immigrants. Competitors in this race are not only the EU member states themselves. The main competition is between the EU and traditional countries of immigration such as the US, Canada and Australia, disposing of sound historical experiences in setting up immigration policies. These countries are also characterized by relatively open societies, integrative cultures and – first and foremost – attractive labor markets. As an answer to this European migration policy must make the EU and its member states a more attractive destination for qualified and highly motivated potential immigrants and their families. In Europe today only a small number of the newly arriving migrants are selected according to their skills and professional experience.

Conclusions

The overall picture is clear: Europe's demographic situation is characterized by low fertility, an increasing life expectancy, and overall by a projected shrinking of native populations in the decades to come, This contrasts with the demographic prospects of neighboring regions to the South and South-East of Europe, where fertility is much higher, albeit declining, life expectancy is also increasing, and overall population is projected to continue to grow at a considerable pace.

Compared to other world regions Europe faces rapid demographic aging, During the period 2005-2050, the median age of the European Union's population (EU27) is projected to rise by 10 years: from 38 to 48 years. Demographic ageing is inevitable, but future changes in labor force and population at working age are not only determined by population dynamics, This gives European societies a variety of policy options including rising retirement age, higher labor force participation of women and a pro-active recruitment of migrant labor and skills, These strategies are not mutually exclusive, but – depending on the mix – they have different outcomes: Pro-active immigration policies will inevitably lead to much larger ethno-cultural

and religious heterogeneity; higher labor force participation rates would require a radical departure from early retirement which in many EU countries has become a widespread phenomenon, In any case Europe will experience a shift from societies with quantitatively dominant younger cohorts to societies in which the elderly form a solid majority.

Literature / Links

Annotations

[1] Of them: 101 million in Central Europe and the Baltic States (EU10).

[2] Multilateral association with EU27 within the framework of the European Economic Area (EEA): Iceland, Liechtenstein, Norway (= other EEA); bilateral association with EU27: Switzerland,

[3] Croatia, Macedonia and Turkey,

[4] Other EEA + Switzerland

[5] Western Europe is defined as EU's 15 pre-enlargement member states (EU15), Iceland, Liechtenstein, Norway and Switzerland.

[6] In 2005, Cyprus (Greek part only), the Czech Republic, Hungary, Malta, Slovakia, and Slovenia already had a positive migration balance.

[7] Croatia, Macedonia and Turkey are EU candidate countries. The former will no be admitted before 2010. The prospects of Turkish EU membership are uncertain.

[8] Based on EUROSTAT's Europop 2005 projection (baseline scenario) assuming cumulated net immigration of 40 million people to EU 27 (2005-2050).

[9] Based on EUROSTAT's 2005 zero migration variant assuming no immigration/emigration.

[10] Armenia, Azerbaijan, Belarus, Georgia, Moldova, Russia, and Ukraine

[11] Algeria, Djibouti, Egypt, Iran, Iraq, Israel, Jordan, Lebanon, Libya, Morocco, Syria, Tunisia, West Bank and Gaza, and Yemen

[12] Based on the 2004 Revision of UN World Population Prospects (UN WPP, medium variant; UN Population Division (2004, 2005).

Annex

Table 1: Demographic Indicators for Europe, 2006

	Pop. January 2006	births	deaths	Nat. pop. de/increase	Net mi-gration	Total pop. change	Pop. January 2007
	in 1.000	per 1.000 population					in 1.000
EU-27	**492.852**	**10.5**	**9.7**	**0.8**	**2.9**	**3.7**	**494.675**
Germany	82.438	8.2	10.2	-2.0	0.5	-1.5	82.312
France	61.045	12.8	8.5	4.4	2.6	6.9	61.469
UK	60.393	12.2	9.7	2.6	2.6	5.2	60.707
Italy	58.752	9.7	9.3	0.4	2.7	3.1	58.934
Spain	43.758	10.7	8.6	2.0	14.4	16.5	44.484
Poland	38.157	9.7	9.9	-0.2	-1.2	-1.4	38.102
Netherlands	16.334	11.3	8.4	2.9	-2.2	0.7	16.346
Greece	11.125	9.7	9.4	0.3	3.7	3.9	11.169
Portugal	10.570	10.4	9.7	0.8	2.9	3.7	10.609
Belgium	10.511	11.5					

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