HUNGARIAN CENTRAL STATISTICAL OFFICE

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STATISTICAL REFLECTIONS

16 July 2015

World Population Day, 11 July 2015

Contents

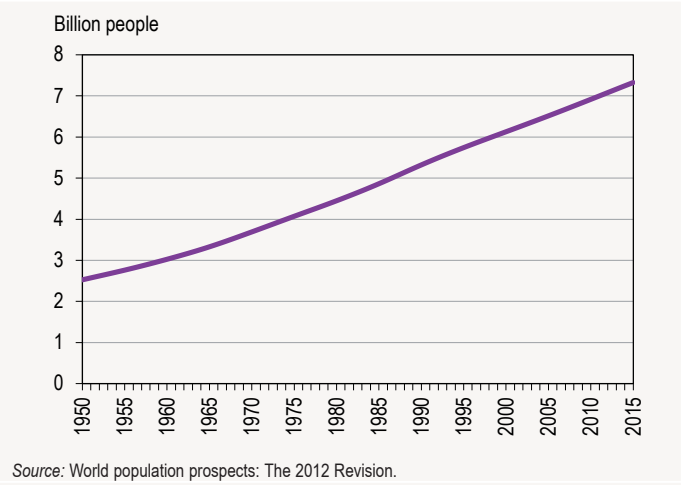
The world's population

Past features of population growth

According to the UN estimates, on 1 July 2015, the world's population exceeded 7.3 billion people.[1] The human population growth was very low and unstable over a long period of time, and significant population declines occurred frequently because of wars, famines and epidemics. The rate and extent of population growth can be traced on the basis of relatively reliable data for the last 350 years. According to these, the world's population number more than doubled between 1650 and 1850, and amounted to 1.26 billion in the middle of the 19th century. Following this, it took only hundred years that the population number doubled again and reached 2.5 billion in 1950. The explosive growth started in the middle of the last century, in 1960, the world's population number was more than 3 billion, and since that time, it has increased by another 1–1 billion people in every 12–15 years. The population number of 2.5 billion in 1950 doubled over 37 years, it was more than 5 billion in 1987 and rose to over 7 billion in 2012.

Figure 1

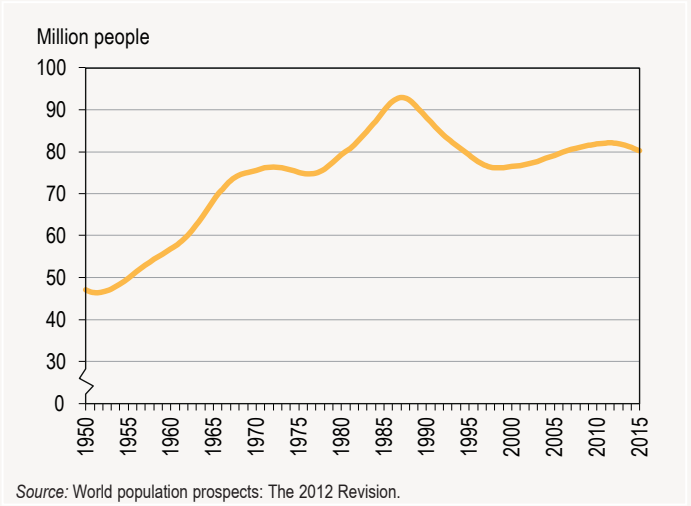
The world's population

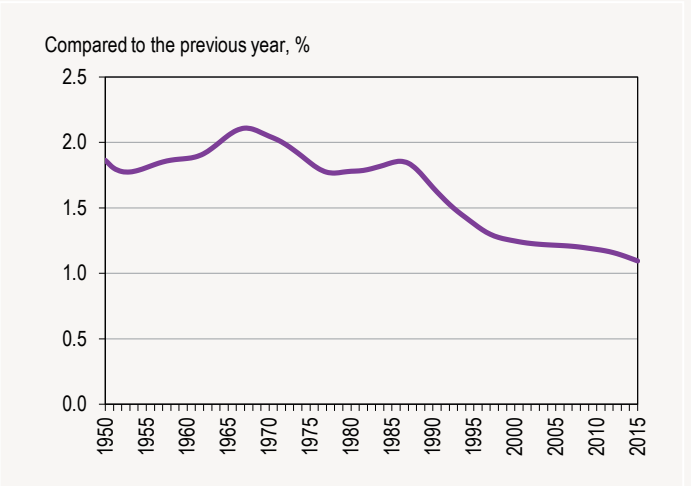


Source: World population prospects: The 2012 Revision.

Figure 2

Annual increase in the world's population





Source: World population prospects: The 2012 Revision.

[1] Estimates of the world's population number are mostly based on census and vital statistical data, where these are not available, they are made using the results of different types of – mainly representative – surveys. Source: World population prospects: The 2012 Revision.

The rate of population growth was the most considerable in the second half of the 1960s, when the population number increased by more than 2 per cent every year. In recent decades, the annual growth rate slowed down significantly, by about half to 1.1 per cent. This process affected a continuously increasing population number, thus, the annual absolute number of the growth has also increased: from 47 million people per year in the first half of the 1950s to 92 million people per year by the end of the 1980s. In 2014, the world's population number increased by 81 million, and it is expected to grow by 80.2 million in 2015.

The population growth affected very differently the population numbers of the continents. The population explosion could be detected mainly on the African continent, where the population number increased almost five-fold between 1950 and 2013, but also the population number of Asia and Latin America more than tripled over the same period. The smallest increase was in Europe with only 1.35-fold population growth. All these rearranged the distribution of the world's population by continents. In 1950, 55 per cent of the world's population lived in Asia, and this rate grew to 60 per cent by 2013. During the same period, the share of Africa's population increased from 9.1 per cent to 15.5 per cent. In 1950, Europe's population accounted for more than one fifth (21.7%) of the world's population, while in 2013, only for slightly more than one tenth (10.4%). Africa's population number is currently one and a half times as high as that of Europe, while in 1950, it was only less than half of that (42%). Compared to Asia, the shift in the population number is even more striking: in 1950, Asia's population was slightly more than twice of Europe's population, while currently it is nearly six times as high as that.

Fertility

The demographic driving force of the population growth is the fertility level. Basically, this determines the population number of the world and the continents, as well as its growth rate. The fact that the average number of children per woman globally fell by half, from 5.02 to 2.53 between 1960 and 2010 played the decisive role in the slowdown of the population growth. Among the continents, Asia should be highlighted where this indicator fell by more than half, and, among countries, China should be mentioned where the average number of children per woman decreased by more than two thirds, from 6.11 to 1.63 during this period. The decrease was smaller than the world's average in Africa where, currently, fertility is the highest: the average number of children per woman is 5 there. In the observed period, Europe always belonged to the low fertility continents; however, until the beginning of the 1970s, its population could replace itself. Since that time, the indicator has continued to decline, and at present, Europe is the continent with the lowest fertility which is much below the replacement level (1.54 children).

Table 1

Total fertility rate* by continents

Continents	1950–1955	1960–1965	1970–1975	1990–1995	2005–2010
Africa	6.60	6.70	6.66	5.71	4.88
Asia	5.83	5.76	4.99	2.96	2.25
Europe	2.67	2.56	2.17	1.57	1.54
Latin America and the Caribbean	5.86	5.95	5.02	3.02	2.30
North America	3.35	3.42	2.01	2.00	2.02
Australia and Oceania	3.84	3.95	3.23	2.49	2.47
World	4.97	5.02	4.44	3.04	2.53

* It expresses to how many children a female would give birth during her life at the birth frequency by age of the given year.
Source: World population prospects: The 2012 Revision.

Mortality, life expectancy

In addition to fertility, mortality has also an important role in the evolution of the world's population number. Declining fertility means fewer infants and lower average number of children, while, with the improvement of mortality, the fewer children live for a longer time. Between 1950 and 2010, average life expectancy at birth rose by nearly 22 years and approached 69 year of age globally. The most significant growth occurred in Asia and Latin America where people live 28 and 22 years longer respectively than sixty years ago. The increase in life expectancy at birth was the slightest in Europe and North America where the indicator always was, and still is the highest.

Table 2

Life expectancy at birth by continents

(year)

Continents	1950–1955	1970–1975	1990–1995	2005–2010
Africa	37.4	46.5	48.9	55.6
Asia	42.2	57.7	65.4	70.3
Europe	63.6	70.6	72.6	75.3
Latin America and the Caribbean	51.4	61.0	66.9	73.4
North America	68.6	71.4	75.8	78.4
Australia and Oceania	60.4	66.4	72.5	76.8
World	46.9	58.8	64.8	68.7

Source: World population prospects: The 2012 Revision.

There are significant differences by continents. An African newborn can expect by nearly 23 fewer life years than a North American one; however, the difference diminished, as it was 31 years at the beginning of the 1950s. The higher fertility is combined with less favourable mortality conditions and vice versa. This is particularly reflected in the rate of infant and child mortality, which has a very significant role in the evolution of life expectancy at birth. At present, an African or Asian newborn much more likely reaches teenage years or adulthood than decades ago, but the differences are still significant. In Africa, out of thousand newborns, 75 do not reach one year of age, while, in Europe and North America, this rate is less than one tenth of that (7 children).

International migration

International migration has no impact on the world's population number, but it has on the change in the population number of continents and countries. In the past decades, the feature of being an origin or a destination continent significantly changed. Asia belonged to the continents of destination in the 1950s and 1960s, while in the 1950s more people left Europe than the number of those who came there from other continents. North America was the number one destination of international migration for a long time and played a leading role as a continent of destination. Currently, North America and Europe are still the two most significant continents of destination, but, in the decade after the turn of the millennium, Europe was already the number one destination of international migration between continents. Between 2000 and 2010, the net migration of Europe (the difference between the number of immigrants and of those leaving the continent) was nearly 1.9 million per year, i.e. the population of Europe increased annually by so many people due to international migration. In the same period, the positive net migration of North America was about 1.3 million per year. The largest continents of origin in this period were Asia and Latin America with 1.8 million and 1.2 million people, respectively. These figures do not include migration within the continents which is many times as high as migration between continents.

Table 3

Annual average net migration by continents

(thousand people)

Continents	1950–1960	1960–1970	1970–1980	1980–1990	1990–2000	2000–2010
Africa	–101	–185	–487	–501	–443	–388
Asia	116	12	–319	–294	–1 334	–1 780
Europe	–427	41	414	525	960	1 866
Latin America and the Caribbean	–80	–318	–439	–708	–707	–1 155
North America	403	324	792	880	1 438	1 282
Australia and Oceania	89	126	39	98	87	175

Note: – continent of origin, + continent of destination.

Source: World population prospects: The 2012 Revision.

Prospects for the future

Population growth hypotheses

Changes in the world's population number in the future are based on the estimates of the number of births and deaths. The number of births is estimated based on the average number of children per woman, while the number of deaths on the average life expectancy at birth. Projections are generally made in more than one variant, i.e. a low, a medium or baseline and a high variant, but the so-called constant variant, which assumes that the current demographic indicators remain unchanged in the future, is also common. The reality of the projections depends on the reliability of the hypotheses and the chances of their realization. The results of the medium variant, such as the one which is most likely to be realized, are used most frequently. In 2013, the UN published its latest estimates, which projected the development of the world's population by the end of this century. According to the baseline variant, although at a slower pace, but the world's population number continues to increase and will grow over 10 billion people by the beginning of the 2060s and approach 10.9 billion by the end of the century. Accordingly, the population growth will not stop until the end of this century, but it will greatly reduce from 80 million to 10 million per year.

Further radical changes are expected to occur in the population number of the different continents by the end of the century. Increasing continuously, Africa's population will grow 3.8-fold and approach 4.2 billion people. Asia continues to be the most populous continent (4.7 billion people), but this will mean a decreasing number compared to the peak of nearly 5.2 billion in 2050. With a similarly increasing trend, the population of North America will grow 1.4-fold (513 million people). Europe is the only continent where projections forecast a lower population number (about 640 million people) than the current one.

Figure 3

Evolution of the world's population by continents

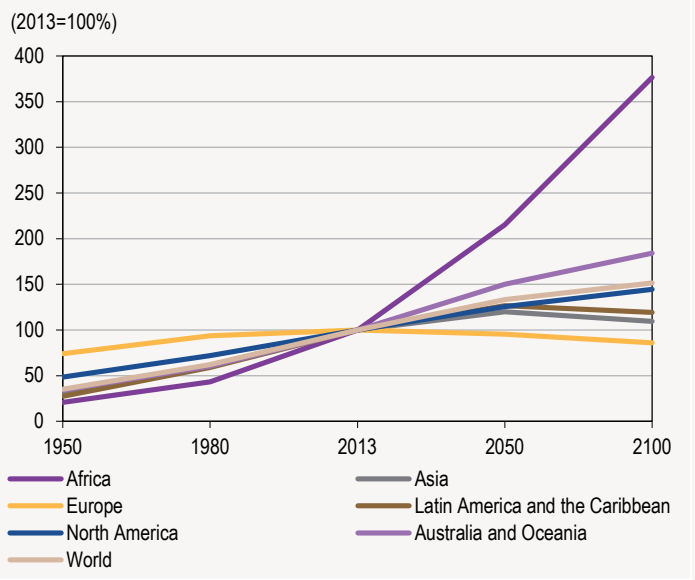
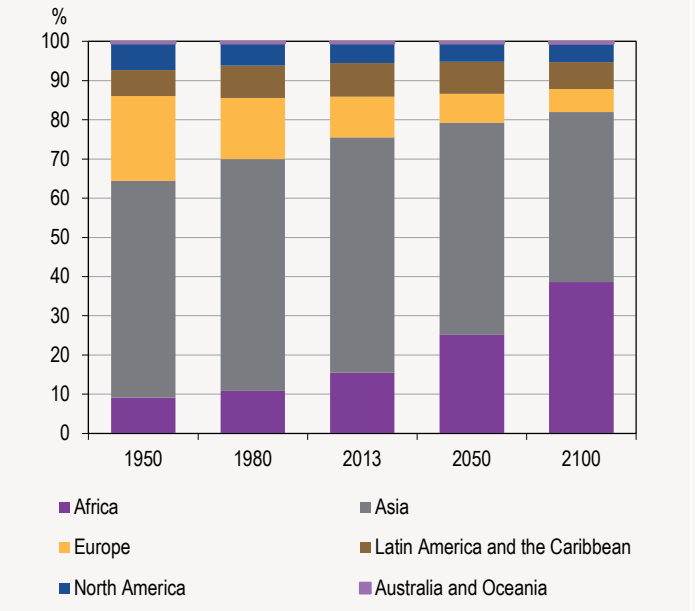


Figure 4

Distribution of the world's population by continents



Projection: medium variant.

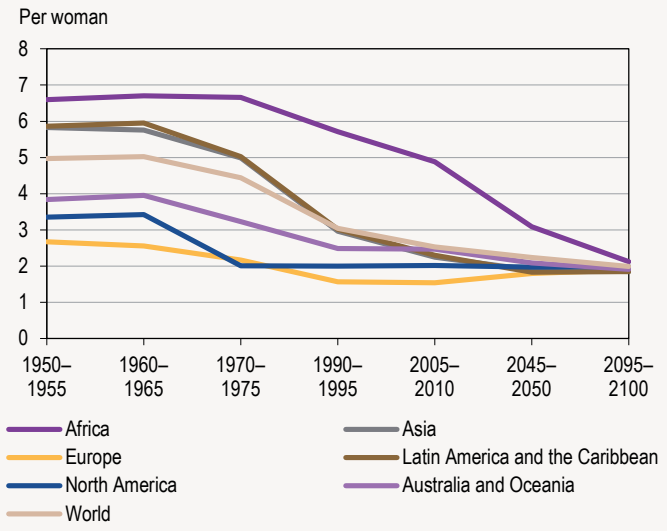
Source: World population prospects: The 2012 Revision.

Fertility prospects

The world's population growth takes place in parallel with the further decrease in the fertility level. According to the projection, the average number of children per woman will decrease below the replacement level to 1.99 by the end of the century. This does not automatically mean the stop of the population growth, as, even with fertility below the replacement level, the greater number of generations born earlier will have more children than the number of those who decease along with an improving mortality. The decisive role of the fertility level is shown by the finding that, according to the medium variant, the world's population may increase to 16.6 billion people in case of a 0.5 child higher fertility, while, in case of a 0.5 lower number of children per woman, it may be less than half of that, 6.8 billion people at the end of the century. According to the hypothesis, the fertility of the different continents will strongly converge to each other, and only the fertility level of Africa will be on the replacement level, while the fertility of all the other continents will be, although to varying degrees, below that. It is striking in the projection that compared to the current fertility levels, only the fertility of Europe would rise and that of all other continents would decrease by the end of the 21st century. At the same time, despite increasing fertility, Europe would be the only continent where the population number would decrease compared to the current one.

Figure 5

Actual and estimated* values of total fertility rate by continents



* Medium variant.
Source: World population prospects: The 2012 Revision.

In addition to the United Nations, other institutions and scientific workshops also prepare population projections. The estimate published recently by the researchers of the Wittgenstein Centre[2] involves a new dimension, i.e. the level of education among the variables of population projections. The increase in the level of education may be coupled with more conscious family planning and decreasing fertility even in the less developed countries, and this may slow down the growth rate of the world's population number. According to the medium variant of the projection, the world's population number would reach the maximum value (9.4 billion people) between 2060 and 2080, then, it would drop to 9 billion people by the end of the century.

Changes in life expectancy

The UN projection forecasts a decrease in mortality and a further rise in life expectancy at birth until the end of the century; accordingly, the value of the indicator would increase to 82 years as opposed to about 69 years at present.[3] The most significant rise would occur in Africa and Latin America where life expectancy at birth would be 21.5 years and 14.5 years higher, respectively than at present. According to the projection, the differences between continents will considerably lessen, thus, as opposed to the current nearly 23 years, the difference between the average life expectancy of North America having the highest value (89 years) and Africa having the lowest one (77 years) will decrease to 12 years. Infant mortality rate will fall globally to one fifth by the end of the century, but even a greater decline is predicted for Africa, Asia and Latin America.

Table 4

Actual and estimated* values of life expectancy at birth by continents

(year)

Continents	1990–1995	2005–2010	2045–2050	2095–2100
Africa	48.9	55.6	68.9	77.1
Asia	65.4	70.3	76.9	83.0
Europe	72.6	75.3	81.3	87.9
Latin America and the Caribbean	66.9	73.4	81.8	87.9
North America	75.8	78.4	83.7	89.0
Australia and Oceania	72.5	76.8	81.7	86.6
World	64.8	68.7	75.9	81.8

* Medium variant.
Source: World population prospects: The 2012 Revision.

The future of international migration

UN experts consider the projection of international migration the most uncertain factor, so they predict the hypotheses only until 2050. According to these, the intensity of migration between continents will decline until the mid-century from the current 3.3 million people to 2.3 million per year. Europe and North America continue to be the largest continents of destination, but the latter will again become the primary destination of migration. The reason for this is that, according to the projection, Europe's net migration will fall to half of the present level, while that of North America will be essentially stagnant until the mid-century. Among the continents of origin, only the international migration from Africa will increase, while that from the other continents will decrease. The largest continents of origin continue to be Asia and Latin America.

Table 5

Actual and estimated* values of annual average net migration by continents

(thousand people)

Continents	1990–2000	2000–2010	2010–2020	2020–2030	2030–2040	2040–2050
Africa	–443	–388	–484	–497	–499	–498
Asia	–1334	–1780	–1397	–1256	–1245	–1233
Europe	960	1 866	1 119	935	916	905
Latin America and the Caribbean	–707	–1155	–609	–533	–525	–526
North America	1 438	1 282	1 220	1 200	1 200	1 200
Australia and Oceania	87	175	151	152	153	153

* Medium variant.
Note: – continent of origin, + continent of destination.
Source: World population prospects: The 2012 Revision.

[2] World Population and Human Capital in the 21st Century: Population Network Newsletter, No.46, Spring 2015, Wolfgang Lutz, Editor.
[3] Data refer to the population of both sexes. The life expectancy of women is higher than that of men. The projection reckons on the decrease in the gender gap until the end of the century.

The EU-28 population

Member states with growing or declining population

On 1 January 2014, the EU-28 population was 506.8 million people, 1.7 million more than one year before. The population growth has been steady since 1960, and, on the whole, the population number of the union grew by 100.1 million in the last more than fifty years. In 2013, nearly 5.1 million children were born, some 156 thousand fewer than a year earlier. Over the past ten years, most children (nearly 5.5 million) were born in 2009, since that time, the decline in the number of births has been close to 400 thousand. In 2013, the number of deaths was nearly 5.0 million, 16 thousand fewer than one year earlier. As the balance of births and deaths, the population number grew by about 82 thousand people, which accounted for less than 5 per cent of the total increase. In other words, the vast majority, 95.2 per cent of the 1.7 million increase came from the positive balance of international migration.

In half of the EU-28 countries, the number of deaths exceeded that of births in 2013, i.e. natural decrease was recorded. Among the 14 countries with declining population number, 10 were new accession countries from Central Eastern Europe, and out of the old member states Germany, Italy, Portugal and Greece belonged to this category. Among the countries having joined the EU since 2004, the number of births was higher than that of deaths only in Slovenia and Slovakia. The largest natural decrease was registered in Bulgaria, Latvia, Lithuania and Hungary, while, due to the positive balance of births and deaths, the population number of Ireland, Cyprus, Luxembourg and France increased considerably.

Net international migration was positive in 15 member states. 13 countries were left by more people than the number of those who immigrated there. Italy and Luxembourg had the largest immigration surplus, where the number of immigrants per thousand inhabitants was 20, but Malta, Sweden, Austria and Germany had significant immigration surplus as well. The population loss due to international migration was the highest in Cyprus, Latvia and Greece, but a considerable negative net migration was also recorded in Lithuania, Ireland and Spain.

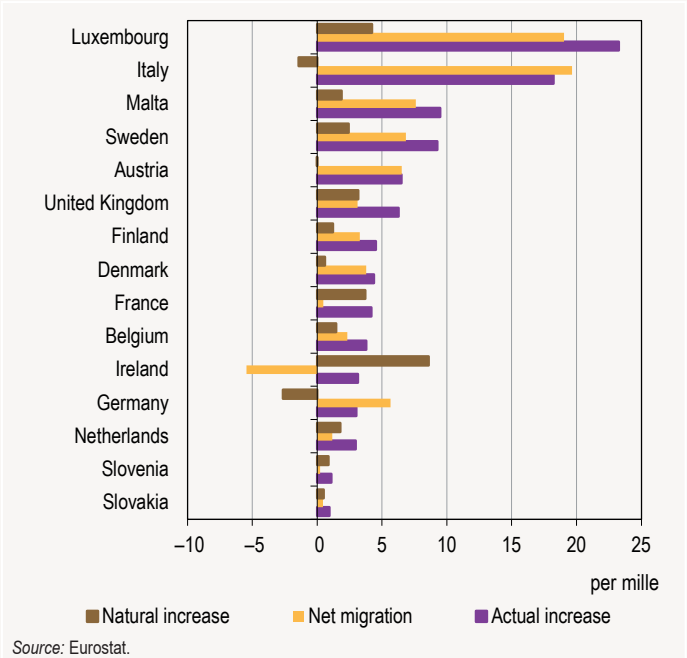
In some countries, immigration surplus can offset the population loss from natural decrease. A good example is Germany and Italy, where the population number is actually increasing as a result of the high positive net migration. In Cyprus, however, the opposite is true, where, due to the high level of emigration, the population number is declining, although it should increase from the balance of births and deaths. On the whole, among the EU-28 member states, the population actually decreased in 13 and grew in 15 countries in 2013.

Fertility features

In the EU-28 member states, the level of fertility increased in the decade after the turn of the millennium, and the average number of children per woman (TFR[4]) grew from 1.46 in 2001 to 1.62 by 2010. As a result of the subsequent decrease it fell to 1.55 by 2013. There are quite large differences among the member states, but a common feature of fertility is that it does not reach the replacement level in any of the countries. The differences can be best characterized by how close fertility is to the average number of children necessary for simple reproduction (2.1 children per woman). The situation is the most favourable in France and Ireland (average number of children close to 2.0), but it is remarkable in Sweden and the United Kingdom as well (fertility between 1.8 and 1.9). In 2013, fertility was lower than the EU average in 17 member states; among them, three countries – Portugal, Spain and Poland – belonged to the so-called extreme low fertility category. In the opinion of demographers, the fertility below 1.3 is very dangerous for the given population because its persistence may cause a rapid, significant and irreversible process of population decline. After the turn of the millennium, numerous member states, among them also Hungary belonged to this fertility category for more or less time. According to 2013 data, Hungary is in the bottom quarter of the EU-28 countries in respect of the level of fertility.

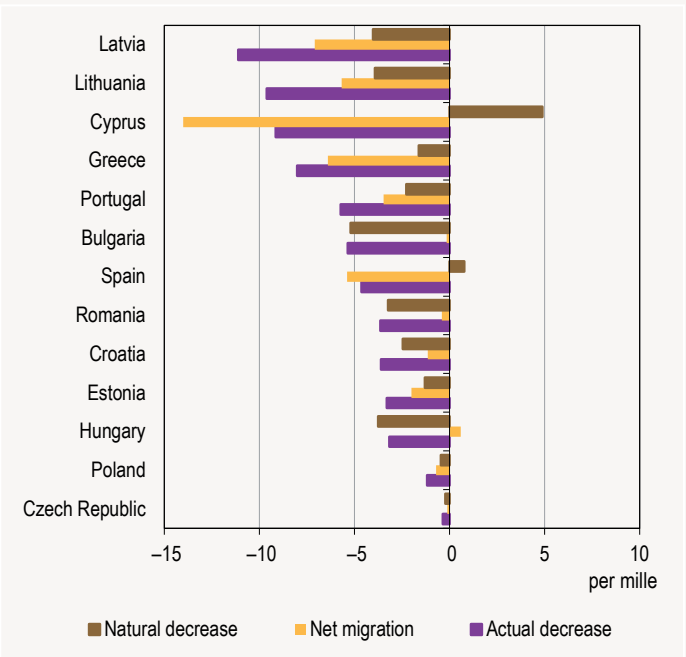
Figure 6

EU countries with actual population increase, 2013



Source: Eurostat.

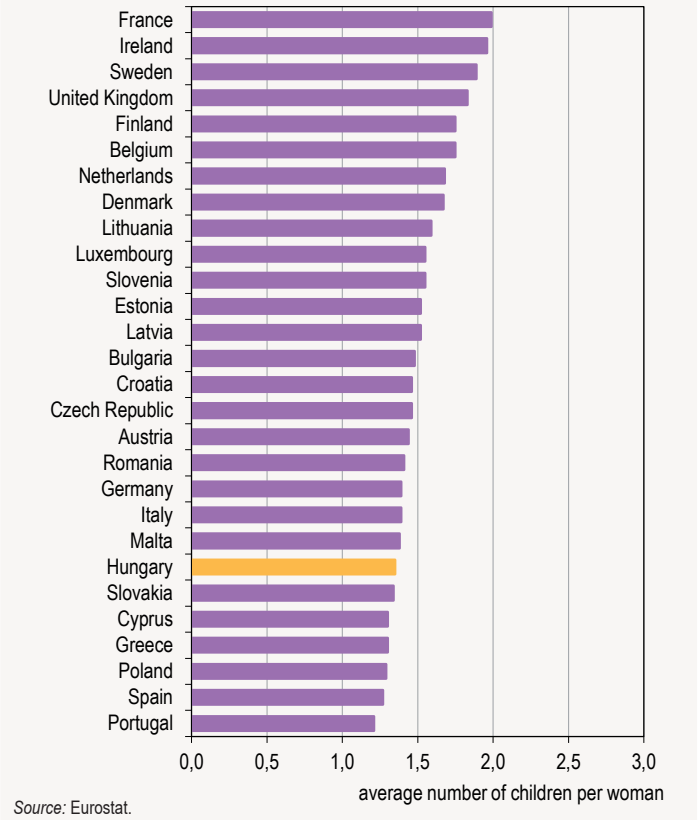
EU countries with actual population decrease, 2013



[4] Total fertility rate.

Figure 7

Total fertility rate in EU member states, 2013



Source: Eurostat.

Mortality conditions

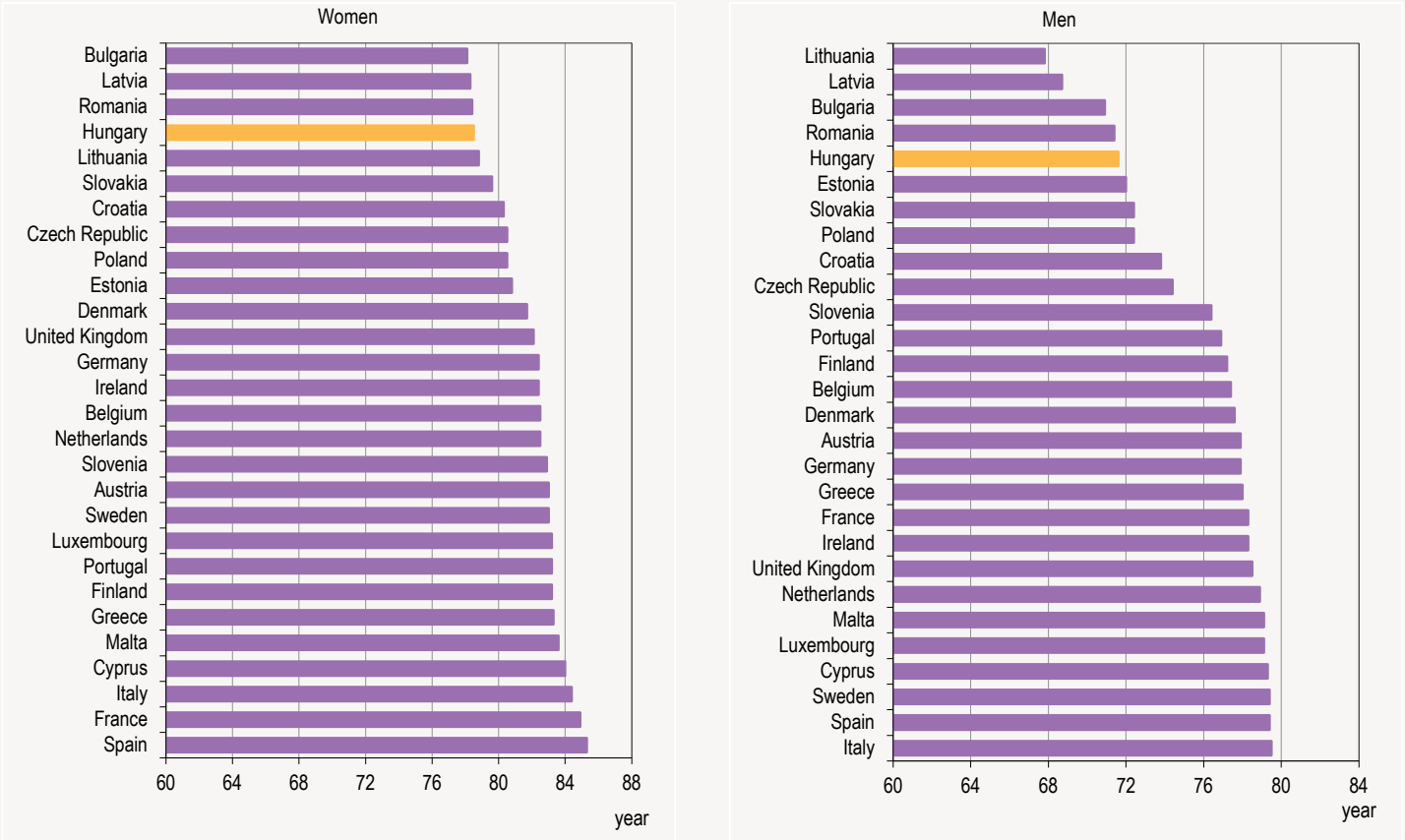
Between 2002 and 2012, average life expectancy at birth for both genders rose by 2.5 years to 79.6 years in the EU-28 countries. The mortality of men improved more than that of women, thus, the gender differences moderated. Women could expect an average of 82.4 life years at birth, 5.6 years more than men (76.8 years). After the turn of the millennium, not only the differences by gender, but also those between member states decreased, but they are still significant. In Spain having the most favourable female life expectancy at birth, baby girls could expect 7.2 years more at birth (85.3 years) than those in Bulgaria (78.1 years). In case of males, there is a much larger difference between the two extremes: in 2013, a newborn boy in Italy could expect 11.7 more life years on average (79.5 years) than a newborn boy in Lithuania (67.8 years). There were some changes in the order of member states after the turn of the millennium, but what did not change is that all the 8–10 countries with the lowest life expectancy are Central Eastern European ones in case of both genders. Residents of countries with the highest life expectancy live mainly in the Mediterranean climate zone, and this is especially true for Spanish, French, Italian, Maltese, Cypriot and Greek women. In case of men, in addition to Mediterranean countries, two Northern countries (Sweden and Luxembourg) are also included in the top six member states (the average life expectancy at birth is more than 79 years). The average life expectancy at birth of boys/men living in these countries is higher than that of Hungarian girls/women. In 2013, Hungarian men had the fifth lowest and Hungarian women the fourth lowest life expectancy at birth among the EU-28 member states.

The future of the EU-28 population

The main variant of the population projection of Eurostat forecasts the population of EU member states until 2080. According to the results, the EU-28 population will gradually increase until the middle of this century and will amount to 525.5 million people in 2050. Then, a slow decline will follow and it will decrease to 520 million by 2080. This population number is still

Figure 8

Life expectancy at birth in EU member states, 2013

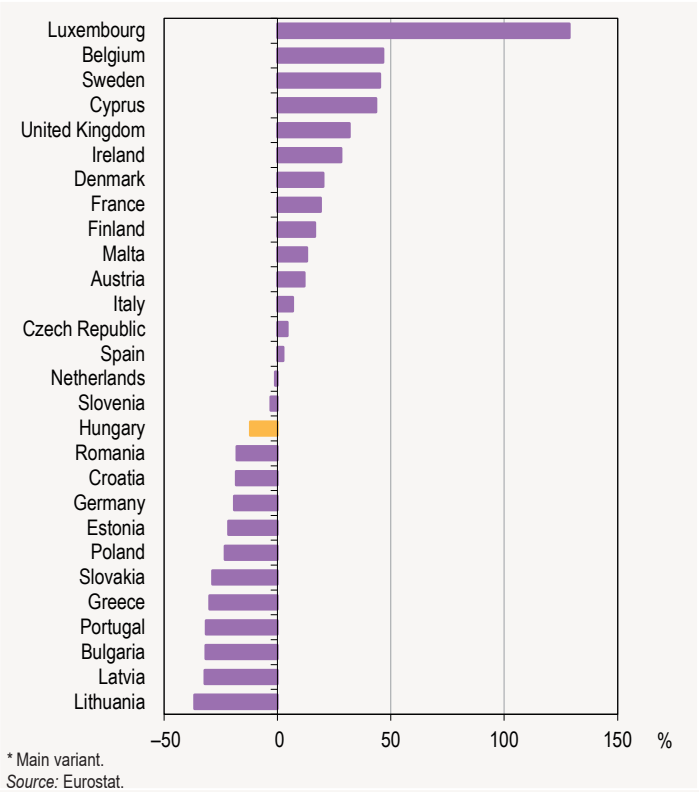


Source: Eurostat.

higher than the 508 million people calculated at the beginning of the projection. Considering the individual countries, the degree of population increase or decrease shows a very diverse picture. In the vast majority of countries, where the population is decreasing at present, the decline will continue until the end of the projection period, and will be the largest (more than 30 per cent) in Lithuania, Latvia, Bulgaria and Portugal. A significant population decrease between 20 and 30 per cent is projected in Greece, Slovakia, Poland and Estonia as well. Along with a 18 per cent decrease, Eurostat estimates the population number of Hungary to be 8.7 million in 2080. With this, we would continue to be in the middle of the ranking of EU-28 member states. Among countries with increasing population number, Luxembourg, Belgium and Sweden are at the top of the ranking, but the United Kingdom, Ireland, Denmark, France, as well as Finland and Austria can expect significant population growth as well. As a result of all these, Germany would not be the most populous member state of the EU, but, with its population number of around 65 million, it would be in the third place together with Italy having a similar population number after the United Kingdom and France.

Figure 9

Estimated* change in the population number of the EU-28 member states between 2015 and 2080



* Main variant.
Source: Eurostat.

Eurostat estimates an increasing fertility level both in the EU as a whole and in the individual countries, but the average number of children would not reach the level necessary for reproduction in any of the member states. In Ireland, France and Sweden, which are currently close to this level, a slight decrease, while in the United Kingdom a same level of fertility as currently is projected by experts. Similarly to the present situation, these countries would continue to be the EU member states with the highest fertility. According to the projection, the fertility in Hungary would rise from 1.42 in 2015 to 1.76 by 2080 as a result of a slow but continuous increase. With this, we would improve somewhat our place in the ranking of the EU-28 countries.

Along with increasing fertility, Eurostat reckons on the improvement of mortality and the increase of life expectancy at birth. Life expectancy at birth would increase in each EU country and for both sexes, which would occur in parallel with a decreasing difference between countries and sexes. According to the projection, in case of men, the difference between Italy and Lithuania would decrease to nearly one fourth, from 11.7 years measured in 2013 to 3 years by 2080. In case of women, the difference of 7.2 years between Spain and Bulgaria in 2013 would fall to 2.5 years by the end of the projection period. There would not be significant changes in the ranking of countries; Hungary would continue to be among countries with low life expectancy with the sixth lowest value in case of men and the fourth lowest one in case of women, but life expectancy at birth would increase by 13 and 10.5 years, respectively.

Eurostat has prepared a projection for the population number of the EU-28 countries without migration as well. This version seeks an answer how the population number of the EU would change if net migration was zero from 2015.[5] In this case, along with a continuous decrease, the population number of the EU would fall from 506.8 million in 2014 to 399.2 million by 2080. Without international migration, among the EU-28 countries, the population number would be lower than at present in 25 member states by the end of the projection period. The largest decline would affect the population of Portugal, Germany, Greece, Spain and Italy with a population decrease between 35 and 40 per cent. Natural increase, i.e. somewhat higher population number than at present would be recorded only in Ireland, France and the United Kingdom, but the population decrease excluding migration would be relatively low in Sweden, Denmark and Belgium as well. According to the projection, the population number of Hungary would be nearly 30 per cent lower than at present, and would fall below 7 million (to 6.9 million) by 2080.

[5] There is no population surplus or loss due to international migration.

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