# STRUCTURE AND FUTURE OF HUNGARY'S POPULATION 

ERZSÉBET FÖLDHÁZI

## MAIN FINDINGS

» The population of Hungary has been shrinking since the early 1980s. Between 1990 and 2011 it decreased by 400 thousand people, and between the 2011 population census and 2014 a further 100 thousand people were lost.
» Population loss is the result of the combined effect of low fertility and high mortality. In the period between the two most recent population censuses, natural decrease was still offset by a positive net international migration, however this has turned negative over the last years.
» Women live longer than men, therefore they represent a higher proportion of the population; however their share has been slowly declining in recent years.
» The development of age composition has been characterised by a continuous increase in the share of old-age population alongside
a decrease in the share of children. These trends continued beyond 2011, therefore at present nearly one fifth of the population is aged 65 years or over, and one in seven is aged under 15 years.
» The ageing index that measures population ageing has been increasing continuously: since 2006 the number of those aged 65 years and over has exceeded that of children aged under 15 years; currently the difference between them is three percentage points.
» According to the 2015 population projection the decrease of the population will continue and ageing will intensify. It is predicted that the population will decline by about two million people by 2060; nearly a third of the population will be aged 65 years and over, and their number will be two and a half times higher than that of children aged 0-14 years.

## POPULATION - PAST, PRESENT, AND FUTURE

The population of a country changes relatively slowly from year to year, the consequences of population trends unfold only in the course of a longer period. At the same time, the factors influencing population change are relatively predictable due to the regularity of the different sub-processes.

Population censuses are the main source of information on the size and characteristics of the population - such as composition by sex, age, marital status, and spatial distribution. The past development of the Hungarian population is presented here on the basis of information from the three most recent population censuses, namely 1990, 2001 and 2011.

Vital statistics ${ }^{G}$ - namely the registration of births, deaths, marriages and the dissolution of marriages - provide information on changes between two population censuses, migration statistics collect information on internal and international migrations. Furthermore microcensuses ${ }^{G}$ between two population censuses as well as other national-wide enumerations and representative surveys provide information on population change. The reliability of the
data from different sources is varied: while the registration of vital statistics - births and deaths - is more accurate, data on migration, particularly emigration, is less so.

On the basis of vital statistics and migration statistics the estimation of the population is made for every successive year between censuses. However, this population estimation ${ }^{G}$ based on vital statistics is generally not very accurate and can be corrected at the time of censuses. The most important characteristics of the population are its size, distribution by sex and age, and spatial distribution.

The analysis of past population changes reveals the characteristic trends in a particular country and period; it shows the path of development that has led to the present. At the same time it also serves as a starting point for outlining future changes, identifying possible directions for population change, or in other words for carrying out population projections.

Similarly to the previous two volumes (see Hablicsek 2009, Földházi 2012) the results of the Hungarian population projection are presented in this chapter. In 2013 a national population projection was based on the final results of the 2011 Population Census (see Földházi 2013); the results presented here come from a revised version prepared in 2015.'

Table 1: Assumptions of the Hungarian population projection, 2015

| Indices |  | Medium variant |  | Low variant |  | High variant |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 2013 ${ }^{\text {a }}$ | 2030 | 2060 | 2030 | 2060 | 2030 | 2060 |
| Total fertility rate ${ }^{\text {b }}$ | 1,34 | 1,60 | 1,60 | 1,45 | 1,45 | 1,74 | 1,75 |
| Life expectancy at birth, males | 72,0 | 76,7 | 84,8 | 75,6 | 82,5 | 77,5 | 87,1 |
| Life expectancy at birth, females | 78,7 | 82,4 | 88,7 | 81,1 | 85,0 | 83,7 | 92,4 |
| Net international migration | -7340 ${ }^{\text {c }}$ | -5960 | 7500 | -17500 | -7500 | -4360 | 17500 |

a) According to 2014 preliminary data the total fertility rate is 1.41 ; the number of Hungarian citizens who move abroad for at least 12 months is 31,500 people (HCSO 2015). ${ }^{\text {b) }}$ The total fertility rate shows the average number of children that would be born to a woman if she was to experience the age-specific fertility rates from a specific year over her lifetime (for more details see Chapter 3). ${ }^{\text {c) }}$ Estimate for 2012 (on the method of estimation see Bleha et al. 2014).

[^0](A new population projection is prepared every two years using the latest statistical data, in line with UN and Eurostat practices.)

The medium variant of the population projection shows the most plausible future scenario at the time of preparation. The low and high variants mark the upper and lower limits of future population development. (See Földházi (2012) on projection methods.)

## THE ASSUMPTIONS OF THE POPULATION PROJECTION

The assumptions of the population projection can be quantified in a number of ways: by extrapolating long-term trends, by modelling on the basis of data gained from countries that followed a similar development trajectory, by using expert opinion, or even the combination of these.

The assumptions of life expectancy is calculated on the basis of data from European countries and the increase in life expectancy is estimated taking into account long-term - lasting at least 20 years - trends, separately for men and women. The lowest rate of increase is used for the low variant, the median increase for the medium variant, and the highest rate of increase for the high variant. ${ }^{2}$

In addition to the characteristics of European countries, some theoretical considerations were also taken into account in the development of assumptions on fertility. According to the assumptions of the medium variant, recent government policies aiming to promote childbearing will produce visible results in the medium term, and thus fertility in Hungary will reach the current Austrian level and will be around 1.45 in the early 2020s.

Hungarian women postpone childbearing to an increasingly later age. The high variant is based on the assumption that these women will "make up" for the births they postponed - due to their education, career or for other reasons - when they were younger. As a result, a fertility rate of 1.75 could potentially be achieved over the next two decades, by the early 2030s.

However, in the light of current changes, the most likely scenario is that the period during which women would like to have their intended number of children will become increasingly shorter. In this case, even if childbearing propensity increases, fewer children will be born than projected by the high variant. According to the medium variant, fertility will reach the current European average of 1.6 with a delay of approximately 10 years. For all three variants, we project that the achieved fertility rates will remain stable until 2060.

Migration is the least predictable popuIation process, and thus the development of these assumptions was the most complex task. First, we prepared an estimation on the basis of different statistics - from Hungary, the destination countries of emigrants from Hungary, as well as the UN - that showed a negative balance of 7,000 people between the number of immigrants and emigrants in 2012. This was used as the starting point and then we prepared assumptions for immigration and emigration separately for all three projection scenarios, and used the difference between the two (i.e. net migration) in the projections.

According to the medium variant, the number of immigrants will slowly rise after a decade of stagnation - assuming that labour demand will increase in the stabilising Hungarian economy - then it will stabilise

[^1]at a relatively high level from the 2050s. Alongside this, emigration will decrease - for similar reasons - and stabilise at a relatively low level from the mid-2030s. Thus, net migration will become positive from the early 2030s, and from the late 2040s it will remain around 7,500 people annually.

The assumptions of the low variant are similar to the above with the difference that we did not assume an increase in immigration, thus it was considered constant during the whole period of projection. At the same time it was also assumed that emigration would decrease at a slower rate than in the medium variant. Stagnant immigration and high emigration will result in a net loss of 7,500 people annually from the early 2040s until 2060. This will happen if the economic situation of Hungary is not improving substantially in the projection period.

By contrast, the high variant assumes a significant economic development on the basis of the favourable trends of recent years. Therefore, the number of immigrants will grow, including ethnic Hungarians born abroad, and emigration will decrease further. As a result, the balance of migration will turn positive from the 2030s onwards and could reach 17,500 people annually by the end of the 2040s and - according to our assumptions - stay at this level until the end of the projection period.

## CHANGES IN THE SIZE OF THE POPULATION AND THEIR COMPONENTS

The population of Hungary was 10.71 million people in 1981 and has been decreasing ever since. In 1990 the country had 10.375 million inhabitants, the 2001 Population Census registered 10.2 million people and on the $1{ }^{\text {st }}$ of October, 2011 (the reference date of
the census) the size of the population was 9.982 million people: a decline of nearly 400 thousand people between the 1990 and 2011 population censuses. The population estimated on the basis of vital statistics for the beginning of 2014 was 9.877 million people, thus the population declined by more than 100 thousand people in just over two years.

According to the medium variant of the 2015 population projection, Hungary's population is expected to be around 7.9 million in 2060. The highest projected population is 8.69 million people and the lowest is 6.7 million people, the difference between the two extreme values is nearly two million people.

Overall, the decline of the population was continuous until 2014 and it is expected to continue in the future according to all three variants of the projection: even in the high variant, which assumes a significant increase in fertility and substantial immigration, it will be below 9 million people in 2060 (Figure 1). According to the projection, even if fertility and mortality improve moderately, the population could decrease by two million people.

Figure 1: Population size of Hungary, 1990-2060


[^2]Changes in the size of the population in any country are shaped by three factors: the number of live births and deaths, as well as net international migration. There is a natural increase ${ }^{6}$ if the number of live births exceeds the number of deaths; or in the opposite case a natural decrease. ${ }^{6}$
The number of live births depends on the number of women of childbearing age and their childbearing propensity. In the decade after the regime change, the number of live births fell substantially, primarily due to the decline in fertility among women in childbearing age. In 1990 there were 126 thousand live births, between 1998 and 2008 the number of live births was under 100 thousand each year. Following a further decline, it reached its lowest value so far in 2011, when 88 thousand live births were registered. There was a slight increase in 2012 and 2013, and preliminary data for 2014 indicate a further increase with 91,500 live births.

For the population to increase, even more children per woman would be necessary than the 1.75 average in the high variant. Fertility started to increase after the low point in 2011 and reached 1.41 in $2014^{3}$, however a further dynamic increase would be necessary. The increase in fertility in itself is not sufficient for population growth, the number of births must also increase. However, this is unlikely because the number of women in childbearing age will decline after the run-out of the large cohort of those born in the 1970s.

Childbearing-age female cohorts will continue to shrink over the next decades: their number will fall from the current 2.3 million to around 1.7 million people in 2030 according to all three variants (Figure 2).

After that, the decline will be reduced when the larger female cohorts born as a result of a fertility higher than the recent level reach childbearing age. However, the decline of the age group will still continue: according to the medium variant the number of women in childbearing age will be around 1.4 million in 2060, while the low variant predicts less than 1.2 and the high variant more than 1.5 million women of childbearing age.

Figure 2: Number of women in childbearing age (15-49 years), 1990-2060


Source: HDRI, author's calculation.
Taking into account the decrease in the number of women in childbearing age, the number of births is only sustainable around 90,000 per year if childbearing propensity increases; however, even in that case the number of births is likely to decrease in the long run. If the average fertility remains around its current level, then a significant fall in the number of births should be expected even in the near future (Figure 3).

[^3]Figure 3: Number of live births, 1990-2060


Source: HDRI; author's calculation.

Apart from births, natural increase is also influenced by the number of deaths. The number of deaths is predominantly defined by the size of older age groups because the probability of dying also increases with age. Another factor is life expectancy at different ages, a summary indicator of which is the average life expectancy at birth. ${ }^{G}$

The number of deaths was very high in the early 1990s, with over 140 thousand people dying each year and it even exceeded 150,000 in 1993. As a result of improvements in mortality from 1995 onwards, the number of deaths decreased steadily and it was just over 130 thousand people in 2008. In recent years the number of deaths continued to fall significantly and it was under 127 thousand people in 2013 and according to preliminary data it is just over 126 thousand people in 2014. The decrease happened alongside an increase in the number of older people and it is due to improvements in life expectancy.

The number of deaths could increase briefly and then decrease again if mortality improves slightly in the future; a steadier decrease in mortality could keep the number of deaths around 120 thousand people; a large improvement could bring it under 100 thousand people by 2060. It is unlikely that it would get much lower than that, therefore improvements
in life expectancy alone cannot stop the natural decrease; this is only possible if the number of births increases as well (Figure 4).

Figure 4: Number of deaths, 1990-2060


Source: HDRI; author's calculation.

It can also be expected that the number of live births will be lower than the number of deaths in the future, therefore natural decrease will become a permanent feature of population processes. Between 1990 and 2011775 thousand people more died than were born; between 2011 and 2014 the natural decrease was 118 thousand people. Between 2011 and 2060 a natural decrease of around two million people can be expected, under moderately improving conditions.

The impact of natural decrease was offset by positive net international migration in the last decades, namely more people moved to Hungary than left. The surplus of international migration between 1990 and 2011 exceeded 356 thousand people altogether. However, in recent years - according to estimates (see Bleha et al. 2014) - this balance has become negative and it will remain so for some time. According to the medium variant of the population projection, there will be a deficit of more than 100 thousand people from international migration between 2012 and 2060 that will further intensify the population decrease.

## POPULATION BY SEX AND AGE

The composition of the population by sex is influenced by a number of factors: the proportion of boys and girls among newborns, differences between male and female mortality, and the proportion of males and females among immigrants and emigrants. Generally, more boys are born than girls and this is primarily due to biological reasons. The life expectancy of women is generally higher than that of men; however, alongside biological reasons, social factors also contribute to this. The difference between life expectancies can be quite considerable: at present this is seven years in favour of women in Hungary, although it can also be much lower in more developed countries.

A common way of categorising the population into age groups is by considering those aged under 20 years as 'young' and those aged 65 years and over as 'elderly'. Sometimes the child population, namely those aged under 15 years, and the workingage population, i.e. people aged 15-64 years, are also examined separately.

In addition to changes in the size of different age groups, changes in their share within the total population are also important. Demographic ageing, manifested by the growing proportion of the elderly in the population and the increase in the mean age, receives special attention. The ageing of the population is indicated by the ageing index ${ }^{G}$, and the burden of support on the middle-aged are expressed by using the youth and old-age dependency ratios ${ }^{G}$.

Looking at the proportion of sexes within the population, a decreasing share of men can be observed, mainly due to their higher mortality as compared to women. In 1990 there were 5.4 million women and 5.0 million men in Hungary; there were 1.082 women for every 1.000 men. In 2001,
the number of women was 5.4 million and that of men was 4.9 million; the sex ratio increased to 1.103 and then to 1.105 by 2011 ( 5.2 million women and 4.7 million men). According to the medium variant of the population projection - that postulates a more rapid increase in male life expectancy - there will be four million women and 3.9 million men in 2060, and the female surplus will decrease to 1.034 .

The number of people in different age groups is strongly influenced by the size of consecutive birth cohorts. If these change slowly, then the population also changes slowly and gradually. Extremely large or small birth cohorts also cause fluctuations in the size and structure of population later in the future. In Hungary the so-called "Ratkóchildren" born in the 1950s and the "Ratkógrandchildren" born in the 1970s form two such larger groups. These two groups have special importance in population change: people born in the 1950s are reaching old age now, therefore population ageing is accelerating; women born in the 1970s are getting to the end of their fertile life stage and this can have a negative impact on the number of births.

Figure 5: Number of 0-14 year olds, 1990-2060


Source: HDRI; author's calculation.

## THE EFFECT OF THE REALISATION OF CHILDBEARING INTENTIONS ON THE POPULATION SIZE OF HUNGARY

The population loss in Hungary is mainly caused by low fertility. Fertility has been declining rapidly since 1990 and reached its lowest value in 2011 with a total fertility rate of 1.24 . There has been a slightly improvement since then, its preliminary value for 2014 is 1.41.

Nevertheless research on values and attitudes continuously highlight the outstanding importance attached to family and children. Young people intend to have on average two children, however a large proportion of the intended children are never born. It is worthwhile considering what would happen if the intended children were born. Population projection can help us to estimate how this would affect the development of the population over the next 50 years.

Total fertility rate and intended number of children among women aged 18-44 years and men aged 18-49 years, 2001, 2004, 2008, 2012


Source: Turning Points of the Life Course panel survey, waves $1-4$; HDRI. Author's calculation.

The four waves of the Turning Points of the Life Course panel survey between 2001 and 2012 provide information on the intended number of children. The total fertility rate ranged between 1.24 and 1.35 in this period, while the intended number of children declined slightly but was basically around 2.

If childbearing intentions were realised in full, the population decline would be much less significant: their number would be 1.3 million higher in 2060 than according to the basic variant of the population projection.

Population of Hungary according to the medium variant of the population projection and the variant based on the realisation of childbearing intentions, 1990-2060


Source: HDRI; author's calculation.

In to the medium variant the proportion of children (aged 0-14 years) and the middle-aged (15-64 year olds) is decreasing continuously, while the share of the elderly (aged 65 years and over) is growing. If the intended children were born, then the proportion of children would increase slightly (from $14 \%$ to 17\%) by 2060, while the share of the elderly would increase to a lesser extent (instead
of the $33 \%$ projected by the medium variant, to 28\%). As for the 15-64 year olds, their share would fall from the current two thirds to 54-55\% according to both scenarios; however while in the medium variant this would mean 4.3 million people, in the high-fertility variant it would be around five million people.

High fertility has a visible effect on the development of the ageing index, which shows the intensity of population ageing by expressing the size of the old-age population (those 65 years and over) as a percentage of the child population (0-14 year olds). In the basic variant the ageing index is just above 2.5 in 2060, which means that the number of the elderly will be two and a half times that of children. If the intended children were born this would be just over one and a half time,

At the beginning of 1990 there were 2.1 million children (aged 0-14 years), in 20111.5 million and in 2014 only 1.4 million (Figure 5). The large decrease by 670 thousand people can be attributed to very low levels of fertility, which is partly due to the postponement of childbearing. We can assume that childbearing propensity will increase among the shrinking childbearing-age population towards 2060, however this increase could offset the decline in the number of 0-14 year olds only if fertility also increased substantially, and even in that case only in the long run. Therefore the child population will continue to decline: according to the medium variant of the projection it will shrink to one million by 2060. However, given the low average number of children observed currently, the decrease in the size of the cohort can be even greater. At present, the proportion of children is $14 \%$ : this is much lower than that in the early 1990s (20\%), but higher than that predicted for 2060 (around 13\%).
thus the ageing of the population would be significantly slower.

Development of the ageing index in the medium variant of the population projection and the variant based on the realisation of childbearing intentions, 1990-2060


Source: HDRI; author's calculation.

The number of the middle-aged (15-64 year olds) was significantly enlarged by the inclusion of not only those born in the 1950s but also those born in the 1970s in this age group. Starting from 6.9 million people in 1990, the number of 15-64 year olds was 6.7 million in 2014, therefore the decline has already started and it will accelerate - as the Ratkó-cohorts (infants of the 1950s) reach the age of 65 years - within the next few years. The size of the age group is expected to be around 5.6 million people in 2030 and 4.3 million in 2060 (Figure 6).

The number and proportion of the elderly in the total population is growing in many countries: this phenomenon is known as demographic ageing. At present, primarily developed countries are characterised by sharp increases, however demographic ageing is also increasingly affecting less developed countries. Demographic ageing puts a heavy burden on the social provision systems for the elderly (pension, health care,
elderly care); it is the task of social policy to transform and develop these systems so that they can meet increasing demand.

Figure 6: Number of 15-64 year olds, 1990-2060


Source: HDRI; author's calculation.

According to population projections ageing will reach unprecedented levels in the more distant future: the proportion of the over 65 s will be close to $20 \%$ in 2060 , or differently, nearly one fifth of the World's population will be aged over 65 years. Their share will be around $25 \%$ in developed countries. With increasing life expectancy, the number and proportion of the oldest old - those aged 80 years or over - are growing in the population. Currently only $1.5 \%$ of the World's population is in this category, however by 2060 their share will be close to $5 \%$, and in most developed countries it will be around 10\% (Figures 7 and 8). This means that the increase among those aged 80 years or over is much more dynamic than in the population aged 65 years or over.

Regarding the proportion of people aged 65 years or over, Hungary is similar to Western European countries with a share of $17 \%$ in the population, which is somewhat higher than similar figures in other post-communist countries. This is not true for the rate of increase, which is greater in the Eastern

European countries than in Hungary. With regard to the share of the oldest old, the country is closer to Eastern European countries both in terms of their current proportion and the rate of the increase.

Figure 7: Proportion of people aged 65 years and over in selected countries, 2010 and 2060


Source: UN Population Division (World Population Prospect: The 2012 Revision).

The proportion of the older population is influenced by the development of fertility and mortality: while in Western Europe the share of the elderly is high due to the relatively high levels of fertility coupled with long life expectancy, in Eastern Europe the primary reason is low fertility counterbalanced a bit by lower life expectancy. Germany can be considered as an exception among Western European countries: it is affected by low fertility and high life expectancy at the same time. In Japan, the number and the share of the elderly, especially the oldest old are increased sharply by the extraordinarily long life expectancy. In China, the share of the elderly is still low, but as a consequence of the one-child policy having prevailed for some decades the largest increase is expected here.

Figure 8: Proportion of people aged 80 years and over in selected countries, 2010 and 2060


Source: UN Population Division (World Population Prospect: The 2012 Revision).

In Hungary there were 1.4 million people aged 65 years and over in the early 1990s, and in 2011 they already numbered 1.7 million people. Their share in the population increased from 13\% to 17\%. By 2030 their number - due to the combined effect of cohort fluctuations, low number of births as well as improving mortality highlighted previously - will rise to 2.1 million people and their share in the population to nearly $24 \%$. By 2060, as a result of the continued ageing of the population their number might approach 2.6 million and their proportion will be around $33 \%$ (Figure 9).

The number of the oldest old, namely those aged 80 years and over, was only 260 thousand people in 1990, which represented just $2.5 \%$ of the population. This category already numbered 400 thousand people in 2011 and constituted 4\% of the population. By 2060 their number is expected to reach nearly 1.2 million that will represent around $15 \%^{4}$ of the population.

Figure 9: Number of people aged 65 years and over, 1990-2060


Source: HDRI; author's calculation.
Due to changes in the size of different age groups - together with a declining population - the age structure will also undergo transformation: the proportion of children will decrease from the current $14 \%$ to $13 \%$; the share of the middle-aged group will fall markedly from the existing 66\% and they will represent just over half of the population in 2060; meanwhile the proportion of those aged 65 years and over will almost double from 17\% to 33\% (Figure 10).

Figure 10: Distribution of the Hungarian population by age group, 1990-2060


Source: HDRI; author's calculation.

[^4]The ageing index (the number of the elderly divided by the number of the children) is another important measure to illustrate the intensity of ageing. From its 1990 value of 0.7 it surpassed 1.0 by the mid-2000s, therefore there were more older people than children in the population (Figure 11). The index will increase steadily over the coming period, and might be around 1.7 by 2030 and 2.5 by 2060. The latter means that the number of older people will be two and a half times more than that of children. In the low variant of the projection the value of the index is even less favourable: around 3.0 by 2060. There is no significant difference between the medium and high variants.

Figure 17: Development of the ageing index, 1990-2060


Source: HDRI; author's calculation.
The support ratio ${ }^{G}$ measures the burden of support on the economically active population by comparing the size of the
non-working age population to that of the working age population. A version of this is the old-age support or dependency ratio that shows the relative size of the old-age population compared to that of working age people (Figure 12).

The value of the indicator was 0.2 in 1990, or differently there were five working-age individuals for each elderly person in the population. Following a slow increase, its value reached 0.24 by 2011; at that point there were four working age people for each elderly. The ratio will also continue to increase in the future: the dynamics of growth will be heavily determined by the fluctuations of different age groups over time. By 2060 the old-age dependency ratio is expected to around 0.6: there will be less than two working age people for each elderly individual in the population.

Figure 12: Development of the old-age dependency ratio, 1990-2060


Source: HDRI; author's calculation.

## GLOSSARY

Vital statistics: Systematic collection (population registers), analysis and regular publication of data on vital events (birth, death, marriage, divorce, migration).

Micro-census: Hungary has been conducting sample surveys of the population, micro-census, between population censuses since 1960. Using mathematical and statistical methods the results of the micro-censuses are projected to the total population and thus provide census-type data from the middle of the decade as well. The sample of the 2005 Micro-census covered two per cent of the dwellings and their occupants in Hungary, and it was selected by using mathematical methods. Data was collected in 847 towns and villages. Approximately 83 thousand dwellings and their occupants were enumerated. Similarly to the population census, occupants of the selected dwellings are required by law to participate in the micro-census.

Average life expectancy: Average life expectancy expresses how many further years of lifetime can be expected by people of various age according to the mortality rate of the given year.

Natural increase, decrease: the difference between live births and deaths.

Old-age dependency ratio: Old-age population (65 years and over) as a percentage of the working age population (15-64 years).

Child dependency ratio: Child population (0-14 years) as a percentage of the working age population (15-64 years).

Support ratio (total dependency ratio): the child ( $0-14$ years) and old-age population (65 years and over) as a percentage of population aged 15-64 years.

Ageing index: the old-age population (65 years and over) as a percentage of the child population (0-14 years).

Population estimation: The baseline for calculating the annual population between two population censuses is the population number at the latest census. This was projected by using information on natural increase or decrease available from vital statistics until 2000. The method of population estimation has changed since the $1^{\text {st }}$ of January, 2001. The essence of this change is that international migration must also be taken into account in the calculation of the population number between two censuses.

## REFERENCES <br> and recommended literature on the Hungarian situation

Bleha, B. - Sprocha, B. - Vanjo, B. - Földházi, E. (2014): Population projections for Hungary and Slovakia at national, regional and local levels. INFOSTAT Bratislava Hungarian Demographic Research Institute. http://www.seemig.eu/downloads/outputs/ SEEMIGPopulationProjectionsHUSK.pdf

Földházi E. (2013): Magyarország népességének várható alakulása 2011-2060 között (Projected development of the population of Hungary between 2011 and 2060). Demográfia, 56(2-3): 105-143.

Földházi, E. (2012): Structure and future of the Hungarian society. Öri, P., Spéder, Zs. (eds.) Demographic Portrait of Hungary 2012. Demographic Resaearch Insitute, Budapest: 153-165.

Hablicsek, L. (2009): The structure and future of the Hungarian society. In Monostori, J. - Őri, P. - S. Molnár, E. - Spéder, Zs. (eds.): Demographic Portrait of Hungary 2009. Demographic Research Insitute, Budapest: 133-144.

HCSO (2015): Népmozgalom (Vital statistics), 2014. Statisztikai tükör, 23. http://www. ksh.hu/docs/hun/xftp/idoszaki/nepmozg/ nepmoz14.pdf

HCSO (2013): 2011 Population Census. Part 4. Demographic data. HCSO, Budapest.

O'Neill, B. C. - Balk, D. - Brickman, M. - Markos, E. (2001): A Guide to Global Population Projection. Demographic Research, 4(8): 203-288. www.demographic-research.org/ Volumes/Vol4/8/

## WEBSITES

Eurostat (Population projections data): http://ec.europa.eu/eurostat/web/ population-demography-migration-projections/population-projections-data

HDRI (Population projections): http:// demografia.hu/hu/kutatasok/17-kutatasok-egyenkent/175-nepesseg-eloreszamitasok

UN Population Division (World Population Prospects: The 2012 Revision): http://esa. un.org/wpp/


[^0]:    ${ }^{1}$ Compared to the 2013 version, the revised version uses the same fertility assumptions; the assumptions on mortality for all variants and both sexes use higher life expectancy; the assumptions on migration were developed by using a new methodology (for the latter see Bleha et al. 2014).

[^1]:    ${ }^{2}$ The assumptions for life expectancy were developed by Katalin Kovács.

[^2]:    Source: HDRI; author's calculation.

[^3]:    ${ }^{3}$ According to preliminary vital statistics. See HCSO, STADAT tables: http://www.ksh.hu/docs/hun/xstadat/xstadat_eves/i_wnt001b.html (downloaded on: 18/06/2015)

[^4]:    ${ }^{4}$ Author's estimation. The estimated value significantly differs from the UN's projection of $9.4 \%$; the main reason for this is the difference in the methodologies used to prepare the assumptions on life expectancy. For more information on the UN's projection method see: http://esa.un.org/wpp

