

Influence of Migration on Future Demographic Development of the Czech Republic

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1. Introduction

One of the phenomena frequently discussed recently is the ageing of the population, and in some countries also the decline in population numbers. This continuing process may have a number of consequences in both the economic and social spheres. Let us give as an example the increase in the burden on the current pension system or the greater demands on the financing of health care.

Some people are of the opinion that the decline in population and the ageing of the population may be eliminated by immigration from abroad. The article shows, on the basis of demographic projection, the population development of the Czech Republic in various variants of the future level of the net migration.

2. Source data and Methodology

The analysis is based on the time the real data of the demographic development in the Czech Republic (published by the Czech Statistical Office) in the period 2000–2008 and on the data of the population projection. The projection has been computed in the Department of Demography of the Faculty of Informatics and Statistics of the University of Economics, Prague. The classical component method with simplified migration (no emigration supposed, immigration equal to net migration) has been used for computations:

Initial demographic structure for the projection has been that of 1st January 2009. To emphasize the influence of migration only one possible variant of the development of fertility and mortality has been taken into account.

Preliminary demographic data of the first quarter of 2009 show that after several years of relatively rapid fertility growth the total fertility rate this year will probably be the same or even a little bit lower than in the previous year. In the projection the total fertility rate is supposed to grow much slowly than in the previous years from the actual value (about 1.5) to the value 1.7 in 2060.

The previous increase of the life expectancy is supposed to be continuing all the time. Actual values are 74.20 years for males and 80.35 years for females. Until 2060 increase to 85.50 years for males and 89.50 years for females is expected. The difference between the life expectancies of females and males is supposed to diminish.

In the first years of this century the annual value of net migration in the Czech Republic has been varying very much. In 2002 the value has been only about 10 thousands of persons, on the other end in 2007 and 2008 the values have been about 80 or 70 thousands, respectively.

(See the Graph 1.) But preliminary data for this year indicate that the net migration may be at the level of only one third of the value of the previous year. One of the main reasons for this may be the continuing economic crisis.

There are six following variants of the development of net migration analyzed (See the Graph 1.)

zero – zero net migration,

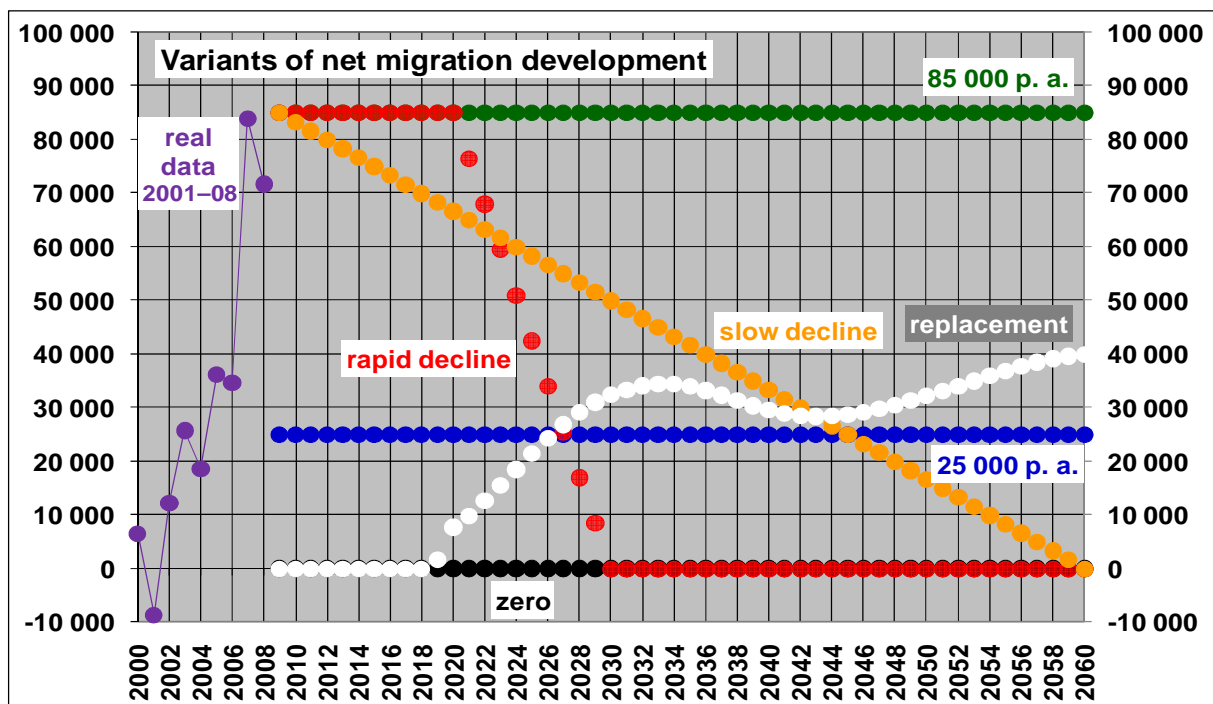
25 000 p. a. – constant net migration of 25 000 persons per annum,

85 000 p. a. – constant net migration of 85 000 persons per annum,

slow decline – net migration linearly declining from 85 000 persons in 2009 to zero net migration in 2060

rapid decline – net migration 85 000 persons per annum until 2020, then linearly declining to zero in 2030, zero net migration since 2030

replacement – net migration preserving the population size (while the number of live births is higher than the number of deaths, zero net migration assumed).



Source: Czech Statistical Office data, own population projection

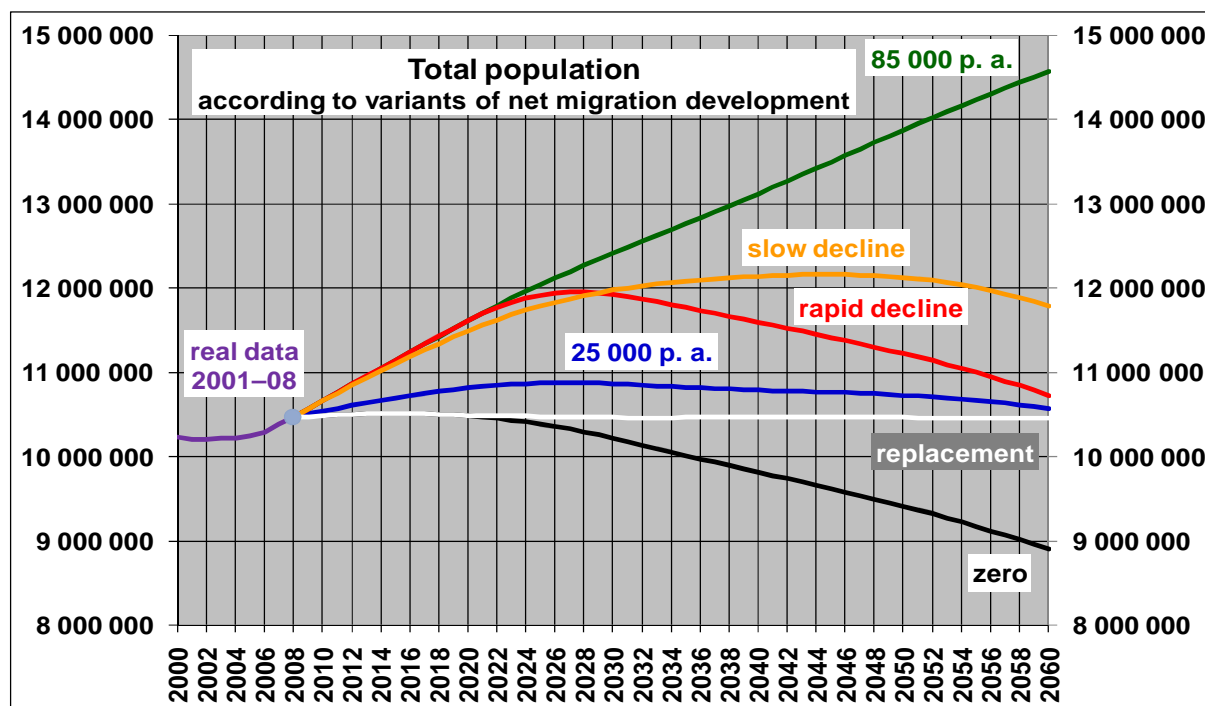
Graph 1: Variants of net migration development

Let's remark that the constant annual net migration 25 000 of persons corresponds to the medium variant of the population projection published by the Czech Statistical Office this year. The rapid decline variant may occur in the situation when previous high immigration would cause tensions and problems in the society which will result in very radical restriction of further immigration.

3. Main results

The level of migration will strongly influence the future number of citizens of the Czech Republic, which at present is just over 10 million (see the Graph 2). Without further immigration the number of citizens of the Czech Republic would begin to drop in around 10 years time; in 50 years it would drop by roughly 10 % and there would be less than 9 million inhabitants in

the Czech Republic. But already with an annual net migration of 25 000 persons the number of inhabitants would in the next two decades gradually approach the boundary of 11 million, later it will slowly return to the present value. High immigration (85 000 persons per annum) will ensure permanent increase of the population size, the number of inhabitants would even reach 14.5 million. With the variants of high initial immigration and its subsequent cessation there would be initial growth followed by a repeated decline in the number of inhabitants, especially in variant of rapid decline. And the replacement variant is defined in such a way that the size of the population will be practically constant.



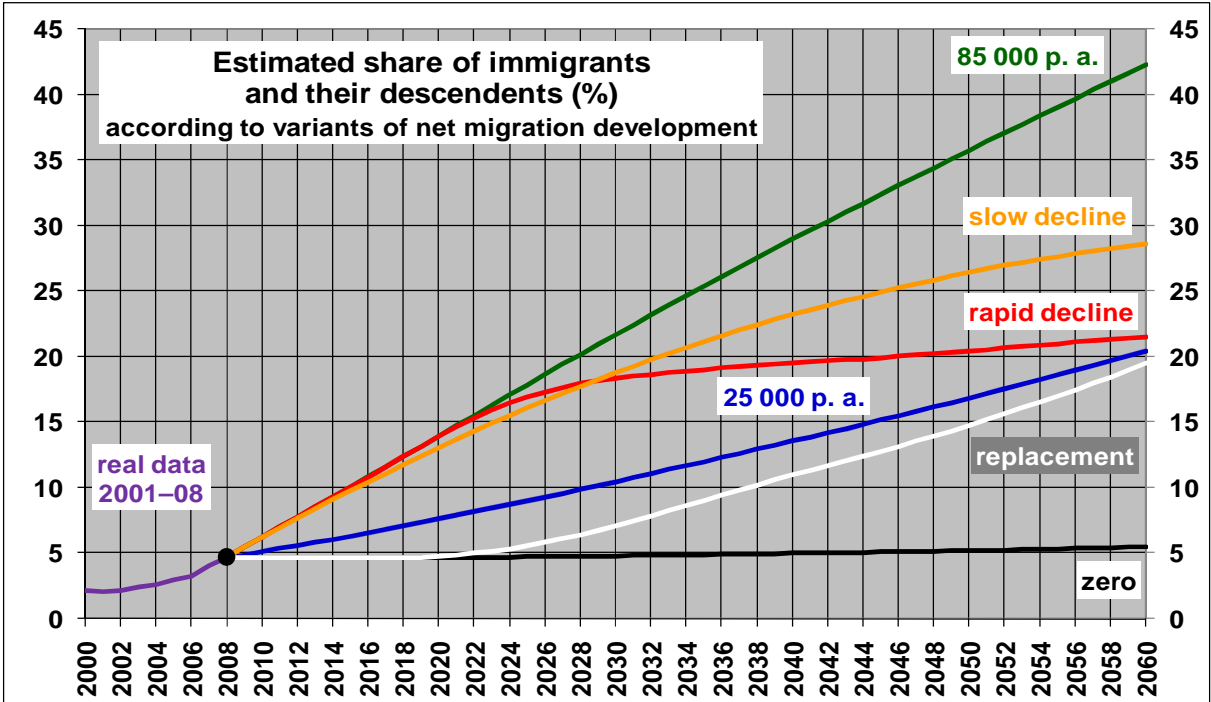
Source: Czech Statistical Office data, own population projection

Graph 2: Total population

A constant positive net migration would naturally result in a constantly increasing proportion of immigrants in the population of the Czech Republic. (See the Graph 3.) At present the number of foreigners in the Czech Republic (having there permanent or long-term residence) is about half a million. With an annual net migration of 25 000 persons the proportion of immigrants and their descendents (we consider all children born to immigrant women as the children of immigrants) would be about 20 % of the population of the Czech Republic in 2060, which means roughly four times greater than the proportion of foreigners at present. The proportion of immigrants both in the case of the initial high immigration and its subsequent rapid cessation and in the case of replacement migration would have roughly similar value. In the variant of initial high immigration slow declining to zero the proportion of immigrants and their descendents would be almost 30 %. And with the maximum immigration considered (a net migration of 85 000 persons per annum) this proportion would be more than 40 % of the population in 2060.

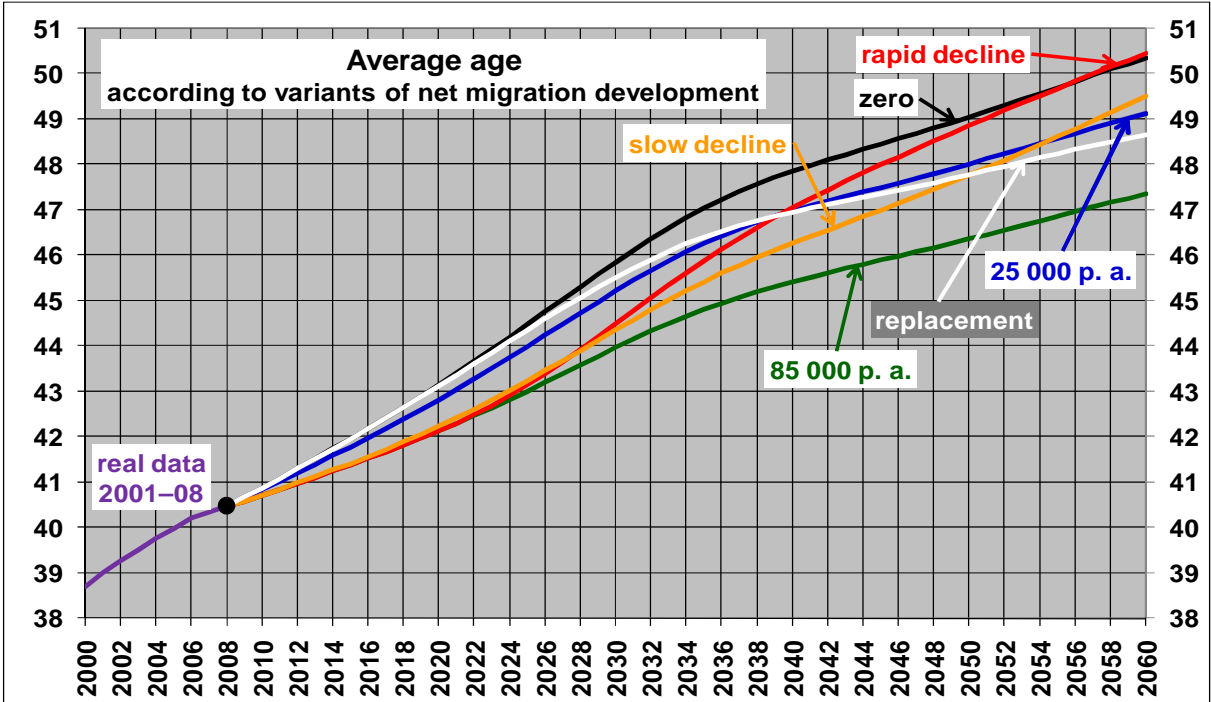
The ageing of the population would, however, continue with all variants of the development of migration. The trends of the development of average age (see the Graph 4) and of the proportion of the age groups 65+/(20–64) (see the Graph 5) are understandably mutually similar. Even with very high immigration (an increment of 85 000 persons per annum) the average age would rise from the present 40.3 to more than 47 years and the old age dependency ratio would increase to more than double. Let us note, however, first and foremost, that the variant assuming high initial immigration and its later rapid cessation results in further years in the

relatively rapid ageing of the population. In this variant the average age and the index of dependence of seniors are actually somewhat higher in 2060 than in the zero variant completely without migration. This is understandable: the numerous groups of earliest immigrants will grow old and new immigrants are no longer arriving.



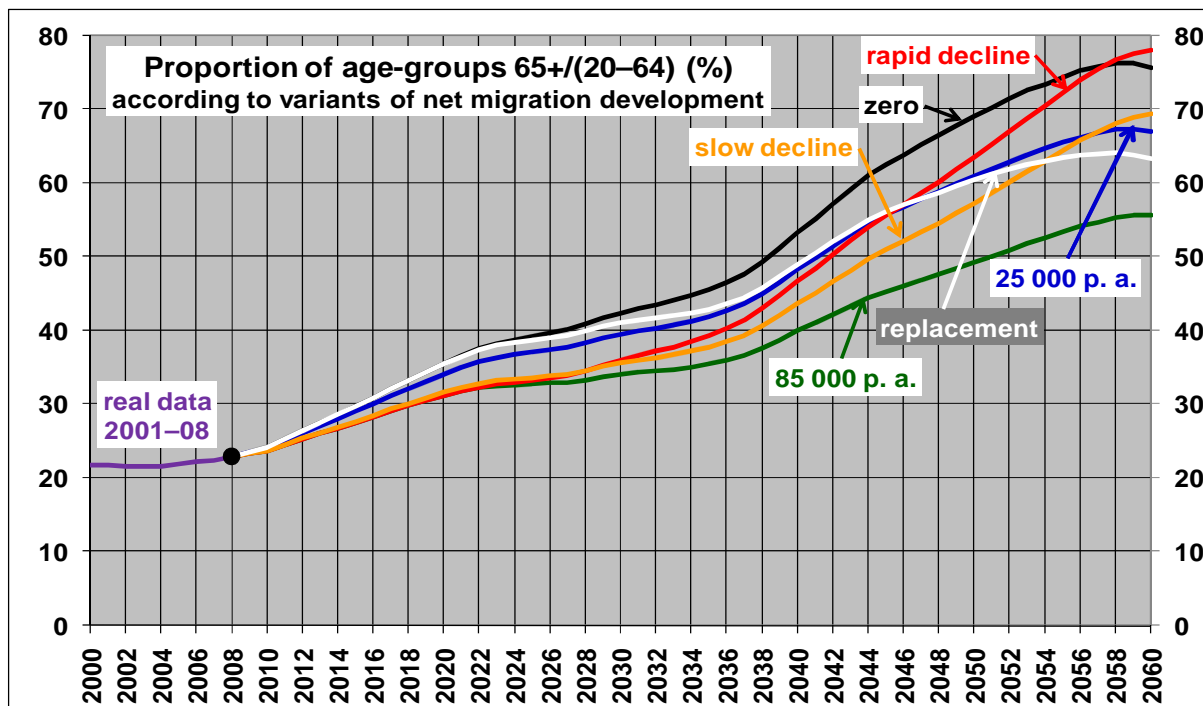
Source: Czech Statistical Office data, own population projection

Graph 3: Estimated share of immigrants and their descendants



Source: Czech Statistical Office data, own population projection

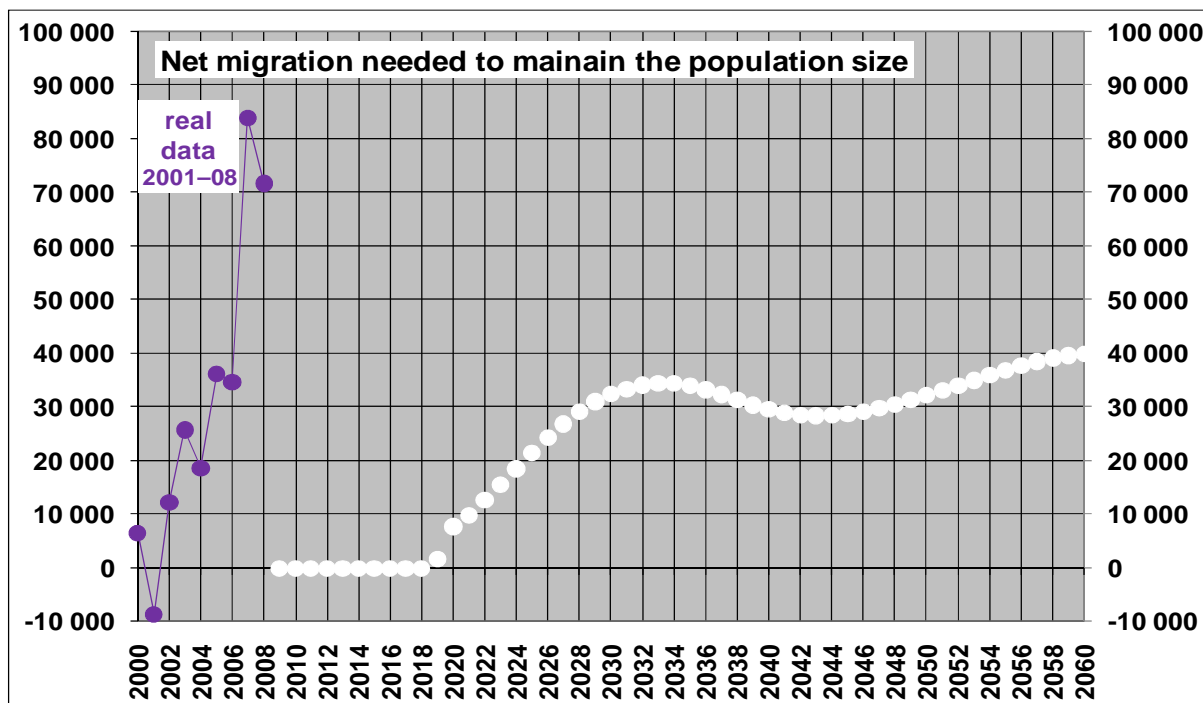
Graph 4: Average age of the population



Source: Czech Statistical Office data, own population projection

Graph 5: Proportion of age-groups 65+/(20-64)

It is therefore evident that while maintaining the net migration at the level of the beginning of this century there would be no risk of a decline in the population in the Czech Republic in the next few decades; on the contrary there would be an increase. The ageing of the population would, however, continue; immigration does not prevent this, it only more or less moderates it.

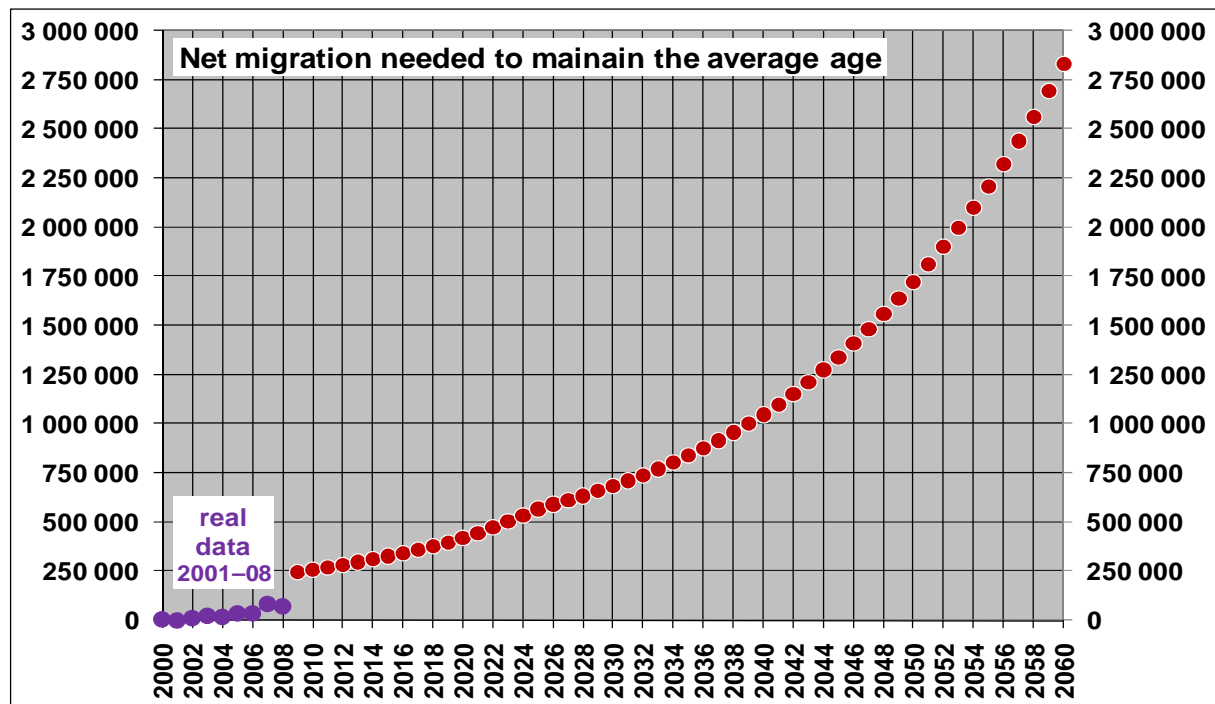


Source: Czech Statistical Office data, own population projection

Graph 6: Net migration needed to maintain the population size

The annual net migration having to prevent the decline in numbers of the population can be seen in the Graph 6. In the nearest ten years no migration would be needed and later the val-

ues of net migration would be in the amount of tens of thousands per year; in other words far lower net migration than in 2007 and 2008 would be enough.



Source: Czech Statistical Office data, own population projection

Graph 7: Net migration needed to maintain the average age of the population

On the other hand, in order for the average age not to rise the net migration would have to be already in 2009 about 250 000 persons; which is a quite unrealistic value. (See the Graph 7.) At the end of the thirties the annual net migration would have to be around 1 million and in 2060 there would have to be an increment of almost 3 million persons through migration. These calculations are naturally of theoretical significance only – such a high migration increment is completely impossible. This is proof that, although migration may relatively easy prevent the decline in the number of the population, it decidedly cannot prevent the continuing ageing of the population.

4. Conclusions and remarks

Immigration is able relatively easy to prevent the population decline. But in the case of low fertility the immigration has to be permanent and the annual number of immigrants has to be constant or even slightly increasing. Such immigration naturally results in an increase in the proportion of foreigners in the population. In order to preserve demographic balance also in the surrounding countries, which are also facing the ageing of the population; it would be desirable for the immigrants to come mainly from countries with a high fertility, which usually means the developing countries.

Society must therefore be prepared to receive an influx of persons of other nationalities and often with other cultural customs. It is important to diminish the fear and negative distance between immigrants and the society. Immigrants should not be mainly the source of low-cost labour force. It is necessary to improve their working and living conditions, eliminate illegal work, corruption in obtaining visa and other documents etc. Under suitable conditions the stay of foreigners can be enriching both for them and for our society. If, however, the presence of foreigners is a source of fear, this can lead to an increase in tensions between the two groups and to potential or even real conflicts and efforts to restrict further immigration.

Immigration is not able to prevent the population ageing. The only path leading to the halting of population ageing would be the halting of the further growth of life expectation or a permanent increase in the size of the population, but neither of these alternatives is desirable. The least possible ageing with the given mortality rate would be achieved by the so-called stationary type of population, i.e. a population where the annual number of live births is constant and corresponds to the given mortality and the required size of the population. In such a population the age structure does not alter too much and there is almost no decline or increment in the number of inhabitants. In a certain sense this is an optimal population.

A population of this type may be achieved by increasing fertility and maintaining it constantly at the replacement level (roughly 2.1 children per woman). So far, however, the fertility in all economically advanced countries is lower and it seems unrealistic that it might rise to the necessary level in the foreseeable future. It would be important among others to harmonize professional career and parents' role of people. Not only in the sense that the child must not be an obstacle for the parents in their professional career but mainly the that the professional career must not be an obstacle for the parents in the care and education of their children. It would be good take advantage of the possibility of work at home, flexible working time etc. as much as possible.

Reliance on constantly increasing immigration need not be too promising for the future either. From the social-biological viewpoint it is understandable that, whereas a stable annual number of children born to the "original" inhabitants will usually be considered socially desirable, a stable annual number of new immigrants may sooner or later evoke growing fears and demands that it be restricted.

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