
INTERNATIONAL MIGRATION ASSUMPTIONS IN THE CZECH STATISTICAL OFFICE'S POPULATION PROJECTION FOR THE CZECH REPUBLIC 2018–2100

Michaela Němečková¹⁾

Abstract

The article describes the background and the main principles of the migration forecast for the Czech Republic, processed by the Czech Statistical Office in 2018. The model is based on assumptions about the volume of migration flows and the sex and age-specific structure of migrants. Three projection scenarios are presented.

Keywords: migration, immigrants, emigrants, population projection, forecast

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INTRODUCTION

The migration component is generally reputed to be the most problematic part of population projections. Migration depends on many external factors that can change very quickly, mainly as a consequence of an economic cycle, changes in migration legislation (towards supporting or restricting immigration), the labour market, or the economic, social, and demographic situation in the source and target countries, and other factors. That's why it is not surprising that time series of the numbers of immigrants and emigrants often fluctuate and rarely have a clear long-term trend.

In addition, the migration statistics for the Czech Republic have been affected by changes in the source of data over the period of the last decade. The Czech Statistical Office draws its migration data (only data

on international migration is relevant here) from administrative data sources. Since July 2012 the Directorate of the Alien Police has been the main source of data on the migration of foreign nationals, and the Information System of Inhabitants' Records (ISEO) the main source on Czech nationals. Previously, from January 2008 to June 2012, all migration data were taken from the ISEO. Retrospectively, data for 2008–2011 seem to be burdened by some non-specific error, which is indicated by the small number of emigrants, especially among Ukraine and Russian nationals. In general, migration statistics are encumbered by some (however difficult to specify) level of error as a consequence of the underestimation of emigration (not everyone who emigrates reports the termination of his/her stay in the Czech Republic), the problematic nature of recording the stay of EU

1) Czech Statistical Office, michaela.nemeckova@czso.cz

nationals in the country, or possible administrative interventions in data systems (discarding people from the records after a residence permit's expiration date).

In the long-term view, the Czech Republic is a country with positive net migration. However, there is no clear (increasing/stable) trend to annual net migration or the volume of migration and noticeable year-on-year changes have been common. In 2008–2017 net migration ranged from -1,297 (in 2013) to +71,790 (in 2008); it was at its third-highest level (28,273) in 2017 (the last observed year before the projection period). The last ten-year average was 22,764.

PROJECTION ASSUMPTIONS

Owing to the above-mentioned reasons, the migration assumptions for the Population Projection (Czech Statistical Office, 2018) were based on the projected volume of immigrants and emigrants at a fixed level (except for the year of 2018) for the whole projection period (up to 2100). This level should be understood as the average of the expected net migration per year. Net migration at the level of 26,000 persons was incorporated into the medium scenario, and it was incorporated into the low scenario at the level of 18,000. In the high scenario the projected net migration starts at 40,000 in 2018 and gradually decreases to 26,000 in 2100. Thus, the basic assumptions are the continued attractiveness of the Czech Republic to foreign nationals and positive net migration.

The expected volume of migration in 2018 was based on preliminary data on the first half of the year 2018, which showed an increase in net migration in 2018 of more than 6,000 in a year-on-year comparison. The projection expected net migration to be higher in 2018 than in the following years, ranging from 33,000 (in the low scenario) to 40,000 (in the high scenario), and with 38,000 in the medium scenario.

Given the irregular age distribution of the Czech population and the fact that the volume of migration depends more on the economic situation than on the number of people at exact ages living in the country, the absolute numbers of migrants, and not the migration rates, were used as input. In the medium scenario, the projected number of emigrants at 16,000 was based on the average number of persons who

emigrated from the Czech Republic in the 2008–2017 period. The projected number of 42,000 immigrants resulted from the projected level of net migration at 26,000 for the whole projection period. In the low scenario the projection envisions 17,000 emigrants and 35,000 immigrants per year; in the high scenario it expects 15,000 emigrants and a (steady) decline in the number of immigrants from 55,000 to 41,000 between 2018 and 2100.

THE SEX AND AGE STRUCTURE OF MIGRANTS

Concerning the sex distribution of migrants, all the projection scenarios assumed a 56% share of men in the immigration flow in 2019; this is equal to the observed share for the period of 2013–2017. In the following years, the projection expected a slight increase in the share of women among immigrants in connection with the expected higher demand for workers in social care and health services in response to progressive population ageing in the future. A moderate decrease in the share of men to 53% in 2050 was assumed and then the share was fixed at this level. Since the data for the last year show a partly different sex and age distribution than the 5- (10-)year averages, the age-sex distribution of immigrants for the year 2018 was used as a transition and was estimated as the average of the level from the last real observed data (2017) and the level of the first projection (2019).

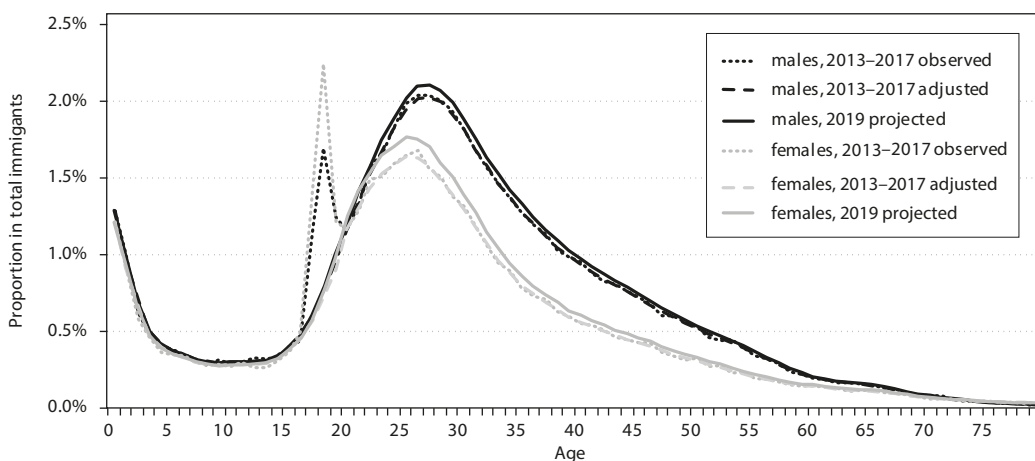
For the migration flow out of the Czech Republic, the shares of men and women were fixed at 56% men in all the projection scenarios throughout the projection period. (The figure being the average for the shares measured in 2013–2017.) This meant that there were 9,024 emigrating men out of a total of 16,000 emigrants. As a result of these assumptions, the projection expected there would be a decreasing share of men within net migration. At the beginning of the projection the figure would be around 57% men, whereas by 2050 the share of men would be 51%.

The age distributions of migrants in both directions were based on the data from previous years: the age structure of immigrants is based on the average for 2013–2017, and the age structure of emigrants is based on the average for 2008–2017. These averages seemed to be sufficiently robust and at the same time

corresponded to recent trends. Nevertheless, some adjustments were made. First, the sex distribution of both immigrating and emigrating children (aged 0–17) was adjusted so that the shares of men and women (0.515 and 0.485, respectively) at these ages were stable. Then, the age-distribution curves were smoothed using the method of the three-year moving average, and migration was set as zero for people at the oldest ages (above 95). In addition to this, the observed share of immigrants aged 17–20 was not fully implemented in the projection because it

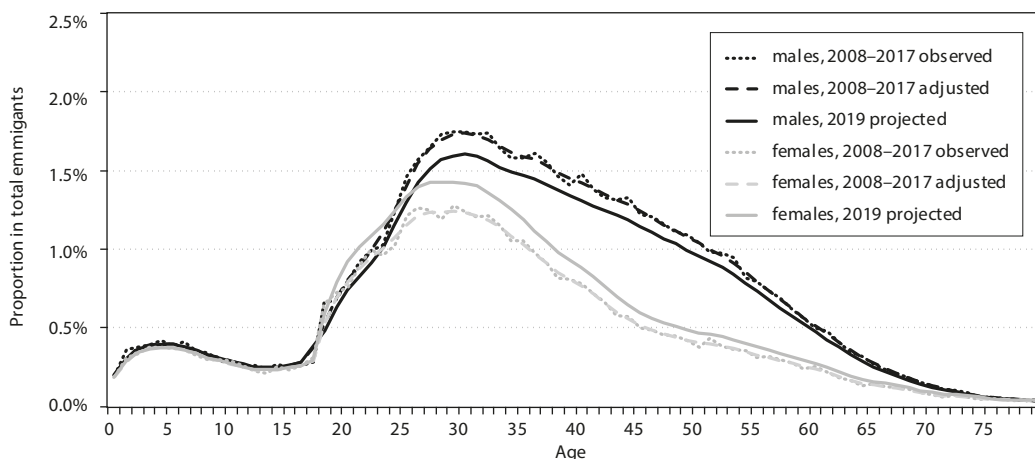
was obvious that these people coming to the Czech Republic were often students residing temporarily in the country and weren't expected to fully participate in the reproduction of the Czech population during their stay. After further smoothing with the three-year moving average method (see the 'adjusted' curves in Figure 1 and Figure 2), the age distribution was finally adjusted to the projected share of men/women among migrants (where the share of males and females was only changing among people aged 18–74; see the 'projected' curves in Figures 1 and 2).

Figure 1 Immigrants by sex and age in the Czech Republic – observed, adjusted and projected data (in %)



Source: Czech Statistical Office, 2018a and 2018b; author's calculations.

Figure 2 Emigrants by sex and age in the Czech Republic – observed, adjusted and projected data (in %)



Source: Czech Statistical Office, 2018a and 2018b; author's calculations.

Table 1 Projected number of migrants by sex and age, 2019, 2050–2100, medium scenario

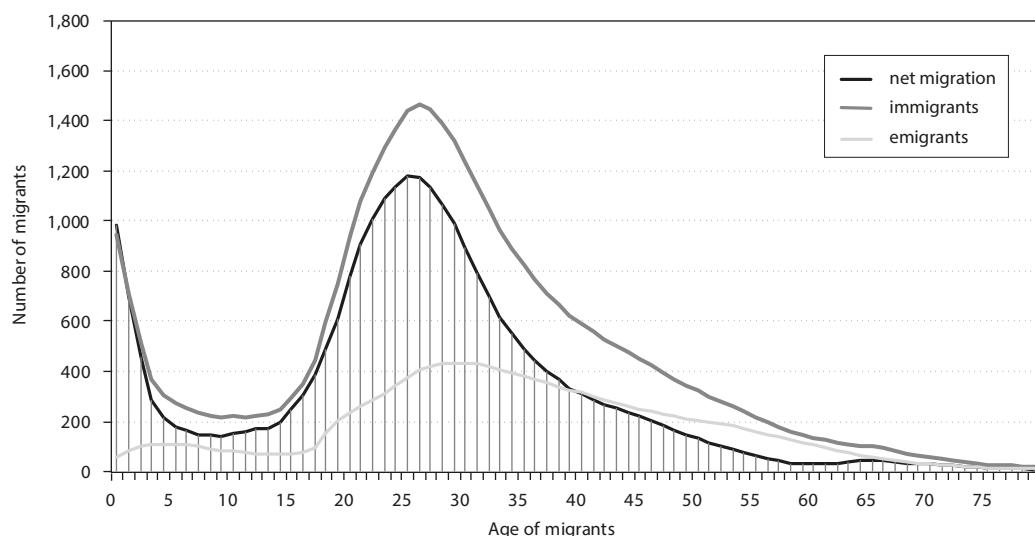
Year/ Period	Immigrants				Emigrants		Net migration			
	2019		2050–2100		2019–2100		2019		2050–2100	
Age	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
0–14	2,958	2,786	2,958	2,786	754	710	2,204	2,077	2,203	2,077
15–19	1,375	1,320	1,327	1,382	325	347	1,050	974	1,002	1,036
20–24	3,289	3,172	3,080	3,440	744	857	2,546	2,316	2,335	2,583
25–29	4,323	3,496	4,048	3,790	1,183	1,111	3,140	2,385	2,865	2,679
30–34	3,450	2,429	3,231	2,634	1,243	1,068	2,207	1,360	1,989	1,565
35–39	2,456	1,561	2,300	1,693	1,126	834	1,330	727	1,174	858
40–49	3,215	1,978	3,011	2,145	1,853	1,026	1,363	952	1,159	1,118
50–64	1,972	1,255	1,847	1,361	1,503	787	468	468	344	576
65+	482	482	458	510	293	235	188	245	165	272
Total	23,520	18,480	22,260	19,740	9,024	6,976	14,496	11,504	13,236	12,764

Note: The total number could slightly differ from the sum of the numbers for the different age groups due to the rounding of net migration by sex and age. Source: Czech Statistical Office, 2018b; author's calculations.

The 2018 Projection expected that the highest amount of net migration would remain in the 25–29 and 20–24 age groups and then also in the 30–34

age group. It is projected that these three age groups together will account for slightly more than one-half of total net migration.

Figure 3 Projected number of migrants by age, 2050, medium scenario



Source: Czech Statistical Office, 2018b; author's calculations.

COMPARISON WITH OTHER PROJECTIONS

In comparison with the assumptions incorporated in the previous population projection of the Czech Statistical Office (released in 2013), the expected positive net migration is higher in all the scenarios of Projection 2018. The numbers (18,000 in the low scenario, 26,000 in the medium, and net migration of between 40,000 and 26,000 in the high scenario) are closer to the migration assumptions in the CZSO’s Projection 2009. The vision of future development (the size of the population gains from international migration) has been linked to some extent to economic circumstances. In 2013, negative net migration was recorded in the Czech Republic and it was a time of economic crisis, while in 2018 there was a very low

unemployment rate and a high demand for foreign workers (like in 2009).

Burcin and Kučera (2018) presented figures that are not markedly different from the new CZSO projection in their projection that was published in 2018, while their medium scenario for net migration was a figure 4,000 higher. On the other hand, the projection released by Eurostat in 2018 expected slightly lower net migration for the Czech Republic at the beginning of the projection period, followed by a decline in net migration to 8,300 in 2100. But the projection methodology was specific in that case (see https://ec.europa.eu/eurostat/cache/metadata/en/proj_esms.htm). Eurostat used a convergence model (zero net migration beyond the projection horizon) and the replacement migration.

Table 2 Expected net migration in projections for the Czech Republic

	Burcin & Kučera (2018)			EUROPOP 2018	CZSO (2013)			CZSO (2009)		
	Low	Medium	High	Baseline	Low	Medium	High	Low	Medium	High
2020	23,000	30,000	37,000	23,479	328	10,082	19,841	15,000	25,000	40,000
2030	20,000	30,000	40,000	20,613	2,226	11,659	21,110	15,000	25,000	40,000
2040	20,000	30,000	40,000	24,467	3,933	13,079	22,259	15,000	25,000	40,000
2050	20,000	30,000	40,000	18,377	5,571	14,384	23,291	15,000	25,000	40,000
2100	x	x	x	8,255	10,350	17,671	25,400	x	x	x

Source: Burcin and Kučera, 2018; Czech Statistical Office, 2009, 2013; Eurostat, 2018.

Sources of data:

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MICHAELA NĚMEČKOVÁ

studied demography at Charles University in Prague. Since 2007 she has been working at the Czech Statistical Office in the Demographic Statistics Unit. She specialises in the analysis of demographic development, population projections, and methodology.