
POPULATION DEVELOPMENT IN THE CZECH REPUBLIC IN 2022

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Abstract

The article analyses the demographic development of Czech Republic in 2022 and sets it in the context of demographic trends in the last decade 2013–2022. The study focuses on the main demographic processes, namely fertility, mortality, nuptiality, divorce rate, and migration. The population of the Czech Republic grew as a result of the positive balance of international migration in 2022. Although the number of deaths decreased significantly year-on-year, the number of live births decreased considerably as well. Life expectancy at birth has increased for both sexes. The number of marriages increased to the level of 2018. The divorce rate continued its decline and, unlike nuptiality, it did not return to its pre-pandemic level.

Keywords: demographic development, population, age structure, nuptiality, divorce, fertility, mortality, migration, Czech Republic

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POPULATION BY AGE AND MARITAL STATUS

At the end of 2022, the Czech Republic had a population of 10,827.5 thousand inhabitants. Compared to 31 December 2021, the population grew by 310.8 thousand people during the year 2022, which was both absolutely and relatively (by 3.0%) the largest year-on-year increase in history. This increase occurred as a result of a massive wave of immigration away from the armed conflict in Ukraine. Population growth was caused by international migration not only in 2022 but also in the last decade from 2013 to 2022 (Table 1). The natural change in the total population caused a significant decrease in the number of inhabitants for a third year in a row (–18.9 thousand in 2022). Apart from a decline in 2013 (by 3.7 thousand people), the population grew year-on-year in the last decade (between the beginning of 2013 and the end of 2022), including

during the year 2021, when the population increased by 21.9 thousand people (or 0.2%) from its state on 1 January 2021 to the end of the year. The change in the numerical size of the population between 2020 and 2021 reflects the use of new starting states (the number of inhabitants by sex, age, and marital status) as of 1 January 2021 in the 2021 census (the number of inhabitants by sex, age, and marital status) as of 1 January 2021 based on the 2021 census (Koukalová, 2022).

The number of children aged 0–14 years has increased since 2008 but remains the smallest of the main age groups (Table 2). At the end of 2022, there were a total of 1.75 million children under the age of 15 and they made up 16.2% of the total population (1.3 p.p. more than at the beginning of 2013). The 3.4% increase (an increase of 57.4 thousand children of this age) during 2022 was the highest not only in the last decade but since the end of

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Table 1 Population development of the Czech Republic, 2013 and 2017–2022

Indicator	2013	2017	2018	2019	2020	2021	2022
Natural increase	-2,409	2,962	1,116	-131	-19,089	-28,098	-18,920
Net migration	-1,297	28,273	38,629	44,270	26,927	49,969	329,742
Total increase	-3,706	31,235	39,745	44,139	7,838	21,871	310,822
	Per 1,000 population						
Natural increase	-0.2	0.3	0.1	-0.0	-1.8	-2.7	-1.8
Net migration	-0.1	2.7	3.6	4.1	2.5	4.8	30.6
Total increase	-0.4	2.9	3.7	4.1	0.7	2.1	28.9

Source: Czech Statistical Office.

the Second World War. The increase in 2022 was influenced by the wave of immigration from Ukraine, which brought mainly women and children to the Czech Republic (conversely, the number of live births

decreased year-on-year by 10.5 thousand). At the end of 2022, there were 562.5 thousand children aged 0–4, 584.2 thousand children aged 5–9, and 604.0 thousand 10–14 year olds in the population

Table 2 Age distribution of population, 2013 (1 Jan.) and 2017–2022 (31 Dec.)

Age group/Indicator	2013	2017	2018	2019	2020	2021 ^{*)}	2022
	Population (thousands)						
Total	10,512.4	10,610.1	10,649.8	10,693.9	10,701.8	10,516.7	10,827.5
0–14	1,577.5	1,670.7	1,693.1	1,710.2	1,719.7	1,693.4	1,750.8
15–64	7,109.4	6,899.2	6,870.1	6,852.1	6,823.7	6,654.2	6,868.9
65+	1,825.5	2,040.2	2,086.6	2,131.6	2,158.3	2,169.1	2,207.8
	Share in total population (%)						
0–14	15.0	15.7	15.9	16.0	16.1	16.1	16.2
15–64	67.6	65.0	64.5	64.1	63.8	63.3	63.4
65+	17.4	19.2	19.6	19.9	20.2	20.6	20.4
	Characteristics of age distribution						
Average age	41.5	42.2	42.3	42.5	42.6	42.8	42.6
Median age	40.8	42.3	42.6	43.0	43.3	43.8	43.7
Index of ageing ¹⁾	115.7	122.1	123.2	124.6	125.5	128.1	126.1
Age dependency ratio ²⁾	58.6	64.8	66.3	67.8	69.0	71.0	71.5

Note: *) The number and structure of the population from 2021 is based on the results of Census 2021, while the data for previous years follow the results of Census 2011.

1) The number of people aged 65 and over per 100 children aged 0–14.

2) The number of children aged 0–19 and people aged 65 and over per 100 people aged 20–64.

Source: Czech Statistical Office; authors' calculations.

of the Czech Republic. The largest year-on-year increase was in the age category of 5–9 year olds, which grew by 31.3 thousand; 10–14-year-old children increased by 21.8 thousand and children aged 0–4 by 4.4 thousand.

The people in the 15–64 age group represented a total of 63.4% of the population of the Czech Republic in 2022 (Table 2). Absolutely, there were 6.87 million people of this age at the end of 2022, 214.7 thousand more than in the previous year. The population aged 15–64 declined every year from 2009 to 2021. The significant increase in numbers in 2022 was caused by a way of immigration from war-torn Ukraine. Viewed from the perspective of five-year age groups, in 2022 the largest (not only within the 15–64 age group, but also the entire population) was the 45–49 age group, which included 939.7 thousand people at the end of the year, i.e. by 40.2 thousand more than at the end of the previous year. This group had been growing in number since 2014 and became the largest group at the end of 2021, replacing the 40–44 age group that dominated from 2016 to 2020. The main reason was the shift of the numerically large cohort of people born in the 1970s from the 40–44 to the 45–49 age group. The population of 40–44 year olds decreased in number for the fourth year in a row and at the end of 2022 there were 824.6 thousand people in this group.

The seniors age group (aged 65 and over) underwent the most dynamic changes over the last decade of all three main age groups. In 2022, it accounted for one-fifth (20.4%) of the population, which was an increase of 3.0 percentage points from figure observed at the beginning of 2013 (Table 2). In total, there were 2.21 million people aged 65 and over in the Czech Republic at the end of 2022. Over the last decade, the seniors age group recorded the largest year-on-year increase (by 3.3%) in 2013 (when the numerically large cohort born in 1948 entered the seniors age group), after which its year-on-year growth rate decreased slightly, and then it decreased more significantly in 2020 and 2021 as a result of COVID-19 and its effect on mortality. The 0.8% increase in the senior population in 2021 was the lowest observed in a decade. In 2022 the seniors age group increased by 1.8%. Viewed from the perspective of five-year age groups, the seniors group aged 65–69

remains numerically the largest group, but it has been decreasing in number since 2016. While at the beginning of 2013, this age group made up 36.0% of the total number of people aged 65 and older, by the end of 2022 the share was only 29.6%.

The wave of migration from Ukraine, which mainly included children and women of working age, had the effect of slowing down the pace of population ageing, which is demonstrated in all the analytic indicators of the age structure (Table 2). The average age of the population of the Czech Republic decreased by 0.2 to 42.6 years in 2022. During the last decade, since the beginning of 2013, it has grown by 1.1 years. The difference between the average age of men and women in the last decade ranged from 2.8 to 2.9 years. In 2022, the average age of men was 41.2 years and for women it was 44.0 years. The index of ageing increased until 2021, when it reached the level of 128 seniors aged 65 and over per 100 children aged 0–14. Owing to the bigger increase in the number of children aged 0–14, caused by the wave of immigration from Ukraine, there was a year-on-year decrease in the index of ageing to 126 seniors per 100 children by the end of 2022. The total age dependency ratio increased continuously between 2013 and 2022, rising from 59 to 72 dependent persons per 100 people of working age. The rise in this figure was mainly a reflection of the increase in the size of the elderly population, which grew significantly in relation to the size of the working age population.

Despite the significant events that have occurred in recent years – the COVID-19 pandemic and the wave of immigration from war-torn Ukraine – the age distribution of the population by marital status continued to change in 2022 in the direction of long-term trends. While the share (absolute and relative) of single and divorced people in the population is increasing, the share of married, including widowed, people is decreasing. The share of single people in the population aged 15 years and over increased by 0.5 p.p. year-on-year to 32.8% in 2022 (Table 3). This was the largest year-on-year increase in the last decade, and it was influenced by the immigration of people from Ukraine, which was mostly made up of single people. Married men and married women form the majority, but their share has been decreasing since the early

1980s. At the end of 2022, 45.3% of the population aged 15 years and over were married (a year-on-year decrease of 0.2 p.p., and 2.9 p.p. less than in 2013). The share of divorced persons in the population shows a long-term increasing trend (since the 1960s), but in 2022 there was a slight year-on-year decrease in their representation, both for men and women. At the end of 2022, 13.8% of the population aged 15 and over were divorced (0.2 p. p. less year-on-year, but 1.0 p. p. more than in 2013). The share of widowed persons in the population aged 15 and over changes the least. Between the beginning of 2013 and the end of 2022, their share decreased from 8.5% to 8.0%, with a decline in the proportion of widowed women owing to the faster improvement of male mortality. The structure of the population has changed the most for persons between the ages of 35 and 49 over the last decade, as the cohorts born in the 1970s, who have had a crucial influence on changes in demographic behaviour since 1989, have passed through these age groups. In these age categories, the share of single people increased the most, while at the same time

the share of married persons decreased the most because of the decline in the marriage rate and the postponement of marriage to a later age (or rejection of marriage). After about 45 years of age, the share of divorced people generally increases, due to the high rate of divorce, the increasing length of average time elapsed after divorce, and the shift in marriage (and divorce) to an older age. In the oldest age groups (65 years and over), the structure of men and women by marital status depends mainly on the level of mortality. Most men aged 65+ years were married (69.5% in 2022, 74.0% at the beginning of 2013). Among women aged 65+, the share of widowed and married is much closer, and the difference between these two groups of older women has decreased thanks to the steadily decrease in the male mortality rate. At the beginning of 2013 the majority of women aged 65+ were widowed (47.7% compared to 39.1% of married women), but married women have predominated in this age group since 2019. In 2022, 41.1% of senior women were married and 40.7% were widowed.

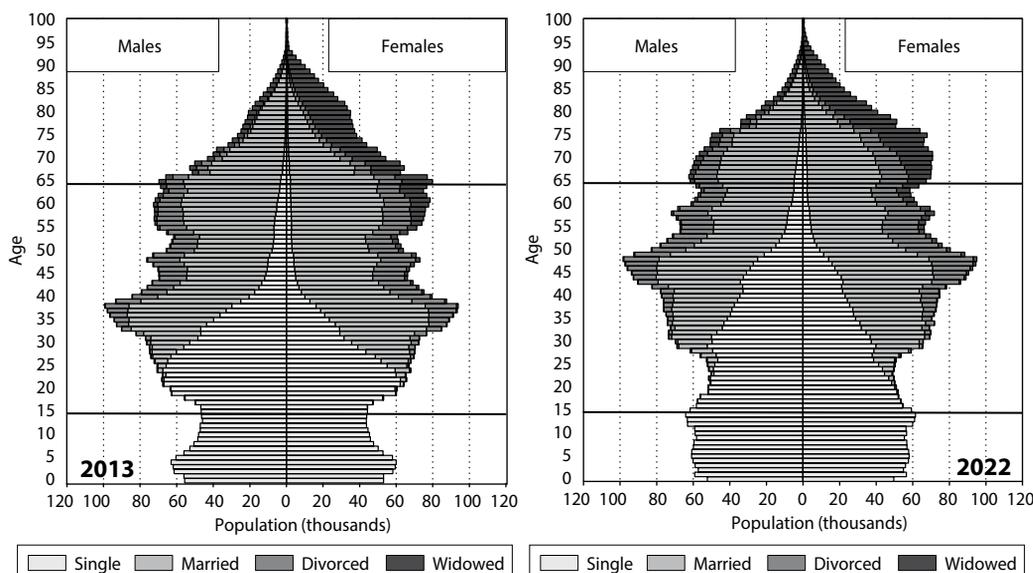
Table 3 Population 15+ years by marital status, 2013 (1 Jan.) and 2017–2022 (31 Dec.)

Marital status	2013	2017	2018	2019	2020	2021*)	2022
	Population (thousands)						
Single	2,725.3	2,801.3	2,822.5	2,849.0	2,887.4	2,852.3	2,980.6
Married	4,309.1	4,191.8	4,181.9	4,176.2	4,136.3	4,013.7	4,111.5
Divorced	1,144.8	1,206.6	1,216.2	1,225.5	1,229.3	1,234.0	1,254.5
Widowed	755.7	739.8	736.2	733.1	729.0	723.3	730.1
	Percentage of the population 15+ years						
Single	30.5	31.3	31.5	31.7	32.1	32.3	32.8
Married	48.2	46.9	46.7	46.5	46.1	45.5	45.3
Divorced	12.8	13.5	13.6	13.6	13.7	14.0	13.8
Widowed	8.5	8.3	8.2	8.2	8.1	8.2	8.0

Note: *) The number and structure of the population from 2021 is based on the results of Census 2021, while the data for previous years follow the results of Census 2011.

Source: Czech Statistical Office; authors' calculations.

Figure 1 Population by age, sex, and marital status, 2013 (1 Jan.) and 2022 (31 Dec.)



Source: Czech Statistical Office; authors' calculations.

NUPTIALITY

The total annual number of marriages had a declining trend from the 1990s until 2013, when it reached a historical low of 43,5 thousand. This was followed by a six-year period of growth with an average year-on-year increase of 4%. A significant decrease in the number of marriages in 2020 and 2021 was caused mainly by epidemiological measures (Slabá, 2022), namely the pandemic-era regulations restricting wedding ceremonies or the number of attendees at these ceremonies. A large part of the year 2022 was no longer affected by pandemic restrictions, and the total number of marriages rose to 54.8 thousand (a year-on-year increase of 17.2%) and almost returned to the pre-pandemic level of 2019 (Table 4). In 2022, there was an increase in the number of marriages of both single and divorced persons and among women only in the case of widowed persons (there was a slight decrease in the case of men). A total of 40.8 thousand men (74.5% of the total number of grooms) and 41.1 thousand women (75.0% of the total number of brides) married for the first time in 2022. In addition, 14.0 thousand men and 13.7 thousand women entered a second or higher-order marriage. Compared to the previous year, the number in both groups of grooms

and brides increased significantly. A total of 80% of marriages were concluded between engaged partners with the same marital status, and in 65% of cases it was the first marriage for both (the share of these so-called protogamous marriages has been in the range of 63–68% since the mid-1990s).

In 2022, 65.3% of marriages were registered in the period of June–September, and the largest number of marriages took place in June (9.8 thousand). Conversely, the least popular month for marriages was January, as is traditionally the case, when only 840 couples got married. The most popular date (in 2022) was Saturday, 18 June 2022, when 1.8 thousand couples got married. A very popular day for marriages in 2022 was the palindromic date 22/02/2022, when 1,100 couples said their 'I dos', despite this date falling on the otherwise less popular weekday for weddings, a Tuesday.

If the intensity of marriage among singles were remain steady at its 2022 level, 60.4% of men and 70.2% of women would be married by the age of 50, which is the highest level since 2008. Based on the first-marriage probabilities for 2022, the mean age of men and women at the beginning of their first marriage changed only very slightly year-on-year

Table 4 Marriages by order, 2013 and 2017–2022

Indicator	2013	2017	2018	2019	2020	2021	2022
Total marriages	43,499	52,567	54,470	54,870	45,415	46,778	54,820
in: – marriages of singles	28,877	35,574	36,593	36,690	29,694	30,519	35,869
Male order of marriage – first	32,743	40,038	41,316	41,606	33,814	34,930	40,847
– higher	10,756	12,529	13,154	13,264	11,601	11,848	13,973
Female order of marriage – first	33,029	40,336	41,592	41,724	33,974	34,856	41,138
– higher	10,470	12,231	12,878	13,146	11,441	11,922	13,682
Protogamous marriages (%)	66.4	67.7	67.2	66.9	65.4	65.2	65.4
Remarriages (%) – males	24.7	23.8	24.1	24.2	25.5	25.3	25.5
– females	24.1	23.3	23.6	24.0	25.2	25.5	25.0

Note: Protogamous marriages = both groom and bride are single.

Source: Czech Statistical Office; authors' calculations.

in 2022: for men it was 32.5 years (a year-on-year decrease of 0.03 a year) and for women it stagnated at 30.3 years (Table 5).

In 2022, the intensity of marriage also increased year-on-year for remarriages (2nd- and higher-order marriages), for both men and women in almost all five-year age categories in the 25–49 age range and was higher than the average for the period 2017–2019. In 2022 the total remarriage rate of divorcees was 51.3% for males and 48.9% for females, which were the highest levels since 1993. Divorced persons most often enter into a new marriage in the first

years after divorce (divorced men more often than women), and the remarriage rate decreases with the time elapsed since divorce and the gender gap in remarriage gradually disappears (Figure 2). In 2022, men remarried on average 9.7 years after divorce and women after 10.1 years (assuming remarriage rates remain stable in the future), there was a significant year-on-year increase of 0.4 years for both sexes. The increase in the average elapsed time from divorce has been occurring regularly in recent years, mainly due to the increase in the number of divorced people marrying at a longer interval after divorce.

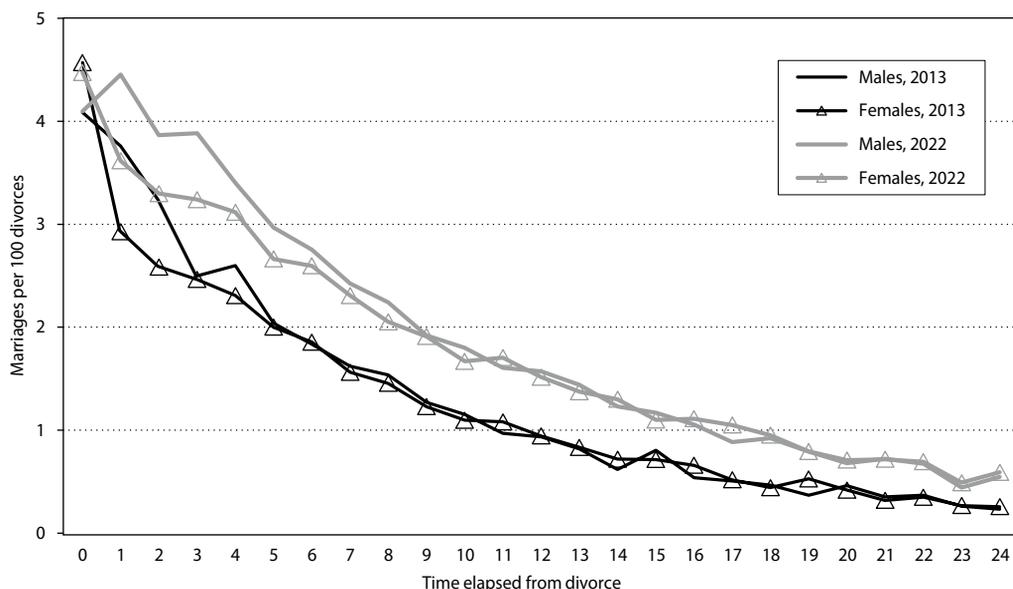
Table 5 Nuptiality indicators, 2013 and 2017–2022

Indicator	2013	2017	2018	2019	2020	2021	2022
Total first marriage rate (%) – males	51.4	57.6	58.8	59.0	51.9	54.4	60.4
– females	59.0	65.4	66.9	67.5	60.8	63.7	70.2
Mean age at first marriage – males	32.3	32.2	32.2	32.1	32.6	32.6	32.5
– females	29.8	29.8	29.8	29.8	30.4	30.3	30.3
Total remarriage rate of divorcees (%) – males	34.7	42.5	45.0	46.0	40.8	42.5	51.3
– females	33.5	40.8	43.4	44.5	39.4	42.0	48.9
Average elapsed time from divorce – males	8.0	8.6	8.8	8.9	9.3	9.3	9.7
– females	8.3	9.0	9.1	9.4	9.6	9.7	10.1

Note: First marriage indicators are based on the single decrement primo-nuptiality tables. The remarriage rates of divorcees are constructed from the distribution of remarriage rates by time elapsed from divorce.

Source: Czech Statistical Office; authors' calculations.

Figure 2 The remarriage rates of divorcees by sex and time elapsed since divorce, 2013 and 2022



Source: Czech Statistical Office; authors' calculations.

DIVORCE

According to data obtained from the Ministry of Justice of the Czech Republic, a total of 19.8 thousand divorces were registered in 2022 (Table 6). The number decreased year-on-year by 6%, a decrease of almost one-third compared to 2013. Thus, the declining trend in the number of divorces continued, when it decreased by an average of 4.5% between 2013 and 2022, except for a slight increase in 2013 and 2017. Most men and women (over 80%) who divorced did so for the first time. In 2022, it was the first divorce for 16.0 thousand men and for 16.0 thousand women. The remaining one-fifth (3.9 thousand men and 3.8 thousand women) had already been divorced before (meaning these were second or higher-order divorces).

In 2022, divorces occurred in 11.5 thousand marriages with minor children (a year-on-year decrease of 10.8%) and 8.4 thousand without minor children (a year-on-year increase, by contrast, of 1.5%). The share of divorces in marriages with minor children out of the total number of divorces decreased by 3.1 p.p. year-on-year to 57.8% in 2022 and reached its lowest share since 2015, while it fluctuated in the

range of 56.8–60.9% in the period 2013–2021 (Table 6). Divorce affected 18.4 thousand minor children, which was 10.1% less than in the previous year and the lowest number in the history of the independent Czech Republic. Between 2013 and 2022, there was an increase in the share of divorced families with two children (from 40.4% to 44.7%, with a peak in 2020 (except in 2020 when the share peaked at 45.7%), while there was a decrease in the share of divorced families with one child (a decline from 54.0% to 48.3%). By contrast, the share of divorced families with three or more minor children had long remained stable at 5–6%, but a turn occurred in 2021, when the share increased significantly by 0.8 p.p. to 6.8%, and then in 2022 by another 0.2 p.p. to 7.0%, which was the highest level since 1989. The average number of children per divorced marriage with children increased from 1.53 in 2013 to 1.60 in 2022.

In terms of the duration of a marriage until divorce, most divorces occur after 5–9 years of marriage (absolutely 4.3 thousand in absolute figures) and their share (22%) did not deviate in any way from the interval of 20–23% from the previous period 2013–2021. In the period 2013–2022, the intensity of divorce

Table 6 Divorces, 2013 and 2017–2022

Indicator	2013	2017	2018	2019	2020	2021	2022
Total divorces	27,895	25,755	24,313	24,141	21,734	21,107	19,846
Percentage of repeated divorces – males	20.0	19.3	19.1	19.2	19.0	18.9	19.5
– females	19.1	18.6	18.7	18.0	18.6	18.4	19.2
Divorces without minor children	11,974	10,559	10,120	9,905	9,015	8,253	8,378
Divorces with minor children	15,921	15,196	14,193	14,236	12,719	12,854	11,468
– percentage of total	57.1	59.0	58.4	59.0	58.5	60.9	57.8
Number of minor children in divorced marriages	24,335	23,752	22,294	22,644	20,187	20,444	18,369
– average number of minor children per divorce with minor children	1.5	1.6	1.6	1.6	1.6	1.6	1.6

Source: Czech Statistical Office; authors' calculations.

rates decreased relatively steadily when viewed from the perspective of five-year intervals across almost all marriage durations (Table 7). In a comparison between 2013 and 2022, the most significant change in the intensity of divorce rates was observed in the shortest durations of marriage until divorce, namely in the interval 0–4 years (by 30%), 5–9 years (by 22%), and 20–24 years (by 22%). Year-on-year, the intensity of divorce rates in 2022 decreased in the range of 3–7% in all five-year intervals.

If the intensity of divorce in individual lengths of marriage remained at the level of 2022, 37.7%

of marriages would end in divorce, a decrease of 2.0 p.p. compared to the year before (Table 7). The total divorce rate thus decreased for the third time in a row and was the lowest since the beginning of the century. Between 2013 and 2019, its intensity ranged between 44.8% and 47.8%, but in 2020 it significantly decreased year-on-year by 4.2 p.p. to 40.6% and in the following year by another 0.8 p.p. to 39.7%. The mean duration of marriage at divorce has been increasing for more than two decades, with small fluctuations, and between 2013 and 2022 it increased from 13.0 years to 13.5 years.

Table 7 Divorce indicators, 2013 and 2017–2022

Indicator / Time elapsed	2013	2017	2018	2019	2020	2021	2022
Total divorce rate (%)	47.8	47.2	44.8	44.8	40.6	39.7	37.7
Mean duration of marriage at divorce (years)	13.0	13.2	13.4	13.5	13.7	13.6	13.5
	Divorce rates (per 100 marriages)						
0–4	2.1	1.8	1.7	1.7	1.5	1.5	1.5
5–9	2.3	2.4	2.2	2.1	1.9	1.9	1.8
10–14	1.8	1.8	1.7	1.7	1.6	1.6	1.5
15–19	1.4	1.3	1.3	1.3	1.2	1.2	1.1
20–24	1.0	1.0	1.0	0.9	0.9	0.8	0.8
25–29	0.6	0.6	0.6	0.6	0.5	0.5	0.5
30+	0.2	0.3	0.3	0.3	0.3	0.2	0.2

Note: Total divorce rate and mean duration of marriage at divorce resulted from the distribution of reduced divorce rates by time elapsed since entering into marriage.

Source: Czech Statistical Office; authors' calculations.

FERTILITY

The Czech Statistical Office recorded a total of 101.3 thousand live births in 2022, which was 10.5 thousand children (i.e. 9.4%) less than in the previous year (Table 8). In the years 2014–2017, the number of live births increased annually up to 114.4 thousand children, after which their number decreased year-on-year until 2020, when it reached 110.2 thousand. In 2021, there was a slight year-on-year increase (to 111.8 thousand children), and in 2022 the downward trend from previous years continued. The number of stillbirths compared to the preceding year dropped from 404 to 377. The highest stillbirth rate (3.9‰) in the last decade was recorded in 2020, while the lowest was recorded in 2017 and 2018 (3.3‰). In 2022, it reached 3.6‰.

From the perspective of the mother's marital status, the majority of children have long been born to married women, and it was no different in 2022 (Table 8), when more than half (51.8%) of all live births in that year were to married women. Over the last ten years, the proportion of children born to married women has gradually decreased from 55.0% in 2013 to a historic low of 51.0% in 2017. Since then, it has remained at just under 52%. Currently, almost half of all children are born outside marriage. Most of them

have an unmarried mother, while the predominance of single women within the unmarried group has increased over time. In 2013, 87% of unmarried mothers were single, while in 2022 the figure was 92%. The share of divorced mothers in the group of unmarried mothers, by contrast, decreased in recent years/the last decade, from 13% in 2013 to 8% in 2022.

The structure of live births by birth order has been relatively stable in the last ten years, during which time first-born children accounted for 46.3% (in 2022) to 48.7% (in 2016 and 2017) of all live births, second-born children accounted for 36.6% (in 2017) to 39.0% (in 2021) of all live births, and third- and higher-order births accounted for 14.6% (in 2013, 2016, 2019, and 2021) to 15.1% (in 2014 and 2022) of the total. In 2022, there was a year-on-year decrease in the absolute number of live births out of all births (by 10% for first- and second-borns, by 6% for higher-order births).

A significant year-on-year decrease in the number of live births (by 10.5 thousand) was reflected in the total fertility rate, which reached a value of 1.62 children per woman in 2022. There was a year-on-year decrease of 0.21 children per woman from 1.83 per woman, which was the biggest decrease

Table 8 Live births by birth order and by marital status of the mother, 2013 and 2017–2022

Indicator	2013	2017	2018	2019	2020	2021	2022
Live births	106,751	114,405	114,036	112,231	110,200	111,793	101,299
– first order	51,092	55,726	54,755	53,647	52,414	51,900	46,905
– second order	40,078	41,832	42,462	42,173	41,432	43,623	39,130
– third and higher order	15,581	16,847	16,819	16,411	16,354	16,270	15,264
Marital status of mother							
Single	41,655	50,379	49,956	49,137	48,799	49,950	45,091
Married	58,751	58,314	58,698	58,138	56,792	57,590	52,427
Divorced	6,134	5,539	5,227	4,818	4,482	4,140	3,678
Widowed	211	173	155	138	127	113	103
Percentage of live births outside marriage	45.0	49.0	48.5	48.2	48.5	48.5	48.2
– first order	55.7	58.6	57.9	57.3	58.1	58.5	57.6
– second order	33.4	39.0	39.0	39.2	38.9	39.7	39.7
– third and higher order	39.3	42.3	42.0	41.5	41.9	40.2	41.5

Source: Czech Statistical Office; authors' calculations.

recorded since the mid-1990s. The last year-on-year decrease in the total fertility rate occurred between 2010 and 2011, when it dropped from 1.49 to 1.43 children per woman. After that it grew until 2021, when the highest relative increase (7%) since 2008 was recorded. Year-on-year growth in 2014–2018 was 1–5%, while in 2013, 2019, and 2020 the total fertility rate stagnated. Compared to 2013, the total fertility rates of all birth orders increased in 2022 (by 7–16%). The first-order total fertility rate reached 0.78 children per woman, while the second-order fertility rate reached 0.61 and the third and higher-order rates were 0.23 children per woman in 2022. The mean age of mothers at childbirth increased by a total of 0.6 years to 30.4 years between 2013 and 2022, while its level remained unchanged year-on-year. The biggest absolute and relative increase in this indicator between 2013 and 2022 was observed among first-time mothers (by 0.7 years from 28.1 to 28.8 years). The mean age of mothers at childbirth in the case of second-order children increased by 0.4 years from 31.0 to 31.4 years in the same period, while the mean age of mothers at childbirth in the case of third- and higher-order children fluctuated between 33.2 and 33.4 years. In the last year, there was no change in the mean age of mothers at childbirth in the case of any birth order.

A comparison of the fertility rates for five-year age groups over time shows that between 2013 and 2022 the only decline in fertility was among women aged 15–19 (down by 39%), while in all the other age groups fertility increased. In the 20–24 year old age group it was 2% higher in 2022 than in 2013 (though it decreased in 2019–2022). Among 25–29 year olds, fertility increased by 14% between 2013 and 2022, for 30–34-year-olds it increased by 29%, and in older age groups it increased by more than half. The most significant increase, a 2.3-fold rise, was among women aged 45–49, but their fertility makes up just a minor part of the total. However, in the last year of the last decade, there was a decline in fertility in all five-year age groups. It decreased the least among the oldest women – aged 40–44 by 1% – and among those aged 45 and older, by 8%. In the 15–19, 20–24, and 25–29 age groups, fertility decreased by 10–11%, while among women aged 30–34 and 35–39 fertility was 12–13% lower compared to the previous year.

Viewed from the perspective of five-year age groups, the rate of first-order fertility is highest among women in the 25–29 age group and among other orders (second-, third-, and higher-order births) it is highest in the 30–34 age group; and this situation has not changed throughout the last decade. In a one-year detail (Figure 3), the first-order fertility rate was highest among women aged 28 or 29 (in 2022 it was

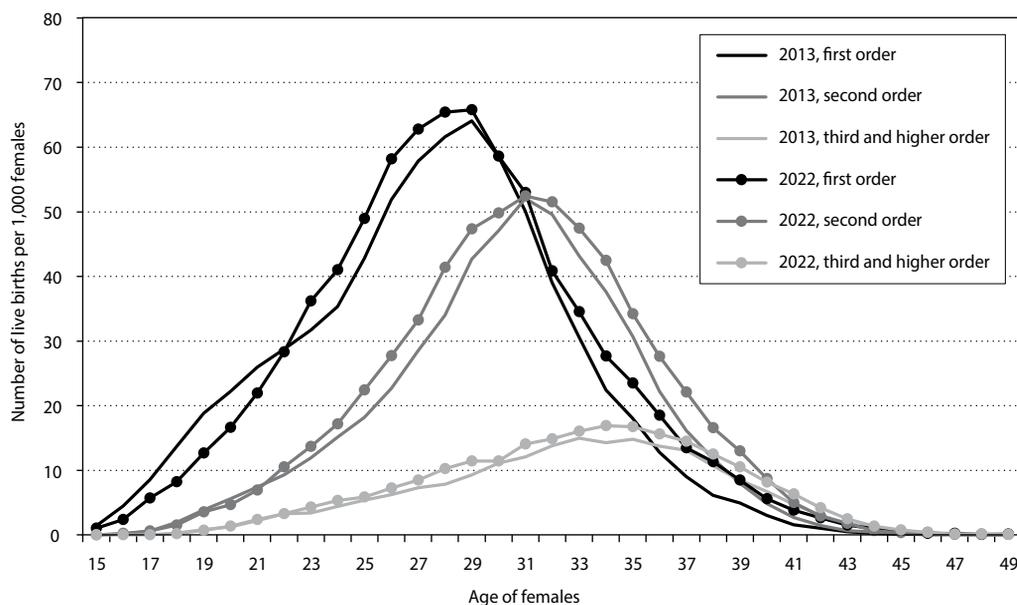
Table 9 Fertility indicators, 2013 and 2017–2022

Indicator	2013	2017	2018	2019	2020	2021	2022
Total fertility rate – total	1.46	1.69	1.71	1.71	1.71	1.83	1.62
– first order	0.73	0.86	0.86	0.85	0.85	0.88	0.78
– second order	0.53	0.60	0.62	0.62	0.62	0.69	0.61
– third and higher order	0.20	0.23	0.23	0.23	0.24	0.25	0.23
Net reproduction rate	0.71	0.82	0.83	0.83	0.83	0.89	0.78
Mean age of mother at childbirth – total	29.9	30.0	30.1	30.2	30.2	30.4	30.4
– first order	28.1	28.2	28.4	28.5	28.5	28.8	28.8
– second order	31.0	31.3	31.3	31.3	31.3	31.4	31.4
– third and higher order	33.2	33.4	33.4	33.4	33.3	33.4	33.4

Note: Total fertility rates by birth order are calculated from second category rates. Mean age at childbirth is calculated from live births.

Source: Czech Statistical Office; authors' calculations.

Figure 3 Age-specific fertility rates of females by birth order, 2013 and 2022



Source: Czech Statistical Office; authors' calculations.

66 first-born children per thousand women aged 29), with the only exception in 2020, when women aged 27 had the highest fertility rate. The highest level of second-order fertility was observed among women aged 31 or 32 (in 2022 there were 52 second births per thousand women aged 31), while for third- and higher-order births it was among women aged 34 or 35 (in 2022 there were 17 third- or higher-order births per thousand women aged 34), except in 2013, when it peaked at the age of 33 years. The only decrease in fertility rates between 2013 and 2022 was in the 15–19 age group (all birth orders), while first-order fertility decrease in the 20–24 age group. In the other subgroups, the fertility level has increased over the last 10 years. At the same time, the increase in fertility was relatively higher in the over-35 age group than in the 20–34 group.

MORTALITY

In 2022, 120.2 thousand inhabitants in Czech Republic died and the year-on-year decrease of 14.1% in the number of deaths after two years of significant increases was mainly the result of the decrease in mortality from COVID-19 (Table 10). Between 2013 and 2022 there was an increase in the number

of deaths by 11.1 thousand (a relative increase of 10.1%); when comparing 2022 with the last pre-pandemic year, 2019, there was an increase of 7.9 thousand deaths (by 7.0%). The number of deceased under one year of age in 2022 fell for the sixth time in a row, this time to 230. However, the infant mortality rate in 2022 rose by 1‰ year-on-year to a value of 2.3‰ (corresponding to 2020), because the number of live births decreased considerably. Male deaths account for 51.1% of deaths in 2022. More than four-fifths of the deceased were seniors aged 65 and over: in 2022, 89.6% of deceased women and 79.0% of deceased men were aged 65 and over (84.2% when both sexes are combined). Seniors aged 80 and over accounted for almost half of all deaths in the last decade (42.7% – 46.2%), they were more often represented again among women – in 2022, women in this age group accounted for 57.4% of all deaths and men for 34.0% of all deaths, while both sexes accounted for 45.5% of total deaths (Table 10). People aged 90 and older make up a substantial share of total deaths and that share has risen slightly year-on-year over the last decade (exception in 2021) from 10.4% to 14.8%. In 2022, 21.5% of deceased women and 8.2% of deceased men were aged 90 and over.

Table 10 Deaths, 2013 and 2017–2022

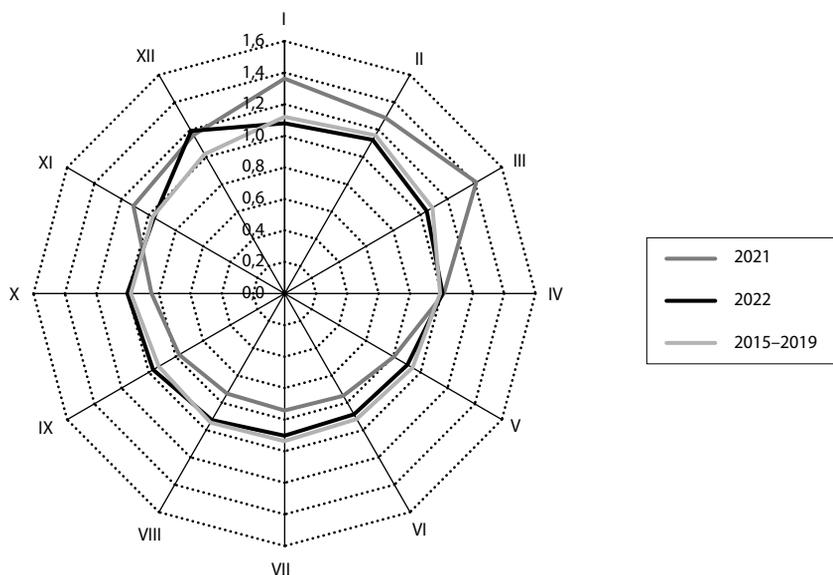
Indicator	2013	2017	2018	2019	2020	2021	2022
Deaths	109,160	111,443	112,920	112,362	129,289	139,891	120,219
– males	55,098	56,442	57,273	57,339	66,599	73,522	61,404
– females	54,062	55,001	55,647	55,023	62,690	66,369	58,815
Deaths at age:							
0–14	419	465	454	463	397	406	397
15–64	22,141	19,481	19,280	18,793	19,648	22,493	18,567
65 and over	86,600	91,494	93,186	93,106	109,244	116,992	101,255
Percentage of deaths at the age 80 and over – males	27.1	33.1	32.7	33.1	34.6	31.9	34.0
– females	52.3	58.1	57.8	57.2	58.4	54.8	57.4
Percentage of deaths at the age 90 and over – males	3.9	7.3	7.2	7.7	8.0	7.4	8.2
– females	11.9	19.7	20.1	20.5	21.3	19.5	21.5
Deaths under 1 year of age	360	304	292	288	249	246	230
Infant mortality rate (%)	3.1	2.7	2.6	2.6	2.3	2.2	2.3

Source: Czech Statistical Office; authors' calculations.

The number of deaths in individual months of the year in the Czech Republic is linked to the seasons, with the highest number of deaths occurring in the winter months of the year and in March and the fewest occurring between May and September (Figure 4).

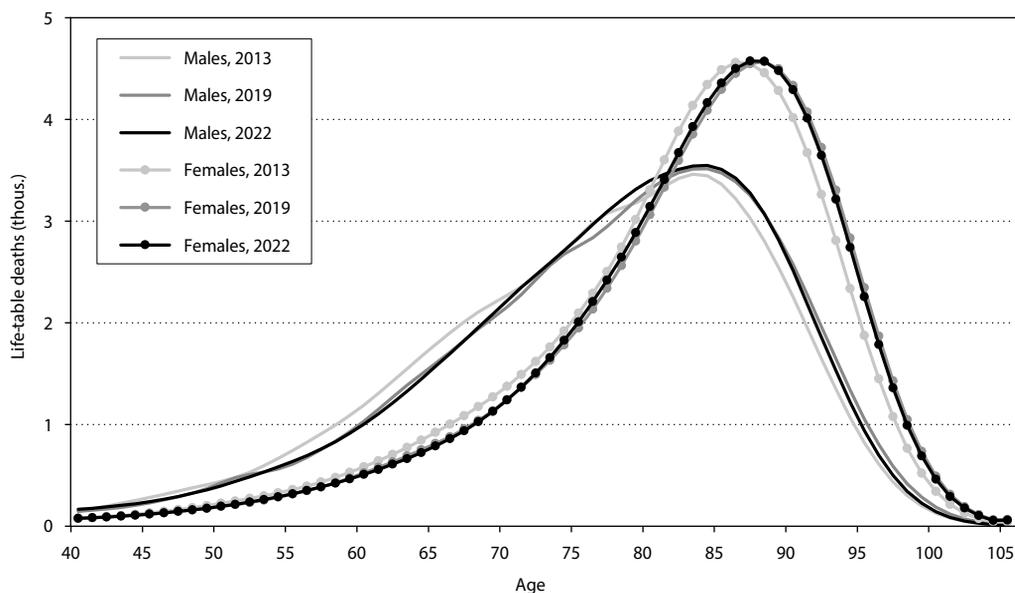
The number of deaths in the months of 2022 followed this same basic pattern, but with an earlier and more drastic increase in the number of deaths in autumn starting already from the month of September (13.1% more deaths than the average of 2015–2019,

Figure 4 Deaths – monthly indexes, averages for the periods 2015–2019, 2021, 2022



Source: Czech Statistical Office; authors' calculations.

Figure 5 Life-table deaths by sex and age, 2013, 2019, and 2022



Source: Czech Statistical Office. Based on life tables.

with a total increase of 8.2%), which then peaked in December with a wave of respiratory diseases (which usually peak in February or March), when the number of deaths increased by 26.3% compared to the 2015–2019 average (i.e. by 2.5 thousand deaths). When adjusted for the same number of days in each month of the year, most deaths were in December (a monthly index of 1.19), but the second highest number was in February (1.13) and the third in January (1.08). The lowest monthly index was recorded in June (0.88).

The effect of the age structure of the population on the number of deaths is eliminated (for example) by the indicators of mortality tables. Between 2013 and 2019, there was a relatively smooth shift in the curve of life table deaths towards an increase in life table deaths in old and very old age and a decrease in earlier and middle senior age (Figure 5). The pandemic situation in 2020 and changes in the probability of death caused a different development trend between 2019 and 2020. The improvement in mortality conditions in 2022 led to a return to the trend seen before 2020. The curve of the life table deaths of women in 2022 moved very close to the state of 2019 and the modal age (the age with the highest

number of deaths), 87, remaining a year lower so far. For men, the development between 2019 and 2022 was similar to the development for women, except in the case of men aged 76 to 79 years (below the modal age), where the number of deaths in 2022 was significantly (than in 2019). The modal age of men in 2022 reached a value of 84 years, similar to what it was in 2019.

Life expectancy at birth in 2022 reached 76.1 years for men and 82.0 years for women (Table 11). Compared to the previous year, 2021, this is a significant increase in life expectancy at birth, by 2.1 years for men and 1.5 years for women. Even in the case of the life expectancy indicator, the positive development of mortality conditions in 2022 compensated for the negative impact of the COVID-19 years, 2020 and 2021; life expectancy at birth in 2022 reached the level of 2018 in the case of men and the level previously observed between 2018 and 2019 in the case of women. Between 2013 and 2022 life expectancy at birth increased by almost 1 year (from 75.2 years to 76.1 years) for men and by 0.7 years (from 81.2 years to 82.0) for women, while the only time the indicator for both sexes was higher than it was in 2022 was in 2019.

Table 11 Life expectancy by sex and age, 2013 and 2017–2022

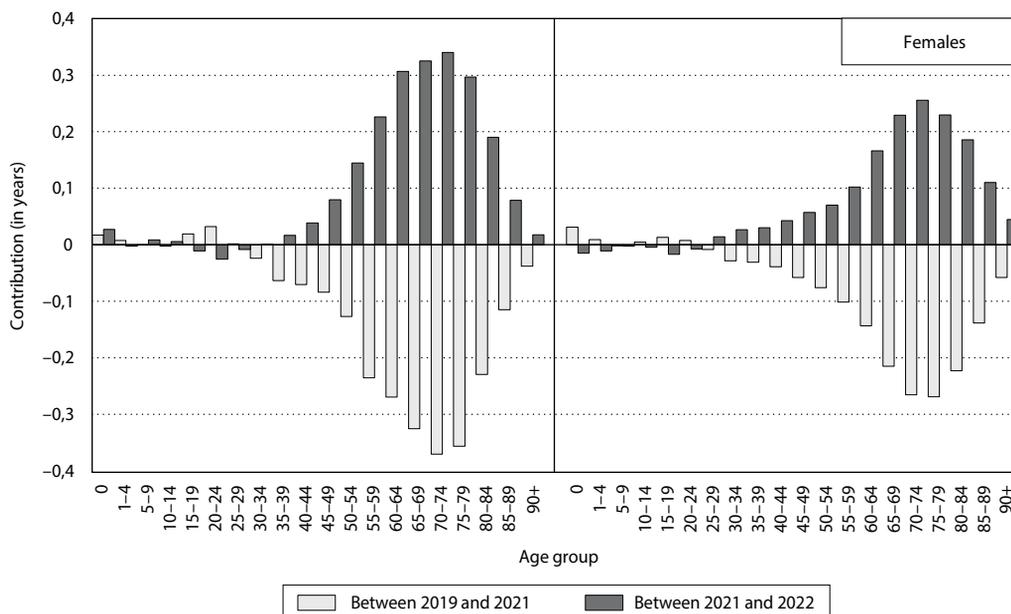
Indicator	2013	2017	2018	2019	2020	2021	2022
Life expectancy of males at age: 0	75.2	76.0	76.1	76.3	75.3	74.1	76.1
65	15.6	16.1	16.1	16.3	15.2	14.5	16.1
80	7.0	7.3	7.4	7.4	6.6	6.5	7.2
Life expectancy of females at age: 0	81.2	81.8	81.9	82.1	81.4	80.5	82.0
65	19.1	19.6	19.7	19.9	19.2	18.6	19.8
80	8.2	8.6	8.6	8.8	8.2	8.2	8.7

Note: The indicator is based on life tables calculated according to a unified methodology used by the CZSO since 2018.
Source: Czech Statistical Office.

The age group 70–74 contributed the most to the increase in life expectancy at birth between 2021 and 2022 (Figure 6) for both men and women (by 0.34 years for men and 0.26 years for women). For men, the wider age range of 60 to 79 years then included an increase in life expectancy by 1.27 years, i. e. 62% of its total year-on-year increase of 2.0 years. For women, the older age group between 65 and 84 years

contributed to the increase in life expectancy at birth by 0.9 years, i. e. 60% of the year-on-year increase of 1.5 years. Thus, for both sexes, between 2021 and 2022, the age groups that contributed most significantly to the increase in life expectancy at birth were the same ones that contributed most significantly to the decrease in life expectancy at birth in the previous two pandemic years (in 2019 and 2020).

Figure 6 Contributions of age groups to the difference in life expectancy by sex, 2019, 2021, and 2022



Note: Method of calculating according to Pressat (1985).
Source: Czech Statistical Office.

In 2022, the most common causes of death were, as is traditionally the case, diseases of the circulatory system, which were the causes of 46.3 thousand deaths (38.5% of all deaths). Of these, most inhabitants died from chronic ischemic heart disease (19.8 thousand, 16.5%), followed by heart failure (6.1%) and cerebrovascular disease (5.7%). The second most common cause of death was neoplasms (28.2 thousand deaths, 23.4%). The third most common cause of death was diseases of the respiratory system (8.5 thousand deaths, 7.1%). COVID-19 was the fourth most common cause of death in 2022 (6.0 thousand, 5.0%).

Based on standardised mortality rates (Table 12) the groups of causes of death in 2022 in both men's and women's populations ranked the same in both the male and female populations as the ranking for absolute numbers of deaths by these causes, with two exceptions in the male population. COVID-19 was the fourth most common cause of death according to standardised mortality rates for men (in absolute numbers it was fifth) and it thus switched places with external causes of death. Endocrine, nutritional, and metabolic diseases were the sixth most common cause of death according to standardised mortality

Table 12 Standardised mortality rates^{*)} by selected causes of death (per 100,000), 2013 and 2022

Underlying cause of death (code according ICD-10)	Males		Females	
	2013	2022	2013	2022
Total	1,647.3	1,569.4	1,074.9	997.8
Neoplasms (C00–D48)	394.2	349.7	227.0	207.9
Malignant neoplasm of colon, rectum and anus (C18–C21)	56.5	46.6	27.7	22.8
Malignant neoplasm of pancreas (C25)	25.1	25.0	17.9	18.6
Malignant neoplasm of trachea, bronchus and lung (C33–C34)	90.2	66.3	30.5	29.7
Malignant neoplasm of prostate (C61)	44.7	39.1	31.8	28.0
Endocrine, nutritional and metabolic diseases (E00–E90)	59.0	69.6	46.7	51.6
Diabetes mellitus (E10–E14)	51.3	59.1	40.2	42.6
Mental and behavioural disorders (F00–F99)	16.8	22.4	15.0	20.1
Diseases of the nervous system (G00–G99)	34.9	46.5	27.5	42.1
Alzheimer disease (G30)	16.3	24.8	16.4	29.6
Diseases of the circulatory system (I00–I99)	798.3	610.1	577.7	426.6
Ischaemic heart diseases (I20–I25)	453.8	283.2	302.1	171.2
Acute myocardial infarction (I21–I22)**)	104.4	41.2	54.6	19.5
Heart failure (I50)	48.8	92.7	35.3	71.5
Cerebrovascular diseases (I60–I69)	148.7	82.6	123.8	65.9
Atherosclerosis (I70)	31.1	19.2	23.4	14.1
Diseases of the respiratory system (J00–J99)	120.3	120.6	58.9	64.2
Diseases of the digestive system (K00–K93)	63.6	66.4	38.2	38.6
External causes of morbidity and mortality (V01–Y98)	90.4	81.4	34.1	30.1
Transport accidents (V01–V99, Y85)	12.0	9.1	3.2	2.5
Intentional self-harm (X60–X84, Y870)	26.7	20.7	5.3	4.9
COVID-19 (U07)	-	92.1	-	46.6
Other	69.9	110.6	49.9	70.1

Note: *) The European population standard issued by Eurostat (2013) was used for standardisation. **) Since 2018, subsequent myocardial infarction I22 has used the acute form I21 instead as the underlying cause of death.

Source: Czech Statistical Office; authors' calculations.

rates (where in absolute numbers of deaths they were seventh), while diseases of the digestive system ranked seventh.

When the standardised mortality rates of men and women are compared, the mortality rates of men are higher in all the most common causes of death. The groups of causes of death characterised by the highest male mortality rate are mainly external causes (male mortality rate index to female mortality rate was 2.71 in 2022) and COVID-19 (1.98) and diseases of the respiratory system (1.88); the higher male mortality rate from these diseases has existed for a long time (in the case of COVID-19, for all three years of the pandemic). A low male mortality index is registered by diseases of the nervous system (with an index of only 1.11 in 2022) and by the category of Alzheimer disease and other dementias, for which women had a higher mortality rate in the last two years (and in the long term the mortality rate from this disease in this category is balanced between the sexes).

INTERNATIONAL MIGRATION

In 2022 migration statistics³⁾ were strongly influenced by the war in Ukraine: the Czech Republic became one of the countries to which refugees most often migrated.

A total of 349.5 thousand persons immigrated to the Czech Republic from abroad in 2022 (the number of immigrants recorded in the population statistics), the highest ever number in the entire post-war history of the Czech Republic and five times more than there were in the preceding year (69.2 thousand in 2021, which was the highest number since 2009) (Table 13). The majority of immigrants were war refugees (out of a total of 349.5 thousand immigrants, 292.5 thousand of those recorded in CIS data at the end of 2022 had the residence status 'temporary protection of a refugee'). The number of emigrants, or persons whose registered stay in the Czech Republic ended, was 19.8 thousand in 2022 (i.e. 574 more than in 2021), which was no significant year-on-year change. It was at a similar level in the years 2014–2019. In 2013 and 2020, the number of registered emigrants was temporarily higher (30.9 thousand and 28.7 thousand.³⁾

Men predominate in both migration flows. In the years 2013–2021, men made up 54.5–60.9% of immigrants and 54.0–67.8% of emigrants (Table 13). However, in 2022 the structure of people who immigrated to the Czech Republic differed from the usual pattern because of refugees. Men represented only 41.9% of immigrants, while 58.1% were women.

Table 13 International migration by sex and age, 2013 and 2017–2022

Indicator	2013	2017	2018	2019	2020	2021	2022
Immigrants	29,579	45,957	58,148	65,571	55,661	69,201	349,548
– percentage of males	55.7	58.4	59.5	60.9	59.1	59.8	41.9
Emigrants	30,876	17,684	19,519	21,301	28,734	19,232	19,806
– percentage of males	58.4	56.3	57.4	58.0	67.8	63.4	62.2
Volume of migration	60,455	63,641	77,667	86,872	84,395	88,433	369,354
Net migration	-1,297	28,273	38,629	44,270	26,927	49,969	329,742
aged: 0–14	1,190	3,328	3,684	4,241	3,498	4,547	75,862
15–64	-2,492	24,748	34,758	39,805	24,166	45,036	243,340
65+	5	197	187	224	-737	386	10,540

Source: Czech Statistical Office.

2) Data were obtained from the Central Population Register Record (ISEO), administered by the Ministry of the Interior of the Czech Republic, and the Foreigners' Information System (CIS), administered by the Directorate of the Alien Police Service of the Czech Republic.

3) In both years, the statistics of emigrants were affected by the administrative interventions of the CIS terminating the validity of a foreign national's residence permit.

In the case of emigrants, men still predominated, as 62.2% of emigrants were men and 37.8% were women. The age structure of net migration in 2022 was strongly influenced by the age structure of the immigrants. While in previous years the 25–29 age group, followed by the 30–34 and 20–24 age groups, usually contributed the most to the increase, in 2022 the highest increases were in the 15–19 (34.8 thousand) and 35–39 age groups (34.0 thousand). Compared to 2021, net migration in all age groups at least tripled year-on-year and increased more than tenfold in all children's age groups and from the age of 55.

The structure of migrants according to their citizenship did not change significantly over time. Citizens of Ukraine, Slovakia, Russia, the Czech Republic, or Vietnam regularly formed the most numerous groups of immigrants or emigrants in the last decade. The migration balance was the highest among Ukrainian citizens in 2022. Their migration balance of almost 305,000 made up 92% of the total increase in net migration. The second highest migration balance in 2022 was among citizens of Slovakia, which reached 5.6 thousand, and the third highest – 1.9 thousand – was among citizens of Russia.

INTERNAL MIGRATION

The total volume of registered internal migration (changes of municipality of residence) in 2022 decreased year-on-year by 4.0 thousand to 244.1 thousand persons changing their municipality of residence (Table 14). The total volume in 2022 was still slightly (by 1%) higher than the ten-year average for 2013–2022. In the last decade, the volume of internal

migration was the smallest in 2020 (232.0 thousand), when the possibility of moving was limited in part of the year by legislation as part of anti-pandemic measures, while, conversely, the highest was in 2016 (250.7 thousand). In contrast to international migration, in internal migration women slightly predominate over men. The share of women in the volume of internal migration in the last decade ranged from 51.4% to 53.8%, with the lowest share observed in 2022.

From the perspective of age distribution, in the past decade until 2020 people aged 25–29 made up the largest number of internal migrants; since 2021 it has been people aged 30–34. In 2022, a total of 32.4 thousand residents aged 30–34 changed their place of residence within the Czech Republic. From the perspective of basic age groups (0–14, 15–64, and 65+), 23–25% of internal migration was stably shared by children under 15 years of age, 69–71% by persons of working age, and 6–7% by seniors aged 65 and over (Table 14). The average age of migrants in 2013–2022 varied within the narrow age range of 30.6 to 31.5 years.

The age profile of migration intensity in the Czech Republic has been relatively stable over time (Figure 7). Moving is most common among the youngest children aged 0–2 years (on average, in 2022) or, viewed from the perspective of five-year age groups, for 0–4 year old children (57‰ in 2022). After that the intensity of migration decreases until around the age of 16–17 years (in 2022, less than 14‰ inhabitants) of this age changed their place of residence) and then increases again towards a second peak between 25 and 30 years of age. In 2022, the most cases of internal migration

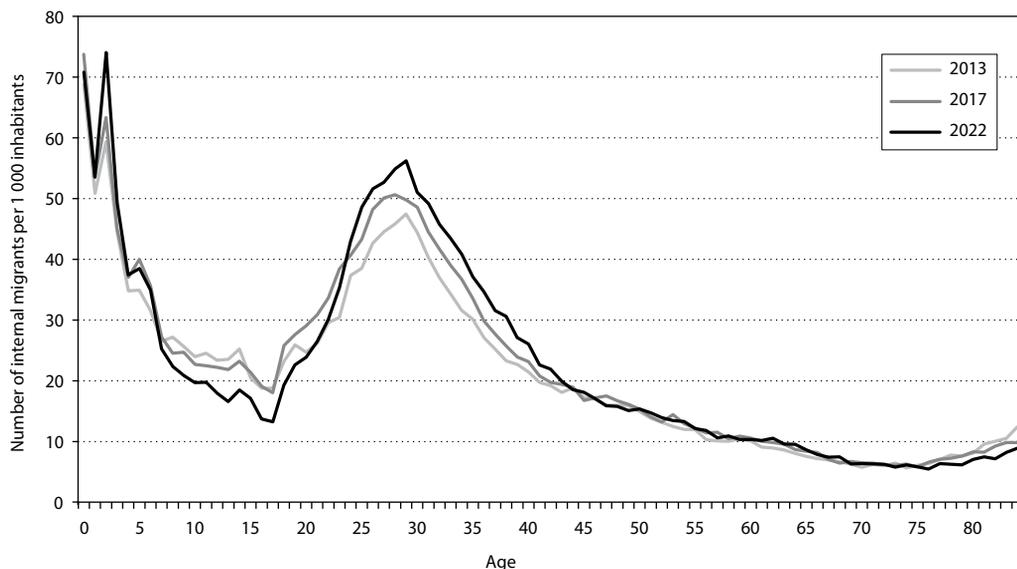
Table 14 Internal migration by sex and age, 2013 and 2017–2022

Volume of migration	2013	2017	2018	2019	2020	2021	2022
Total	234,094	246,070	247,414	242,679	231,989	248,149	244,125
– percentage of males	46.5	46.5	47.1	47.1	47.9	48.3	48.6
Percentage of age group:							
0–14	24.0	24.3	24.5	25.0	24.6	24.0	24.4
15–64	70.0	69.4	69.4	69.1	69.7	69.5	69.1
65 and over	6.0	6.3	6.1	5.9	5.7	6.6	6.5
Average age of migrants	30.7	31.0	30.8	30.6	30.7	31.5	31.4

Note: The average age of migrants is calculated from the absolute numbers of migrants by age.

Source: Czech Statistical Office.

Figure 7 Internal migration rate by age, 2013, 2017, and 2022



Source: Czech Statistical Office; author's calculations.

occurred among residents aged 28 and 29, who accounted for 55 or 56 out of every thousand moves, and, when viewed as five-year age groups, in the 25–29 age group (53%). The high migration activity in this age group is probably related to people moving for work after finishing school or starting their own household. For people in their thirties and older, the rates of internal migration show a decreasing trend with age, with the lowest rate of migration observed among people around the age of 75 or in the group aged 75–79 years (6%). For older seniors, on the other hand, the intensity of the change of residence increases slightly again, which may be related to their moving to live with a family member, or moving into a smaller dwelling.

CONCLUSION

The year 2022 was marked by a massive wave of immigration in connection with the armed conflict in Ukraine and a partial return to pre-pandemic demographic trends. The wave of immigration from Ukraine, which mainly included children and women

of working age, was reflected in the year-on-year increase in the number of children (0–14 years) and in the size of the working-age population (15–64 years), which had the effect of slowing down the pace of population ageing and affected international migration statistics. The decline in mortality from COVID-19 had an impact on the year-on-year 14% decrease in the number of deaths, but the number of deaths did not return to its pre-pandemic level – the higher number of deaths compared to the pre-pandemic period is partly the result of changes in the age composition. In 2022, COVID-19 no longer had an impact on the seasonal mortality profile. A substantial part of the year 2022 was no longer affected by epidemiological measures, so the total number of marriages (a 17% year-on-year increase) almost returned to its pre-pandemic level in 2019. In contrast, the divorce rate did not return to the pre-pandemic level: the decreasing trend in the number of divorces and in the divorce rate, which accelerated in the years of the COVID-19 pandemic, continued in 2022.

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