METHODOLOGICAL NOTES

*All data refer to the resident population of the Czech Republic, irrespective of citizenship. Since 2001
(in relation to the 2001 Population and Housing Census) the data include also foreigners with visa for stay
over 90 days (pursuant to the Act No 326/1999 Sb) and foreigners with asylum granted (pursuant to the Act
No 325/1999 Sb). Since 1 May 2004, in accordance with the Act No 326/1999 Sb, as amended, data apply
also to EU nationals with temporary residence in the territory of the Czech Republic and third-country
nationals with long-term residence permit. The data contain also information on events (marriages, births,
and deaths) of Czech citizens with the permanent residence in the Czech Republic that occurred abroad.*

*The results of data processing for regions and cohesion regions comply with the constitutional Act
No 347/1997 Sb, on the establishment of higher self-governing territories, as amended, Act No 387/2004 Sb,
on changes of regional boundaries, and the classification CZ-NUTS introduced by the CZSO provision from
27 April 1999. Since 1 January 2008, in accordance with the Eurostat system of classifications, the level
of districts NUTS 4 is replaced by LAU classification (Local Administrative Units), namely by level LAU 1.
All regional breakdowns refer to the situation on 1 January of the given year.*

In all tables the 'age' (in terms of years, months, weeks or days) refers to the completed age.

Population and vital statistics in the CR for 1921–2018

*The retrospective overview of population and vital statistics relates to the current territory of the Czech
Republic. Data on demographic events are always based on legislation effective in given year. The definition
of events changed over time.*

*The number of marriages includes both the civil and religious marriages (before 1950 and since 1 July
1992). Before 1950, the divorces comprise only marriage separations ('rozluka'), which corresponded to the
divorce in current sense of the word.*

*In 1949, 1953, 1965, 1988 (on 1 March) and 2012 (on 1 April) the definition of new-borns (live births,
stillbirths) changed. The abortion statistics started in 1953 in the CR and detailed data on all abortion types
have been available since 1958 in accordance with amendment to the Act No 68/1957 Sb, on induced
abortions. In 1965, 1988 (on 1 March) and 2012 (on 1 April) the definition of abortion changed. In 1958–1986
the ectopic pregnancies were not registered, in 1988–1991 they were included into induced abortions.*

*By 1929, the number of deaths under 1 month of age had been measured instead of the number of deaths
under 28 days of age.*

*Since 1950 the migration between the Czech a Slovak Republic has been included into international
migration. Since 1 July 1954, international migration has related to all inhabitants of the CR (including
foreigners) with permanent residence in the CR (not only to the Czechoslovaks).*

A. Population and vital statistics: overview
*Towns are those municipalities that have the status of town, i.e. were governed by municipal authorities, on
1 January 2018 (a total of 605, incl. Prague).*

B. Marriages
Except table B.02, all tables are territorially classified by residence of groom.

C. Divorces
*The Information System of the Ministry of Justice is the source of data on divorces. Divorces are territorially
classified by the last joint permanent residence of married couple.*

D. Births

The national legislation currently does not contain general definitions of a live birth and a stillbirth. These definitions are stated only in the guidelines for filling in the 'Death certificate (Report on examination of the deceased person)', namely for the needs of filling in of it. A live birth is defined in the Regulation (EU) No 1260/2013 on European demographic statistics. A stillbirth is defined in the Commission Regulation (EU) No 328/2011 implementing Regulation (EC) No 1338/2008 of the European Parliament and of the Council on Community statistics on public health and health and safety at work, as regards statistics on causes of death, namely for the purposes of the respective regulations.

The birth order examines only in live births and of live births (in compliance with the Regulation (EU) No 1260/2013 on European demographic statistics).

E. Abortions

The Institute of Health Information and Statistics of the CR (IHIS CR) is the source of data on abortions. Related nomenclatures (more detailed for the marital status and educational attainment of women) were applied in the processing without any adjustment.

Since 1 April 2012, the Act No 372/2011 Sb, on Health Services, defines a foetus after abortion, which is a foetus, which after the complete expulsion or extraction from its mother shows none of the signs of life and at the same time its birth weight is lower than 500 g, and in case that the weight cannot be measured, if the pregnancy lasted less than 22 weeks.

F. Deaths

The part A of the Report on examination of the deceased person (defined in the regulation No 297/2012 Sb, as amended) is the primary source of data for filling the statistical Report on death by Registry Office. More detailed nomenclatures for the marital status and education were taken from the Report on examination of the deceased person to Report on death without any adjustment.

G. Deaths by cause

The causes of death are classified according to the 10th decennial revision of the International Statistical Classification of Diseases and Related Health Problems (ICD-10) with valid updates issued by the World Health Organization (WHO). The Institute of Health Information and Statistics of the Czech Republic is responsible for the implementation of ICD-10. Updates that came into force on January 2018 have been the last implemented updates in the Czech Republic. The underlying cause of death is selected by software for automated coding (IRIS).

The selection of the specific causes of deaths given in the table G.04 Infant deaths: by causes of death, sex and age was adjusted to the internationally most often published groups of infant deaths causes.

The number of deaths in XIX chapter is equal to the number of deaths in XX chapter, as it is different classification of deaths by external causes. In XIX chapter deaths are classified by the underlying cause (table G.05), while in chapter XX (table G.06) by the mechanism of death.

H. Migration

Migration for a higher self-governing territorial unit is defined as the sum of the volume for lower self-governing territorial units plus migration among lower self-governing territorial units. Gross migration is the sum of immigration and emigration within a given self-governing territorial unit. Internal migration does not include cases of migrating among town planning districts of the capital city of Prague.

I. Population balance and analytic indicators

For calculation of indicators broken down by rural/urban area, sex and age-specific mid-year population as an average of start-year and end-year number of people given sex and age was used. Rural area represents municipalities with less than 2,000 inhabitants on 31 December in given year, urban area municipalities with

2,000 and over inhabitants on 31 December in given year.

INDICATORS

All indicators included in this publication refer to one calendar year. The calculation of indicators is based on demographic events or population, which refer to the same calendar year. Mid-year population is used for calculation of rates, defined as population on 1 July of a given year.

Late foetal mortality rate
The number of stillbirths per 1,000 total births.

Infant mortality rate
The number of deaths under 1 year of age per 1,000 live births.

Neonatal mortality rate
The number of deaths under 28 days of age per 1,000 live births.

Perinatal mortality rate
The number of stillbirths and deaths under 7 days of age per 1,000 total births.

Age-specific fertility rate (f_x)
The number of live births of women at given age (age group) per 1,000 women at given age (age group).
Mean age of females at childbirth *is based on age-specific fertility rates distribution.*

Total fertility rate (TFR) *(the sum of age-specific fertility rates)*
The average number of children that would be born alive to a woman provided that age-specific fertility rates of a given year remain unchanged during her childbearing period (age 15–49).

$$\text{TFR} = \sum_{15}^{49} f_x = \sum_{15}^{49} \frac{N_x^v}{P_x^f}$$

Gross reproduction rate (GRR)
The average number of daughters that would be born alive to a woman provided that age-specific fertility rates of a given year remain unchanged during her childbearing period (age 15–49).

$$\text{GRR} = \sum_{15}^{49} f_x^f = \sum_{15}^{49} \frac{N_x^{v,f}}{P_x^f}$$

Net reproduction rate (NRR)
The average number of daughters that would be born alive to a woman and will survive until the age of her mother at the time of delivery provided that age-specific fertility and mortality rates of a given year remain unchanged during her childbearing period (age 15–49).

$$\text{NRR} = \sum_{15}^{49} \left(f_x^f \cdot \frac{L_x^f}{100000} \right)$$

Age-specific abortion rate (a_x)
The number of abortions of women at given age (age group) per 1,000 women at given age (age group).
Mean age of females at abortion *is based on age-specific abortion rates distribution.*

Total abortion rate (TAR) *(the sum of age-specific abortion rates)*
The average number of abortions per woman provided that age-specific abortion rates of a given year remain unchanged during her childbearing period (age 15–49).

$$TAR = \sum_{15}^{49} a_x = \sum_{15}^{49} \frac{A_x}{P_x^f}$$

Age-specific induced abortion rate (a_x^i)
*The number of induced abortions of women at given age (age group) per 1,000 women at given age (age group). **Mean age of females at induced abortion** is based on age-specific induced abortion rates distribution.*

Total induced abortion rate (TAR^i) *(the sum of age-specific induced abortion rates)*
The average number of induced abortions that would be perform to a woman provided that age-specific induced abortion rates of a given year remain unchanged during her childbearing period (age 15–49).

$$TAR^i = \sum_{15}^{49} a_x^i = \sum_{15}^{49} \frac{A_x^i}{P_x^f}$$

Age-specific pregnancy rate
*The number of pregnancies of women (the sum of live births, stillbirths and abortions) at given age (age group) per 1,000 women at given age (age group). **Mean age of females at pregnancy termination** is based on age-specific pregnancy rates distribution.*

Total pregnancy rate (TPR) *(the sum of age-specific pregnancy rates)*
The average number of pregnancies per woman provided that age-specific pregnancy rates of a given year remain unchanged during her childbearing period (age 15–49).

$$TPR = \sum_{15}^{49} \frac{A_x + N_x^v + N_x^d}{P_x^f}$$

Mortality rate by sex and age
The number of deaths of given sex and at given age (age group) per 1,000 population of given sex and at given age (age group).

$$m_x = \frac{D_x}{P_x}$$

Mortality rate by sex, age and chapter of causes of death
The number of deaths of given sex and at given age (age group) by given chapter of causes of death per 100,000 population of given sex and at given age (age group).

NUPTIALITY LIFE TABLES INDICATORS
One decrement nuptiality life tables are based on the numbers of single people (P^s) by age and sex (s – single) on 1 January of a year and the numbers of marriages (S^s), deaths (D^s) and migrants (E^s, I^s) of single population by age, sex and year of birth (z) during an analysed year. The age (x) means the age at the beginning of the year. The nuptiality life tables are calculated from the second main group of demographic events, separately for single males and females. Only events for ages 15 to 49 are considered.

*The input characteristic of the tables is **the first-marriage probability (q_x^m)** by sex and age which measures the risk of entering into a first marriage during a year:*

$$q_x^m = \frac{{}^z S^s}{P_x^s - 0{,}5 \cdot {}^z D^s - 0{,}5 \cdot {}^z E^s + 0{,}5 \cdot {}^z I^s}$$

Table number of single (l_x^m) – the hypothetical number of single individuals at a given age and sex; the table radix (l_{15}) is 100,000.

$$l_{x+1}^m = l_x^m - d_x^m \qquad\qquad l_{50'}^m = l_{49}^m - 0{,}5 \cdot d_{49}^m$$

Table number of marriages (d_x^m) – the hypothetical number of marriages of single people at a given age and sex during a year.

$$d_x^m = l_x^m \cdot q_x^m$$

The output characteristic of tables is the table number of single at exact age of 50 ($l_{50'}$), respectively the share of people (from the table radix) who would enter the first marriage before the day of their 50th birthday provided the unchangeable first-marriage probabilities of a given year.

Total first marriage rate: $\qquad \text{TFMR}^s = 1 - \dfrac{l_{50'}}{l_{15}}$

Mean age at first marriage is derived from age distribution of a table function d_x^m :

$$\overline{x^s} = \frac{\sum_{15}^{49}(x+1) \cdot d_x^m}{\sum_{15}^{49} d_x^m}$$

COMPLETE LIFE TABLES INDICATORS

The complete mortality life tables are calculated from the third main group of demographic events. Input death probabilities are computed indirectly, it means they are derived from age-specific mortality rates. The life tables are calculated by single year of age with an open age interval for 105+. They are computed separately for males and females.

Life tables indicators

The **number of deaths (D_x)** states the absolute number of deaths by age during the reference period.

The **number of inhabitants (P_x)** states the mid-year population by age (x).

The **death probability (q_x)** expresses the probability that an individual at the exact age of x years will die in a given period, i.e. before reaching the exact age of x+1 years:

$$q_x = \frac{m_x}{1 + (1 - a_x) \cdot m_x}$$

where m_x is the mortality rate at given age x and the parameter a_x is the average number of years lived within the age interval [x, x+1) for people dying at age x.

The **table number of survivors (l_x)** is a hypothetical number of individuals alive at the exact age of x years out of 100,000 live births (table radix l_0 = 100,000), given the mortality conditions of the reference period:

$$l_{x+1} = l_x \cdot (1 - q_x).$$

The **table number of deaths (d_x)** is a hypothetical number of individuals who die at the complete age of x years; it is computed as the difference between two subsequent table numbers of survivors:

$$d_x = l_x - l_{x+1} \quad .$$

The *table number of person-years (Lₓ)* is a hypothetical number of person-years lived by the life-table population in the age interval [x, x+1):

$$L_x = l_x - (1 - a_x) \cdot d_x \quad .$$

The *auxiliary indicator (Tₓ)* expresses the number of years of life to be lived by the life-table population (not by an individual) at the given age x. It is the cumulation of L_x from the age of x to the highest age of the table.

$$T_x = \sum_{x}^{105+} L_x$$

The *life expectancy (eₓ)* shows the average number of years that the x-year-old individual can expect to live, given the mortality conditions of the given year. It is a synthetic indicator reflecting mortality conditions in all age groups in the given year.

$$e_x = \frac{T_x}{l_x}$$