

METHODOLOGICAL NOTES

All data refer to the resident population of the Czech Republic, irrespective of citizenship. Since 2001, the figures also include (in accordance with the Population and Housing Census 2001) foreigners with long-term stay (i.e. the stay based on visa over 90 days, as stipulated by Act No. 326/1999 Coll.) and foreigners with granted asylum status (in compliance with Act No. 325/1999 Coll.). Since 1st May 2004, in accordance with amendment to the Act No. 326/1999 Coll., the figures also include citizens of the European Union with temporary stay on the territory of the Czech Republic, and citizens of other countries with long-term stay. The data also contain information on events (marriages, births and deaths) of permanent residents of CR that occurred abroad.

The results of data processing for regions and cohesion regions comply with the constitutional Act No. 347/1997 Coll. on the establishment of higher self-governing territories as amended, Act No. 387/2004 Coll. on changes of regional boundaries, and the classification CZ-NUTS introduced by the CZSO provision from 27th April 1999. Since 1st 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 situation as at 1st January of the given year.

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

Population and vital statistics in the CR for 1921–2013

The retrospective of population and vital statistics encompasses events, which took place on the territory of the CR.

From 1st March 1988 to 1st April 2012, a regulation No. 11/1988 Coll. of the Ministry of Health of the CR defined a live birth and stillbirth as follows: "A live birth is the complete expulsion or extraction from its mother of a child provided that the child shows at least one sign of life and its birth weight is: a) 500 g or more, or b) lower than 500 g, if it survives 24 hours after delivery. The signs of life are: breathing or beating of the heart or pulsation of the umbilical cord, or movement of voluntary muscles, although the umbilical cord has not been cut or the placenta has not been delivered." "A stillbirth is the complete expulsion or extraction from its mother of a foetus that shows no sign of life and its birth weight is 1 000 g or more."

The same regulation defined an abortion as follows: "An abortion is the termination of a pregnancy of a woman, at which: a) the foetus does not show any sign of life and its birth weight is below 1 000 g and in case the weight cannot be measured, if the pregnancy lasts less than 28 weeks; b) the foetus shows at least one of the signs of life and its birth weight is below 500 g, but it does not survive 24 hours after delivery; c) the foetal egg without a foetus or decidua was removed out of the female's uterus. Cases of termination of ectopic pregnancy or induced abortions carried out as stipulated in special regulations are also considered as abortions."

The ectopic pregnancies were included under induced abortions in 1988-1991 and under other abortions since 1992.

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 1st July 1954, internal and external migration relating to the CR has been encompassing all persons (including foreigners) with permanent residence in the CR and since 1st January 2001 all persons with permanent residence in the CR and foreigners with 90-days-and-over visa and foreigners with asylum status granted. Since 1st May 2004, the figures also include citizens of the European Union with temporary stay on the territory of the Czech Republic, and citizens of other countries with long-term stay.

A. Population and vital statistics: overview

Towns (a total of 602, incl. Praha) are those that enjoyed the status of town (were governed by municipal authorities) on 1st January 2013.

B. Marriages

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

D. Births

General definitions of terms live birth and stillbirth are not contained in the currently valid legislation. These definitions along with all cases of abortions are stated only in the guidelines for filling in the "Death certificate (Report on examination of the deceased person)" (in the regulation No. 297/2012 Coll.), namely for the needs of filling in of the Death certificate (Report on examination of the deceased person). A stillbirth is also 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 regulation.

E. Abortions

Tables on abortions are compiled from a set of individual data received from the Institute of Health Information and Statistics of the CR (further on "the Institute"). Related nomenclatures (more detailed for the marital status and education of women) were applied in the processing without any adjustment.

Since 1st April 2012, the Act No. 372/2011 Coll. defines 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 provided that the weight cannot be measured, if the pregnancy lasted less than 22 weeks.

F. Deaths

Since 2013, a part A of the Report on examination of the deceased person (defined in the regulation No. 297/2012 Coll.) is the primary source of data for filling statistical Report on death by Registry Office. More detailed nomenclatures for the marital status (including partnership and terminated partnership) and education were taken from the Report on examination of the deceased person to Report on death without any adjustment.

G. Deaths by cause

Since 1st January 1994, 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 its further updates issued by the World Health Organization (WHO). The Institute of Health Information and Statistics of the Czech Republic is responsible for the use of ICD-10 in practice. Since 2011, selection of underlying cause of death is made by a programme for automated coding (IRIS). Since 2013, the Institute transmits to the CZSO a part B of the Report on examination of the deceased person, which contains the causes of death.

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 between lower self-governing territorial units. Gross migration is the sum of immigration and emigration within a given self-governing territorial unit. Internal migration not includes cases of migrating between town planning districts of the capital city of Prague.

I. Population balance and analytic indicators

Mid-year population according to age and sex P_x used as an input indicator of complete life tables for rural (tab. I.18 and tab. I.19) and urban (tab. I.20 and tab. I.21) area is, in this case, an average of number of men (women) at the age of x years on 1st January 2013 and on 31st December 2013. This mid-year population is different from mid-year population defined as the population balance on 1st July 2013 (see INDICATORS). Rural area represents municipalities with less than 2,000 inhabitants on 31st December 2013, urban area municipalities with at least 2,000 or more inhabitants on 31st December 2013.

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. The population used for calculation of rates is the population at mid-year, defined as population as at 1st 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 particular 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).

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

Gross reproduction rate (GRR)

The average number of girls 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).

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

Net reproduction rate (NRR)

The average number of girls 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).

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

Age-specific abortion rate (a_x)

The number of abortions of women at particular 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^i_x)

The number of induced abortions of women at particular 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 (TARⁱ) (the sum of age-specific induced abortion rates)

The average number of induced abortions that would be performed 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 particular sex and at particular age (age group) per 1,000 population of given sex and at given age (age group).

Mortality rate by sex, age and chapter of causes of death

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

NUPTIALITY LIFE TABLES INDICATORS

One-absorption-state nuptiality life tables are based on the numbers of people (P^s) by age, sex and marital state (s – single) as at 1st 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 born (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 from year 15 till 49 are significant.

The entry characteristic of the tables is **the first-marriage probability (q_x^m)** by sex and age which measures the risk of contracting 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 (I_x^m) – the hypothetical number of single individuals at a given age and sex; the table root (I_{15}) is 100,000.

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

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

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

The final characteristic of tables is the table number of single at an exact age of 50 (I_{50}), resp. the share of people (from the table root) who would enter the first marriage till the day of their 50th birthday provided unchangeable the first-marriage probabilities of a given year.

Total first marriage rate: $TFMR^s = 1 - \frac{I_{50}^s}{I_{15}^s}$

Mean age at first marriage is derived from age distribution of a table function d_x^m : $\bar{x}^s = \frac{\sum_{15}^{49} (x+1) \cdot d_x^m}{\sum_{15}^{49} d_x^m}$

COMPLETE LIFE TABLES INDICATORS

The complete mortality life tables are calculated from the third main group of demographic events, separately for males and females. They are based on the numbers of people (P) by age and sex as at 1st July of a year and the numbers of deaths (D) by age and sex during an analysed year.

Death probability (q_x)

The probability that an individual at the exact age of x will die in a given period, i.e. will die before the exact age of $x+1$.

$$q_x = 1 - e^{-m_x}$$

The function q_x is derived from the age-specific mortality rates (m_x) according to the formula above. After equalization the function is further adjusted by Gompertz-Makeham formula (method of King-Hardy).

Table number of survivors (l_x)

The hypothetical number of individuals alive at the exact age of x out of 100,000 live births (table root - l_0), given the mortality conditions of the reference period.

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

Table number of deaths (d_x)

The hypothetical number of individuals who die at the age of x .

$$d_x = l_x - l_{x+1}$$

Table number of person-years (L_x)

The hypothetical average number of individuals alive at the age of x ; calculated as the average of two subsequent table numbers of survivors (except for the age of 0). At the age of 0, the ' α ' informs what is the ratio of infant deaths born in the given year from all infant deaths in analysed year.

$$L_x = \frac{l_x + l_{x+1}}{2}$$

$$L_0 = l_0 - \alpha \cdot d_0$$

Auxiliary indicator (T_x)

The number of years of life to be lived by the table generation (not of an individual) at a given age.

$$T_x = T_{x+1} + L_x$$

Life expectancy (e_x)

The expected remaining life duration of person at given age provided unchangeable mortality conditions of a given year. It is a synthetic indicator displaying mortality conditions of a given year in all age groups.

$$e_x^0 = \frac{T_x}{l_x}$$