Methodology

The basic term of population statistics and at the same time the subject of its observation is "population", which is sometimes replaced with the term "inhabitants" or "number of inhabitants". In the practice of Czech and the former Czechoslovak demographic statistics, since 1950 not only citizens of the Czech Republic or former Czechoslovakia are considered to be inhabitants, but all persons, who were registered for permanent residence on the given territory on the given date, i.e. also foreigners. 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 No. 326/1999 Coll., the figures 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 contain also information on events (marriages, births and deaths) of permanent residents of CR that occurred abroad.

*Synonyms for "inhabitants registered for permanent stay" are "residing inhabitants" or "**residents**", "residing population". And that is where the current concept of population monitored by statistics differs from the concept applied for the last time in the 1950 Census, in which the subject of monitoring was **present population** defined by mere presence on the spot as at the date of the Census. Thus, from the concept of present population all time series result for population statistics until 1950, more recent time series result from the concept of residing inhabitants. Differences in data between the "present" and "residing" population, however, are not and have never been substantial and the data based on the concept of present population are comparable with the data resulting from the concept of residing population.*

*The basis of information on demographic structure of population and its changes still lies in periodic **population and housing censuses** the last of which took place as at 26th March 2011. Data found in censuses are followed by intercensal statistical **population balance** and annually processed **statistics on marriages, divorces, births, deaths, abortions and migration**. These statistics are obtained by processing individual statistical notifications of marriage, of birth, of death, of divorce, and of migration, which are provided to Czech Statistical Office by reporting units determined by law (registries, district courts, stay registration offices, and Alien Police; since 2005 the source for internal migration data is Central Population Register Record administered by the Ministry of Interior). The data on abortions collects the Institute of Health Information and Statistics, which provide them to the Czech Statistical Office. At ensuring inputs and their processing, statistical bodies are obliged (and they do ensure in practice the duty) to protect individual data.*

Some of the terms used in the publication:

***Mid-year population** – the number of inhabitants of a given territory at the moment, which was selected as the centre of the period monitored. Thus, number of inhabitants of the given territory at midnight from 30th June to 1st July of the year monitored published as "situation as at 1 July" is considered to be the mid-year population in a calendar year. In some other countries the mid-year population is constructed in a different way – as an arithmetic mean of the initial and final status.*

***End-of-year population** – the number of inhabitants of a given territory at the moment, by which the determined period is finished. The determined period is usually a calendar year. In that case, the end-of-year population (population as at 31 December) expresses the number of inhabitants at midnight on 31 December of the determined year.*

***Population age structure** is an initial arrangement of demographic data for any demographic analysis. Population is classified by individual years of age (units of age), or abridged by five-year age group, or also by age categories defined in other way (e.g. children aged 0-14, seniors aged 65+, females in fertile age). Age of an inhabitant is, in the demographic statistics, the completed age, which a person reached at the moment of the survey, i.e. the age at the last birthday.*

*Another often used indicator of population age structure is **dependency ratio**, which is constructed as a ratio of the number of inhabitants aged 65+ to the number of children aged 0-14. The demographic handbook (since 2004 revision), unlike older publications, does not use the term "productive age", which was formerly usually determined as the age of 15-59 years for males and 15-54 years for females.*

*Results from the Census and data on individual demographic events are classified also by **year of birth** of a person. Since age is defined as the age at the last birthday, the age of a person cannot be directly derived from the year of birth.*

***Average age of population** is an arithmetic mean of data on completed age for individual persons, increased by a constant of 0.5 years. Average age expresses average age of living inhabitants. It has nothing in common with average age at death or with the life expectancy (expectation of life), with which it is often interchanged.*

***Natural increase of population** – difference between the numbers of live births in the period monitored and on the given territory and the total number of deaths on the same territory in the same period. When the number of live births is smaller than the number of deaths then the natural increase gains negative values.*

***Total population increase** – the difference between the initial state of population of the given territory and the final state of population on the same territory. It consists of the sum of the natural increase and migration balance.*

***Marriage** in the demographic statistics is conclusion of a marriage, for which the relevant reporting unit (registry) sent a statistical notification of marriage. To observe the contents of the definition of conclusion of a marriage from the point of view of family law and other legal provisions is what registries take care of and the Czech Statistical Office assumes that. Since records and relevant statistical reports of registries are controlled for completeness, it is guaranteed that the statistics records all concluded marriages and that the statistics of marriages in the Czech Republic is complete. The same applies to the statistics of births and deaths.*

***Gross nuptiality rate** – number of marriages per 1,000 mid-year population.*

***Nuptiality rate by age** – number of marriages of males or females in the given age category per 1,000 mid-year males or females in the given age category.*

***Divorces** are observed by the statistics on the basis of sets of data on divorces provided to the Czech Statistical Office by the relevant courts. Since 2007 Czech Statistical Office obtains from Ministry of Justice CR data in electronic form only about granted requests for divorce petition. In retrospective overviews only separations of marriages, which correspond to the divorce in present meaning, are included (as they existed according to the legal norm valid before 1949). Since 1950 the only form of legal dissolution of marriage, which is divorce, existed. The last amendment, which had significant impact on the numbers of divorces and their structures was Act No. 91/1998 Coll., on the Family, which has came into effect on 1st August 1998.*

***Gross divorce rate** – number of divorces per 1,000 mid-year population.*

***Divorce rate by age** – number of divorces of males or females in the given category per 1,000 mid-year males or females in the given age category.*

***Divorce rate index** – number of divorces in a given period and on the given territory per 100 marriages concluded in the same period and on the same territory.*

***Number of births** (live births, stillbirths) is obtained as a summarisation of individual statistical reports on births. This number does not include births from undisclosed deliveries (incl. foundlings) according to the Act No. 20/1966 Coll., on Healthcare of People, as amended by Act. No. 422/2004 Coll.*

*The definition of a live birth is stipulated in Decree No. 11/1988 of the Ministry of Health of the CR: a **live-born child** is a child who gives at least one sign of life (respiration, heartbeat, umbilicus pulsation, active movement of muscles) and whose birth weight is 500 g or more, or whose birth weight is below 500 g if it survives 24 hours after delivery.*

*A **stillborn child** is a child not showing any signs of life, whose birth weight is 1,000 g or more.*

***Letter B** (see tables 3-6a, 3-6b and 3-7) indicates data on "number of children from present or last marriage". These data cannot be published. The control protocol of the Office for Personal Data Protection*

from 23rd April 2001 ordered to liquidate them; the liquidation was confirmed by the chairman of the Office for Personal Data Protection by his decision from 28th June 2001 (document reference No. 549/01 – KP/RP).

***Gross birth rate** – number of live births per 1,000 mid-year population. A less used indicator is total birth rate expressing the number of births in total (i.e. live births and stillbirths) per 1,000 mid-year population.*

***Fertility rate by age** – the number of live-born children delivered by females in a certain age category (e.g. by individual years of age or five-year age group) per 1,000 mid-year females in the given age category.*

***Total fertility rate** – the number of children that would be delivered by each female (live births) during all her reproductive age (which is considered to be at the age of 15-49), should the fertility rate of females by age during this reproductive age not change and remain on the level of the year for which the total fertility rate is calculated. Zero mortality of females during reproductive age is assumed. If the total fertility rate reaches the value of about 2.1 it indicates that the fertility ensures mere reproduction of population without major natural increase or decrease. If it falls below this level, the population tends to decrease in the long-term.*

***Gross reproduction rate** – a derived indicator giving the number of girls that would be in average live-delivered to 1 female in the given population throughout her reproductive age, provided that the fertility rate level remains the same in individual age groups as in a given calendar year. Zero mortality of females during reproductive age is assumed.*

***Net reproduction rate** – it differs from the gross reproduction rate as it respects mortality conditions in the given population; it expresses the number of girls that would be delivered in average to 1 female according to the gross reproduction rate and would live to see their mother's age in the years they were born. Provided the net reproduction rate is equal to 1.0 the stationary population would be maintained into the future.*

*An **abortion** in the demographic statistics is a premature termination of a pregnancy classified by a doctor as a termination of a pregnancy by abortion. Basic data on abortions are obtained by health authorities, which provide them through the Institute of Health Information and Statistics to the Czech Statistical Office. Abortion statistics has been kept in the Czechoslovakia since 1953, a detailed statistics has been kept from 1958 in relation to coming into force of Act No. 68/1957 on induced abortions.*

Decree No. 11/1988 of the Ministry of Health of the CR defines the abortion as the termination of a pregnancy in which:

a. *the foetus does not show any sign of life and its birth weight is below 1,000 g or cannot be measured, if the pregnancy takes 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 live longer than 24 hours after delivery;*
c. *the foetal egg without a foetus or gestational deciduas is removed out of the female's uterus.*

Abortion is also termination of an ectopic pregnancy or an induced abortion made according to special regulations. In the period of 1958-1986 ectopic pregnancies were not included in abortions. From 1987 ectopic pregnancies have been included, from 1988 to 1991 in the numbers of spontaneous abortions, otherwise in the category of other abortions. Unlike some other European countries, in the Czech Republic also menstrual regulation made by vacuum aspiration is included in induced abortions.

Categories of abortion:

a. *spontaneous abortion: spontaneous expulsion of a foetus from uterus before the end of 28th week of gestation;*
b. *induced abortions (artificial termination): legally induced abortion by menstrual regulation, which can be performed in early stages of gestation (i.e. till 7th week in case of first pregnancy and till 8th week in other cases) and by other method than menstrual regulation till 12th week of gestation, for health reasons till 24th week of gestation;*
c. *other abortions: as a result of an injury or criminal acts;*
d. *ectopic: termination of ectopic pregnancy.*

***Gross abortion rate** – number of abortions per 1,000 mid-year population.*

***Abortion rate by age** – number of abortions at females of certain age category per 1,000 females in mid-year population of the given age category. Similarly, induced abortion rate or spontaneous abortion rate.*

Total abortion rate *– an indicator, which is analogous to the total fertility rate. It expresses the number of abortions in average per 1 female in the population throughout her reproductive age (15-49 years), provided that the abortion rate of females by age does not change and remains the same as in the given year for which the total abortion rate is calculated. Zero mortality of females during reproductive age is assumed. In the same way also the total induced abortion rate is constructed (according to the number of induced abortions) as well as the total spontaneous abortion rate (according to the number of spontaneous abortions).*

Possibilities of international comparison of abortion indicators are limited. Some European countries do not show abortions at all (abortions are there considered to be a private issue of a female and no information can be provided about them); some countries do not show spontaneous abortions or induced abortions performed by private doctors. The Czech Republic belongs to several countries that show abortions in full.

Pregnancy rate by age *– number of all completed pregnancies (by a live-born or a stillborn child or by abortion) per 1,000 mid-year females of the given age category.*

Mortality *is together with birth rate one of the constituents of demographic reproduction. The basis for monitoring of mortality is individual statistical notification of death, which is sent to the Czech Statistical Office by the relevant registry.*

Crude death rate *– number of deaths per 1,000 mid-year population.*

Death rate by age group *– number of deaths per 1,000 mid-year population in the given age group. Since there is a big difference between the mortality of males and females, this indicator is usually given for both sexes separately.*

Infant mortality *– the number of deaths of infants (i.e. children, who died within 1 year of age) per 1,000 live-born children in the same time interval.*

Neonatal mortality *– a similar indicator resulting from the number of children who died within 28 days of age (i.e. at the age of 0 to 27 completed days of life) per 1,000 live births.*

The basic precondition for comparability of data on infant mortality is precise and unchanging determination of the term of a live birth and stillbirth.

In the Czech Republic a stillborn child is a child not showing any signs of life (mentioned in the definition of a live-born child), whose birth weight is 1,000 g or more.

Indicator of intensity of stillbirths occurrence is ***foetal mortality index****, which is in practice defined simply as* ***mortality in uterus*** *– the number of still-born children per 100 births in total in the given time interval on the given territory.*

The number of stillbirths and deaths under 7 days of age per 1,000 total births represents the indicator of ***perinatal mortality****.*

For characterization of the survivorship function of a certain population life tables are used, which with the help of life table functions, all of which are mathematically related, provide the most precise expression of mortality intensity of the population monitored. The result of the calculation of life tables is, besides others, indicator of life expectancy (expectation of life).

Life expectancy *(expectation of life) – shows the number of years probably live by an x-year-old person, providing that the survivorship function established by the life table remains unchanged throughout the x-year-old person's remaining life. The indicator is usually used in the form of the life expectancy (expectation of life) at birth, in which it expresses the average expected length of life of a person just born.*

To analyse mortality it is necessary to know also the share of individual causes of death in population. For classification of causes of death there is an internationally recommended taxonomy, which is released by WHO. Since 1994, causes of death have been classified in the CR according to the 10th revision of the International Statistical Classification of Diseases and Related Health Problems; from 1979 to 1993 the 9th International Classification of Diseases was used. There is no full comparability between the ICD-9 and ICD-10.

ICD-9 International Classification of Diseases

I. Infectious and parasitic diseases
II. Neoplasms
III. Endocrine, nutritional and metabolic diseases, and immunity disorders
IV. Diseases of the blood and blood-forming organs
V. Mental disorders
VI. Diseases of the nervous system and sense organs
VII. Diseases of the circulatory system
VIII. Diseases of the respiratory system
IX. Diseases of the digestive system
X. Diseases of the genitourinary system
XI. Complications of pregnancy, childbirth and the puerperium
XII. Diseases of the skin and subcutaneous tissue
XIII. Diseases of the musculoskeletal system and connective tissue
XIV. Congenital malformations
XV. Certain conditions originating in the perinatal period
XVI. Symptoms, signs, and ill-defined conditions
XVII. Injury and poisoning
E XVII. External causes of injury and poisoning

ICD-10 International Statistical Classification of Diseases and Related Health Problems

I. Certain infectious and parasitic diseases
II. Neoplasms
III. Diseases of the blood and blood-forming organs and some disorders concerning immune mechanism
IV. Endocrine, nutritional and metabolic diseases
V. Mental and behavioural disorders
VI. Diseases of the nervous system
VII. Diseases of the eye and adnexa
VIII. Diseases of the ear and mastoid process
IX. Diseases of the circulatory system
X. Diseases of the respiratory system
XI. Diseases of the digestive system
XII. Diseases of the skin and subcutaneous tissue
XIII. Diseases of the musculoskeletal system and connective tissue
XIV. Diseases of the genitourinary system
XV. Pregnancy, childbirth and the puerperium
XVI. Certain conditions originating in the perinatal period
XVII. Congenital malformations, deformations and chromosomal abnormalities
XVIII. Symptoms, signs and abnormal clinical and laboratory findings
XIX. Injury, poisoning and some other consequences of external causes
XX. External causes of sickness and mortality rates

Migration *– moving of persons between two territorial units related to the change of place of residence. A synonym for "moving" is "migration". To distinguish between migration inside or outside a certain territorial unit, the terms immigrants (immigration) and emigrants (emigration) are used. However, at population censuses commutation to work or study is also considered to be migration. As this commutation is not related to the change of place of residence, it is not considered to be migration by the demographic statistics.*

In demographic statistics of the Czech Republic migration is change of a municipality (in Prague of a city-planning district) of the permanent place of residence of a person on the territory of the CR or across the borders of the CR. Since 2001 moving of foreigners with long term stay in CR is also included into statistics of internal and external migration. Number of cases of migrations is a summarisation of individual data on migration mentioned in statistical notifications of migration provided to statistical authorities by stay registration offices and aliens´ registration office. Since 2005 the electronic data on internal migration has been provided to the Czech Statistical Office by Ministry of Interior (from the Central Population Register Record).

Internal migration *–Time comparability of data on internal migration is rather limited by changes of the scope of migration within the City of Prague and territorial restructurings (in detail see explanatory notes*

tab. 9-1). Before 1992 also migration between the Czech Republic and Slovak Republic was considered to be internal migration. Statistics of internal migration was introduced in the Czechoslovakia in 1950.

External migration *– change of the permanent or long term stay of a person from the CR to abroad or from abroad to the Czech Republic.*

Migration balance *– the difference between the number of immigrants and emigrants. Together with natural increase it is a basic data for balance of population of a territory monitored.*

If the number of those moving in a territorial unit exceeds the number of those moving out, it is a positive migration balance, i.e. migration increase. When the opposite is true, i.e. the number of emigrants is higher than the number of immigrants, it is a negative migration balance, i.e. migration loss.

Data in the chapter 11 "International comparison" were drawn from Eurostat database. The same data were used for cartograms.