ABOUT MORTALITY DATA FOR THE SLOVAK REPUBLIC
By Laszlo Nemeth, Ján Mészáros and Domantas Jasilionis  Last Revised: 01 October 2018

GENERAL

The year 1715 marked the beginning of organized statistical surveys in the territory of Slovakia. At that time Slovakia was under the rule of the Hungarian Empire, and several population surveys enumerating taxable householders were carried out (for example, the enumeration of liegemen in 1767-71). The first enumeration of the whole population was conducted under the reign of Joseph II in 1785, followed later in 1805 and in 1828. Unfortunately, results from these enumerations were not preserved up to the present time. In 1847 the Hungarian Central Statistical Office was established, which was also responsible for regular statistical services in the Slovak territory. This office undertook the first modern census in the year 1857.

An important phase in the history of Slovak population statistics was the establishment of Czechoslovakia as an independent state in 1918. After this date, the State Statistical Office became the main body collecting population data for the whole territory of Czechoslovakia. During World War II, when the Czech lands were annexed by the Nazi state, the State Statistical Office existed in the capital of Slovakia, Bratislava. After 1945, when the Czech and the Slovak lands were again reunited, the responsibility for collection of population data fell to the State Statistical Office in Prague. This period was characterized by frequent changes in the organizational structure of state statistics. In 1968, when Czechoslovakia was reorganized into a federal state, the Federal Statistical Office was created together with the autonomous Czech and Slovak statistical offices. Specific agreements were implemented to distribute rights and duties of these autonomous institutions.

In 1993, with the establishment of the independent Slovak Republic, the Statistical Office of the Slovak Republic (SOSR) became the main body responsible for statistical services. The Statistical Office regularly publishes (on an annual or semi-annual basis) the demographic abstracts on “State and Movement of the Population”, “Age Structure of the Population”, “Balance of Movement of the Population by Nationality and Marital Status”, and “Life Tables and Development of the Population” (Statistical Office, 2004).

Source of data

All official data for demographic statistics are collected and processed by the SOSR, except for primary data relating to abortions, which are obtained from the Ministry of Health of the Slovak Republic in Bratislava (data are collected by the Institute of Health Information and Statistics (ÚZIŠ) – see: www.uzis.sk), and further processed by the SOSR.

Data on marriages, divorces, births, and deaths can be obtained from statistical reports on population development. Demographic data cover all inhabitants residing
permanently in Slovakia regardless of their citizenship. In collecting the data, the statistical institutions collaborate closely with other governmental organizations (e.g. population registers, courts).

The current version of the Slovak data in the Human Mortality Database covers the time period from 1950 to 2017. Data on births, deaths, and population for 1980-2017 have been downloaded from the Slovak Popin website (www.infostat.sk/slovakpopin). Data for the earlier years (1950-1979) as well as some of the most recent data (2004-2007) were obtained in electronic format from the SOSR.

All demographic statistics are published by the SOSR (see list of publications in Appendix II). Some of these can be found on the following websites:

- [www.statistics.sk](http://www.statistics.sk) (Official web site of the SOSR)
- [www.infostat.sk/vdc](http://www.infostat.sk/vdc) (Official web site of the Demographic Research Centre in INFOSTAT Bratislava – which is a subsidiary institute of the SOSR)
- [www.infostat.sk/slovakpopin](http://www.infostat.sk/slovakpopin) (Web site created on the basis of the POPIN project operated by the Demographic Research Centre by a deputy of the SOSR).
- The latest data from the Statistical Office of the Slovak Republic are available at [https://slovak.statistics.sk/](https://slovak.statistics.sk/)

**TERRITORIAL COVERAGE**

There was no territorial change in the Slovak Republic during the period covered by the available data (1950-2017). The territory of Slovakia was formed after the establishment of Czechoslovakia on October 28th 1918. After World War II, Slovakia returned part of its eastern territory (part of the Ruthenia region) to Ukraine and the area decreased to 49 thousand km². The administrative division of Slovakia has several levels according to the commonly used classification of territorial units for statistics – NUTS. The first level corresponds to the entire territory of Slovakia, the second level divides the country into four territorial units, the third level includes eight regions, and the fourth level, 79 districts. There are currently 2929 municipalities in Slovakia (see: [www.statistics.sk](http://www.statistics.sk)).

**DEATH COUNT DATA**

**Coverage and completeness**

Registration of deaths is considered complete and covers the whole territory of the Slovak Republic. Currently, data on deaths refer to the permanent population of the Slovak Republic, regardless of their citizenship. The current definitions of a live birth and an infant death are comparable to the definitions used by the World Health Organization (WHO). Definitions used before 1965 differ from those used by WHO (for more details see the section entitled 'Birth Count Data').

The currently used death certificate includes the following information: name, date of death, date of birth, personal identification number, sex, citizenship, ethnic group, place of permanent residence, marital status, identification number of person reporting death,
primary cause of death (ICD-10 code), and autopsy record. Before publishing the data, all death certificates are checked for errors at the Statistical Office.

**Life tables**

Starting in 1993, official complete period life tables for the Slovak Republic have been calculated by the Demographic Research Centre (INFOSTAT) and published by the Statistical Office of the Slovak Republic. These new life tables calculated by a uniform method have replaced previously used life tables calculated by the Federal Statistical Office of Czechoslovakia (1950-1992). Some measures from the new official life tables are available online (www.infostat.sk/slovakpopin).

**POPULATION COUNT DATA**

**Coverage and completeness**


The resident census population of the Slovak Republic refers to the people who are officially registered as permanent residents irrespective of whether or not they were at their place of residence at the time of the census.

The present census population of the Slovak Republic refers to the people who are officially registered as permanent residents and are present at their place of residence at the time of the census.
Specific details
In circumstances where migration statistics do not account for unregistered (possibly short-term) emigration, and only post-censal estimates are available, the official population data show discontinuities between the end point of the older series and the starting point of the newer series of population estimates. For more details about population count data, see the section “Data Quality Issues”. To eliminate these inconsistencies, we recalculated the inter-censal population estimates for the period 1950-2011 from the present census population (see the HMD Methods Protocol for details).

BIRTH COUNT DATA
Coverage and completeness
The registration of births is considered complete and covers the whole territory of the Slovak Republic. Vital statistics include births of permanent residents of the Slovak Republic.

Specific details
The definitions of live births, stillbirths, and abortions have changed over time. The definitions used in the Slovak Republic before 1965 were different from the international classification.

- Before 1948, a live-birth was registered if breathing or beating of the heart was shown by a fetus. Fetuses delivered after a gestation period lasting more than 28 weeks but showing no sign of life were considered stillbirths.

- In 1949 – 1952, newborns without any sign of life but weighting more than 400 grams were registered as stillbirths. Those weighing less than 400 grams were considered spontaneous abortions.

- In 1953 - 1964, a live-born child was registered if the fetus was: born after 28 weeks of gestation; was longer than 35 cm; weighed at least 1000 grams, and showed signs of life (i.e., breathing). Newborns born after 28 weeks of gestation, with a body length of at least 35 cm, and weighing at least 1000 grams but showing no sign of life were registered as stillbirths. All fetuses which did not meet the criteria of a live birth but survived at least 24 hours were also counted as live births; those surviving less than 24 hours were counted as spontaneous abortions.

- In 1965, the former Czechoslovakia started using the internationally recommended definition of a live birth. Such a change in definition resulted in a sudden jump in infant mortality rates between 1964 and 1965 in both the Czech Republic and the Slovak Republic (Rychtarikova, 2004).
• In 1965-1987, a live birth was defined as the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of the pregnancy, which, after such separation, breathes or shows any other evidence of life such as heartbeat, umbilical cord pulsation, or definite movement of voluntary muscles, whether the umbilical cord has been cut or the placenta is attached (Rychtarikova, 2004). Newborns born after 28 weeks of gestation (or of unknown gestational length), with a body length of at least 35 cm, weighting at least 1000 grams but not showing any sign of life were registered as stillbirths.

• Since 1988, the Statistical Office of the Slovak Republic has used the following criteria to define a live birth:
  - A live-born child is a child showing at least one of the following signs of life at birth: breathing, beating of the heart, pulsation of the umbilical cord; active movement of muscles though the umbilical cord has not been cut or placenta has not been delivered. In addition, the newborn must weigh at least 500 grams or, if weighing less than 500g, must survive for at least 24 hours after birth (Statistical Office, 2004).
  - If the fetus does not show any sign of life and weighs less than 1000g (or weight cannot be measured), it is defined as a spontaneous abortion (i.e., miscarriage). Fetuses showing some signs of life and weighing less than 500g but not surviving more than 24 hours after birth are also classified as spontaneous abortions. Newborns weighing at least 1000 g but showing no sign of life are classified as stillbirth.

DATA QUALITY ISSUES

As for many other countries, using post-censal population estimates produces various inconsistencies in population trends. In the case of the Slovak Republic, population numbers tend to drop between the end point of the older series and the starting point of the newer series of population estimates (Figure 1). These inconsistencies are mainly due to unregistered emigration. For example, the 1991 census counts were used as the basis for calculating official population estimates for the period 1992-2000. The latter data have not been recalculated backwards to correspond to the 2001 census. In circumstances where migration statistics do not account for unregistered (possibly short-term) emigration, and only post-censal estimates are available, these estimates show discontinuities at census years (Figure 1). A similar jump can also be observed comparing the official post-censal population estimates for 2002-2011 (based on the 2001 census) and the most recent official post-censal population estimates for 2012-2018 (based on the 2011 census).

Figure 1 also shows a sudden increase in total population between 1961 and 1962. The main reason for this is that the 1950 census-based population estimates (1950-1961) covered only the “present” population (not including residents abroad or foreigners), whereas subsequent post-censal estimates were based on the “resident” population.
Additionally, in the 1950s, there was undercount of immigrants due to the fact that only the migration of Czechoslovak citizens was traced. Foreign citizens have only been included in the migration statistics since 1954 (Vano et al., 2001).

The HMD population estimates for the period 1950-2011 are the recalculated inter-censal population estimates following the HMD methodology (see the HMD Methods Protocol for more details). They take into account all of the problems discussed above.

**WARNING.** The HMD inter-censal population estimates for the period 1950-1962 should be used with caution due to very irregular migration patterns (the methods used here assume that migration was distributed uniformly throughout the whole inter-censal period).

**Figure 1.** Official post-censal and census population estimates as of January 1, 1950-2015.
REVISION HISTORY

Changes with the October 2015 revision:
Population counts for 2001 – 2011 were previously based on official post-censal estimates of census 2001. They were replaced by the newly derived inter-censal estimates calculated according to the HMD methodology (see the section on “Data quality issues” and the HMD Methods Protocol for more details).

Changes with the December 2017 revision:
Life tables: All life tables have been recalculated using a modified methods protocol. The revised protocol (Version 6) includes two changes: 1) a more precise way to calculate a0, the mean age at death for children dying during the first year of life and 2) the use of birth-by-month data (where and when available) to more accurately estimate population exposures. These changes have been implemented simultaneously for ALL HMD series/countries. For more details about these changes, see the revised Methods Protocol (at http://v6.mortality.org/Public/Docs/MethodsProtocol.pdf), particularly section 7.1 on Period life tables and section 6 and Appendix E, on death rates. The life tables calculated under the prior methods (Version 5) remain available at v5.mortality.org but will not be further updated.

REFERENCES FOR DEMOGRAPHIC DATA ON SLOVAKIA

Vital statistics publications
Note: The following references relate to population changes in the territory of Slovakia
Pohyb obyvatelstva v republice Československé v roce 1950, Státní úřad statistický
Pohyb obyvatelstva v republice Československé v roce 1951, Státní úřad statistický
Pohyb obyvatelstva v republice Československé v roce 1952, Státní úřad statistický
Pohyb obyvatelstva v republice Československé v roce 1953, Státní úřad statistický
Pohyb obyvatelstva v republice Československé v roce 1954, Státní úřad statistický
Pohyb obyvatelstva v republice Československé v roce 1955, Státní úřad statistický
Pohyb obyvatelstva v republice Československé v roce 1956, Státní úřad statistický
Pohyb obyvatelstva v republice Československé v roce 1957, Státní úřad statistický
Pohyb obyvatelstva v republice Československé v roce 1958, Státní úřad statistický
Pohyb obyvatelstva v republice Československé v roce 1959, Státní úřad statistický
Pohyb obyvatelstva v Československé socialistické republice v roce 1960, Ústřední úřad státní kontroly a statistiky
Pohyb obyvatelstva v Československé socialistické republice v roce 1961, Ústřední úřad státní kontroly a statistiky
Pohyb obyvatelstva v Československé socialistické republice v roce 1962, Ústřední úřad státní kontroly a statistiky
Pohyb obyvatelstva v Československé socialistické republice v roce 1963, Ústřední úřad státní kontroly a statistiky
Pohyb obyvatelstva v Československé socialistické republice v roce 1964, Státní úřad statistický
Note: *Population change for the years 1992 – 1995 have not yet been published.*
Note: Population change for the years 2003 – 2005 have been prepared for publishing.

Population age structures:
Věkové složení obyvatelstva v letech 1920 -1937 a 1945 – 1979 (ČSSR, ČSR, SSR), Český statistický úřad
Věkové složení obyvatelstva v roce 1961. Federální statistický úřad
Věkové složení obyvatelstva v roce 1962. Federální statistický úřad
Věkové složení obyvatelstva v roce 1963. Federální statistický úřad
Věkové složení obyvatelstva v roce 1964. Federální statistický úřad
Věkové složení obyvatelstva v roce 1965. Federální statistický úřad
Věkové složení obyvatelstva v roce 1966. Federální statistický úřad
Věkové složení obyvatelstva v roce 1967. Federální statistický úřad
Věkové složení obyvatelstva v roce 1968. Federální statistický úřad
Věkové složení obyvatelstva v roce 1969. Federální statistický úřad
Věkové složení obyvatelstva v roce 1970. Federální statistický úřad
Věkové složení obyvatelstva v roce 1971. Federální statistický úřad
Věkové složení obyvatelstva v roce 1972. Federální statistický úřad
Věkové složení obyvatelstva v roce 1973. Federální statistický úřad
Věkové složení obyvatelstva v roce 1974. Federální statistický úřad
Věkové složení obyvatelstva v roce 1975. Federální statistický úřad
Věkové složení obyvatelstva v roce 1976. Federální statistický úřad
Věkové složení obyvatelstva v roce 1977. Federální statistický úřad
Věkové složení obyvatelstva v roce 1978. Federální statistický úřad
Věkové složení obyvatelstva v roce 1979. Federální statistický úřad
Věkové složení obyvatelstva v roce 1980. Federální statistický úřad
Věkové složení obyvatelstva v roce 1981. Federální statistický úřad
Věkové složení obyvatelstva v roce 1982. Federální statistický úřad
Věkové složení obyvatelstva v roce 1983. Federální statistický úřad
Věkové složení obyvatelstva v roce 1984. Federální statistický úřad
Věkové složení obyvatelstva v roce 1985. Federální statistický úřad
Věkové složení obyvatelstva v roce 1986. Federální statistický úřad
Věkové složení obyvatelstva v roce 1987. Federální statistický úřad
Věkové složení obyvatelstva v roce 1988. Federální statistický úřad
Věkové složení obyvatelstva v roce 1989. Federální statistický úřad
Věkové složení obyvatelstva v roce 1990. Federální statistický úřad
Věkové složení obyvatelstva v roce 1991. Federální statistický úřad
Věkové složení obyvatelstva v roce 1992. Federální statistický úřad
Věkové zložení obyvatelstva Slovenskej republiky v roku 1993, Štatistický úrad Sloveskej republiky
Vekové zloženie obyvateľstva Slovenskej republiky v roku 1994, Štatistický úrad Sloveskej republiky
Vekové zloženie obyvateľstva Slovenskej republiky v roku 1995, Štatistický úrad Sloveskej republiky
Vekové zloženie obyvateľstva Slovenskej republiky v roku 1996, Štatistický úrad Sloveskej republiky
Vekové zloženie obyvateľstva Slovenskej republiky v roku 1997, Štatistický úrad Sloveskej republiky
Vekové zloženie obyvateľstva Slovenskej republiky v roku 1998, Štatistický úrad Sloveskej republiky
Vekové zloženie obyvateľstva Slovenskej republiky v roku 1999, Štatistický úrad Sloveskej republiky
Vekové zloženie obyvateľstva Slovenskej republiky v roku 2000, Štatistický úrad Sloveskej republiky
Vekové zloženie obyvateľstva Slovenskej republiky v roku 2001, Štatistický úrad Sloveskej republiky
Vekové zloženie obyvateľstva Slovenskej republiky v roku 2002, Štatistický úrad Sloveskej republiky
Vekové zloženie obyvateľstva Slovenskej republiky v roku 2003, Štatistický úrad Sloveskej republiky
Vekové zloženie obyvateľstva Slovenskej republiky v roku 2004, Štatistický úrad Sloveskej republiky

Census publications:
Demografická příručka, Federalní statistický úřad
Rozvoj spolocnosti v Slovenskej socialistickej republike (1970) (podľa výsledkov sčítania ľudu, domov a bytov), Slovenský štatistický úrad
Sčítanie ľudu, domov a bytov 1980, Slovenský statistický úrad
Sčítanie ľudu, domov a bytov 1991, Slovenský statistický úrad
Sčítanie ľudu, domov a bytov 2001, Štatistický úrad Slovenskej republiky

REFERENCES
APPENDIX:

Description of the original data used for HMD calculations

### DEATHS

<table>
<thead>
<tr>
<th>Period</th>
<th>Type of Data</th>
<th>Age grouping</th>
<th>Comments</th>
<th>RefCode(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950-2017</td>
<td>Annual number of deaths by sex and single year of age, and birth cohort (Lexis triangles, except for the open ended interval - rectangle).</td>
<td>0, 1, 2, …, 99, 100+, UNK</td>
<td></td>
<td>2, 5, 9, 12, 16, 17, 24</td>
</tr>
</tbody>
</table>

### POPULATION

<table>
<thead>
<tr>
<th>Period</th>
<th>Type of Data</th>
<th>Age grouping</th>
<th>Comments</th>
<th>RefCode(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950</td>
<td>Population estimates as of July 1st by sex and single year of age.</td>
<td>0,1,…,100+</td>
<td>Mid-year population estimates. Based on these data and the HMD Methods Protocol, population estimates were calculated as of January 1st, 1950 (pre-censal estimate). This adjustment enabled production of inter-censal population estimates for the period 1950-1962.</td>
<td>7</td>
</tr>
<tr>
<td>2012-2018</td>
<td>Annual population estimates as of January 1st by sex and single year of age.</td>
<td></td>
<td>Post-censal population estimates based on the 2011 census.</td>
<td>22, 25</td>
</tr>
</tbody>
</table>

### BIRTHS BY SEX

<table>
<thead>
<tr>
<th>Period</th>
<th>Type of Data</th>
<th>Comments</th>
<th>RefCode(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950-2017</td>
<td>Annual counts of live births by sex.</td>
<td></td>
<td>3, 4, 8, 11, 14, 18, 23</td>
</tr>
</tbody>
</table>
BIRTHS BY MONTH

Type of data: Annual live birth counts by month.


RefCode(s): 19, 20, 26