

ABOUT MORTALITY DATA FOR SLOVENIA

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GENERAL

From the 14th century until 1918, the present territory of Slovenia (inhabited by the Slovene population and known as Carinthia, Carniola and Styria regions) was part of the Austro-Hungarian Empire. After the First World War and collapse of the Empire, Slovenia became part of the Kingdom of Slovenes, Croats and Serbs, which was reformed into the Kingdom of Yugoslavia in 1929. After the Second World War, Slovenia became part of the Socialist Federal Republic (SFR) of Yugoslavia. The Republic of Slovenia acquired independence as a result of the dissolution of Yugoslavia in 1991. Unlike other former republics of Yugoslavia such as Bosnia and Herzegovina or Croatia, Slovenia was not involved in large-scale war operations following the declaration of the independence in 1991. The country has been a member of the European Union since 1 May 2004.

Until the end of the First World War in 1918, the collection of statistical information within most of the present territory was under the responsibility of the statistical office of the Austro-Hungarian Empire located in Vienna (Statistical Office, 2004). After the collapse of the Austro-Hungarian Empire in 1918, the main authority responsible for statistics was the General National Statistics in Belgrade (the capital city of Yugoslavia). However, a special Statistical Department for Slovenia existed between 1919 and 1924. The statistical office of Slovenia was established by the Slovenian National Liberation Council in 1944 shortly after liberating the country from the Nazi occupants. This office became part of the federal statistical office from 1945 to 1990. An independent Statistical Office of the Republic of Slovenia was re-established in 1991 (Statistical Office, 2004).

The first population enumeration in the present territory of Slovenia was conducted in 1754. Under rule of the Austro-Hungarian empire, six population censuses were conducted: 31 October 1857, 31 December 1869, 31 December 1880, 31 December 1890, 31 December 1900, and 31 December 1910. Eight population censuses took place during the period when Slovenia was a member of the federal state of Yugoslavia: 31 January 1921, 31 March 1931, 15 March 1948, 31 March 1953, 31 March 1961, 31 March 1971, 31 March 1981, and 31 March 1991 (Statistical Office, 2001). Two most recent censuses of population, households, and housing was conducted by the Statistical Office of the Republic of Slovenia on 31 March 2002 and 2011.

A specific feature of the system of demographic statistics in Slovenia is an extensive use of population registers. The municipal registers were introduced in 1946, whereas the Central Population Register was established in 1983 (following the introduction of personal identification numbers in 1980 (Krizman, 1999). The registers have been used extensively to produce population statistics and to correct/update population estimates calculated according to the population census data and annual changes of births, deaths, and migration (Statistical Office, 2001).

Since 1983, demographic data exist in both published and electronic formats. As this year also marks the launch of the Central Population Register and related changes in the system of population statistics, we decided to include and process data starting from 1983.

Detailed information on population and vital events can be downloaded from an online database (<http://www.stat.si>).

Sources of Data

For HMD calculations, we use population, death, and birth count data from published and unpublished electronic data provided by the Statistical Office of the Republic of Slovenia. The reference file for Slovenia provides detailed information about the sources of both the published and the unpublished data used in the Human Mortality Database (HMD).

Specific Episodes in the Demographic History of Slovenia

In June/July 1991, there was an armed conflict (a resistance against the Yugoslavia military invasion, also known as “Ten Days war”). When compared to other countries of the former Yugoslavia, the conflict resulted in relatively few civilian and military deaths (up to 100 casualties).

TERRITORIAL COVERAGE

There were no territorial changes in Slovenia during the period covered by the HMD (1983-2017). Prior to the mid-1950s, however, numerous changes in boundaries took place.

DEATH COUNT DATA

Coverage and completeness

The Statistical office defines death as “evidence of life permanently disappeared any time after he/she was live-born.” The definition of infant death is “a newborn whose evidence of life permanently disappeared any time after he/she was live-born and had not completed the first year of age (Statistical Office, 2007). The WHO definition of live birth and infant death has been used for the whole period covered by the HMD.

Since 1991, individual death records have been collected by the Central Population Register (Ministry of the Interior). From 1991 to 1999, the data on deaths were processed and published by the Statistical Office. Since 2000, the electronic database on death has been maintained by the Institute of Public Health. Before 1991, some data on deaths were processed by the Federal Statistical Office of Yugoslavia (Statistical Office, 2007).

Specific details

Data collection cover the resident of Slovenia. The definition of a resident of Slovenia changed over time (see section on “Population count data” for more details).

POPULATION COUNT DATA

Coverage and completeness

For the period until 1980, the only published population estimates were produced by the Federal Statistical Office of Yugoslavia. These post-censal population estimates were derived from census counts updated by subsequent annual births and deaths. International migration was not taken into account (Statistical Office, 2007). The usage of such data is problematic.

For the period 1982-1986, the Statistical Office of Slovenia produced their own post-censal population estimates accounting for annual natural increase, emigration, and corrections according to the Municipal register records.

The official population estimates covering the period 1987-1994 were calculated using mainly Central Population Register data. From 1995 onwards, the estimates were derived using Central Population Register and international migration register data. The official population covers all persons registered as the residents of Slovenia (for changes in definition of resident see the “Specific details” section).

Foreign citizens permanently residing in Slovenia were included in the official population statistics starting in 1995 (following a change in the concept of resident population) (Statistical Office, 2001). According to the available information, we assume that *de facto* refugees from the former Yugoslavia were excluded from the official population counts at least for the period 1991-1994. Since 1995, the statistics on migration of foreigners have been collected and provided by the Administrative Internal Affairs Directorate of the Ministry of Interior (Statistical Office, 2010a).

It is important to note that population numbers derived from the censuses differ slightly from those based on municipal registers or Central Population Register (at the same time point). For example, the register-based population in 1991 was about 1.5% higher than population estimated according to the 1991 census (Statistical Office, 2001). The Statistical Office (2001) attribute such differences to “different methods of data collection and use of different definitions”.

There are discontinuities in the series of population estimates produced using different methods and data sources (for more details, see the section “DATA QUALITY ISSUES”). In the current version of the data series for Slovenia, we have not made any adjustments for the aforementioned changes in the definitions and disruptions in the population statistics. We plan to work on possible solutions for these problems in the near future.

Specific details

Throughout the period 1983-2009, there were several changes in the official definition of *resident* population, which affected vital and population register data coverage:

- ❖ **1983 to 24 June 1991:** The official population included only those persons registered as permanent residents in the territory of Slovenia who were also citizens of the former SFR Yugoslavia (including the Socialist Republic of Slovenia and other republics of the former SFR Yugoslavia).

- ❖ **25 June 1991 to 31 December 1994:** The *resident* population included:
 - Citizens of the Republic of Slovenia with permanent residence in Slovenia;
 - Persons registered as a permanent resident of Slovenia who were citizens of the former SFR Yugoslavia prior to June 25, 1991, but had not yet acquired citizenship of the Republic of Slovenia or any other country.
- ❖ **1 January 1995 to 1 January 2008:** The official *resident population* counts include:
 - Citizens of the Republic of Slovenia with permanent residence in Slovenia, excluding those who went abroad for more than three months and gave notice of their departure at the administrative unit of their permanent residence;
 - Foreigners with issued permission for permanent residence in the Republic of Slovenia;
 - Foreigners with issued permission for temporary residence in the Republic of Slovenia;
 - Foreigners with a valid work permit or a business visa, who are registered as a temporary resident in Slovenia;
 - Persons to whom the Republic of Slovenia granted asylum and refugee status according to the Asylum Act;
 - Persons under temporary protection in the Republic of Slovenia.

Source: Statistical Office, 2010b.

- ❖ **1 January 2008 to present:** The official *usually resident population* refers to persons with a registered permanent and/or temporary residence in Slovenia who live or intend to live in Slovenia for one year or more and are not temporarily absent from Slovenia for a year or more. The official *usually resident population* counts include:
 - persons who have lived in Slovenia for a year or more;
 - persons who intend to live in Slovenia for a year or more. The length of the intended stay is deduced from the type of registered residence, specifically:
 - for persons with registered permanent residence it is deduced that they intend to live at the address of registered permanent residence for at least a year (i.e. a year or more);
 - for persons with registered temporary residence the length of intended stay is deduced from the length of validity of their registered temporary residence);
 - persons who are temporarily absent or intend to be absent from Slovenia on the day of observation, but only if the length of their actual or intended absence is less than a year.

Source: Statistical Office, 2010b.

The Statistical Office (2010a) also warns about changes in how international migration is defined, which also affects the series of population estimates:

- ❖ **Prior to 1992:** Official data on international migration included only immigrations and emigrations of the citizens of the former Yugoslavia (including migrations between Slovenia and other republics of the former Yugoslavia). Thus, all migration of individuals covered by the Central Register was recorded during this period.

- ❖ **1992 to 1994:** The only international migration accounted for pertains to citizens of the Republic of Slovenia. Importantly, the former citizens of the Socialist Federal Republic of Yugoslavia who did not accept or fulfill conditions for acquiring citizenship of the Republic of Slovenia when the country split from Yugoslavia to become independent in 1991 were considered foreigners and not included in migration statistics (although they were included in the Central Register if they had not yet acquired citizenship elsewhere).
- ❖ **1995 to 1997:** Since 1995, data on international migration also include foreign citizens. Data on emigration of foreigners are estimated according to the annual changes in both the numbers of records in the register and natural increase among foreign population. Citizens of Slovenia who migrated temporarily are not recorded.
- ❖ **1998 to 2008:** In addition to migration of foreign citizens, data on international migration also covers citizens of Slovenia who emigrate temporarily (for more than 3 months) or who return after temporarily residing abroad.
Source: Statistical Office, 2010a.
- ❖ **From 1 January 2008 to present:** the definition of international migration has been harmonized according to a new concept of usually resident population published in 2008 (see the description of usual resident concept on the page 4).

The Statistical Office of Slovenia warns about the quality of the data on international migration: “the data for certain periods are not entirely comparable” (Statistical Office, 2010b).

BIRTH COUNT DATA

Coverage and Completeness

The Statistical Office has used the WHO definition of live birth the entire period covered by the HMD. A live birth is “a child who immediately after birth showed signs of life (breathing, heartbeat, muscle twitch), even though only for a short period. Duration of pregnancy is not important” (Statistical Office, 2007). A stillbirth is defined as “a child who was born without signs of life (no breathing, no movement, no beating of the heart) and who at birth weighed at least 500 grams or pregnancy lasted less than 22 weeks or its body was at least 25 centimetres long. If in case of a multiple pregnancy (twins, triplets) one of the siblings was born alive, the sibling that was born dead is counted as a stillborn even if it weighed less than 500 grams” (Statistical Office, 2007).

Specific details

Data collection cover the resident population (i.e., those with permanent or temporary resident status) of Slovenia; births to residents that occur in a foreign country are included. The definition of resident of Slovenia changed over time (see section on “Population count data” for more details).

DATA QUALITY ISSUES

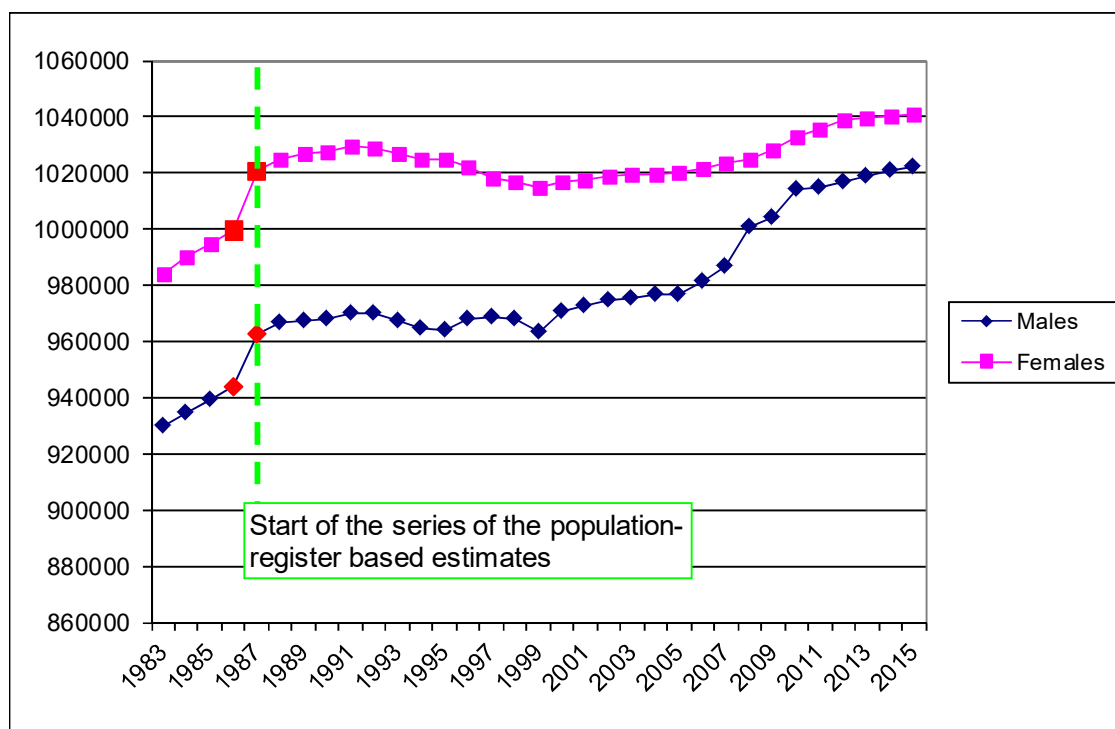
Problems with the official population estimates

As noted earlier, the official January 1st population estimates for the period 1983-1986 account for emigration, but not immigration. In addition, the change in the methodology for calculating of population estimates (i.e., transition from census-based to register-based data) resulted into a jump in population numbers between 1986 and 1987 (Figure 1). There were no such jumps observed in births and deaths (however, due to small numbers it is difficult to identify such changes).

The sudden increase in number of males between 2006 and 2010 is also reflected in the official data. This is related to notable male-dominated immigration during the period (about 75% of foreign citizens in Slovenia were males in 2008) (Statistical Office, 2009).

The sudden increase in total population counts in 1987 is solely attributable to an artificial peak in implied net-migration in 1986 (there was no increase in net-migration according to official data) (Figures 2A and 2B). Such a big discrepancy can be attributed to the fact that the official January 1st population estimates for the period before 1987 did not account for immigration. Consequently, when the basis for population estimates shifted to the Central Population Register in 1987, all the residents who had immigrated to the Republic of Slovenia after the 1981 census were suddenly added to the population estimate.

Figure 1. Changes in the estimated total population in Slovenia, 1 January 1983 – 1 January 2015.



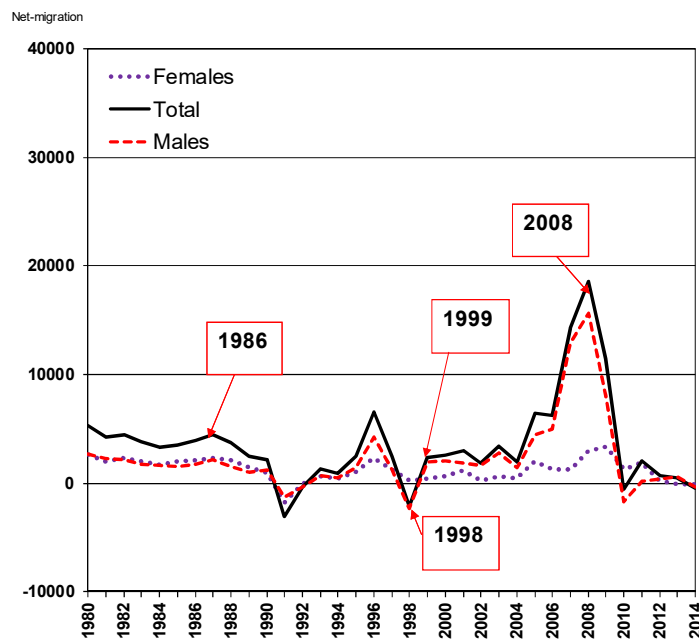
Source: HMD population estimates as of January 1.

There is a large dip (by about 5 thou.) in total male population numbers for January 1st, 1999 and a smaller one for females (Figure 1). This follows an outmigration wave in 1998 (also reported in the official migration data).

There is some disagreement between the official and HMD (implied) net-migration figures (the HMD net-migration is estimated as the remainder from the total change in population and natural increase). The HMD shows a notable peak in implied out-migration in 1999 (Figure 2B), whereas the official data on international migration do not show such a peak (Figure 2A). Another disagreement concerns the official and HMD (implied) net- migration for 2007-2010. Perhaps, these disagreements are related to the changes in the official definition of international migration. It is important to stress that the net-migration implied by HMD estimates corresponds to the adjusted migration figures for Slovenia published by EUROSTAT. In conclusion, while the two set of estimates obviously differ, it is difficult to infer which is more reliable.

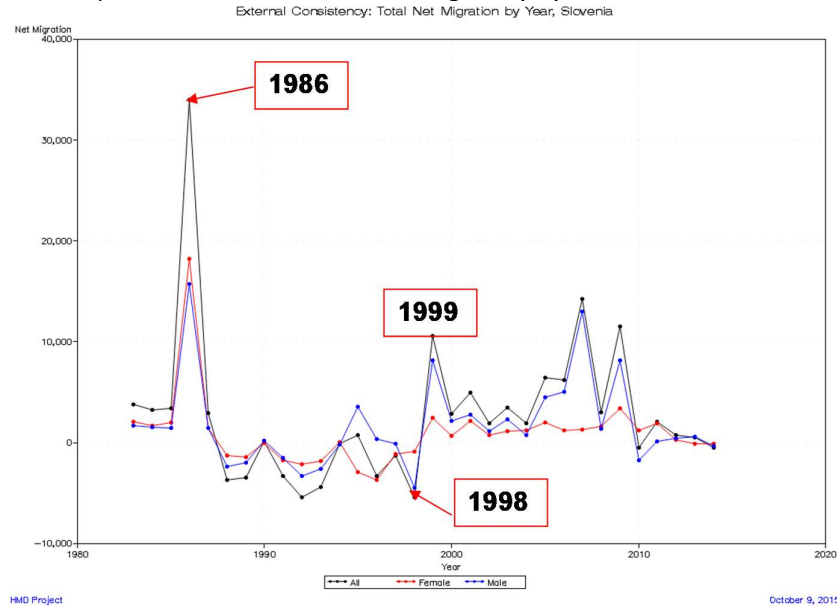
Figure 2. Changes in the official and estimated net-migration, 1983-2014.

A) Official data (based on official migration statistics)



Source: Statistical Office of the Republic of Slovenia, 2015.

B) HMD estimate (remainder from total change in population and natural increase)



Source: HMD data quality checks.

The Statistical Office of the Republic of Slovenia officially acknowledges problems in comparability between different series of population estimates: “the use of various sources of data on the number, age and sex structure of the population causes disharmony of time series and leaps in years of transition from one source to another” (Statistical Office, 2001, p. 34). The plausibility of population estimates is further complicated by numerous changes in the definition of international migration. However, due to the relatively small numbers of international migrants and the typically low level of mortality at ages when people immigrate, it is unlikely to affect the quality of mortality estimates in a significant way.

To date we have not attempted to introduce any adjustments to overcome the aforementioned disruptions or unusual fluctuations in the official data. We plan to work on possible solutions in the future.

REVISION HISTORY

Changes with the October 2015 revision:

Population counts for 2011 – 2015 as well as live births and death counts were added.

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 a_0 , 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.

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APPENDIX 1:

Description of the original data used for HMD calculations

DEATHS

Period	Type of Data	Age grouping	Comments	RefCode(s)
1983-2006	Annual number of deaths to <i>resident population</i> , by sex, single year of age, and birth cohort (Lexis triangles)	0, 1, 2 ... max		1, 2, 3
2007	Annual number of deaths to <i>resident population</i> , by sex, single year of age, and birth cohort (Lexis triangles)	0, 1, 2 ... max		11
2008-2009	Annual number of deaths to <i>usually resident population</i> , by sex, single year of age, and birth cohort (Lexis triangles)	0, 1, 2 ... max		11
2010-2019	Annual number of deaths to <i>usually resident population</i> , by sex, single year of age, and birth cohort (Lexis triangles)	0, 1, 2 ... 100+		14, 15, 20, 24

POPULATION

Period	Type of Data	Age grouping	Comments	RefCode(s)
1983-1986	Annual January 1 st population estimates by sex and single year of age. <i>Resident population</i> (old definition).	0, 1, ..., 99, 100+	Post-censal population estimates according to the census updated with annual births, deaths and emigrations from the Municipal Register. See also NoteCodes 2.	6

POPULATION (CONTINUED)

Period	Type of Data	Age grouping	Comments	RefCode(s)
1987-1995	Annual January 1 st population estimates by sex and single year of age. <i>Resident population</i> (old definition).	0, 1, ..., 99, 100+	Data are based on the Central Population Register. See also NoteCodes 2 & 3.	6
1995-2007	Annual December 31 st population estimates by sex and single year of age. <i>Resident population</i> (new definition).	0, 1, ..., 99, 100+, unknown	Data are based on the Central Population Register. See also NoteCode 4.	7
2008	Annual January 1 st population estimates by sex and single year of age. <i>Resident population</i> (new definition).	0, 1, ..., 99, 100+, unknown	Data are based on the Central Population Register. See also NoteCode 4.	9
2009-2020	Annual January 1 st population estimates by sex and single year of age. <i>Usually resident population.</i>	0, 1, ..., 99, 100+, unknown	Data are based on the Central Population Register. See also NoteCode 12.	10, 13, 19, 23

BIRTHS BY SEX

Period	Type of Data	Comments	RefCode(s)
1983-2007	Annual number of live births to <i>resident population</i>		4, 5, 8
2008-2019	Annual number of live births to <i>usually resident population</i>		8, 12, 17, 21

BIRTHS BY MONTH

Type of data: Annual live birth counts by month

Period covered: 1970-2019.

RefCode(s): 16, 18, 22.