

ABOUT MORTALITY DATA FOR CZECHIA

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GENERAL

The first historical document dealing with the data counts of the population in the Czech lands dates back to 1582. This document enumerates the populations of cities, towns, castles, strongholds, lands, and landlords. More detailed population enumerations (*konskripce*) began in 1654 (*berní rolla*). However, regular enumerations for the purpose of gathering (primarily) population counts began in 1754 under the reign of Marie-Terezie. Regular vital statistics data, based on parish registers, have been published since 1785 when, under the reign of Joseph II, parish records became organized according to the same regulations and were also made available for use by the state (Czech Statistical Office, 1978a & 1978b).

Population data in former Czechoslovakia (established on October 28th, 1918) and current Czechia (established January 1st, 1993).

The current territory of Czechia corresponds to the historical delineation of Czech lands. Three main periods can be distinguished regarding demographic data characteristics: **1918-1937, 1938-1944, and 1945 to the present** (see under "Territorial Coverage" below for details).

The current version of the Czech data included in the Human Mortality Database (HMD) covers the time period beginning with 1950. Though official demographic data are available for previous years, too many issues of reliability (mostly related to the population counts) led us to ignore the previous period. However, we do present and discuss the results of our analysis of these older data below for the benefit of those readers interested in historical statistics.

Source of Data

Data collection

The demographic data (vital statistics and population censuses) are currently collected and processed by the Czech Statistical Office. The collection of standard vital statistics began in 1785, and the first modern census was conducted in 1869 (December 31st) covering the current territory of Czechia (Czech lands that were part of the Austro-Hungarian Empire). The Czech Statistical Office (formerly the State or Federal Statistical Office) has served as the public statistical service for Czechoslovakia since 1918.

Currently, vital statistics data are collected by Regional Statistical Offices, and are centralized and processed by the Czech Statistical Office. On the fifth day of each calendar month, Regional Statistical Offices are required to send the forms to the Czech Statistical Office. The Czech Statistical Office collects the data on births, deaths, marriages, divorces, and migrations. It also conducts decennial population and housing censuses and provides annual population estimates (as of July 1st and

December 31st) by sex and age. In addition, since 1961, population estimates by sex, age and marital status have been available at the national level.

Vital statistics are released annually in a publication entitled '*Pohyb obyvatelstva*' (*Population movement*), which also includes retrospective series of the absolute numbers of marriages, divorces, births, deaths, infant deaths, abortions, natural increase, and mid-year population. Since 1961, population estimates by sex and age as well as life tables have been available in the Appendix (*Dodatek*) of *Population Movement* ('*Pohyb obyvatelstva*'). Data on population movement have been available in an electronic format since 1992.

Census counts have been published for each census year (1869, 1880, 1890, 1900, 1910, 1921, 1930, 1950, 1961, 1970, 1980, 1991, 2001, 2011, and 2021).

Population estimates, primarily from 1980 to 2000, are available from the Czech POPIN website.¹ The most recent data can be found on the official internet site of the Czech Statistical Office.²

TERRITORIAL COVERAGE

History of territory and population changes

The current territory of Czechia corresponds to the historical delineation of Czech lands. Three main periods can be distinguished regarding demographic data characteristics: **1918-1937, 1938-1944, and 1945 to the present.**

The first period (1918-1937) relates to the beginning of the Czechoslovakian vital statistics series in 1919, which was a continuation of the previous Austrian system of population statistics. Although Czechoslovakia existed as a single independent state at that time, population statistics were collected, processed, and published separately for the three main territories: the Czech lands (Bohemia, Moravia and part of Silesia), Slovakia, and Ruthenia (Subcarpathian Russia).

The second period (1938-1944) is delineated by the Munich Pact and relates to the expansion of the Third Reich and the establishment of the Protectorate of Bohemia and Moravia. The Munich Pact, signed on September 30th, 1938, by Germany, Italy, France and Britain, led to the immediate occupation of the Sudetenland (part of Czechoslovakia settled mostly by Germans) and the territory was absorbed into the Third Reich. The remaining Czech territory was annexed into the Third Reich on March 15th, 1939, under the name of the Protectorate of Bohemia and Moravia. Population statistics for the period 1938-1944 were collected and published primarily for the Protectorate (63% of the current territory of Czechia). Because the Sudetenland never formed a separate administrative unit and did not correspond to a delimited group of administrative units/districts, population reconstruction for this territory is complicated. Population statistics for the Sudetenland were also less detailed during World War II.

The third period (1945 to the present) is characterized by a large decline in population size after World War II. In accordance with the decision adopted at the Potsdam Conference, the German population (2.36 million) that acquired Reich citizenship during the war was transferred from Czechia to Germany. This population

¹ <http://popin.natur.cuni.cz/html2/index.php?item=3>

² <http://www.czso.cz/>

transfer was mostly completed by the end of 1946. *Vital statistics during 1945 and 1946 mostly refer to the population excluding Germans.* Data regarding the German population (i.e., community size, population size and the total number of marriages, births and deaths) were published by district.

An overview of the most important demographic changes in Czechia is presented in Tables 1, 2, 3, and 4 of Appendix II.

The split of Czechoslovakia into the two independent Czech and Slovak Republics did not disrupt the population statistics series because data were always kept separately for the historical territories of Czechia and Slovakia. Population size for Czechia at the 2011 census was 10,436,560, compared to 10,230,060 in the 2001 census. The share of the population with Czech citizenship was 95.1% and Slovak citizens represented only 0.8% of the total population (<http://www.czso.cz/>)

DEATH COUNT DATA

Death statistics as well as population counts encompass data for the resident population (those having citizenship or a long-term residence permit). Vital statistics also include deaths to legal residents of Czechia dying while abroad (CSO, 2004).

A death certificate also includes information on infant deaths. Only the underlying cause of death is processed. The published data on deaths are available by individual triangles of the Lexis diagram (i.e., by completed age and birth cohort). Currently all infant deaths as well as deaths from external causes are autopsied. The information arising from an autopsy appears on the death certificate. Since 1986, the Czech Statistical Office has made corrections regarding unknown items in the individual record. As a result, unknown cases do not appear in published tables.

POPULATION COUNT DATA

Population count data are collected by censuses. Mid-year as well as end-of-year population estimates by sex and age have been available from the Czech Statistical Office since 1945. Mid-year population estimates by sex and age were also reconstructed by the Czech Statistical Office for calendar years 1920 to 1937 (Czech Lands) and 1938 to 1944 (including only the territory of the Protectorate of Bohemia and Moravia).

The official data on population for the post-war period (i.e. 1947-1949) are of poor quality due to very significant and irregular unregistered migration (Drbohlav, 2004). Therefore, the official population estimates for 1947-1949 have been excluded from the present calculations.

Before 2001, only the resident population (with citizenship or a long term residence permit) was included in routine statistics. Population estimates for the period 2001-2010 are based on the 2001 census which also takes into account foreign migrants with visas over 90 days.

The 2011 Population Census refers to "all persons whose place of usual residence on Census Day 2011 was in the Czech Republic". The "place of usual residence" refers to "the place where a person usually resides daily, notwithstanding any temporary

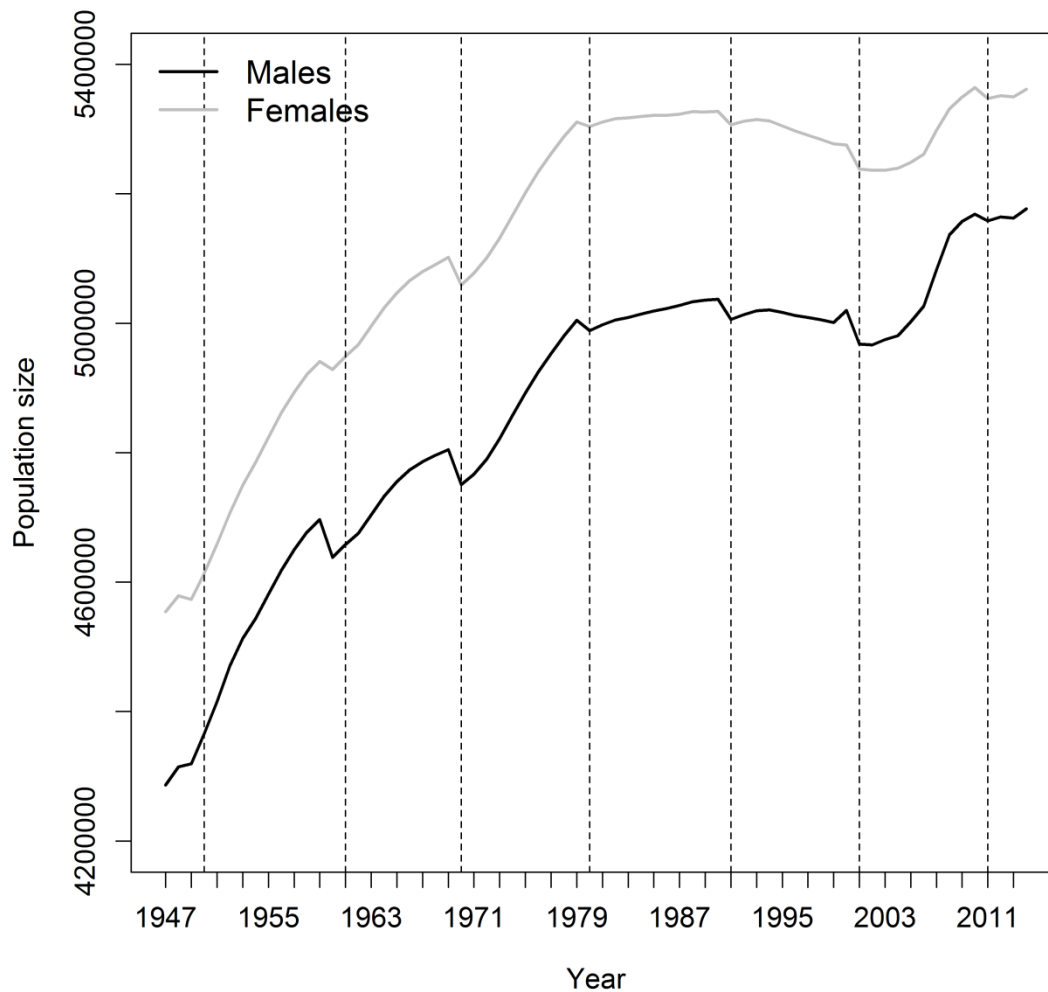
absences for the purpose of recreation, visiting, work-related travel, or time spent in a health facility, and where the person is a member of a household”³.

Specific details

Official annual population counts are based on post-censal estimates, which have not been adjusted backwards after obtaining the results of the subsequent census. For example, the official population estimates for the period 1991-2000 were based on 1991 census counts. The latter data were not recalculated backwards to be consistent with the 2001 census. The same applies to the inter-censal estimates for the period 2001-2010 in relation to the 2011 census and for the period 2011-2020 in relation to the 2021 census. In circumstances where migration statistics do not account for unregistered (possibly short-term) emigration, and where only post-censal estimates are available, these estimates show discontinuities in census years (Figure 1). The Czech Statistical Office officially acknowledges that “differences in the mid-year population figures for the years 1980-1981, 1990-1991 and 2000-2001 are due to differences between population and housing censuses and current balances” (CSO, 2004). To eliminate these inconsistencies, new inter-censal population estimates were calculated for the HMD for the period 1950-2021 (see the [Methods Protocol](#) for details). The published data of the 2011 census were not used for this because this census refers to the *de facto* (not *de jure*) population unlike the preceding census. Instead, we used the official population estimates (01.01.2011) based on the last census results and the *de jure* concept. These estimates have been used to produce the official post-censal population estimates starting with year 2011. The inter-censal method of the HMD was applied to population estimates between 2011 and 2021 based on the official estimates to take into account the difference in population introduced by the census in 2021.

³ For more details see:
<https://www.czso.cz/documents/10180/20567427/10413513meng.pdf/38f88caf-4bf1-4540-81bb-f6d185e74021?version=1.0>

Figure 1. Official population estimates as of December 31, 1947-2014



Note: the vertical dashed lines represent the census years

BIRTH COUNT DATA

Vital statistics include births to legal residents of Czechia, even for births occurring abroad (CSO, 2004).

Definitions since 1988

A **live birth** is defined as: “the complete expulsion or extraction of a fetus weighing at least 500 grams from its mother, 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. If the fetus weighs less than 500 grams, it is recorded as a live birth only if it survives 24 hours after delivery, otherwise it is classified as a spontaneous abortion (i.e., miscarriage)”.

A **stillbirth** is defined as “a fetus showing no sign of life at delivery and weighing at least 1000 grams”. A similar fetus weighing less than 1000 grams is defined as a spontaneous abortion.

Definition during 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”.

The 1965 administrative change in the definition of a live birth resulted in an increase in the infant mortality rate in 1965 from 19.1‰ (based on the 1964 definition) to 23.7‰ (based on the 1965 definition). The difference was due to 700 live births in 1965 that would have been considered spontaneous abortions in 1964.

Definition during 1953-1964

A **live birth** was defined as “a fetus of at least 28 weeks gestation, with a body length of at least 35 centimeters, a birthweight of at least 1000 grams, and breathing”. A fetus that did not meet these criteria was counted as a live birth only if it survived 24 hours, otherwise it was counted as a spontaneous abortion. A fetus of at least 28 weeks gestation, with a body length of at least 35 centimeters, a birthweight of at least 1000 grams, and not breathing was considered as a stillbirth.

Definition 1945-1952

A **live birth** was defined as any fetus having a heartbeat or breathing.

LIFE TABLES

Complete life tables for Czechia for years since 1920 have been computed by the Czech Statistical Office, including life tables for the Protectorate of Bohemia and Moravia during the war years of 1938-1944.

REVISION HISTORY

Changes with the October 2015 revision:

The Czech statistical office did not recalculate population estimates for period 2001–2010 after the release of the results of 2011 Census. We replaced these estimates by our inter-censal estimates.

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 in the future.

Changes with the February 2018 revision:

The name of the country has been changed from 'Czech Republic' to 'Czechia', the new official short name as of 2016.

Changes with the December 2022 revision:

The Czech statistical office did not recalculate population estimates for period 2011–2020 after the release of the results of 2021 Census. We replaced these estimates by our inter-censal estimates.

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APPENDIX I:

DESCRIPTION OF ORIGINAL DATA USED FOR HMD CALCULATIONS

BIRTHS

Period	Type of Data	Comments	RefCode
1947-2021	Annual number of births by sex to the resident population (i.e., citizens or those having a long-term residence permit)		04-55, 63, 65, 68, 72, 73, 77, 80, 84, 87, 91, 94,99,102

DEATHS

Period	Type of data	Age grouping	Comments	RefCode
1950-2021	Annual number of deaths by sex, year of birth & age (Lexis triangles) to the resident population (i.e., citizens and those having a long-term residence permit)	0, 1, 2, 3, ..., 100, 101+, UNK	There are deaths of unknown age (AGE="UNK").	04-55, 64, 66, 69, 70, 74, 75, 78, 81, 85, 88, 92, 95,101, 103

POPULATION

Period	Type of Data	Age Grouping	Comments	RefCode
1950, 1961, 1970, 1980, 1991	Census counts by sex and single year of age Census dates: March 1 st , 1950 March 1 st , 1961 December 1 st , 1970 November 1 st , 1980 March 2 nd , 1991	1950: 0, 1, 2, ..., 99,100+, unknown 1961, 1970, 1980, 1991: 0, 1, 2, ..., 94, 95+, unknown	Resident population (i.e., those having citizenship or a long-term residence permit) is counted.	56 57 58 59 60
2001	Census counts by sex and single year of age Census date:	0, 1, 2,...,94, 95+, unknown.	Resident population. Additionally, foreigners with long term (more than 90 days) visas are also taken into account.	61

Period	Type of Data	Age Grouping	Comments	RefCode
	March 1 st ,2001			
2011	Population estimates by sex and single year of age as of 01.01.2011	0,1,2,...,99,100+	Population estimates adjusted backwards. Based on the Population Census conducted 26.03.2011	83
2011-2021	Annual population estimates by sex and single year of age as of December 31 st	0,1,2,...,99,100+	In addition to the resident population (i.e., those having citizenship or a long-term residence permit), migration of the foreigners with long term (more than 90 days) visas is also taken into account.	82, 86, 89, 93, 96,100, 104,105

BIRTHS BY MONTH

TYPE OF DATA: ANNUAL LIVE BIRTH COUNTS BY MONTH

PERIOD COVERED: 1919–1937, 1945–2021

REFCODE(S): 90, 97, 98, 106

APPENDIX II:

AN OVERVIEW OF THE MOST IMPORTANT DEMOGRAPHIC CHANGES IN THE TERRITORY OF CZECHIA

Table 1. Population of Czech lands/ Czechia

Nationality	Census			
	1930	1950	1930	1950
Czech	7,304,588	8,343,558	68.43	93.79
Slovak	44,451	258,025	0.42	2.90
German	3,149,820	159,938	29.51	1.80
Polish	92,689	70,816	0.87	0.80
Ukrainian and Russian	22,657	19,384	0.21	0.22
Hungarian	11,427	13,201	0.11	0.15
Other	48,754	31,211	0.46	0.35
Total	10,674,386	8,896,133	100.00	100.00
Population change between July 1 st , 1938 and December 31 st , 1946				
	In thousands			
July 1 st , 1938	10,877			
December 31 st , 1946	8,689			
Difference	-2,188			

Source: Czech Statistical Office, Unpublished Tables

Table 2. Estimates based on the census December 31st, 1930

Land Area	Czech Lands	Protectorate	Sudetenland	Protectorate	Sudetenland
km ²	78,870	49,362	29,508		
km ² (%)	100.00	62.59	37.41		
Population	10,674,386	6,804,876	3,869,510		
Population (%)	100.00	63.75	36.25		
Nationality					
Czechoslovak	7,308,900	6,453,857	855,043	94.84	22.10
German	3,070,938	234,798	2,836,140	3.45	73.29
Hungarian	10,463	8,705	1,758	0.13	0.05
Other	125,946	36,092	89,854	0.53	2.32
Foreigners	158,139	71,424	86,715	1.05	2.24
Total	10,674,386	6,804,876	3,869,510	100.00	100.00

Source: Czech Statistical Office, Unpublished Tables

APPENDIX II (CONTINUED):

Table 3. Population estimates during World War II, 1938-1944

Year	Czech Lands	Protectorate	Sudetenland
1938	10,877,442	7,292,442	3,585,000
1939	11,105,990	7,489,990	3,616,000
1940	11,159,539	7,541,539	3,618,000
1941	11,129,373	7,493,373	3,636,000
1942	11,054,018	7,392,018	3,662,000
1943	11,034,846	7,315,846	3,719,000
1944	11,109,341	7,332,341	3,777,000

Source: Czech Statistical Office, Unpublished Tables

Table 4. Population of the Protectorate of Bohemia and Moravia by nationality

Year	Non-Germans	Germans	Total	% of Germans
1938	6,901,522	390,920	7,292,442	5.36
1939	7,115,561	374,429	7,489,990	5.00
1940	7,184,118	357,421	7,541,539	4.74
1941	7,208,758	284,615	7,493,373	3.80
1942	7,237,061	154,957	7,392,018	2.10
1943	7,278,161	37,685	7,315,846	0.52
1944	7,328,827	3,514	7,332,341	0.05

Source: Czech Statistical Office, Unpublished Tables