

# ABOUT MORTALITY DATA FOR AUSTRIA

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## GENERAL

Vital statistics and population census/register data for Austria are collected by the national statistical office of Austria, *Bundesanstalt Statistik Österreich* (for short: Statistik Austria, <http://www.statistik.at>). The content of the statistics is standardised nationwide, and the processing is centralised. The data are published and made publicly available.

Statistik Austria has been acting as an independent institution under public law since 2000. The central statistical service of Austria was established in the era of the Habsburg Monarchy in 1829 as a statistical bureau within the auditing authority, and in 1840 became a separate body named *Direktion der kaiserlich und königlich administrativen Statistik*. It was transformed into the *Bureau der kaiserlich und königlich Statistischen Central-Commission* in 1863, when official statistics were organised as an independent field of public administration. With the formation of the Dual (Austro-Hungarian) Monarchy in 1867 and the creation of a Hungarian Central Statistical Office in Budapest, the Central Statistical Commission in Vienna was only responsible for the Austrian part of the Dual Monarchy, also known as 'Cisleithania'.

After the dissolution of the Austro-Hungarian Empire and the creation of the Republic of Austria in 1918, national statistics were provided by the Federal Office of Statistics (*Bundesamt für Statistik*) during the First Republic (until 1938) and by the Austrian Central Statistical Office (*Österreichisches Statistisches Zentralamt*) during the Second Republic (from 1945 until 1999, after which the Federal Statistics Act led to the establishment of Statistik Austria). Between 1938 and 1945, i.e. during the National Socialist era, the same office was –under various names– part of the *Statistisches Reichsamt* of Greater Germany.

Civil registration was introduced in 1784 by Emperor Joseph II who ordered the church authorities to keep records of demographic events (births, deaths and marriages) on behalf of the state. Until 1894 the collection of vital statistics was based on predefined statistical tables which the parishes (and the military registers) had to extract annually based upon the events they had recorded in the books. These local tables were sent to and condensed by the intermediate state administrations at the levels of *Kreis* (district) and *Land* (state). Finally, the central administration (from 1829, the central statistical service) produced overall tables which – as a rule – were documented together with the regional information from the intermediate levels. Both the tabulation and the publication programmes were amended from time to time to meet new requirements, e.g. starting in 1851 deaths were tabulated by single years of age.

The processing of vital statistics data was changed fundamentally in 1895. Instead of predefined tables, the parish/military registers were required to produce individual statistical records about the events line by line on lists that had to be sent directly to the Statistical Central Commission, where they were keyed in and tabulated. In 1939, municipal civil registration offices were created to carry out the previous

functions of the parish and military registers, and the statistical reporting changed from one register line per event to one statistical bulletin (form) per event.

### **Source of Data**

Raw data on deaths, population and births since World War II used for the HMD came from Statistik Austria, either from published volumes or from unpublished tables. Vital statistics data are published in the annual *Natürliche Bevölkerungsbewegung im Jahre (1951-74)* and its successor *Demographisches Jahrbuch Österreichs (1975 ff.)*. The latter also contains population stock data from censuses, inter-censal estimates and revisions, and from the population registry (POPREG, starting in 2002). Detailed results of the decennial censuses are to be found in special multi-volume publications, e.g. *Volkszählung 2001*.

### **Specific Episodes in Austria's Demographic History**

The most severe episodes of excess mortality in the 20<sup>th</sup> century were World War I (from August 1914 to November 1918), the Spanish influenza epidemic (1918-19), World War II (from September 1939 to May 1945, with almost negligible war losses until June 1941), and infant mortality in 1945, which at 16% was twice that of the surrounding years.

Military deaths during World War I pertaining to the population of present-day Austria are estimated at 190,000 men including missing soldiers who never returned. For World War II the corresponding official estimate dating from the 1950s is 247,000. More recently, the World War II military losses of Austria have been determined at 260,749. Whereas the World War I and World War II military deaths are excluded from the official time series, those of the Spanish influenza of 1918-19, as well as 'collateral' civilian deaths during World War II, are included. The latter comprise 24,000 civilians killed in war operations (mainly strategic bombing).

In the 19<sup>th</sup> century, after the Napoleonic period, wars had only minor effects on mortality. Cholera epidemics, by contrast, were very deadly, causing excess mortality several times in the pre-transitional period: 1832, 1836, 1849, 1855, 1866 and 1873. Another peak was caused by the 1847 famine.

Austria in its present boundaries was the core area of the Austrian (later Austro-Hungarian) Monarchy. Containing the capital city, Vienna, it attracted steady flows of (internal) migrants, many of whom were non-German speaking and non-catholic. Between 1819 and 1913 the number of migrants represented around 1.4 million people or 35% of the total population growth. After the collapse of the Austro-Hungarian Monarchy many foreign-language speakers left for the newly established successor states, whilst a substantial number of German-speaking Austrians re-migrated to the new Republic. In the 1920s and 1930s Austria became a country of emigration. The *Anschluss* in 1938 brought an influx of functionaries from Germany. Many Jews were able to emigrate to the West and to Palestine, thus escaping deportation and extermination. In 1939, German-speaking people of South Tyrol had to choose between Germany and Italy; of those who opted for Germany, a number remained in Austria. Forced or slave labourers, mainly from Eastern Europe, were employed on Austrian territory during the war. At the end of World War II and thereafter, about a million refugees and displaced persons, both German- and foreign-speaking, came to Austria, but only a minority could be absorbed. Since

the 1960s, Austria has again become a country of immigration. Three distinct waves of net immigration have been experienced so far: 1967-1973, 1988-1993, and 2000 onwards.

The annual number of births increased until 1902; since then it has been decreasing. During World War I it fell considerably. Some catching-up was seen during 1920-24, but immediately after this the number of births fell again to half of its pre-war level, reaching the lowest level of fertility in the world. Many births were postponed and then took place after the *Anschluss*: the number suddenly increased by about half in 1939-41. A post-war baby boom took place in Austria from 1955 to 1969. It was followed by a steep fall in the number of births, of almost one third over only seven years.

## **TERRITORIAL COVERAGE**

There has been no significant territorial change in Austria during the period covered by the Human Mortality Database.

The present territory of Austria dates back to 1922. In November 1918 the German-speaking deputies of the *Reichsrat*, the Parliament of the Austrian part of the Dual Monarchy, declared their constituencies to form the new Republic of German Austria (*Deutschösterreich*). As a result of the Treaty of Saint-Germain-en-Laye of September 1919, however, Austria transferred some parts of its territory to neighbouring countries. The most important changes in this respect were the transfer of South Tyrol, Southern Styria and the *Sudeten*-German areas to Italy, Yugoslavia and Czechoslovakia, respectively. Carinthia and Lower Austria ceded minor parts of their territories.

On the other hand, in the Treaty of Trianon of June 1920 it was decided that Austria would obtain the adjacent German-speaking area of Western Hungary. The annexation of this area, called *Burgenland*, lasted until 1922. Hence Austrian statistics from this period exclude *Burgenland*.

The current territorial boundaries of Austria were first in place during the First Republic (until March 1938), then again in the first year after the *Anschluss* as *Land Österreich* or *Ostmark*, and again from April 1945 onwards, when Austria was reconstituted as the Second Republic. In the intervening periods, whilst Austria was a part of Greater Germany, the territory was enlarged twice. In 1939, after the destruction of Czechoslovakia, several German-speaking districts of Southern Bohemia and Southern Moravia, as well as *Engerau* (*Petržalka* borough of Bratislava) were annexed; another enlargement came into effect in 1941 after the destruction of Yugoslavia. Therefore the mostly unpublished data for the years of World War II must be adjusted to represent modern Austria.

## **DEATH COUNT DATA**

### ***Coverage and Completeness***

Since 1934, data on deaths have been based on the *de jure* population, i.e. the place of last residence of the deceased. For 1934-1950, the national totals include a few cases for which the deceased's place of residence was abroad (as was the case previously, when death data were based on *the de*

facto population). Since the 1950s, deceased persons whose last usual place of residence was abroad have been omitted from mortality statistics.

Due to the territorial principle of vital registration, deaths of the resident population occurring abroad are not included in Austrian mortality statistics. The effect of this omission is not yet known. At present the possibilities for addressing this issue are being considered as part of the efforts to harmonise European health statistics.

Except for the issues mentioned above, the degree of completeness seems to be high enough to rank Austrian mortality statistics in the high quality segment.

## **POPULATION COUNT DATA**

### ***Coverage and Completeness***

Since the first classical census of 1754, throughout the second half of the 18<sup>th</sup> century and the first half of the 19<sup>th</sup> century, census-type 'conscriptations' of the population were carried out and updated in Austria. These occurred at frequent intervals, and were conducted for military, taxation and religious purposes.

The first attempt at taking a modern population census was made in 1857. It suffered, however, from the fact that tabulation was limited to the indigenous population (*einheimische Bevölkerung*). The next census, undertaken in 1869, which referred to the total present-in-area population (*ortsanwesende* or *anwesende Bevölkerung*), is therefore considered to be the first truly modern census. This was followed by decennial censuses in 1880, 1890, 1900, 1910, and 1920/23.

Although in previous censuses (1900 and 1910) the concept of *de jure* population had started to be used in some tables, the *de facto* concept continued to be employed in the standard tabulations until the 1920s. The final transition to the *de jure* concept of resident population, or *Wohnbevölkerung*, took place in the 1934 census. Censuses were then conducted in 1939, 1951, 1961, 1971, 1981, 1991, and 2001. With the last of these the series of traditional population censuses came to an end. Censuses are now being replaced by register-based statistics (test census 2006, full census 2011). Both the 2001 census and the register counts are based on the *de jure* concept of main or principal residence (*Hauptwohnsitz*) that was introduced in the Austrian constitution in 1994 in order to replace the concept of ordinary residence.

The definitions of the resident population are in line with international (UNECE-Eurostat) recommendations. Citizenship, or legal nationality, is not a criterion for inclusion or exclusion. Hence, no specific group, such as foreign workers with permission to stay, is excluded from the population (except, of course, for the allied occupation forces from 1945 to 1955).

Completeness of the census counts has not been a major issue in Austrian censuses, in contrast with the associated problem of regional distribution within the country. There has been no tendency towards net census undercount. On the contrary, people with more than one living accommodation,

such as students, commuters, and holders of secondary homes, were especially followed up by the local census staff in the era of ordinary residence. Thus local authorities aimed at optimising their counts for fiscal and other political-administrative reasons. However, the Austrian Central Statistical Office implemented measures for avoiding double counts. These obligations were confirmed by the Constitutional Court.

### ***Annual Population Stocks***

Every quarter since 2002, current updates of population by sex, single years of age, and citizenship for regional subdivisions have been available from the statistical population register POPREG. Until 2001, annual (and quarterly) estimates of population by sex and single years of age were based on the last preceding census and subsequent vital statistics (as well as naturalisation statistics starting in 1981 to extend population stocks to major citizenship categories). Due to the lack of statistics on current migration flows before 1996, the annual net migration component of population change had to be estimated using stock and flow data from various sources. The closing error which was revealed at the next census was not simply accepted at face value, but rather the annual estimates of net migration and thus also the population figures for the years between the censuses were regularly revised. For calculating appropriate rates, it is therefore imperative to consult the most recent revisions even when dealing with periods in the past. The last revisions were made by Statistik Austria for the period 1982-2001 (extensive) and that of 2002-2006 (minor). In 2013, Statistik Austria made a revision for the period of 2007-2012 (minor).

## **BIRTH COUNT DATA**

### ***Coverage and Completeness***

Data on births were based on the *de facto* population until 1925, i.e. statistics were by place of birth. Since 1926 they have been based on the *de jure* population, i.e. the place of residence of the mother. For 1926-1950, the national totals included a few cases for which the mother's place of residence was abroad (as was the case previously, when birth data were based on *the de facto* population). Since the 1950s, births to women with a usual residence abroad have been omitted from the statistics.

On the other hand, due to the territorial principle of vital registration, births to the resident population occurring abroad are not included in Austrian birth statistics. This is an issue in particular for several municipalities in Western Austria which depend on obstetric facilities across the border in Germany. Some information about those births is available from the residence registration, but remains outside official statistics. Similar to cross-border deaths, it is hoped that a solution will be found with the harmonisation of European statistics.

In general, the degree of completeness is high enough to classify Austrian birth statistics as being of high quality.

**Definition of live birth** (see details in the documentation on Austria by Kryštof Zeman from the Human Fertility Database, <http://www.humanfertility.org>):

Different definitions of a live birth applied over the period 1951-2008, but these changes in definition had no appreciable influence on the number and the proportion of live births in the vital statistics and on their distribution by birth order.

Until December 31<sup>st</sup> 1976 a child was recognised as live-born if it showed signs of breathing.

Between January 1<sup>st</sup> 1977 and December 31<sup>st</sup> 1994 a child was recognised as live-born if it registered a heartbeat or breathing or pulsation of the umbilical cord.

Since January 1<sup>st</sup> 1995 the World Health Organization's definition of a live birth has been used. A live birth refers to "the complete expulsion or extraction from the 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—e.g. beating of the heart, pulsation of the umbilical cord or definite movement of voluntary muscles—whether or not the umbilical cord has been cut or the placenta is attached".

## **REVISION HISTORY**

### ***Changes with the September 2015 revision:***

Population counts for 2001 – 2010 were previously based on official postcensal estimates of census 2001. They were replaced by official intercensal estimates calculated after the release of 2011 census.

### ***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](http://v5.mortality.org) but will not be further updated in the future.

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## APPENDIX I:

### DESCRIPTION OF THE ORIGINAL DATA USED FOR HMD CALCULATIONS

#### DEATHS

Period	Type of Data	Age Grouping	Comments	RefCode†
1947-1970	Annual number of deaths by age	0, 1, 2, 3, ..., 109+		1
1970-2014	Annual number of deaths by age and birth cohort (Lexis triangles)	0, 1, 2, 3, ..., maximum age attained		1, 2, 9, 10, 11, 16, 17, 20
2015-2019	Annual number of deaths by age and birth cohort (Lexis triangles)	0, 1, 2, 3, ..., maximum age attained		24, 31

#### POPULATION

Period	Type of Data	Age Grouping	Comments	RefCode†
1947-1951	Annual population estimates (as of July 1 <sup>st</sup> ) by age	0, 1, 2, 3, ....95+		3
1951-1999	Annual population estimates (as of December 31 <sup>st</sup> ) by age	0, 1, 2, 3, ....95+	Estimates for 1981-2005 were recalculated after the 2001 census.	4
2000-2011	Annual population estimates (as of January 1 <sup>st</sup> ) by age	0, 1, 2, 3, ....100+		21
2012-2014	Annual population estimates (as of January 1 <sup>st</sup> ) by age	0, 1, 2, 3, ..., maximum age attained		22
2015-2020	Annual population estimates (as of January 1 <sup>st</sup> ) by age	0, 1, 2, 3, ..., maximum age attained		23, 30



## **BIRTHS BY SEX**

<b>Period</b>	<b>Type of Data</b>	<b>Comments</b>	<b>RefCode†</b>
1871-2019	Annual live birth counts by sex		5, 7, 8, 13, 18, 19, 25, 28

† The reference code is used in the raw data files (Input Database) to link data with sources

## **BIRTHS BY MONTH**

Type of data: Annual live birth counts by month

Period covered: 1914 to 2019

RefCode(s): 26, 27, 29.