ABOUT MORTALITY DATA FOR ENGLAND AND WALES

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GENERAL

The Office for National Statistics (ONS) is the governmental department that provides statistical and registration services. It was established in 1996 as a result of the merger of the Office of Population Censuses and Surveys (OPCS) with the Central Statistical Office.

The Office also incorporates the General Register Office for England and Wales (GRO). The GRO is responsible for ensuring the registration of all births, marriages, and deaths in England and Wales, and for maintaining a central archive dating back to 1837.

Statistical publications are issued by the "Stationery office". Its earlier name was "Her Majesty's Stationery Office".

Vital statistics in England and Wales date back to 1837. The reliability of these statistics increased significantly in 1841 following the population census. Since then, vital statistics have been published annually including a number of demographic data that are considered to be of a good quality worldwide, relative to the historical time period. Vital statistics are available at the national and regional levels.

The first population census was conducted in 1801 but the first modern, good quality census is the one from 1841. Population censuses have been conducted every 10 years since 1801. The only exception was 1941 when the census was not done. The last population census was conducted in April 2001. It is celebrated as the *Census Bi-centenary*.

Source of Data

The mortality data used for the database come primarily from published sources. Publications by the General Register Office/Office of National Statistics (ONS) were the main source. Census counts prior to 1911 come from Mitchell (1994a). Population estimates and deaths counts for the period during world wars were provided by the General Register Office and include only information about the civilian population. For the total population (including military), estimates of population (1912-1920 and 1932-1950) and death counts (1914-1920 and 1939-1950) come from Jdanov et al. (2005). Mid-year population estimates for 1982-2007 are available (from ONS) in two formats: rounded (by thousands) and unrounded. For our calculations, we used the unrounded estimates, but we are not allowed to release these unpublished raw data. Instead, the *raw data* (Input Database) files show the rounded population estimates.

Specific Episodes in the Demographic History of England and Wales

Mortality in England and Wales has been significantly influenced by the two World Wars as well as by the 1918 flu epidemic. Large birth cohorts are notable for a couple of years following the wars. Because this data series includes both civilian and military deaths, the impact of the wars is explicitly evident, particularly during World War I.

TERRITORIAL COVERAGE

There were no territorial changes in England and Wales during the period of reference (1841-2006). Note: Wales was a region of England during the 19th Century.

DEATH COUNT DATA

Coverage and completeness

National death statistics encompass all deaths that occurred in the country, independently of whether the deceased is from the resident population or is a visitor. Deaths of non-residents are not included in sub-national counts. Overseas deaths of nationals are included in the national counts. Death counts during the two world wars include both civilian and military deaths (even if the death occurred abroad).

In England and Wales, deaths are counted in the calendar year during which they occurred. Date of occurrence should be distinguished from date of registration of deaths. In some cases, a coroner has to investigate the cause of death and hence, the registration can be delayed up to several months. Until registration is completed, the death is not counted as having occurred. Hence, the exact number of deaths for the year may not become available until several months after the end of the calendar year. Recently, this period has decreased significantly. Late registration involves a very small number of deaths.

Specific Details

Age-Heaping. Single-year death counts show age heaping effects during the period between the two world wars and during World War I. The age heaping is clearly observed at adult ages, such as 51, 55, 61, and 66. During a sequence of years, the number of deaths at these ages was lower than that observed in the adjacent ages.

POPULATION COUNT DATA

ONS reports annual population numbers for the resident population (i.e., the population residing permanently in England and Wales). Temporary visitors are excluded. These official figures refer to the mid-year population.

The population census counts "everyone" (i.e., the *de facto* population), that is, all people who were in the country at the time of the census.

Specific Details

The quality of international migration statistics has always been a very important issue for population statistics in the UK. Mitchell (1994b) summarized deficiencies of the historical statistics on migration. First, official statistics did not account for all movements between Britain and continental Europe until 1912 at the earliest. Second, until the 1900s, the distinction between citizens and foreign nationals was imperfect. Third, migration via airports was not recorded until the 1950s. Such deficiencies in recording international migration obviously affected the quality of official population estimates. In order to avoid potential biases in the official data, we calculated inter-censal population estimates for the period 1841-1960 according to the HMD methodology.

In 2007, ONS revised previously published population estimates for 2002-2006. The main reason for such revision was a substantial increase in unregistered immigration throughout the period. These revisions included:

- Improving the regional distribution of international in-migrants by using household surveys in combination with the International Passenger Survey (IPS).
- Improving the distribution of international in-migrants at the sub-regional level in England and Wales by replacing the existing intermediate geography, used in a two stage process of estimating local figures, with one that produces more robust estimates.
- Improving the way international out-migrant estimates are distributed between local authorities in each region of England and in Wales by distributing IPS figures to local areas using new factors that reflect propensity to migrate.
- Improving the basis for assumptions about the proportion of people who will not realise their original intentions (i.e., expected length of stay in the destination country) at the time of travel; these are known as migrant switchers and visitor switchers.
- In addition, improvements are being made to the method for estimating the age distribution of migrants to and from local authorities in England and Wales.

Source: ONS, 2007.

Following the adjustment procedures, 28,700 people (over the period 2002-2005) were added to the previously published mid-year population estimates for the period 2002-2005 (ONS, 2007). ONS considers the Labour Force Survey (LFS) (in combination with the International Passenger Survey (IPS)) estimates to be a more reliable source of data on international migration than IPS alone.

BIRTH COUNT DATA

Coverage and Completeness

The definition of a live birth is the internationally accepted one.

The statistical collection of birth counts is similar to that of deaths. National birth statistics encompass all births that occurred in the country, independently of whether the mother is from the resident population or is a visitor. Births to mothers who are non-residents are not included in sub-national counts. Overseas births to mothers who are nationals are included in the national counts.

In England and Wales, births are counted in the calendar year during which they occurred. Date of occurrence should be distinguished from date of registration. By law, a birth must be registered within 42 days. This lag may create some difference between the number of births that occurred and the number registered by the end of a year. The HMD includes the former even if the birth was not registered until the following calendar year.

DATA QUALITY ISSUES

In England and Wales, the official population estimates since 1961 are available by single year of age at the middle of each year. Following the HMD methods protocol, we derive the population size on January 1st by averaging the two adjacent mid-year estimates for each age. Then, in order to calculate period death rates, we must estimate exposure, which approximates the mid-year population.

The user is warned that our exposure estimates may differ from the original mid-year population estimates, and thus, HMD death rates may differ slightly from those published by ONS.

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APPENDIX:

DESCRIPTION OF DATA USED FOR LEXIS DATABASE

DEATHS

Period	Type of Data	Age grouping	RefCode
1841-1909	Annual number of deaths to the *de facto* population, by sex and age groups (nx1 rectangles)	0, 1, 2, 3, 4, 5-9, 10-14, 15-19, 20-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, 85+	02
Males and females: 1910-1913; 1921-1938; 1951-2006 Females only: 1914-1920	Annual number of deaths to the *de facto* population, by sex and age groups (1x1 rectangles)	0, 1, 2, …maximum age attained	03, 04, 05, 13, 14, 18, 19, 20, 21
Males: 1914-1920; 1939-1950 Females: 1939-1950	Annual number of deaths (including military deaths abroad), by sex, age, and year of birth	0, 1, 2, …maximum age attained	98

POPULATION

Period	Type of Data	Age grouping	Comments	RefCode
1841, 1851, 1861, 1871, 1881, 1901, 1951, 1961	Census counts	0,5,10,..,85+	*de facto* population	07, 08
1911, 1921, 1931	Census counts	0, 1, 2, 3, …, 100+	*de facto* population	07
1912-1920, 1932-1950	Annual mid-year population estimates (of permanent residents)	0, 1, 2, 3, …., 90	Estimates during the war time include military persons stationed abroad.	99
1962-2007	Annual mid-year population estimates (of permanent residents)	0,1,2,3,….,90+	The raw data shown in the HMD are rounded to hundreds (RefCode= 11, 16, 23). The original population estimates (RefCode=10, 15, 22) were used for calculations but cannot be released publicly.	09, 10, 15, 22

BIRTHS

Period	Type of Data	RefCode
1841-2006	Annual live birth counts, by sex	12, 17