

ABOUT MORTALITY DATA FOR NORTHERN IRELAND

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The Northern Ireland Statistics and Research Agency (NISRA) is the official statistical organization for this territory of the United Kingdom. We are still working on the *Background and Documentation* file for Northern Ireland. For a description of the original data used to estimate the mortality surface for Ireland, see Appendix 1.

DATA QUALITY ISSUES

The population estimates for the period 1922-1925 are pre-censal population estimates calculated according to the Human Mortality Database (HMD) methodology (assuming zero net-migration).

The population estimates for the period 1938-1950 are inter-censal population estimates calculated according to the HMD methodology, which assumes that net-migration is distributed uniformly over the inter-censal period. This assumption is questionable given the large migration waves and mobilization/demobilization of conscripts before and after the World War II.

During the period 1971-1981, the official population estimates show a notable dip in the number of males at ages 18 and 19 (conscript age) in the official population estimates for the years 1971-1980. A similar, albeit smaller, dip at the same ages can also be observed in the 1981 census counts for males (Appendix 2, Figure 1). This pattern may be related to the exclusion (or at least partial exclusion) of the usual residents who moved to/from the United Kingdom armed forces.

Starting in 1981, the population estimates include movements to/from the armed forces and the changes in the number of the United Kingdom armed forces stationed in Northern Ireland (NISRA, 2008). In addition, the NISRA adjusted these estimates for census under-enumeration. However, during the 1980s and 1990s, some sudden changes are seen in female-male differences in population counts at military ages (e.g., from one year to the next, or from one age to the next).

Therefore, instead of using official population estimates for the period 1971-1980, we produced a new set of inter-censal population estimates based on the HMD methodology. It should be noted that we used the official population estimates for 1981 (which includes the armed forces and adjustments for census undercount) as an artificial census point instead of the 1981 census data. However, even the newly calculated inter-censal population estimates for the 1970s should be used with caution due to large and irregular migration peaks and other data problems related to the political turbulence and armed conflict in Northern Ireland during this period.

The NISRA warns that "users interested in population changes are advised to use the mid-year population estimates, which are designed to measure such changes [definitions and adjustment for under-enumeration]" (NISRA, 2002). The new intercensal population estimates for the period 1922-1980 are calculated using the HMD methodology based on the official census counts 1926-1971 (unadjusted for census undercount) and the official population estimates for 1981. In this way, it was possible to avoid the numerator-denominator bias that would result from calculating death rates based on death counts (which include the military) and official population estimates (which do not include the military). Nonetheless, the resulting population estimates may still underestimate the size of the population (due to census undercount) and thus, overestimate the death rates.

Taking into account the aforementioned data issues, we conclude that the quality of the data for Northern Ireland for 1922-1980 is much lower than for later years and should be used with caution. In particular, the population estimates calculated according to the HMD Methods Protocol for this period do not account for the large and irregular migration during the inter-censal periods and should be used with extra caution.

The population estimates for 2001-2011 are post-censal estimates based on the 2001 census data. During the period 2001-2011 the U.K. experienced large immigration flows which were partly unaccounted for by the official statistics (see *Background and Documentation file for England and Wales Total population*). At the time of the current update, the NISRA and the ONS have not published revised inter-censal population estimates based on the 2011 census.

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REFERENCES

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APPENDIX 1:

DESCRIPTION OF DATA USED FOR LEXIS DATABASE

DEATHS

Period	Type of Data	Age grouping	RefCode
1922-1967	Annual number of deaths to the <i>de facto</i> population, by sex and age groups (<i>nx1</i> rectangles)	0, 1, 2, 3, 4, 5-9, ..., 95+, unknown	9
1968-2011	Annual number of deaths to the <i>de facto</i> population, by sex and age groups (1x1 rectangles)	0, 1, 2, ..., maximum age attained, unknown	10, 11, 17, 18

POPULATION

Period	Type of Data	Age grouping	Comments	RefCode
1926, 1937, 1951, 1961, 1966, 1971	Census counts	1926, 1937, 1961, 1966: 0, 1, 2, 3, 4, ..., 100+, unknown 1951: 0, 1, 2, 3, 4, maximum age attained, unknown 1971: 0, 1, 2, 3, 4, ..., 100+, unknown	<i>de jure</i> (resident) population	2, 3, 4, 5, 6, 7
1981-2011	Annual mid-year population estimates (all permanent residents including armed forces)	0, 1, 2, 3, ..., 85+, unknown	<i>de jure</i> (resident) population including adjustments for the armed forces and census undercount	1, 13, 16, 20

BIRTHS

Period	Type of Data	RefCode
1922-2011	Annual live birth counts, by sex	8, 14, 15, 19

APPENDIX 2:

Figure 1. Official census and estimated male population counts by age in 1971, 1972, 1980, and 1981.

