Stats NZ
Tatauranga Aotearoa

New Zealand Cohort Life Tables

New Zealand Government

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New Zealand Cohort Life Tables

Abstract

Cohort (or generation) life tables relate to the mortality experience of a designated group (eg persons born in a given year) over their lifetime. These complement the more common period life tables which show the mortality experience in a specific time period.

Complete cohort life tables at the national level have been constructed which track the mortality experience of the New Zealand population born in each year from 1876.

Cohort life tables are rarely constructed because of the difficulties in obtaining appropriate historical data over many years. However, New Zealand is one of few countries with relatively complete and detailed demographic data sources back to the late 1800s. This has enabled the painstaking compilation of detailed historical birth, death and migration data to produce life tables for each birth cohort (people born in each year) from 1876.

Purpose

Life tables use information about age-sex-specific mortality rates to determine patterns of survivorship and life expectancy. In addition, life tables also provide other indicators describing the mortality within a population during a given period of time: death probabilities, survival probabilities, survivors at specific ages and years of life lived.

Life tables are widely used for descriptive and analytical purposes in demography, public health, epidemiology, population geography, biology and many other branches of science. For example, life tables are widely used for the purpose of calculating premiums for life insurance and annuities.

Population

New Zealand Cohort Life Tables Population

The subject population for this study is all people in New Zealand . The population denominators for the study were derived solely from the components of population change (estimated births, deaths, and external migration). The population ‘exposed to risk’, or the population denominator, is defined as the mean annual population of each birth cohort in New Zealand.

Significant events impacting this study series

1996

Population concept used in the calculation of mortality rates changed from 'de facto' to 'resident'.

The population concept used for population estimates and projections changed from de facto to resident.

• The de facto population includes all persons in New Zealand at a given time. It includes overseas visitors, but excludes residents temporarily overseas and net census undercount.
• The estimated resident population includes the estimated net census undercount and the estimated number of residents temporarily absent overseas, but does not include overseas visitors.
Resident population estimates do not show the quarterly fluctuations that de facto estimates are subject to because of seasonal changes in the numbers of overseas visitors temporarily in New Zealand, and changes in the numbers of New Zealand residents temporarily out of New Zealand.

Under-registration of neonatal deaths

In 2014 we introduced adjustments to the cohort life tables for unregistered neonatal deaths, this is in addition to the adjustments documented in 'A History of Survival in New Zealand' (see http://www.stats.govt.nz/browse_for_stats/health/life_expectancy/history-of-nz-survival.aspx). The adjustment for unregistered neonatal deaths has been made for birth cohorts from 1945, based on information from the Ministry of Health:

• For birth cohorts 1945-87, the adjustment is a 1.3 percent increase on previous estimates of infant deaths. This equates to an average increase of 8 male and 6 female infant deaths for each birth cohort, and a maximum increase of 12 male and 9 female infant deaths (for the 1946 and 1949 birth cohorts respectively).
• For birth cohorts 1988 onwards, the adjustment is based on annual infant deaths data supplied by the Ministry of Health. This equates to an average increase of 6 male and 4 female infant deaths for each birth cohort, and a maximum increase of 17 male and 9 female infant deaths (for the 2003 cohort).
As most of these unregistered neonatal deaths are early neonatal deaths (ie occurring within one week of birth), the birth is also assumed to have been unregistered. A corresponding adjustment is made for estimated births occurring in 1945-97. For births occurring in 1998 onwards, the estimated births already includes an allowance for unregistered births (based on annual birth notifications data supplied by the Department of Internal Affairs).

Usage and limitations of the data

Users of the cohort life tables should note the following:

The derivation of the cohort life tables required the application of various data estimations and assumptions.

The mortality history of each birth cohort has been built up from births, deaths, and migration data which vary in coverage and completeness over time. Care should be exercised when interpreting the cohort mortality tables to avoid over-precise comparisons, especially between adjacent birth cohorts and at the oldest ages where the cohort populations are small. The cohort mortality results are subject to ongoing revision as additional births, deaths, and migration data becomes available.

The births and deaths data presented in this cohort mortality study will differ from that used in other fertility and mortality statistics.

The study is based on all (live) births and deaths occurring in New Zealand according to the year they occurred, in addition to war deaths occurring outside of New Zealand. The population denominators for the study were derived solely from the components of population change (estimated births, deaths, and external migration). In contrast, other fertility and mortality statistics (eg annual fertility rates, period life tables) are based on (live) births and deaths occurring in New Zealand according to the year they were registered.

Since 1991, the published statistics have also excluded events to people visiting from overseas. The population denominators for those statistics are derived from census counts.

The projection of cohort death rates at ages above 74 years is designed to extend the mortality analysis for cohorts who have not yet completed their life span. By this extension, 1940 is the latest birth cohort for whom life expectancy can be calculated. In presenting the results of cohort life tables, projected life table data are distinguished from historical data by the use of italics in tables and dashed lines in figures.

Main users of the data

• Statistics New Zealand
• Insurance and Actuarial companies
• Ministry of Health
• Health planners
• Social researchers

Frequency

• Annual

Related Materials

Other

- Cohort life tables
- A History of Survival in New Zealand: Cohort life tables 1876–2004

Variables