

Estimation of the Life Expectancy at Birth for the Non-Aboriginal Population in the Territories Combined in Canada, 2002-2004

by
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Abstract

This paper aims to describe the data sources, and methods for developing life expectancy at birth by sex for the non-Aboriginal population in the territories in Canada for the period ,2002-2004. Using a smaller number of total deaths and population for the non-Aboriginal population in the territories combined, the abridged life tables by sex were constructed using the U.S. Bureau of Census method, ADJMX. The estimated life expectancy at birth for the non-Aboriginal population was 79.00 years for males and 82.48 years for females. These data were comparable to those obtained from the Chiang method, 79.03 years for males and 82.50 years for females. These estimates were validated with other populations : 71.9 for males and 76.4 for females for the territorial population, 69.1 for males and 74.0 for females for the Aboriginal population in the territories, and 77.4 for males and 82.4 for females for the total Canadian population..

Extended Abstract

1. Introduction

In 2005, Demography Division , Statistics Canada developed the estimates of life expectancy at birth by sex for the non-aboriginal population in the three Canadian territories(North-west territory, Yukon and Nunavut). These estimates were provided to the Corporate Information Management Directorate, Ministry of Indian and Northern Affairs Canada. for developing population projections. This paper aims to describe the data sources, and methods for developing life expectancy at birth by sex for the non-Aboriginal population in the territories in Canada for the period ,2002-2004.

2. Data Sources and Methods for Constructing Abridged Life Table

We collected the following data from the sources listed below:

d₁: number of deaths of total population by sex for the territories from the Vital Statistics, Health Division, Statistics Canada for the following calendar years (January to December), 2002, 2003, 2004;

d₂: projected number of deaths of three Aboriginal identity groups by sex for the territories combined for the census years (July to June), 2001-2002, 2002-2003,2003-

2004, from the medium scenario published in the recent projections of Aboriginal population, 2001-2017 (Statistics Canada, 2005, cat. 91-547-X);

d_3 : number of deaths of total population by age group and sex for Canada for calendar years, 2002, 2003 and 2004 from the Vital Statistics, Health Division, Statistics Canada;

P_1 : post-censal estimates of population by age group and sex for the Territories combined for the 2003 from Demography Division, Statistics Canada

P_2 : Projected Aboriginal population in the Territories combined by age group and sex, 2003 from Demography Division, Statistics Canada

P_3 : post-censal estimates of population by age group and sex for Canada for the census year, 2003 from Demography Division, Statistics Canada;

Exp.: Life expectancy at birth for Canada as a whole for the years, 2001 and 2003 (estimated)

Age group: 0, 1-4, 5-9, ...85+ yrs. Sex: male, female

Death data for the census year (July to June) were converted into the calendar year (2002) by taking the average number of deaths for the two consecutive census years, 2001-2002 and 2002-2003.

The data on deaths for the non-Aboriginal population in the territories for each calendar year were obtained by subtracting the number of deaths for the Aboriginal population from the total deaths for the territories.

We calculated the central death rates by age group and sex for Canada as a whole for the periods, 2002 to 2004 using this formula:

M_x = Central death rates by age group = average number of deaths by age group for three calendar years/ Mid -year population by age group

Appendix I, Table 1 will show the necessary input data for the territories combined and Canada.

The abridged life tables for male and female for the non-Aboriginal population in the territories combined were constructed using the U.S. Bureau of Census method, ADJMX (www.Census.gov/ipc/www/pas.html). This method was evaluated and found to be suitable for estimating an approximate life expectancy at the provincial level in Canada (Kouaouci, Robitaille, and Guimond, 2005), but they have found that the method is not suitable to estimate a series of death rates, as claimed by the U.S. Bureau of the Census. For the non-Aboriginal population in the territories combined, the problem of quality of death rates by age is highly problematic due to small number of deaths. The advantage of this method is that it requires few input data such as the total number of deaths by sex, and population by age and sex desired for the study population and the central death rates by age and sex for the standard population. For this study, we have taken the total Canadian population as the standard population for constructing life tables for the territories combined.

Appendix I, Tables 2.1, 2.2 will show the values of abridged life tables for men and women for the non-Aboriginal population in the territories combined for the period, 2002 to 2004.

3. *Estimated Life Expectancy at Birth for the Year 2003*

In Table 1, the 2003 estimated life expectancies at birth by sex for the territories combined were compared with some alternative estimates of life expectancy at birth derived from the Chiang method and other populations.

First, we compared them with the life expectancy at birth from the 2003 life table for the Yukon Territory, because about 76% of the total population in 2001 was the non-Aboriginal population in this territory. The life expectancy at birth in 2003 for the total population in the Yukon territory was 75.5 years for males and 83.1 for females. It is observed that the preliminary estimates of life expectancy at birth for the non-Aboriginal population in the territories combined for the year 2003 are higher than those for the Yukon territorial total population, total population and the Aboriginal population in the combined territories. Such a higher pattern of the differentials in life expectancy at birth for the non-Aboriginal population in the territories combined is expected, as their demographic and socio-economic characteristics are relatively higher than those for the territorial total population and the Aboriginal population. (**This part will be extended later on**).

Second, we computed the estimates of life expectancy at birth using the Chiang method and the 95% confidence limits. This method was used for estimating life expectancies at birth and the confidence limits for the Registered Indians in Canada (Verma, et al. 2004). In Table 1, it is seen that the preliminary estimates of life expectancy at birth by sex for the territories combined for the year 2003 seem to be comparable for those estimated by the Chiang method. For men, the estimated level of life expectancy at birth using the Chiang method for the non-Aboriginal population in the territories combined was calculated at 79.03 years with the 95 % confidence limits between 76.00 and 82.06 years. For women, the estimated life expectancy at birth by the Chiang method was observed at 82.50 with the 95% confidence limits between 79.67 and 85.34 years.

4. **Concluding Remarks**

Regardless of the method, the U.S. Bureau method or the Chiang method, the preliminary estimates of life expectancy at birth by the U.S. Bureau method (ADJMX) seem to be satisfactory for understanding the level of health status of the non-Aboriginal population in the territories combined for the year 2003.

Notwithstanding the above conclusion, the estimates of life expectancy at birth for the non-Aboriginal population in the territories combined are subject to some limitations. These limitations are determined mostly by the quantity and quality of deaths and population by age group. In particular, the estimated number of deaths among the non-Aboriginal population in the territories combined for the year 2003 was very small. However, the life tables prepared using the U.S. method are the most comprehensive assessment of mortality levels among the non-Aboriginal population in the territories combined in Canada.

References

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Table 1
Comparison of the preliminary estimates of life expectancy at birth by sex for non-Aboriginal population in the Territories combined with their alternative estimates, 2003

| | Territories combined | | | | Total Canada | |
|--|-----------------------------|-------------|-----------------------|-------------|---------------------|---------|
| | Territorial population | | Aboriginal population | | Canadian population | |
| | Males | Females | Males | Females | Males | Females |
| Life expectancy at birth | 71.93 | 76.43 | 69.05 | 74.04 | 77.4 | 82.4 |
| Preliminary estimates of non-Aboriginal population | | | | | | |
| | U.S. Bureau Method | | Chiang Method | | | |
| | Males | Females | Males | Females | | |
| Life expectancy at birth | 79.00 | 82.48 | 79.03 | 82.50 | | |
| 95% Confidence limits of life expectancy estimated by the Chiang method | | | | | | |
| | Male | | Female | | | |
| | Lower limit | Upper Limit | Lower limit | Upper Limit | | |
| Life expectancy at birth | 76.00 | 82.06 | 79.67 | 85.34 | | |