# Canada Pension Plan Mortality Study

ACTUARIAL STUDY NO. 3

Office of the Chief Actuary

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# FOREWORD

Worldwide, the 20th century brought tremendous gains in life expectancies. In 1900, roughly 75% of the Canadian population died before reaching age 65; today, 70% of the population dies after age 65. Over the last century life expectancy at birth increased by an estimated 27 years with the rate of change diminishing as the century progressed. Most experts agree that the rapid increase in life expectancy of the 20th century will not continue. Future increases in life expectancy will have to take place at older ages as younger ages have already experienced most of the improvement they are likely to see.

However, major medical discoveries have recently been made and will continue to be made in this century. Dr. Francis Collins, director of the National Human Genome Research Institute in the United States, has predicted, " By 2030, major genes responsible for the aging process in humans will likely have been identified, and clinical trials with drugs to retard the process may well be getting underway," but a great deal of research remains to be done on the aging process. Aging research receives only a small portion of the biomedical research budget (Hayflick, 2001) and our knowledge of the aging process is about where electronics was just after the discovery of the transistor (Held, 2002). We know a lot about the signs of aging and its consequences but we know little of what is really causing us to age. If we want to increase our life expectancy beyond the additional 15 years that could be gained by eliminating the three leading causes of death today, we will need to put more efforts and resources into aging research.

The maximum human life span of about 125 years has remained practically unchanged for the past 100,000 years (Hayflick, 1996, 1998). We observe an ever-increasing number of people reaching age 100 but we are still far from reaching a life expectancy at birth of 100 years.

Even if we were to win all the medical battles over diseases and aging, one of the most overlooked considerations when studying the demography of the future remains the socio-economic impacts of aging. Current and future trends in mortality will have major impacts on our everyday living and will create new challenges worldwide. Social and health care programs as well as the economy will be affected by these trends.

This study presents an overview of historical and future mortality trends in Canada and their impact on the Canada Pension Plan.

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# I. Executive Summary

## A. Purpose of Study

This is the first Canada Pension Plan (CPP) mortality study published by the Office of the Chief Actuary (OCA). It presents an overview of Canadian population mortality over the last century as well as the results of a mortality study of CPP retirement and survivor beneficiaries. The results of the study are compared with the most recent Life Tables for Canada (LTC 1995-1997), as published by Statistics Canada.

OCA will use this study as an instrument to assess the mortality of the Canadian population and of CPP and Old Age Security (OAS) beneficiaries when producing its next triennial Actuarial Report on each plan.

## B. Scope of Study

This document presents the results of mortality studies of:

- The general population;
- CPP retirement beneficiaries; and
- CPP survivor beneficiaries.

The first section provides an overview of the mortality of the Canadian population over the period 1921-1996 while the other three sections deal with CPP and OAS beneficiary mortality.

## C. Main Findings

*General Population*

- The increase in life expectancy was quite rapid in the first 70 years of the 20th century. Mortality improvements have slowed down since the 1970s, more so for females than for males. Because of this, there has been a narrowing of the gap between male and female mortality.
- The maximum age to which we can live (maximum life span) has not significantly increased over the years. One reason is that most of the observed mortality improvements have occurred at ages 90 and below.
- The biggest contributions to the increase in life expectancy at birth have come from age groups below age 15. Mortality improvements at these ages account for about half of the observed increase in life expectancy at birth.
- A life expectancy at birth of 100 years is practically impossible in the next half century unless there are dramatic medical and scientific breakthroughs. It would require sustained mortality improvements at a level about three times what has been observed over the last 10 years.

- Alternatively, assuming a maximum human life span of about 145 years (a 35-year increase if one assumes a current maximum of 110) could result in a life expectancy at birth of 100 years.

*Mortality Projections in CPP Context*

- Based on the assumptions of the Eighteenth CPP Actuarial Report, life expectancy at birth for Canada is expected to increase from 76.2 years in 2000 to 82.0 in 2075 for males and from 81.6 years to 85.8 years for females. Accordingly, the gap between males and females would narrow from the current 5.4 years to only 3.8 years by 2075.
- The probability of a newborn reaching age 18, the starting age for the CPP, is already high and future improvements will only slightly increase that probability.
- The probability of a contributor age 18 reaching the normal retirement age of 65 is also expected to increase. The probability of a male age 18 reaching age 65 is expected to increase from 84.1% in 2000 to 90.8% by 2075; the corresponding figures for a female are 90.4% and 93.8%, respectively.
- CPP beneficiaries are expected to live longer. Life expectancy at age 65 for males is projected to increase from the current 16.7 years to 20.4 years by 2075 and from 20.2 years to 23.2 years for females.

*CPP Retirement Beneficiaries*

- For ages 60 to 64, retirement beneficiary mortality rates are significantly lower than the rates for the general population. This is mainly due to the fact that CPP disability beneficiaries at those ages are not classed as retirement beneficiaries.
- Female retirement beneficiary mortality rates after age 65 are significantly lower than the rates for the general population with the gap being about 11% at age 66 but reducing steadily thereafter and ultimately disappearing.
- Male retirement beneficiary mortality rates after age 65 are close to the general population rates, being only about 2% higher at age 66. The differential narrows as age increases and ultimately disappears.
- By level of retirement pension, female mortality rates are generally lower than for the general population except for the lowest level (i.e. less than 25% of the CPP maximum), where mortality at ages 66 and over is up to 8% higher.
- By level of retirement pension, male mortality rates are lower than for the general population only at the highest level (i.e. 75-100% of the CPP maximum), and even at that level there are some ages where this does not hold.

*CPP Surviving Beneficiaries*

- Survivor beneficiary mortality rates are significantly higher than the rates for the general population, especially at ages 40 and over where female rates are about 10% to 30% higher and male mortality rates are 10% to 15% higher. The excess mortality decreases with age and vanishes by age 83 for females but only at the end of the life table for males.

## D. General Conclusions

Major medical advances and improvements in the quality and standard of living in the 20th century increased our life expectancy at birth by almost 30 years. However, a great deal of medical research is still required to increase life expectancy even further. One proof is that mortality improvements have recently shown signs of slowing down. The greater slowdown in mortality improvements for females in recent years has narrowed the gender gap in mortality.

Future mortality improvements are expected to come more slowly and at older ages, as mortality rates at younger ages are already very low. In the context of the Canada Pension Plan, more and more contributors are expected to reach the normal retirement age of 65 and receive a pension. Retirement beneficiaries are also expected to receive their benefit for a longer period (about three years more by 2050).

The results of this study show that the higher the CPP retirement pension, the lower the mortality. Retirement beneficiary mortality rates at ages 60 to 64 are low because they are not affected by the higher mortality of disability beneficiaries who convert to a retirement pension at age 65. However, beneficiaries between the ages of 60 and 64 with small retirement pensions have an elevated mortality risk comparable to that which would be observed if disability beneficiaries were part of the exposure at these ages.

CPP survivor beneficiary mortality rates are significantly higher than the general population mortality rates except at the higher ages (83+), where survivor mortality rates gradually decrease to reach the general population mortality rates.

# II. Canadian Mortality Trends

## A. Introduction

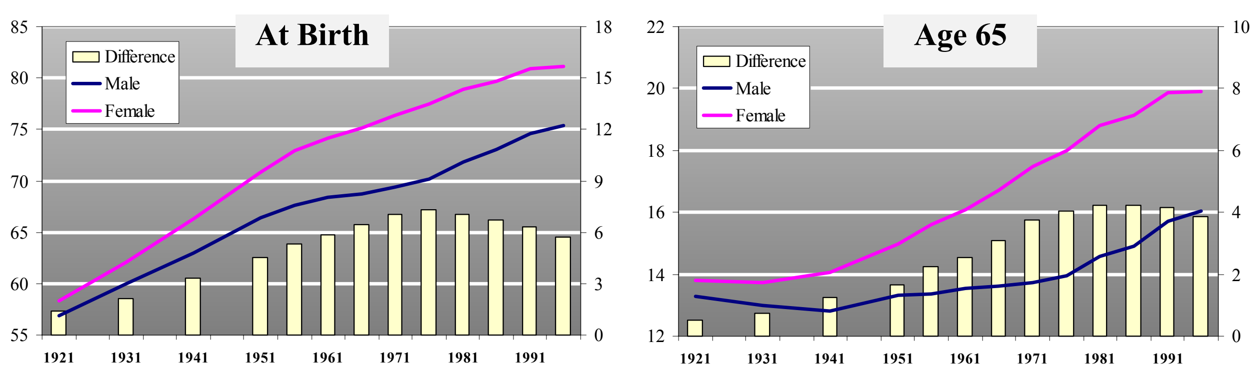
Like the rest of the industrialized countries around the world, Canada has seen significant improvements in life expectancy over the last century. Improvements in the standard of living and in working conditions, implementation of good health care programs and tremendous gains in the medical domain have all contributed to an increase in life expectancy. The next sections will look at historical trends in life expectancy and mortality improvements.

## B. Historical Canadian Mortality

Chart 1 and Table 1 show the evolution of Canadian life expectancy at birth and at age 65 from 1921 to 1996 using the Life Tables for Canada (LTC), as published by Statistics Canada.

In the last-century, most of the increases in life expectancy at birth have occurred before 1970. Since the early 1970s life expectancy at birth has increased by 6 years, which is much less than the estimated 21-year increase experienced from 1900 to 1970. Note that this pattern is not always observed in other countries; for example, Japan did not experience a similar slowdown in life expectancy gains (Robine and Vaupel, 2002).

**Chart 1 Life expectancies since 1921**




From 1921 to the early 1970s, mortality was affected by two world wars; this may be one of the reasons why the gap between male and female life expectancy increased over that period. Since then, male longevity has been catching up to female longevity. Increases in life expectancy at age 65 for males were relatively small over the first 70 years of the 20th century, increasing by about half a year as compared to almost four years for females. Since the early 1970s, male and female life expectancy at age 65 has increased by about two and a half years to 16.0 and 19.9 years for males and females respectively.

**Table 1 Life Expectancies since 1921**

| | Life Expectancy at Birth | | | Life Expectancy at Age 65 | | |
|---|---|---|---|---|---|---|
| **Year** | **Male** | **Female** | **Difference** | **Male** | **Female** | **Difference** |
| **1921** | 56.9 | 58.3 | 1.4 | 13.3 | 13.8 | 0.5 |
| **1931** | 60.0 | 62.1 | 2.1 | 13.0 | 13.7 | 0.7 |
| **1941** | 63.0 | 66.3 | 3.3 | 12.8 | 14.1 | 1.3 |
| **1951** | 66.4 | 70.8 | 4.4 | 13.3 | 15.0 | 1.7 |
| **1956** | 67.6 | 72.9 | 5.3 | 13.4 | 15.6 | 2.2 |
| **1961** | 68.4 | 74.2 | 5.8 | 13.5 | 16.1 | 2.6 |
| **1966** | 68.8 | 75.2 | 6.4 | 13.6 | 16.7 | 3.1 |
| **1971** | 69.4 | 76.4 | 7.0 | 13.7 | 17.5 | 3.8 |
| **1976** | 70.2 | 77.5 | 7.3 | 14.0 | 18.0 | 4.0 |
| **1981** | 71.9 | 78.9 | 7.0 | 14.6 | 18.8 | 4.2 |
| **1986** | 73.0 | 79.7 | 6.7 | 14.9 | 19.1 | 4.2 |
| **1991** | 74.6 | 80.9 | 6.3 | 15.7 | 19.9 | 4.2 |
| **1996** | 75.4 | 81.2 | 5.8 | 16.0 | 19.9 | 3.9 |

Even though life expectancy increased considerably over the last century, the maximum age to which we can live has not improved much for centuries. Increasing life expectancy through medical discoveries and a better standard of living cannot do much for the fact that with time the human body is continuously aging.

Chart 2 demonstrates the results of that lack of knowledge of the aging process. It shows the population survival curves (probability for a newborn to survive to a given age) based on the LTC mortality rates for 1921, 1941, 1961, 1981 and 1996. The "squaring" of the survival curve can be explained by the increase in life expectancy while the maximum age to which we can live is assumed to remain constant at 110 years.

**Chart 2 Survival Curves since 1921**

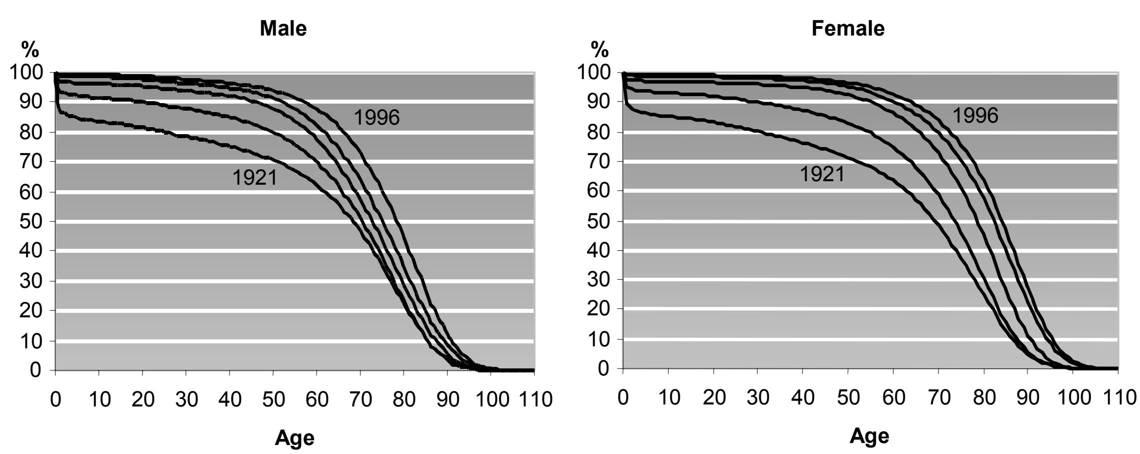
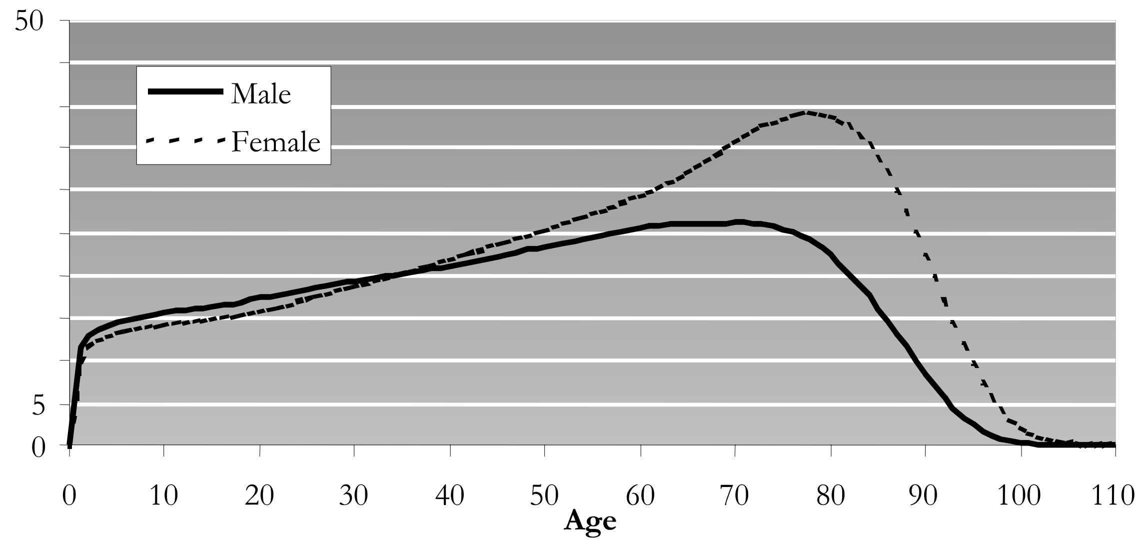


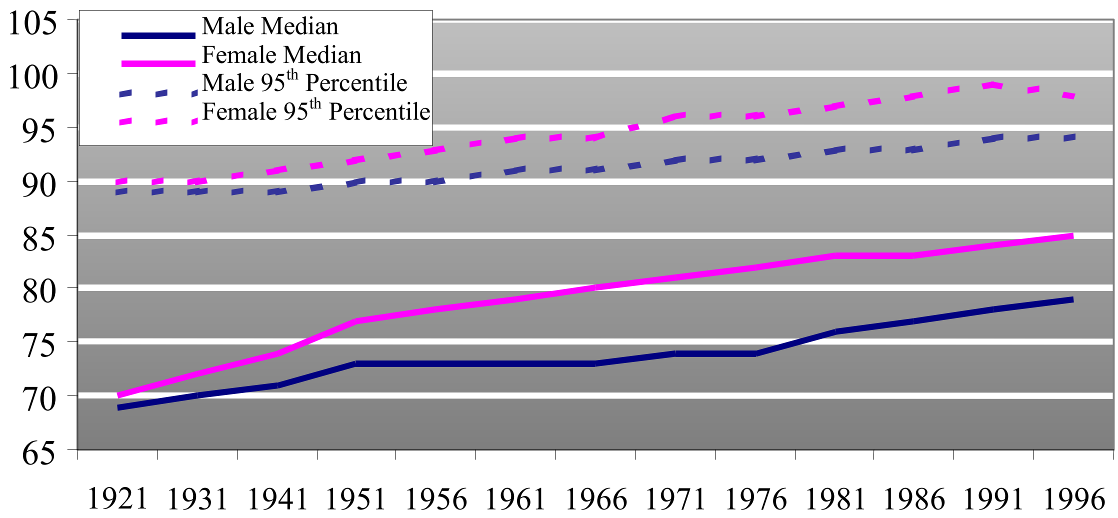
Chart 3 shows the differences in survival curves by gender between 1921 and 1996. For females the maximum difference is at about age 80, age reached by 70% of women in 1996 but only 30% in 1921. The maximum difference for males is between age 65 and age 75 which were reached by about 70% of men in 1996 and 45% in 1921.

**Chart 3 Differences between 1921 and 1996 Survival Curves**




Most of the historical mortality improvements have occurred at ages below 90. One consequence of the squaring of the survival curve is that more people are now surviving to older ages. In 1921 a male newborn had a 56% probability of reaching age 65 while a female newborn had a 57% probability; by 1996 those probabilities had risen to 82% and 90%, respectively. Furthermore, in 1921 a cohort of newborns would have lost half of its members by age 69 for males and by age 70 for females (see Chart 4). In 1996 the age by which half of the cohort of newborns has died is 79 for males and 85 for females, an increase of 9 and 15 years respectively. Chart 4 also shows similar statistics for the 95$^{th}$ percentile, i.e. the age by which 95% of the cohort has died. In this case the age at death increased by only 5 years (from 89 to 94) for males and by only 9 years (from 90 to 99) for females.

**Chart 4 Median Age at Death**




## C. Historical Mortality Improvements

It is instructive to look at the pattern of mortality improvement by age group and sex. Accordingly this section presents the historical mortality improvements for different age groups and time periods, based on various sources of data. We define the annual mortality improvement rates as the ratio of mortality rates over a one-year period. The three sources of data used to determine the average annual mortality improvements are:

- Life Tables for Canada (LTC), published by Statistics Canada;
- Central death rates (ratio of calendar year deaths to July 1st population); and
- CPP retirement beneficiary mortality experience.

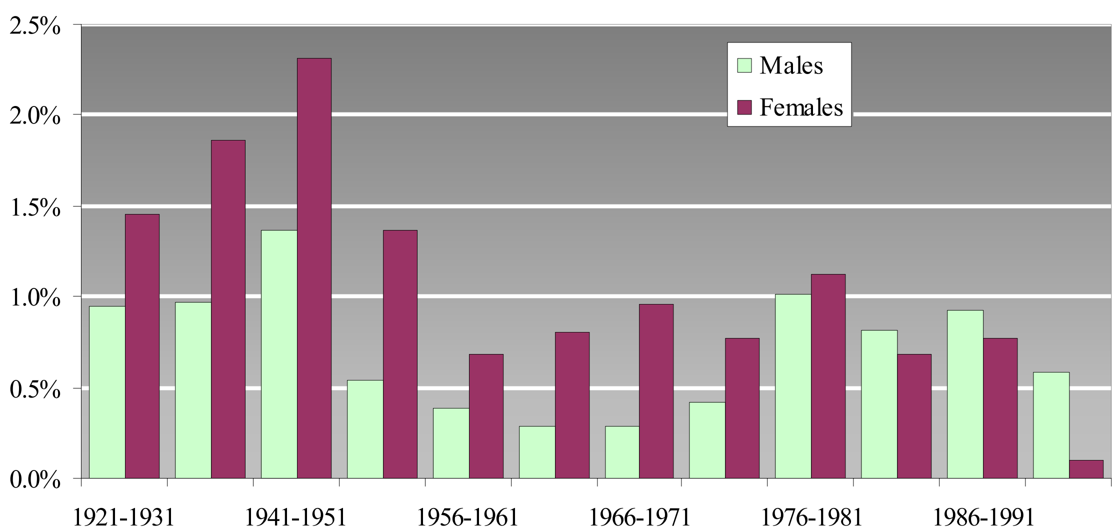
The LTC-based Table 2 and Chart 5 provide an overview of the average annual population-weighted mortality improvement rates in Canada for various subperiods over the 75 years ended in 1996. Average annual mortality improvement rates for males increased over the first 50 years, they then declined to reach a minimum in the first part of the 60s. They then increased again over the next 15 years but started to decline again over the last 20 years. In fact, mortality improvement rates of females are now lower than for males. This helps explain the recent narrowing of the gap in life expectancy between males and females (see Chart 1 and Table 1).

**Table 2 Average Annual Population-Weighted Mortality Improvement Rates**

| Period | Male | | Female | |
|---|---|---|---|---|
| | 0-89 | All | 0-89 | All |
| | % | % | % | % |
| **1921-1931** | 1.08 | 0.95 | 1.52 | 1.45 |
| **1931-1941** | 0.99 | 0.97 | 1.95 | 1.87 |
| **1941-1951** | 1.38 | 1.36 | 2.42 | 2.31 |
| **1951-1956** | 0.57 | 0.54 | 1.32 | 1.36 |
| **1956-1961** | 0.40 | 0.39 | 0.93 | 0.68 |
| **1961-1966** | 0.21 | 0.29 | 0.82 | 0.80 |
| **1966-1971** | 0.31 | 0.29 | 0.94 | 0.96 |
| **1971-1976** | 0.44 | 0.42 | 0.84 | 0.77 |
| **1976-1981** | 1.00 | 1.01 | 1.11 | 1.13 |
| **1981-1986** | 0.87 | 0.82 | 0.76 | 0.69 |
| **1986-1991** | 0.95 | 0.93 | 0.78 | 0.77 |
| **1991-1996** | 0.65 | 0.58 | 0.21 | 0.10 |

*Note: Each rate was obtained by comparing the crude death rates (total annual deaths as a proportion of the population) at the beginning and the ending of the subperiod, assuming that the beginning population remained unchanged throughout the subperiod.*

**Chart 5 Average Annual Population-Weighted Mortality Improvement Rates**




*Note: see note to Table 2.*

Table 3 presents average annual mortality improvement rates over the period 1986-1996 by source of data. It shows that over the last ten years mortality improvements of males have been generally stronger than for females, the notable exception being at ages 30 to 44. Table 3 shows that the different sources of data produced relatively similar patterns.

**Table 3 Average Annual Mortality Improvement Rates (1986-1996)**

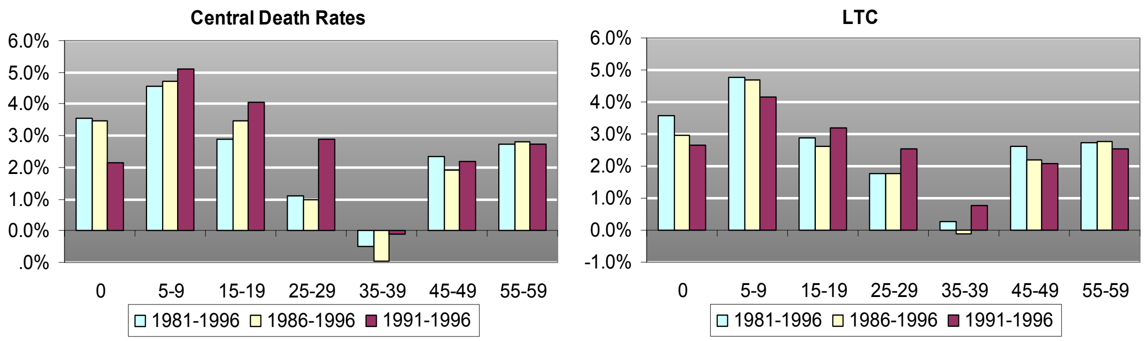
| | Male | | | Female | | |
|---|---|---|---|---|---|---|
| **Age Group** | **LTC** | **Central Death Rates** | **CPP Retirement** | **LTC** | **Central Death Rates** | **CPP Retirement** |
| | (%) | (%) | (%) | (%) | (%) | (%) |
| **0** | 2.98 | 3.47 | - | 2.54 | 2.90 | - |
| **1-4** | 4.32 | 4.56 | - | 3.55 | 4.83 | - |
| **5-9** | 4.70 | 4.70 | - | 2.78 | 2.63 | - |
| **10-14** | 3.17 | 3.74 | - | 1.61 | 1.29 | - |
| **15-19** | 2.62 | 3.48 | - | 1.54 | 1.80 | - |
| **20-24** | 1.86 | 2.36 | - | 1.50 | 1.67 | - |
| **25-29** | 1.76 | 0.98 | - | 1.07 | 0.99 | - |
| **30-34** | 0.31 | -0.26 | - | 0.90 | 0.77 | - |
| **35-39** | -0.13 | -0.97 | - | 0.74 | 0.44 | - |
| **40-44** | 0.74 | -0.11 | - | 1.28 | 1.06 | - |
| **45-49** | 2.21 | 1.92 | - | 1.85 | 1.77 | - |
| **50-54** | 2.55 | 2.47 | - | 1.92 | 1.85 | - |
| **55-59** | 2.78 | 2.82 | - | 1.33 | 1.07 | - |
| **60-64** | 2.41 | 2.65 | - | 1.32 | 1.43 | - |
| **65-69** | 2.03 | 2.10 | 1.76 | 1.17 | 1.14 | 0.84 |
| **70-74** | 1.70 | 1.82 | 1.22 | 1.17 | 1.27 | 0.64 |
| **75-79** | 1.35 | 1.58 | 1.15 | 1.03 | 1.07 | 0.43 |
| **80-84** | 0.77 | 0.92 | 0.42 | 0.64 | 0.84 | 0.09 |
| **85-89** | 0.32 | 0.23 | -0.37 | 0.32 | 0.42 | -0.72 |

Charts 6 through 10 reveal that the slowdown in average annual mortality improvement rates, for age above 45, is more pronounced for females than for males. In the last five to ten years, females have even experienced mortality deterioration (negative improvements) at very old ages (85+, Charts 9 and 10). It is worth noting that mortality rates at the very old ages in Canada have been the source of many discussions and that quality and reliability of the data is considered by many to be questionable (Kannisto, 1994).

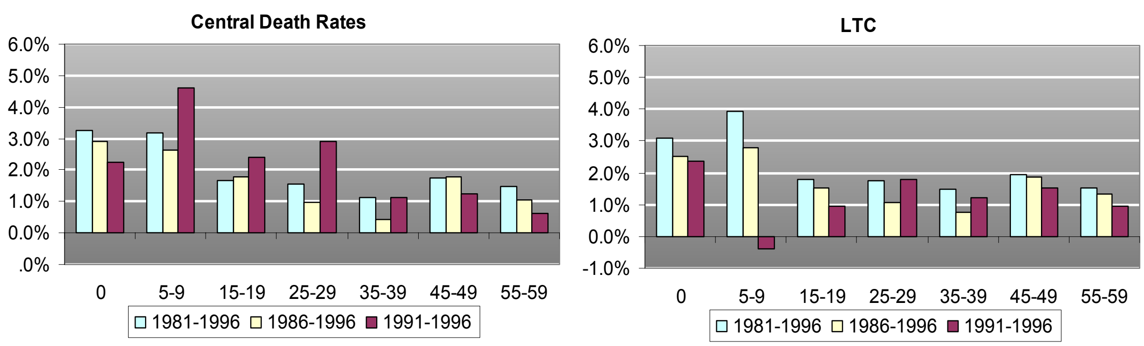
The charts also reveal that annual mortality improvement rates reduce with age, i.e. the older the age group the lower the mortality improvements. This is probably a sign that diseases affecting younger ages are easier to overcome than those affecting old age, where there is still much to be learned. The historic increases in life expectancy are mostly due to medical battles that were won at ages under 10. The struggle to eradicate the main diseases at the older ages is tougher and will take more time. This could explain the decrease in mortality improvement in the last five years (1991-1996) as compared to the last 10 or 15 years. Because aging is a natural process, that is inevitable and makes humans more prone to diseases, the medical advances at older ages will come more slowly and at greater expense and effort.

Biomedical technologies are still in their infancies today; this could explain the slow mortality improvements at older ages. The improvements already made at older ages mostly come from improvements in quality of living and improved working environment and conditions.

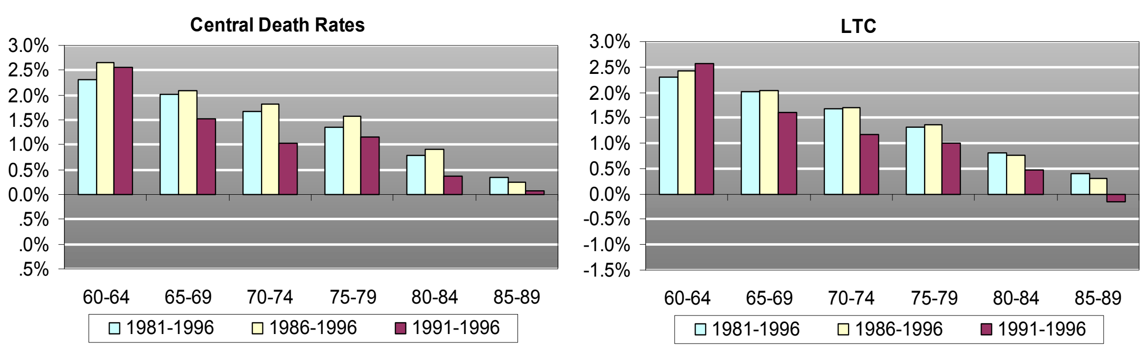
## Chart 6 Average Annual Mortality Improvement Rates (Males 0-59)




## Chart 7 Average Annual Mortality Improvement Rates (Females 0-59)




## Chart 8 Average Annual Mortality Improvement Rates (Males 60-89)




## Chart 9 Average Annual Mortality Improvement Rates (Females 60-89)

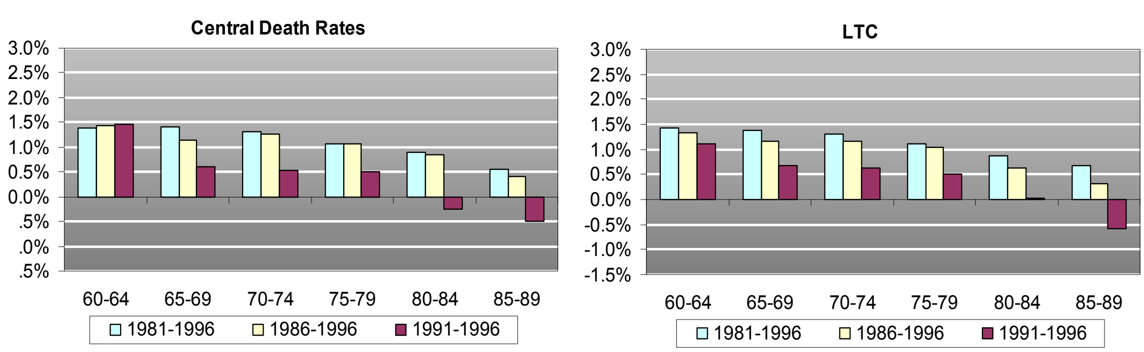
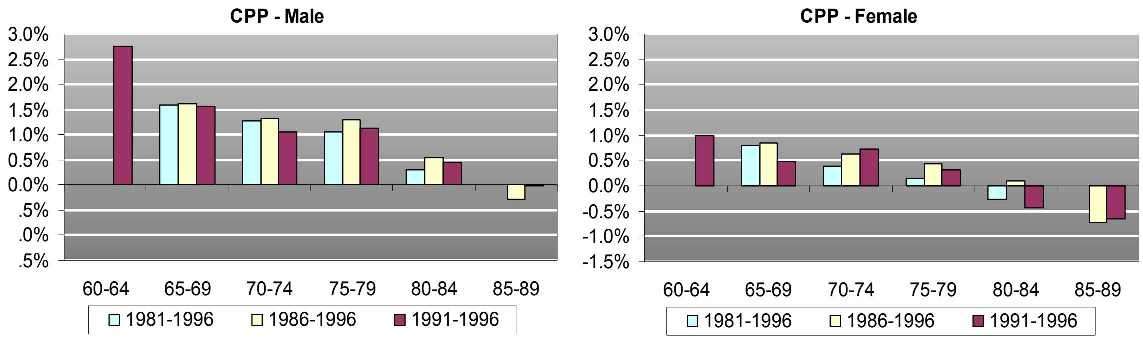


**Chart 10 Average Annual Mortality Improvement rates (CPP Experience)**




It is interesting to look at the historical contribution of the different age groups to the overall increase in life expectancy at birth. Tables 4 and 5 show the ages that contributed the most to the life expectancy increase, based on the methodology of D.M. Cutler (Cutler et al, 2001). Also shown is the projected contribution of each age group based on the Eighteenth CPP Actuarial Report mortality assumption.

**Table 4 Contribution to Increase in Life Expectancy at Birth by Age Group (Males)**

| Change attributable to | 1900-1940 | 1940-1980 | 1980-2000[1] | 2000-2020[1] | 2020-2060[1] |
|---|---|---|---|---|---|
| **Infant mortality (<1)** | 7.8 | 3.4 | 0.4 | 0.2 | 0.1 |
| **Child mortality (1-14)** | 3.0 | 1.5 | 0.2 | 0.1 | 0.0 |
| **Young adult mortality (15-44)** | 1.6 | 1.4 | 0.6 | 0.3 | 0.3 |
| **Older adult mortality (45-64)** | -0.2 | 0.9 | 1.6 | 0.7 | 0.5 |
| **Elderly mortality (65+)** | -0.6 | 1.0 | 1.4 | 1.1 | 1.6 |
| **Covariance terms** | 0.6 | 0.5 | 0.2 | 0.1 | 0.0 |
| **Total Change** | 12.2 | 8.6 | 4.4 | 2.5 | 2.5 |

[1] Based on the 18th CPP Actuarial Report mortality assumption (see section III. B).

**Table 5 Contribution to Increase in Life Expectancy at Birth by Age Group (Females)**

| Change attributable to | 1900-1940 | 1940-1980 | 1980-2000[1] | 2000-2020[1] | 2020-2060[1] |
|---|---|---|---|---|---|
| **Infant mortality (<1)** | 8.1 | 2.8 | 0.4 | 0.1 | 0.1 |
| **Child mortality (1-14)** | 3.4 | 1.3 | 0.2 | 0.0 | 0.0 |
| **Young adult mortality (15-44)** | 2.3 | 2.2 | 0.3 | 0.1 | 0.1 |
| **Older adult mortality (45-64)** | 0.3 | 1.8 | 0.7 | 0.3 | 0.3 |
| **Elderly mortality (65+)** | -0.3 | 3.1 | 1.2 | 0.7 | 1.4 |
| **Covariance terms** | 1.1 | 1.3 | 0.1 | 0.0 | 0.0 |
| **Total Change** | 14.8 | 12.6 | 2.8 | 1.2 | 2.1 |

[1] Based on the 18th CPP Actuarial Report mortality assumption (see section III. B).

Charts 11 and 12 clearly show that in the early 20th century, the main force behind longer life expectancy was the strong decrease in newborn mortality. During the first part of the 20th century, improvements in infant mortality contributed eight years to the total increase of 12 years in life expectancy. With time, the biggest contribution has gradually shifted to older age groups because there is little to be gained from improving the already negligible mortality rates at younger ages.

Currently most of the improvements come from ages 45 and over. It is projected that the biggest source of increase in life expectancy will come from those aged 65 and over.

**Chart 11 Contribution to Increase in Life Expectancy at Birth by Age Group (Males)**

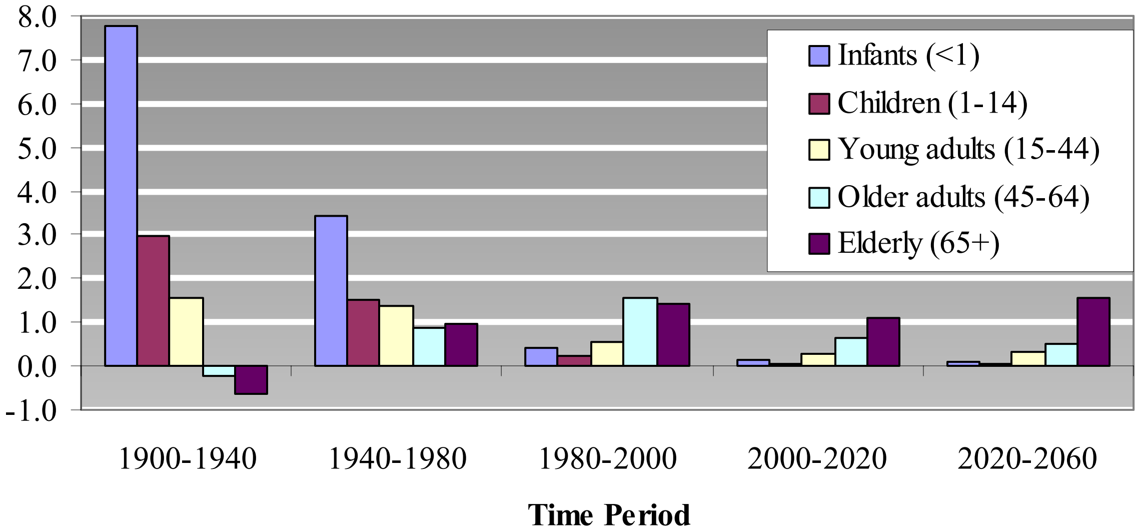
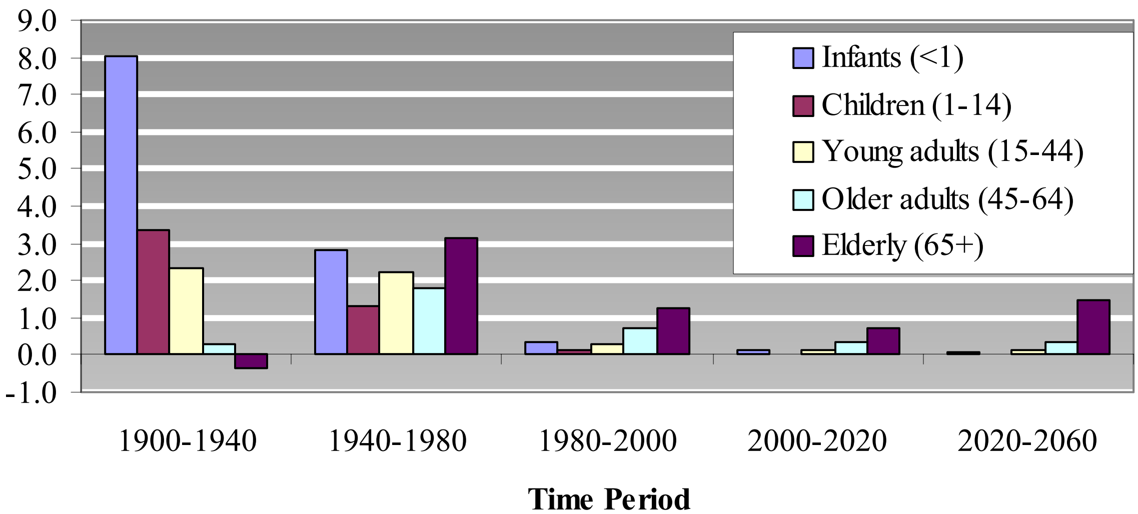



**Chart 12 Contribution to Increase in Life Expectancy at Birth by Age Group (Females)**

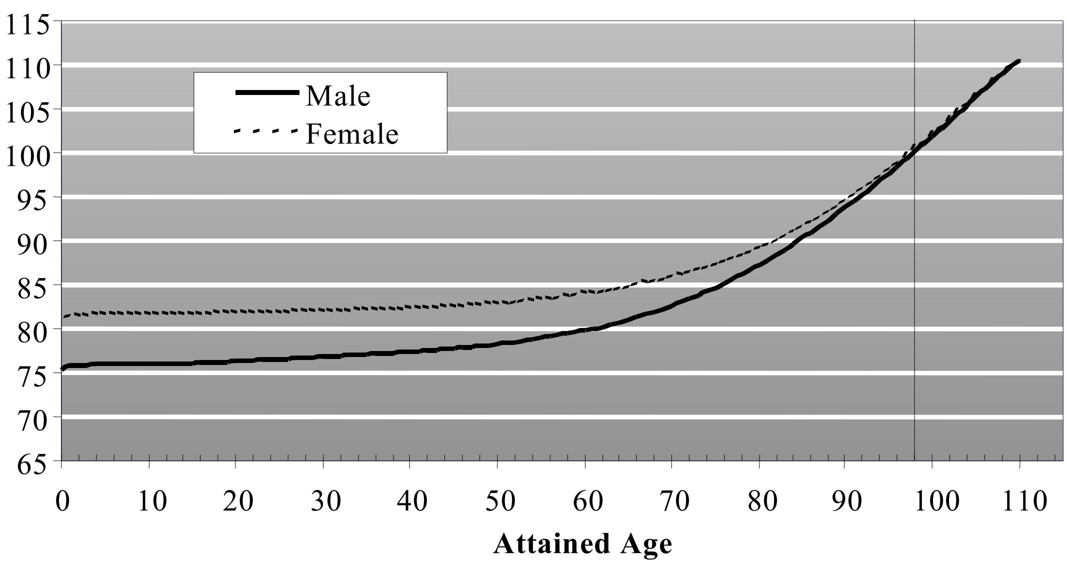


## D. Living to Age 100

The combination of improved mortality, genetic research and advances made in medical science raise a question as to whether a life expectancy of 100 years is possible in the near future. The purpose of this section is to examine the extent to which current mortality rates need to be reduced to obtain a life expectancy at birth of 100 years. We will use simple mathematical models based on the 1995-1997 Life Tables for Canada (LTC)[1] combined with general mortality improvements. A general improvement of, say, 10% means that all of the base mortality rates are reduced by 10%.

The life expectancy for an individual at a given age determines the expected average age at death. Chart 13 below, based on the 1995-1997 LTC, confirms that the average age at death is a non-decreasing function of attained age. It follows that the expected average age at death for a newborn is the lowest of all. From Chart 13 it is interesting to observe that it is only when an individual reaches the expected age of 98 that the average age at death is 100 for both males and females.

**Chart 13 Expected Average Age at Death by Attained Age**




We can now conduct a simple test to see at what age the expected average age at death becomes 100 when we apply a general improvement to the 1995-1997 LTC mortality rates. If there were no mortality from age 0 to any given age, the average age of death for a newborn would then equal the expected average age at death of the given age. As an example, all else being equal, if all mortality rates were zero up to age 98, then the expected average age at death of a newborn would become 100, the same as at age 98. Chart 14 shows the age at which the expected average age at death reaches 100 after applying various general mortality improvements.

[1] The mortality rate at the terminal age (109 years) of the 1995-1997 LTC is less than 1.00. To close the table, we assumed a rate of 1.00 at age 110.

**Chart 14 Attained Age at which Expected Average Age at Death Equals 100 (by Level of General Mortality Improvement)**

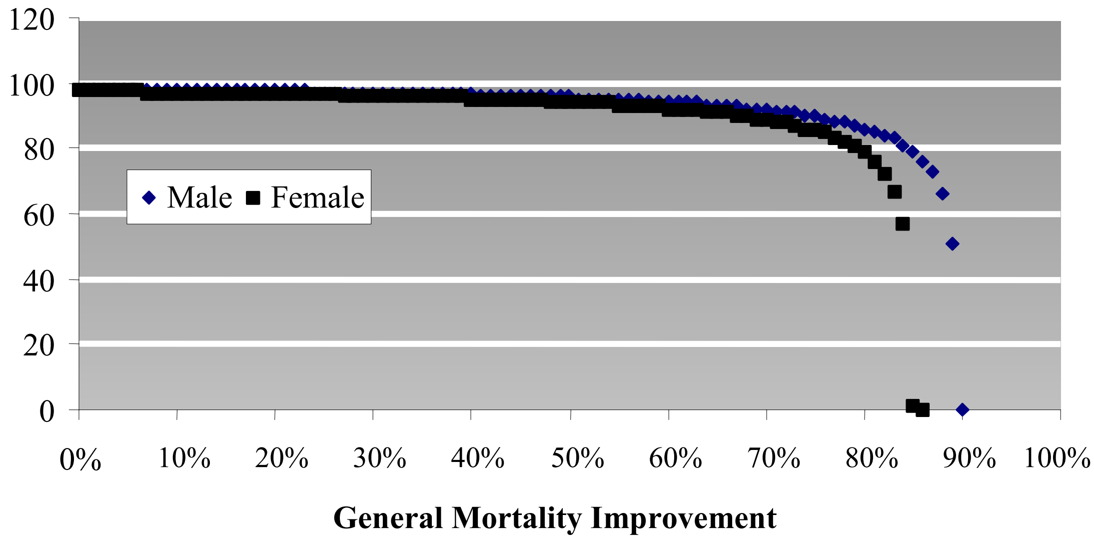



Chart 14 shows that for males the 1995-1997 LTC mortality rates at all ages must decrease by over 90% if we want to have an expected average age at death of 100 for a newborn; for females, the corresponding figure is over 85%. The effect is more significant at later ages because the mortality rates are higher. To put these figures in perspective, to achieve a 90% mortality improvement over the next 50 years, we would need an average annual mortality improvement rate of 4.5%. The observed average annual mortality improvement rate in Canada between 1986 and 1996 was about 1.5%. Thus, to achieve 90% mortality improvement would require mortality to improve at three times the current rate, across all ages over the next 50 years, or it would require 150 years of annual mortality improvements equal to the current rate.

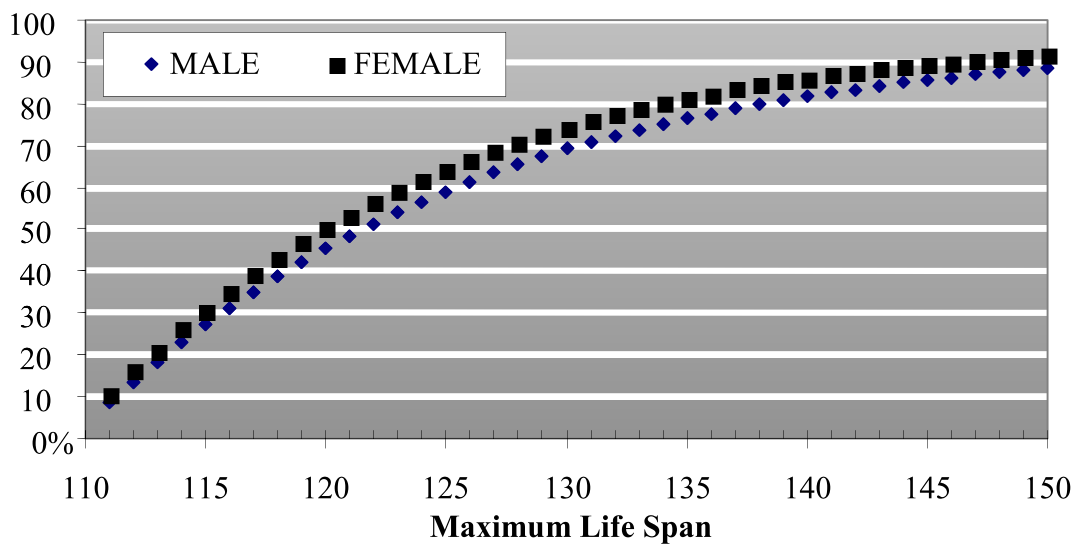
Chart 14 also shows we need general mortality improvement of over 70% to see a noticeable drop in the age at which the expected average age at death becomes 100. This test was important because it implies that to significantly increase life expectancy at birth, mortality improvements must be significant, especially at later ages.

It makes sense that life expectancy at birth would increase the most if mortality improvement happens at the older ages, as this is where most people die. This suggests a second test; i.e. measuring the effect of mortality improvement at older ages through an increase in the maximum life span, the ultimate age to which a human being can live. It is worth noting that our mathematical models have so far assumed a maximum life span of 110. Some may consider this unrealistic because significant mortality improvement at older ages should result in an increase in the maximum life span.

The simplest way to implement an increase in the maximum life span using the 1995-1997 LTC is to map the current 111 mortality rates (from ages 0 to 110) to

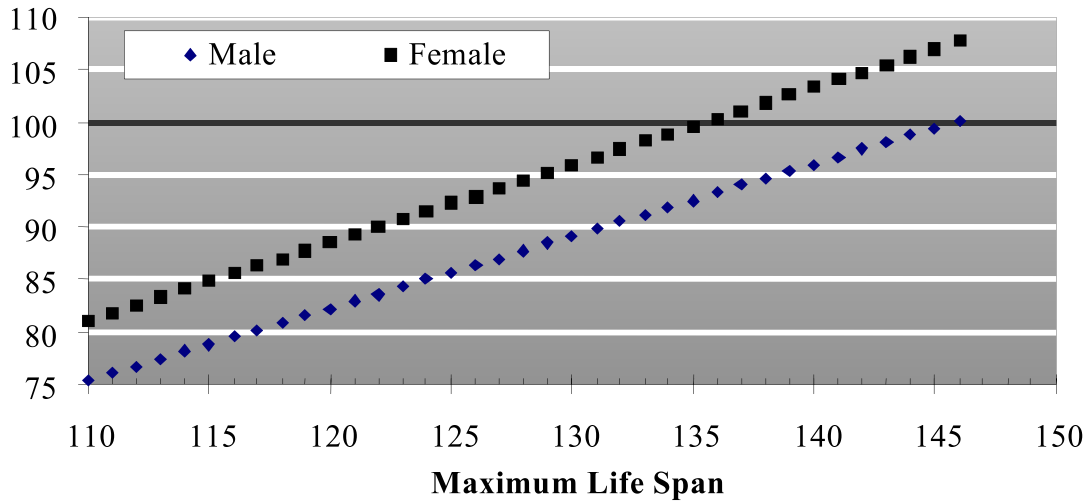
111 "new" ages from 0 to 110+n. In fact we increase the 111 current ages by a factor of 1+n/110. With this approach, for example, if we were to apply the mortality rates to a new table ending at age 121, i.e. 110(1 + 10%), the mortality rate currently applicable for age 50 would be used for age 55 and so forth. Because mortality rates generally rise with age, we are in effect applying lower mortality rates. With the same example, the mortality rate for a male age 66 would be 0.011 instead of 0.020, or the equivalent of the mortality rate for someone currently aged 60. This corresponds to a decrease of 45% in the mortality rate at age 66. Therefore the difference between this approach and the previous model is in the way the mortality improvement is distributed by age. Chart 15 shows the resulting average mortality improvement by number of years in the maximum life span.

**Chart 15 Average Mortality Improvement Resulting from Increase in Maximum Life Span**




Let us examine what effect an increase in the maximum life span has on the life expectancy at birth. Chart 16 presents this information for both males and females. It shows that if we keep the shape of the mortality curve similar to the 1995-1997 LTC using the age mapping as explained earlier, males would need a maximum life span of 146 years to have a life expectancy at birth of 100 years; the comparable figure for females is 135 years. For males, increasing the maximum life span by 36 years to age 146 is equivalent to an average improvement in mortality of 86% (see Chart 15), which is consistent with the 90% mortality improvement shown to be necessary in the previous model.

**Chart 16 Life Expectancy at Birth as a Function of Maximum Life Span**




Finally, Charts 17 and 18 compare the survival curves for each gender for the two mortality improvement models that result in a life expectancy at birth of 100 years. Chart 17 compares the general mortality improvement of 90% for male ages 0 to 109 with the increase in maximum life span to age 146. The same is done in Chart 18 but for females, for whom the corresponding figures are 85% and age 135.

**Chart 17 Comparison of Survival Curves for Males**
**(Probability of Survival from Age 0 to Attained Age)**

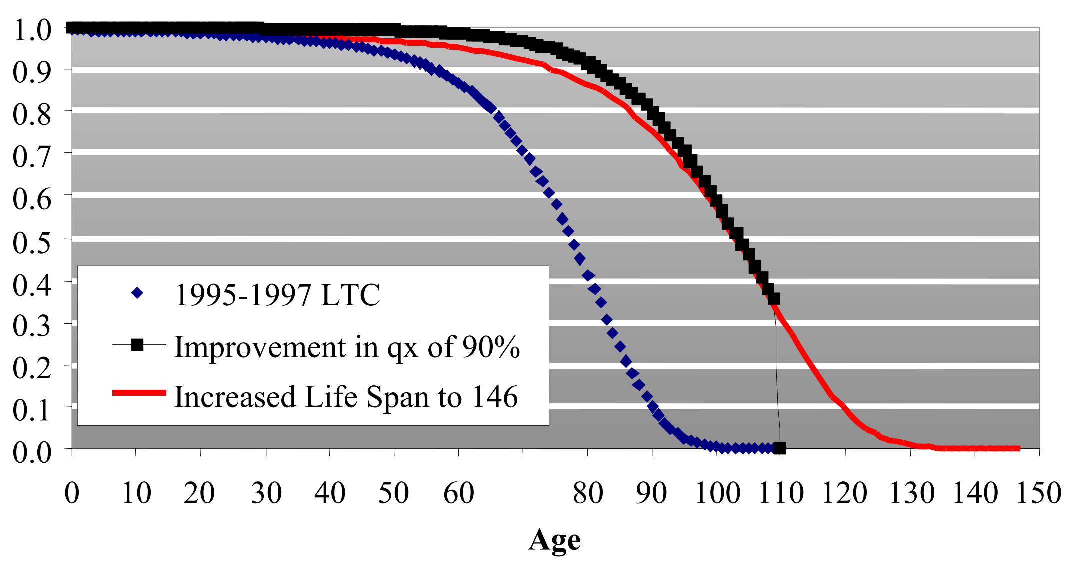
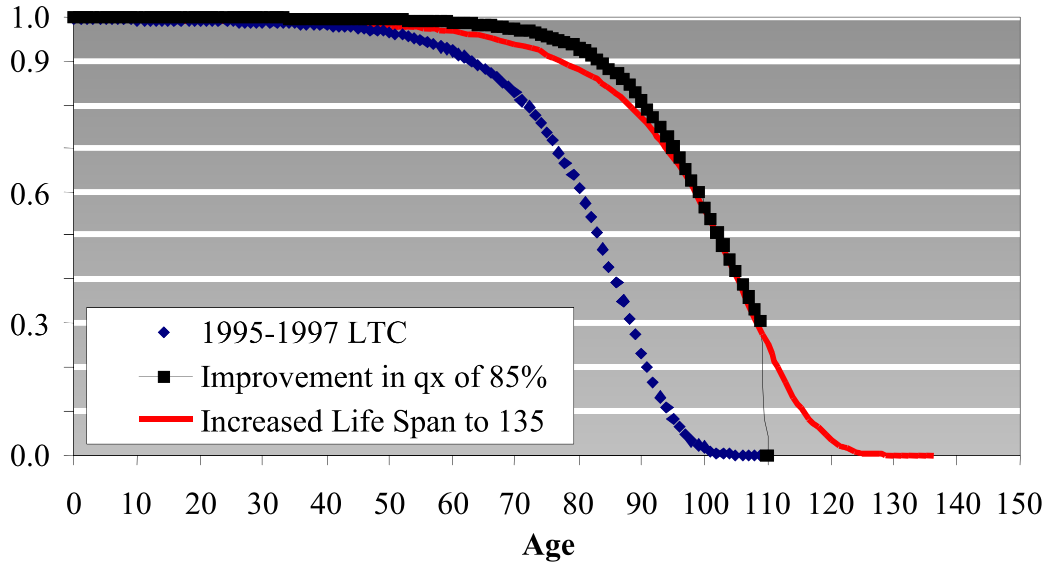


**Chart 18 Comparison of Survival Curves for Females
(Probability of Survival from Age 0 to Attained Age)**



# III. Mortality Projections

## A. Introduction

One of the principal components of the Eighteenth CPP Actuarial Report (AR18) is the population projection, which is used to determine the contributors, beneficiaries and total expenditures in each future year. To obtain the projected population, assumptions on migration, fertility and mortality rates must be made. To project mortality rates, our methodology requires the use of mortality improvement factors. This section gives an overview of the assumptions made for mortality and the associated mortality improvement rates.

## B. Mortality Projections in Eighteenth CPP Actuarial Report

The methodology used to project mortality rates for AR18 is based on an approach that uses two sets of mortality improvement rates. The first sets defines the initial annual mortality improvement rates based on the most recent mortality experience, and is used to improve mortality rates for the first projection year. The second set is based on a study by cause of death and corresponds to the ultimate annual mortality improvement rates for years 2020 and thereafter. Intermediate annual improvement rates between the initial year 2020 are determined by linear interpolation.

The starting point of our mortality projection is the most recent Life Tables for Canada (LTC), which at the time of AR18 were the 1990-92 LTC. These tables were projected to 1996 using average mortality improvement rates that enabled us to reproduce the life expectancy at birth and at age 65 as published by Statistics Canada for 1996.

Table 6 shows the annual mortality improvement rates assumed for 1997 in AR18, based on the Canadian experience over the ten years ended 1997.

**Table 6 Assumed Mortality Improvement Rates for 1997**

| Age Group | 1987-1996 Average | | Assumed for 1997 in AR18 | |
|---|---|---|---|---|
| | Male | Female | Male | Female |
| | (%) | (%) | (%) | (%) |
| **0** | 3.48 | 2.64 | 3.50 | 2.75 |
| **1-4** | 4.32 | 4.03 | 4.00 | 3.00 |
| **5-9** | 4.16 | 2.65 | 4.00 | 2.50 |
| **10-14** | 3.79 | 1.17 | 3.75 | 1.75 |
| **15-19** | 3.53 | 1.25 | 3.25 | 1.50 |
| **20-24** | 2.58 | 2.20 | 2.75 | 1.50 |
| **25-29** | 2.02 | 1.20 | 1.75 | 1.50 |
| **30-34** | 0.52 | 1.04 | 0.75 | 1.00 |
| **35-39** | -0.10 | 0.59 | 0.25 | 0.75 |
| **40-44** | 0.04 | 0.89 | 0.50 | 1.00 |
| **45-49** | 1.92 | 1.47 | 1.50 | 1.50 |
| **50-54** | 2.35 | 1.96 | 2.25 | 1.50 |
| **55-59** | 2.71 | 1.16 | 2.50 | 1.50 |
| **60-64** | 2.67 | 1.40 | 2.50 | 1.25 |
| **65-69** | 2.03 | 0.95 | 2.25 | 1.25 |
| **70-74** | 1.82 | 1.07 | 1.75 | 1.00 |
| **75-79** | 1.45 | 0.87 | 1.25 | 0.75 |
| **80-84** | 0.79 | 0.56 | 0.75 | 0.50 |
| **85-89** | 0.19 | -0.08 | 0.25 | 0.00 |

Beyond 2020, annual mortality improvement rates in AR18 were determined from the latest United States Social Security Administration (SSA) mortality study upon which the 2000 Annual Report of the Board of Trustees as adjusted to reflect Canadian mortality experience. The SSA study was used because of its exhaustive research on mortality improvement rates by cause of death and by age group. Because causes of death in North America should continue to be similar in the future, it is reasonable to assume that the SSA rates should apply to Canadian mortality. However, to recognize historical differences between the two countries, the SSA rates were further adjusted. Historically, death rates for the two countries have shown similar patterns.

The AR18 ultimate annual mortality improvement rates (years 2021 and thereafter) are the SSA mortality improvement rates adjusted for Canadian experience. Mortality ratios of Canadian mortality to SSA mortality for the five years ended in 1997 were determined by age group (0, 1-14, 15-24, 25-44, 45-64 and 65+)[1]. The ratios were then divided into four experience classes (0-25%, 25-50%, 50-75%, and 75-100%), according to the degree of closeness between Canadian and American mortality levels. The idea is that the closer the mortality of a Canadian age group is to that of its American counterpart, the closer the improvement mortality factor for that Canadian age should be to that determined by the SSA. Contrarily, the lower the Canadian mortality relative to American mortality for a given age group, the lower the Canadian mortality improvement

1 See charts 19 to 24 for a comparison of the experience from 1926 to 1997.

factor will be relative to its American counterpart, given that we assume a convergence of Canadian and American mortality levels in the long run.

**Chart 19 Canadian and SSA Central Death Rates (Ages 1-14)**

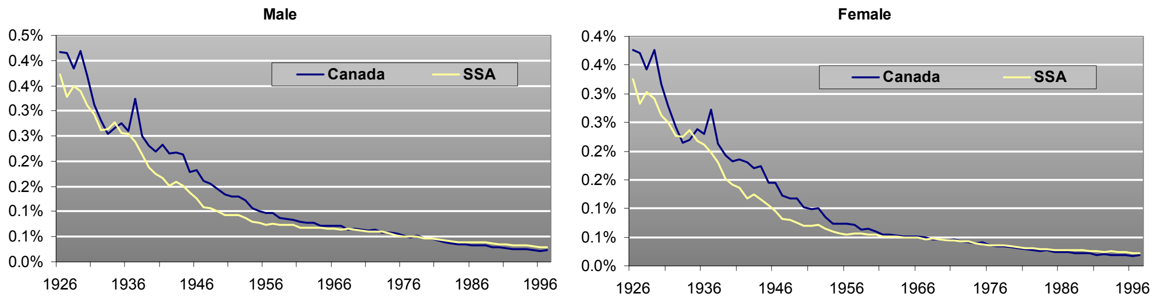



**Chart 20 Canadian and SSA Central Death Rates (Ages 15-24)**

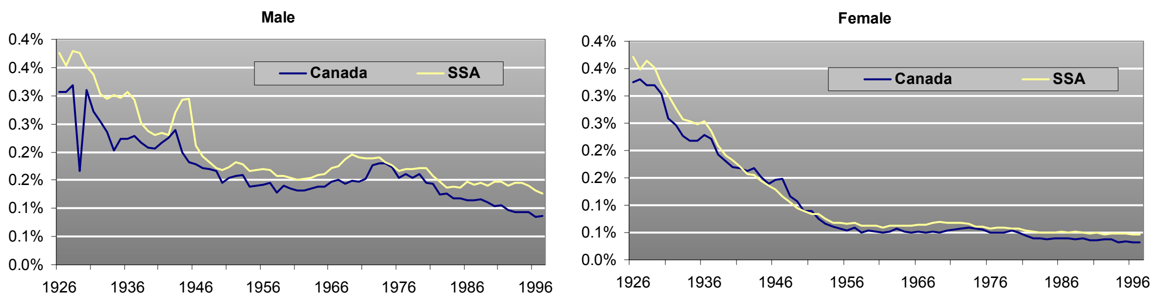



**Chart 21 Canadian and SSA Central Death Rates (Ages 25-44)**

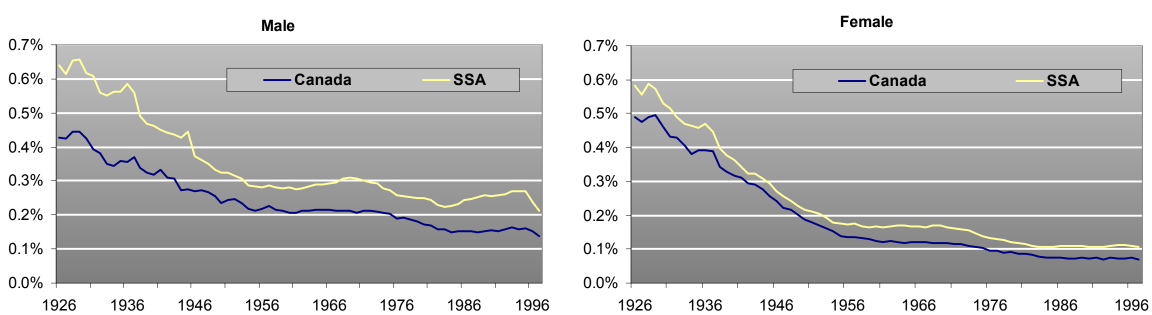



**Chart 22 Canadian and SSA Central Death Rates (Ages 45-64)**

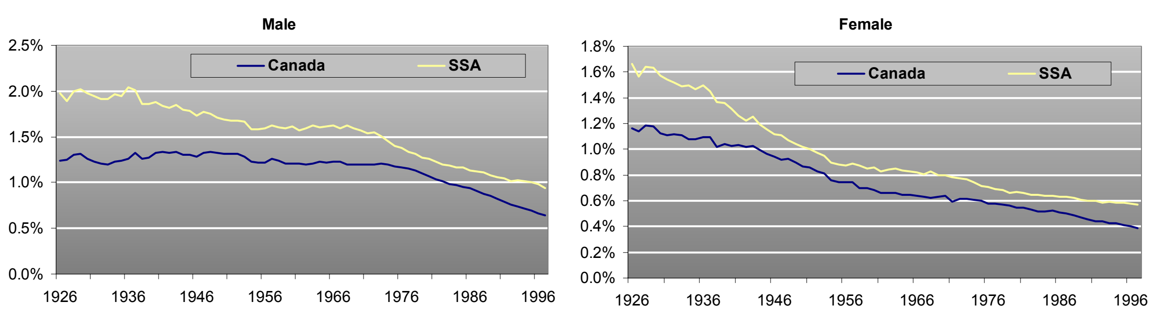


**Chart 23 Canadian and SSA Central Death Rates (Ages 65-79)**

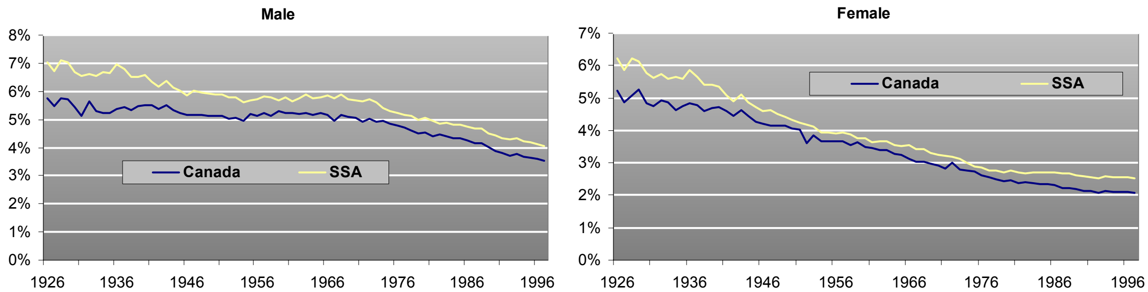
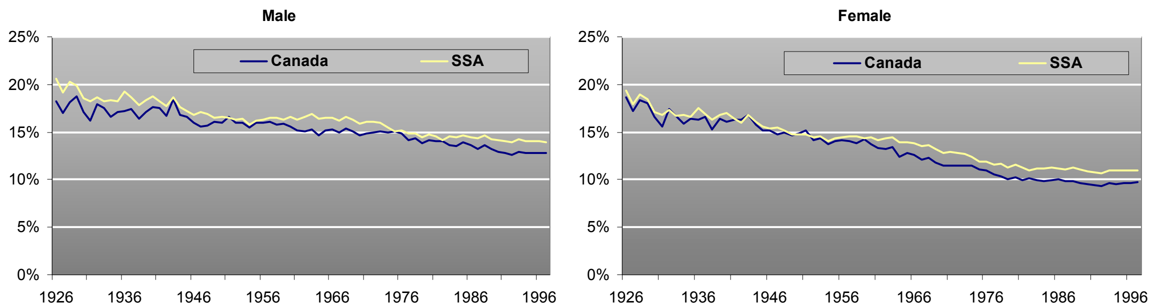



**Chart 24 Canadian and SSA Central Death Rates (Ages 80+)**




To develop the adjustment factors applied to the ultimate SSA mortality improvement rates (see Table 7) the recent mortality improvement experience of all the age groups found in a given experience class was combined on a unisex basis. For example, to determine the adjustment factor for the 75% - 100% mortality ratio experience class, the age groups 0-1 and 1-14 were combined because only their ratios were within the 75%-100% range. For those two age groups the mortality improvement during the five years ended in 1997 were 90% of the corresponding American mortality improvement rates. This approach was used to find the adjustment factor for each of the mortality ratio experience classes. These factors were then used to develop the ultimate mortality improvement rates in AR18 (see Table 8).

**Table 7 Adjustment Factors for Mortality Improvement**

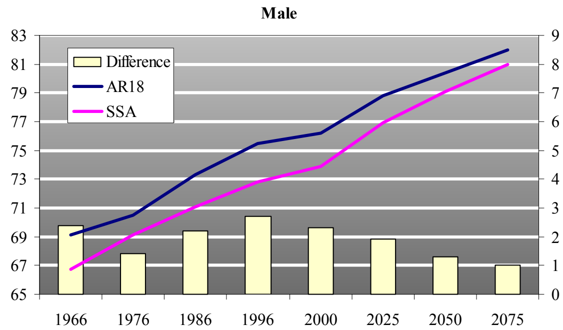
| Experience Class (Mortality Ratios) | Canadian Adjustment to SSA Experience |
|---|---|
| **75% to 100%** | 0.90 |
| **50% to less than 75%** | 0.80 |
| **25% to less than 50%** | 0.70 |
| **0% to less than 25%** | 0.50 |

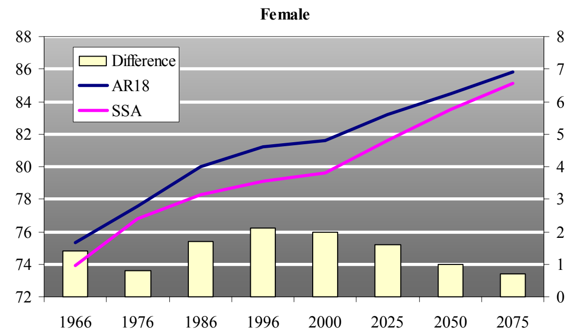
**Table 8 Ultimate Annual Mortality Improvement Rates (18th CPP Actuarial Report)**

| Age | AR18 (2021+) | | SSA (2024+) | |
|---|---|---|---|---|
| | Male | Female | Male | Female |
| | (%) | (%) | (%) | (%) |
| **0** | 1.35 | 1.25 | 1.49 | 1.55 |
| **1-4** | 0.95 | 0.85 | 1.06 | 1.08 |
| **5-9** | 0.95 | 0.85 | 1.07 | 1.07 |
| **10-14** | 0.95 | 0.85 | 1.02 | 1.05 |
| **15-19** | 0.65 | 0.55 | 0.78 | 0.76 |
| **20-24** | 0.65 | 0.55 | 0.79 | 0.75 |
| **25-29** | 0.65 | 0.50 | 0.79 | 0.75 |
| **30-34** | 0.65 | 0.50 | 0.78 | 0.74 |
| **35-39** | 0.65 | 0.50 | 0.80 | 0.74 |
| **40-44** | 0.65 | 0.50 | 0.83 | 0.72 |
| **45-49** | 0.60 | 0.50 | 0.87 | 0.71 |
| **50-54** | 0.60 | 0.50 | 0.80 | 0.68 |
| **55-59** | 0.60 | 0.50 | 0.77 | 0.68 |
| **60-64** | 0.60 | 0.50 | 0.75 | 0.69 |
| **65-69** | 0.60 | 0.50 | 0.71 | 0.63 |
| **70-74** | 0.60 | 0.50 | 0.71 | 0.64 |
| **75-79** | 0.60 | 0.50 | 0.71 | 0.66 |
| **80-84** | 0.55 | 0.50 | 0.71 | 0.70 |
| **85-89** | 0.55 | 0.50 | 0.59 | 0.59 |
| **90-94** | 0.55 | 0.50 | 0.61 | 0.62 |
| **95-99** | 0.55 | 0.50 | N/A | N/A |
| **100-104** | 0.55 | 0.50 | N/A | N/A |
| **105-109** | 0.55 | 0.50 | N/A | N/A |

To show the effect of the foregoing mortality improvement factors, current mortality rates for both countries were projected to calendar years 2025, 2050, and 2075. For each such year, life expectancies at birth and at age 65 were calculated on the assumption of no subsequent mortality improvement. The resulting life expectancies are compared to corresponding figures for various calendar years in the past. As can be seen from the tables 9 and 10 and charts 25 and 26, the current differences in life expectancies at birth and age 65 between the two countries decrease over the projection period. By 2075 the difference is less than a year for each sex, both at birth and at age 65.

### Chart 25 Life Expectancy[1] at Birth (AR18 and SSA)

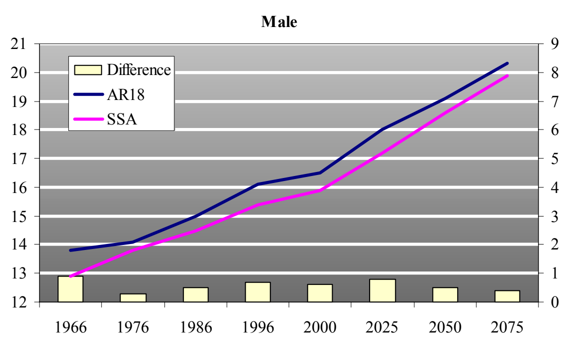


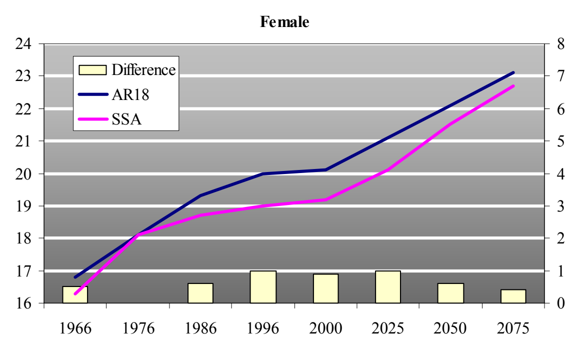




### Table 9 Life Expectancy[1] at Birth (AR18 and the SSA)

| | AR18 (Canada) | | SSA (United States) | |
|---|---|---|---|---|
| **Year** | **Male** | **Female** | **Male** | **Female** |
| **1966** | 69.1 | 75.3 | 66.7 | 73.9 |
| **1976** | 70.5 | 77.6 | 69.1 | 76.8 |
| **1986** | 73.3 | 80.0 | 71.1 | 78.3 |
| **1996** | 75.5 | 81.2 | 72.8 | 79.1 |
| **2000** | 76.2 | 81.6 | 73.9 | 79.6 |
| **2025** | 78.8 | 83.2 | 76.9 | 81.6 |
| **2050** | 80.4 | 84.5 | 79.1 | 83.5 |
| **2075** | 82.0 | 85.8 | 81.0 | 85.1 |

### Chart 26 Life Expectancy[1] at Age 65 (AR18 and SSA)




1 For each calendar year shown, based on the mortality rates for that year (i.e. no subsequent mortality improvements).

**Table 10 Life Expectancy[1] at Age 65 (AR18 and SSA)**

| | AR18 (Canada) | | SSA (United States) | |
|---|---|---|---|---|
| **Year** | **Male** | **Female** | **Male** | **Female** |
| **1966** | 13.8 | 16.8 | 12.9 | 16.3 |
| **1976** | 14.1 | 18.1 | 13.8 | 18.1 |
| **1986** | 15.0 | 19.3 | 14.5 | 18.7 |
| **1996** | 16.1 | 20.0 | 15.4 | 19.0 |
| **2000** | 16.5 | 20.1 | 15.9 | 19.2 |
| **2025** | 18.0 | 21.1 | 17.2 | 20.1 |
| **2050** | 19.1 | 22.1 | 18.6 | 21.5 |
| **2075** | 20.3 | 23.1 | 19.9 | 22.7 |

## C. Impact of Mortality Improvement on CPP

The previous sections looked at historical mortality trends as well as mortality projections. In this section we show how mortality impacts on the CPP. In the context of the CPP, what are the consequences of contributors and beneficiaries living longer? The answer to that question is of primary importance for the future financial health of the Plan.

### *Surviving to Age 18*

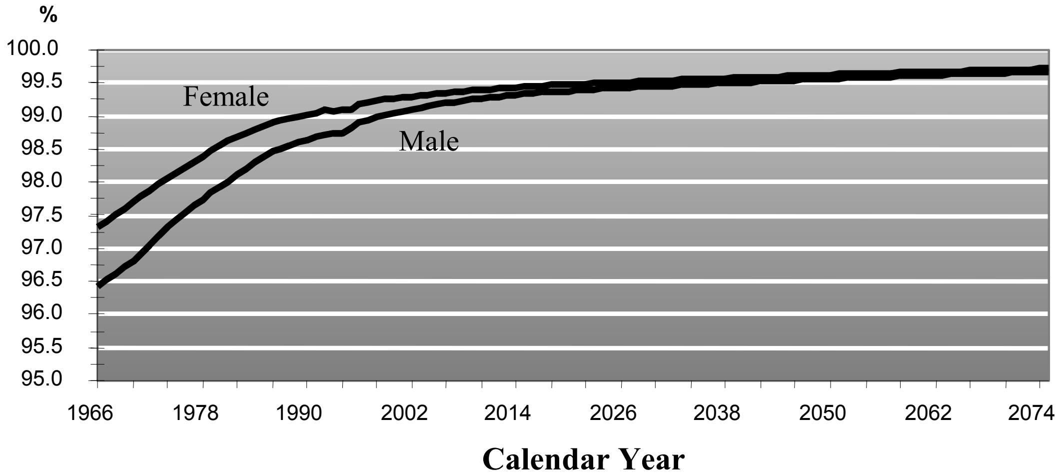
CPP contributory service begins at age 18 and ends at the age of retirement benefit uptake. The retirement benefit is then paid until death.

One of the important elements of the Plan is the number of contributors, which forms the basis for the financing of the Plan together with investment income. The future number of contributors relies on both fertility and immigration. With respect to fertility a newborn must reach age 18 to become a contributor. By looking at past statistics and using the mortality projections of the Eighteenth CPP Actuarial Report, the evolution of the probability of becoming a contributor (i.e. surviving from birth to age 18) can be traced. Chart 27 shows that probability by sex and calendar year. The probability of a newborn reaching age 18 has increased significantly over the past 40 years and is projected to continue increasing but at a much lower rate.

The gender gap in the probability of reaching age 18 is assumed to continue to narrow (see Chart 27). The difference of 0.93% in 1966 narrowed to only 0.22% by 2000 and is projected to virtually disappear by 2075, at which time nearly all newborns (99.68% of boys and 99.72% of girls) should reach age 18. These statistics show that great progress was made in the 20$^{th}$ century in reducing childhood mortality in Canada.

[1] For each calendar year shown, based on the mortality rates for that year (i.e. no subsequent mortality improvements).

**Chart 27 Probability of Surviving from Birth to Age 18**




### *Surviving from Age 18 to Age 65*

CPP contributory service begins at age 18, from which time contributions on employment earnings become revenue to the CPP. Chart 28 shows the probability of surviving from age 18 to the normal retirement age of 65. The probability of surviving the contributory period has increased over time for men (from 72.1% in 1966 to 84.1% in 2000) and is projected to reach 90.8% by 2075. The increases have been only half as large for women, (from 84.5% in 1966 to 90.4% in 2000), with 93.8% projected for 2075. The gender gap in the probability of surviving from age 18 to age 65 was a substantial 12.4% in 1966 but is expected to narrow to only 3.0% by 2075.

**Chart 28 Probability of Surviving from Age 18 to Age 65**

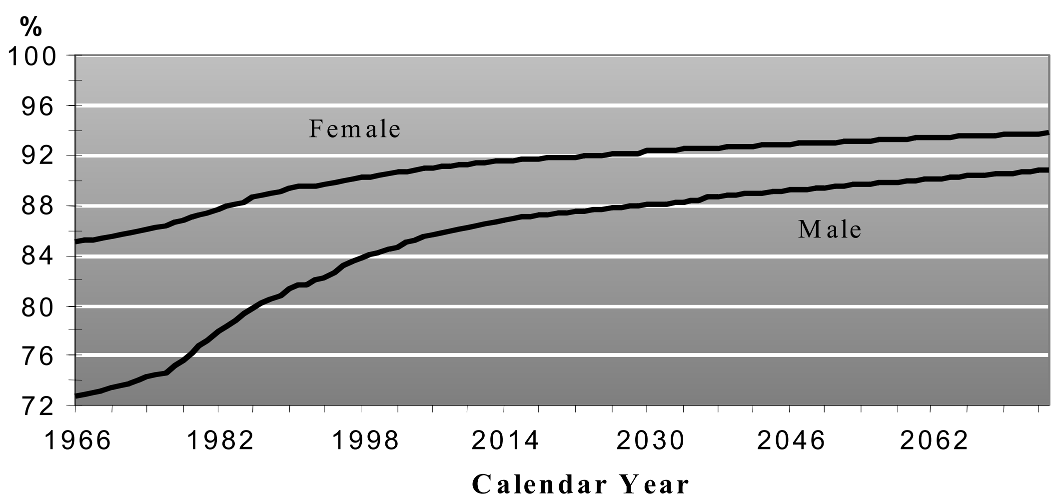
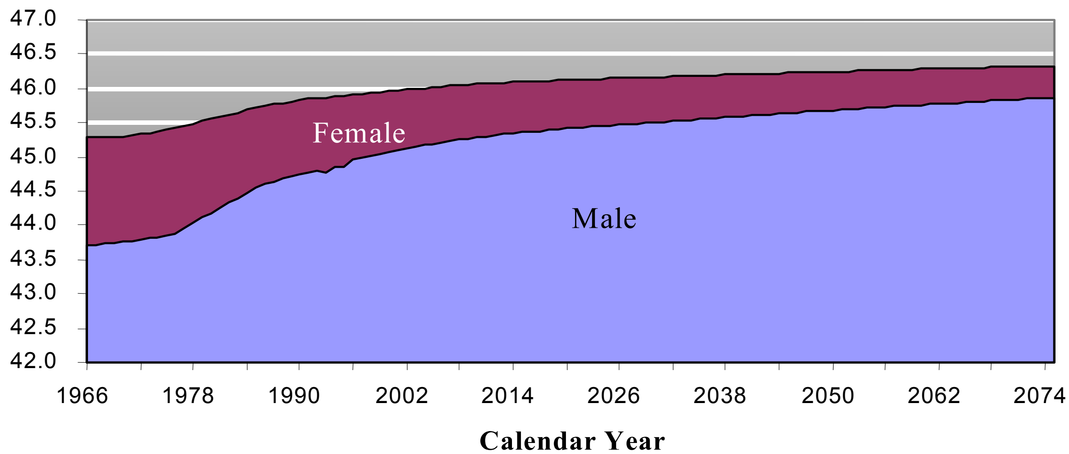


Chart 29 shows the average number of years a person is expected to live between the ages of 18 and 65. In 1966 a male was expected to live an average of 43.7 years out of a possible 47 years. In this case the maximum possible revenue gain for the plan was 3.3 more years of contributions.

**Chart 29 Average Number of Years Lived Between the Ages 18 and 65**




By way of comparison, a female was expected to live 45.2 years for a maximum possible gain of 1.8 years. In 2075 the average number of years lived between age 18 and age 65 is expected to be 45.9 years for males and 46.3 years for females. The gender gap in this statistic is therefore expected to narrow from 1.5 years in 1966 to 0.4 years in 2075. This situation is generally profitable for the CPP because as the life expectancy between ages 18 and 65 increases, so does the average number of years a person will contribute. However this effect is partly offset by more individuals reaching the normal retirement age and becoming beneficiaries.

***Surviving After Age 65***

Upon attaining the normal retirement age of 65[1], a CPP contributor becomes eligible for a retirement benefit. Since retirement benefits represent a large portion of total CPP benefits, it is not surprising that the number of years the retirement benefits will be paid has a great impact on the Plan financial status. As an example a sensitivity test done under the Eighteenth CPP Actuarial Report shows that doubling the assumed mortality improvements (adding around 1.5 to 2 years to the life expectancy at age 65) would increase the contributory rate by as much as 2% (contribution rate of 10.0% versus only 9.8% under AR18). Charts 30 and 31 show, for each sex, the probability of receiving a CPP retirement benefit up to selected ages from 70 to 100.

[1] For simplicity we ignore the reduced benefit available from age 60 onward.

**Chart 30 Probability of Surviving from Age 65 to Specified Age for Male**

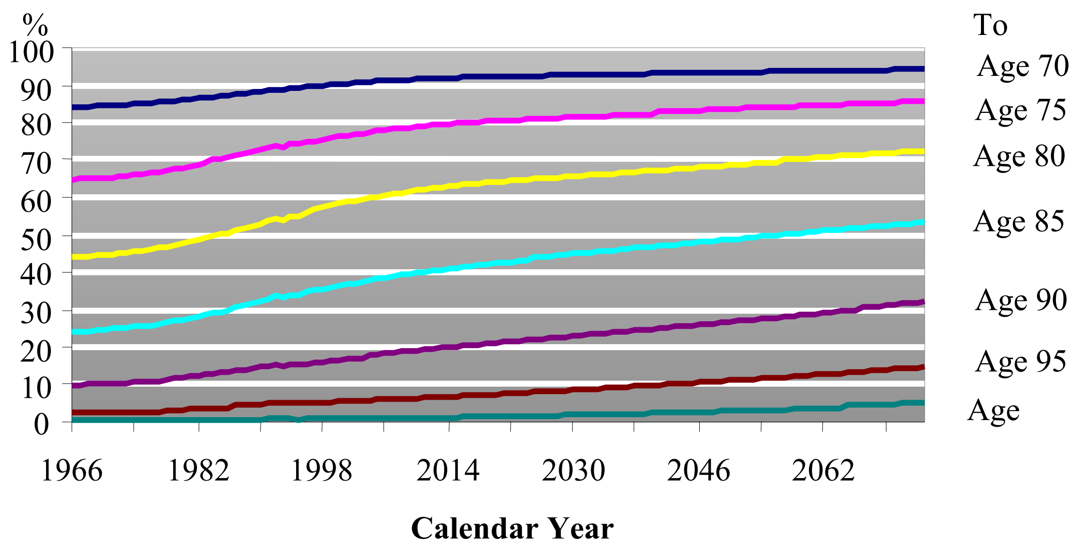



**Chart 31 Probability of Surviving from Age 65 to Specified Age for Female**

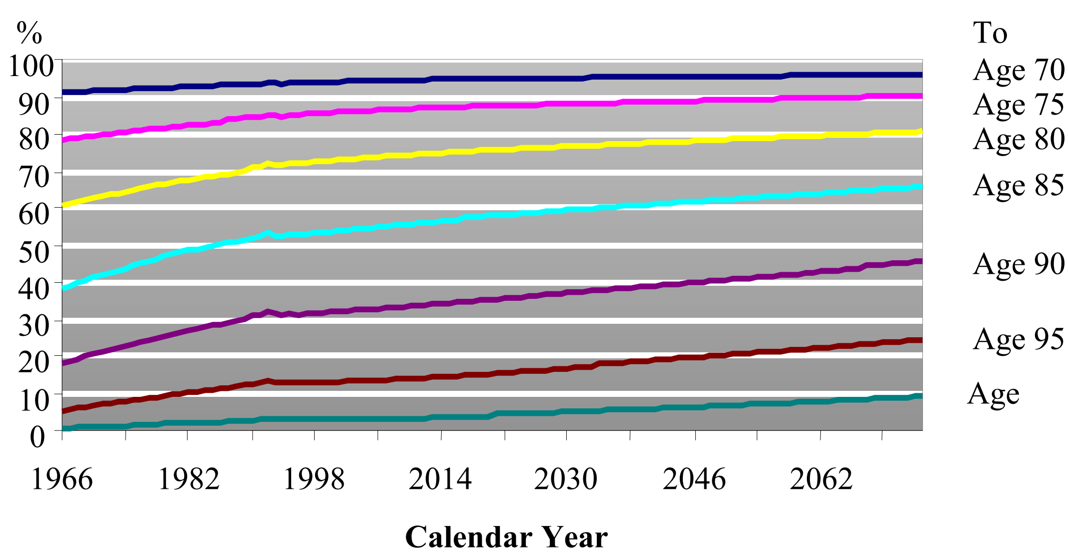



Table 11 presents the probability distribution by sex for the length of the retirement pension payment period for a 65-year-old person. Charts 32 and 33 present the probability of dying at a specified age for a retiree age 65. These charts show the shift to the right of the bulk of the probability curve as mortality improves during the century ending in 2075. Table 11 also shows that the average length of time beneficiaries receive their benefits has substantially increased since the inception of the plan in 1966. In 1966 male beneficiaries were most likely to receive a retirement benefit for 10 to 15 years and females for 15 to 20 years. In the future males will most likely receive retirement benefits for approximately 20 years while females will most likely receive benefits for 20 to 25 years. The difference by gender is assumed to decrease slightly in the future. On average, in 1966 male beneficiaries received 13.9 years of payment, which was 3.1 years less than females (17.0 years). In 2075 the difference between males and females is reduced to 2.8 years, with 20.4 years for males and 23.2 years for females.

**Chart 32 Probability of Dying at Specified Age for Male Age 65**

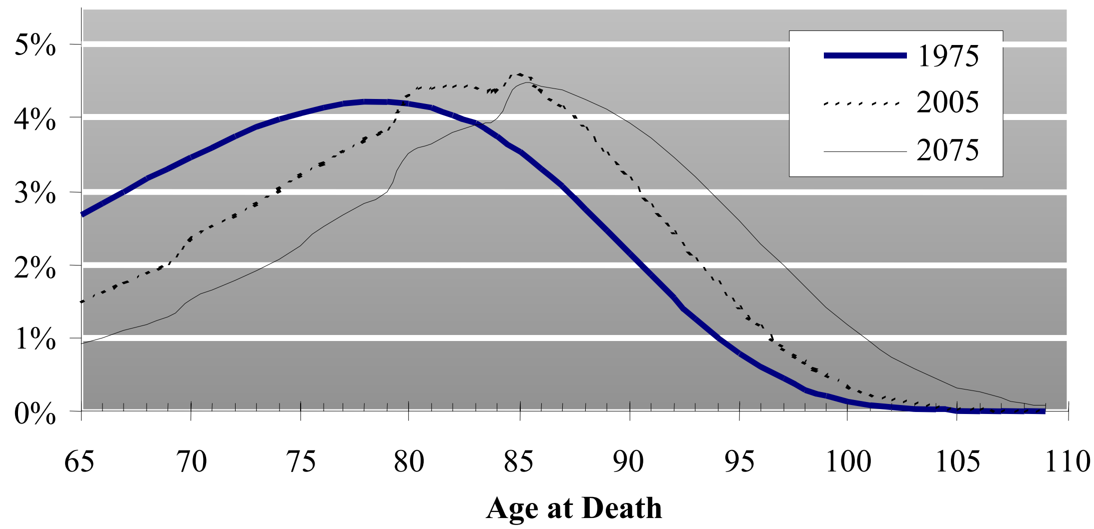



**Chart 33 Probability of Dying at Specified Age for Female Age 65**

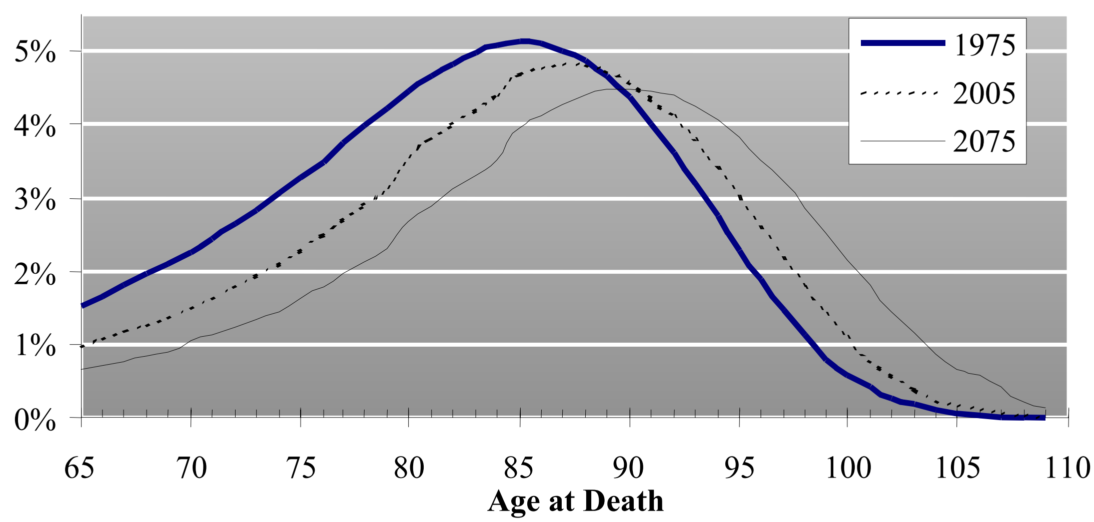


**Table 11 Length of Retirement Benefit Payment Period**

| | Calendar Year Mortality | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Male Age 65** | **1966** | **1975** | **1985** | **1995** | **2005** | **2025** | **2050** | **2075** |
| **Payment Period in Years** | **%** | **%** | **%** | **%** | **%** | **%** | **%** | **%** |
| **0-5** | 15.9 | 14.9 | 12.9 | 10.6 | 8.8 | 7.3 | 6.3 | 5.5 |
| **5-10** | 19.1 | 18.6 | 16.9 | 15.1 | 13.4 | 11.6 | 10.2 | 8.9 |
| **10-15** | 21.3 | 20.8 | 20.2 | 19.0 | 17.7 | 16.2 | 14.7 | 13.2 |
| **15-20** | 19.9 | 20.0 | 20.4 | 21.4 | 21.9 | 21.3 | 20.2 | 18.8 |
| **20-25** | 14.2 | 15.1 | 16.4 | 18.5 | 20.5 | 21.7 | 21.8 | 21.6 |
| **25-30** | 7.1 | 7.8 | 9.4 | 10.7 | 12.2 | 14.2 | 15.8 | 17.1 |
| **30-35** | 2.2 | 2.3 | 3.2 | 3.9 | 4.6 | 6.1 | 8.0 | 10.0 |
| **More than 35 years** | 0.4 | 0.3 | 0.6 | 0.8 | 1.0 | 1.7 | 3.0 | 4.9 |
| **Expectancy at 65 (Avg. number of years)** | 13.9 | 14.3 | 15.2 | 16.2 | 17.1 | 18.2 | 19.3 | 20.4 |

| **Female Age 65** | **1966** | **1975** | **1985** | **1995** | **2005** | **2025** | **2050** | **2075** |
|---|---|---|---|---|---|---|---|---|
| **Payment Period in Years** | **%** | **%** | **%** | **%** | **%** | **%** | **%** | **%** |
| **0-5** | 8.8 | 7.8 | 6.8 | 6.1 | 5.5 | 4.8 | 4.2 | 3.7 |
| **5-10** | 12.8 | 11.3 | 10.0 | 9.0 | 8.3 | 7.5 | 6.7 | 5.9 |
| **10-15** | 18.1 | 16.0 | 14.4 | 13.2 | 12.7 | 11.7 | 10.5 | 9.5 |
| **15-20** | 22.1 | 20.5 | 19.0 | 18.7 | 18.7 | 17.7 | 16.3 | 15.0 |
| **20-25** | 20.5 | 21.2 | 21.3 | 21.7 | 22.3 | 22.3 | 21.5 | 20.5 |
| **25-30** | 12.6 | 15.4 | 17.4 | 18.4 | 19.0 | 19.9 | 20.6 | 20.9 |
| **30-35** | 4.3 | 6.5 | 8.6 | 9.9 | 10.3 | 11.8 | 13.7 | 15.4 |
| **More than 35 years** | 0.7 | 1.4 | 2.4 | 3.0 | 3.2 | 4.4 | 6.5 | 9.1 |
| **Expectancy at 65 (Avg. number of years)** | 17.0 | 18.2 | 19.3 | 20.0 | 20.4 | 21.2 | 22.2 | 23.2 |

# IV. CPP Retirement Beneficiary Mortality

## A. Introduction

Between triennial CPP Actuarial Reports, we conduct various experience studies. One of them is the mortality study of CPP beneficiaries. While one could assume that the mortality of CPP beneficiaries should be close to the mortality of the general population, there are some interesting trends and results peculiar to CPP beneficiaries. This section presents the methodology and results of our study on the mortality of retirement beneficiaries by level of pension. One of the goals of this study is to develop mortality adjustment factors that reflect differences between retirement beneficiary mortality and general population mortality.

## B. Benefit Eligibility

A person aged 60 or over with contributory earnings in at least one past calendar year becomes eligible for a retirement pension upon application. An applicant for a retirement pension that becomes payable before the age of 65 must have wholly or substantially ceased to be engaged in paid employment or self-employment. A person ceases to contribute to the CPP once a retirement pension becomes payable or, in any event, after attaining age 70.

## C. Retirement Benefit Calculation

The initial amount of monthly retirement pension is based on the history of pensionable earnings over the entire contributory period. The retirement pension is equal to 25% of the average of the Year’s Maximum Pensionable Earning (YMPE) for the year of retirement and the four preceding years, adjusted to take into account the contributor’s pensionable earnings. For this purpose the contributor’s pensionable earnings for any given month are indexed by the ratio of the aforementioned five-year average YMPE to the YMPE for the year to which the given month belongs. Months of low pensionable earnings may be excluded from the calculation by reason of:

- pensions commencing after age 65;
- disability;
- the child-rearing dropout for a child less than seven years of age; and
- the general 15% dropout provision.

## D. Description of Data

Human Resources Development Canada (HRDC) provided us with a 31 December 2000 extract of the CPP Master Benefit File, which contains information on all CPP benefits paid in each month since 1966 when the CPP was established. From the extract we took all the data covering the nine-year period (from January 1992 to December 2000) selected for our study. We validated each data record and found only 0.1% of them to have incorrect or missing data; these records were discarded. The study included 761,000 deaths and 21,493,200 life-years of exposure.

The recent 1995-1997 Life Tables for Canada (LTC) published by Statistics Canada, present a demographic model that portrays in a clear and concise manner the mortality experience of the general Canadian population and permits one to derive comparative measures of expected longevity. The tables were produced using the age-sex-specific mortality rates for Canada that prevailed over the period 1995-1997.

Each beneficiary was classified according to the level of pension expressed as a percentage of the maximum retirement pension applicable to the year of emergence of the benefit. For this purpose four classes were established, ranging from 0% to 25% at the lower end and 75% to 100% at the upper end.

Note that in this section the term "general population" will be used to refer to the population of Canada less Québec, as this is the population covered by the CPP.

## E. Methodology

### 1. Mortality Rates

The mortality rate for a given age last birthday in any given calendar year (CY) is the probability that a person at that age on 1 January dies by 31 December. Mortality rates ($q_{age}$) are calculated for each calendar year by attained age, sex and level of pension by simply dividing the relevant number of deaths ($d_{age}$) by the corresponding total exposures ($E_{age}$).

$$q_{age}^{CY} = \frac{d_{age}^{CY}}{E_{age}^{CY}}$$

The mortality rates of CPP retirement beneficiaries determined in such a manner are then compared to the general population mortality rates (based on the 1995-1997 LTC). Since CPP retirement beneficiaries represent a large portion of the general population, the observed mortality rates should be comparable to the general population mortality rates. However, to make the comparison, we need to put the data on the same basis, i.e. mortality rates centered in 1996. For this purpose the CPP retirement beneficiary mortality level considered to apply to 1996 was obtained by using an exponential regression to remove the random year-to-year fluctuations over the experience period 1992-2000. This was done for each age, sex and level of pension, including all levels of pension combined.

### 2. Deaths

The first step in the calculation of experience mortality rates is to count the number of deaths ($d_{age}$) by calendar year and age for each of the four levels of pensions.

## 3. Exposures

The second step in the calculation of the retirement beneficiary mortality rates is to calculate mortality exposures ($E_{age}$) by calendar year and attained age last birthdays for each of the four levels of pension. The approach used was seriatim (i.e. each individual separately) approach as opposed to grouped. Exposures are interpreted as the number of persons exposed to the risk of death during the period examined. The methodology used for the calculation of exposures is based on the Balducci convention whereby a person contributes exposure in respect of the portion of the year remaining at the time of death. The exposures including Balducci add-ons, are then tabulated for each of the cells established for the tabulation of the deaths. The exposures for 1996 only are presented in Charts 34 and 35 and Tables 12 and 13.

**Chart 34 Male CPP Retirement Beneficiary Exposures (by Level of Pension – 1996)**

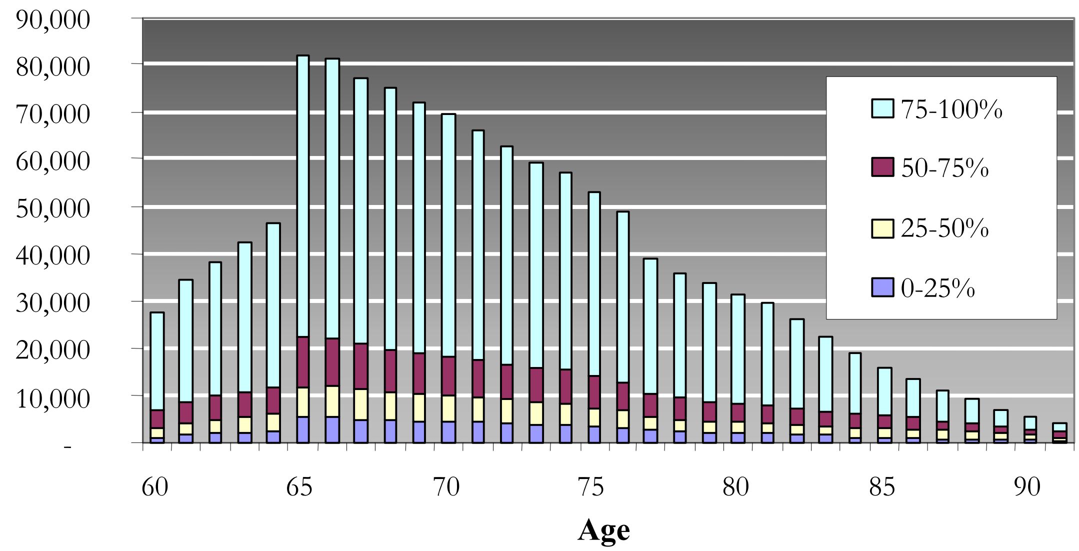



**Table 12 Level of Pension of Male CPP Retirement Beneficiaries (1996)**

| | Level of Pension as Percentage of Maximum | | | |
|---|---|---|---|---|
| **Age Group** | **0-25%** | **25-50%** | **50-75%** | **75-100%** |
| **60-64** | 4.5% | 7.8% | 12.9% | 74.7% |
| **65-69** | 6.5% | 7.9% | 12.2% | 73.4% |
| **70-74** | 6.7% | 7.7% | 12.2% | 73.5% |
| **75-79** | 6.3% | 7.5% | 12.6% | 73.6% |
| **80+** | 7.6% | 11.1% | 15.9% | 65.3% |

**Chart 35 Female CPP Retirement Beneficiary Exposures (by Level of Pension – 1996)**

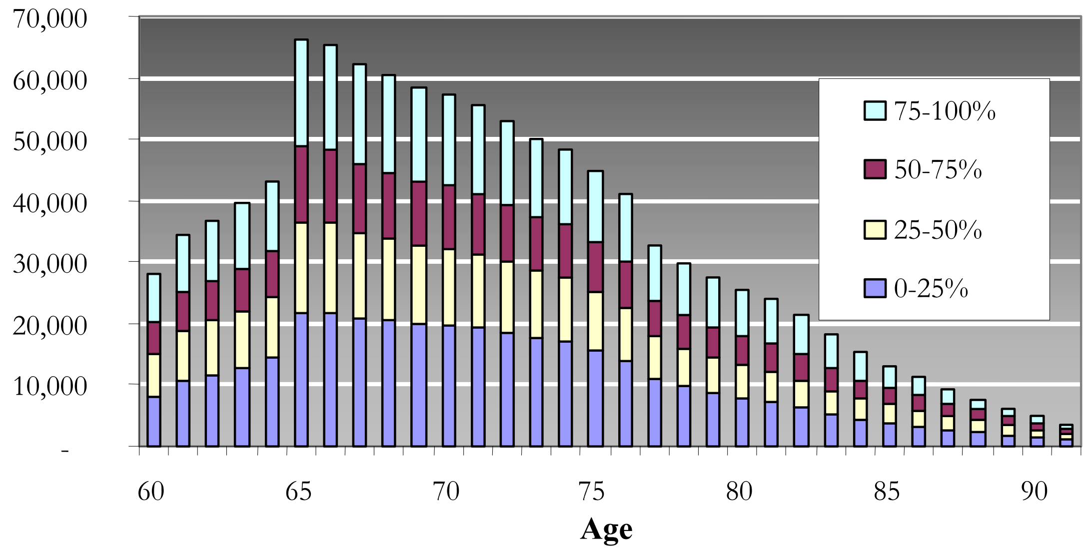



**Table 13 Level of Pension of Female CPP Retirement Beneficiaries (1996)**

| | Level of Pension as Percentage of Maximum | | | |
|---|---|---|---|---|
| **Age Group** | **0-25%** | **25-50%** | **50-75%** | **75-100%** |
| **60-64** | 31.7% | 23.6% | 17.7% | 27.0% |
| **65-69** | 33.5% | 22.1% | 18.0% | 26.3% |
| **70-74** | 35.0% | 21.7% | 17.8% | 25.5% |
| **75-79** | 33.5% | 21.3% | 18.2% | 27.0% |
| **80+** | 29.5% | 22.7% | 20.4% | 27.3% |

## 4. Mortality Ratios

The first step was to compare the overall retirement beneficiary mortality rates (i.e. all levels of pension combined) to the general population mortality rates[1]. The ratios obtained were then graduated and multiplied by the general population mortality rates to obtain graduated mortality rates applicable to retirement beneficiaries as a whole.

The next step was to compare the mortality rates for each level of benefit to the graduated overall mortality rates. The mortality ratios so obtained were then multiplied by the graduated overall ratios to obtain the mortality ratio relative to the general population for each level of pension. The latter ratios were also graduated. The final mortality rates by level of pension were obtained from the multiplication of these graduated ratios by the general population mortality rates.

1 Mortality rates for the general population of Canada less Québec were derived from Life Tables for Canada using the 1996 populations of Canada and Québec as weights.

Finally we assumed that retirement beneficiary mortality rates eventually converge to the mortality of the general population; accordingly ratios for ages over 95 were interpolated between the ratio at age 91 and the assumed ratio of 1.0 at age 109. Mortality rates for ages 60 to 64 were graduated separately because they show different trends due to the exclusion of CPP disability beneficiaries at those ages.

## F. Results

### 1. Results by Sex

Charts 36 and 37 show the 1996 mortality rates derived for CPP retirement beneficiaries and the female rates as a proportion of the male rates, respectively. Chart 37 confirms that the gender difference in mortality rates decreases with age. At age 60 female mortality rates are 63% of male rates. The ratio decreases to a low of 51% at age 67 and gradually increases thereafter to 77% by age 95 and 100% by age 109.

Chart 38 is particularly useful because it expresses CPP retirement beneficiary mortality rates relative to the rates for the general population. Several interesting observations may be made in respect of the information presented therein, as follows:

(i) For both males and females, retirement beneficiary mortality rates at ages 60 to 64 are significantly lower than for the general population. This is because retirement beneficiaries between the ages of 60 and 64 do not include disability beneficiaries and are thus somewhat healthier than the general population. At age 65 disability beneficiaries automatically become retirement beneficiaries and the mortality ratio rises accordingly.

(ii) For males, somewhat surprising, mortality rates after age 65 are higher than for the general population. This is since male retirement beneficiaries, who comprise 97% of the male population at age 65 and over, are generally thought to have a higher socio-economic status than the remaining 3% of the male population, and should therefore have lower mortality than the general male population. Part of the answer could lie in the difference between the census survey data used in constructing the Life Tables for Canada and our administrative data.

(iii) However, this pattern is not observed with female retirement beneficiaries, whose mortality rates are lower than general population rates at each age from 65 onward. This can be explained by the socio-economic factors mentioned earlier.

(iv) The difference between retirement beneficiary and general population mortality rates is larger for females than for males. At age 60 female rates are 36% lower while male rates are 39% lower. At age 65 female rates are still 9% lower whereas male rates are actually 1% higher. After age 65 female rates gradually approach general population mortality rates but always remain lower; male rates remain higher than general population rates but are assumed to gradually converge to general population rates by age 109.

**Chart 36 CPP Retirement Beneficiary Mortality Rates - 1996 (annual deaths per thousand persons)**

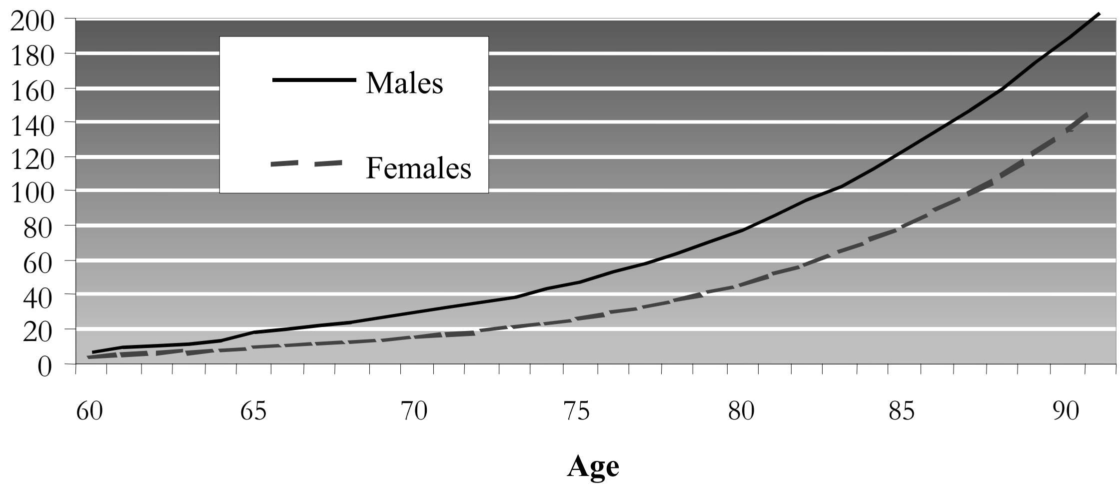



**Chart 37 Female/Male Ratio of CPP Retirement Beneficiary Mortality**

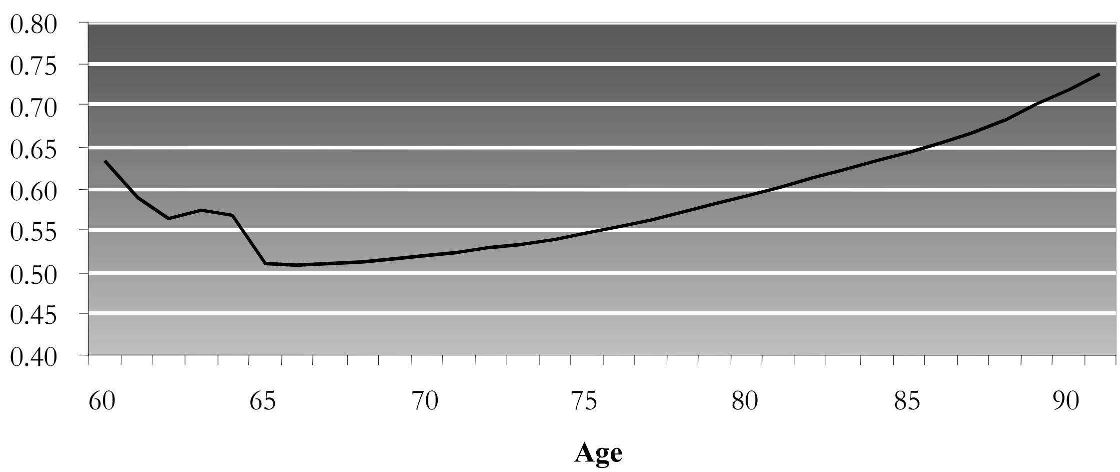
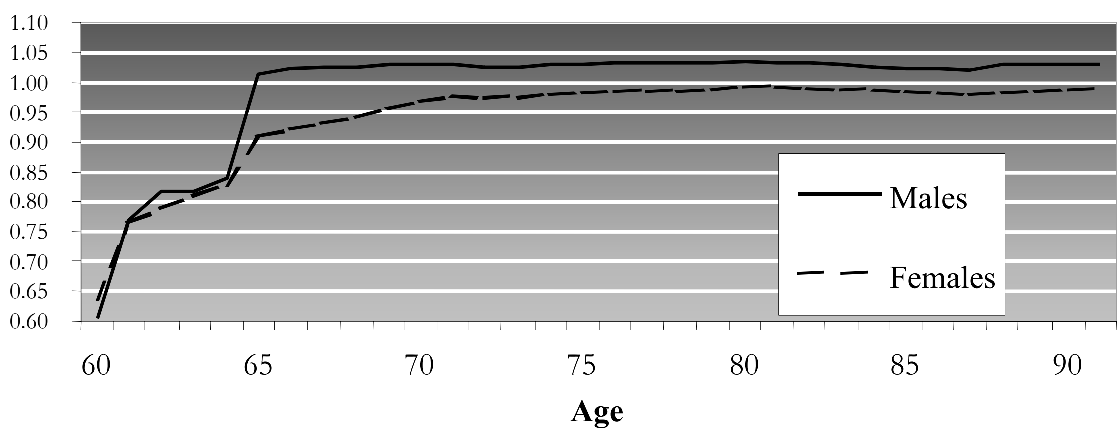



**Chart 38 CPP Retirement Beneficiary Mortality Ratios Relative to General Population**



## 2. Results by Level of Retirement Pension

As shown in Chart 34 and Table 12, males are mostly distributed in the high pension class, i.e. beneficiaries with a retirement pension between 75% and 100% of the maximum. Females are more evenly distributed among the other pension classes (see Chart 35 and Table 13).

Charts 39 and 40 and Table 14 show the mortality curves by level of pension. The pattern by level of pension is clearly recognizable; the higher the level of pension, the lower the mortality curve. The reason that individuals with high pensions have lower mortality is likely that their socio-economic background and education makes them less exposed to some mortality risks. With universal access to medical care in Canada, lack of medical care can be ruled out as a significant factor.

Charts 41 and 42 and Table 15 show the mortality ratios relative to the general population by level of pension. There is a noticeable increase in the mortality ratios at age 65, particularly for the higher pension classes; this is attributable to the automatic conversion of disability beneficiaries to retirement beneficiaries at that age.

For all levels of pension combined, male retirement beneficiaries generally have slightly higher mortality rates than the general population (mortality ratios in the vicinity of 1.025). This is because the excess mortality of males with less than 75% of the maximum pension is only partially offset by the light mortality (ratios generally under 1.000) of those with the highest pensions

For all levels of pension combined, female retirement beneficiaries generally have slightly lower mortality rates than the general population. The mortality ratio of 0.911 at age 65 rises gradually to reach 1.000 by age 109. The overall light mortality is attributable to the light mortality of females with at least 25% of the maximum pension only partially offset by the excess mortality (ratios as high as 1.072) of those with the lowest pensions.

**Chart 39 Male CPP Retirement Beneficiary Mortality (by Level of Pension – 1996) (annual deaths per thousand persons)**

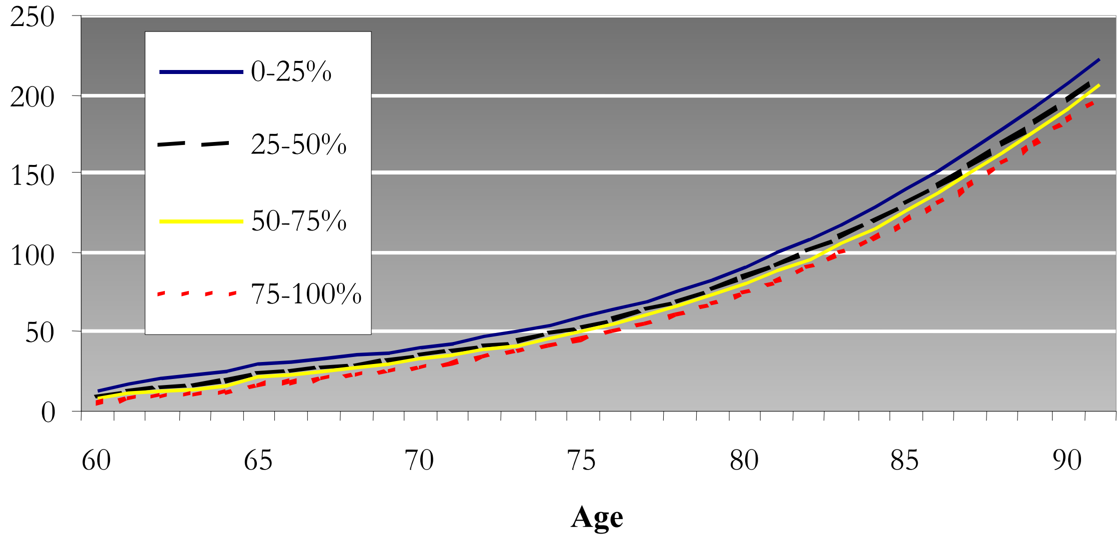



**Chart 40 Female CPP Retirement Beneficiary Mortality (by Level of Pension – 1996) (annual deaths per thousand persons)**

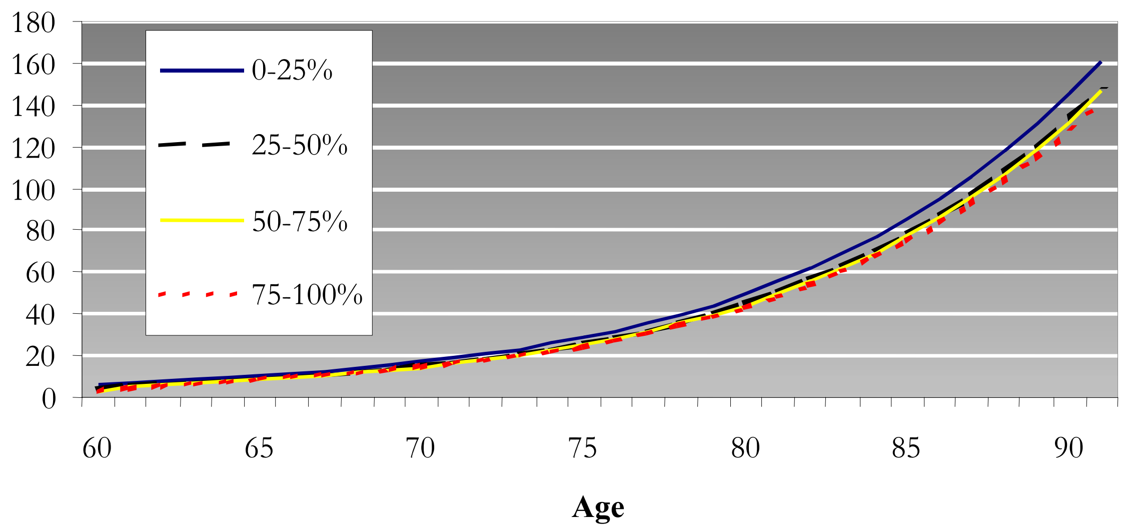


**Chart 41 Male CPP Retirement Beneficiary Mortality Ratios (by Level of Pension – 1996)**

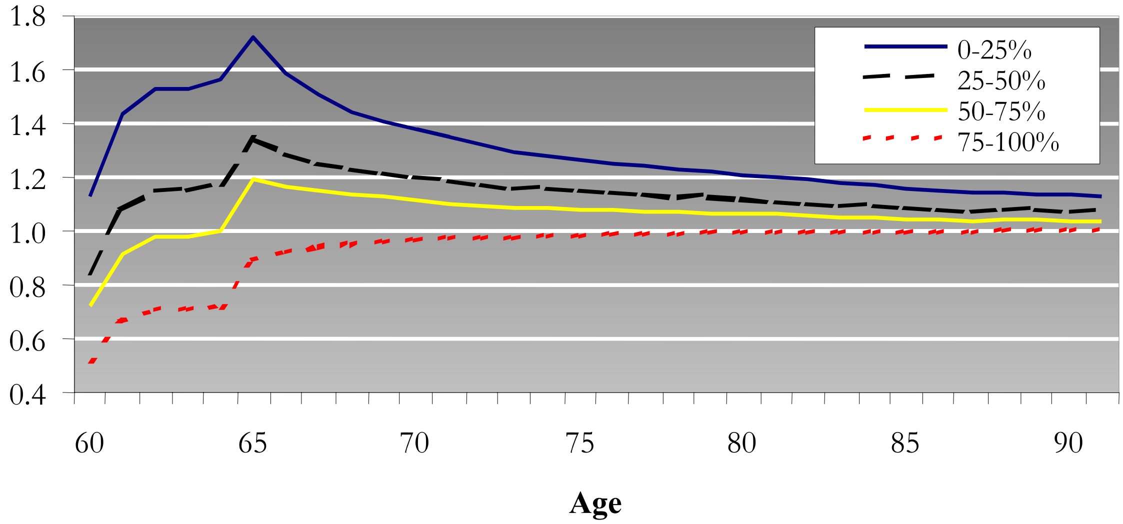
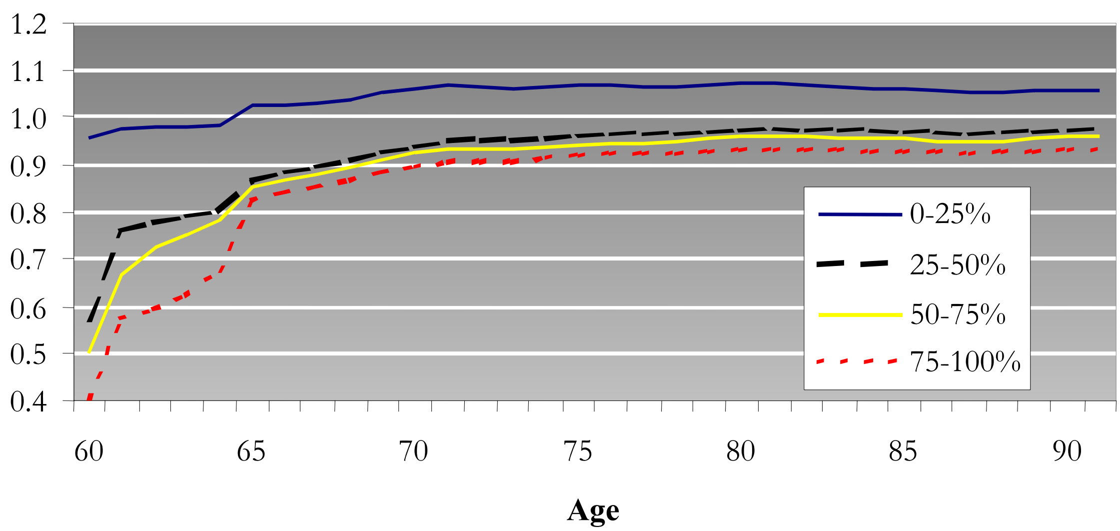



**Chart 42 Female CPP Retirement Beneficiary Mortality Ratios (by Level of Pension – 1996)**



### Table 14 CPP Retirement Beneficiary Mortality Rates (by Level of Pension – 1996) (annual deaths per thousand persons)

| | Male | | | | | | Female | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Level of Pension as % of Maximum | | | | | | Level of Pension as % of Maximum | | | | | |
| | General Pop. | All | 0-25% | 25-50% | 50-75% | 75-100% | General Pop. | All | 0-25% | 25-50% | 50-75% | 75-100% |
| **60** | 10.7 | 6.5 | 12.1 | 9.1 | 7.8 | 5.6 | 6.5 | 4.1 | 6.2 | 3.7 | 3.2 | 2.6 |
| **61** | 11.9 | 9.1 | 17.1 | 12.8 | 10.9 | 7.9 | 7.0 | 5.4 | 6.9 | 5.3 | 4.7 | 4.0 |
| **62** | 13.2 | 10.8 | 20.1 | 15.1 | 12.9 | 9.4 | 7.7 | 6.1 | 7.6 | 6.0 | 5.6 | 4.6 |
| **63** | 14.6 | 11.9 | 22.3 | 16.8 | 14.3 | 10.4 | 8.5 | 6.8 | 8.3 | 6.7 | 6.4 | 5.3 |
| **64** | 16.1 | 13.5 | 25.3 | 19.0 | 16.2 | 11.8 | 9.3 | 7.7 | 9.1 | 7.4 | 7.2 | 6.3 |
| **65** | 17.9 | 18.1 | 30.7 | 24.0 | 21.3 | 16.1 | 10.1 | 9.2 | 10.4 | 8.8 | 8.6 | 8.4 |
| **66** | 19.7 | 20.2 | 31.2 | 25.4 | 23.0 | 18.3 | 11.1 | 10.3 | 11.5 | 9.8 | 9.7 | 9.4 |
| **67** | 21.8 | 22.3 | 32.8 | 27.4 | 25.0 | 20.5 | 12.2 | 11.4 | 12.6 | 11.0 | 10.8 | 10.4 |
| **68** | 24.0 | 24.7 | 34.8 | 29.6 | 27.2 | 22.8 | 13.4 | 12.6 | 14.0 | 12.2 | 12.0 | 11.6 |
| **69** | 26.4 | 27.2 | 37.2 | 32.0 | 29.7 | 25.3 | 14.7 | 14.0 | 15.4 | 13.6 | 13.3 | 12.9 |
| **70** | 29.0 | 29.9 | 39.9 | 34.8 | 32.4 | 27.9 | 16.1 | 15.5 | 17.1 | 15.1 | 14.8 | 14.4 |
| **71** | 31.9 | 32.8 | 43.0 | 37.8 | 35.3 | 30.8 | 17.6 | 17.2 | 18.8 | 16.7 | 16.5 | 16.0 |
| **72** | 35.1 | 36.1 | 46.4 | 41.1 | 38.5 | 34.0 | 19.6 | 19.1 | 20.8 | 18.6 | 18.3 | 17.7 |
| **73** | 38.6 | 39.6 | 50.2 | 44.8 | 42.1 | 37.5 | 21.7 | 21.1 | 23.1 | 20.6 | 20.3 | 19.7 |
| **74** | 42.4 | 43.5 | 54.3 | 48.8 | 46.0 | 41.3 | 24.0 | 23.5 | 25.6 | 22.9 | 22.6 | 21.9 |
| **75** | 46.5 | 47.8 | 59.0 | 53.3 | 50.3 | 45.5 | 26.7 | 26.1 | 28.4 | 25.6 | 25.2 | 24.4 |
| **76** | 51.1 | 52.6 | 64.1 | 58.2 | 55.2 | 50.2 | 29.7 | 29.2 | 31.7 | 28.6 | 28.1 | 27.3 |
| **77** | 56.2 | 58.0 | 69.9 | 63.8 | 60.5 | 55.4 | 33.2 | 32.6 | 35.4 | 32.0 | 31.5 | 30.5 |
| **78** | 61.9 | 63.9 | 76.3 | 69.9 | 66.5 | 61.2 | 37.1 | 36.5 | 39.6 | 35.8 | 35.2 | 34.2 |
| **79** | 68.3 | 70.4 | 83.3 | 76.7 | 73.0 | 67.6 | 41.5 | 40.9 | 44.3 | 40.1 | 39.5 | 38.3 |
| **80** | 75.1 | 77.6 | 91.0 | 84.1 | 80.2 | 74.6 | 46.3 | 45.8 | 49.6 | 45.0 | 44.3 | 43.0 |
| **81** | 82.7 | 85.3 | 99.3 | 92.1 | 88.0 | 82.2 | 51.7 | 51.3 | 55.4 | 50.4 | 49.6 | 48.2 |
| **82** | 91.0 | 93.8 | 108.2 | 100.8 | 96.4 | 90.5 | 58.0 | 57.4 | 62.0 | 56.4 | 55.6 | 53.9 |
| **83** | 100.2 | 102.9 | 117.9 | 110.2 | 105.6 | 99.5 | 65.0 | 64.1 | 69.1 | 63.1 | 62.1 | 60.3 |
| **84** | 110.1 | 112.8 | 128.4 | 120.3 | 115.4 | 109.2 | 72.5 | 71.5 | 77.0 | 70.3 | 69.2 | 67.2 |
| **85** | 120.7 | 123.5 | 139.7 | 131.3 | 126.1 | 119.7 | 80.9 | 79.5 | 85.6 | 78.3 | 77.1 | 74.8 |
| **86** | 132.1 | 135.0 | 151.8 | 143.0 | 137.6 | 131.1 | 90.2 | 88.4 | 95.1 | 87.1 | 85.8 | 83.2 |
| **87** | 144.3 | 147.3 | 164.6 | 155.5 | 149.7 | 143.2 | 100.6 | 98.3 | 105.7 | 96.9 | 95.4 | 92.6 |
| **88** | 156.0 | 160.3 | 178.1 | 168.7 | 162.6 | 156.0 | 111.6 | 109.4 | 117.5 | 107.8 | 106.2 | 103.1 |
| **89** | 169.2 | 174.0 | 192.3 | 182.6 | 176.2 | 169.5 | 123.9 | 121.8 | 130.7 | 120.1 | 118.3 | 114.8 |
| **90** | 183.3 | 188.4 | 207.1 | 197.1 | 190.4 | 183.7 | 137.5 | 135.5 | 145.3 | 133.6 | 131.7 | 127.8 |
| **91** | 198.0 | 203.4 | 222.5 | 212.3 | 205.2 | 198.6 | 152.4 | 150.3 | 161.2 | 148.3 | 146.1 | 141.8 |
| **92** | 213.4 | 218.8 | 238.1 | 227.7 | 220.3 | 213.8 | 168.8 | 166.8 | 178.7 | 164.6 | 162.2 | 157.5 |
| **93** | 240.2 | 245.4 | 265.8 | 254.7 | 246.7 | 240.1 | 183.7 | 181.7 | 194.6 | 179.4 | 176.8 | 171.6 |
| **94** | 259.2 | 264.2 | 284.9 | 273.6 | 265.2 | 258.8 | 200.7 | 198.7 | 212.7 | 196.3 | 193.4 | 187.8 |
| **95** | 279.1 | 284.0 | 304.9 | 293.4 | 284.7 | 278.4 | 218.6 | 216.7 | 231.8 | 214.1 | 211.0 | 204.8 |
| **96** | 300.0 | 304.7 | 325.8 | 314.2 | 305.5 | 299.3 | 237.5 | 235.6 | 250.8 | 233.0 | 229.8 | 223.6 |
| **97** | 321.7 | 326.3 | 347.2 | 335.8 | 327.2 | 321.0 | 257.3 | 255.5 | 270.6 | 252.8 | 249.6 | 243.4 |
| **98** | 344.4 | 348.8 | 369.4 | 358.2 | 349.8 | 343.7 | 278.0 | 276.2 | 291.2 | 273.5 | 270.4 | 264.2 |
| **99** | 367.9 | 372.2 | 392.2 | 381.3 | 373.1 | 367.2 | 299.5 | 297.8 | 312.5 | 295.1 | 292.1 | 286.0 |
| **100** | 392.2 | 396.3 | 415.5 | 405.1 | 397.2 | 391.6 | 321.9 | 320.2 | 334.3 | 317.6 | 314.6 | 308.8 |
| **101** | 417.3 | 421.3 | 439.4 | 429.5 | 422.1 | 416.7 | 344.9 | 343.3 | 356.8 | 340.8 | 338.0 | 332.5 |
| **102** | 443.1 | 446.9 | 463.6 | 454.5 | 447.5 | 442.6 | 368.6 | 367.0 | 379.7 | 364.8 | 362.2 | 357.0 |
| **103** | 469.6 | 473.2 | 488.3 | 479.9 | 473.6 | 469.1 | 392.8 | 391.3 | 403.0 | 389.4 | 387.0 | 382.2 |
| **104** | 496.7 | 500.1 | 513.1 | 505.8 | 500.2 | 496.2 | 417.6 | 416.1 | 426.6 | 414.5 | 412.4 | 408.2 |
| **105** | 524.2 | 527.5 | 538.1 | 531.9 | 527.2 | 523.8 | 442.8 | 441.4 | 450.4 | 440.2 | 438.4 | 434.8 |
| **106** | 553.2 | 556.2 | 564.1 | 559.2 | 555.5 | 552.9 | 468.1 | 466.8 | 474.1 | 466.0 | 464.6 | 461.8 |
| **107** | 581.6 | 583.3 | 589.3 | 585.9 | 583.3 | 581.4 | 493.5 | 492.9 | 497.8 | 492.1 | 491.1 | 489.1 |
| **108** | 610.4 | 611.1 | 614.4 | 612.6 | 611.2 | 610.3 | 519.1 | 518.8 | 521.3 | 518.3 | 517.8 | 516.8 |
| **109** | 639.4 | 639.4 | 639.4 | 639.4 | 639.4 | 639.4 | 544.6 | 544.6 | 544.6 | 544.6 | 544.6 | 544.6 |

## Table 15 CPP Retirement Beneficiary Mortality Ratios (by Level of Pension – 1996)

| | Male | | | | | Female | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Level of Pension as % of Maximum | | | | | Level of Pension as % of Maximum | | | | |
| | All | 0-25% | 25-50% | 50-75% | 75-100% | All | 0-25% | 25-50% | 50-75% | 75-100% |
| **60** | 0.605 | 1.128 | 0.849 | 0.724 | 0.526 | 0.636 | 0.955 | 0.569 | 0.500 | 0.404 |
| **61** | 0.770 | 1.436 | 1.081 | 0.921 | 0.669 | 0.764 | 0.974 | 0.758 | 0.665 | 0.574 |
| **62** | 0.817 | 1.524 | 1.147 | 0.977 | 0.710 | 0.787 | 0.979 | 0.778 | 0.725 | 0.593 |
| **63** | 0.818 | 1.526 | 1.149 | 0.979 | 0.711 | 0.808 | 0.982 | 0.789 | 0.752 | 0.622 |
| **64** | 0.839 | 1.564 | 1.178 | 1.003 | 0.729 | 0.830 | 0.985 | 0.800 | 0.779 | 0.675 |
| **65** | 1.013 | 1.719 | 1.344 | 1.194 | 0.899 | 0.911 | 1.029 | 0.868 | 0.851 | 0.824 |
| **66** | 1.022 | 1.582 | 1.290 | 1.167 | 0.926 | 0.920 | 1.029 | 0.884 | 0.868 | 0.840 |
| **67** | 1.025 | 1.503 | 1.255 | 1.147 | 0.939 | 0.929 | 1.032 | 0.896 | 0.880 | 0.853 |
| **68** | 1.026 | 1.448 | 1.230 | 1.133 | 0.948 | 0.940 | 1.039 | 0.910 | 0.894 | 0.866 |
| **69** | 1.028 | 1.407 | 1.212 | 1.123 | 0.956 | 0.954 | 1.051 | 0.925 | 0.909 | 0.882 |
| **70** | 1.030 | 1.376 | 1.199 | 1.115 | 0.963 | 0.967 | 1.062 | 0.939 | 0.924 | 0.895 |
| **71** | 1.030 | 1.348 | 1.185 | 1.107 | 0.967 | 0.974 | 1.068 | 0.948 | 0.933 | 0.904 |
| **72** | 1.027 | 1.320 | 1.170 | 1.097 | 0.968 | 0.974 | 1.065 | 0.949 | 0.933 | 0.905 |
| **73** | 1.025 | 1.298 | 1.159 | 1.090 | 0.970 | 0.973 | 1.062 | 0.949 | 0.934 | 0.906 |
| **74** | 1.027 | 1.283 | 1.152 | 1.086 | 0.975 | 0.977 | 1.065 | 0.954 | 0.939 | 0.911 |
| **75** | 1.029 | 1.269 | 1.146 | 1.083 | 0.979 | 0.981 | 1.067 | 0.959 | 0.944 | 0.915 |
| **76** | 1.030 | 1.255 | 1.140 | 1.080 | 0.983 | 0.983 | 1.068 | 0.962 | 0.947 | 0.919 |
| **77** | 1.032 | 1.243 | 1.135 | 1.077 | 0.986 | 0.983 | 1.066 | 0.963 | 0.947 | 0.919 |
| **78** | 1.032 | 1.232 | 1.130 | 1.074 | 0.989 | 0.984 | 1.066 | 0.964 | 0.949 | 0.920 |
| **79** | 1.032 | 1.220 | 1.124 | 1.070 | 0.990 | 0.987 | 1.068 | 0.968 | 0.953 | 0.925 |
| **80** | 1.033 | 1.211 | 1.120 | 1.068 | 0.993 | 0.991 | 1.072 | 0.973 | 0.958 | 0.929 |
| **81** | 1.032 | 1.200 | 1.113 | 1.064 | 0.994 | 0.992 | 1.072 | 0.975 | 0.960 | 0.931 |
| **82** | 1.030 | 1.189 | 1.107 | 1.059 | 0.994 | 0.990 | 1.068 | 0.972 | 0.958 | 0.929 |
| **83** | 1.027 | 1.177 | 1.100 | 1.054 | 0.993 | 0.987 | 1.064 | 0.970 | 0.956 | 0.927 |
| **84** | 1.025 | 1.167 | 1.093 | 1.049 | 0.992 | 0.986 | 1.062 | 0.969 | 0.955 | 0.926 |
| **85** | 1.024 | 1.158 | 1.088 | 1.045 | 0.992 | 0.984 | 1.059 | 0.968 | 0.953 | 0.925 |
| **86** | 1.022 | 1.149 | 1.083 | 1.042 | 0.992 | 0.981 | 1.055 | 0.966 | 0.951 | 0.923 |
| **87** | 1.021 | 1.140 | 1.077 | 1.037 | 0.992 | 0.977 | 1.051 | 0.963 | 0.948 | 0.920 |
| **88** | 1.027 | 1.141 | 1.081 | 1.042 | 1.000 | 0.981 | 1.053 | 0.967 | 0.952 | 0.924 |
| **89** | 1.028 | 1.136 | 1.079 | 1.041 | 1.002 | 0.983 | 1.055 | 0.969 | 0.955 | 0.927 |
| **90** | 1.028 | 1.130 | 1.075 | 1.039 | 1.002 | 0.985 | 1.057 | 0.972 | 0.957 | 0.929 |
| **91** | 1.028 | 1.124 | 1.072 | 1.037 | 1.003 | 0.986 | 1.057 | 0.973 | 0.959 | 0.931 |
| **92** | 1.025 | 1.116 | 1.067 | 1.032 | 1.002 | 0.988 | 1.059 | 0.975 | 0.961 | 0.933 |
| **93** | 1.022 | 1.107 | 1.060 | 1.027 | 1.000 | 0.989 | 1.059 | 0.977 | 0.962 | 0.934 |
| **94** | 1.019 | 1.099 | 1.056 | 1.023 | 0.998 | 0.990 | 1.060 | 0.978 | 0.964 | 0.936 |
| **95** | 1.018 | 1.093 | 1.051 | 1.020 | 0.998 | 0.991 | 1.060 | 0.979 | 0.965 | 0.937 |
| **96** | 1.016 | 1.086 | 1.048 | 1.019 | 0.998 | 0.992 | 1.056 | 0.981 | 0.968 | 0.941 |
| **97** | 1.014 | 1.079 | 1.044 | 1.017 | 0.998 | 0.993 | 1.052 | 0.982 | 0.970 | 0.946 |
| **98** | 1.013 | 1.073 | 1.040 | 1.016 | 0.998 | 0.994 | 1.047 | 0.984 | 0.973 | 0.950 |
| **99** | 1.012 | 1.066 | 1.037 | 1.014 | 0.998 | 0.994 | 1.043 | 0.985 | 0.975 | 0.955 |
| **100** | 1.011 | 1.060 | 1.033 | 1.013 | 0.998 | 0.995 | 1.039 | 0.987 | 0.978 | 0.959 |
| **101** | 1.010 | 1.053 | 1.029 | 1.011 | 0.999 | 0.995 | 1.034 | 0.988 | 0.980 | 0.964 |
| **102** | 1.009 | 1.046 | 1.026 | 1.010 | 0.999 | 0.996 | 1.030 | 0.990 | 0.983 | 0.968 |
| **103** | 1.008 | 1.040 | 1.022 | 1.009 | 0.999 | 0.996 | 1.026 | 0.991 | 0.985 | 0.973 |
| **104** | 1.007 | 1.033 | 1.018 | 1.007 | 0.999 | 0.997 | 1.022 | 0.993 | 0.988 | 0.977 |
| **105** | 1.006 | 1.026 | 1.015 | 1.006 | 0.999 | 0.997 | 1.017 | 0.994 | 0.990 | 0.982 |
| **106** | 1.006 | 1.020 | 1.011 | 1.004 | 0.999 | 0.997 | 1.013 | 0.996 | 0.993 | 0.986 |
| **107** | 1.003 | 1.013 | 1.007 | 1.003 | 1.000 | 0.999 | 1.009 | 0.997 | 0.995 | 0.991 |
| **108** | 1.001 | 1.007 | 1.004 | 1.001 | 1.000 | 0.999 | 1.004 | 0.999 | 0.998 | 0.995 |
| **109** | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |

## 3. Mortality Improvements and Life Expectancies

Annual mortality improvement rates for retirement beneficiaries were calculated over the period 1987-1996 by age group, sex and level of pension. As a comparison, Table 16 also shows the general population mortality improvement rates for the same period, as well as the ultimate annual improvement rate assumption used in the Eighteenth CPP Actuarial Report, i.e. the rates for 2021 and later (see Section II-C for a full discussion).

Over the period 1987 to 1996 the pattern of male retirement beneficiary mortality improvement by age group was the same as for the general population, but the amount of improvement was materially less. The same comments apply to female retirement beneficiaries.

**Table 16 CPP Retirement Beneficiary Annual Mortality Improvement Rates**

| | Male | | | Female | | |
|---|---|---|---|---|---|---|
| Age Group | General Population [1] (1987-96) | CPP Retirement Beneficiaries (1987-96) | 18th CPP Actuarial Report (2021+) | General Population [1] (1987-96) | CPP Retirement Beneficiaries (1987-96) | 18th CPP Actuarial Report (2021+) |
| 60-64 | 2.67% | 2.04% | 0.60% | 1.40% | 1.09% | 0.50% |
| 65-69 | 2.03 | 1.67 | 0.60 | 0.95 | 0.73 | 0.50 |
| 70-74 | 1.82 | 1.36 | 0.60 | 1.07 | 0.59 | 0.50 |
| 75-79 | 1.45 | 1.22 | 0.55 | 0.87 | 0.44 | 0.50 |
| 80-84 | 0.79 | 0.54 | 0.55 | 0.56 | -0.15 | 0.50 |
| 85-89 | 0.19 | -0.27 | 0.55 | -0.08 | -1.00 | 0.50 |
| 90+ | - | - | 0.55 | - | - | 0.50 |

[1] Based on Life Tables for Canada (see Section III).

Tables 17 and 18 show life expectancies without future mortality improvements, based on the CPP retirement beneficiary mortality rates obtained for 1996 and on the comparable general population mortality rates. Male CPP life expectancies do not differ much from the general population life expectancies; they are slightly lower for each level of pension except the 75-100% level. In contrast, CPP females have higher life expectancies than the general population for levels of pension except for the 0-25% level.

From Table 17 we can also observe that males at age 60 with pensions between 75 to 100% of the maximum live about 16% longer (i.e. 2.9 years) than males with pensions between 0 and 25%. By age 65 the difference has narrowed a bit to 15% but at age 90 it is still 10%. For females (Table 18) the difference between the two levels of pension is much lower, being only 6% at age 60. By age 90 the difference increases to about 10%.

**Table 17 Male CPP Retirement Beneficiary Life Expectancies**[1]

| | Level of Pension as % of Maximum | | | | | |
|---|---|---|---|---|---|---|
| **Age** | **0-25%** | **25-50%** | **50-75%** | **75-100%** | **ALL** | **95-97 C-QLT** |
| 60 | 17.71 | 18.90 | 19.52 | 20.61 | 20.11 | 20.04 |
| 65 | 14.25 | 15.13 | 15.60 | 16.43 | 16.03 | 16.24 |
| 70 | 11.41 | 12.02 | 12.37 | 12.94 | 12.65 | 12.84 |
| 75 | 8.81 | 9.24 | 9.51 | 9.91 | 9.69 | 9.85 |
| 80 | 6.58 | 6.89 | 7.09 | 7.35 | 7.19 | 7.33 |
| 85 | 4.80 | 5.01 | 5.16 | 5.32 | 5.21 | 5.31 |
| 90 | 3.45 | 3.58 | 3.69 | 3.78 | 3.71 | 3.79 |

**Table 18 Female CPP Retirement Beneficiary Life Expectancies**[1]

| | Level of Pension as % of Maximum | | | | | |
|---|---|---|---|---|---|---|
| **Age** | **0-25%** | **25-50%** | **50-75%** | **75-100%** | **ALL** | **95-97 C-QLT** |
| 60 | 23.72 | 24.68 | 24.85 | 25.17 | 24.50 | 24.12 |
| 65 | 19.53 | 20.33 | 20.45 | 20.69 | 20.17 | 19.98 |
| 70 | 15.65 | 16.34 | 16.45 | 16.67 | 16.21 | 16.09 |
| 75 | 12.11 | 12.70 | 12.80 | 12.99 | 12.59 | 12.50 |
| 80 | 9.01 | 9.50 | 9.58 | 9.75 | 9.41 | 9.34 |
| 85 | 6.46 | 6.85 | 6.92 | 7.06 | 6.78 | 6.71 |
| 90 | 4.48 | 4.78 | 4.83 | 4.94 | 4.73 | 4.69 |

[1] Based on 1996 mortality rates (i.e. no subsequent mortality improvements).

# V. CPP Survivor Beneficiary Mortality

## A. Introduction

After retirement, one of the major CPP benefits paid is the survivor benefit. Survivor benefits cover CPP members from age 18 to their death. Just as for retirement beneficiary mortality, survivor beneficiary mortality trends diverge somewhat from the general population. This section presents the methodology and results of our study on the mortality of CPP survivor beneficiaries. One of the goals of this study is to develop mortality ratios for CPP survivor beneficiaries relative to the general population. Again the term “general population” will be used to refer to the population of Canada less Québec as this is the population covered by the CPP.

## B. Benefit Eligibility

The surviving spouse of a contributor is eligible for a survivor benefit if the following three conditions are met as at the date of the contributor’s death.

- If the surviving spouse was not legally married to the deceased contributor, they must have cohabited for not less than one year immediately before the death of the contributor.

- The deceased contributor must have made contributions for ten calendar years or, if lesser, one-third of the number of years included wholly or partly in his or her contributory period, but not less than three years.

- The surviving spouse must have dependent children, be disabled or be at least 35 years of age. A surviving spouse with dependent children means a surviving spouse who wholly or substantially maintains a child of the deceased contributor where the child is under age 18, or aged 18 or over but under age 25 and attending school full-time, or aged 18 or over and disabled, having been disabled without interruption since attaining age 18 or the time of the contributor’s death, whichever occurred later.

## C. Survivor Benefit Calculation

The initial amount of monthly survivor benefit depends on the age of the survivor, the survivor’s disability status and the presence of dependent children. If a surviving spouse is receiving a retirement pension or a disability benefit, the monthly amount of the surviving spouse benefit may be reduced. The following five cases are relevant.

### 1. New Survivor Age 45 to 65

The amount of monthly benefit payable until the surviving spouse attains age 65 is composed of two portions: a flat-rate benefit depending only on the year in which the survivor benefit is payable, and an earnings-related benefit depending initially only on the contributor's record of pensionable earnings as at the date of death. The earnings-related portion is equal to 37.5% of the retirement pension accrued by the deceased contributor, except that no actuarial adjustment applies.

### 2. New Survivor Under Age 45

An eligible spouse, without dependent child(ren) and not disabled, who becomes widowed before age 35 is not entitled to a survivor benefit (but may be entitled at a later date; see 4 and 5 below). If such survivor is between 35 and 45 years of age she or he is entitled to an amount of benefit calculated as described in 1 above but reduced (until the earlier of disablement or attainment of age 65) by 1/120th of such amount for each month by which the new survivor's age falls short of 45 years.

### 3. New Survivor Under Age 45 with Dependent Children

An eligible spouse who becomes widowed while aged less than 45 years and with dependent children is entitled to a survivor benefit calculated as in 1 above. Under certain circumstances the survivor benefit is reduced or even discontinued when the last dependent child loses such status. If the survivor is then under age 45 and not disabled, she or he is considered to be a new survivor entitled only to the benefit in accordance with 2 above.

### 4. Disabled Survivor Under Age 65

An eligible surviving spouse under age 65 is entitled to a survivor benefit calculated as in 1 above whenever she or he is disabled. If the disabled surviving spouse recovers from disability before age 45, the survivor benefit is discontinued or reduced to what it would be for a new survivor in accordance with 2 above.

### 5. Survivor Age 65 or Over

At age 65, or upon widowhood at a later age, an eligible surviving spouse is entitled to a monthly benefit equal to 60% of the retirement pension accrued by the deceased contributor, except that no actuarial adjustment applies.

## D. Description of Data

Human Resources Development Canada (HRDC) provided us with a 31 December 2000 extract of the CPP Master Benefit File, which contains information on all CPP benefits paid in each month since 1966 when the CPP was established. From the extract we took all the data covering the sixteen-year period (from January 1985 to December 2000) selected for our study. We validated each data record and found only 0.1% of them to have incurred or missing data; these records were discarded. The study included 328,000 deaths and 10,773,923 life-years of exposure.

The recent 1995-1997 Life Tables for Canada (LTC) published by Statistics Canada, present a demographic model that portrays in a clear and concise manner the mortality experience of the general Canadian population and permits one to derive comparative measures of expected longevity. The tables were produced using the age-sex-specific mortality rates for Canada that prevailed over the period 1995-1997.

## E. Methodology

### 1. Mortality Rates

The mortality rate for a given age last birthday in any given calendar year (CY) is the probability that a person at that age on 1 January dies by 31 December. Mortality rates ($q_{age}$) are calculated for each calendar year by attained age and sex by simply dividing the relevant number of deaths ($d_{age}$) by the corresponding total exposures ($E_{age}$).

$$q_{age}^{CY} = \frac{d_{age}^{CY}}{E_{age}^{CY}}$$

Mortality rates determined in such a manner were then compared to those of the general population (based on the 1995-1997 LTC). However, to do so, we needed to put the data on the same basis, i.e. mortality rates centered in year 1996. For this purpose the survivor mortality level considered to apply to 1996 was obtained by using an exponential regression to remove the random year-to-year fluctuations over the experience period 1985-2000. This was done for each age and sex. A graduation was also made for males and females over 50 to significantly improve the smoothness of the mortality rates at advanced ages.

### 2. Deaths

The first step in the calculation of experience mortality rates is to count the number of deaths ($d_{age}$) by calendar year and age. Mortality rates below 50 for males and females were not calculated, as there were not enough exposures from which derive reliable mortality rates.

### 3. Exposures

The second step in the calculation of survivor beneficiary mortality rates is to calculate mortality exposures ($E_{age}$) by calendar year and attained age last birthday. Exposures are interpreted as the number of persons exposed to the risk of death during the period examined. The approach used was seriatim (i.e. each individual separately) as opposed to grouped. The methodology used for the calculation of exposures is based on the Balducci convention whereby a person contributes exposure in respect of the portion of the year remaining at the time of death. The exposures including Balducci add-ons, and the corresponding numbers of deaths, are then tabulated by year, age, and sex.

Male exposures are considerably lower than for females at all ages. One reason is that CPP participation rates for females have historically been lower than male rates, meaning fewer potential male survivors. A second reason is that new survivors are predominantly female for couples in general because male mortality is materially higher than female mortality. As well, male spouses on average are several years older than female spouses. The very low male exposures make the calculation of mortality rates more difficult at the younger ages. The exposures for 1996 only are presented in Charts 43 and 44.

**Chart 43 Male CPP Survivor Beneficiary Exposures – 1996**

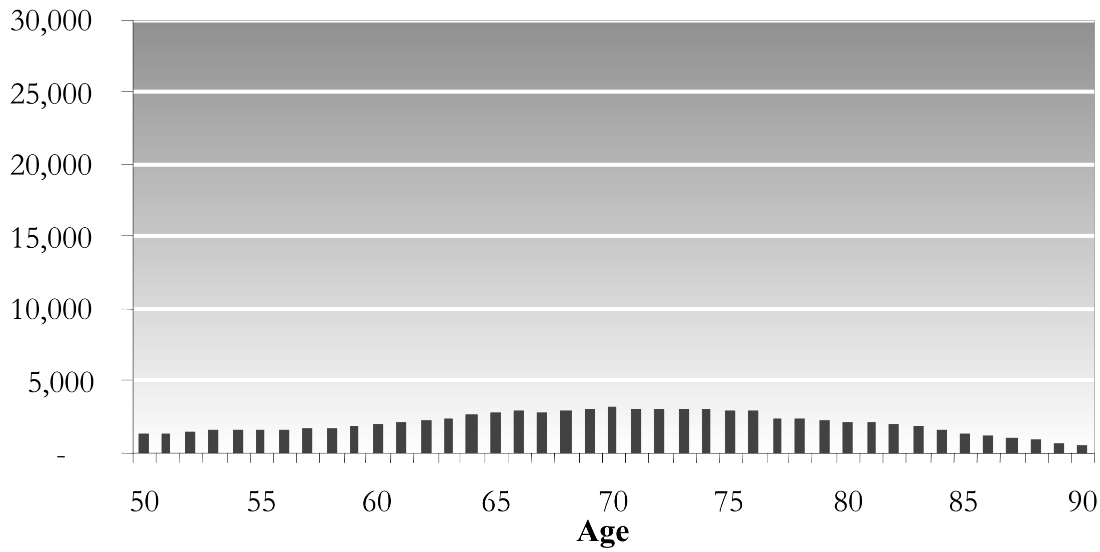
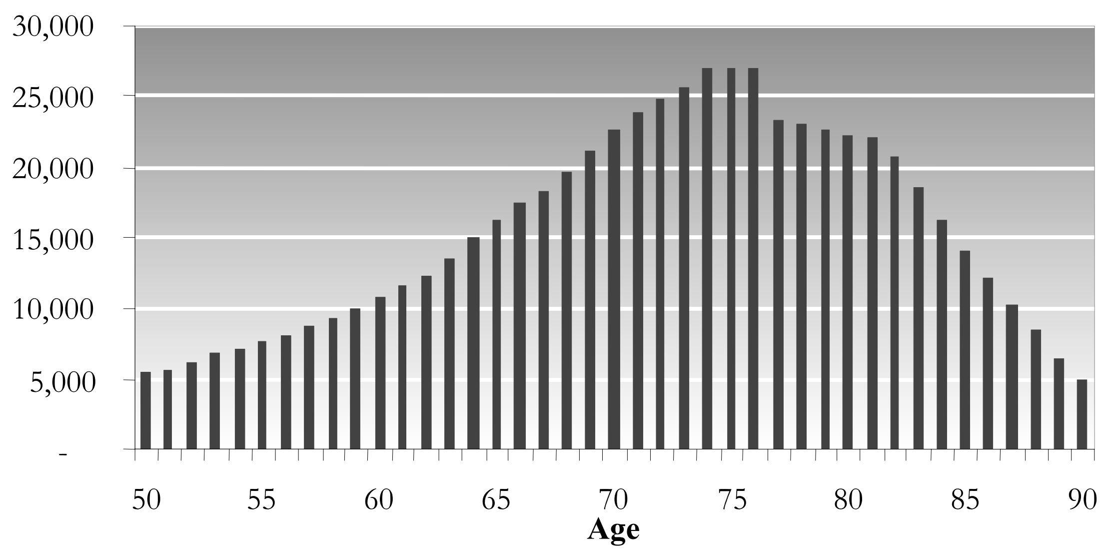



**Chart 44 Female CPP Survivor Beneficiary Exposures – 1996**



### 4. Mortality Ratios

The next step was to compare the survivor mortality rates to those of the general population. The ratios were then graduated using a polynomial regression.

Because we assume that survivor mortality rates eventually converge to the general population mortality, mortality rates for male survivor beneficiaries are assumed to gradually reach those of the general population by age 109 while female survivor beneficiary mortality rates are assumed to do so by age 83, after which the experience rates were indistinguishable from general population rates.

## F. Results

### 1. Results by Sex

Charts 45 and 46 show the 1996 mortality rates derived for CPP survivor beneficiaries and the female rates as a proportion of the male rates, respectively. Chart 46 confirms that there is a gender gap in survivor mortality but that the pattern is unique. At age 50 female mortality rates are 73% of male rates with the ratio dropping to only 54% by age 65. The gap after age 65 gradually disappears by age 109. Table 19 shows the resulting survivor beneficiary mortality rates and general population mortality ratios by age and sex.

Chart 47 is particularly useful because it expresses CPP survivor mortality rates relative to the rates for the general population. CPP survivor beneficiary mortality is seen to be significantly higher than that of the general population. One reason might be that survivors are deeply affected by the loss of their spouse, especially at the older ages where the survivor may already be in a weakened condition. Also in some cases one could assume that losing part of the primary source of income adds stress to the survivors.

Chart 47 also shows that male mortality rates are higher than those for the general population at all ages. The male and female mortality ratio curves have different shapes. Males have a bell-shaped curve where the ratios increase from age 50 to 62 and then gradually decrease to reach one by age 109. In contrast, female mortality ratios have a gradually decreasing pattern from age 50 up to age 83 where they reach the ultimate ratio of 1.0. At age 50, male mortality rates are 9% higher than the general population while female rates are about 30% higher. At age 65 the excess reaches 27% for males and 18% for females and then gradually disappears by age 109 for males and age 83 for females (see Chart 47).

**Chart 45 CPP Survivor Beneficiary Mortality Rates - 1996 (annual deaths per thousand persons)**

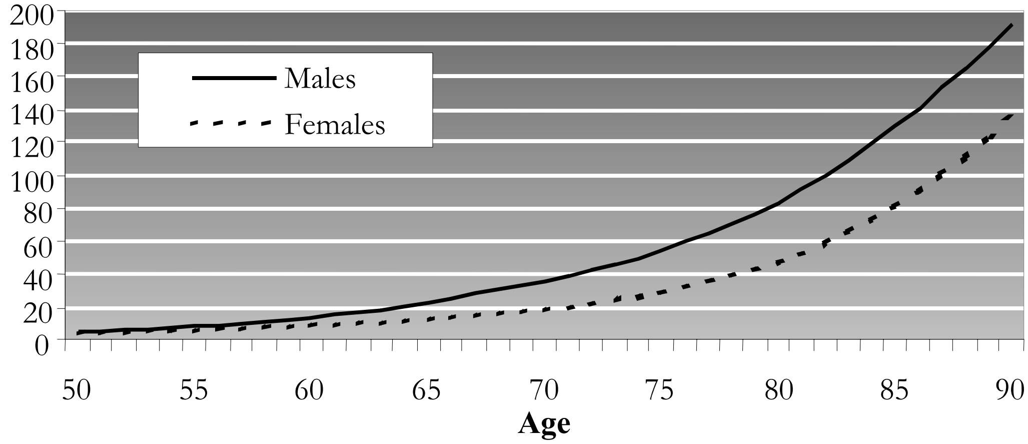



**Chart 46 Female/Male Ratio of CPP Survivor Beneficiary Mortality**

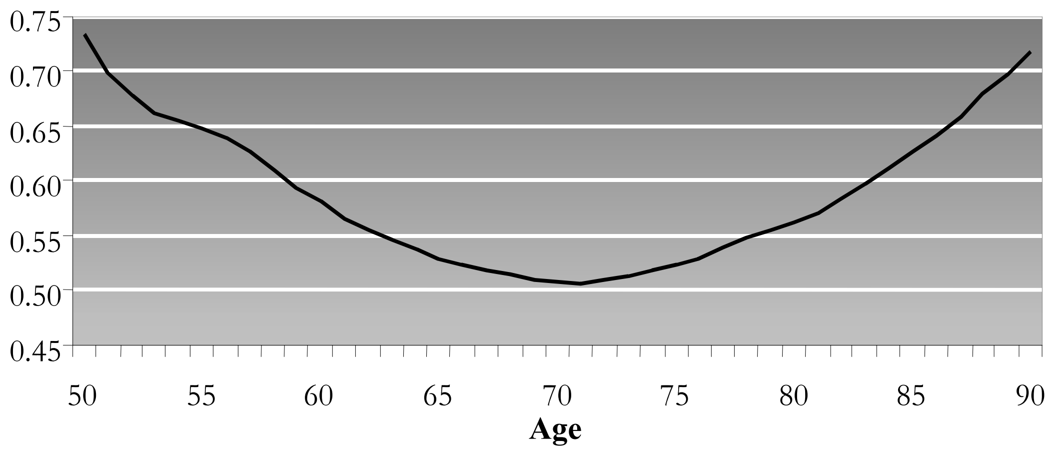



**Chart 47 CPP Survivor Beneficiary Mortality Ratios Relative to General Population**

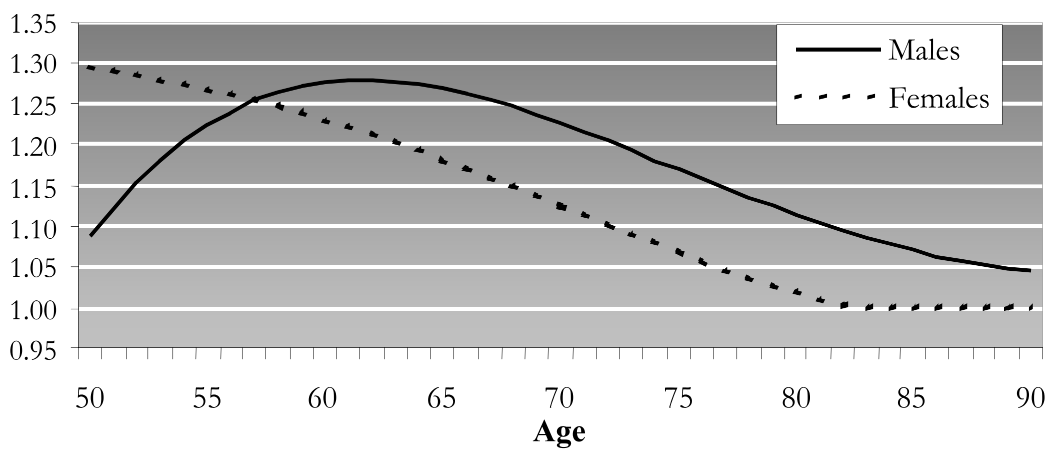


**Table 19 CPP Survivor Beneficiary Mortality Rates and Ratios – 1996**

| | Mortality Rates (per thousand) | | | | Mortality Ratios for CPP Survivors | | |
|---|---|---|---|---|---|---|---|
| | General Population[1] | | CPP Survivors | | General Population[1] | | Female |
| Age | Male | Female | Male | Female | Male | Female | Vs. Male |
| **50** | 4.0 | 2.5 | 4.3 | 3.2 | 1.09 | 1.30 | 0.73 |
| **51** | 4.4 | 2.7 | 5.0 | 3.5 | 1.12 | 1.29 | 0.70 |
| **52** | 4.9 | 3.0 | 5.7 | 3.9 | 1.15 | 1.29 | 0.68 |
| **53** | 5.4 | 3.3 | 6.4 | 4.3 | 1.18 | 1.28 | 0.66 |
| **54** | 6.0 | 3.7 | 7.2 | 4.7 | 1.20 | 1.27 | 0.65 |
| **55** | 6.5 | 4.1 | 8.0 | 5.2 | 1.22 | 1.27 | 0.65 |
| **56** | 7.2 | 4.5 | 8.9 | 5.7 | 1.24 | 1.26 | 0.64 |
| **57** | 7.9 | 5.0 | 9.9 | 6.2 | 1.25 | 1.25 | 0.63 |
| **58** | 8.8 | 5.4 | 11.1 | 6.8 | 1.26 | 1.25 | 0.61 |
| **59** | 9.7 | 5.9 | 12.4 | 7.3 | 1.27 | 1.24 | 0.59 |
| **60** | 10.7 | 6.5 | 13.7 | 7.9 | 1.28 | 1.23 | 0.58 |
| **61** | 11.9 | 7.0 | 15.2 | 8.6 | 1.28 | 1.22 | 0.57 |
| **62** | 13.2 | 7.7 | 16.9 | 9.4 | 1.28 | 1.21 | 0.56 |
| **63** | 14.6 | 8.5 | 18.6 | 10.2 | 1.28 | 1.20 | 0.55 |
| **64** | 16.1 | 9.3 | 20.6 | 11.0 | 1.27 | 1.19 | 0.54 |
| **65** | 17.9 | 10.1 | 22.7 | 12.0 | 1.27 | 1.18 | 0.53 |
| **66** | 19.7 | 11.1 | 24.9 | 13.0 | 1.26 | 1.17 | 0.52 |
| **67** | 21.8 | 12.2 | 27.4 | 14.2 | 1.26 | 1.16 | 0.52 |
| **68** | 24.0 | 13.4 | 30.0 | 15.4 | 1.25 | 1.15 | 0.51 |
| **69** | 26.4 | 14.7 | 32.7 | 16.7 | 1.24 | 1.14 | 0.51 |
| **70** | 29.0 | 16.1 | 35.6 | 18.1 | 1.23 | 1.13 | 0.51 |
| **71** | 31.9 | 17.6 | 38.8 | 19.7 | 1.22 | 1.11 | 0.51 |
| **72** | 35.1 | 19.6 | 42.3 | 21.6 | 1.20 | 1.10 | 0.51 |
| **73** | 38.6 | 21.7 | 46.1 | 23.7 | 1.19 | 1.09 | 0.51 |
| **74** | 42.4 | 24.0 | 50.0 | 25.9 | 1.18 | 1.08 | 0.52 |
| **75** | 46.5 | 26.7 | 54.4 | 28.5 | 1.17 | 1.07 | 0.52 |
| **76** | 51.1 | 29.7 | 59.1 | 31.4 | 1.16 | 1.06 | 0.53 |
| **77** | 56.2 | 33.2 | 64.4 | 34.7 | 1.15 | 1.05 | 0.54 |
| **78** | 61.9 | 37.1 | 70.3 | 38.5 | 1.14 | 1.04 | 0.55 |
| **79** | 68.3 | 41.5 | 76.7 | 42.6 | 1.12 | 1.03 | 0.55 |
| **80** | 75.1 | 46.3 | 83.7 | 47.1 | 1.11 | 1.02 | 0.56 |
| **81** | 82.7 | 51.7 | 91.3 | 52.2 | 1.10 | 1.01 | 0.57 |
| **82** | 91.0 | 58.0 | 99.6 | 58.1 | 1.09 | 1.00 | 0.58 |
| **83** | 100.2 | 65.0 | 108.8 | 65.0 | 1.09 | 1.00 | 0.60 |
| **84** | 110.1 | 72.5 | 118.6 | 72.5 | 1.08 | 1.00 | 0.61 |
| **85** | 120.7 | 80.9 | 129.2 | 80.9 | 1.07 | 1.00 | 0.63 |
| **86** | 132.1 | 90.2 | 140.5 | 90.2 | 1.06 | 1.00 | 0.64 |
| **87** | 144.3 | 100.6 | 152.7 | 100.6 | 1.06 | 1.00 | 0.66 |
| **88** | 156.0 | 111.6 | 164.3 | 111.6 | 1.05 | 1.00 | 0.68 |
| **89** | 169.2 | 123.9 | 177.5 | 123.9 | 1.05 | 1.00 | 0.70 |
| **90** | 183.3 | 137.5 | 191.6 | 137.5 | 1.05 | 1.00 | 0.72 |
| **95** | 279.1 | 218.6 | 289.1 | 218.6 | 1.04 | 1.00 | 0.76 |
| **100** | 392.2 | 321.9 | 405.6 | 321.9 | 1.03 | 1.00 | 0.79 |
| **105** | 524.2 | 442.8 | 535.9 | 442.8 | 1.02 | 1.00 | 0.83 |
| **109** | 1000.0 | 1000.0 | 1000.0 | 1000.0 | 1.00 | 1.00 | 1.00 |

[1] Derived from 1995-1997 Canada and Quebec LTC rates using 1996 population as weights.

## 2. Mortality Improvements and Life Expectancies

Annual mortality improvement rates for survivor beneficiaries were calculated over the period 1987-1996 by age group and sex. As a comparison, Table 20 also shows the general population mortality improvement rates for the same period, as well as the ultimate assumption used in the Eighteenth CPP Actuarial Report, i.e. the improvement factors for 2021 and later (see section II-C for a full description).

Over the years 1987 to 1996, male survivor beneficiary mortality by age group generally improved at a rate somewhat lower than that observed for the general population. The same comment applies to female survivor beneficiaries.

**Table 20 CPP Survivor Beneficiary Annual Mortality Improvement Rates**

| | Male | | | Female | | |
|---|---|---|---|---|---|---|
| Age Group | General Population [1] (1987-96) | CPP Survivor Beneficiaries (1987-96) | 18th CPP Actuarial Report (2021+) | General Population [1] (1987-96) | CPP Survivor Beneficiaries (1987-96) | 18th CPP Actuarial Report (2021+) |
| 50-54 | 2.35% | 1.59% | 0.60% | 1.96% | 1.00% | 0.50% |
| 55-59 | 2.71 | 2.33 | 0.60 | 1.16 | 0.72 | 0.50 |
| 60-64 | 2.67 | 2.46 | 0.60 | 1.40 | 1.17 | 0.50 |
| 65-69 | 2.03 | 2.02 | 0.60 | 0.95 | -0.07 | 0.50 |
| 70-74 | 1.82 | 1.12 | 0.60 | 1.07 | 0.46 | 0.50 |
| 75-79 | 1.45 | 0.77 | 0.55 | 0.87 | 0.48 | 0.50 |
| 80-84 | 0.79 | 0.83 | 0.55 | 0.56 | 0.21 | 0.50 |
| 85-89 | 0.19 | -1.22 | 0.55 | -0.08 | 0.19 | 0.50 |
| 90+ | - | - | 0.55 | - | - | 0.50 |

[1] Based on Life Tables for Canada (see Section III).

Table 21 shows the life expectancy of survivor beneficiaries without future mortality improvements based on the graduated mortality rates obtained for 1996. For comparison purposes, the table also shows the general population life expectancy at comparable ages. Male CPP survivor beneficiary life expectancies are materially lower (roughly 5% at most ages) than the corresponding figures for the general population; for female survivor beneficiaries, they are slightly lower (generally 1% to 2%) until about age 80, after which they are the same as for the general population.

**Table 21 CPP Survivor Beneficiary Life Expectancies[1] - 1996**

| | Male | | Female | |
|---|---|---|---|---|
| Age | General Population | CPP | General Population | CPP |
| 50 | 28.50 | 26.95 | 33.01 | 32.21 |
| 55 | 24.15 | 22.65 | 28.47 | 27.79 |
| 60 | 20.04 | 18.69 | 24.12 | 23.59 |
| 65 | 16.24 | 15.12 | 19.98 | 19.60 |
| 70 | 12.84 | 11.99 | 16.09 | 15.87 |
| 75 | 9.85 | 9.27 | 12.50 | 12.41 |
| 80 | 7.33 | 6.96 | 9.34 | 9.32 |
| 85 | 5.31 | 5.10 | 6.71 | 6.71 |
| 90 | 3.79 | 3.66 | 4.69 | 4.69 |

[1] Based on 1996 mortality rates (i.e. no subsequent mortality improvements).

# VI. OAS Beneficiary Mortality

## A. Introduction

Historically, mortality at older ages has been difficult to measure accurately. Reliable sources of data have been rare. A good source of data for measuring mortality at ages 80 and over in future will be the administrative database of Old Age Security beneficiaries. We currently have only an aggregate extract of this database preventing us to do extensive studies. This section looks at the methodology used in the Fifth OAS Actuarial Report

## B. Benefit Eligibility

The OAS basic pension is a monthly benefit available, on application, to anyone age 65 or over who meets the residence requirements specified in the *Old Age Security Act*.

To qualify for a basic pension, a person must be 65 years of age or over, and

- must be a Canadian citizen or a legal resident of Canada on the day preceding the approval of his or her application; or

- if the person no longer lives in Canada, must have been a Canadian citizen or a legal resident of Canada on the day preceding the day he or she stopped living in Canada.

A minimum of 10 years of residence in Canada after reaching age 18 is required to receive a basic pension in Canada. To receive the pension outside the country, a person must have lived in Canada for a minimum of 20 years after reaching age 18. An international social security agreement may assist a person to meet the 10- and 20-year requirements.

## C. Benefit Calculation

The amount of a pension is determined by how long the applicant has lived in Canada, according to the following rules:

- A person who has lived in Canada, after reaching age 18, for periods that total at least 40 years may qualify for a full OAS pension.

- A person who has not lived in Canada for 40 years after reaching age 18 may still qualify for a full pension if, on 1 July 1977, he or she was 25 years of age or over, and

  - lived in Canada on that date, or
  - had lived in Canada before that date and after reaching age 18, or
  - possessed a valid immigration visa on that date.

- In such cases, the individual must have lived in Canada for the 10 years immediately prior to approval of the application for the pension. Absences during this 10-year period may be offset if, after reaching age 18, the applicant was present in Canada before those 10 years for a total period that was at least three times the length of absence. In this instance, however, the applicant must also have lived in Canada for at least one year immediately prior to the date of the approval of the application. For example, an absence of two years between the ages of 60 and 62 could be offset by six years of presence in Canada after age 18 and before reaching age 55.

A person who cannot meet the requirements for the full OAS pension may qualify for a partial pension earned at the rate of 1/40th of the full monthly pension for each complete year of residence in Canada after reaching age 18. Once a partial pension has been approved, it may not be increased as a result of additional years of residence in Canada.

## D. Description of Data

Human Resources Development Canada (HRDC) provided us with a 31 December 2000 extract of the OAS Master Benefit File, which contains information on all OAS beneficiaries for the month of June each year. The file is produced by type of benefit and covers the years 1983 to 2000 all of which are included in our study. Because the data are in a grouped format, it is impossible to follow a given beneficiary over the length of his or her beneficiary period. Furthermore, because the data are grouped by age the date and cause of exit are unknown. Therefore it prevents us from doing extensive studies on the mortality of the OAS beneficiaries.

## E. Methodology

The starting point for mortality rate projections in this report is the mortality rates from the Statistics Canada publication “Life Tables, Canada and Provinces, 1990-1992”. According to these tables, life expectancies at birth for males and females in Canada were 74.6 and 80.9 years, respectively. The 1995-1997 Life Tables were not yet available for the Fifth OAS Actuarial Report.

To reflect anticipated sustained improvements in life expectancy, the 1990-1992 mortality rates were projected to 1996 using the actual improvements in mortality experienced since 1991. This approach produced life expectancies at birth and at age 65 of 75.5 and 16.1 years for males and 81.2 and 20.0 years for females, respectively, which compared reasonably well with figures published by Statistics Canada for 1996. Mortality rates thus obtained for 1996 were then further projected to the end of the projection period using the following annual rates of mortality improvement. For 1997 to 2020, the annual rates of mortality improvement, varying by age, sex and calendar year, were obtained by linear interpolation between:

- the average improvement rates experienced in Canada between 1987 and 1996, and
- the fixed improvement rates described below in respect of the period 2021 and thereafter.

For 2021 and subsequent years, the assumed rates of improvement vary by age and sex only and not by calendar year. These ultimate rates were derived from an analysis of the Canadian and U.S. experience over the last century and are generally consistent with the Alternative II assumption used in the 2000 Social Security Administration Old-Age and Survivors Insurance and Disability Insurance Trust Fund trustees report. More details on the methodology can be found in the section III.B of the current study.

The next two tables present the evolution of the number of OAS beneficiaries and their distribution by age group. It can be seen that over the last 15 years the number of OAS beneficiaries age 80 and over increased from 16% in 1985 to almost 19% in 2000 for males. For females the figures are respectively 23% and 27%.

**Table 22 OAS Number of Beneficiaries**

| | Male | | | | Female | | | |
|---|---|---|---|---|---|---|---|---|
| **Age Group** | **1985** | **1990** | **1995** | **2000** | **1985** | **1990** | **1995** | **2000** |
| **65-69** | 392,480 | 465,256 | 511,151 | 529,868 | 465,161 | 554,056 | 564,996 | 568,169 |
| **70-74** | 315,643 | 334,706 | 415,719 | 454,112 | 396,576 | 433,692 | 523,308 | 533,610 |
| **75-79** | 202,753 | 242,528 | 267,269 | 331,667 | 287,133 | 346,839 | 384,279 | 463,374 |
| **80-84** | 106,358 | 132,853 | 164,908 | 182,879 | 182,723 | 225,615 | 278,002 | 308,223 |
| **85-89** | 45,308 | 56,243 | 71,468 | 88,613 | 100,609 | 120,606 | 152,247 | 186,271 |
| **90-94** | 16,744 | 16,963 | 22,013 | 26,890 | 42,063 | 49,689 | 61,565 | 75,407 |
| **95-99** | 3,792 | 4,006 | 4,108 | 4,889 | 10,856 | 13,615 | 16,129 | 19,086 |
| **100-104** | 470 | 617 | 514 | 515 | 1,514 | 2,169 | 2,477 | 2,732 |
| **105-109** | 76 | 49 | 44 | 22 | 181 | 170 | 194 | 172 |
| **110-114** | 52 | 3 | 1 | 1 | 77 | 3 | 5 | 13 |
| **115-120** | 7 | - | - | - | 11 | 1 | - | - |
| **80+** | 172,807 | 210,734 | 263,056 | 303,809 | 338,034 | 411,868 | 510,619 | 591,904 |
| **100+** | 605 | 669 | 559 | 538 | 1,783 | 2,343 | 2,676 | 2,917 |
| **ALL** | 1,083,683 | 1,253,224 | 1,457,195 | 1,619,456 | 1,486,904 | 1,746,455 | 1,983,202 | 2,157,057 |

**Table 23 OAS Number of Beneficiaries Distribution**

| Age Group | Male | | | | Female | | | |
|---|---|---|---|---|---|---|---|---|
| | 1985 | 1990 | 1995 | 2000 | 1985 | 1990 | 1995 | 2000 |
| | % | % | % | % | % | % | % | % |
| **65-69** | 36.2 | 37.1 | 35.1 | 32.7 | 31.3 | 31.7 | 28.5 | 26.3 |
| **70-74** | 29.1 | 26.7 | 28.5 | 28.0 | 26.7 | 24.8 | 26.4 | 24.7 |
| **75-79** | 18.7 | 19.4 | 18.3 | 20.5 | 19.3 | 19.9 | 19.4 | 21.5 |
| **80-84** | 9.8 | 10.6 | 11.3 | 11.3 | 12.3 | 12.9 | 14.0 | 14.3 |
| **85-89** | 4.2 | 4.5 | 4.9 | 5.5 | 6.8 | 6.9 | 7.7 | 8.6 |
| **90-94** | 1.5 | 1.4 | 1.5 | 1.7 | 2.8 | 2.8 | 3.1 | 3.5 |
| **95-99** | 0.3 | 0.3 | 0.3 | 0.3 | 0.7 | 0.8 | 0.8 | 0.9 |
| **100-104** | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 |
| **105-109** | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **80+** | 15.9 | 16.8 | 18.1 | 18.8 | 22.7 | 23.6 | 25.7 | 27.4 |
| **100+** | 0.1 | 0.1 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 |
| **ALL** | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

A new database with seriatim data will enable us in the short future to do a more complete study of the mortality of OAS beneficiaries.

# VII. Appendices

## Appendix A Life Tables for Canada less Quebec (18th CPP Actuarial Report)

### Calendar Year 1970

| Male | | | | | | | Female | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ | X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ |
| 0 | .020052 | 100,000 | 2,005 | 98,396 | 6,988,806 | 69.89 | 0 | .015455 | 100,000 | 1,546 | 98,764 | 7,664,506 | 76.65 |
| 1 | .001297 | 97,995 | 127 | 97,931 | 6,890,411 | 70.31 | 1 | .001172 | 98,454 | 115 | 98,397 | 7,565,743 | 76.85 |
| 2 | .000926 | 97,868 | 91 | 97,822 | 6,792,479 | 69.40 | 2 | .000764 | 98,339 | 75 | 98,302 | 7,467,346 | 75.93 |
| 3 | .000771 | 97,777 | 75 | 97,739 | 6,694,657 | 68.47 | 3 | .000581 | 98,264 | 57 | 98,235 | 7,369,044 | 74.99 |
| 4 | .000668 | 97,702 | 65 | 97,669 | 6,596,917 | 67.52 | 4 | .000527 | 98,207 | 52 | 98,181 | 7,270,809 | 74.04 |
| 5 | .000579 | 97,636 | 56 | 97,608 | 6,499,248 | 66.57 | 5 | .000458 | 98,155 | 45 | 98,133 | 7,172,628 | 73.07 |
| 6 | .000492 | 97,580 | 48 | 97,556 | 6,401,640 | 65.60 | 6 | .000381 | 98,110 | 37 | 98,092 | 7,074,495 | 72.11 |
| 7 | .000422 | 97,532 | 41 | 97,511 | 6,304,084 | 64.64 | 7 | .000319 | 98,073 | 31 | 98,057 | 6,976,404 | 71.13 |
| 8 | .000375 | 97,491 | 37 | 97,473 | 6,206,573 | 63.66 | 8 | .000286 | 98,042 | 28 | 98,028 | 6,878,347 | 70.16 |
| 9 | .000354 | 97,454 | 34 | 97,437 | 6,109,100 | 62.69 | 9 | .000269 | 98,014 | 26 | 98,000 | 6,780,319 | 69.18 |
| 10 | .000367 | 97,420 | 36 | 97,402 | 6,011,663 | 61.71 | 10 | .000268 | 97,987 | 26 | 97,974 | 6,682,319 | 68.20 |
| 11 | .000392 | 97,384 | 38 | 97,365 | 5,914,261 | 60.73 | 11 | .000271 | 97,961 | 27 | 97,948 | 6,584,345 | 67.21 |
| 12 | .000460 | 97,346 | 45 | 97,324 | 5,816,896 | 59.75 | 12 | .000298 | 97,934 | 29 | 97,920 | 6,486,397 | 66.23 |
| 13 | .000599 | 97,301 | 58 | 97,272 | 5,719,572 | 58.78 | 13 | .000331 | 97,905 | 32 | 97,889 | 6,388,477 | 65.25 |
| 14 | .000796 | 97,243 | 77 | 97,204 | 5,622,300 | 57.82 | 14 | .000382 | 97,873 | 37 | 97,854 | 6,290,588 | 64.27 |
| 15 | .001010 | 97,166 | 98 | 97,116 | 5,525,096 | 56.86 | 15 | .000435 | 97,835 | 43 | 97,814 | 6,192,734 | 63.30 |
| 16 | .001220 | 97,067 | 118 | 97,008 | 5,427,980 | 55.92 | 16 | .000486 | 97,793 | 48 | 97,769 | 6,094,920 | 62.32 |
| 17 | .001386 | 96,949 | 134 | 96,882 | 5,330,971 | 54.99 | 17 | .000522 | 97,745 | 51 | 97,720 | 5,997,151 | 61.35 |
| 18 | .001510 | 96,815 | 146 | 96,742 | 5,234,090 | 54.06 | 18 | .000536 | 97,694 | 52 | 97,668 | 5,899,432 | 60.39 |
| 19 | .001616 | 96,668 | 156 | 96,590 | 5,137,348 | 53.14 | 19 | .000536 | 97,642 | 52 | 97,616 | 5,801,764 | 59.42 |
| 20 | .001628 | 96,512 | 157 | 96,434 | 5,040,758 | 52.23 | 20 | .000516 | 97,589 | 50 | 97,564 | 5,704,148 | 58.45 |
| 21 | .001681 | 96,355 | 162 | 96,274 | 4,944,324 | 51.31 | 21 | .000511 | 97,539 | 50 | 97,514 | 5,606,584 | 57.48 |
| 22 | .001703 | 96,193 | 164 | 96,111 | 4,848,050 | 50.40 | 22 | .000513 | 97,489 | 50 | 97,464 | 5,509,070 | 56.51 |
| 23 | .001677 | 96,029 | 161 | 95,949 | 4,751,939 | 49.48 | 23 | .000521 | 97,439 | 51 | 97,414 | 5,411,605 | 55.54 |
| 24 | .001606 | 95,868 | 154 | 95,791 | 4,655,990 | 48.57 | 24 | .000530 | 97,389 | 52 | 97,363 | 5,314,191 | 54.57 |
| 25 | .001557 | 95,714 | 149 | 95,640 | 4,560,199 | 47.64 | 25 | .000559 | 97,337 | 54 | 97,310 | 5,216,829 | 53.60 |
| 26 | .001474 | 95,565 | 141 | 95,495 | 4,464,559 | 46.72 | 26 | .000579 | 97,283 | 56 | 97,254 | 5,119,519 | 52.63 |
| 27 | .001426 | 95,424 | 136 | 95,356 | 4,369,064 | 45.79 | 27 | .000607 | 97,226 | 59 | 97,197 | 5,022,264 | 51.66 |
| 28 | .001412 | 95,288 | 135 | 95,221 | 4,273,708 | 44.85 | 28 | .000646 | 97,167 | 63 | 97,136 | 4,925,068 | 50.69 |
| 29 | .001416 | 95,154 | 135 | 95,087 | 4,178,486 | 43.91 | 29 | .000691 | 97,104 | 67 | 97,071 | 4,827,932 | 49.72 |
| 30 | .001436 | 95,019 | 136 | 94,951 | 4,083,400 | 42.97 | 30 | .000743 | 97,037 | 72 | 97,001 | 4,730,861 | 48.75 |
| 31 | .001474 | 94,883 | 140 | 94,813 | 3,988,449 | 42.04 | 31 | .000801 | 96,965 | 78 | 96,926 | 4,633,860 | 47.79 |
| 32 | .001528 | 94,743 | 145 | 94,671 | 3,893,636 | 41.10 | 32 | .000864 | 96,888 | 84 | 96,846 | 4,536,933 | 46.83 |
| 33 | .001596 | 94,598 | 151 | 94,523 | 3,798,965 | 40.16 | 33 | .000930 | 96,804 | 90 | 96,759 | 4,440,087 | 45.87 |
| 34 | .001675 | 94,447 | 158 | 94,368 | 3,704,443 | 39.22 | 34 | .001000 | 96,714 | 97 | 96,665 | 4,343,329 | 44.91 |
| 35 | .001800 | 94,289 | 170 | 94,204 | 3,610,075 | 38.29 | 35 | .001091 | 96,617 | 105 | 96,564 | 4,246,663 | 43.95 |
| 36 | .001929 | 94,119 | 182 | 94,028 | 3,515,871 | 37.36 | 36 | .001180 | 96,512 | 114 | 96,455 | 4,150,099 | 43.00 |
| 37 | .002094 | 93,938 | 197 | 93,839 | 3,421,842 | 36.43 | 37 | .001286 | 96,398 | 124 | 96,336 | 4,053,644 | 42.05 |
| 38 | .002297 | 93,741 | 215 | 93,633 | 3,328,003 | 35.50 | 38 | .001410 | 96,274 | 136 | 96,206 | 3,957,308 | 41.10 |
| 39 | .002532 | 93,526 | 237 | 93,407 | 3,234,370 | 34.58 | 39 | .001547 | 96,138 | 149 | 96,064 | 3,861,102 | 40.16 |
| 40 | .002797 | 93,289 | 261 | 93,158 | 3,140,962 | 33.67 | 40 | .001698 | 95,989 | 163 | 95,908 | 3,765,038 | 39.22 |
| 41 | .003088 | 93,028 | 287 | 92,884 | 3,047,804 | 32.76 | 41 | .001861 | 95,826 | 178 | 95,737 | 3,669,130 | 38.29 |
| 42 | .003404 | 92,741 | 316 | 92,583 | 2,954,920 | 31.86 | 42 | .002034 | 95,648 | 195 | 95,551 | 3,573,393 | 37.36 |
| 43 | .003730 | 92,425 | 345 | 92,253 | 2,862,337 | 30.97 | 43 | .002212 | 95,454 | 211 | 95,348 | 3,477,842 | 36.43 |
| 44 | .004068 | 92,080 | 375 | 91,893 | 2,770,084 | 30.08 | 44 | .002396 | 95,242 | 228 | 95,128 | 3,382,494 | 35.51 |
| 45 | .004471 | 91,706 | 410 | 91,501 | 2,678,191 | 29.20 | 45 | .002591 | 95,014 | 246 | 94,891 | 3,287,366 | 34.60 |
| 46 | .004898 | 91,296 | 447 | 91,072 | 2,586,690 | 28.33 | 46 | .002811 | 94,768 | 266 | 94,635 | 3,192,475 | 33.69 |
| 47 | .005400 | 90,848 | 491 | 90,603 | 2,495,618 | 27.47 | 47 | .003060 | 94,502 | 289 | 94,357 | 3,097,840 | 32.78 |
| 48 | .005977 | 90,358 | 540 | 90,088 | 2,405,015 | 26.62 | 48 | .003338 | 94,213 | 314 | 94,055 | 3,003,483 | 31.88 |
| 49 | .006616 | 89,818 | 594 | 89,521 | 2,314,927 | 25.77 | 49 | .003639 | 93,898 | 342 | 93,727 | 2,909,428 | 30.98 |
| 50 | .007315 | 89,224 | 653 | 88,897 | 2,225,406 | 24.94 | 50 | .003966 | 93,556 | 371 | 93,371 | 2,815,700 | 30.10 |
| 51 | .008072 | 88,571 | 715 | 88,214 | 2,136,509 | 24.12 | 51 | .004319 | 93,185 | 402 | 92,984 | 2,722,330 | 29.21 |
| 52 | .008884 | 87,856 | 781 | 87,466 | 2,048,295 | 23.31 | 52 | .004704 | 92,783 | 436 | 92,565 | 2,629,346 | 28.34 |
| 53 | .009721 | 87,076 | 846 | 86,652 | 1,960,830 | 22.52 | 53 | .005109 | 92,346 | 472 | 92,110 | 2,536,781 | 27.47 |
| 54 | .010582 | 86,229 | 912 | 85,773 | 1,874,177 | 21.73 | 54 | .005535 | 91,875 | 509 | 91,620 | 2,444,670 | 26.61 |

# Calendar Year 1970 (Continued)

| Male | | | | | | | Female | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ | X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ |
| 55 | .011559 | 85,317 | 986 | 84,824 | 1,788,404 | 20.96 | 55 | .006006 | 91,366 | 549 | 91,092 | 2,353,050 | 25.75 |
| 56 | .012612 | 84,330 | 1,064 | 83,799 | 1,703,581 | 20.20 | 56 | .006512 | 90,817 | 591 | 90,522 | 2,261,958 | 24.91 |
| 57 | .013830 | 83,267 | 1,152 | 82,691 | 1,619,782 | 19.45 | 57 | .007073 | 90,226 | 638 | 89,907 | 2,171,437 | 24.07 |
| 58 | .015205 | 82,115 | 1,249 | 81,491 | 1,537,091 | 18.72 | 58 | .007669 | 89,588 | 687 | 89,244 | 2,081,530 | 23.23 |
| 59 | .016711 | 80,867 | 1,351 | 80,191 | 1,455,600 | 18.00 | 59 | .008293 | 88,901 | 737 | 88,532 | 1,992,286 | 22.41 |
| 60 | .018346 | 79,515 | 1,459 | 78,786 | 1,375,409 | 17.30 | 60 | .008975 | 88,163 | 791 | 87,768 | 1,903,754 | 21.59 |
| 61 | .020116 | 78,057 | 1,570 | 77,271 | 1,296,623 | 16.61 | 61 | .009753 | 87,372 | 852 | 86,946 | 1,815,986 | 20.78 |
| 62 | .022029 | 76,486 | 1,685 | 75,644 | 1,219,352 | 15.94 | 62 | .010669 | 86,520 | 923 | 86,058 | 1,729,040 | 19.98 |
| 63 | .024049 | 74,801 | 1,799 | 73,902 | 1,143,708 | 15.29 | 63 | .011687 | 85,597 | 1,000 | 85,097 | 1,642,981 | 19.19 |
| 64 | .026185 | 73,003 | 1,912 | 72,047 | 1,069,806 | 14.65 | 64 | .012789 | 84,596 | 1,082 | 84,056 | 1,557,885 | 18.42 |
| 65 | .028276 | 71,091 | 2,010 | 70,086 | 997,759 | 14.03 | 65 | .014002 | 83,515 | 1,169 | 82,930 | 1,473,829 | 17.65 |
| 66 | .030718 | 69,081 | 2,122 | 68,020 | 927,673 | 13.43 | 66 | .015389 | 82,345 | 1,267 | 81,712 | 1,390,899 | 16.89 |
| 67 | .033383 | 66,959 | 2,235 | 65,841 | 859,654 | 12.84 | 67 | .016976 | 81,078 | 1,376 | 80,390 | 1,309,188 | 16.15 |
| 68 | .036220 | 64,723 | 2,344 | 63,551 | 793,812 | 12.26 | 68 | .018714 | 79,702 | 1,492 | 78,956 | 1,228,798 | 15.42 |
| 69 | .039215 | 62,379 | 2,446 | 61,156 | 730,261 | 11.71 | 69 | .020583 | 78,210 | 1,610 | 77,405 | 1,149,842 | 14.70 |
| 70 | .042445 | 59,933 | 2,544 | 58,661 | 669,105 | 11.16 | 70 | .022648 | 76,600 | 1,735 | 75,733 | 1,072,436 | 14.00 |
| 71 | .045948 | 57,389 | 2,637 | 56,071 | 610,444 | 10.64 | 71 | .025002 | 74,866 | 1,872 | 73,930 | 996,703 | 13.31 |
| 72 | .049731 | 54,752 | 2,723 | 53,391 | 554,373 | 10.13 | 72 | .027708 | 72,994 | 2,023 | 71,983 | 922,774 | 12.64 |
| 73 | .053841 | 52,029 | 2,801 | 50,629 | 500,983 | 9.63 | 73 | .030729 | 70,971 | 2,181 | 69,881 | 850,791 | 11.99 |
| 74 | .058219 | 49,228 | 2,866 | 47,795 | 450,354 | 9.15 | 74 | .033945 | 68,790 | 2,335 | 67,623 | 780,910 | 11.35 |
| 75 | .062919 | 46,362 | 2,917 | 44,903 | 402,559 | 8.68 | 75 | .037481 | 66,455 | 2,491 | 65,210 | 713,288 | 10.73 |
| 76 | .068099 | 43,445 | 2,959 | 41,966 | 357,655 | 8.23 | 76 | .041534 | 63,964 | 2,657 | 62,636 | 648,078 | 10.13 |
| 77 | .073825 | 40,486 | 2,989 | 38,992 | 315,690 | 7.80 | 77 | .046202 | 61,308 | 2,833 | 59,891 | 585,442 | 9.55 |
| 78 | .080024 | 37,497 | 3,001 | 35,997 | 276,698 | 7.38 | 78 | .051427 | 58,475 | 3,007 | 56,972 | 525,550 | 8.99 |
| 79 | .086610 | 34,497 | 2,988 | 33,003 | 240,701 | 6.98 | 79 | .057209 | 55,468 | 3,173 | 53,881 | 468,578 | 8.45 |
| 80 | .093645 | 31,509 | 2,951 | 30,034 | 207,698 | 6.59 | 80 | .063464 | 52,295 | 3,319 | 50,635 | 414,697 | 7.93 |
| 81 | .101453 | 28,558 | 2,897 | 27,110 | 177,664 | 6.22 | 81 | .070426 | 48,976 | 3,449 | 47,251 | 364,062 | 7.43 |
| 82 | .109722 | 25,661 | 2,816 | 24,253 | 150,555 | 5.87 | 82 | .078265 | 45,527 | 3,563 | 43,745 | 316,810 | 6.96 |
| 83 | .118688 | 22,845 | 2,711 | 21,490 | 126,301 | 5.53 | 83 | .086981 | 41,964 | 3,650 | 40,139 | 273,065 | 6.51 |
| 84 | .128382 | 20,134 | 2,585 | 18,842 | 104,812 | 5.21 | 84 | .096158 | 38,314 | 3,684 | 36,471 | 232,927 | 6.08 |
| 85 | .138495 | 17,549 | 2,430 | 16,334 | 85,970 | 4.90 | 85 | .106342 | 34,629 | 3,683 | 32,788 | 196,455 | 5.67 |
| 86 | .149516 | 15,119 | 2,260 | 13,988 | 69,636 | 4.61 | 86 | .117451 | 30,947 | 3,635 | 29,129 | 163,667 | 5.29 |
| 87 | .161419 | 12,858 | 2,076 | 11,820 | 55,648 | 4.33 | 87 | .129636 | 27,312 | 3,541 | 25,542 | 134,537 | 4.93 |
| 88 | .173992 | 10,783 | 1,876 | 9,845 | 43,827 | 4.06 | 88 | .142635 | 23,771 | 3,391 | 22,076 | 108,996 | 4.59 |
| 89 | .187345 | 8,907 | 1,669 | 8,072 | 33,983 | 3.82 | 89 | .156757 | 20,381 | 3,195 | 18,783 | 86,920 | 4.26 |
| 90 | .201305 | 7,238 | 1,457 | 6,509 | 25,911 | 3.58 | 90 | .171623 | 17,186 | 2,950 | 15,711 | 68,136 | 3.96 |
| 91 | .216329 | 5,781 | 1,251 | 5,156 | 19,401 | 3.36 | 91 | .187697 | 14,236 | 2,672 | 12,900 | 52,425 | 3.68 |
| 92 | .232350 | 4,530 | 1,053 | 4,004 | 14,245 | 3.14 | 92 | .205047 | 11,564 | 2,371 | 10,379 | 39,524 | 3.42 |
| 93 | .249300 | 3,478 | 867 | 3,044 | 10,241 | 2.94 | 93 | .223582 | 9,193 | 2,055 | 8,165 | 29,146 | 3.17 |
| 94 | .267114 | 2,611 | 697 | 2,262 | 7,197 | 2.76 | 94 | .243215 | 7,138 | 1,736 | 6,270 | 20,980 | 2.94 |
| 95 | .285881 | 1,913 | 547 | 1,640 | 4,935 | 2.58 | 95 | .264076 | 5,402 | 1,426 | 4,688 | 14,711 | 2.72 |
| 96 | .305689 | 1,366 | 418 | 1,158 | 3,295 | 2.41 | 96 | .286294 | 3,975 | 1,138 | 3,406 | 10,022 | 2.52 |
| 97 | .326626 | 949 | 310 | 794 | 2,138 | 2.25 | 97 | .310001 | 2,837 | 880 | 2,397 | 6,616 | 2.33 |
| 98 | .348621 | 639 | 223 | 527 | 1,344 | 2.10 | 98 | .335108 | 1,958 | 656 | 1,630 | 4,219 | 2.15 |
| 99 | .371589 | 416 | 155 | 339 | 817 | 1.96 | 99 | .361532 | 1,302 | 471 | 1,066 | 2,589 | 1.99 |
| 100 | .395601 | 261 | 103 | 210 | 478 | 1.83 | 100 | .389408 | 831 | 324 | 669 | 1,523 | 1.83 |
| 101 | .420742 | 158 | 66 | 125 | 268 | 1.70 | 101 | .418872 | 507 | 213 | 401 | 853 | 1.68 |
| 102 | .447109 | 92 | 41 | 71 | 143 | 1.56 | 102 | .450065 | 295 | 133 | 229 | 452 | 1.53 |
| 103 | .474659 | 51 | 24 | 39 | 72 | 1.43 | 103 | .482908 | 162 | 78 | 123 | 224 | 1.38 |
| 104 | .503366 | 27 | 13 | 20 | 34 | 1.26 | 104 | .517329 | 84 | 43 | 62 | 101 | 1.20 |
| 105 | .533385 | 13 | 7 | 10 | 14 | 1.03 | 105 | .553490 | 40 | 22 | 29 | 39 | 0.95 |
| 106 | .872323 | 6 | 5 | 3 | 4 | 0.64 | 106 | .985974 | 18 | 18 | 9 | 9 | 0.51 |
| 107 | .882905 | 1 | 1 | 0 | 0 | 0.63 | 107 | .989552 | 0 | 0 | 0 | 0 | 0.51 |
| 108 | .884357 | 0 | 0 | 0 | 0 | 0.62 | 108 | 1.000000 | 0 | 0 | 0 | 0 | 0.50 |
| 109 | 1.000000 | 0 | 0 | 0 | 0 | 0.50 | 109 | 1.000000 | - | - | - | - | 0.00 |

# Calendar Year 1980

| Male | | | | | | | Female | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ | X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ |
| 0 | .011774 | 100,000 | 1,177 | 99,058 | 7,204,199 | 72.04 | 0 | .009033 | 100,000 | 903 | 99,277 | 7,889,124 | 78.89 |
| 1 | .000835 | 98,823 | 83 | 98,781 | 7,105,141 | 71.90 | 1 | .000709 | 99,097 | 70 | 99,062 | 7,789,847 | 78.61 |
| 2 | .000656 | 98,740 | 65 | 98,708 | 7,006,359 | 70.96 | 2 | .000496 | 99,026 | 49 | 99,002 | 7,690,785 | 77.66 |
| 3 | .000509 | 98,675 | 50 | 98,650 | 6,907,652 | 70.00 | 3 | .000411 | 98,977 | 41 | 98,957 | 7,591,784 | 76.70 |
| 4 | .000479 | 98,625 | 47 | 98,601 | 6,809,002 | 69.04 | 4 | .000326 | 98,937 | 32 | 98,921 | 7,492,827 | 75.73 |
| 5 | .000396 | 98,578 | 39 | 98,558 | 6,710,400 | 68.07 | 5 | .000268 | 98,904 | 26 | 98,891 | 7,393,906 | 74.76 |
| 6 | .000297 | 98,539 | 29 | 98,524 | 6,611,842 | 67.10 | 6 | .000229 | 98,878 | 23 | 98,867 | 7,295,015 | 73.78 |
| 7 | .000214 | 98,510 | 21 | 98,499 | 6,513,318 | 66.12 | 7 | .000204 | 98,855 | 20 | 98,845 | 7,196,148 | 72.79 |
| 8 | .000186 | 98,488 | 18 | 98,479 | 6,414,819 | 65.13 | 8 | .000184 | 98,835 | 18 | 98,826 | 7,097,303 | 71.81 |
| 9 | .000187 | 98,470 | 18 | 98,461 | 6,316,339 | 64.14 | 9 | .000176 | 98,817 | 17 | 98,808 | 6,998,477 | 70.82 |
| 10 | .000219 | 98,452 | 22 | 98,441 | 6,217,878 | 63.16 | 10 | .000181 | 98,799 | 18 | 98,790 | 6,899,669 | 69.84 |
| 11 | .000263 | 98,430 | 26 | 98,417 | 6,119,438 | 62.17 | 11 | .000189 | 98,782 | 19 | 98,772 | 6,800,879 | 68.85 |
| 12 | .000346 | 98,404 | 34 | 98,387 | 6,021,020 | 61.19 | 12 | .000217 | 98,763 | 21 | 98,752 | 6,702,106 | 67.86 |
| 13 | .000497 | 98,370 | 49 | 98,346 | 5,922,633 | 60.21 | 13 | .000256 | 98,741 | 25 | 98,729 | 6,603,354 | 66.88 |
| 14 | .000709 | 98,321 | 70 | 98,286 | 5,824,287 | 59.24 | 14 | .000310 | 98,716 | 31 | 98,701 | 6,504,625 | 65.89 |
| 15 | .000927 | 98,252 | 91 | 98,206 | 5,726,001 | 58.28 | 15 | .000367 | 98,686 | 36 | 98,668 | 6,405,925 | 64.91 |
| 16 | .001141 | 98,161 | 112 | 98,105 | 5,627,795 | 57.33 | 16 | .000422 | 98,649 | 42 | 98,629 | 6,307,257 | 63.94 |
| 17 | .001303 | 98,049 | 128 | 97,985 | 5,529,690 | 56.40 | 17 | .000460 | 98,608 | 45 | 98,585 | 6,208,628 | 62.96 |
| 18 | .001412 | 97,921 | 138 | 97,852 | 5,431,706 | 55.47 | 18 | .000478 | 98,562 | 47 | 98,539 | 6,110,043 | 61.99 |
| 19 | .001493 | 97,783 | 146 | 97,710 | 5,333,854 | 54.55 | 19 | .000483 | 98,515 | 48 | 98,492 | 6,011,504 | 61.02 |
| 20 | .001495 | 97,637 | 146 | 97,564 | 5,236,144 | 53.63 | 20 | .000470 | 98,468 | 46 | 98,445 | 5,913,013 | 60.05 |
| 21 | .001527 | 97,491 | 149 | 97,416 | 5,138,581 | 52.71 | 21 | .000464 | 98,422 | 46 | 98,399 | 5,814,568 | 59.08 |
| 22 | .001540 | 97,342 | 150 | 97,267 | 5,041,165 | 51.79 | 22 | .000466 | 98,376 | 46 | 98,353 | 5,716,169 | 58.11 |
| 23 | .001522 | 97,192 | 148 | 97,118 | 4,943,898 | 50.87 | 23 | .000470 | 98,330 | 46 | 98,307 | 5,617,816 | 57.13 |
| 24 | .001474 | 97,044 | 143 | 96,972 | 4,846,780 | 49.94 | 24 | .000476 | 98,284 | 47 | 98,260 | 5,519,509 | 56.16 |
| 25 | .001456 | 96,901 | 141 | 96,830 | 4,749,807 | 49.02 | 25 | .000498 | 98,237 | 49 | 98,213 | 5,421,249 | 55.19 |
| 26 | .001393 | 96,760 | 135 | 96,692 | 4,652,977 | 48.09 | 26 | .000506 | 98,188 | 50 | 98,163 | 5,323,036 | 54.21 |
| 27 | .001348 | 96,625 | 130 | 96,560 | 4,556,285 | 47.15 | 27 | .000519 | 98,138 | 51 | 98,113 | 5,224,873 | 53.24 |
| 28 | .001316 | 96,495 | 127 | 96,431 | 4,459,725 | 46.22 | 28 | .000536 | 98,088 | 53 | 98,061 | 5,126,760 | 52.27 |
| 29 | .001288 | 96,368 | 124 | 96,306 | 4,363,293 | 45.28 | 29 | .000554 | 98,035 | 54 | 98,008 | 5,028,699 | 51.29 |
| 30 | .001268 | 96,244 | 122 | 96,183 | 4,266,987 | 44.34 | 30 | .000576 | 97,981 | 56 | 97,952 | 4,930,691 | 50.32 |
| 31 | .001268 | 96,122 | 122 | 96,061 | 4,170,805 | 43.39 | 31 | .000607 | 97,924 | 59 | 97,895 | 4,832,738 | 49.35 |
| 32 | .001292 | 96,000 | 124 | 95,938 | 4,074,744 | 42.45 | 32 | .000651 | 97,865 | 64 | 97,833 | 4,734,844 | 48.38 |
| 33 | .001337 | 95,876 | 128 | 95,812 | 3,978,806 | 41.50 | 33 | .000704 | 97,801 | 69 | 97,767 | 4,637,011 | 47.41 |
| 34 | .001395 | 95,748 | 134 | 95,681 | 3,882,994 | 40.55 | 34 | .000770 | 97,732 | 75 | 97,695 | 4,539,244 | 46.45 |
| 35 | .001471 | 95,614 | 141 | 95,544 | 3,787,313 | 39.61 | 35 | .000856 | 97,657 | 84 | 97,615 | 4,441,550 | 45.48 |
| 36 | .001578 | 95,474 | 151 | 95,398 | 3,691,769 | 38.67 | 36 | .000940 | 97,573 | 92 | 97,528 | 4,343,934 | 44.52 |
| 37 | .001703 | 95,323 | 162 | 95,242 | 3,596,371 | 37.73 | 37 | .001032 | 97,482 | 101 | 97,432 | 4,246,407 | 43.56 |
| 38 | .001845 | 95,161 | 176 | 95,073 | 3,501,129 | 36.79 | 38 | .001133 | 97,381 | 110 | 97,326 | 4,148,975 | 42.61 |
| 39 | .002005 | 94,985 | 190 | 94,890 | 3,406,056 | 35.86 | 39 | .001239 | 97,271 | 121 | 97,211 | 4,051,649 | 41.65 |
| 40 | .002188 | 94,795 | 207 | 94,691 | 3,311,166 | 34.93 | 40 | .001355 | 97,150 | 132 | 97,085 | 3,954,439 | 40.70 |
| 41 | .002402 | 94,587 | 227 | 94,474 | 3,216,476 | 34.01 | 41 | .001487 | 97,019 | 144 | 96,947 | 3,857,354 | 39.76 |
| 42 | .002660 | 94,360 | 251 | 94,234 | 3,122,002 | 33.09 | 42 | .001635 | 96,874 | 158 | 96,795 | 3,760,407 | 38.82 |
| 43 | .002951 | 94,109 | 278 | 93,970 | 3,027,768 | 32.17 | 43 | .001799 | 96,716 | 174 | 96,629 | 3,663,612 | 37.88 |
| 44 | .003274 | 93,831 | 307 | 93,678 | 2,933,797 | 31.27 | 44 | .001975 | 96,542 | 191 | 96,447 | 3,566,983 | 36.95 |
| 45 | .003706 | 93,524 | 347 | 93,351 | 2,840,120 | 30.37 | 45 | .002176 | 96,351 | 210 | 96,247 | 3,470,536 | 36.02 |
| 46 | .004116 | 93,177 | 383 | 92,986 | 2,746,769 | 29.48 | 46 | .002388 | 96,142 | 230 | 96,027 | 3,374,290 | 35.10 |
| 47 | .004567 | 92,794 | 424 | 92,582 | 2,653,784 | 28.60 | 47 | .002619 | 95,912 | 251 | 95,787 | 3,278,263 | 34.18 |
| 48 | .005054 | 92,370 | 467 | 92,137 | 2,561,202 | 27.73 | 48 | .002872 | 95,661 | 275 | 95,524 | 3,182,476 | 33.27 |
| 49 | .005582 | 91,903 | 513 | 91,647 | 2,469,065 | 26.87 | 49 | .003139 | 95,386 | 299 | 95,237 | 3,086,952 | 32.36 |
| 50 | .006153 | 91,390 | 562 | 91,109 | 2,377,418 | 26.01 | 50 | .003429 | 95,087 | 326 | 94,924 | 2,991,716 | 31.46 |
| 51 | .006787 | 90,828 | 616 | 90,520 | 2,286,309 | 25.17 | 51 | .003744 | 94,761 | 355 | 94,583 | 2,896,792 | 30.57 |
| 52 | .007497 | 90,211 | 676 | 89,873 | 2,195,789 | 24.34 | 52 | .004092 | 94,406 | 386 | 94,213 | 2,802,209 | 29.68 |
| 53 | .008285 | 89,535 | 742 | 89,164 | 2,105,916 | 23.52 | 53 | .004465 | 94,020 | 420 | 93,810 | 2,707,996 | 28.80 |
| 54 | .009129 | 88,793 | 811 | 88,388 | 2,016,752 | 22.71 | 54 | .004864 | 93,600 | 455 | 93,372 | 2,614,186 | 27.93 |

# Calendar Year 1980 (Continued)

| Male | | | | | | | Female | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ | X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ |
| 55 | .010072 | 87,983 | 886 | 87,540 | 1,928,364 | 21.92 | 55 | .005273 | 93,145 | 491 | 92,899 | 2,520,814 | 27.06 |
| 56 | .011079 | 87,097 | 965 | 86,614 | 1,840,824 | 21.14 | 56 | .005741 | 92,653 | 532 | 92,387 | 2,427,915 | 26.20 |
| 57 | .012168 | 86,132 | 1,048 | 85,608 | 1,754,210 | 20.37 | 57 | .006251 | 92,122 | 576 | 91,834 | 2,335,528 | 25.35 |
| 58 | .013323 | 85,084 | 1,134 | 84,517 | 1,668,603 | 19.61 | 58 | .006793 | 91,546 | 622 | 91,235 | 2,243,694 | 24.51 |
| 59 | .014546 | 83,950 | 1,221 | 83,339 | 1,584,086 | 18.87 | 59 | .007353 | 90,924 | 669 | 90,590 | 2,152,459 | 23.67 |
| 60 | .015867 | 82,729 | 1,313 | 82,072 | 1,500,746 | 18.14 | 60 | .007968 | 90,255 | 719 | 89,896 | 2,061,870 | 22.84 |
| 61 | .017285 | 81,416 | 1,407 | 80,713 | 1,418,674 | 17.42 | 61 | .008653 | 89,536 | 775 | 89,149 | 1,971,974 | 22.02 |
| 62 | .018880 | 80,009 | 1,511 | 79,254 | 1,337,961 | 16.72 | 62 | .009447 | 88,761 | 839 | 88,342 | 1,882,826 | 21.21 |
| 63 | .020704 | 78,498 | 1,625 | 77,686 | 1,258,708 | 16.03 | 63 | .010345 | 87,923 | 910 | 87,468 | 1,794,483 | 20.41 |
| 64 | .022645 | 76,873 | 1,741 | 76,003 | 1,181,022 | 15.36 | 64 | .011309 | 87,013 | 984 | 86,521 | 1,707,015 | 19.62 |
| 65 | .024784 | 75,132 | 1,862 | 74,201 | 1,105,019 | 14.71 | 65 | .012396 | 86,029 | 1,066 | 85,496 | 1,620,494 | 18.84 |
| 66 | .027055 | 73,270 | 1,982 | 72,279 | 1,030,818 | 14.07 | 66 | .013592 | 84,963 | 1,155 | 84,385 | 1,534,998 | 18.07 |
| 67 | .029547 | 71,288 | 2,106 | 70,235 | 958,539 | 13.45 | 67 | .014937 | 83,808 | 1,252 | 83,182 | 1,450,613 | 17.31 |
| 68 | .032211 | 69,182 | 2,228 | 68,067 | 888,304 | 12.84 | 68 | .016392 | 82,556 | 1,353 | 81,880 | 1,367,431 | 16.56 |
| 69 | .035009 | 66,953 | 2,344 | 65,781 | 820,236 | 12.25 | 69 | .017941 | 81,203 | 1,457 | 80,474 | 1,285,551 | 15.83 |
| 70 | .038043 | 64,609 | 2,458 | 63,380 | 754,455 | 11.68 | 70 | .019645 | 79,746 | 1,567 | 78,963 | 1,205,077 | 15.11 |
| 71 | .041404 | 62,151 | 2,573 | 60,865 | 691,075 | 11.12 | 71 | .021596 | 78,179 | 1,688 | 77,335 | 1,126,114 | 14.40 |
| 72 | .045107 | 59,578 | 2,687 | 58,234 | 630,210 | 10.58 | 72 | .023834 | 76,491 | 1,823 | 75,580 | 1,048,779 | 13.71 |
| 73 | .049091 | 56,891 | 2,793 | 55,494 | 571,976 | 10.05 | 73 | .026260 | 74,668 | 1,961 | 73,688 | 973,199 | 13.03 |
| 74 | .053402 | 54,098 | 2,889 | 52,653 | 516,482 | 9.55 | 74 | .028871 | 72,707 | 2,099 | 71,658 | 899,511 | 12.37 |
| 75 | .058081 | 51,209 | 2,974 | 49,722 | 463,828 | 9.06 | 75 | .031780 | 70,608 | 2,244 | 69,486 | 827,854 | 11.72 |
| 76 | .063192 | 48,235 | 3,048 | 46,711 | 414,107 | 8.59 | 76 | .035110 | 68,364 | 2,400 | 67,164 | 758,368 | 11.09 |
| 77 | .068753 | 45,187 | 3,107 | 43,633 | 367,396 | 8.13 | 77 | .039035 | 65,964 | 2,575 | 64,676 | 691,204 | 10.48 |
| 78 | .074818 | 42,080 | 3,148 | 40,506 | 323,763 | 7.69 | 78 | .043447 | 63,389 | 2,754 | 62,012 | 626,527 | 9.88 |
| 79 | .081271 | 38,932 | 3,164 | 37,350 | 283,257 | 7.28 | 79 | .048244 | 60,635 | 2,925 | 59,172 | 564,515 | 9.31 |
| 80 | .088220 | 35,768 | 3,155 | 34,190 | 245,908 | 6.88 | 80 | .053562 | 57,710 | 3,091 | 56,164 | 505,343 | 8.76 |
| 81 | .095580 | 32,612 | 3,117 | 31,054 | 211,718 | 6.49 | 81 | .059592 | 54,619 | 3,255 | 52,991 | 449,179 | 8.22 |
| 82 | .103679 | 29,495 | 3,058 | 27,966 | 180,664 | 6.13 | 82 | .066388 | 51,364 | 3,410 | 49,659 | 396,188 | 7.71 |
| 83 | .112371 | 26,437 | 2,971 | 24,952 | 152,698 | 5.78 | 83 | .073923 | 47,954 | 3,545 | 46,181 | 346,529 | 7.23 |
| 84 | .121672 | 23,466 | 2,855 | 22,039 | 127,746 | 5.44 | 84 | .082063 | 44,409 | 3,644 | 42,587 | 300,348 | 6.76 |
| 85 | .131498 | 20,611 | 2,710 | 19,256 | 105,708 | 5.13 | 85 | .090996 | 40,765 | 3,709 | 38,910 | 257,761 | 6.32 |
| 86 | .142097 | 17,901 | 2,544 | 16,629 | 86,452 | 4.83 | 86 | .100788 | 37,055 | 3,735 | 35,188 | 218,851 | 5.91 |
| 87 | .153433 | 15,357 | 2,356 | 14,179 | 69,823 | 4.55 | 87 | .111606 | 33,320 | 3,719 | 31,461 | 183,663 | 5.51 |
| 88 | .165490 | 13,001 | 2,152 | 11,925 | 55,644 | 4.28 | 88 | .123385 | 29,602 | 3,652 | 27,776 | 152,202 | 5.14 |
| 89 | .178178 | 10,849 | 1,933 | 9,883 | 43,719 | 4.03 | 89 | .136008 | 25,949 | 3,529 | 24,185 | 124,427 | 4.79 |
| 90 | .191628 | 8,916 | 1,709 | 8,062 | 33,836 | 3.79 | 90 | .149602 | 22,420 | 3,354 | 20,743 | 100,242 | 4.47 |
| 91 | .205842 | 7,208 | 1,484 | 6,466 | 25,774 | 3.58 | 91 | .164273 | 19,066 | 3,132 | 17,500 | 79,499 | 4.17 |
| 92 | .220947 | 5,724 | 1,265 | 5,092 | 19,308 | 3.37 | 92 | .180199 | 15,934 | 2,871 | 14,498 | 61,999 | 3.89 |
| 93 | .236504 | 4,459 | 1,055 | 3,932 | 14,217 | 3.19 | 93 | .197286 | 13,063 | 2,577 | 11,774 | 47,501 | 3.64 |
| 94 | .253624 | 3,405 | 864 | 2,973 | 10,285 | 3.02 | 94 | .215444 | 10,486 | 2,259 | 9,356 | 35,727 | 3.41 |
| 95 | .271220 | 2,541 | 689 | 2,197 | 7,312 | 2.88 | 95 | .234809 | 8,227 | 1,932 | 7,261 | 26,371 | 3.21 |
| 96 | .289761 | 1,852 | 537 | 1,584 | 5,115 | 2.76 | 96 | .255520 | 6,295 | 1,608 | 5,491 | 19,110 | 3.04 |
| 97 | .309421 | 1,315 | 407 | 1,112 | 3,532 | 2.68 | 97 | .277707 | 4,686 | 1,301 | 4,036 | 13,619 | 2.91 |
| 98 | .306207 | 908 | 278 | 769 | 2,420 | 2.66 | 98 | .276888 | 3,385 | 937 | 2,916 | 9,584 | 2.83 |
| 99 | .288047 | 630 | 182 | 539 | 1,650 | 2.62 | 99 | .262800 | 2,448 | 643 | 2,126 | 6,667 | 2.72 |
| 100 | .271026 | 449 | 122 | 388 | 1,111 | 2.48 | 100 | .252806 | 1,804 | 456 | 1,576 | 4,541 | 2.52 |
| 101 | .270896 | 327 | 89 | 283 | 723 | 2.21 | 101 | .263242 | 1,348 | 355 | 1,171 | 2,965 | 2.20 |
| 102 | .305059 | 238 | 73 | 202 | 440 | 1.85 | 102 | .310315 | 993 | 308 | 839 | 1,794 | 1.81 |
| 103 | .407302 | 166 | 67 | 132 | 238 | 1.44 | 103 | .422211 | 685 | 289 | 540 | 955 | 1.39 |
| 104 | .555666 | 98 | 55 | 71 | 106 | 1.08 | 104 | .575486 | 396 | 228 | 282 | 414 | 1.05 |
| 105 | .723076 | 44 | 32 | 28 | 35 | 0.81 | 105 | .741189 | 168 | 125 | 106 | 132 | 0.79 |
| 106 | .878629 | 12 | 11 | 7 | 8 | 0.62 | 106 | .889188 | 43 | 39 | 24 | 27 | 0.61 |
| 107 | .990502 | 1 | 1 | 1 | 1 | 0.51 | 107 | .992953 | 5 | 5 | 2 | 2 | 0.51 |
| 108 | .990557 | 0 | 0 | 0 | 0 | 0.51 | 108 | .992922 | 0 | 0 | 0 | 0 | 0.51 |
| 109 | 1.000000 | 0 | 0 | 0 | 0 | 0.50 | 109 | 1.000000 | 0 | 0 | 0 | 0 | 0.50 |

# Calendar Year 1990

| Male | | | | | | | Female | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ | X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ |
| 0 | .007494 | 100,000 | 749 | 99,400 | 7,462,903 | 74.63 | 0 | .006110 | 100,000 | 611 | 99,511 | 8,077,158 | 80.77 |
| 1 | .000549 | 99,251 | 54 | 99,223 | 7,363,502 | 74.19 | 1 | .000489 | 99,389 | 49 | 99,365 | 7,977,647 | 80.27 |
| 2 | .000424 | 99,196 | 42 | 99,175 | 7,264,279 | 73.23 | 2 | .000317 | 99,340 | 31 | 99,325 | 7,878,282 | 79.31 |
| 3 | .000361 | 99,154 | 36 | 99,136 | 7,165,104 | 72.26 | 3 | .000244 | 99,309 | 24 | 99,297 | 7,778,958 | 78.33 |
| 4 | .000276 | 99,118 | 27 | 99,105 | 7,065,967 | 71.29 | 4 | .000189 | 99,285 | 19 | 99,275 | 7,679,661 | 77.35 |
| 5 | .000220 | 99,091 | 22 | 99,080 | 6,966,863 | 70.31 | 5 | .000146 | 99,266 | 14 | 99,259 | 7,580,386 | 76.36 |
| 6 | .000179 | 99,069 | 18 | 99,060 | 6,867,783 | 69.32 | 6 | .000131 | 99,251 | 13 | 99,245 | 7,481,127 | 75.38 |
| 7 | .000147 | 99,051 | 15 | 99,044 | 6,768,722 | 68.34 | 7 | .000119 | 99,239 | 12 | 99,233 | 7,381,882 | 74.39 |
| 8 | .000124 | 99,037 | 12 | 99,031 | 6,669,678 | 67.35 | 8 | .000107 | 99,227 | 11 | 99,221 | 7,282,649 | 73.39 |
| 9 | .000124 | 99,025 | 12 | 99,018 | 6,570,647 | 66.35 | 9 | .000108 | 99,216 | 11 | 99,211 | 7,183,428 | 72.40 |
| 10 | .000141 | 99,012 | 14 | 99,005 | 6,471,629 | 65.36 | 10 | .000119 | 99,205 | 12 | 99,199 | 7,084,218 | 71.41 |
| 11 | .000146 | 98,998 | 14 | 98,991 | 6,372,624 | 64.37 | 11 | .000124 | 99,193 | 12 | 99,187 | 6,985,018 | 70.42 |
| 12 | .000222 | 98,984 | 22 | 98,973 | 6,273,632 | 63.38 | 12 | .000167 | 99,181 | 17 | 99,173 | 6,885,831 | 69.43 |
| 13 | .000334 | 98,962 | 33 | 98,945 | 6,174,660 | 62.39 | 13 | .000199 | 99,165 | 20 | 99,155 | 6,786,658 | 68.44 |
| 14 | .000483 | 98,929 | 48 | 98,905 | 6,075,714 | 61.41 | 14 | .000246 | 99,145 | 24 | 99,133 | 6,687,503 | 67.45 |
| 15 | .000656 | 98,881 | 65 | 98,849 | 5,976,809 | 60.44 | 15 | .000301 | 99,120 | 30 | 99,105 | 6,588,371 | 66.47 |
| 16 | .000811 | 98,816 | 80 | 98,776 | 5,877,960 | 59.48 | 16 | .000348 | 99,091 | 34 | 99,073 | 6,489,265 | 65.49 |
| 17 | .000923 | 98,736 | 91 | 98,691 | 5,779,184 | 58.53 | 17 | .000377 | 99,056 | 37 | 99,037 | 6,390,192 | 64.51 |
| 18 | .001006 | 98,645 | 99 | 98,595 | 5,680,494 | 57.59 | 18 | .000395 | 99,019 | 39 | 98,999 | 6,291,154 | 63.53 |
| 19 | .001068 | 98,546 | 105 | 98,493 | 5,581,898 | 56.64 | 19 | .000389 | 98,980 | 39 | 98,960 | 6,192,155 | 62.56 |
| 20 | .001090 | 98,440 | 107 | 98,387 | 5,483,405 | 55.70 | 20 | .000371 | 98,941 | 37 | 98,923 | 6,093,195 | 61.58 |
| 21 | .001117 | 98,333 | 110 | 98,278 | 5,385,019 | 54.76 | 21 | .000363 | 98,905 | 36 | 98,887 | 5,994,272 | 60.61 |
| 22 | .001136 | 98,223 | 112 | 98,168 | 5,286,740 | 53.82 | 22 | .000361 | 98,869 | 36 | 98,851 | 5,895,385 | 59.63 |
| 23 | .001140 | 98,112 | 112 | 98,056 | 5,188,573 | 52.88 | 23 | .000368 | 98,833 | 36 | 98,815 | 5,796,535 | 58.65 |
| 24 | .001132 | 98,000 | 111 | 97,945 | 5,090,517 | 51.94 | 24 | .000376 | 98,797 | 37 | 98,778 | 5,697,720 | 57.67 |
| 25 | .001128 | 97,889 | 110 | 97,834 | 4,992,572 | 51.00 | 25 | .000388 | 98,759 | 38 | 98,740 | 5,598,942 | 56.69 |
| 26 | .001124 | 97,779 | 110 | 97,724 | 4,894,739 | 50.06 | 26 | .000398 | 98,721 | 39 | 98,701 | 5,500,202 | 55.71 |
| 27 | .001118 | 97,669 | 109 | 97,614 | 4,797,015 | 49.12 | 27 | .000420 | 98,682 | 41 | 98,661 | 5,401,500 | 54.74 |
| 28 | .001133 | 97,560 | 110 | 97,504 | 4,699,401 | 48.17 | 28 | .000429 | 98,640 | 42 | 98,619 | 5,302,839 | 53.76 |
| 29 | .001156 | 97,449 | 113 | 97,393 | 4,601,896 | 47.22 | 29 | .000448 | 98,598 | 44 | 98,576 | 5,204,220 | 52.78 |
| 30 | .001183 | 97,336 | 115 | 97,279 | 4,504,504 | 46.28 | 30 | .000470 | 98,554 | 46 | 98,531 | 5,105,644 | 51.81 |
| 31 | .001221 | 97,221 | 119 | 97,162 | 4,407,225 | 45.33 | 31 | .000488 | 98,508 | 48 | 98,484 | 5,007,113 | 50.83 |
| 32 | .001269 | 97,103 | 123 | 97,041 | 4,310,063 | 44.39 | 32 | .000527 | 98,460 | 52 | 98,434 | 4,908,630 | 49.85 |
| 33 | .001316 | 96,979 | 128 | 96,916 | 4,213,022 | 43.44 | 33 | .000565 | 98,408 | 56 | 98,380 | 4,810,196 | 48.88 |
| 34 | .001369 | 96,852 | 133 | 96,786 | 4,116,106 | 42.50 | 34 | .000613 | 98,352 | 60 | 98,322 | 4,711,816 | 47.91 |
| 35 | .001442 | 96,719 | 139 | 96,649 | 4,019,321 | 41.56 | 35 | .000676 | 98,292 | 66 | 98,259 | 4,613,494 | 46.94 |
| 36 | .001510 | 96,580 | 146 | 96,507 | 3,922,671 | 40.62 | 36 | .000733 | 98,225 | 72 | 98,189 | 4,515,236 | 45.97 |
| 37 | .001589 | 96,434 | 153 | 96,357 | 3,826,164 | 39.68 | 37 | .000804 | 98,153 | 79 | 98,114 | 4,417,046 | 45.00 |
| 38 | .001667 | 96,281 | 160 | 96,200 | 3,729,807 | 38.74 | 38 | .000865 | 98,074 | 85 | 98,032 | 4,318,932 | 44.04 |
| 39 | .001749 | 96,120 | 168 | 96,036 | 3,633,606 | 37.80 | 39 | .000928 | 97,990 | 91 | 97,944 | 4,220,900 | 43.07 |
| 40 | .001832 | 95,952 | 176 | 95,864 | 3,537,570 | 36.87 | 40 | .000991 | 97,899 | 97 | 97,850 | 4,122,956 | 42.11 |
| 41 | .001952 | 95,776 | 187 | 95,683 | 3,441,706 | 35.93 | 41 | .001083 | 97,802 | 106 | 97,749 | 4,025,106 | 41.16 |
| 42 | .002096 | 95,589 | 200 | 95,489 | 3,346,023 | 35.00 | 42 | .001198 | 97,696 | 117 | 97,637 | 3,927,357 | 40.20 |
| 43 | .002286 | 95,389 | 218 | 95,280 | 3,250,534 | 34.08 | 43 | .001331 | 97,579 | 130 | 97,514 | 3,829,720 | 39.25 |
| 44 | .002490 | 95,171 | 237 | 95,053 | 3,155,254 | 33.15 | 44 | .001494 | 97,449 | 146 | 97,376 | 3,732,206 | 38.30 |
| 45 | .002727 | 94,934 | 259 | 94,805 | 3,060,202 | 32.24 | 45 | .001676 | 97,303 | 163 | 97,222 | 3,634,830 | 37.36 |
| 46 | .003012 | 94,675 | 285 | 94,532 | 2,965,397 | 31.32 | 46 | .001869 | 97,140 | 182 | 97,049 | 3,537,608 | 36.42 |
| 47 | .003328 | 94,390 | 314 | 94,233 | 2,870,865 | 30.41 | 47 | .002089 | 96,959 | 203 | 96,857 | 3,440,559 | 35.48 |
| 48 | .003672 | 94,076 | 345 | 93,903 | 2,776,632 | 29.51 | 48 | .002311 | 96,756 | 224 | 96,644 | 3,343,701 | 34.56 |
| 49 | .004047 | 93,730 | 379 | 93,541 | 2,682,729 | 28.62 | 49 | .002543 | 96,533 | 246 | 96,410 | 3,247,057 | 33.64 |
| 50 | .004466 | 93,351 | 417 | 93,143 | 2,589,188 | 27.74 | 50 | .002786 | 96,287 | 268 | 96,153 | 3,150,647 | 32.72 |
| 51 | .004948 | 92,934 | 460 | 92,704 | 2,496,045 | 26.86 | 51 | .003061 | 96,019 | 294 | 95,872 | 3,054,494 | 31.81 |
| 52 | .005503 | 92,474 | 509 | 92,220 | 2,403,341 | 25.99 | 52 | .003371 | 95,725 | 323 | 95,564 | 2,958,622 | 30.91 |
| 53 | .006119 | 91,965 | 563 | 91,684 | 2,311,121 | 25.13 | 53 | .003699 | 95,402 | 353 | 95,226 | 2,863,058 | 30.01 |
| 54 | .006776 | 91,403 | 619 | 91,093 | 2,219,437 | 24.28 | 54 | .004060 | 95,049 | 386 | 94,856 | 2,767,832 | 29.12 |

# Calendar Year 1990 (Continued)

| Male | | | | | | | Female | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ | X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ |
| 55 | .007513 | 90,783 | 682 | 90,442 | 2,128,344 | 23.44 | 55 | .004433 | 94,664 | 420 | 94,454 | 2,672,976 | 28.24 |
| 56 | .008333 | 90,101 | 751 | 89,726 | 2,037,902 | 22.62 | 56 | .004856 | 94,244 | 458 | 94,015 | 2,578,522 | 27.36 |
| 57 | .009244 | 89,351 | 826 | 88,938 | 1,948,176 | 21.80 | 57 | .005314 | 93,786 | 498 | 93,537 | 2,484,507 | 26.49 |
| 58 | .010243 | 88,525 | 907 | 88,071 | 1,859,238 | 21.00 | 58 | .005789 | 93,288 | 540 | 93,018 | 2,390,970 | 25.63 |
| 59 | .011360 | 87,618 | 995 | 87,120 | 1,771,167 | 20.21 | 59 | .006291 | 92,748 | 583 | 92,456 | 2,297,953 | 24.78 |
| 60 | .012546 | 86,622 | 1,087 | 86,079 | 1,684,047 | 19.44 | 60 | .006835 | 92,164 | 630 | 91,849 | 2,205,496 | 23.93 |
| 61 | .013846 | 85,536 | 1,184 | 84,943 | 1,597,968 | 18.68 | 61 | .007443 | 91,534 | 681 | 91,194 | 2,113,647 | 23.09 |
| 62 | .015265 | 84,351 | 1,288 | 83,707 | 1,513,024 | 17.94 | 62 | .008155 | 90,853 | 741 | 90,483 | 2,022,453 | 22.26 |
| 63 | .016788 | 83,064 | 1,394 | 82,366 | 1,429,317 | 17.21 | 63 | .008940 | 90,112 | 806 | 89,709 | 1,931,971 | 21.44 |
| 64 | .018400 | 81,669 | 1,503 | 80,918 | 1,346,951 | 16.49 | 64 | .009778 | 89,307 | 873 | 88,870 | 1,842,261 | 20.63 |
| 65 | .020151 | 80,167 | 1,615 | 79,359 | 1,266,033 | 15.79 | 65 | .010712 | 88,433 | 947 | 87,960 | 1,753,391 | 19.83 |
| 66 | .022077 | 78,551 | 1,734 | 77,684 | 1,186,674 | 15.11 | 66 | .011753 | 87,486 | 1,028 | 86,972 | 1,665,431 | 19.04 |
| 67 | .024212 | 76,817 | 1,860 | 75,887 | 1,108,990 | 14.44 | 67 | .012915 | 86,458 | 1,117 | 85,900 | 1,578,459 | 18.26 |
| 68 | .026488 | 74,957 | 1,985 | 73,964 | 1,033,103 | 13.78 | 68 | .014171 | 85,341 | 1,209 | 84,737 | 1,492,560 | 17.49 |
| 69 | .028924 | 72,972 | 2,111 | 71,916 | 959,139 | 13.14 | 69 | .015470 | 84,132 | 1,302 | 83,481 | 1,407,823 | 16.73 |
| 70 | .031568 | 70,861 | 2,237 | 69,742 | 887,222 | 12.52 | 70 | .016926 | 82,830 | 1,402 | 82,129 | 1,324,342 | 15.99 |
| 71 | .034426 | 68,624 | 2,362 | 67,443 | 817,480 | 11.91 | 71 | .018604 | 81,428 | 1,515 | 80,671 | 1,242,213 | 15.26 |
| 72 | .037736 | 66,262 | 2,500 | 65,011 | 750,037 | 11.32 | 72 | .020571 | 79,914 | 1,644 | 79,092 | 1,161,542 | 14.53 |
| 73 | .041527 | 63,761 | 2,648 | 62,437 | 685,026 | 10.74 | 73 | .022806 | 78,270 | 1,785 | 77,377 | 1,082,450 | 13.83 |
| 74 | .045549 | 61,113 | 2,784 | 59,721 | 622,589 | 10.19 | 74 | .025213 | 76,485 | 1,928 | 75,520 | 1,005,073 | 13.14 |
| 75 | .049998 | 58,330 | 2,916 | 56,871 | 562,867 | 9.65 | 75 | .027920 | 74,556 | 2,082 | 73,515 | 929,552 | 12.47 |
| 76 | .054835 | 55,413 | 3,039 | 53,894 | 505,996 | 9.13 | 76 | .031006 | 72,475 | 2,247 | 71,351 | 856,037 | 11.81 |
| 77 | .060197 | 52,375 | 3,153 | 50,798 | 452,102 | 8.63 | 77 | .034559 | 70,228 | 2,427 | 69,014 | 784,686 | 11.17 |
| 78 | .066103 | 49,222 | 3,254 | 47,595 | 401,303 | 8.15 | 78 | .038499 | 67,801 | 2,610 | 66,495 | 715,672 | 10.56 |
| 79 | .072423 | 45,968 | 3,329 | 44,304 | 353,708 | 7.69 | 79 | .042773 | 65,190 | 2,788 | 63,796 | 649,176 | 9.96 |
| 80 | .079318 | 42,639 | 3,382 | 40,948 | 309,405 | 7.26 | 80 | .047501 | 62,402 | 2,964 | 60,920 | 585,380 | 9.38 |
| 81 | .086776 | 39,257 | 3,407 | 37,554 | 268,457 | 6.84 | 81 | .052841 | 59,438 | 3,141 | 57,867 | 524,460 | 8.82 |
| 82 | .094798 | 35,850 | 3,399 | 34,151 | 230,903 | 6.44 | 82 | .058883 | 56,297 | 3,315 | 54,640 | 466,593 | 8.29 |
| 83 | .103390 | 32,452 | 3,355 | 30,774 | 196,752 | 6.06 | 83 | .065550 | 52,982 | 3,473 | 51,246 | 411,954 | 7.78 |
| 84 | .112598 | 29,097 | 3,276 | 27,459 | 165,978 | 5.70 | 84 | .072793 | 49,509 | 3,604 | 47,707 | 360,708 | 7.29 |
| 85 | .122400 | 25,820 | 3,160 | 24,240 | 138,519 | 5.36 | 85 | .080699 | 45,905 | 3,705 | 44,053 | 313,001 | 6.82 |
| 86 | .132857 | 22,660 | 3,011 | 21,155 | 114,279 | 5.04 | 86 | .089420 | 42,201 | 3,774 | 40,314 | 268,948 | 6.37 |
| 87 | .143907 | 19,649 | 2,828 | 18,236 | 93,124 | 4.74 | 87 | .099103 | 38,427 | 3,808 | 36,523 | 228,634 | 5.95 |
| 88 | .155715 | 16,822 | 2,619 | 15,512 | 74,888 | 4.45 | 88 | .109659 | 34,619 | 3,796 | 32,721 | 192,111 | 5.55 |
| 89 | .168157 | 14,202 | 2,388 | 13,008 | 59,376 | 4.18 | 89 | .121027 | 30,823 | 3,730 | 28,957 | 159,391 | 5.17 |
| 90 | .181227 | 11,814 | 2,141 | 10,744 | 46,368 | 3.92 | 90 | .133300 | 27,092 | 3,611 | 25,287 | 130,433 | 4.81 |
| 91 | .195172 | 9,673 | 1,888 | 8,729 | 35,624 | 3.68 | 91 | .146601 | 23,481 | 3,442 | 21,760 | 105,147 | 4.48 |
| 92 | .209973 | 7,785 | 1,635 | 6,968 | 26,895 | 3.45 | 92 | .161103 | 20,039 | 3,228 | 18,424 | 83,387 | 4.16 |
| 93 | .225577 | 6,151 | 1,387 | 5,457 | 19,927 | 3.24 | 93 | .176710 | 16,810 | 2,971 | 15,325 | 64,963 | 3.86 |
| 94 | .241942 | 4,763 | 1,152 | 4,187 | 14,471 | 3.04 | 94 | .193328 | 13,840 | 2,676 | 12,502 | 49,638 | 3.59 |
| 95 | .259131 | 3,611 | 936 | 3,143 | 10,284 | 2.85 | 95 | .211098 | 11,164 | 2,357 | 9,986 | 37,136 | 3.33 |
| 96 | .277216 | 2,675 | 742 | 2,304 | 7,141 | 2.67 | 96 | .230151 | 8,807 | 2,027 | 7,794 | 27,150 | 3.08 |
| 97 | .296255 | 1,933 | 573 | 1,647 | 4,837 | 2.50 | 97 | .250643 | 6,780 | 1,699 | 5,931 | 19,356 | 2.85 |
| 98 | .315105 | 1,361 | 429 | 1,146 | 3,189 | 2.34 | 98 | .271279 | 5,081 | 1,378 | 4,392 | 13,426 | 2.64 |
| 99 | .333714 | 932 | 311 | 776 | 2,043 | 2.19 | 99 | .291934 | 3,703 | 1,081 | 3,162 | 9,034 | 2.44 |
| 100 | .353843 | 621 | 220 | 511 | 1,267 | 2.04 | 100 | .314547 | 2,622 | 825 | 2,209 | 5,872 | 2.24 |
| 101 | .377254 | 401 | 151 | 326 | 756 | 1.88 | 101 | .341153 | 1,797 | 613 | 1,490 | 3,662 | 2.04 |
| 102 | .405418 | 250 | 101 | 199 | 430 | 1.72 | 102 | .373562 | 1,184 | 442 | 963 | 2,172 | 1.83 |
| 103 | .440141 | 149 | 65 | 116 | 231 | 1.55 | 103 | .413810 | 742 | 307 | 588 | 1,209 | 1.63 |
| 104 | .479073 | 83 | 40 | 63 | 115 | 1.38 | 104 | .459309 | 435 | 200 | 335 | 621 | 1.43 |
| 105 | .518423 | 43 | 22 | 32 | 52 | 1.20 | 105 | .506024 | 235 | 119 | 176 | 286 | 1.22 |
| 106 | .647113 | 21 | 14 | 14 | 20 | 0.94 | 106 | .641851 | 116 | 75 | 79 | 110 | 0.95 |
| 107 | .769423 | 7 | 6 | 5 | 6 | 0.76 | 107 | .770644 | 42 | 32 | 26 | 31 | 0.76 |
| 108 | .881875 | 2 | 1 | 1 | 1 | 0.62 | 108 | .882447 | 10 | 8 | 5 | 6 | 0.62 |
| 109 | 1.000000 | 0 | 0 | 0 | 0 | 0.50 | 109 | 1.000000 | 1 | 1 | 1 | 1 | 0.50 |

# Calendar Year 2000

| Male | | | | | | |
|---|---|---|---|---|---|---|
| X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ |
| 0 | .005595 | 100,000 | 560 | 99,552 | 7,642,582 | 76.43 |
| 1 | .000369 | 99,440 | 37 | 99,422 | 7,543,030 | 75.85 |
| 2 | .000289 | 99,404 | 29 | 99,389 | 7,443,607 | 74.88 |
| 3 | .000251 | 99,375 | 25 | 99,363 | 7,344,218 | 73.90 |
| 4 | .000183 | 99,350 | 18 | 99,341 | 7,244,855 | 72.92 |
| 5 | .000130 | 99,332 | 13 | 99,325 | 7,145,514 | 71.94 |
| 6 | .000106 | 99,319 | 11 | 99,314 | 7,046,189 | 70.95 |
| 7 | .000091 | 99,308 | 9 | 99,304 | 6,946,875 | 69.95 |
| 8 | .000076 | 99,299 | 8 | 99,296 | 6,847,571 | 68.96 |
| 9 | .000076 | 99,292 | 8 | 99,288 | 6,748,276 | 67.96 |
| 10 | .000095 | 99,284 | 9 | 99,280 | 6,648,988 | 66.97 |
| 11 | .000095 | 99,275 | 9 | 99,270 | 6,549,708 | 65.98 |
| 12 | .000147 | 99,266 | 15 | 99,258 | 6,450,438 | 64.98 |
| 13 | .000223 | 99,251 | 22 | 99,240 | 6,351,180 | 63.99 |
| 14 | .000320 | 99,229 | 32 | 99,213 | 6,251,940 | 63.01 |
| 15 | .000398 | 99,197 | 39 | 99,177 | 6,152,727 | 62.03 |
| 16 | .000565 | 99,158 | 56 | 99,130 | 6,053,550 | 61.05 |
| 17 | .000569 | 99,101 | 56 | 99,073 | 5,954,420 | 60.08 |
| 18 | .000691 | 99,045 | 68 | 99,011 | 5,855,347 | 59.12 |
| 19 | .000743 | 98,977 | 74 | 98,940 | 5,756,336 | 58.16 |
| 20 | .000806 | 98,903 | 80 | 98,863 | 5,657,396 | 57.20 |
| 21 | .000731 | 98,823 | 72 | 98,787 | 5,558,533 | 56.25 |
| 22 | .000832 | 98,751 | 82 | 98,710 | 5,459,745 | 55.29 |
| 23 | .000851 | 98,669 | 84 | 98,627 | 5,361,035 | 54.33 |
| 24 | .000896 | 98,585 | 88 | 98,541 | 5,262,408 | 53.38 |
| 25 | .000877 | 98,497 | 86 | 98,454 | 5,163,867 | 52.43 |
| 26 | .000878 | 98,410 | 86 | 98,367 | 5,065,413 | 51.47 |
| 27 | .000877 | 98,324 | 86 | 98,281 | 4,967,046 | 50.52 |
| 28 | .000893 | 98,238 | 88 | 98,194 | 4,868,765 | 49.56 |
| 29 | .000917 | 98,150 | 90 | 98,105 | 4,770,571 | 48.60 |
| 30 | .001140 | 98,060 | 112 | 98,004 | 4,672,466 | 47.65 |
| 31 | .001181 | 97,948 | 116 | 97,890 | 4,574,462 | 46.70 |
| 32 | .001231 | 97,833 | 120 | 97,772 | 4,476,572 | 45.76 |
| 33 | .001282 | 97,712 | 125 | 97,650 | 4,378,799 | 44.81 |
| 34 | .001342 | 97,587 | 131 | 97,521 | 4,281,150 | 43.87 |
| 35 | .001447 | 97,456 | 141 | 97,385 | 4,183,628 | 42.93 |
| 36 | .001520 | 97,315 | 148 | 97,241 | 4,086,243 | 41.99 |
| 37 | .001599 | 97,167 | 155 | 97,089 | 3,989,002 | 41.05 |
| 38 | .001667 | 97,012 | 162 | 96,931 | 3,891,912 | 40.12 |
| 39 | .001735 | 96,850 | 168 | 96,766 | 3,794,981 | 39.18 |
| 40 | .001876 | 96,682 | 181 | 96,591 | 3,698,215 | 38.25 |
| 41 | .001986 | 96,501 | 192 | 96,405 | 3,601,624 | 37.32 |
| 42 | .002120 | 96,309 | 204 | 96,207 | 3,505,219 | 36.40 |
| 43 | .002309 | 96,105 | 222 | 95,994 | 3,409,012 | 35.47 |
| 44 | .002522 | 95,883 | 242 | 95,762 | 3,313,018 | 34.55 |
| 45 | .002262 | 95,641 | 216 | 95,533 | 3,217,256 | 33.64 |
| 46 | .002496 | 95,425 | 238 | 95,306 | 3,121,723 | 32.71 |
| 47 | .002755 | 95,187 | 262 | 95,055 | 3,026,418 | 31.79 |
| 48 | .003030 | 94,924 | 288 | 94,781 | 2,931,362 | 30.88 |
| 49 | .003330 | 94,637 | 315 | 94,479 | 2,836,581 | 29.97 |
| 50 | .003749 | 94,322 | 354 | 94,145 | 2,742,102 | 29.07 |
| 51 | .004142 | 93,968 | 389 | 93,773 | 2,647,957 | 28.18 |
| 52 | .004602 | 93,579 | 431 | 93,364 | 2,554,184 | 27.29 |
| 53 | .005113 | 93,148 | 476 | 92,910 | 2,460,820 | 26.42 |
| 54 | .005664 | 92,672 | 525 | 92,410 | 2,367,910 | 25.55 |

| Female | | | | | | |
|---|---|---|---|---|---|---|
| X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ |
| 0 | .004558 | 100,000 | 456 | 99,635 | 8,165,125 | 81.65 |
| 1 | .000391 | 99,544 | 39 | 99,525 | 8,065,490 | 81.02 |
| 2 | .000253 | 99,505 | 25 | 99,493 | 7,965,965 | 80.06 |
| 3 | .000196 | 99,480 | 20 | 99,470 | 7,866,472 | 79.08 |
| 4 | .000149 | 99,460 | 15 | 99,453 | 7,767,002 | 78.09 |
| 5 | .000108 | 99,446 | 11 | 99,440 | 7,667,549 | 77.10 |
| 6 | .000100 | 99,435 | 10 | 99,430 | 7,568,109 | 76.11 |
| 7 | .000092 | 99,425 | 9 | 99,420 | 7,468,679 | 75.12 |
| 8 | .000084 | 99,416 | 8 | 99,412 | 7,369,258 | 74.13 |
| 9 | .000084 | 99,407 | 8 | 99,403 | 7,269,847 | 73.13 |
| 10 | .000078 | 99,399 | 8 | 99,395 | 7,170,443 | 72.14 |
| 11 | .000082 | 99,391 | 8 | 99,387 | 7,071,048 | 71.14 |
| 12 | .000112 | 99,383 | 11 | 99,378 | 6,971,661 | 70.15 |
| 13 | .000136 | 99,372 | 13 | 99,365 | 6,872,283 | 69.16 |
| 14 | .000166 | 99,359 | 16 | 99,350 | 6,772,918 | 68.17 |
| 15 | .000225 | 99,342 | 22 | 99,331 | 6,673,568 | 67.18 |
| 16 | .000258 | 99,320 | 26 | 99,307 | 6,574,237 | 66.19 |
| 17 | .000280 | 99,294 | 28 | 99,280 | 6,474,930 | 65.21 |
| 18 | .000295 | 99,266 | 29 | 99,252 | 6,375,650 | 64.23 |
| 19 | .000286 | 99,237 | 28 | 99,223 | 6,276,398 | 63.25 |
| 20 | .000317 | 99,209 | 31 | 99,193 | 6,177,175 | 62.26 |
| 21 | .000311 | 99,177 | 31 | 99,162 | 6,077,982 | 61.28 |
| 22 | .000309 | 99,146 | 31 | 99,131 | 5,978,821 | 60.30 |
| 23 | .000317 | 99,116 | 31 | 99,100 | 5,879,689 | 59.32 |
| 24 | .000326 | 99,084 | 32 | 99,068 | 5,780,590 | 58.34 |
| 25 | .000301 | 99,052 | 30 | 99,037 | 5,681,521 | 57.36 |
| 26 | .000309 | 99,022 | 31 | 99,007 | 5,582,484 | 56.38 |
| 27 | .000326 | 98,992 | 32 | 98,975 | 5,483,478 | 55.39 |
| 28 | .000332 | 98,959 | 33 | 98,943 | 5,384,502 | 54.41 |
| 29 | .000348 | 98,926 | 34 | 98,909 | 5,285,559 | 53.43 |
| 30 | .000448 | 98,892 | 44 | 98,870 | 5,186,650 | 52.45 |
| 31 | .000464 | 98,848 | 46 | 98,825 | 5,087,780 | 51.47 |
| 32 | .000503 | 98,802 | 50 | 98,777 | 4,988,956 | 50.49 |
| 33 | .000541 | 98,752 | 53 | 98,725 | 4,890,179 | 49.52 |
| 34 | .000588 | 98,699 | 58 | 98,670 | 4,791,453 | 48.55 |
| 35 | .000639 | 98,641 | 63 | 98,609 | 4,692,784 | 47.57 |
| 36 | .000696 | 98,578 | 69 | 98,543 | 4,594,174 | 46.60 |
| 37 | .000762 | 98,509 | 75 | 98,471 | 4,495,631 | 45.64 |
| 38 | .000813 | 98,434 | 80 | 98,394 | 4,397,160 | 44.67 |
| 39 | .000864 | 98,354 | 85 | 98,311 | 4,298,766 | 43.71 |
| 40 | .000949 | 98,269 | 93 | 98,222 | 4,200,455 | 42.74 |
| 41 | .001030 | 98,176 | 101 | 98,125 | 4,102,232 | 41.78 |
| 42 | .001135 | 98,075 | 111 | 98,019 | 4,004,107 | 40.83 |
| 43 | .001262 | 97,963 | 124 | 97,901 | 3,906,088 | 39.87 |
| 44 | .001427 | 97,840 | 140 | 97,770 | 3,808,187 | 38.92 |
| 45 | .001410 | 97,700 | 138 | 97,631 | 3,710,417 | 37.98 |
| 46 | .001578 | 97,562 | 154 | 97,485 | 3,612,786 | 37.03 |
| 47 | .001769 | 97,408 | 172 | 97,322 | 3,515,300 | 36.09 |
| 48 | .001956 | 97,236 | 190 | 97,141 | 3,417,978 | 35.15 |
| 49 | .002152 | 97,046 | 209 | 96,941 | 3,320,837 | 34.22 |
| 50 | .002408 | 96,837 | 233 | 96,720 | 3,223,896 | 33.29 |
| 51 | .002643 | 96,604 | 255 | 96,476 | 3,127,176 | 32.37 |
| 52 | .002916 | 96,348 | 281 | 96,208 | 3,030,699 | 31.46 |
| 53 | .003202 | 96,068 | 308 | 95,914 | 2,934,491 | 30.55 |
| 54 | .003517 | 95,760 | 337 | 95,592 | 2,838,578 | 29.64 |

# Calendar Year 2000 (Continued)

| Male | | | | | | | Female | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ | X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ |
| 55 | .005857 | 92,147 | 540 | 91,877 | 2,275,501 | 24.69 | 55 | .003958 | 95,423 | 378 | 95,234 | 2,742,986 | 28.75 |
| 56 | .006507 | 91,607 | 596 | 91,309 | 2,183,623 | 23.84 | 56 | .004339 | 95,046 | 412 | 94,839 | 2,647,752 | 27.86 |
| 57 | .007233 | 91,011 | 658 | 90,682 | 2,092,314 | 22.99 | 57 | .004749 | 94,633 | 449 | 94,408 | 2,552,912 | 26.98 |
| 58 | .008035 | 90,353 | 726 | 89,990 | 2,001,632 | 22.15 | 58 | .005175 | 94,184 | 487 | 93,940 | 2,458,504 | 26.10 |
| 59 | .008925 | 89,627 | 800 | 89,227 | 1,911,642 | 21.33 | 59 | .005624 | 93,696 | 527 | 93,433 | 2,364,564 | 25.24 |
| 60 | .009999 | 88,827 | 888 | 88,383 | 1,822,415 | 20.52 | 60 | .006127 | 93,169 | 571 | 92,884 | 2,271,131 | 24.38 |
| 61 | .011058 | 87,939 | 972 | 87,453 | 1,734,032 | 19.72 | 61 | .006669 | 92,598 | 618 | 92,290 | 2,178,247 | 23.52 |
| 62 | .012206 | 86,966 | 1,061 | 86,436 | 1,646,579 | 18.93 | 62 | .007311 | 91,981 | 672 | 91,645 | 2,085,958 | 22.68 |
| 63 | .013412 | 85,905 | 1,152 | 85,329 | 1,560,143 | 18.16 | 63 | .008014 | 91,308 | 732 | 90,943 | 1,994,313 | 21.84 |
| 64 | .014680 | 84,753 | 1,244 | 84,131 | 1,474,815 | 17.40 | 64 | .008766 | 90,577 | 794 | 90,180 | 1,903,370 | 21.01 |
| 65 | .016525 | 83,509 | 1,380 | 82,819 | 1,390,684 | 16.65 | 65 | .009673 | 89,783 | 868 | 89,349 | 1,813,190 | 20.20 |
| 66 | .018079 | 82,129 | 1,485 | 81,386 | 1,307,865 | 15.92 | 66 | .010618 | 88,914 | 944 | 88,442 | 1,723,842 | 19.39 |
| 67 | .019794 | 80,644 | 1,596 | 79,846 | 1,226,479 | 15.21 | 67 | .011667 | 87,970 | 1,026 | 87,457 | 1,635,400 | 18.59 |
| 68 | .021646 | 79,048 | 1,711 | 78,192 | 1,146,633 | 14.51 | 68 | .012801 | 86,944 | 1,113 | 86,387 | 1,547,943 | 17.80 |
| 69 | .023645 | 77,337 | 1,829 | 76,422 | 1,068,441 | 13.82 | 69 | .013962 | 85,831 | 1,198 | 85,232 | 1,461,555 | 17.03 |
| 70 | .027648 | 75,508 | 2,088 | 74,464 | 992,019 | 13.14 | 70 | .015503 | 84,632 | 1,312 | 83,976 | 1,376,324 | 16.26 |
| 71 | .030239 | 73,420 | 2,220 | 72,310 | 917,555 | 12.50 | 71 | .017042 | 83,320 | 1,420 | 82,610 | 1,292,347 | 15.51 |
| 72 | .033201 | 71,200 | 2,364 | 70,018 | 845,245 | 11.87 | 72 | .018849 | 81,900 | 1,544 | 81,129 | 1,209,737 | 14.77 |
| 73 | .036494 | 68,836 | 2,512 | 67,580 | 775,226 | 11.26 | 73 | .020896 | 80,357 | 1,679 | 79,517 | 1,128,608 | 14.04 |
| 74 | .040045 | 66,324 | 2,656 | 64,996 | 707,646 | 10.67 | 74 | .023106 | 78,678 | 1,818 | 77,769 | 1,049,091 | 13.33 |
| 75 | .043293 | 63,668 | 2,756 | 62,290 | 642,650 | 10.09 | 75 | .025782 | 76,860 | 1,982 | 75,869 | 971,322 | 12.64 |
| 76 | .047582 | 60,912 | 2,898 | 59,463 | 580,360 | 9.53 | 76 | .028651 | 74,878 | 2,145 | 73,805 | 895,453 | 11.96 |
| 77 | .052330 | 58,013 | 3,036 | 56,496 | 520,898 | 8.98 | 77 | .031967 | 72,733 | 2,325 | 71,570 | 821,648 | 11.30 |
| 78 | .057581 | 54,978 | 3,166 | 53,395 | 464,402 | 8.45 | 78 | .035669 | 70,408 | 2,511 | 69,152 | 750,078 | 10.65 |
| 79 | .063299 | 51,812 | 3,280 | 50,172 | 411,007 | 7.93 | 79 | .039693 | 67,896 | 2,695 | 66,549 | 680,926 | 10.03 |
| 80 | .074289 | 48,532 | 3,605 | 46,730 | 360,835 | 7.43 | 80 | .046526 | 65,201 | 3,034 | 63,685 | 614,377 | 9.42 |
| 81 | .081246 | 44,927 | 3,650 | 43,102 | 314,106 | 6.99 | 81 | .051773 | 62,168 | 3,219 | 60,559 | 550,692 | 8.86 |
| 82 | .088818 | 41,277 | 3,666 | 39,444 | 271,004 | 6.57 | 82 | .057697 | 58,949 | 3,401 | 57,249 | 490,134 | 8.31 |
| 83 | .097177 | 37,611 | 3,655 | 35,783 | 231,560 | 6.16 | 83 | .064263 | 55,548 | 3,570 | 53,763 | 432,885 | 7.79 |
| 84 | .105912 | 33,956 | 3,596 | 32,158 | 195,777 | 5.77 | 84 | .071369 | 51,978 | 3,710 | 50,124 | 379,122 | 7.29 |
| 85 | .122063 | 30,359 | 3,706 | 28,507 | 163,619 | 5.39 | 85 | .080986 | 48,269 | 3,909 | 46,314 | 328,998 | 6.82 |
| 86 | .132326 | 26,654 | 3,527 | 24,890 | 135,113 | 5.07 | 86 | .089718 | 44,360 | 3,980 | 42,370 | 282,684 | 6.37 |
| 87 | .143313 | 23,127 | 3,314 | 21,470 | 110,222 | 4.77 | 87 | .099369 | 40,380 | 4,013 | 38,373 | 240,314 | 5.95 |
| 88 | .155017 | 19,812 | 3,071 | 18,277 | 88,753 | 4.48 | 88 | .109857 | 36,367 | 3,995 | 34,370 | 201,941 | 5.55 |
| 89 | .167184 | 16,741 | 2,799 | 15,342 | 70,476 | 4.21 | 89 | .121150 | 32,372 | 3,922 | 30,411 | 167,571 | 5.18 |
| 90 | .180162 | 13,942 | 2,512 | 12,686 | 55,134 | 3.95 | 90 | .133268 | 28,450 | 3,791 | 26,554 | 137,160 | 4.82 |
| 91 | .193881 | 11,430 | 2,216 | 10,322 | 42,448 | 3.71 | 91 | .146487 | 24,659 | 3,612 | 22,853 | 110,606 | 4.49 |
| 92 | .208385 | 9,214 | 1,920 | 8,254 | 32,126 | 3.49 | 92 | .160883 | 21,046 | 3,386 | 19,353 | 87,753 | 4.17 |
| 93 | .223631 | 7,294 | 1,631 | 6,479 | 23,871 | 3.27 | 93 | .176356 | 17,660 | 3,115 | 16,103 | 68,400 | 3.87 |
| 94 | .239582 | 5,663 | 1,357 | 4,985 | 17,393 | 3.07 | 94 | .192823 | 14,546 | 2,805 | 13,144 | 52,296 | 3.60 |
| 95 | .256288 | 4,306 | 1,104 | 3,754 | 12,408 | 2.88 | 95 | .210416 | 11,741 | 2,471 | 10,506 | 39,153 | 3.33 |
| 96 | .273798 | 3,203 | 877 | 2,764 | 8,654 | 2.70 | 96 | .229256 | 9,271 | 2,125 | 8,208 | 28,647 | 3.09 |
| 97 | .292147 | 2,326 | 679 | 1,986 | 5,890 | 2.53 | 97 | .249501 | 7,145 | 1,783 | 6,254 | 20,439 | 2.86 |
| 98 | .311291 | 1,646 | 512 | 1,390 | 3,904 | 2.37 | 98 | .271030 | 5,363 | 1,453 | 4,636 | 14,185 | 2.65 |
| 99 | .331172 | 1,134 | 375 | 946 | 2,514 | 2.22 | 99 | .293776 | 3,909 | 1,148 | 3,335 | 9,549 | 2.44 |
| 100 | .355165 | 758 | 269 | 624 | 1,568 | 2.07 | 100 | .318822 | 2,761 | 880 | 2,321 | 6,214 | 2.25 |
| 101 | .376762 | 489 | 184 | 397 | 944 | 1.93 | 101 | .344440 | 1,881 | 648 | 1,557 | 3,894 | 2.07 |
| 102 | .399142 | 305 | 122 | 244 | 547 | 1.80 | 102 | .371671 | 1,233 | 458 | 1,004 | 2,337 | 1.90 |
| 103 | .422250 | 183 | 77 | 144 | 303 | 1.66 | 103 | .400418 | 775 | 310 | 620 | 1,333 | 1.72 |
| 104 | .446023 | 106 | 47 | 82 | 159 | 1.50 | 104 | .430577 | 464 | 200 | 364 | 714 | 1.54 |
| 105 | .470530 | 59 | 28 | 45 | 77 | 1.31 | 105 | .462272 | 264 | 122 | 203 | 349 | 1.32 |
| 106 | .599795 | 31 | 19 | 22 | 32 | 1.02 | 106 | .599241 | 142 | 85 | 100 | 146 | 1.03 |
| 107 | .729235 | 12 | 9 | 8 | 10 | 0.81 | 107 | .726299 | 57 | 41 | 36 | 46 | 0.82 |
| 108 | .867145 | 3 | 3 | 2 | 2 | 0.63 | 108 | .847867 | 16 | 13 | 9 | 10 | 0.65 |
| 109 | 1.000000 | 0 | 0 | 0 | 0 | 0.50 | 109 | 1.000000 | 2 | 2 | 1 | 1 | 0.50 |

# Calendar Year 2010

| Male | | | | | | | Female | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ | X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ |
| 0 | .004274 | 100,000 | 427 | 99,658 | 7,775,976 | 77.76 | 0 | .003649 | 100,000 | 365 | 99,708 | 8,241,479 | 82.41 |
| 1 | .000274 | 99,573 | 27 | 99,559 | 7,676,318 | 77.09 | 1 | .000312 | 99,635 | 31 | 99,620 | 8,141,771 | 81.72 |
| 2 | .000216 | 99,545 | 22 | 99,534 | 7,576,759 | 76.11 | 2 | .000203 | 99,604 | 20 | 99,594 | 8,042,152 | 80.74 |
| 3 | .000187 | 99,524 | 19 | 99,514 | 7,477,224 | 75.13 | 3 | .000159 | 99,584 | 16 | 99,576 | 7,942,558 | 79.76 |
| 4 | .000137 | 99,505 | 14 | 99,498 | 7,377,710 | 74.14 | 4 | .000120 | 99,568 | 12 | 99,562 | 7,842,982 | 78.77 |
| 5 | .000097 | 99,492 | 10 | 99,487 | 7,278,211 | 73.15 | 5 | .000089 | 99,556 | 9 | 99,551 | 7,743,420 | 77.78 |
| 6 | .000080 | 99,482 | 8 | 99,478 | 7,178,725 | 72.16 | 6 | .000083 | 99,547 | 8 | 99,543 | 7,643,869 | 76.79 |
| 7 | .000069 | 99,474 | 7 | 99,471 | 7,079,247 | 71.17 | 7 | .000076 | 99,539 | 8 | 99,535 | 7,544,326 | 75.79 |
| 8 | .000058 | 99,467 | 6 | 99,464 | 6,979,776 | 70.17 | 8 | .000070 | 99,531 | 7 | 99,528 | 7,444,791 | 74.80 |
| 9 | .000058 | 99,461 | 6 | 99,458 | 6,880,312 | 69.18 | 9 | .000070 | 99,524 | 7 | 99,521 | 7,345,263 | 73.80 |
| 10 | .000073 | 99,455 | 7 | 99,452 | 6,780,854 | 68.18 | 10 | .000068 | 99,517 | 7 | 99,514 | 7,245,743 | 72.81 |
| 11 | .000073 | 99,448 | 7 | 99,445 | 6,681,402 | 67.18 | 11 | .000070 | 99,511 | 7 | 99,507 | 7,146,229 | 71.81 |
| 12 | .000113 | 99,441 | 11 | 99,435 | 6,581,957 | 66.19 | 12 | .000096 | 99,504 | 10 | 99,499 | 7,046,722 | 70.82 |
| 13 | .000171 | 99,430 | 17 | 99,421 | 6,482,522 | 65.20 | 13 | .000116 | 99,494 | 12 | 99,488 | 6,947,223 | 69.83 |
| 14 | .000245 | 99,413 | 24 | 99,401 | 6,383,101 | 64.21 | 14 | .000143 | 99,482 | 14 | 99,475 | 6,847,735 | 68.83 |
| 15 | .000310 | 99,388 | 31 | 99,373 | 6,283,700 | 63.22 | 15 | .000196 | 99,468 | 20 | 99,458 | 6,748,260 | 67.84 |
| 16 | .000441 | 99,358 | 44 | 99,336 | 6,184,327 | 62.24 | 16 | .000225 | 99,449 | 22 | 99,437 | 6,648,801 | 66.86 |
| 17 | .000443 | 99,314 | 44 | 99,292 | 6,084,991 | 61.27 | 17 | .000244 | 99,426 | 24 | 99,414 | 6,549,364 | 65.87 |
| 18 | .000541 | 99,270 | 54 | 99,243 | 5,985,700 | 60.30 | 18 | .000258 | 99,402 | 26 | 99,389 | 6,449,950 | 64.89 |
| 19 | .000582 | 99,216 | 58 | 99,187 | 5,886,457 | 59.33 | 19 | .000251 | 99,376 | 25 | 99,364 | 6,350,561 | 63.90 |
| 20 | .000655 | 99,158 | 65 | 99,126 | 5,787,269 | 58.36 | 20 | .000279 | 99,351 | 28 | 99,338 | 6,251,197 | 62.92 |
| 21 | .000597 | 99,093 | 59 | 99,064 | 5,688,143 | 57.40 | 21 | .000274 | 99,324 | 27 | 99,310 | 6,151,859 | 61.94 |
| 22 | .000678 | 99,034 | 67 | 99,001 | 5,589,080 | 56.44 | 22 | .000272 | 99,296 | 27 | 99,283 | 6,052,549 | 60.95 |
| 23 | .000693 | 98,967 | 69 | 98,933 | 5,490,079 | 55.47 | 23 | .000280 | 99,269 | 28 | 99,256 | 5,953,266 | 59.97 |
| 24 | .000728 | 98,899 | 72 | 98,863 | 5,391,146 | 54.51 | 24 | .000288 | 99,242 | 29 | 99,227 | 5,854,011 | 58.99 |
| 25 | .000769 | 98,827 | 76 | 98,789 | 5,292,284 | 53.55 | 25 | .000268 | 99,213 | 27 | 99,200 | 5,754,783 | 58.00 |
| 26 | .000768 | 98,751 | 76 | 98,713 | 5,193,495 | 52.59 | 26 | .000275 | 99,186 | 27 | 99,173 | 5,655,583 | 57.02 |
| 27 | .000766 | 98,675 | 76 | 98,637 | 5,094,782 | 51.63 | 27 | .000290 | 99,159 | 29 | 99,145 | 5,556,411 | 56.04 |
| 28 | .000778 | 98,599 | 77 | 98,561 | 4,996,145 | 50.67 | 28 | .000295 | 99,130 | 29 | 99,116 | 5,457,266 | 55.05 |
| 29 | .000798 | 98,522 | 79 | 98,483 | 4,897,585 | 49.71 | 29 | .000310 | 99,101 | 31 | 99,086 | 5,358,150 | 54.07 |
| 30 | .001077 | 98,444 | 106 | 98,391 | 4,799,102 | 48.75 | 30 | .000414 | 99,070 | 41 | 99,050 | 5,259,064 | 53.08 |
| 31 | .001115 | 98,338 | 110 | 98,283 | 4,700,711 | 47.80 | 31 | .000429 | 99,029 | 43 | 99,008 | 5,160,014 | 52.11 |
| 32 | .001162 | 98,228 | 114 | 98,171 | 4,602,428 | 46.85 | 32 | .000465 | 98,987 | 46 | 98,964 | 5,061,006 | 51.13 |
| 33 | .001210 | 98,114 | 119 | 98,055 | 4,504,257 | 45.91 | 33 | .000501 | 98,941 | 50 | 98,916 | 4,962,042 | 50.15 |
| 34 | .001266 | 97,995 | 124 | 97,933 | 4,406,202 | 44.96 | 34 | .000545 | 98,891 | 54 | 98,864 | 4,863,126 | 49.18 |
| 35 | .001416 | 97,871 | 139 | 97,802 | 4,308,269 | 44.02 | 35 | .000599 | 98,837 | 59 | 98,808 | 4,764,262 | 48.20 |
| 36 | .001487 | 97,733 | 145 | 97,660 | 4,210,467 | 43.08 | 36 | .000652 | 98,778 | 64 | 98,746 | 4,665,454 | 47.23 |
| 37 | .001565 | 97,587 | 153 | 97,511 | 4,112,807 | 42.14 | 37 | .000713 | 98,714 | 70 | 98,679 | 4,566,708 | 46.26 |
| 38 | .001632 | 97,435 | 159 | 97,355 | 4,015,296 | 41.21 | 38 | .000762 | 98,643 | 75 | 98,606 | 4,468,029 | 45.29 |
| 39 | .001700 | 97,276 | 165 | 97,193 | 3,917,941 | 40.28 | 39 | .000811 | 98,568 | 80 | 98,528 | 4,369,423 | 44.33 |
| 40 | .001795 | 97,110 | 174 | 97,023 | 3,820,749 | 39.34 | 40 | .000871 | 98,488 | 86 | 98,446 | 4,270,895 | 43.36 |
| 41 | .001901 | 96,936 | 184 | 96,844 | 3,723,726 | 38.41 | 41 | .000946 | 98,403 | 93 | 98,356 | 4,172,449 | 42.40 |
| 42 | .002031 | 96,752 | 197 | 96,653 | 3,626,882 | 37.49 | 42 | .001042 | 98,310 | 102 | 98,258 | 4,074,093 | 41.44 |
| 43 | .002214 | 96,555 | 214 | 96,448 | 3,530,228 | 36.56 | 43 | .001157 | 98,207 | 114 | 98,150 | 3,975,835 | 40.48 |
| 44 | .002420 | 96,341 | 233 | 96,225 | 3,433,780 | 35.64 | 44 | .001305 | 98,094 | 128 | 98,030 | 3,877,684 | 39.53 |
| 45 | .002027 | 96,108 | 195 | 96,011 | 3,337,555 | 34.73 | 45 | .001244 | 97,966 | 122 | 97,905 | 3,779,655 | 38.58 |
| 46 | .002241 | 95,913 | 215 | 95,806 | 3,241,545 | 33.80 | 46 | .001392 | 97,844 | 136 | 97,776 | 3,681,750 | 37.63 |
| 47 | .002473 | 95,698 | 237 | 95,580 | 3,145,739 | 32.87 | 47 | .001558 | 97,708 | 152 | 97,631 | 3,583,975 | 36.68 |
| 48 | .002721 | 95,462 | 260 | 95,332 | 3,050,159 | 31.95 | 48 | .001723 | 97,555 | 168 | 97,471 | 3,486,343 | 35.74 |
| 49 | .002991 | 95,202 | 285 | 95,060 | 2,954,827 | 31.04 | 49 | .001893 | 97,387 | 184 | 97,295 | 3,388,872 | 34.80 |
| 50 | .003201 | 94,917 | 304 | 94,765 | 2,859,767 | 30.13 | 50 | .002137 | 97,203 | 208 | 97,099 | 3,291,577 | 33.86 |
| 51 | .003538 | 94,613 | 335 | 94,446 | 2,765,002 | 29.22 | 51 | .002345 | 96,995 | 227 | 96,881 | 3,194,478 | 32.93 |
| 52 | .003931 | 94,279 | 371 | 94,093 | 2,670,555 | 28.33 | 52 | .002585 | 96,768 | 250 | 96,643 | 3,097,596 | 32.01 |
| 53 | .004368 | 93,908 | 410 | 93,703 | 2,576,462 | 27.44 | 53 | .002838 | 96,518 | 274 | 96,381 | 3,000,954 | 31.09 |
| 54 | .004838 | 93,498 | 452 | 93,272 | 2,482,759 | 26.55 | 54 | .003121 | 96,244 | 300 | 96,094 | 2,904,573 | 30.18 |

# Calendar Year 2010 (Continued)

| Male | | | | | | | Female | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ | X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ |
| 55 | .004968 | 93,046 | 462 | 92,814 | 2,389,487 | 25.68 | 55 | .003531 | 95,943 | 339 | 95,774 | 2,808,479 | 29.27 |
| 56 | .005516 | 92,583 | 511 | 92,328 | 2,296,673 | 24.81 | 56 | .003875 | 95,605 | 370 | 95,419 | 2,712,705 | 28.37 |
| 57 | .006132 | 92,073 | 565 | 91,790 | 2,204,345 | 23.94 | 57 | .004242 | 95,234 | 404 | 95,032 | 2,617,286 | 27.48 |
| 58 | .006814 | 91,508 | 624 | 91,196 | 2,112,555 | 23.09 | 58 | .004627 | 94,830 | 439 | 94,611 | 2,522,254 | 26.60 |
| 59 | .007569 | 90,885 | 688 | 90,541 | 2,021,358 | 22.24 | 59 | .005033 | 94,391 | 475 | 94,154 | 2,427,643 | 25.72 |
| 60 | .008371 | 90,197 | 755 | 89,819 | 1,930,818 | 21.41 | 60 | .005576 | 93,916 | 524 | 93,654 | 2,333,489 | 24.85 |
| 61 | .009256 | 89,442 | 828 | 89,028 | 1,840,998 | 20.58 | 61 | .006073 | 93,393 | 567 | 93,109 | 2,239,835 | 23.98 |
| 62 | .010215 | 88,614 | 905 | 88,161 | 1,751,971 | 19.77 | 62 | .006657 | 92,825 | 618 | 92,516 | 2,146,726 | 23.13 |
| 63 | .011220 | 87,709 | 984 | 87,217 | 1,663,810 | 18.97 | 63 | .007296 | 92,207 | 673 | 91,871 | 2,054,210 | 22.28 |
| 64 | .012267 | 86,725 | 1,064 | 86,193 | 1,576,593 | 18.18 | 64 | .007987 | 91,535 | 731 | 91,169 | 1,962,339 | 21.44 |
| 65 | .014020 | 85,661 | 1,201 | 85,060 | 1,490,400 | 17.40 | 65 | .008818 | 90,804 | 801 | 90,403 | 1,871,169 | 20.61 |
| 66 | .015351 | 84,460 | 1,297 | 83,812 | 1,405,340 | 16.64 | 66 | .009674 | 90,003 | 871 | 89,568 | 1,780,766 | 19.79 |
| 67 | .016820 | 83,163 | 1,399 | 82,464 | 1,321,528 | 15.89 | 67 | .010626 | 89,132 | 947 | 88,659 | 1,691,199 | 18.97 |
| 68 | .018401 | 81,764 | 1,505 | 81,012 | 1,239,065 | 15.15 | 68 | .011657 | 88,185 | 1,028 | 87,671 | 1,602,540 | 18.17 |
| 69 | .020067 | 80,260 | 1,611 | 79,455 | 1,158,052 | 14.43 | 69 | .012715 | 87,157 | 1,108 | 86,603 | 1,514,869 | 17.38 |
| 70 | .024272 | 78,649 | 1,909 | 77,695 | 1,078,598 | 13.71 | 70 | .014360 | 86,049 | 1,236 | 85,431 | 1,428,266 | 16.60 |
| 71 | .026552 | 76,740 | 2,038 | 75,722 | 1,000,903 | 13.04 | 71 | .015786 | 84,813 | 1,339 | 84,144 | 1,342,835 | 15.83 |
| 72 | .029187 | 74,703 | 2,180 | 73,613 | 925,181 | 12.38 | 72 | .017463 | 83,474 | 1,458 | 82,746 | 1,258,691 | 15.08 |
| 73 | .032092 | 72,522 | 2,327 | 71,359 | 851,569 | 11.74 | 73 | .019356 | 82,017 | 1,587 | 81,223 | 1,175,946 | 14.34 |
| 74 | .035197 | 70,195 | 2,471 | 68,960 | 780,210 | 11.11 | 74 | .021397 | 80,429 | 1,721 | 79,569 | 1,094,723 | 13.61 |
| 75 | .039300 | 67,724 | 2,662 | 66,394 | 711,250 | 10.50 | 75 | .024264 | 78,708 | 1,910 | 77,753 | 1,015,154 | 12.90 |
| 76 | .043233 | 65,063 | 2,813 | 63,656 | 644,857 | 9.91 | 76 | .026955 | 76,798 | 2,070 | 75,763 | 937,401 | 12.21 |
| 77 | .047519 | 62,250 | 2,958 | 60,771 | 581,200 | 9.34 | 77 | .030067 | 74,728 | 2,247 | 73,605 | 861,637 | 11.53 |
| 78 | .052265 | 59,292 | 3,099 | 57,742 | 520,429 | 8.78 | 78 | .033536 | 72,481 | 2,431 | 71,266 | 788,032 | 10.87 |
| 79 | .057456 | 56,193 | 3,229 | 54,579 | 462,687 | 8.23 | 79 | .037317 | 70,051 | 2,614 | 68,744 | 716,766 | 10.23 |
| 80 | .069187 | 52,964 | 3,664 | 51,132 | 408,108 | 7.71 | 80 | .044211 | 67,437 | 2,981 | 65,946 | 648,022 | 9.61 |
| 81 | .075818 | 49,300 | 3,738 | 47,431 | 356,976 | 7.24 | 81 | .049221 | 64,455 | 3,173 | 62,869 | 582,076 | 9.03 |
| 82 | .082961 | 45,562 | 3,780 | 43,672 | 309,545 | 6.79 | 82 | .054869 | 61,283 | 3,362 | 59,601 | 519,207 | 8.47 |
| 83 | .090646 | 41,782 | 3,787 | 39,889 | 265,873 | 6.36 | 83 | .061112 | 57,920 | 3,540 | 56,150 | 459,606 | 7.94 |
| 84 | .098806 | 37,995 | 3,754 | 36,118 | 225,984 | 5.95 | 84 | .067872 | 54,381 | 3,691 | 52,535 | 403,456 | 7.42 |
| 85 | .117568 | 34,241 | 4,026 | 32,228 | 189,867 | 5.55 | 85 | .079049 | 50,690 | 4,007 | 48,686 | 350,920 | 6.92 |
| 86 | .127568 | 30,215 | 3,854 | 28,288 | 157,639 | 5.22 | 86 | .087599 | 46,683 | 4,089 | 44,638 | 302,234 | 6.47 |
| 87 | .138199 | 26,361 | 3,643 | 24,539 | 129,351 | 4.91 | 87 | .097062 | 42,593 | 4,134 | 40,526 | 257,596 | 6.05 |
| 88 | .149478 | 22,718 | 3,396 | 21,020 | 104,812 | 4.61 | 88 | .107384 | 38,459 | 4,130 | 36,394 | 217,070 | 5.64 |
| 89 | .161451 | 19,322 | 3,120 | 17,762 | 83,792 | 4.34 | 89 | .118481 | 34,329 | 4,067 | 32,296 | 180,675 | 5.26 |
| 90 | .174047 | 16,202 | 2,820 | 14,792 | 66,030 | 4.08 | 90 | .130485 | 30,262 | 3,949 | 28,288 | 148,380 | 4.90 |
| 91 | .187144 | 13,382 | 2,504 | 12,130 | 51,238 | 3.83 | 91 | .143301 | 26,313 | 3,771 | 24,428 | 120,092 | 4.56 |
| 92 | .201048 | 10,878 | 2,187 | 9,784 | 39,108 | 3.60 | 92 | .157269 | 22,542 | 3,545 | 20,770 | 95,664 | 4.24 |
| 93 | .215976 | 8,691 | 1,877 | 7,752 | 29,323 | 3.37 | 93 | .172513 | 18,997 | 3,277 | 17,359 | 74,895 | 3.94 |
| 94 | .231431 | 6,814 | 1,577 | 6,025 | 21,571 | 3.17 | 94 | .188678 | 15,720 | 2,966 | 14,237 | 57,536 | 3.66 |
| 95 | .247799 | 5,237 | 1,298 | 4,588 | 15,545 | 2.97 | 95 | .206063 | 12,754 | 2,628 | 11,440 | 43,299 | 3.39 |
| 96 | .264687 | 3,939 | 1,043 | 3,418 | 10,957 | 2.78 | 96 | .224560 | 10,126 | 2,274 | 8,989 | 31,859 | 3.15 |
| 97 | .282475 | 2,897 | 818 | 2,487 | 7,539 | 2.60 | 97 | .244391 | 7,852 | 1,919 | 6,893 | 22,870 | 2.91 |
| 98 | .301179 | 2,078 | 626 | 1,765 | 5,052 | 2.43 | 98 | .265438 | 5,933 | 1,575 | 5,146 | 15,978 | 2.69 |
| 99 | .320394 | 1,452 | 465 | 1,220 | 3,286 | 2.26 | 99 | .287811 | 4,358 | 1,254 | 3,731 | 10,832 | 2.49 |
| 100 | .350161 | 987 | 346 | 814 | 2,067 | 2.09 | 100 | .313559 | 3,104 | 973 | 2,617 | 7,101 | 2.29 |
| 101 | .371936 | 641 | 239 | 522 | 1,252 | 1.95 | 101 | .338803 | 2,131 | 722 | 1,770 | 4,484 | 2.10 |
| 102 | .394669 | 403 | 159 | 323 | 730 | 1.81 | 102 | .365654 | 1,409 | 515 | 1,151 | 2,714 | 1.93 |
| 103 | .418337 | 244 | 102 | 193 | 407 | 1.67 | 103 | .394022 | 894 | 352 | 718 | 1,563 | 1.75 |
| 104 | .442891 | 142 | 63 | 110 | 214 | 1.51 | 104 | .423811 | 542 | 230 | 427 | 845 | 1.56 |
| 105 | .468392 | 79 | 37 | 61 | 104 | 1.31 | 105 | .455160 | 312 | 142 | 241 | 418 | 1.34 |
| 106 | .598589 | 42 | 25 | 29 | 43 | 1.03 | 106 | .590321 | 170 | 100 | 120 | 177 | 1.04 |
| 107 | .729031 | 17 | 12 | 11 | 14 | 0.81 | 107 | .717211 | 70 | 50 | 45 | 58 | 0.83 |
| 108 | .859998 | 5 | 4 | 3 | 3 | 0.64 | 108 | .845012 | 20 | 17 | 11 | 13 | 0.65 |
| 109 | 1.000000 | 1 | 1 | 0 | 0 | 0.50 | 109 | 1.000000 | 3 | 3 | 2 | 2 | 0.50 |

# Calendar Year 2025

| Male | | | | | | | Female | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ | X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ |
| 0 | .003312 | 100,000 | 331 | 99,735 | 7,896,849 | 78.97 | 0 | .002910 | 100,000 | 291 | 99,767 | 8,328,599 | 83.29 |
| 1 | .000212 | 99,669 | 21 | 99,658 | 7,797,114 | 78.23 | 1 | .000251 | 99,709 | 25 | 99,696 | 8,228,832 | 82.53 |
| 2 | .000169 | 99,648 | 17 | 99,639 | 7,697,455 | 77.25 | 2 | .000165 | 99,684 | 16 | 99,676 | 8,129,135 | 81.55 |
| 3 | .000146 | 99,631 | 15 | 99,624 | 7,597,816 | 76.26 | 3 | .000130 | 99,668 | 13 | 99,661 | 8,029,460 | 80.56 |
| 4 | .000108 | 99,616 | 11 | 99,611 | 7,498,192 | 75.27 | 4 | .000099 | 99,655 | 10 | 99,650 | 7,929,798 | 79.57 |
| 5 | .000077 | 99,606 | 8 | 99,602 | 7,398,582 | 74.28 | 5 | .000074 | 99,645 | 7 | 99,641 | 7,830,149 | 78.58 |
| 6 | .000064 | 99,598 | 6 | 99,595 | 7,298,980 | 73.28 | 6 | .000069 | 99,637 | 7 | 99,634 | 7,730,508 | 77.59 |
| 7 | .000056 | 99,592 | 6 | 99,589 | 7,199,385 | 72.29 | 7 | .000064 | 99,630 | 6 | 99,627 | 7,630,874 | 76.59 |
| 8 | .000047 | 99,586 | 5 | 99,584 | 7,099,796 | 71.29 | 8 | .000059 | 99,624 | 6 | 99,621 | 7,531,246 | 75.60 |
| 9 | .000047 | 99,581 | 5 | 99,579 | 7,000,213 | 70.30 | 9 | .000059 | 99,618 | 6 | 99,615 | 7,431,625 | 74.60 |
| 10 | .000060 | 99,577 | 6 | 99,574 | 6,900,634 | 69.30 | 10 | .000059 | 99,612 | 6 | 99,609 | 7,332,010 | 73.61 |
| 11 | .000060 | 99,571 | 6 | 99,568 | 6,801,060 | 68.30 | 11 | .000061 | 99,606 | 6 | 99,603 | 7,232,401 | 72.61 |
| 12 | .000093 | 99,565 | 9 | 99,560 | 6,701,493 | 67.31 | 12 | .000084 | 99,600 | 8 | 99,596 | 7,132,797 | 71.61 |
| 13 | .000141 | 99,555 | 14 | 99,548 | 6,601,933 | 66.31 | 13 | .000102 | 99,592 | 10 | 99,587 | 7,033,201 | 70.62 |
| 14 | .000204 | 99,541 | 20 | 99,531 | 6,502,384 | 65.32 | 14 | .000126 | 99,582 | 12 | 99,576 | 6,933,614 | 69.63 |
| 15 | .000260 | 99,521 | 26 | 99,508 | 6,402,853 | 64.34 | 15 | .000173 | 99,569 | 17 | 99,561 | 6,834,039 | 68.64 |
| 16 | .000372 | 99,495 | 37 | 99,477 | 6,303,345 | 63.35 | 16 | .000200 | 99,552 | 20 | 99,542 | 6,734,478 | 67.65 |
| 17 | .000376 | 99,458 | 37 | 99,439 | 6,203,869 | 62.38 | 17 | .000218 | 99,532 | 22 | 99,521 | 6,634,936 | 66.66 |
| 18 | .000461 | 99,421 | 46 | 99,398 | 6,104,429 | 61.40 | 18 | .000231 | 99,511 | 23 | 99,499 | 6,535,415 | 65.68 |
| 19 | .000497 | 99,375 | 49 | 99,350 | 6,005,031 | 60.43 | 19 | .000226 | 99,488 | 23 | 99,476 | 6,435,916 | 64.69 |
| 20 | .000566 | 99,326 | 56 | 99,297 | 5,905,681 | 59.46 | 20 | .000250 | 99,465 | 25 | 99,453 | 6,336,439 | 63.71 |
| 21 | .000517 | 99,269 | 51 | 99,244 | 5,806,384 | 58.49 | 21 | .000247 | 99,440 | 25 | 99,428 | 6,236,987 | 62.72 |
| 22 | .000585 | 99,218 | 58 | 99,189 | 5,707,140 | 57.52 | 22 | .000245 | 99,416 | 24 | 99,403 | 6,137,559 | 61.74 |
| 23 | .000598 | 99,160 | 59 | 99,130 | 5,607,951 | 56.55 | 23 | .000252 | 99,391 | 25 | 99,379 | 6,038,155 | 60.75 |
| 24 | .000629 | 99,100 | 62 | 99,069 | 5,508,821 | 55.59 | 24 | .000259 | 99,366 | 26 | 99,353 | 5,938,776 | 59.77 |
| 25 | .000682 | 99,038 | 67 | 99,004 | 5,409,752 | 54.62 | 25 | .000241 | 99,341 | 24 | 99,329 | 5,839,423 | 58.78 |
| 26 | .000682 | 98,971 | 67 | 98,937 | 5,310,747 | 53.66 | 26 | .000247 | 99,317 | 25 | 99,304 | 5,740,094 | 57.80 |
| 27 | .000679 | 98,903 | 67 | 98,870 | 5,211,810 | 52.70 | 27 | .000261 | 99,292 | 26 | 99,279 | 5,640,790 | 56.81 |
| 28 | .000691 | 98,836 | 68 | 98,802 | 5,112,941 | 51.73 | 28 | .000266 | 99,266 | 26 | 99,253 | 5,541,511 | 55.82 |
| 29 | .000710 | 98,768 | 70 | 98,733 | 5,014,139 | 50.77 | 29 | .000281 | 99,240 | 28 | 99,226 | 5,442,258 | 54.84 |
| 30 | .000977 | 98,698 | 96 | 98,649 | 4,915,406 | 49.80 | 30 | .000381 | 99,212 | 38 | 99,193 | 5,343,032 | 53.85 |
| 31 | .001012 | 98,601 | 100 | 98,551 | 4,816,757 | 48.85 | 31 | .000395 | 99,174 | 39 | 99,154 | 5,243,839 | 52.88 |
| 32 | .001055 | 98,501 | 104 | 98,449 | 4,718,206 | 47.90 | 32 | .000428 | 99,135 | 42 | 99,114 | 5,144,685 | 51.90 |
| 33 | .001098 | 98,398 | 108 | 98,344 | 4,619,756 | 46.95 | 33 | .000460 | 99,092 | 46 | 99,070 | 5,045,571 | 50.92 |
| 34 | .001149 | 98,290 | 113 | 98,233 | 4,521,413 | 46.00 | 34 | .000501 | 99,047 | 50 | 99,022 | 4,946,502 | 49.94 |
| 35 | .001304 | 98,177 | 128 | 98,113 | 4,423,180 | 45.05 | 35 | .000552 | 98,997 | 55 | 98,970 | 4,847,480 | 48.97 |
| 36 | .001368 | 98,049 | 134 | 97,981 | 4,325,067 | 44.11 | 36 | .000601 | 98,943 | 59 | 98,913 | 4,748,510 | 47.99 |
| 37 | .001439 | 97,914 | 141 | 97,844 | 4,227,085 | 43.17 | 37 | .000658 | 98,883 | 65 | 98,851 | 4,649,597 | 47.02 |
| 38 | .001501 | 97,773 | 147 | 97,700 | 4,129,242 | 42.23 | 38 | .000703 | 98,818 | 69 | 98,783 | 4,550,747 | 46.05 |
| 39 | .001563 | 97,627 | 153 | 97,550 | 4,031,542 | 41.30 | 39 | .000748 | 98,749 | 74 | 98,712 | 4,451,963 | 45.08 |
| 40 | .001638 | 97,474 | 160 | 97,394 | 3,933,991 | 40.36 | 40 | .000797 | 98,675 | 79 | 98,635 | 4,353,252 | 44.12 |
| 41 | .001735 | 97,314 | 169 | 97,230 | 3,836,597 | 39.42 | 41 | .000866 | 98,596 | 85 | 98,553 | 4,254,616 | 43.15 |
| 42 | .001855 | 97,145 | 180 | 97,055 | 3,739,367 | 38.49 | 42 | .000954 | 98,511 | 94 | 98,464 | 4,156,063 | 42.19 |
| 43 | .002022 | 96,965 | 196 | 96,867 | 3,642,312 | 37.56 | 43 | .001059 | 98,417 | 104 | 98,365 | 4,057,599 | 41.23 |
| 44 | .002212 | 96,769 | 214 | 96,662 | 3,545,444 | 36.64 | 44 | .001194 | 98,313 | 117 | 98,254 | 3,959,234 | 40.27 |
| 45 | .001808 | 96,555 | 175 | 96,468 | 3,448,782 | 35.72 | 45 | .001124 | 98,195 | 110 | 98,140 | 3,860,980 | 39.32 |
| 46 | .002012 | 96,381 | 194 | 96,284 | 3,352,314 | 34.78 | 46 | .001258 | 98,085 | 123 | 98,023 | 3,762,840 | 38.36 |
| 47 | .002221 | 96,187 | 214 | 96,080 | 3,256,030 | 33.85 | 47 | .001411 | 97,961 | 138 | 97,892 | 3,664,817 | 37.41 |
| 48 | .002443 | 95,973 | 234 | 95,856 | 3,159,950 | 32.93 | 48 | .001560 | 97,823 | 153 | 97,747 | 3,566,925 | 36.46 |
| 49 | .002685 | 95,739 | 257 | 95,610 | 3,064,094 | 32.00 | 49 | .001719 | 97,671 | 168 | 97,587 | 3,469,178 | 35.52 |
| 50 | .002821 | 95,482 | 269 | 95,347 | 2,968,484 | 31.09 | 50 | .001939 | 97,503 | 189 | 97,408 | 3,371,592 | 34.58 |
| 51 | .003115 | 95,212 | 297 | 95,064 | 2,873,137 | 30.18 | 51 | .002129 | 97,314 | 207 | 97,210 | 3,274,183 | 33.65 |
| 52 | .003460 | 94,916 | 328 | 94,752 | 2,778,073 | 29.27 | 52 | .002348 | 97,106 | 228 | 96,992 | 3,176,973 | 32.72 |
| 53 | .003844 | 94,587 | 364 | 94,406 | 2,683,322 | 28.37 | 53 | .002578 | 96,878 | 250 | 96,754 | 3,079,981 | 31.79 |
| 54 | .004258 | 94,224 | 401 | 94,023 | 2,588,916 | 27.48 | 54 | .002833 | 96,629 | 274 | 96,492 | 2,983,227 | 30.87 |

# Calendar Year 2025 (Continued)

| Male | | | | | | | Female | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ | X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ |
| 55 | .004367 | 93,823 | 410 | 93,618 | 2,494,893 | 26.59 | 55 | .003186 | 96,355 | 307 | 96,202 | 2,886,736 | 29.96 |
| 56 | .004848 | 93,413 | 453 | 93,186 | 2,401,275 | 25.71 | 56 | .003497 | 96,048 | 336 | 95,880 | 2,790,534 | 29.05 |
| 57 | .005391 | 92,960 | 501 | 92,709 | 2,308,089 | 24.83 | 57 | .003833 | 95,712 | 367 | 95,529 | 2,694,654 | 28.15 |
| 58 | .005993 | 92,459 | 554 | 92,182 | 2,215,379 | 23.96 | 58 | .004185 | 95,345 | 399 | 95,146 | 2,599,125 | 27.26 |
| 59 | .006659 | 91,905 | 612 | 91,599 | 2,123,198 | 23.10 | 59 | .004557 | 94,946 | 433 | 94,730 | 2,503,979 | 26.37 |
| 60 | .007341 | 91,293 | 670 | 90,958 | 2,031,599 | 22.25 | 60 | .005084 | 94,514 | 481 | 94,273 | 2,409,249 | 25.49 |
| 61 | .008119 | 90,623 | 736 | 90,255 | 1,940,641 | 21.41 | 61 | .005539 | 94,033 | 521 | 93,773 | 2,314,976 | 24.62 |
| 62 | .008957 | 89,887 | 805 | 89,484 | 1,850,387 | 20.59 | 62 | .006074 | 93,512 | 568 | 93,228 | 2,221,203 | 23.75 |
| 63 | .009836 | 89,082 | 876 | 88,644 | 1,760,902 | 19.77 | 63 | .006657 | 92,944 | 619 | 92,635 | 2,127,975 | 22.90 |
| 64 | .010763 | 88,205 | 949 | 87,731 | 1,672,259 | 18.96 | 64 | .007279 | 92,326 | 672 | 91,990 | 2,035,340 | 22.05 |
| 65 | .012409 | 87,256 | 1,083 | 86,715 | 1,584,528 | 18.16 | 65 | .008027 | 91,654 | 736 | 91,286 | 1,943,350 | 21.20 |
| 66 | .013567 | 86,173 | 1,169 | 85,589 | 1,497,813 | 17.38 | 66 | .008811 | 90,918 | 801 | 90,517 | 1,852,065 | 20.37 |
| 67 | .014860 | 85,004 | 1,263 | 84,373 | 1,412,224 | 16.61 | 67 | .009682 | 90,117 | 872 | 89,681 | 1,761,547 | 19.55 |
| 68 | .016259 | 83,741 | 1,362 | 83,060 | 1,327,852 | 15.86 | 68 | .010622 | 89,244 | 948 | 88,770 | 1,671,867 | 18.73 |
| 69 | .017737 | 82,380 | 1,461 | 81,649 | 1,244,791 | 15.11 | 69 | .011587 | 88,296 | 1,023 | 87,785 | 1,583,097 | 17.93 |
| 70 | .021687 | 80,918 | 1,755 | 80,041 | 1,163,142 | 14.37 | 70 | .013196 | 87,273 | 1,152 | 86,697 | 1,495,312 | 17.13 |
| 71 | .023717 | 79,164 | 1,877 | 78,225 | 1,083,101 | 13.68 | 71 | .014507 | 86,122 | 1,249 | 85,497 | 1,408,614 | 16.36 |
| 72 | .026050 | 77,286 | 2,013 | 76,279 | 1,004,877 | 13.00 | 72 | .016048 | 84,872 | 1,362 | 84,191 | 1,323,118 | 15.59 |
| 73 | .028601 | 75,273 | 2,153 | 74,196 | 928,597 | 12.34 | 73 | .017786 | 83,510 | 1,485 | 82,768 | 1,238,926 | 14.84 |
| 74 | .031363 | 73,120 | 2,293 | 71,973 | 854,401 | 11.68 | 74 | .019664 | 82,025 | 1,613 | 81,218 | 1,156,159 | 14.10 |
| 75 | .035442 | 70,827 | 2,510 | 69,572 | 782,427 | 11.05 | 75 | .022430 | 80,412 | 1,804 | 79,510 | 1,074,940 | 13.37 |
| 76 | .039229 | 68,316 | 2,680 | 66,976 | 712,856 | 10.43 | 76 | .024918 | 78,608 | 1,959 | 77,629 | 995,430 | 12.66 |
| 77 | .043158 | 65,636 | 2,833 | 64,220 | 645,879 | 9.84 | 77 | .027801 | 76,650 | 2,131 | 75,584 | 917,801 | 11.97 |
| 78 | .047476 | 62,804 | 2,982 | 61,313 | 581,659 | 9.26 | 78 | .031013 | 74,519 | 2,311 | 73,363 | 842,217 | 11.30 |
| 79 | .052078 | 59,822 | 3,115 | 58,264 | 520,346 | 8.70 | 79 | .034482 | 72,208 | 2,490 | 70,963 | 768,854 | 10.65 |
| 80 | .063199 | 56,707 | 3,584 | 54,915 | 462,082 | 8.15 | 80 | .040994 | 69,718 | 2,858 | 68,289 | 697,892 | 10.01 |
| 81 | .069329 | 53,123 | 3,683 | 51,281 | 407,167 | 7.66 | 81 | .045649 | 66,860 | 3,052 | 65,334 | 629,603 | 9.42 |
| 82 | .075885 | 49,440 | 3,752 | 47,564 | 355,886 | 7.20 | 82 | .050893 | 63,808 | 3,247 | 62,184 | 564,269 | 8.84 |
| 83 | .082907 | 45,688 | 3,788 | 43,794 | 308,322 | 6.75 | 83 | .056675 | 60,560 | 3,432 | 58,844 | 502,085 | 8.29 |
| 84 | .090384 | 41,900 | 3,787 | 40,007 | 264,528 | 6.31 | 84 | .062945 | 57,128 | 3,596 | 55,330 | 443,241 | 7.76 |
| 85 | .108898 | 38,113 | 4,150 | 36,038 | 224,521 | 5.89 | 85 | .073969 | 53,532 | 3,960 | 51,552 | 387,911 | 7.25 |
| 86 | .118129 | 33,963 | 4,012 | 31,957 | 188,483 | 5.55 | 86 | .081978 | 49,572 | 4,064 | 47,540 | 336,359 | 6.79 |
| 87 | .128017 | 29,951 | 3,834 | 28,034 | 156,526 | 5.23 | 87 | .090859 | 45,509 | 4,135 | 43,441 | 288,818 | 6.35 |
| 88 | .138493 | 26,117 | 3,617 | 24,308 | 128,492 | 4.92 | 88 | .100508 | 41,374 | 4,158 | 39,295 | 245,377 | 5.93 |
| 89 | .149495 | 22,500 | 3,364 | 20,818 | 104,184 | 4.63 | 89 | .110816 | 37,215 | 4,124 | 35,153 | 206,083 | 5.54 |
| 90 | .161094 | 19,136 | 3,083 | 17,595 | 83,367 | 4.36 | 90 | .121984 | 33,091 | 4,037 | 31,073 | 170,929 | 5.17 |
| 91 | .173365 | 16,053 | 2,783 | 14,662 | 65,772 | 4.10 | 91 | .134069 | 29,055 | 3,895 | 27,107 | 139,856 | 4.81 |
| 92 | .186283 | 13,270 | 2,472 | 12,034 | 51,110 | 3.85 | 92 | .147244 | 25,159 | 3,705 | 23,307 | 112,749 | 4.48 |
| 93 | .199892 | 10,798 | 2,158 | 9,719 | 39,076 | 3.62 | 93 | .161369 | 21,455 | 3,462 | 19,724 | 89,442 | 4.17 |
| 94 | .214313 | 8,640 | 1,852 | 7,714 | 29,357 | 3.40 | 94 | .176544 | 17,993 | 3,176 | 16,404 | 69,719 | 3.87 |
| 95 | .229291 | 6,788 | 1,556 | 6,010 | 21,643 | 3.19 | 95 | .192702 | 14,816 | 2,855 | 13,389 | 53,314 | 3.60 |
| 96 | .245033 | 5,232 | 1,282 | 4,591 | 15,633 | 2.99 | 96 | .210029 | 11,961 | 2,512 | 10,705 | 39,926 | 3.34 |
| 97 | .261542 | 3,950 | 1,033 | 3,433 | 11,042 | 2.80 | 97 | .228648 | 9,449 | 2,160 | 8,369 | 29,221 | 3.09 |
| 98 | .278856 | 2,917 | 813 | 2,510 | 7,609 | 2.61 | 98 | .248587 | 7,288 | 1,812 | 6,383 | 20,852 | 2.86 |
| 99 | .296893 | 2,103 | 624 | 1,791 | 5,099 | 2.42 | 99 | .269635 | 5,477 | 1,477 | 4,738 | 14,469 | 2.64 |
| 100 | .328443 | 1,479 | 486 | 1,236 | 3,308 | 2.24 | 100 | .294363 | 4,000 | 1,177 | 3,411 | 9,731 | 2.43 |
| 101 | .348965 | 993 | 347 | 820 | 2,072 | 2.09 | 101 | .318099 | 2,822 | 898 | 2,374 | 6,320 | 2.24 |
| 102 | .370310 | 647 | 239 | 527 | 1,252 | 1.94 | 102 | .343340 | 1,925 | 661 | 1,594 | 3,946 | 2.05 |
| 103 | .392569 | 407 | 160 | 327 | 725 | 1.78 | 103 | .370024 | 1,264 | 468 | 1,030 | 2,352 | 1.86 |
| 104 | .415798 | 247 | 103 | 196 | 398 | 1.61 | 104 | .398068 | 796 | 317 | 638 | 1,322 | 1.66 |
| 105 | .439879 | 144 | 64 | 113 | 202 | 1.40 | 105 | .427589 | 479 | 205 | 377 | 684 | 1.43 |
| 106 | .561931 | 81 | 45 | 58 | 89 | 1.10 | 106 | .554379 | 274 | 152 | 198 | 308 | 1.12 |
| 107 | .684264 | 35 | 24 | 23 | 31 | 0.88 | 107 | .673457 | 122 | 82 | 81 | 109 | 0.89 |
| 108 | .807571 | 11 | 9 | 7 | 8 | 0.69 | 108 | .793574 | 40 | 32 | 24 | 28 | 0.71 |
| 109 | 1.000000 | 2 | 2 | 1 | 1 | 0.50 | 109 | 1.000000 | 8 | 8 | 4 | 4 | 0.50 |

# Calendar Year 2050

| Male | | | | | | | Female | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ | X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ |
| 0 | .002347 | 100,000 | 235 | 99,812 | 8,057,205 | 80.57 | 0 | .002116 | 100,000 | 212 | 99,831 | 8,458,082 | 84.58 |
| 1 | .000153 | 99,765 | 15 | 99,758 | 7,957,392 | 79.76 | 1 | .000185 | 99,788 | 19 | 99,779 | 8,358,251 | 83.76 |
| 2 | .000123 | 99,750 | 12 | 99,744 | 7,857,635 | 78.77 | 2 | .000124 | 99,770 | 12 | 99,764 | 8,258,472 | 82.78 |
| 3 | .000108 | 99,738 | 11 | 99,732 | 7,757,891 | 77.78 | 3 | .000099 | 99,758 | 10 | 99,753 | 8,158,708 | 81.79 |
| 4 | .000081 | 99,727 | 8 | 99,723 | 7,658,158 | 76.79 | 4 | .000076 | 99,748 | 8 | 99,744 | 8,058,955 | 80.79 |
| 5 | .000058 | 99,719 | 6 | 99,716 | 7,558,435 | 75.80 | 5 | .000058 | 99,740 | 6 | 99,737 | 7,959,211 | 79.80 |
| 6 | .000049 | 99,713 | 5 | 99,711 | 7,458,719 | 74.80 | 6 | .000055 | 99,734 | 5 | 99,732 | 7,859,474 | 78.80 |
| 7 | .000044 | 99,708 | 4 | 99,706 | 7,359,009 | 73.81 | 7 | .000051 | 99,729 | 5 | 99,726 | 7,759,742 | 77.81 |
| 8 | .000038 | 99,704 | 4 | 99,702 | 7,259,303 | 72.81 | 8 | .000048 | 99,724 | 5 | 99,721 | 7,660,016 | 76.81 |
| 9 | .000038 | 99,700 | 4 | 99,698 | 7,159,601 | 71.81 | 9 | .000048 | 99,719 | 5 | 99,717 | 7,560,295 | 75.82 |
| 10 | .000048 | 99,696 | 5 | 99,694 | 7,059,902 | 70.81 | 10 | .000049 | 99,714 | 5 | 99,712 | 7,460,578 | 74.82 |
| 11 | .000048 | 99,692 | 5 | 99,689 | 6,960,208 | 69.82 | 11 | .000051 | 99,709 | 5 | 99,707 | 7,360,866 | 73.82 |
| 12 | .000076 | 99,687 | 8 | 99,683 | 6,860,519 | 68.82 | 12 | .000071 | 99,704 | 7 | 99,701 | 7,261,159 | 72.83 |
| 13 | .000114 | 99,679 | 11 | 99,674 | 6,760,836 | 67.83 | 13 | .000085 | 99,697 | 8 | 99,693 | 7,161,458 | 71.83 |
| 14 | .000166 | 99,668 | 17 | 99,660 | 6,661,162 | 66.83 | 14 | .000106 | 99,689 | 11 | 99,684 | 7,061,765 | 70.84 |
| 15 | .000215 | 99,651 | 21 | 99,641 | 6,561,503 | 65.84 | 15 | .000146 | 99,678 | 15 | 99,671 | 6,962,082 | 69.85 |
| 16 | .000311 | 99,630 | 31 | 99,614 | 6,461,862 | 64.86 | 16 | .000171 | 99,664 | 17 | 99,655 | 6,862,411 | 68.86 |
| 17 | .000315 | 99,599 | 31 | 99,583 | 6,362,247 | 63.88 | 17 | .000186 | 99,647 | 19 | 99,637 | 6,762,756 | 67.87 |
| 18 | .000390 | 99,568 | 39 | 99,548 | 6,262,664 | 62.90 | 18 | .000200 | 99,628 | 20 | 99,618 | 6,663,118 | 66.88 |
| 19 | .000420 | 99,529 | 42 | 99,508 | 6,163,116 | 61.92 | 19 | .000196 | 99,608 | 20 | 99,598 | 6,563,500 | 65.89 |
| 20 | .000483 | 99,487 | 48 | 99,463 | 6,063,608 | 60.95 | 20 | .000218 | 99,589 | 22 | 99,578 | 6,463,902 | 64.91 |
| 21 | .000442 | 99,439 | 44 | 99,417 | 5,964,145 | 59.98 | 21 | .000215 | 99,567 | 21 | 99,556 | 6,364,324 | 63.92 |
| 22 | .000499 | 99,395 | 50 | 99,370 | 5,864,728 | 59.00 | 22 | .000214 | 99,546 | 21 | 99,535 | 6,264,768 | 62.93 |
| 23 | .000510 | 99,345 | 51 | 99,320 | 5,765,358 | 58.03 | 23 | .000220 | 99,524 | 22 | 99,513 | 6,165,233 | 61.95 |
| 24 | .000536 | 99,295 | 53 | 99,268 | 5,666,038 | 57.06 | 24 | .000226 | 99,502 | 22 | 99,491 | 6,065,720 | 60.96 |
| 25 | .000581 | 99,242 | 58 | 99,213 | 5,566,769 | 56.09 | 25 | .000210 | 99,480 | 21 | 99,470 | 5,966,228 | 59.97 |
| 26 | .000581 | 99,184 | 58 | 99,155 | 5,467,557 | 55.13 | 26 | .000216 | 99,459 | 21 | 99,448 | 5,866,759 | 58.99 |
| 27 | .000579 | 99,126 | 57 | 99,098 | 5,368,402 | 54.16 | 27 | .000228 | 99,438 | 23 | 99,426 | 5,767,310 | 58.00 |
| 28 | .000590 | 99,069 | 58 | 99,040 | 5,269,304 | 53.19 | 28 | .000232 | 99,415 | 23 | 99,403 | 5,667,884 | 57.01 |
| 29 | .000605 | 99,011 | 60 | 98,981 | 5,170,264 | 52.22 | 29 | .000248 | 99,392 | 25 | 99,380 | 5,568,481 | 56.03 |
| 30 | .000829 | 98,951 | 82 | 98,910 | 5,071,284 | 51.25 | 30 | .000337 | 99,367 | 33 | 99,351 | 5,469,101 | 55.04 |
| 31 | .000858 | 98,869 | 85 | 98,826 | 4,972,374 | 50.29 | 31 | .000349 | 99,334 | 35 | 99,317 | 5,369,750 | 54.06 |
| 32 | .000894 | 98,784 | 88 | 98,740 | 4,873,548 | 49.34 | 32 | .000378 | 99,299 | 38 | 99,280 | 5,270,434 | 53.08 |
| 33 | .000931 | 98,695 | 92 | 98,649 | 4,774,809 | 48.38 | 33 | .000407 | 99,262 | 40 | 99,242 | 5,171,153 | 52.10 |
| 34 | .000974 | 98,604 | 96 | 98,556 | 4,676,159 | 47.42 | 34 | .000443 | 99,221 | 44 | 99,199 | 5,071,912 | 51.12 |
| 35 | .001109 | 98,508 | 109 | 98,453 | 4,577,604 | 46.47 | 35 | .000487 | 99,177 | 48 | 99,153 | 4,972,712 | 50.14 |
| 36 | .001163 | 98,398 | 114 | 98,341 | 4,479,151 | 45.52 | 36 | .000530 | 99,129 | 53 | 99,103 | 4,873,559 | 49.16 |
| 37 | .001223 | 98,284 | 120 | 98,224 | 4,380,810 | 44.57 | 37 | .000581 | 99,077 | 58 | 99,048 | 4,774,456 | 48.19 |
| 38 | .001276 | 98,164 | 125 | 98,101 | 4,282,586 | 43.63 | 38 | .000620 | 99,019 | 61 | 98,988 | 4,675,408 | 47.22 |
| 39 | .001328 | 98,038 | 130 | 97,973 | 4,184,485 | 42.68 | 39 | .000660 | 98,958 | 65 | 98,925 | 4,576,420 | 46.25 |
| 40 | .001390 | 97,908 | 136 | 97,840 | 4,086,511 | 41.74 | 40 | .000705 | 98,892 | 70 | 98,857 | 4,477,495 | 45.28 |
| 41 | .001472 | 97,772 | 144 | 97,700 | 3,988,671 | 40.80 | 41 | .000767 | 98,823 | 76 | 98,785 | 4,378,638 | 44.31 |
| 42 | .001573 | 97,628 | 154 | 97,551 | 3,890,971 | 39.85 | 42 | .000845 | 98,747 | 83 | 98,705 | 4,279,853 | 43.34 |
| 43 | .001713 | 97,475 | 167 | 97,391 | 3,793,420 | 38.92 | 43 | .000940 | 98,663 | 93 | 98,617 | 4,181,148 | 42.38 |
| 44 | .001874 | 97,308 | 182 | 97,217 | 3,696,028 | 37.98 | 44 | .001059 | 98,571 | 104 | 98,519 | 4,082,531 | 41.42 |
| 45 | .001534 | 97,125 | 149 | 97,051 | 3,598,812 | 37.05 | 45 | .001006 | 98,466 | 99 | 98,417 | 3,984,012 | 40.46 |
| 46 | .001729 | 96,976 | 168 | 96,893 | 3,501,761 | 36.11 | 46 | .001124 | 98,367 | 111 | 98,312 | 3,885,595 | 39.50 |
| 47 | .001909 | 96,809 | 185 | 96,716 | 3,404,868 | 35.17 | 47 | .001258 | 98,257 | 124 | 98,195 | 3,787,283 | 38.54 |
| 48 | .002101 | 96,624 | 203 | 96,522 | 3,308,152 | 34.24 | 48 | .001391 | 98,133 | 136 | 98,065 | 3,689,088 | 37.59 |
| 49 | .002309 | 96,421 | 223 | 96,310 | 3,211,630 | 33.31 | 49 | .001529 | 97,997 | 150 | 97,922 | 3,591,023 | 36.64 |
| 50 | .002423 | 96,198 | 233 | 96,082 | 3,115,320 | 32.38 | 50 | .001715 | 97,847 | 168 | 97,763 | 3,493,102 | 35.70 |
| 51 | .002677 | 95,965 | 257 | 95,837 | 3,019,238 | 31.46 | 51 | .001882 | 97,679 | 184 | 97,587 | 3,395,339 | 34.76 |
| 52 | .002974 | 95,708 | 285 | 95,566 | 2,923,402 | 30.54 | 52 | .002073 | 97,495 | 202 | 97,394 | 3,297,751 | 33.82 |
| 53 | .003305 | 95,424 | 315 | 95,266 | 2,827,836 | 29.63 | 53 | .002275 | 97,293 | 221 | 97,183 | 3,200,357 | 32.89 |
| 54 | .003661 | 95,108 | 348 | 94,934 | 2,732,570 | 28.73 | 54 | .002500 | 97,072 | 243 | 96,951 | 3,103,175 | 31.97 |

# Calendar Year 2050 (Continued)

| Male | | | | | | | Female | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ | X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ |
| 55 | .003757 | 94,760 | 356 | 94,582 | 2,637,636 | 27.83 | 55 | .002809 | 96,829 | 272 | 96,693 | 3,006,224 | 31.05 |
| 56 | .004171 | 94,404 | 394 | 94,207 | 2,543,053 | 26.94 | 56 | .003082 | 96,557 | 298 | 96,409 | 2,909,531 | 30.13 |
| 57 | .004638 | 94,010 | 436 | 93,792 | 2,448,846 | 26.05 | 57 | .003378 | 96,260 | 325 | 96,097 | 2,813,122 | 29.22 |
| 58 | .005156 | 93,574 | 482 | 93,333 | 2,355,054 | 25.17 | 58 | .003687 | 95,935 | 354 | 95,758 | 2,717,025 | 28.32 |
| 59 | .005729 | 93,092 | 533 | 92,825 | 2,261,721 | 24.30 | 59 | .004016 | 95,581 | 384 | 95,389 | 2,621,268 | 27.42 |
| 60 | .006322 | 92,559 | 585 | 92,266 | 2,168,896 | 23.43 | 60 | .004479 | 95,197 | 426 | 94,984 | 2,525,879 | 26.53 |
| 61 | .006994 | 91,973 | 643 | 91,652 | 2,076,630 | 22.58 | 61 | .004881 | 94,771 | 463 | 94,539 | 2,430,895 | 25.65 |
| 62 | .007718 | 91,330 | 705 | 90,978 | 1,984,978 | 21.73 | 62 | .005352 | 94,308 | 505 | 94,056 | 2,336,355 | 24.77 |
| 63 | .008476 | 90,625 | 768 | 90,241 | 1,894,001 | 20.90 | 63 | .005863 | 93,803 | 550 | 93,528 | 2,242,300 | 23.90 |
| 64 | .009273 | 89,857 | 833 | 89,440 | 1,803,759 | 20.07 | 64 | .006407 | 93,253 | 598 | 92,955 | 2,148,771 | 23.04 |
| 65 | .010723 | 89,024 | 955 | 88,547 | 1,714,319 | 19.26 | 65 | .007056 | 92,656 | 654 | 92,329 | 2,055,816 | 22.19 |
| 66 | .011724 | 88,069 | 1,032 | 87,553 | 1,625,772 | 18.46 | 66 | .007741 | 92,002 | 712 | 91,646 | 1,963,487 | 21.34 |
| 67 | .012845 | 87,037 | 1,118 | 86,478 | 1,538,219 | 17.67 | 67 | .008505 | 91,290 | 776 | 90,902 | 1,871,841 | 20.50 |
| 68 | .014046 | 85,919 | 1,207 | 85,315 | 1,451,742 | 16.90 | 68 | .009335 | 90,514 | 845 | 90,091 | 1,780,940 | 19.68 |
| 69 | .015314 | 84,712 | 1,297 | 84,063 | 1,366,426 | 16.13 | 69 | .010194 | 89,669 | 914 | 89,212 | 1,690,849 | 18.86 |
| 70 | .018740 | 83,415 | 1,563 | 82,633 | 1,282,363 | 15.37 | 70 | .011645 | 88,755 | 1,034 | 88,238 | 1,601,637 | 18.05 |
| 71 | .020507 | 81,852 | 1,679 | 81,012 | 1,199,730 | 14.66 | 71 | .012804 | 87,721 | 1,123 | 87,159 | 1,513,399 | 17.25 |
| 72 | .022523 | 80,173 | 1,806 | 79,270 | 1,118,717 | 13.95 | 72 | .014167 | 86,598 | 1,227 | 85,984 | 1,426,240 | 16.47 |
| 73 | .024743 | 78,367 | 1,939 | 77,398 | 1,039,447 | 13.26 | 73 | .015707 | 85,371 | 1,341 | 84,701 | 1,340,255 | 15.70 |
| 74 | .027136 | 76,428 | 2,074 | 75,391 | 962,049 | 12.59 | 74 | .017374 | 84,030 | 1,460 | 83,300 | 1,255,555 | 14.94 |
| 75 | .030608 | 74,354 | 2,276 | 73,216 | 886,658 | 11.92 | 75 | .019817 | 82,570 | 1,636 | 81,752 | 1,172,255 | 14.20 |
| 76 | .034321 | 72,079 | 2,474 | 70,842 | 813,442 | 11.29 | 76 | .022024 | 80,934 | 1,782 | 80,043 | 1,090,502 | 13.47 |
| 77 | .037736 | 69,605 | 2,627 | 68,291 | 742,600 | 10.67 | 77 | .024571 | 79,151 | 1,945 | 78,179 | 1,010,460 | 12.77 |
| 78 | .041488 | 66,978 | 2,779 | 65,589 | 674,308 | 10.07 | 78 | .027400 | 77,207 | 2,115 | 76,149 | 932,281 | 12.08 |
| 79 | .045539 | 64,199 | 2,924 | 62,738 | 608,720 | 9.48 | 79 | .030470 | 75,091 | 2,288 | 73,947 | 856,132 | 11.40 |
| 80 | .055547 | 61,276 | 3,404 | 59,574 | 545,982 | 8.91 | 80 | .036263 | 72,803 | 2,640 | 71,483 | 782,185 | 10.74 |
| 81 | .060820 | 57,872 | 3,520 | 56,112 | 486,408 | 8.40 | 81 | .040354 | 70,163 | 2,831 | 68,747 | 710,702 | 10.13 |
| 82 | .066507 | 54,352 | 3,615 | 52,545 | 430,296 | 7.92 | 82 | .044969 | 67,332 | 3,028 | 65,818 | 641,954 | 9.53 |
| 83 | .072566 | 50,738 | 3,682 | 48,897 | 377,751 | 7.45 | 83 | .050064 | 64,304 | 3,219 | 62,694 | 576,136 | 8.96 |
| 84 | .079034 | 47,056 | 3,719 | 45,196 | 328,854 | 6.99 | 84 | .055588 | 61,085 | 3,396 | 59,387 | 513,442 | 8.41 |
| 85 | .095054 | 43,337 | 4,119 | 41,277 | 283,658 | 6.55 | 85 | .065532 | 57,689 | 3,780 | 55,799 | 454,055 | 7.87 |
| 86 | .103103 | 39,217 | 4,043 | 37,196 | 242,381 | 6.18 | 86 | .072607 | 53,909 | 3,914 | 51,951 | 398,257 | 7.39 |
| 87 | .111679 | 35,174 | 3,928 | 33,210 | 205,185 | 5.83 | 87 | .080403 | 49,994 | 4,020 | 47,985 | 346,305 | 6.93 |
| 88 | .120748 | 31,246 | 3,773 | 29,359 | 171,975 | 5.50 | 88 | .088920 | 45,975 | 4,088 | 43,931 | 298,321 | 6.49 |
| 89 | .130310 | 27,473 | 3,580 | 25,683 | 142,616 | 5.19 | 89 | .098011 | 41,887 | 4,105 | 39,834 | 254,390 | 6.07 |
| 90 | .140409 | 23,893 | 3,355 | 22,216 | 116,933 | 4.89 | 90 | .107841 | 37,781 | 4,074 | 35,744 | 214,556 | 5.68 |
| 91 | .151052 | 20,538 | 3,102 | 18,987 | 94,717 | 4.61 | 91 | .118497 | 33,707 | 3,994 | 31,710 | 178,812 | 5.30 |
| 92 | .162320 | 17,436 | 2,830 | 16,021 | 75,730 | 4.34 | 92 | .130135 | 29,713 | 3,867 | 27,779 | 147,102 | 4.95 |
| 93 | .174203 | 14,606 | 2,544 | 13,333 | 59,709 | 4.09 | 93 | .142645 | 25,846 | 3,687 | 24,003 | 119,323 | 4.62 |
| 94 | .186671 | 12,061 | 2,251 | 10,936 | 46,376 | 3.85 | 94 | .156034 | 22,159 | 3,458 | 20,430 | 95,320 | 4.30 |
| 95 | .199702 | 9,810 | 1,959 | 8,830 | 35,440 | 3.61 | 95 | .170244 | 18,702 | 3,184 | 17,110 | 74,890 | 4.00 |
| 96 | .213399 | 7,851 | 1,675 | 7,013 | 26,610 | 3.39 | 96 | .185526 | 15,518 | 2,879 | 14,078 | 57,780 | 3.72 |
| 97 | .227808 | 6,175 | 1,407 | 5,472 | 19,597 | 3.17 | 97 | .201982 | 12,639 | 2,553 | 11,362 | 43,702 | 3.46 |
| 98 | .242806 | 4,769 | 1,158 | 4,190 | 14,125 | 2.96 | 98 | .219416 | 10,086 | 2,213 | 8,979 | 32,339 | 3.21 |
| 99 | .258464 | 3,611 | 933 | 3,144 | 9,935 | 2.75 | 99 | .237870 | 7,873 | 1,873 | 6,937 | 23,360 | 2.97 |
| 100 | .289583 | 2,678 | 775 | 2,290 | 6,791 | 2.54 | 100 | .259686 | 6,000 | 1,558 | 5,221 | 16,423 | 2.74 |
| 101 | .307550 | 1,902 | 585 | 1,610 | 4,501 | 2.37 | 101 | .280558 | 4,442 | 1,246 | 3,819 | 11,202 | 2.52 |
| 102 | .326424 | 1,317 | 430 | 1,102 | 2,892 | 2.20 | 102 | .302852 | 3,196 | 968 | 2,712 | 7,383 | 2.31 |
| 103 | .346017 | 887 | 307 | 734 | 1,789 | 2.02 | 103 | .326377 | 2,228 | 727 | 1,864 | 4,671 | 2.10 |
| 104 | .365969 | 580 | 212 | 474 | 1,056 | 1.82 | 104 | .350786 | 1,501 | 526 | 1,238 | 2,807 | 1.87 |
| 105 | .387058 | 368 | 142 | 297 | 582 | 1.58 | 105 | .376679 | 974 | 367 | 791 | 1,569 | 1.61 |
| 106 | .494860 | 225 | 112 | 170 | 285 | 1.26 | 106 | .488632 | 607 | 297 | 459 | 778 | 1.28 |
| 107 | .602767 | 114 | 69 | 80 | 115 | 1.01 | 107 | .593690 | 311 | 184 | 218 | 319 | 1.03 |
| 108 | .710967 | 45 | 32 | 29 | 36 | 0.79 | 108 | .699132 | 126 | 88 | 82 | 101 | 0.80 |
| 109 | 1.000000 | 13 | 13 | 7 | 7 | 0.50 | 109 | 1.000000 | 38 | 38 | 19 | 19 | 0.50 |

# Appendix B Cohort Life Tables for Canada less Québec (18th CPP Report)

## Born in 1970

| Male | | | | | | | Female | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ | X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ |
| 0 | .020052 | 100,000 | 2,005 | 98,396 | 7,772,796 | 77.73 | 0 | .015455 | 100,000 | 1,546 | 98,764 | 8,274,565 | 82.75 |
| 1 | .001240 | 97,995 | 122 | 97,934 | 7,674,400 | 78.31 | 1 | .001138 | 98,454 | 112 | 98,398 | 8,175,802 | 83.04 |
| 2 | .000875 | 97,873 | 86 | 97,830 | 7,576,466 | 77.41 | 2 | .000719 | 98,342 | 71 | 98,307 | 8,077,403 | 82.14 |
| 3 | .000710 | 97,788 | 69 | 97,753 | 7,478,635 | 76.48 | 3 | .000523 | 98,272 | 51 | 98,246 | 7,979,096 | 81.19 |
| 4 | .000563 | 97,718 | 55 | 97,691 | 7,380,882 | 75.53 | 4 | .000424 | 98,220 | 42 | 98,199 | 7,880,850 | 80.24 |
| 5 | .000435 | 97,663 | 42 | 97,642 | 7,283,192 | 74.57 | 5 | .000337 | 98,179 | 33 | 98,162 | 7,782,651 | 79.27 |
| 6 | .000341 | 97,621 | 33 | 97,604 | 7,185,550 | 73.61 | 6 | .000276 | 98,146 | 27 | 98,132 | 7,684,489 | 78.30 |
| 7 | .000264 | 97,588 | 26 | 97,575 | 7,087,946 | 72.63 | 7 | .000238 | 98,118 | 23 | 98,107 | 7,586,357 | 77.32 |
| 8 | .000210 | 97,562 | 20 | 97,552 | 6,990,371 | 71.65 | 8 | .000203 | 98,095 | 20 | 98,085 | 7,488,250 | 76.34 |
| 9 | .000197 | 97,541 | 19 | 97,532 | 6,892,819 | 70.67 | 9 | .000183 | 98,075 | 18 | 98,066 | 7,390,165 | 75.35 |
| 10 | .000219 | 97,522 | 21 | 97,511 | 6,795,288 | 69.68 | 10 | .000181 | 98,057 | 18 | 98,048 | 7,292,098 | 74.37 |
| 11 | .000257 | 97,501 | 25 | 97,488 | 6,697,776 | 68.69 | 11 | .000184 | 98,039 | 18 | 98,030 | 7,194,050 | 73.38 |
| 12 | .000325 | 97,476 | 32 | 97,460 | 6,600,288 | 67.71 | 12 | .000203 | 98,021 | 20 | 98,012 | 7,096,020 | 72.39 |
| 13 | .000438 | 97,444 | 43 | 97,423 | 6,502,828 | 66.73 | 13 | .000231 | 98,002 | 23 | 97,990 | 6,998,008 | 71.41 |
| 14 | .000596 | 97,401 | 58 | 97,372 | 6,405,406 | 65.76 | 14 | .000285 | 97,979 | 28 | 97,965 | 6,900,018 | 70.42 |
| 15 | .000734 | 97,343 | 71 | 97,308 | 6,308,034 | 64.80 | 15 | .000327 | 97,951 | 32 | 97,935 | 6,802,053 | 69.44 |
| 16 | .000856 | 97,272 | 83 | 97,230 | 6,210,726 | 63.85 | 16 | .000382 | 97,919 | 37 | 97,900 | 6,704,118 | 68.47 |
| 17 | .000973 | 97,189 | 95 | 97,141 | 6,113,496 | 62.90 | 17 | .000402 | 97,882 | 39 | 97,862 | 6,606,218 | 67.49 |
| 18 | .001045 | 97,094 | 101 | 97,043 | 6,016,355 | 61.96 | 18 | .000407 | 97,842 | 40 | 97,822 | 6,508,356 | 66.52 |
| 19 | .001093 | 96,993 | 106 | 96,940 | 5,919,311 | 61.03 | 19 | .000397 | 97,802 | 39 | 97,783 | 6,410,533 | 65.55 |
| 20 | .001090 | 96,887 | 106 | 96,834 | 5,822,372 | 60.09 | 20 | .000371 | 97,764 | 36 | 97,745 | 6,312,750 | 64.57 |
| 21 | .001101 | 96,781 | 107 | 96,728 | 5,725,538 | 59.16 | 21 | .000357 | 97,727 | 35 | 97,710 | 6,215,005 | 63.60 |
| 22 | .000996 | 96,674 | 96 | 96,626 | 5,628,810 | 58.22 | 22 | .000378 | 97,693 | 37 | 97,674 | 6,117,295 | 62.62 |
| 23 | .001064 | 96,578 | 103 | 96,527 | 5,532,184 | 57.28 | 23 | .000400 | 97,656 | 39 | 97,636 | 6,019,621 | 61.64 |
| 24 | .001075 | 96,475 | 104 | 96,424 | 5,435,657 | 56.34 | 24 | .000391 | 97,617 | 38 | 97,597 | 5,921,985 | 60.67 |
| 25 | .001031 | 96,372 | 99 | 96,322 | 5,339,233 | 55.40 | 25 | .000366 | 97,578 | 36 | 97,561 | 5,824,387 | 59.69 |
| 26 | .000940 | 96,272 | 90 | 96,227 | 5,242,911 | 54.46 | 26 | .000327 | 97,543 | 32 | 97,527 | 5,726,827 | 58.71 |
| 27 | .000921 | 96,182 | 89 | 96,138 | 5,146,684 | 53.51 | 27 | .000341 | 97,511 | 33 | 97,494 | 5,629,300 | 57.73 |
| 28 | .000922 | 96,093 | 89 | 96,049 | 5,050,546 | 52.56 | 28 | .000342 | 97,478 | 33 | 97,461 | 5,531,806 | 56.75 |
| 29 | .000931 | 96,005 | 89 | 95,960 | 4,954,497 | 51.61 | 29 | .000353 | 97,444 | 34 | 97,427 | 5,434,345 | 55.77 |
| 30 | .001140 | 95,915 | 109 | 95,861 | 4,858,537 | 50.65 | 30 | .000448 | 97,410 | 44 | 97,388 | 5,336,918 | 54.79 |
| 31 | .001174 | 95,806 | 112 | 95,750 | 4,762,677 | 49.71 | 31 | .000461 | 97,366 | 45 | 97,344 | 5,239,530 | 53.81 |
| 32 | .001217 | 95,694 | 116 | 95,635 | 4,666,927 | 48.77 | 32 | .000495 | 97,321 | 48 | 97,297 | 5,142,186 | 52.84 |
| 33 | .001260 | 95,577 | 120 | 95,517 | 4,571,291 | 47.83 | 33 | .000528 | 97,273 | 51 | 97,248 | 5,044,889 | 51.86 |
| 34 | .001311 | 95,457 | 125 | 95,394 | 4,475,774 | 46.89 | 34 | .000570 | 97,222 | 55 | 97,194 | 4,947,641 | 50.89 |
| 35 | .001439 | 95,331 | 137 | 95,263 | 4,380,380 | 45.95 | 35 | .000618 | 97,166 | 60 | 97,136 | 4,850,447 | 49.92 |
| 36 | .001507 | 95,194 | 143 | 95,123 | 4,285,118 | 45.01 | 36 | .000668 | 97,106 | 65 | 97,074 | 4,753,311 | 48.95 |
| 37 | .001581 | 95,051 | 150 | 94,976 | 4,189,995 | 44.08 | 37 | .000727 | 97,041 | 71 | 97,006 | 4,656,237 | 47.98 |
| 38 | .001644 | 94,901 | 156 | 94,823 | 4,095,019 | 43.15 | 38 | .000771 | 96,971 | 75 | 96,934 | 4,559,231 | 47.02 |
| 39 | .001706 | 94,745 | 162 | 94,664 | 4,000,197 | 42.22 | 39 | .000815 | 96,896 | 79 | 96,857 | 4,462,297 | 46.05 |
| 40 | .001795 | 94,583 | 170 | 94,498 | 3,905,533 | 41.29 | 40 | .000871 | 96,817 | 84 | 96,775 | 4,365,440 | 45.09 |
| 41 | .001891 | 94,413 | 178 | 94,324 | 3,811,035 | 40.37 | 41 | .000940 | 96,733 | 91 | 96,687 | 4,268,665 | 44.13 |
| 42 | .002009 | 94,235 | 189 | 94,140 | 3,716,711 | 39.44 | 42 | .001028 | 96,642 | 99 | 96,592 | 4,171,978 | 43.17 |
| 43 | .002177 | 94,045 | 205 | 93,943 | 3,622,571 | 38.52 | 43 | .001135 | 96,543 | 110 | 96,488 | 4,075,386 | 42.21 |
| 44 | .002367 | 93,841 | 222 | 93,730 | 3,528,628 | 37.60 | 44 | .001272 | 96,433 | 123 | 96,372 | 3,978,898 | 41.26 |
| 45 | .001938 | 93,619 | 181 | 93,528 | 3,434,898 | 36.69 | 45 | .001199 | 96,310 | 115 | 96,253 | 3,882,526 | 40.31 |
| 46 | .002130 | 93,437 | 199 | 93,338 | 3,341,370 | 35.76 | 46 | .001330 | 96,195 | 128 | 96,131 | 3,786,273 | 39.36 |
| 47 | .002334 | 93,238 | 218 | 93,129 | 3,248,032 | 34.84 | 47 | .001479 | 96,067 | 142 | 95,996 | 3,690,142 | 38.41 |
| 48 | .002550 | 93,021 | 237 | 92,902 | 3,154,903 | 33.92 | 48 | .001625 | 95,925 | 156 | 95,847 | 3,594,146 | 37.47 |
| 49 | .002785 | 92,783 | 258 | 92,654 | 3,062,001 | 33.00 | 49 | .001776 | 95,769 | 170 | 95,684 | 3,498,299 | 36.53 |
| 50 | .002906 | 92,525 | 269 | 92,391 | 2,969,347 | 32.09 | 50 | .001990 | 95,599 | 190 | 95,504 | 3,402,615 | 35.59 |
| 51 | .003191 | 92,256 | 294 | 92,109 | 2,876,956 | 31.18 | 51 | .002173 | 95,409 | 207 | 95,305 | 3,307,111 | 34.66 |
| 52 | .003524 | 91,962 | 324 | 91,800 | 2,784,847 | 30.28 | 52 | .002383 | 95,201 | 227 | 95,088 | 3,211,806 | 33.74 |
| 53 | .003891 | 91,638 | 357 | 91,459 | 2,693,048 | 29.39 | 53 | .002603 | 94,975 | 247 | 94,851 | 3,116,718 | 32.82 |
| 54 | .004285 | 91,281 | 391 | 91,086 | 2,601,588 | 28.50 | 54 | .002846 | 94,727 | 270 | 94,593 | 3,021,867 | 31.90 |

# Born in 1970 (Continued)

| Male | | | | | | | Female | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ | X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ |
| 55 | .004367 | 90,890 | 397 | 90,692 | 2,510,503 | 27.62 | 55 | .003186 | 94,458 | 301 | 94,307 | 2,927,274 | 30.99 |
| 56 | .004819 | 90,493 | 436 | 90,275 | 2,419,811 | 26.74 | 56 | .003478 | 94,157 | 327 | 93,993 | 2,832,967 | 30.09 |
| 57 | .005326 | 90,057 | 480 | 89,817 | 2,329,536 | 25.87 | 57 | .003791 | 93,829 | 356 | 93,652 | 2,738,974 | 29.19 |
| 58 | .005886 | 89,577 | 527 | 89,314 | 2,239,719 | 25.00 | 58 | .004116 | 93,474 | 385 | 93,281 | 2,645,322 | 28.30 |
| 59 | .006501 | 89,050 | 579 | 88,761 | 2,150,405 | 24.15 | 59 | .004460 | 93,089 | 415 | 92,881 | 2,552,041 | 27.42 |
| 60 | .007130 | 88,471 | 631 | 88,156 | 2,061,644 | 23.30 | 60 | .004952 | 92,674 | 459 | 92,444 | 2,459,160 | 26.54 |
| 61 | .007838 | 87,840 | 689 | 87,496 | 1,973,489 | 22.47 | 61 | .005370 | 92,215 | 495 | 91,967 | 2,366,715 | 25.67 |
| 62 | .008596 | 87,152 | 749 | 86,777 | 1,885,992 | 21.64 | 62 | .005859 | 91,720 | 537 | 91,451 | 2,274,748 | 24.80 |
| 63 | .009384 | 86,403 | 811 | 85,997 | 1,799,215 | 20.82 | 63 | .006387 | 91,182 | 582 | 90,891 | 2,183,297 | 23.94 |
| 64 | .010206 | 85,592 | 874 | 85,155 | 1,713,218 | 20.02 | 64 | .006945 | 90,600 | 629 | 90,285 | 2,092,406 | 23.10 |
| 65 | .011725 | 84,718 | 993 | 84,222 | 1,628,062 | 19.22 | 65 | .007611 | 89,971 | 685 | 89,628 | 2,002,121 | 22.25 |
| 66 | .012748 | 83,725 | 1,067 | 83,191 | 1,543,841 | 18.44 | 66 | .008306 | 89,286 | 742 | 88,915 | 1,912,493 | 21.42 |
| 67 | .013885 | 82,658 | 1,148 | 82,084 | 1,460,649 | 17.67 | 67 | .009079 | 88,544 | 804 | 88,142 | 1,823,578 | 20.60 |
| 68 | .015106 | 81,510 | 1,231 | 80,894 | 1,378,565 | 16.91 | 68 | .009909 | 87,740 | 869 | 87,306 | 1,735,435 | 19.78 |
| 69 | .016384 | 80,279 | 1,315 | 79,621 | 1,297,671 | 16.16 | 69 | .010761 | 86,871 | 935 | 86,404 | 1,648,130 | 18.97 |
| 70 | .019949 | 78,964 | 1,575 | 78,176 | 1,218,050 | 15.43 | 70 | .012244 | 85,936 | 1,052 | 85,410 | 1,561,726 | 18.17 |
| 71 | .021691 | 77,388 | 1,679 | 76,549 | 1,139,874 | 14.73 | 71 | .013397 | 84,884 | 1,137 | 84,315 | 1,476,316 | 17.39 |
| 72 | .023673 | 75,710 | 1,792 | 74,814 | 1,063,325 | 14.04 | 72 | .014750 | 83,747 | 1,235 | 83,129 | 1,392,001 | 16.62 |
| 73 | .025844 | 73,917 | 1,910 | 72,962 | 988,511 | 13.37 | 73 | .016272 | 82,512 | 1,343 | 81,840 | 1,308,871 | 15.86 |
| 74 | .028168 | 72,007 | 2,028 | 70,993 | 915,549 | 12.71 | 74 | .017908 | 81,169 | 1,454 | 80,442 | 1,227,031 | 15.12 |
| 75 | .031566 | 69,979 | 2,209 | 68,874 | 844,556 | 12.07 | 75 | .020324 | 79,715 | 1,620 | 78,905 | 1,146,589 | 14.38 |
| 76 | .035090 | 67,770 | 2,378 | 66,581 | 775,682 | 11.45 | 76 | .022471 | 78,095 | 1,755 | 77,218 | 1,067,684 | 13.67 |
| 77 | .038356 | 65,392 | 2,508 | 64,138 | 709,101 | 10.84 | 77 | .024940 | 76,340 | 1,904 | 75,388 | 990,466 | 12.97 |
| 78 | .041937 | 62,884 | 2,637 | 61,565 | 644,963 | 10.26 | 78 | .027674 | 74,436 | 2,060 | 73,406 | 915,078 | 12.29 |
| 79 | .045783 | 60,246 | 2,758 | 58,867 | 583,398 | 9.68 | 79 | .030621 | 72,376 | 2,216 | 71,268 | 841,672 | 11.63 |
| 80 | .055547 | 57,488 | 3,193 | 55,892 | 524,531 | 9.12 | 80 | .036263 | 70,160 | 2,544 | 68,888 | 770,403 | 10.98 |
| 81 | .060496 | 54,295 | 3,285 | 52,653 | 468,640 | 8.63 | 81 | .040154 | 67,616 | 2,715 | 66,258 | 701,515 | 10.38 |
| 82 | .065807 | 51,010 | 3,357 | 49,332 | 415,987 | 8.15 | 82 | .044529 | 64,901 | 2,890 | 63,456 | 635,257 | 9.79 |
| 83 | .071460 | 47,653 | 3,405 | 45,951 | 366,655 | 7.69 | 83 | .049333 | 62,011 | 3,059 | 60,481 | 571,801 | 9.22 |
| 84 | .077426 | 44,248 | 3,426 | 42,535 | 320,704 | 7.25 | 84 | .054505 | 58,952 | 3,213 | 57,345 | 511,320 | 8.67 |
| 85 | .092598 | 40,822 | 3,780 | 38,932 | 278,169 | 6.81 | 85 | .064056 | 55,739 | 3,570 | 53,953 | 453,975 | 8.14 |
| 86 | .099879 | 37,042 | 3,700 | 35,192 | 239,237 | 6.46 | 86 | .070608 | 52,168 | 3,683 | 50,326 | 400,021 | 7.67 |
| 87 | .107600 | 33,342 | 3,588 | 31,549 | 204,045 | 6.12 | 87 | .077828 | 48,485 | 3,773 | 46,598 | 349,695 | 7.21 |
| 88 | .115723 | 29,755 | 3,443 | 28,033 | 172,496 | 5.80 | 88 | .085645 | 44,711 | 3,829 | 42,797 | 303,097 | 6.78 |
| 89 | .124230 | 26,311 | 3,269 | 24,677 | 144,463 | 5.49 | 89 | .093979 | 40,882 | 3,842 | 38,961 | 260,300 | 6.37 |
| 90 | .133134 | 23,043 | 3,068 | 21,509 | 119,786 | 5.20 | 90 | .102932 | 37,040 | 3,813 | 35,134 | 221,339 | 5.98 |
| 91 | .142476 | 19,975 | 2,846 | 18,552 | 98,277 | 4.92 | 91 | .112579 | 33,227 | 3,741 | 31,357 | 186,206 | 5.60 |
| 92 | .152289 | 17,129 | 2,609 | 15,825 | 79,725 | 4.65 | 92 | .123031 | 29,487 | 3,628 | 27,673 | 154,849 | 5.25 |
| 93 | .162536 | 14,520 | 2,360 | 13,340 | 63,900 | 4.40 | 93 | .134196 | 25,859 | 3,470 | 24,124 | 127,176 | 4.92 |
| 94 | .173185 | 12,160 | 2,106 | 11,107 | 50,560 | 4.16 | 94 | .146005 | 22,389 | 3,269 | 20,754 | 103,052 | 4.60 |
| 95 | .184267 | 10,054 | 1,853 | 9,128 | 39,452 | 3.92 | 95 | .158546 | 19,120 | 3,031 | 17,604 | 82,298 | 4.30 |
| 96 | .195814 | 8,202 | 1,606 | 7,399 | 30,324 | 3.70 | 96 | .171900 | 16,088 | 2,766 | 14,706 | 64,694 | 4.02 |
| 97 | .207849 | 6,596 | 1,371 | 5,910 | 22,926 | 3.48 | 97 | .186173 | 13,323 | 2,480 | 12,083 | 49,988 | 3.75 |
| 98 | .220342 | 5,225 | 1,151 | 4,649 | 17,015 | 3.26 | 98 | .201266 | 10,843 | 2,182 | 9,751 | 37,905 | 3.50 |
| 99 | .233263 | 4,074 | 950 | 3,598 | 12,366 | 3.04 | 99 | .217118 | 8,660 | 1,880 | 7,720 | 28,154 | 3.25 |
| 100 | .262477 | 3,123 | 820 | 2,713 | 8,768 | 2.81 | 100 | .235327 | 6,780 | 1,596 | 5,982 | 20,434 | 3.01 |
| 101 | .277370 | 2,304 | 639 | 1,984 | 6,054 | 2.63 | 101 | .252991 | 5,184 | 1,312 | 4,529 | 14,451 | 2.79 |
| 102 | .292819 | 1,665 | 487 | 1,421 | 4,070 | 2.45 | 102 | .271667 | 3,873 | 1,052 | 3,347 | 9,923 | 2.56 |
| 103 | .308802 | 1,177 | 364 | 995 | 2,649 | 2.25 | 103 | .291266 | 2,821 | 822 | 2,410 | 6,576 | 2.33 |
| 104 | .325273 | 814 | 265 | 681 | 1,654 | 2.03 | 104 | .311706 | 1,999 | 623 | 1,688 | 4,166 | 2.08 |
| 105 | .342272 | 549 | 188 | 455 | 973 | 1.77 | 105 | .333071 | 1,376 | 458 | 1,147 | 2,479 | 1.80 |
| 106 | .435217 | 361 | 157 | 283 | 518 | 1.43 | 106 | .429786 | 918 | 394 | 720 | 1,332 | 1.45 |
| 107 | .527327 | 204 | 108 | 150 | 235 | 1.15 | 107 | .519752 | 523 | 272 | 387 | 611 | 1.17 |
| 108 | .618651 | 96 | 60 | 67 | 85 | 0.88 | 108 | .609015 | 251 | 153 | 175 | 224 | 0.89 |
| 109 | 1.000000 | 37 | 37 | 18 | 18 | 0.50 | 109 | 1.000000 | 98 | 98 | 49 | 49 | 0.50 |

# Born in 1980

| Male | | | | | | | Female | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ | X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ |
| 0 | .011774 | 100,000 | 1,177 | 99,058 | 7,936,000 | 79.36 | 0 | .009033 | 100,000 | 903 | 99,277 | 8,400,723 | 84.01 |
| 1 | .000811 | 98,823 | 80 | 98,783 | 7,836,942 | 79.30 | 1 | .000668 | 99,097 | 66 | 99,064 | 8,301,446 | 83.77 |
| 2 | .000603 | 98,742 | 60 | 98,713 | 7,738,159 | 78.37 | 2 | .000453 | 99,030 | 45 | 99,008 | 8,202,382 | 82.83 |
| 3 | .000438 | 98,683 | 43 | 98,661 | 7,639,447 | 77.41 | 3 | .000349 | 98,986 | 35 | 98,968 | 8,103,374 | 81.86 |
| 4 | .000400 | 98,640 | 39 | 98,620 | 7,540,785 | 76.45 | 4 | .000268 | 98,951 | 27 | 98,938 | 8,004,406 | 80.89 |
| 5 | .000320 | 98,600 | 32 | 98,584 | 7,442,165 | 75.48 | 5 | .000211 | 98,925 | 21 | 98,914 | 7,905,468 | 79.91 |
| 6 | .000235 | 98,569 | 23 | 98,557 | 7,343,581 | 74.50 | 6 | .000159 | 98,904 | 16 | 98,896 | 7,806,554 | 78.93 |
| 7 | .000155 | 98,546 | 15 | 98,538 | 7,245,024 | 73.52 | 7 | .000136 | 98,888 | 13 | 98,881 | 7,707,658 | 77.94 |
| 8 | .000131 | 98,530 | 13 | 98,524 | 7,146,486 | 72.53 | 8 | .000115 | 98,874 | 11 | 98,869 | 7,608,777 | 76.95 |
| 9 | .000128 | 98,517 | 13 | 98,511 | 7,047,962 | 71.54 | 9 | .000113 | 98,863 | 11 | 98,858 | 7,509,908 | 75.96 |
| 10 | .000141 | 98,505 | 14 | 98,498 | 6,949,451 | 70.55 | 10 | .000119 | 98,852 | 12 | 98,846 | 7,411,051 | 74.97 |
| 11 | .000136 | 98,491 | 13 | 98,484 | 6,850,953 | 69.56 | 11 | .000120 | 98,840 | 12 | 98,834 | 7,312,205 | 73.98 |
| 12 | .000204 | 98,478 | 20 | 98,467 | 6,752,469 | 68.57 | 12 | .000135 | 98,828 | 13 | 98,822 | 7,213,371 | 72.99 |
| 13 | .000278 | 98,457 | 27 | 98,444 | 6,654,001 | 67.58 | 13 | .000174 | 98,815 | 17 | 98,806 | 7,114,549 | 72.00 |
| 14 | .000441 | 98,430 | 43 | 98,408 | 6,555,558 | 66.60 | 14 | .000235 | 98,798 | 23 | 98,786 | 7,015,743 | 71.01 |
| 15 | .000544 | 98,387 | 54 | 98,360 | 6,457,149 | 65.63 | 15 | .000253 | 98,775 | 25 | 98,762 | 6,916,956 | 70.03 |
| 16 | .000640 | 98,333 | 63 | 98,302 | 6,358,789 | 64.67 | 16 | .000275 | 98,750 | 27 | 98,736 | 6,818,194 | 69.05 |
| 17 | .000620 | 98,270 | 61 | 98,240 | 6,260,488 | 63.71 | 17 | .000293 | 98,722 | 29 | 98,708 | 6,719,458 | 68.06 |
| 18 | .000734 | 98,209 | 72 | 98,173 | 6,162,248 | 62.75 | 18 | .000303 | 98,693 | 30 | 98,679 | 6,620,750 | 67.08 |
| 19 | .000765 | 98,137 | 75 | 98,100 | 6,064,075 | 61.79 | 19 | .000291 | 98,664 | 29 | 98,649 | 6,522,072 | 66.10 |
| 20 | .000806 | 98,062 | 79 | 98,023 | 5,965,975 | 60.84 | 20 | .000317 | 98,635 | 31 | 98,619 | 6,423,423 | 65.12 |
| 21 | .000711 | 97,983 | 70 | 97,948 | 5,867,953 | 59.89 | 21 | .000307 | 98,604 | 30 | 98,588 | 6,324,803 | 64.14 |
| 22 | .000790 | 97,913 | 77 | 97,875 | 5,770,004 | 58.93 | 22 | .000300 | 98,573 | 30 | 98,559 | 6,226,215 | 63.16 |
| 23 | .000788 | 97,836 | 77 | 97,797 | 5,672,130 | 57.98 | 23 | .000304 | 98,544 | 30 | 98,529 | 6,127,656 | 62.18 |
| 24 | .000812 | 97,759 | 79 | 97,719 | 5,574,332 | 57.02 | 24 | .000308 | 98,514 | 30 | 98,499 | 6,029,128 | 61.20 |
| 25 | .000813 | 97,680 | 79 | 97,640 | 5,476,613 | 56.07 | 25 | .000283 | 98,484 | 28 | 98,470 | 5,930,629 | 60.22 |
| 26 | .000803 | 97,600 | 78 | 97,561 | 5,378,973 | 55.11 | 26 | .000287 | 98,456 | 28 | 98,442 | 5,832,159 | 59.24 |
| 27 | .000790 | 97,522 | 77 | 97,483 | 5,281,412 | 54.16 | 27 | .000300 | 98,427 | 29 | 98,413 | 5,733,718 | 58.25 |
| 28 | .000795 | 97,445 | 77 | 97,406 | 5,183,929 | 53.20 | 28 | .000302 | 98,398 | 30 | 98,383 | 5,635,305 | 57.27 |
| 29 | .000806 | 97,367 | 79 | 97,328 | 5,086,523 | 52.24 | 29 | .000313 | 98,368 | 31 | 98,353 | 5,536,922 | 56.29 |
| 30 | .001077 | 97,289 | 105 | 97,236 | 4,989,195 | 51.28 | 30 | .000414 | 98,338 | 41 | 98,317 | 5,438,569 | 55.31 |
| 31 | .001108 | 97,184 | 108 | 97,130 | 4,891,959 | 50.34 | 31 | .000427 | 98,297 | 42 | 98,276 | 5,340,252 | 54.33 |
| 32 | .001149 | 97,076 | 112 | 97,021 | 4,794,828 | 49.39 | 32 | .000459 | 98,255 | 45 | 98,232 | 5,241,976 | 53.35 |
| 33 | .001188 | 96,965 | 115 | 96,907 | 4,697,808 | 48.45 | 33 | .000491 | 98,210 | 48 | 98,186 | 5,143,744 | 52.38 |
| 34 | .001236 | 96,850 | 120 | 96,790 | 4,600,901 | 47.51 | 34 | .000531 | 98,162 | 52 | 98,136 | 5,045,558 | 51.40 |
| 35 | .001385 | 96,730 | 134 | 96,663 | 4,504,111 | 46.56 | 35 | .000581 | 98,109 | 57 | 98,081 | 4,947,422 | 50.43 |
| 36 | .001446 | 96,596 | 140 | 96,526 | 4,407,448 | 45.63 | 36 | .000629 | 98,052 | 62 | 98,022 | 4,849,341 | 49.46 |
| 37 | .001513 | 96,456 | 146 | 96,383 | 4,310,922 | 44.69 | 37 | .000685 | 97,991 | 67 | 97,957 | 4,751,320 | 48.49 |
| 38 | .001569 | 96,310 | 151 | 96,235 | 4,214,539 | 43.76 | 38 | .000728 | 97,924 | 71 | 97,888 | 4,653,362 | 47.52 |
| 39 | .001624 | 96,159 | 156 | 96,081 | 4,118,304 | 42.83 | 39 | .000770 | 97,852 | 75 | 97,815 | 4,555,474 | 46.55 |
| 40 | .001698 | 96,003 | 163 | 95,921 | 4,022,223 | 41.90 | 40 | .000813 | 97,777 | 79 | 97,737 | 4,457,660 | 45.59 |
| 41 | .001786 | 95,840 | 171 | 95,754 | 3,926,302 | 40.97 | 41 | .000879 | 97,698 | 86 | 97,655 | 4,359,922 | 44.63 |
| 42 | .001895 | 95,669 | 181 | 95,578 | 3,830,547 | 40.04 | 42 | .000964 | 97,612 | 94 | 97,565 | 4,262,268 | 43.67 |
| 43 | .002051 | 95,487 | 196 | 95,390 | 3,734,969 | 39.11 | 43 | .001067 | 97,518 | 104 | 97,466 | 4,164,703 | 42.71 |
| 44 | .002227 | 95,292 | 212 | 95,186 | 3,639,580 | 38.19 | 44 | .001199 | 97,414 | 117 | 97,355 | 4,067,237 | 41.75 |
| 45 | .001808 | 95,079 | 172 | 94,994 | 3,544,394 | 37.28 | 45 | .001124 | 97,297 | 109 | 97,242 | 3,969,882 | 40.80 |
| 46 | .002000 | 94,908 | 190 | 94,813 | 3,449,401 | 36.34 | 46 | .001251 | 97,187 | 122 | 97,127 | 3,872,640 | 39.85 |
| 47 | .002194 | 94,718 | 208 | 94,614 | 3,354,588 | 35.42 | 47 | .001395 | 97,066 | 135 | 96,998 | 3,775,514 | 38.90 |
| 48 | .002399 | 94,510 | 227 | 94,397 | 3,259,974 | 34.49 | 48 | .001535 | 96,930 | 149 | 96,856 | 3,678,516 | 37.95 |
| 49 | .002622 | 94,283 | 247 | 94,160 | 3,165,577 | 33.58 | 49 | .001681 | 96,781 | 163 | 96,700 | 3,581,660 | 37.01 |
| 50 | .002738 | 94,036 | 257 | 93,907 | 3,071,418 | 32.66 | 50 | .001890 | 96,619 | 183 | 96,527 | 3,484,960 | 36.07 |
| 51 | .003007 | 93,779 | 282 | 93,638 | 2,977,510 | 31.75 | 51 | .002064 | 96,436 | 199 | 96,337 | 3,388,432 | 35.14 |
| 52 | .003321 | 93,497 | 310 | 93,341 | 2,883,873 | 30.84 | 52 | .002264 | 96,237 | 218 | 96,128 | 3,292,096 | 34.21 |
| 53 | .003667 | 93,186 | 342 | 93,015 | 2,790,532 | 29.95 | 53 | .002473 | 96,019 | 237 | 95,901 | 3,195,967 | 33.28 |
| 54 | .004038 | 92,844 | 375 | 92,657 | 2,697,516 | 29.05 | 54 | .002704 | 95,782 | 259 | 95,652 | 3,100,067 | 32.37 |

# Born in 1980 (Continued)

| Male | | | | | | | Female | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ | X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ |
| 55 | .004113 | 92,469 | 380 | 92,279 | 2,604,860 | 28.17 | 55 | .003036 | 95,523 | 290 | 95,378 | 3,004,415 | 31.45 |
| 56 | .004538 | 92,089 | 418 | 91,880 | 2,512,580 | 27.28 | 56 | .003314 | 95,233 | 316 | 95,075 | 2,909,037 | 30.55 |
| 57 | .005016 | 91,671 | 460 | 91,441 | 2,420,700 | 26.41 | 57 | .003612 | 94,917 | 343 | 94,746 | 2,813,962 | 29.65 |
| 58 | .005542 | 91,211 | 505 | 90,959 | 2,329,259 | 25.54 | 58 | .003921 | 94,574 | 371 | 94,389 | 2,719,216 | 28.75 |
| 59 | .006121 | 90,706 | 555 | 90,428 | 2,238,301 | 24.68 | 59 | .004247 | 94,204 | 400 | 94,004 | 2,624,827 | 27.86 |
| 60 | .006709 | 90,151 | 605 | 89,848 | 2,147,872 | 23.83 | 60 | .004713 | 93,804 | 442 | 93,582 | 2,530,823 | 26.98 |
| 61 | .007376 | 89,546 | 660 | 89,216 | 2,058,024 | 22.98 | 61 | .005110 | 93,361 | 477 | 93,123 | 2,437,241 | 26.11 |
| 62 | .008089 | 88,885 | 719 | 88,526 | 1,968,808 | 22.15 | 62 | .005575 | 92,884 | 518 | 92,625 | 2,344,118 | 25.24 |
| 63 | .008830 | 88,166 | 779 | 87,777 | 1,880,283 | 21.33 | 63 | .006079 | 92,366 | 561 | 92,086 | 2,251,493 | 24.38 |
| 64 | .009605 | 87,388 | 839 | 86,968 | 1,792,506 | 20.51 | 64 | .006611 | 91,805 | 607 | 91,502 | 2,159,407 | 23.52 |
| 65 | .011023 | 86,548 | 954 | 86,071 | 1,705,537 | 19.71 | 65 | .007247 | 91,198 | 661 | 90,868 | 2,067,905 | 22.67 |
| 66 | .011985 | 85,594 | 1,026 | 85,082 | 1,619,466 | 18.92 | 66 | .007910 | 90,537 | 716 | 90,179 | 1,977,038 | 21.84 |
| 67 | .013053 | 84,569 | 1,104 | 84,017 | 1,534,384 | 18.14 | 67 | .008646 | 89,821 | 777 | 89,433 | 1,886,859 | 21.01 |
| 68 | .014201 | 83,465 | 1,185 | 82,872 | 1,450,368 | 17.38 | 68 | .009437 | 89,044 | 840 | 88,624 | 1,797,426 | 20.19 |
| 69 | .015399 | 82,279 | 1,267 | 81,646 | 1,367,496 | 16.62 | 69 | .010247 | 88,204 | 904 | 87,752 | 1,708,802 | 19.37 |
| 70 | .018740 | 81,012 | 1,518 | 80,253 | 1,285,850 | 15.87 | 70 | .011645 | 87,300 | 1,017 | 86,792 | 1,621,050 | 18.57 |
| 71 | .020375 | 79,494 | 1,620 | 78,684 | 1,205,596 | 15.17 | 71 | .012739 | 86,284 | 1,099 | 85,734 | 1,534,258 | 17.78 |
| 72 | .022238 | 77,875 | 1,732 | 77,009 | 1,126,912 | 14.47 | 72 | .014025 | 85,184 | 1,195 | 84,587 | 1,448,524 | 17.00 |
| 73 | .024279 | 76,143 | 1,849 | 75,218 | 1,049,903 | 13.79 | 73 | .015471 | 83,990 | 1,299 | 83,340 | 1,363,936 | 16.24 |
| 74 | .026465 | 74,294 | 1,966 | 73,311 | 974,685 | 13.12 | 74 | .017025 | 82,690 | 1,408 | 81,986 | 1,280,596 | 15.49 |
| 75 | .029677 | 72,328 | 2,146 | 71,255 | 901,374 | 12.46 | 75 | .019322 | 81,283 | 1,571 | 80,497 | 1,198,610 | 14.75 |
| 76 | .033161 | 70,182 | 2,327 | 69,018 | 830,119 | 11.83 | 76 | .021363 | 79,712 | 1,703 | 78,861 | 1,118,113 | 14.03 |
| 77 | .036253 | 67,854 | 2,460 | 66,624 | 761,101 | 11.22 | 77 | .023710 | 78,009 | 1,850 | 77,084 | 1,039,252 | 13.32 |
| 78 | .039646 | 65,394 | 2,593 | 64,098 | 694,477 | 10.62 | 78 | .026311 | 76,159 | 2,004 | 75,158 | 962,168 | 12.63 |
| 79 | .043290 | 62,802 | 2,719 | 61,442 | 630,379 | 10.04 | 79 | .029115 | 74,156 | 2,159 | 73,076 | 887,010 | 11.96 |
| 80 | .052461 | 60,083 | 3,152 | 58,507 | 568,936 | 9.47 | 80 | .034474 | 71,997 | 2,482 | 70,756 | 813,934 | 11.31 |
| 81 | .057147 | 56,931 | 3,253 | 55,304 | 510,429 | 8.97 | 81 | .038176 | 69,515 | 2,654 | 68,188 | 743,179 | 10.69 |
| 82 | .062173 | 53,678 | 3,337 | 52,009 | 455,125 | 8.48 | 82 | .042337 | 66,861 | 2,831 | 65,445 | 674,991 | 10.10 |
| 83 | .067524 | 50,340 | 3,399 | 48,641 | 403,116 | 8.01 | 83 | .046906 | 64,030 | 3,003 | 62,528 | 609,545 | 9.52 |
| 84 | .073171 | 46,941 | 3,435 | 45,224 | 354,476 | 7.55 | 84 | .051825 | 61,027 | 3,163 | 59,445 | 547,017 | 8.96 |
| 85 | .087541 | 43,506 | 3,809 | 41,602 | 309,252 | 7.11 | 85 | .060841 | 57,864 | 3,521 | 56,104 | 487,572 | 8.43 |
| 86 | .094425 | 39,698 | 3,748 | 37,824 | 267,650 | 6.74 | 86 | .067065 | 54,343 | 3,645 | 52,521 | 431,468 | 7.94 |
| 87 | .101724 | 35,949 | 3,657 | 34,121 | 229,826 | 6.39 | 87 | .073923 | 50,699 | 3,748 | 48,825 | 378,947 | 7.47 |
| 88 | .109404 | 32,292 | 3,533 | 30,526 | 195,705 | 6.06 | 88 | .081348 | 46,951 | 3,819 | 45,041 | 330,122 | 7.03 |
| 89 | .117447 | 28,759 | 3,378 | 27,071 | 165,179 | 5.74 | 89 | .089264 | 43,132 | 3,850 | 41,207 | 285,080 | 6.61 |
| 90 | .125865 | 25,382 | 3,195 | 23,784 | 138,109 | 5.44 | 90 | .097769 | 39,282 | 3,841 | 37,361 | 243,874 | 6.21 |
| 91 | .134698 | 22,187 | 2,989 | 20,693 | 114,324 | 5.15 | 91 | .106933 | 35,441 | 3,790 | 33,546 | 206,512 | 5.83 |
| 92 | .143976 | 19,199 | 2,764 | 17,816 | 93,632 | 4.88 | 92 | .116861 | 31,651 | 3,699 | 29,802 | 172,966 | 5.46 |
| 93 | .153664 | 16,434 | 2,525 | 15,172 | 75,815 | 4.61 | 93 | .127468 | 27,952 | 3,563 | 26,171 | 143,164 | 5.12 |
| 94 | .163732 | 13,909 | 2,277 | 12,770 | 60,643 | 4.36 | 94 | .138686 | 24,389 | 3,382 | 22,698 | 116,993 | 4.80 |
| 95 | .174211 | 11,632 | 2,026 | 10,619 | 47,873 | 4.12 | 95 | .150599 | 21,007 | 3,164 | 19,425 | 94,295 | 4.49 |
| 96 | .185128 | 9,605 | 1,778 | 8,716 | 37,254 | 3.88 | 96 | .163286 | 17,843 | 2,914 | 16,387 | 74,870 | 4.20 |
| 97 | .196508 | 7,827 | 1,538 | 7,058 | 28,538 | 3.65 | 97 | .176846 | 14,930 | 2,640 | 13,610 | 58,483 | 3.92 |
| 98 | .208321 | 6,289 | 1,310 | 5,634 | 21,480 | 3.42 | 98 | .191185 | 12,289 | 2,350 | 11,115 | 44,874 | 3.65 |
| 99 | .220538 | 4,979 | 1,098 | 4,430 | 15,846 | 3.18 | 99 | .206246 | 9,940 | 2,050 | 8,915 | 33,759 | 3.40 |
| 100 | .249411 | 3,881 | 968 | 3,397 | 11,416 | 2.94 | 100 | .223691 | 7,890 | 1,765 | 7,007 | 24,844 | 3.15 |
| 101 | .263565 | 2,913 | 768 | 2,529 | 8,019 | 2.75 | 101 | .240483 | 6,125 | 1,473 | 5,388 | 17,837 | 2.91 |
| 102 | .278248 | 2,145 | 597 | 1,847 | 5,490 | 2.56 | 102 | .258236 | 4,652 | 1,201 | 4,051 | 12,448 | 2.68 |
| 103 | .293438 | 1,548 | 454 | 1,321 | 3,644 | 2.35 | 103 | .276868 | 3,451 | 955 | 2,973 | 8,397 | 2.43 |
| 104 | .309093 | 1,094 | 338 | 925 | 2,323 | 2.12 | 104 | .296298 | 2,495 | 739 | 2,126 | 5,424 | 2.17 |
| 105 | .325250 | 756 | 246 | 633 | 1,398 | 1.85 | 105 | .316608 | 1,756 | 556 | 1,478 | 3,298 | 1.88 |
| 106 | .413577 | 510 | 211 | 405 | 765 | 1.50 | 106 | .408545 | 1,200 | 490 | 955 | 1,820 | 1.52 |
| 107 | .501114 | 299 | 150 | 224 | 360 | 1.20 | 107 | .493975 | 710 | 351 | 534 | 865 | 1.22 |
| 108 | .587904 | 149 | 88 | 105 | 136 | 0.91 | 108 | .578742 | 359 | 208 | 255 | 331 | 0.92 |
| 109 | 1.000000 | 61 | 61 | 31 | 31 | 0.50 | 109 | 1.000000 | 151 | 151 | 76 | 76 | 0.50 |

# Born in 1990

| Male | | | | | | | Female | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ | X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ |
| 0 | .007494 | 100,000 | 749 | 99,400 | 8,053,301 | 80.53 | 0 | .006110 | 100,000 | 611 | 99,511 | 8,486,055 | 84.86 |
| 1 | .000522 | 99,251 | 52 | 99,225 | 7,953,900 | 80.14 | 1 | .000463 | 99,389 | 46 | 99,366 | 8,386,544 | 84.38 |
| 2 | .000347 | 99,199 | 34 | 99,182 | 7,854,675 | 79.18 | 2 | .000288 | 99,343 | 29 | 99,329 | 8,287,178 | 83.42 |
| 3 | .000347 | 99,164 | 34 | 99,147 | 7,755,494 | 78.21 | 3 | .000235 | 99,314 | 23 | 99,303 | 8,187,849 | 82.44 |
| 4 | .000232 | 99,130 | 23 | 99,118 | 7,656,347 | 77.24 | 4 | .000181 | 99,291 | 18 | 99,282 | 8,088,547 | 81.46 |
| 5 | .000188 | 99,107 | 19 | 99,098 | 7,557,228 | 76.25 | 5 | .000105 | 99,273 | 10 | 99,268 | 7,989,265 | 80.48 |
| 6 | .000123 | 99,088 | 12 | 99,082 | 7,458,130 | 75.27 | 6 | .000110 | 99,263 | 11 | 99,257 | 7,889,997 | 79.49 |
| 7 | .000102 | 99,076 | 10 | 99,071 | 7,359,048 | 74.28 | 7 | .000099 | 99,252 | 10 | 99,247 | 7,790,740 | 78.49 |
| 8 | .000082 | 99,066 | 8 | 99,062 | 7,259,977 | 73.28 | 8 | .000088 | 99,242 | 9 | 99,238 | 7,691,493 | 77.50 |
| 9 | .000079 | 99,058 | 8 | 99,054 | 7,160,915 | 72.29 | 9 | .000086 | 99,233 | 9 | 99,229 | 7,592,255 | 76.51 |
| 10 | .000095 | 99,050 | 9 | 99,046 | 7,061,861 | 71.30 | 10 | .000078 | 99,225 | 8 | 99,221 | 7,493,026 | 75.52 |
| 11 | .000092 | 99,041 | 9 | 99,036 | 6,962,815 | 70.30 | 11 | .000080 | 99,217 | 8 | 99,213 | 7,393,806 | 74.52 |
| 12 | .000138 | 99,032 | 14 | 99,025 | 6,863,779 | 69.31 | 12 | .000108 | 99,209 | 11 | 99,204 | 7,294,593 | 73.53 |
| 13 | .000204 | 99,018 | 20 | 99,008 | 6,764,754 | 68.32 | 13 | .000128 | 99,198 | 13 | 99,192 | 7,195,389 | 72.54 |
| 14 | .000284 | 98,998 | 28 | 98,984 | 6,665,746 | 67.33 | 14 | .000155 | 99,186 | 15 | 99,178 | 7,096,197 | 71.54 |
| 15 | .000345 | 98,970 | 34 | 98,953 | 6,566,762 | 66.35 | 15 | .000209 | 99,170 | 21 | 99,160 | 6,997,019 | 70.56 |
| 16 | .000480 | 98,936 | 48 | 98,912 | 6,467,809 | 65.37 | 16 | .000236 | 99,150 | 23 | 99,138 | 6,897,859 | 69.57 |
| 17 | .000472 | 98,888 | 47 | 98,865 | 6,368,897 | 64.40 | 17 | .000254 | 99,126 | 25 | 99,114 | 6,798,721 | 68.59 |
| 18 | .000564 | 98,842 | 56 | 98,814 | 6,270,032 | 63.44 | 18 | .000264 | 99,101 | 26 | 99,088 | 6,699,608 | 67.60 |
| 19 | .000595 | 98,786 | 59 | 98,756 | 6,171,218 | 62.47 | 19 | .000255 | 99,075 | 25 | 99,062 | 6,600,520 | 66.62 |
| 20 | .000655 | 98,727 | 65 | 98,695 | 6,072,462 | 61.51 | 20 | .000279 | 99,050 | 28 | 99,036 | 6,501,457 | 65.64 |
| 21 | .000586 | 98,662 | 58 | 98,633 | 5,973,767 | 60.55 | 21 | .000272 | 99,022 | 27 | 99,009 | 6,402,422 | 64.66 |
| 22 | .000655 | 98,605 | 65 | 98,572 | 5,875,134 | 59.58 | 22 | .000267 | 98,995 | 26 | 98,982 | 6,303,413 | 63.67 |
| 23 | .000660 | 98,540 | 65 | 98,507 | 5,776,562 | 58.62 | 23 | .000272 | 98,969 | 27 | 98,955 | 6,204,431 | 62.69 |
| 24 | .000686 | 98,475 | 68 | 98,441 | 5,678,054 | 57.66 | 24 | .000277 | 98,942 | 27 | 98,928 | 6,105,476 | 61.71 |
| 25 | .000730 | 98,407 | 72 | 98,371 | 5,579,613 | 56.70 | 25 | .000256 | 98,914 | 25 | 98,902 | 6,006,548 | 60.72 |
| 26 | .000724 | 98,335 | 71 | 98,300 | 5,481,242 | 55.74 | 26 | .000261 | 98,889 | 26 | 98,876 | 5,907,646 | 59.74 |
| 27 | .000716 | 98,264 | 70 | 98,229 | 5,382,942 | 54.78 | 27 | .000274 | 98,863 | 27 | 98,850 | 5,808,770 | 58.76 |
| 28 | .000723 | 98,194 | 71 | 98,158 | 5,284,713 | 53.82 | 28 | .000277 | 98,836 | 27 | 98,822 | 5,709,920 | 57.77 |
| 29 | .000737 | 98,123 | 72 | 98,087 | 5,186,554 | 52.86 | 29 | .000290 | 98,809 | 29 | 98,794 | 5,611,098 | 56.79 |
| 30 | .001010 | 98,051 | 99 | 98,001 | 5,088,468 | 51.90 | 30 | .000391 | 98,780 | 39 | 98,761 | 5,512,303 | 55.80 |
| 31 | .001039 | 97,952 | 102 | 97,901 | 4,990,467 | 50.95 | 31 | .000403 | 98,742 | 40 | 98,722 | 5,413,543 | 54.83 |
| 32 | .001076 | 97,850 | 105 | 97,797 | 4,892,566 | 50.00 | 32 | .000434 | 98,702 | 43 | 98,680 | 5,314,821 | 53.85 |
| 33 | .001112 | 97,745 | 109 | 97,690 | 4,794,769 | 49.05 | 33 | .000465 | 98,659 | 46 | 98,636 | 5,216,141 | 52.87 |
| 34 | .001156 | 97,636 | 113 | 97,579 | 4,697,079 | 48.11 | 34 | .000504 | 98,613 | 50 | 98,588 | 5,117,505 | 51.89 |
| 35 | .001304 | 97,523 | 127 | 97,459 | 4,599,500 | 47.16 | 35 | .000552 | 98,563 | 54 | 98,536 | 5,018,916 | 50.92 |
| 36 | .001359 | 97,396 | 132 | 97,330 | 4,502,040 | 46.22 | 36 | .000598 | 98,509 | 59 | 98,480 | 4,920,380 | 49.95 |
| 37 | .001420 | 97,263 | 138 | 97,194 | 4,404,711 | 45.29 | 37 | .000651 | 98,450 | 64 | 98,418 | 4,821,901 | 48.98 |
| 38 | .001472 | 97,125 | 143 | 97,054 | 4,307,516 | 44.35 | 38 | .000692 | 98,386 | 68 | 98,352 | 4,723,483 | 48.01 |
| 39 | .001523 | 96,982 | 148 | 96,908 | 4,210,462 | 43.41 | 39 | .000733 | 98,318 | 72 | 98,282 | 4,625,131 | 47.04 |
| 40 | .001587 | 96,835 | 154 | 96,758 | 4,113,554 | 42.48 | 40 | .000776 | 98,246 | 76 | 98,208 | 4,526,849 | 46.08 |
| 41 | .001669 | 96,681 | 161 | 96,600 | 4,016,796 | 41.55 | 41 | .000840 | 98,170 | 82 | 98,128 | 4,428,641 | 45.11 |
| 42 | .001771 | 96,520 | 171 | 96,434 | 3,920,196 | 40.62 | 42 | .000921 | 98,087 | 90 | 98,042 | 4,330,513 | 44.15 |
| 43 | .001917 | 96,349 | 185 | 96,256 | 3,823,762 | 39.69 | 43 | .001019 | 97,997 | 100 | 97,947 | 4,232,471 | 43.19 |
| 44 | .002082 | 96,164 | 200 | 96,064 | 3,727,506 | 38.76 | 44 | .001144 | 97,897 | 112 | 97,841 | 4,134,524 | 42.23 |
| 45 | .001693 | 95,964 | 162 | 95,882 | 3,631,442 | 37.84 | 45 | .001077 | 97,785 | 105 | 97,732 | 4,036,683 | 41.28 |
| 46 | .001882 | 95,801 | 180 | 95,711 | 3,535,559 | 36.91 | 46 | .001198 | 97,680 | 117 | 97,621 | 3,938,951 | 40.33 |
| 47 | .002065 | 95,621 | 197 | 95,522 | 3,439,848 | 35.97 | 47 | .001335 | 97,563 | 130 | 97,498 | 3,841,330 | 39.37 |
| 48 | .002259 | 95,423 | 216 | 95,316 | 3,344,326 | 35.05 | 48 | .001468 | 97,432 | 143 | 97,361 | 3,743,832 | 38.42 |
| 49 | .002468 | 95,208 | 235 | 95,090 | 3,249,010 | 34.13 | 49 | .001607 | 97,289 | 156 | 97,211 | 3,646,471 | 37.48 |
| 50 | .002575 | 94,973 | 245 | 94,851 | 3,153,920 | 33.21 | 50 | .001800 | 97,133 | 175 | 97,046 | 3,549,260 | 36.54 |
| 51 | .002828 | 94,728 | 268 | 94,594 | 3,059,069 | 32.29 | 51 | .001966 | 96,958 | 191 | 96,863 | 3,452,214 | 35.61 |
| 52 | .003123 | 94,461 | 295 | 94,313 | 2,964,474 | 31.38 | 52 | .002156 | 96,768 | 209 | 96,663 | 3,355,352 | 34.67 |
| 53 | .003449 | 94,166 | 325 | 94,003 | 2,870,161 | 30.48 | 53 | .002355 | 96,559 | 227 | 96,445 | 3,258,688 | 33.75 |
| 54 | .003798 | 93,841 | 356 | 93,663 | 2,776,158 | 29.58 | 54 | .002575 | 96,332 | 248 | 96,208 | 3,162,243 | 32.83 |

# Born in 1990 (Continued)

Male

| X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ |
|---|---|---|---|---|---|---|
| 55 | .003872 | 93,484 | 362 | 93,303 | 2,682,496 | 28.69 |
| 56 | .004273 | 93,122 | 398 | 92,924 | 2,589,192 | 27.80 |
| 57 | .004722 | 92,725 | 438 | 92,506 | 2,496,269 | 26.92 |
| 58 | .005218 | 92,287 | 482 | 92,046 | 2,403,763 | 26.05 |
| 59 | .005764 | 91,805 | 529 | 91,541 | 2,311,717 | 25.18 |
| 60 | .006322 | 91,276 | 577 | 90,987 | 2,220,176 | 24.32 |
| 61 | .006951 | 90,699 | 630 | 90,384 | 2,129,189 | 23.48 |
| 62 | .007623 | 90,069 | 687 | 89,725 | 2,038,805 | 22.64 |
| 63 | .008321 | 89,382 | 744 | 89,010 | 1,949,080 | 21.81 |
| 64 | .009050 | 88,638 | 802 | 88,237 | 1,860,070 | 20.98 |
| 65 | .010401 | 87,836 | 914 | 87,379 | 1,771,833 | 20.17 |
| 66 | .011308 | 86,922 | 983 | 86,431 | 1,684,454 | 19.38 |
| 67 | .012316 | 85,939 | 1,058 | 85,410 | 1,598,023 | 18.59 |
| 68 | .013401 | 84,881 | 1,137 | 84,312 | 1,512,613 | 17.82 |
| 69 | .014535 | 83,744 | 1,217 | 83,135 | 1,428,300 | 17.06 |
| 70 | .017700 | 82,526 | 1,461 | 81,796 | 1,345,166 | 16.30 |
| 71 | .019246 | 81,066 | 1,560 | 80,286 | 1,263,370 | 15.58 |
| 72 | .021004 | 79,505 | 1,670 | 78,670 | 1,183,084 | 14.88 |
| 73 | .022930 | 77,835 | 1,785 | 76,943 | 1,104,414 | 14.19 |
| 74 | .024991 | 76,051 | 1,901 | 75,100 | 1,027,470 | 13.51 |
| 75 | .028000 | 74,150 | 2,076 | 73,112 | 952,370 | 12.84 |
| 76 | .031438 | 72,074 | 2,266 | 70,941 | 879,258 | 12.20 |
| 77 | .034362 | 69,808 | 2,399 | 68,609 | 808,317 | 11.58 |
| 78 | .037569 | 67,409 | 2,532 | 66,143 | 739,708 | 10.97 |
| 79 | .041011 | 64,877 | 2,661 | 63,547 | 673,565 | 10.38 |
| 80 | .049772 | 62,216 | 3,097 | 60,668 | 610,018 | 9.80 |
| 81 | .054203 | 59,120 | 3,204 | 57,517 | 549,350 | 9.29 |
| 82 | .058958 | 55,915 | 3,297 | 54,267 | 491,833 | 8.80 |
| 83 | .064020 | 52,618 | 3,369 | 50,934 | 437,566 | 8.32 |
| 84 | .069362 | 49,250 | 3,416 | 47,542 | 386,632 | 7.85 |
| 85 | .082946 | 45,834 | 3,802 | 43,933 | 339,090 | 7.40 |
| 86 | .089468 | 42,032 | 3,761 | 40,152 | 295,157 | 7.02 |
| 87 | .096383 | 38,272 | 3,689 | 36,427 | 255,005 | 6.66 |
| 88 | .103658 | 34,583 | 3,585 | 32,790 | 218,578 | 6.32 |
| 89 | .111276 | 30,998 | 3,449 | 29,273 | 185,788 | 5.99 |
| 90 | .119250 | 27,549 | 3,285 | 25,906 | 156,515 | 5.68 |
| 91 | .127617 | 24,263 | 3,096 | 22,715 | 130,608 | 5.38 |
| 92 | .136405 | 21,167 | 2,887 | 19,723 | 107,893 | 5.10 |
| 93 | .145580 | 18,280 | 2,661 | 16,949 | 88,170 | 4.82 |
| 94 | .155116 | 15,619 | 2,423 | 14,407 | 71,221 | 4.56 |
| 95 | .165039 | 13,196 | 2,178 | 12,107 | 56,813 | 4.31 |
| 96 | .175378 | 11,018 | 1,932 | 10,052 | 44,706 | 4.06 |
| 97 | .186154 | 9,086 | 1,691 | 8,240 | 34,654 | 3.81 |
| 98 | .197338 | 7,394 | 1,459 | 6,665 | 26,414 | 3.57 |
| 99 | .208906 | 5,935 | 1,240 | 5,315 | 19,750 | 3.33 |
| 100 | .237440 | 4,695 | 1,115 | 4,138 | 14,434 | 3.07 |
| 101 | .250905 | 3,580 | 898 | 3,131 | 10,296 | 2.88 |
| 102 | .264874 | 2,682 | 710 | 2,327 | 7,165 | 2.67 |
| 103 | .279324 | 1,972 | 551 | 1,696 | 4,838 | 2.45 |
| 104 | .294216 | 1,421 | 418 | 1,212 | 3,142 | 2.21 |
| 105 | .309583 | 1,003 | 310 | 848 | 1,930 | 1.92 |
| 106 | .393638 | 692 | 273 | 556 | 1,082 | 1.56 |
| 107 | .476925 | 420 | 200 | 320 | 526 | 1.25 |
| 108 | .559477 | 220 | 123 | 158 | 207 | 0.94 |
| 109 | 1.000000 | 97 | 97 | 48 | 48 | 0.50 |

Female

| X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ |
|---|---|---|---|---|---|---|
| 55 | .002882 | 96,084 | 277 | 95,945 | 3,066,035 | 31.91 |
| 56 | .003146 | 95,807 | 301 | 95,656 | 2,970,090 | 31.00 |
| 57 | .003429 | 95,505 | 327 | 95,342 | 2,874,434 | 30.10 |
| 58 | .003723 | 95,178 | 354 | 95,001 | 2,779,092 | 29.20 |
| 59 | .004034 | 94,824 | 383 | 94,632 | 2,684,092 | 28.31 |
| 60 | .004479 | 94,441 | 423 | 94,229 | 2,589,459 | 27.42 |
| 61 | .004857 | 94,018 | 457 | 93,790 | 2,495,230 | 26.54 |
| 62 | .005300 | 93,561 | 496 | 93,313 | 2,401,440 | 25.67 |
| 63 | .005778 | 93,065 | 538 | 92,797 | 2,308,127 | 24.80 |
| 64 | .006283 | 92,528 | 581 | 92,237 | 2,215,330 | 23.94 |
| 65 | .006885 | 91,946 | 633 | 91,630 | 2,123,093 | 23.09 |
| 66 | .007513 | 91,313 | 686 | 90,970 | 2,031,463 | 22.25 |
| 67 | .008212 | 90,627 | 744 | 90,255 | 1,940,493 | 21.41 |
| 68 | .008963 | 89,883 | 806 | 89,480 | 1,850,238 | 20.58 |
| 69 | .009733 | 89,077 | 867 | 88,644 | 1,760,757 | 19.77 |
| 70 | .011077 | 88,210 | 977 | 87,722 | 1,672,113 | 18.96 |
| 71 | .012119 | 87,233 | 1,057 | 86,705 | 1,584,392 | 18.16 |
| 72 | .013343 | 86,176 | 1,150 | 85,601 | 1,497,687 | 17.38 |
| 73 | .014720 | 85,026 | 1,252 | 84,401 | 1,412,085 | 16.61 |
| 74 | .016201 | 83,775 | 1,357 | 83,096 | 1,327,685 | 15.85 |
| 75 | .018386 | 82,418 | 1,515 | 81,660 | 1,244,589 | 15.10 |
| 76 | .020328 | 80,902 | 1,645 | 80,080 | 1,162,929 | 14.37 |
| 77 | .022562 | 79,258 | 1,788 | 78,364 | 1,082,849 | 13.66 |
| 78 | .025035 | 77,469 | 1,939 | 76,500 | 1,004,485 | 12.97 |
| 79 | .027701 | 75,530 | 2,092 | 74,484 | 927,986 | 12.29 |
| 80 | .032805 | 73,438 | 2,409 | 72,233 | 853,502 | 11.62 |
| 81 | .036325 | 71,029 | 2,580 | 69,739 | 781,268 | 11.00 |
| 82 | .040282 | 68,449 | 2,757 | 67,070 | 711,530 | 10.40 |
| 83 | .044628 | 65,691 | 2,932 | 64,226 | 644,460 | 9.81 |
| 84 | .049306 | 62,760 | 3,094 | 61,213 | 580,234 | 9.25 |
| 85 | .057949 | 59,665 | 3,458 | 57,937 | 519,022 | 8.70 |
| 86 | .063876 | 56,208 | 3,590 | 54,413 | 461,085 | 8.20 |
| 87 | .070407 | 52,617 | 3,705 | 50,765 | 406,673 | 7.73 |
| 88 | .077478 | 48,913 | 3,790 | 47,018 | 355,907 | 7.28 |
| 89 | .085016 | 45,123 | 3,836 | 43,205 | 308,890 | 6.85 |
| 90 | .093114 | 41,287 | 3,844 | 39,365 | 265,685 | 6.44 |
| 91 | .101839 | 37,443 | 3,813 | 35,536 | 226,320 | 6.04 |
| 92 | .111292 | 33,629 | 3,743 | 31,758 | 190,784 | 5.67 |
| 93 | .121390 | 29,887 | 3,628 | 28,073 | 159,026 | 5.32 |
| 94 | .132070 | 26,259 | 3,468 | 24,525 | 130,953 | 4.99 |
| 95 | .143411 | 22,791 | 3,268 | 21,157 | 106,428 | 4.67 |
| 96 | .155487 | 19,522 | 3,035 | 18,005 | 85,272 | 4.37 |
| 97 | .168394 | 16,487 | 2,776 | 15,099 | 67,267 | 4.08 |
| 98 | .182041 | 13,711 | 2,496 | 12,463 | 52,168 | 3.80 |
| 99 | .196373 | 11,215 | 2,202 | 10,114 | 39,706 | 3.54 |
| 100 | .212859 | 9,012 | 1,918 | 8,053 | 29,592 | 3.28 |
| 101 | .228836 | 7,094 | 1,623 | 6,282 | 21,539 | 3.04 |
| 102 | .245726 | 5,471 | 1,344 | 4,799 | 15,256 | 2.79 |
| 103 | .263452 | 4,126 | 1,087 | 3,583 | 10,458 | 2.53 |
| 104 | .281937 | 3,039 | 857 | 2,611 | 6,875 | 2.26 |
| 105 | .301259 | 2,182 | 657 | 1,854 | 4,264 | 1.95 |
| 106 | .388732 | 1,525 | 593 | 1,229 | 2,411 | 1.58 |
| 107 | .470067 | 932 | 438 | 713 | 1,182 | 1.27 |
| 108 | .550739 | 494 | 272 | 358 | 469 | 0.95 |
| 109 | 1.000000 | 222 | 222 | 111 | 111 | 0.50 |

# Born in 2000

| Male | | | | | | | Female | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ | X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ |
| 0 | .005595 | 100,000 | 560 | 99,552 | 8,140,625 | 81.41 | 0 | .004558 | 100,000 | 456 | 99,635 | 8,553,320 | 85.53 |
| 1 | .000356 | 99,440 | 35 | 99,423 | 8,041,072 | 80.86 | 1 | .000381 | 99,544 | 38 | 99,525 | 8,453,685 | 84.92 |
| 2 | .000271 | 99,405 | 27 | 99,392 | 7,941,650 | 79.89 | 2 | .000241 | 99,506 | 24 | 99,494 | 8,354,159 | 83.96 |
| 3 | .000227 | 99,378 | 23 | 99,367 | 7,842,258 | 78.91 | 3 | .000183 | 99,482 | 18 | 99,473 | 8,254,665 | 82.98 |
| 4 | .000161 | 99,356 | 16 | 99,348 | 7,742,891 | 77.93 | 4 | .000136 | 99,464 | 14 | 99,457 | 8,155,192 | 81.99 |
| 5 | .000110 | 99,340 | 11 | 99,334 | 7,643,544 | 76.94 | 5 | .000098 | 99,450 | 10 | 99,446 | 8,055,735 | 81.00 |
| 6 | .000088 | 99,329 | 9 | 99,324 | 7,544,210 | 75.95 | 6 | .000089 | 99,441 | 9 | 99,436 | 7,956,289 | 80.01 |
| 7 | .000074 | 99,320 | 7 | 99,316 | 7,444,885 | 74.96 | 7 | .000080 | 99,432 | 8 | 99,428 | 7,856,853 | 79.02 |
| 8 | .000061 | 99,312 | 6 | 99,309 | 7,345,569 | 73.96 | 8 | .000072 | 99,424 | 7 | 99,420 | 7,757,425 | 78.02 |
| 9 | .000060 | 99,306 | 6 | 99,303 | 7,246,260 | 72.97 | 9 | .000071 | 99,417 | 7 | 99,413 | 7,658,005 | 77.03 |
| 10 | .000073 | 99,301 | 7 | 99,297 | 7,146,956 | 71.97 | 10 | .000068 | 99,410 | 7 | 99,406 | 7,558,591 | 76.03 |
| 11 | .000071 | 99,293 | 7 | 99,290 | 7,047,659 | 70.98 | 11 | .000069 | 99,403 | 7 | 99,400 | 7,459,185 | 75.04 |
| 12 | .000109 | 99,286 | 11 | 99,281 | 6,948,370 | 69.98 | 12 | .000094 | 99,396 | 9 | 99,391 | 7,359,785 | 74.05 |
| 13 | .000162 | 99,275 | 16 | 99,267 | 6,849,089 | 68.99 | 13 | .000113 | 99,387 | 11 | 99,381 | 7,260,394 | 73.05 |
| 14 | .000228 | 99,259 | 23 | 99,248 | 6,749,821 | 68.00 | 14 | .000137 | 99,376 | 14 | 99,369 | 7,161,013 | 72.06 |
| 15 | .000286 | 99,237 | 28 | 99,223 | 6,650,573 | 67.02 | 15 | .000187 | 99,362 | 19 | 99,353 | 7,061,644 | 71.07 |
| 16 | .000402 | 99,208 | 40 | 99,188 | 6,551,351 | 66.04 | 16 | .000213 | 99,343 | 21 | 99,333 | 6,962,292 | 70.08 |
| 17 | .000401 | 99,169 | 40 | 99,149 | 6,452,162 | 65.06 | 17 | .000230 | 99,322 | 23 | 99,311 | 6,862,959 | 69.10 |
| 18 | .000485 | 99,129 | 48 | 99,105 | 6,353,014 | 64.09 | 18 | .000241 | 99,299 | 24 | 99,287 | 6,763,648 | 68.11 |
| 19 | .000518 | 99,081 | 51 | 99,055 | 6,253,909 | 63.12 | 19 | .000234 | 99,275 | 23 | 99,264 | 6,664,361 | 67.13 |
| 20 | .000584 | 99,029 | 58 | 99,000 | 6,154,854 | 62.15 | 20 | .000257 | 99,252 | 26 | 99,239 | 6,565,097 | 66.15 |
| 21 | .000530 | 98,971 | 52 | 98,945 | 6,055,854 | 61.19 | 21 | .000252 | 99,227 | 25 | 99,214 | 6,465,857 | 65.16 |
| 22 | .000596 | 98,919 | 59 | 98,890 | 5,956,909 | 60.22 | 22 | .000249 | 99,202 | 25 | 99,189 | 6,366,643 | 64.18 |
| 23 | .000605 | 98,860 | 60 | 98,830 | 5,858,019 | 59.26 | 23 | .000254 | 99,177 | 25 | 99,164 | 6,267,454 | 63.19 |
| 24 | .000632 | 98,800 | 62 | 98,769 | 5,759,189 | 58.29 | 24 | .000260 | 99,152 | 26 | 99,139 | 6,168,290 | 62.21 |
| 25 | .000682 | 98,738 | 67 | 98,704 | 5,660,420 | 57.33 | 25 | .000241 | 99,126 | 24 | 99,114 | 6,069,151 | 61.23 |
| 26 | .000677 | 98,671 | 67 | 98,637 | 5,561,716 | 56.37 | 26 | .000246 | 99,102 | 24 | 99,090 | 5,970,037 | 60.24 |
| 27 | .000671 | 98,604 | 66 | 98,571 | 5,463,078 | 55.40 | 27 | .000258 | 99,078 | 26 | 99,065 | 5,870,947 | 59.26 |
| 28 | .000679 | 98,538 | 67 | 98,504 | 5,364,508 | 54.44 | 28 | .000262 | 99,052 | 26 | 99,039 | 5,771,882 | 58.27 |
| 29 | .000692 | 98,471 | 68 | 98,437 | 5,266,004 | 53.48 | 29 | .000275 | 99,026 | 27 | 99,013 | 5,672,843 | 57.29 |
| 30 | .000945 | 98,402 | 93 | 98,356 | 5,167,567 | 52.51 | 30 | .000372 | 98,999 | 37 | 98,981 | 5,573,830 | 56.30 |
| 31 | .000972 | 98,309 | 96 | 98,262 | 5,069,211 | 51.56 | 31 | .000384 | 98,962 | 38 | 98,943 | 5,474,850 | 55.32 |
| 32 | .001007 | 98,214 | 99 | 98,164 | 4,970,950 | 50.61 | 32 | .000414 | 98,924 | 41 | 98,904 | 5,375,906 | 54.34 |
| 33 | .001040 | 98,115 | 102 | 98,064 | 4,872,785 | 49.66 | 33 | .000443 | 98,883 | 44 | 98,861 | 5,277,003 | 53.37 |
| 34 | .001081 | 98,013 | 106 | 97,960 | 4,774,721 | 48.72 | 34 | .000480 | 98,839 | 47 | 98,816 | 5,178,141 | 52.39 |
| 35 | .001222 | 97,907 | 120 | 97,847 | 4,676,761 | 47.77 | 35 | .000525 | 98,792 | 52 | 98,766 | 5,079,326 | 51.41 |
| 36 | .001274 | 97,787 | 125 | 97,725 | 4,578,914 | 46.83 | 36 | .000569 | 98,740 | 56 | 98,712 | 4,980,560 | 50.44 |
| 37 | .001331 | 97,663 | 130 | 97,598 | 4,481,189 | 45.88 | 37 | .000620 | 98,684 | 61 | 98,653 | 4,881,848 | 49.47 |
| 38 | .001380 | 97,533 | 135 | 97,465 | 4,383,591 | 44.94 | 38 | .000659 | 98,623 | 65 | 98,590 | 4,783,194 | 48.50 |
| 39 | .001427 | 97,398 | 139 | 97,329 | 4,286,126 | 44.01 | 39 | .000698 | 98,558 | 69 | 98,524 | 4,684,604 | 47.53 |
| 40 | .001484 | 97,259 | 144 | 97,187 | 4,188,797 | 43.07 | 40 | .000741 | 98,489 | 73 | 98,453 | 4,586,080 | 46.56 |
| 41 | .001561 | 97,115 | 152 | 97,039 | 4,091,610 | 42.13 | 41 | .000802 | 98,416 | 79 | 98,377 | 4,487,628 | 45.60 |
| 42 | .001657 | 96,963 | 161 | 96,883 | 3,994,571 | 41.20 | 42 | .000879 | 98,337 | 86 | 98,294 | 4,389,251 | 44.63 |
| 43 | .001794 | 96,803 | 174 | 96,716 | 3,897,688 | 40.26 | 43 | .000973 | 98,251 | 96 | 98,203 | 4,290,957 | 43.67 |
| 44 | .001949 | 96,629 | 188 | 96,535 | 3,800,972 | 39.34 | 44 | .001091 | 98,155 | 107 | 98,102 | 4,192,754 | 42.72 |
| 45 | .001585 | 96,441 | 153 | 96,364 | 3,704,438 | 38.41 | 45 | .001030 | 98,048 | 101 | 97,998 | 4,094,652 | 41.76 |
| 46 | .001772 | 96,288 | 171 | 96,202 | 3,608,073 | 37.47 | 46 | .001146 | 97,947 | 112 | 97,891 | 3,996,654 | 40.80 |
| 47 | .001944 | 96,117 | 187 | 96,024 | 3,511,871 | 36.54 | 47 | .001276 | 97,835 | 125 | 97,773 | 3,898,763 | 39.85 |
| 48 | .002126 | 95,930 | 204 | 95,828 | 3,415,847 | 35.61 | 48 | .001403 | 97,710 | 137 | 97,642 | 3,800,991 | 38.90 |
| 49 | .002323 | 95,726 | 222 | 95,615 | 3,320,019 | 34.68 | 49 | .001535 | 97,573 | 150 | 97,498 | 3,703,349 | 37.95 |
| 50 | .002423 | 95,504 | 231 | 95,388 | 3,224,404 | 33.76 | 50 | .001715 | 97,423 | 167 | 97,340 | 3,605,851 | 37.01 |
| 51 | .002661 | 95,273 | 253 | 95,146 | 3,129,015 | 32.84 | 51 | .001872 | 97,256 | 182 | 97,165 | 3,508,512 | 36.07 |
| 52 | .002938 | 95,019 | 279 | 94,879 | 3,033,870 | 31.93 | 52 | .002053 | 97,074 | 199 | 96,974 | 3,411,346 | 35.14 |
| 53 | .003244 | 94,740 | 307 | 94,586 | 2,938,990 | 31.02 | 53 | .002242 | 96,875 | 217 | 96,766 | 3,314,372 | 34.21 |
| 54 | .003573 | 94,433 | 337 | 94,264 | 2,844,404 | 30.12 | 54 | .002451 | 96,658 | 237 | 96,539 | 3,217,606 | 33.29 |

# Born in 2000 (Continued)

| Male | | | | | | | Female | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ | X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ |
| 55 | .003645 | 94,095 | 343 | 93,924 | 2,750,140 | 29.23 | 55 | .002736 | 96,421 | 264 | 96,289 | 3,121,067 | 32.37 |
| 56 | .004023 | 93,752 | 377 | 93,564 | 2,656,216 | 28.33 | 56 | .002986 | 96,157 | 287 | 96,013 | 3,024,778 | 31.46 |
| 57 | .004446 | 93,375 | 415 | 93,167 | 2,562,653 | 27.44 | 57 | .003256 | 95,870 | 312 | 95,714 | 2,928,765 | 30.55 |
| 58 | .004914 | 92,960 | 457 | 92,732 | 2,469,485 | 26.57 | 58 | .003536 | 95,558 | 338 | 95,389 | 2,833,051 | 29.65 |
| 59 | .005428 | 92,503 | 502 | 92,252 | 2,376,754 | 25.69 | 59 | .003833 | 95,220 | 365 | 95,037 | 2,737,662 | 28.75 |
| 60 | .005956 | 92,001 | 548 | 91,727 | 2,284,502 | 24.83 | 60 | .004256 | 94,855 | 404 | 94,653 | 2,642,625 | 27.86 |
| 61 | .006549 | 91,453 | 599 | 91,154 | 2,192,774 | 23.98 | 61 | .004617 | 94,451 | 436 | 94,233 | 2,547,972 | 26.98 |
| 62 | .007182 | 90,854 | 653 | 90,528 | 2,101,621 | 23.13 | 62 | .005038 | 94,015 | 474 | 93,778 | 2,453,739 | 26.10 |
| 63 | .007840 | 90,202 | 707 | 89,848 | 2,011,093 | 22.30 | 63 | .005492 | 93,541 | 514 | 93,284 | 2,359,961 | 25.23 |
| 64 | .008526 | 89,495 | 763 | 89,113 | 1,921,245 | 21.47 | 64 | .005971 | 93,028 | 555 | 92,750 | 2,266,677 | 24.37 |
| 65 | .009807 | 88,732 | 870 | 88,296 | 1,832,132 | 20.65 | 65 | .006540 | 92,472 | 605 | 92,170 | 2,173,927 | 23.51 |
| 66 | .010662 | 87,861 | 937 | 87,393 | 1,743,835 | 19.85 | 66 | .007136 | 91,867 | 656 | 91,540 | 2,081,757 | 22.66 |
| 67 | .011613 | 86,925 | 1,009 | 86,420 | 1,656,442 | 19.06 | 67 | .007800 | 91,212 | 711 | 90,856 | 1,990,218 | 21.82 |
| 68 | .012637 | 85,915 | 1,086 | 85,372 | 1,570,023 | 18.27 | 68 | .008514 | 90,500 | 770 | 90,115 | 1,899,361 | 20.99 |
| 69 | .013708 | 84,829 | 1,163 | 84,248 | 1,484,651 | 17.50 | 69 | .009246 | 89,730 | 830 | 89,315 | 1,809,246 | 20.16 |
| 70 | .016701 | 83,667 | 1,397 | 82,968 | 1,400,403 | 16.74 | 70 | .010536 | 88,900 | 937 | 88,432 | 1,719,931 | 19.35 |
| 71 | .018161 | 82,269 | 1,494 | 81,522 | 1,317,435 | 16.01 | 71 | .011528 | 87,964 | 1,014 | 87,457 | 1,631,499 | 18.55 |
| 72 | .019820 | 80,775 | 1,601 | 79,975 | 1,235,913 | 15.30 | 72 | .012694 | 86,949 | 1,104 | 86,398 | 1,544,043 | 17.76 |
| 73 | .021635 | 79,174 | 1,713 | 78,318 | 1,155,938 | 14.60 | 73 | .014005 | 85,846 | 1,202 | 85,245 | 1,457,645 | 16.98 |
| 74 | .023577 | 77,461 | 1,826 | 76,548 | 1,077,620 | 13.91 | 74 | .015416 | 84,643 | 1,305 | 83,991 | 1,372,401 | 16.21 |
| 75 | .026400 | 75,635 | 1,997 | 74,637 | 1,001,072 | 13.24 | 75 | .017495 | 83,339 | 1,458 | 82,610 | 1,288,410 | 15.46 |
| 76 | .029788 | 73,638 | 2,194 | 72,541 | 926,436 | 12.58 | 76 | .019344 | 81,881 | 1,584 | 81,089 | 1,205,800 | 14.73 |
| 77 | .032554 | 71,445 | 2,326 | 70,282 | 853,894 | 11.95 | 77 | .021469 | 80,297 | 1,724 | 79,435 | 1,124,711 | 14.01 |
| 78 | .035585 | 69,119 | 2,460 | 67,889 | 783,613 | 11.34 | 78 | .023820 | 78,573 | 1,872 | 77,637 | 1,045,277 | 13.30 |
| 79 | .038838 | 66,659 | 2,589 | 65,365 | 715,724 | 10.74 | 79 | .026355 | 76,701 | 2,021 | 75,690 | 967,640 | 12.62 |
| 80 | .047184 | 64,070 | 3,023 | 62,559 | 650,359 | 10.15 | 80 | .031216 | 74,680 | 2,331 | 73,514 | 891,949 | 11.94 |
| 81 | .051375 | 61,047 | 3,136 | 59,479 | 587,800 | 9.63 | 81 | .034563 | 72,349 | 2,501 | 71,098 | 818,435 | 11.31 |
| 82 | .055874 | 57,911 | 3,236 | 56,293 | 528,321 | 9.12 | 82 | .038327 | 69,848 | 2,677 | 68,509 | 747,337 | 10.70 |
| 83 | .060663 | 54,675 | 3,317 | 53,017 | 472,028 | 8.63 | 83 | .042460 | 67,171 | 2,852 | 65,745 | 678,827 | 10.11 |
| 84 | .065717 | 51,358 | 3,375 | 49,671 | 419,012 | 8.16 | 84 | .046910 | 64,319 | 3,017 | 62,810 | 613,082 | 9.53 |
| 85 | .078562 | 47,983 | 3,770 | 46,098 | 369,341 | 7.70 | 85 | .055195 | 61,302 | 3,384 | 59,610 | 550,272 | 8.98 |
| 86 | .084738 | 44,214 | 3,747 | 42,340 | 323,242 | 7.31 | 86 | .060839 | 57,918 | 3,524 | 56,156 | 490,662 | 8.47 |
| 87 | .091287 | 40,467 | 3,694 | 38,620 | 280,902 | 6.94 | 87 | .067059 | 54,394 | 3,648 | 52,571 | 434,506 | 7.99 |
| 88 | .098177 | 36,773 | 3,610 | 34,968 | 242,282 | 6.59 | 88 | .073793 | 50,747 | 3,745 | 48,874 | 381,935 | 7.53 |
| 89 | .105391 | 33,163 | 3,495 | 31,415 | 207,314 | 6.25 | 89 | .080971 | 47,002 | 3,806 | 45,099 | 333,061 | 7.09 |
| 90 | .112942 | 29,668 | 3,351 | 27,992 | 175,899 | 5.93 | 90 | .088682 | 43,196 | 3,831 | 41,281 | 287,962 | 6.67 |
| 91 | .120865 | 26,317 | 3,181 | 24,726 | 147,907 | 5.62 | 91 | .096990 | 39,366 | 3,818 | 37,457 | 246,681 | 6.27 |
| 92 | .129186 | 23,136 | 2,989 | 21,642 | 123,180 | 5.32 | 92 | .105991 | 35,547 | 3,768 | 33,664 | 209,224 | 5.89 |
| 93 | .137874 | 20,147 | 2,778 | 18,758 | 101,539 | 5.04 | 93 | .115605 | 31,780 | 3,674 | 29,943 | 175,561 | 5.52 |
| 94 | .146903 | 17,369 | 2,552 | 16,094 | 82,780 | 4.77 | 94 | .125773 | 28,106 | 3,535 | 26,338 | 145,618 | 5.18 |
| 95 | .156298 | 14,818 | 2,316 | 13,660 | 66,687 | 4.50 | 95 | .136569 | 24,571 | 3,356 | 22,893 | 119,279 | 4.85 |
| 96 | .166086 | 12,502 | 2,076 | 11,464 | 53,027 | 4.24 | 96 | .148065 | 21,215 | 3,141 | 19,645 | 96,386 | 4.54 |
| 97 | .176288 | 10,425 | 1,838 | 9,507 | 41,563 | 3.99 | 97 | .160351 | 18,074 | 2,898 | 16,625 | 76,742 | 4.25 |
| 98 | .186877 | 8,588 | 1,605 | 7,785 | 32,057 | 3.73 | 98 | .173340 | 15,176 | 2,631 | 13,861 | 60,117 | 3.96 |
| 99 | .197827 | 6,983 | 1,381 | 6,292 | 24,272 | 3.48 | 99 | .186981 | 12,545 | 2,346 | 11,372 | 46,256 | 3.69 |
| 100 | .225976 | 5,601 | 1,266 | 4,968 | 17,980 | 3.21 | 100 | .202556 | 10,200 | 2,066 | 9,167 | 34,884 | 3.42 |
| 101 | .238786 | 4,336 | 1,035 | 3,818 | 13,011 | 3.00 | 101 | .217757 | 8,134 | 1,771 | 7,248 | 25,717 | 3.16 |
| 102 | .252075 | 3,300 | 832 | 2,884 | 9,193 | 2.79 | 102 | .233828 | 6,362 | 1,488 | 5,619 | 18,469 | 2.90 |
| 103 | .265820 | 2,468 | 656 | 2,140 | 6,309 | 2.56 | 103 | .250692 | 4,875 | 1,222 | 4,264 | 12,851 | 2.64 |
| 104 | .279984 | 1,812 | 507 | 1,559 | 4,169 | 2.30 | 104 | .268279 | 3,653 | 980 | 3,163 | 8,587 | 2.35 |
| 105 | .294599 | 1,305 | 384 | 1,113 | 2,610 | 2.00 | 105 | .286661 | 2,673 | 766 | 2,290 | 5,424 | 2.03 |
| 106 | .374574 | 920 | 345 | 748 | 1,497 | 1.63 | 106 | .369890 | 1,907 | 705 | 1,554 | 3,135 | 1.64 |
| 107 | .453808 | 576 | 261 | 445 | 749 | 1.30 | 107 | .447335 | 1,201 | 537 | 933 | 1,581 | 1.32 |
| 108 | .532326 | 314 | 167 | 231 | 304 | 0.97 | 108 | .524122 | 664 | 348 | 490 | 648 | 0.98 |
| 109 | 1.000000 | 147 | 147 | 74 | 74 | 0.50 | 109 | 1.000000 | 316 | 316 | 158 | 158 | 0.50 |

# Born in 2010

| Male | | | | | | | Female | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ | X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ |
| 0 | .004274 | 100,000 | 427 | 99,658 | 8,219,380 | 82.19 | 0 | .003649 | 100,000 | 365 | 99,708 | 8,614,716 | 86.15 |
| 1 | .000268 | 99,573 | 27 | 99,559 | 8,119,722 | 81.55 | 1 | .000306 | 99,635 | 31 | 99,620 | 8,515,008 | 85.46 |
| 2 | .000207 | 99,546 | 21 | 99,536 | 8,020,163 | 80.57 | 2 | .000196 | 99,605 | 20 | 99,595 | 8,415,389 | 84.49 |
| 3 | .000175 | 99,525 | 17 | 99,517 | 7,920,628 | 79.58 | 3 | .000151 | 99,585 | 15 | 99,578 | 8,315,794 | 83.50 |
| 4 | .000126 | 99,508 | 12 | 99,502 | 7,821,111 | 78.60 | 4 | .000113 | 99,570 | 11 | 99,564 | 8,216,216 | 82.52 |
| 5 | .000087 | 99,495 | 9 | 99,491 | 7,721,609 | 77.61 | 5 | .000083 | 99,559 | 8 | 99,555 | 8,116,652 | 81.53 |
| 6 | .000071 | 99,487 | 7 | 99,483 | 7,622,118 | 76.61 | 6 | .000076 | 99,551 | 8 | 99,547 | 8,017,097 | 80.53 |
| 7 | .000061 | 99,480 | 6 | 99,477 | 7,522,635 | 75.62 | 7 | .000069 | 99,543 | 7 | 99,540 | 7,917,550 | 79.54 |
| 8 | .000051 | 99,474 | 5 | 99,471 | 7,423,158 | 74.62 | 8 | .000063 | 99,536 | 6 | 99,533 | 7,818,011 | 78.54 |
| 9 | .000050 | 99,469 | 5 | 99,466 | 7,323,687 | 73.63 | 9 | .000062 | 99,530 | 6 | 99,527 | 7,718,478 | 77.55 |
| 10 | .000062 | 99,464 | 6 | 99,460 | 7,224,221 | 72.63 | 10 | .000061 | 99,524 | 6 | 99,521 | 7,618,951 | 76.55 |
| 11 | .000062 | 99,457 | 6 | 99,454 | 7,124,761 | 71.64 | 11 | .000063 | 99,518 | 6 | 99,514 | 7,519,431 | 75.56 |
| 12 | .000096 | 99,451 | 10 | 99,446 | 7,025,306 | 70.64 | 12 | .000086 | 99,511 | 9 | 99,507 | 7,419,916 | 74.56 |
| 13 | .000144 | 99,442 | 14 | 99,435 | 6,925,860 | 69.65 | 13 | .000103 | 99,503 | 10 | 99,498 | 7,320,409 | 73.57 |
| 14 | .000205 | 99,427 | 20 | 99,417 | 6,826,425 | 68.66 | 14 | .000126 | 99,492 | 13 | 99,486 | 7,220,912 | 72.58 |
| 15 | .000260 | 99,407 | 26 | 99,394 | 6,727,008 | 67.67 | 15 | .000173 | 99,480 | 17 | 99,471 | 7,121,425 | 71.59 |
| 16 | .000370 | 99,381 | 37 | 99,363 | 6,627,614 | 66.69 | 16 | .000199 | 99,463 | 20 | 99,453 | 7,021,954 | 70.60 |
| 17 | .000370 | 99,344 | 37 | 99,326 | 6,528,251 | 65.71 | 17 | .000215 | 99,443 | 21 | 99,432 | 6,922,501 | 69.61 |
| 18 | .000451 | 99,308 | 45 | 99,285 | 6,428,925 | 64.74 | 18 | .000227 | 99,422 | 23 | 99,410 | 6,823,069 | 68.63 |
| 19 | .000483 | 99,263 | 48 | 99,239 | 6,329,640 | 63.77 | 19 | .000221 | 99,399 | 22 | 99,388 | 6,723,659 | 67.64 |
| 20 | .000548 | 99,215 | 54 | 99,188 | 6,230,401 | 62.80 | 20 | .000243 | 99,377 | 24 | 99,365 | 6,624,271 | 66.66 |
| 21 | .000497 | 99,161 | 49 | 99,136 | 6,131,213 | 61.83 | 21 | .000239 | 99,353 | 24 | 99,341 | 6,524,905 | 65.67 |
| 22 | .000559 | 99,111 | 55 | 99,084 | 6,032,077 | 60.86 | 22 | .000236 | 99,329 | 23 | 99,318 | 6,425,564 | 64.69 |
| 23 | .000567 | 99,056 | 56 | 99,028 | 5,932,994 | 59.90 | 23 | .000241 | 99,306 | 24 | 99,294 | 6,326,247 | 63.70 |
| 24 | .000593 | 99,000 | 59 | 98,970 | 5,833,966 | 58.93 | 24 | .000246 | 99,282 | 24 | 99,270 | 6,226,953 | 62.72 |
| 25 | .000639 | 98,941 | 63 | 98,909 | 5,734,995 | 57.96 | 25 | .000228 | 99,258 | 23 | 99,246 | 6,127,683 | 61.74 |
| 26 | .000635 | 98,878 | 63 | 98,846 | 5,636,086 | 57.00 | 26 | .000233 | 99,235 | 23 | 99,223 | 6,028,437 | 60.75 |
| 27 | .000629 | 98,815 | 62 | 98,784 | 5,537,240 | 56.04 | 27 | .000245 | 99,212 | 24 | 99,200 | 5,929,213 | 59.76 |
| 28 | .000636 | 98,753 | 63 | 98,721 | 5,438,456 | 55.07 | 28 | .000248 | 99,188 | 25 | 99,175 | 5,830,014 | 58.78 |
| 29 | .000649 | 98,690 | 64 | 98,658 | 5,339,734 | 54.11 | 29 | .000262 | 99,163 | 26 | 99,150 | 5,730,839 | 57.79 |
| 30 | .000885 | 98,626 | 87 | 98,582 | 5,241,076 | 53.14 | 30 | .000354 | 99,137 | 35 | 99,119 | 5,631,689 | 56.81 |
| 31 | .000911 | 98,539 | 90 | 98,494 | 5,142,494 | 52.19 | 31 | .000365 | 99,102 | 36 | 99,084 | 5,532,569 | 55.83 |
| 32 | .000943 | 98,449 | 93 | 98,403 | 5,044,000 | 51.23 | 32 | .000393 | 99,066 | 39 | 99,046 | 5,433,485 | 54.85 |
| 33 | .000974 | 98,356 | 96 | 98,308 | 4,945,597 | 50.28 | 33 | .000421 | 99,027 | 42 | 99,006 | 5,334,439 | 53.87 |
| 34 | .001013 | 98,260 | 100 | 98,211 | 4,847,289 | 49.33 | 34 | .000456 | 98,985 | 45 | 98,963 | 5,235,433 | 52.89 |
| 35 | .001145 | 98,161 | 112 | 98,105 | 4,749,079 | 48.38 | 35 | .000499 | 98,940 | 49 | 98,915 | 5,136,471 | 51.92 |
| 36 | .001194 | 98,048 | 117 | 97,990 | 4,650,974 | 47.44 | 36 | .000541 | 98,891 | 53 | 98,864 | 5,037,555 | 50.94 |
| 37 | .001247 | 97,931 | 122 | 97,870 | 4,552,984 | 46.49 | 37 | .000589 | 98,837 | 58 | 98,808 | 4,938,691 | 49.97 |
| 38 | .001293 | 97,809 | 126 | 97,746 | 4,455,114 | 45.55 | 38 | .000627 | 98,779 | 62 | 98,748 | 4,839,884 | 49.00 |
| 39 | .001337 | 97,683 | 131 | 97,617 | 4,357,368 | 44.61 | 39 | .000663 | 98,717 | 65 | 98,684 | 4,741,136 | 48.03 |
| 40 | .001390 | 97,552 | 136 | 97,484 | 4,259,750 | 43.67 | 40 | .000705 | 98,651 | 69 | 98,617 | 4,642,452 | 47.06 |
| 41 | .001462 | 97,417 | 142 | 97,345 | 4,162,266 | 42.73 | 41 | .000763 | 98,582 | 75 | 98,544 | 4,543,835 | 46.09 |
| 42 | .001552 | 97,274 | 151 | 97,199 | 4,064,920 | 41.79 | 42 | .000836 | 98,507 | 82 | 98,466 | 4,445,290 | 45.13 |
| 43 | .001680 | 97,123 | 163 | 97,042 | 3,967,722 | 40.85 | 43 | .000925 | 98,424 | 91 | 98,379 | 4,346,825 | 44.16 |
| 44 | .001826 | 96,960 | 177 | 96,871 | 3,870,680 | 39.92 | 44 | .001038 | 98,333 | 102 | 98,282 | 4,248,446 | 43.20 |
| 45 | .001485 | 96,783 | 144 | 96,711 | 3,773,809 | 38.99 | 45 | .000980 | 98,231 | 96 | 98,183 | 4,150,164 | 42.25 |
| 46 | .001668 | 96,639 | 161 | 96,559 | 3,677,098 | 38.05 | 46 | .001089 | 98,135 | 107 | 98,082 | 4,051,981 | 41.29 |
| 47 | .001831 | 96,478 | 177 | 96,390 | 3,580,539 | 37.11 | 47 | .001213 | 98,028 | 119 | 97,969 | 3,953,899 | 40.33 |
| 48 | .002002 | 96,301 | 193 | 96,205 | 3,484,149 | 36.18 | 48 | .001334 | 97,909 | 131 | 97,844 | 3,855,930 | 39.38 |
| 49 | .002188 | 96,109 | 210 | 96,004 | 3,387,944 | 35.25 | 49 | .001460 | 97,779 | 143 | 97,707 | 3,758,086 | 38.43 |
| 50 | .002281 | 95,898 | 219 | 95,789 | 3,291,941 | 34.33 | 50 | .001631 | 97,636 | 159 | 97,556 | 3,660,379 | 37.49 |
| 51 | .002505 | 95,680 | 240 | 95,560 | 3,196,152 | 33.40 | 51 | .001780 | 97,477 | 174 | 97,390 | 3,562,823 | 36.55 |
| 52 | .002766 | 95,440 | 264 | 95,308 | 3,100,592 | 32.49 | 52 | .001952 | 97,303 | 190 | 97,208 | 3,465,433 | 35.61 |
| 53 | .003055 | 95,176 | 291 | 95,031 | 3,005,284 | 31.58 | 53 | .002133 | 97,113 | 207 | 97,010 | 3,368,225 | 34.68 |
| 54 | .003364 | 94,885 | 319 | 94,726 | 2,910,253 | 30.67 | 54 | .002332 | 96,906 | 226 | 96,793 | 3,271,216 | 33.76 |

# Born in 2010 (Continued)

| Male | | | | | | | Female | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ | X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ |
| 55 | .003432 | 94,566 | 325 | 94,404 | 2,815,528 | 29.77 | 55 | .002602 | 96,680 | 252 | 96,554 | 3,174,423 | 32.83 |
| 56 | .003788 | 94,241 | 357 | 94,063 | 2,721,124 | 28.87 | 56 | .002841 | 96,428 | 274 | 96,292 | 3,077,868 | 31.92 |
| 57 | .004186 | 93,885 | 393 | 93,688 | 2,627,061 | 27.98 | 57 | .003097 | 96,155 | 298 | 96,006 | 2,981,577 | 31.01 |
| 58 | .004627 | 93,492 | 433 | 93,275 | 2,533,373 | 27.10 | 58 | .003363 | 95,857 | 322 | 95,696 | 2,885,571 | 30.10 |
| 59 | .005111 | 93,059 | 476 | 92,821 | 2,440,098 | 26.22 | 59 | .003646 | 95,534 | 348 | 95,360 | 2,789,875 | 29.20 |
| 60 | .005609 | 92,583 | 519 | 92,324 | 2,347,277 | 25.35 | 60 | .004049 | 95,186 | 385 | 94,993 | 2,694,515 | 28.31 |
| 61 | .006167 | 92,064 | 568 | 91,780 | 2,254,953 | 24.49 | 61 | .004392 | 94,801 | 416 | 94,593 | 2,599,522 | 27.42 |
| 62 | .006763 | 91,496 | 619 | 91,187 | 2,163,173 | 23.64 | 62 | .004792 | 94,384 | 452 | 94,158 | 2,504,929 | 26.54 |
| 63 | .007382 | 90,878 | 671 | 90,542 | 2,071,986 | 22.80 | 63 | .005223 | 93,932 | 491 | 93,687 | 2,410,771 | 25.67 |
| 64 | .008028 | 90,207 | 724 | 89,845 | 1,981,443 | 21.97 | 64 | .005679 | 93,442 | 531 | 93,176 | 2,317,084 | 24.80 |
| 65 | .009236 | 89,483 | 826 | 89,069 | 1,891,599 | 21.14 | 65 | .006221 | 92,911 | 578 | 92,622 | 2,223,908 | 23.94 |
| 66 | .010040 | 88,656 | 890 | 88,211 | 1,802,529 | 20.33 | 66 | .006788 | 92,333 | 627 | 92,020 | 2,131,286 | 23.08 |
| 67 | .010936 | 87,766 | 960 | 87,286 | 1,714,318 | 19.53 | 67 | .007419 | 91,706 | 680 | 91,366 | 2,039,266 | 22.24 |
| 68 | .011900 | 86,806 | 1,033 | 86,290 | 1,627,032 | 18.74 | 68 | .008098 | 91,026 | 737 | 90,657 | 1,947,900 | 21.40 |
| 69 | .012909 | 85,773 | 1,107 | 85,220 | 1,540,742 | 17.96 | 69 | .008794 | 90,289 | 794 | 89,892 | 1,857,243 | 20.57 |
| 70 | .015728 | 84,666 | 1,332 | 84,000 | 1,455,523 | 17.19 | 70 | .010021 | 89,495 | 897 | 89,046 | 1,767,351 | 19.75 |
| 71 | .017102 | 83,334 | 1,425 | 82,622 | 1,371,523 | 16.46 | 71 | .010965 | 88,598 | 971 | 88,112 | 1,678,305 | 18.94 |
| 72 | .018664 | 81,909 | 1,529 | 81,145 | 1,288,901 | 15.74 | 72 | .012073 | 87,626 | 1,058 | 87,097 | 1,590,193 | 18.15 |
| 73 | .020373 | 80,380 | 1,638 | 79,562 | 1,207,756 | 15.03 | 73 | .013320 | 86,568 | 1,153 | 85,992 | 1,503,096 | 17.36 |
| 74 | .022202 | 78,743 | 1,748 | 77,869 | 1,128,194 | 14.33 | 74 | .014662 | 85,415 | 1,252 | 84,789 | 1,417,104 | 16.59 |
| 75 | .024860 | 76,995 | 1,914 | 76,038 | 1,050,325 | 13.64 | 75 | .016640 | 84,163 | 1,400 | 83,463 | 1,332,315 | 15.83 |
| 76 | .028192 | 75,080 | 2,117 | 74,022 | 974,288 | 12.98 | 76 | .018398 | 82,763 | 1,523 | 82,001 | 1,248,852 | 15.09 |
| 77 | .030809 | 72,964 | 2,248 | 71,840 | 900,266 | 12.34 | 77 | .020419 | 81,240 | 1,659 | 80,411 | 1,166,851 | 14.36 |
| 78 | .033677 | 70,716 | 2,382 | 69,525 | 828,426 | 11.71 | 78 | .022655 | 79,581 | 1,803 | 78,680 | 1,086,440 | 13.65 |
| 79 | .036756 | 68,334 | 2,512 | 67,079 | 758,901 | 11.11 | 79 | .025066 | 77,778 | 1,950 | 76,803 | 1,007,761 | 12.96 |
| 80 | .044655 | 65,823 | 2,939 | 64,353 | 691,822 | 10.51 | 80 | .029689 | 75,829 | 2,251 | 74,703 | 930,957 | 12.28 |
| 81 | .048621 | 62,883 | 3,057 | 61,355 | 627,469 | 9.98 | 81 | .032873 | 73,577 | 2,419 | 72,368 | 856,254 | 11.64 |
| 82 | .052878 | 59,826 | 3,163 | 58,244 | 566,114 | 9.46 | 82 | .036452 | 71,159 | 2,594 | 69,862 | 783,886 | 11.02 |
| 83 | .057410 | 56,663 | 3,253 | 55,036 | 507,870 | 8.96 | 83 | .040383 | 68,565 | 2,769 | 67,180 | 714,024 | 10.41 |
| 84 | .062192 | 53,410 | 3,322 | 51,749 | 452,834 | 8.48 | 84 | .044615 | 65,796 | 2,936 | 64,328 | 646,844 | 9.83 |
| 85 | .074348 | 50,088 | 3,724 | 48,226 | 401,085 | 8.01 | 85 | .052491 | 62,860 | 3,300 | 61,211 | 582,516 | 9.27 |
| 86 | .080193 | 46,364 | 3,718 | 44,505 | 352,859 | 7.61 | 86 | .057859 | 59,561 | 3,446 | 57,838 | 521,305 | 8.75 |
| 87 | .086390 | 42,646 | 3,684 | 40,804 | 308,355 | 7.23 | 87 | .063774 | 56,115 | 3,579 | 54,325 | 463,468 | 8.26 |
| 88 | .092909 | 38,962 | 3,620 | 37,152 | 267,551 | 6.87 | 88 | .070177 | 52,536 | 3,687 | 50,693 | 409,142 | 7.79 |
| 89 | .099736 | 35,342 | 3,525 | 33,579 | 230,399 | 6.52 | 89 | .077004 | 48,849 | 3,762 | 46,968 | 358,450 | 7.34 |
| 90 | .106882 | 31,817 | 3,401 | 30,117 | 196,820 | 6.19 | 90 | .084336 | 45,088 | 3,803 | 43,186 | 311,481 | 6.91 |
| 91 | .114379 | 28,416 | 3,250 | 26,791 | 166,703 | 5.87 | 91 | .092237 | 41,285 | 3,808 | 39,381 | 268,295 | 6.50 |
| 92 | .122253 | 25,166 | 3,077 | 23,628 | 139,912 | 5.56 | 92 | .100796 | 37,477 | 3,778 | 35,588 | 228,914 | 6.11 |
| 93 | .130474 | 22,089 | 2,882 | 20,648 | 116,284 | 5.26 | 93 | .109939 | 33,700 | 3,705 | 31,847 | 193,325 | 5.74 |
| 94 | .139017 | 19,207 | 2,670 | 17,872 | 95,636 | 4.98 | 94 | .119608 | 29,995 | 3,588 | 28,201 | 161,478 | 5.38 |
| 95 | .147907 | 16,537 | 2,446 | 15,314 | 77,763 | 4.70 | 95 | .129874 | 26,407 | 3,430 | 24,692 | 133,277 | 5.05 |
| 96 | .157170 | 14,091 | 2,215 | 12,984 | 62,449 | 4.43 | 96 | .140805 | 22,977 | 3,235 | 21,360 | 108,585 | 4.73 |
| 97 | .166823 | 11,877 | 1,981 | 10,886 | 49,465 | 4.16 | 97 | .152487 | 19,742 | 3,010 | 18,237 | 87,225 | 4.42 |
| 98 | .176841 | 9,895 | 1,750 | 9,020 | 38,579 | 3.90 | 98 | .164839 | 16,732 | 2,758 | 15,353 | 68,988 | 4.12 |
| 99 | .187203 | 8,145 | 1,525 | 7,383 | 29,559 | 3.63 | 99 | .177809 | 13,974 | 2,485 | 12,731 | 53,636 | 3.84 |
| 100 | .214916 | 6,621 | 1,423 | 5,909 | 22,176 | 3.35 | 100 | .192637 | 11,489 | 2,213 | 10,382 | 40,904 | 3.56 |
| 101 | .227097 | 5,198 | 1,180 | 4,607 | 16,267 | 3.13 | 101 | .207093 | 9,276 | 1,921 | 8,315 | 30,522 | 3.29 |
| 102 | .239733 | 4,017 | 963 | 3,536 | 11,660 | 2.90 | 102 | .222376 | 7,355 | 1,636 | 6,537 | 22,207 | 3.02 |
| 103 | .252803 | 3,054 | 772 | 2,668 | 8,124 | 2.66 | 103 | .238414 | 5,719 | 1,364 | 5,038 | 15,669 | 2.74 |
| 104 | .266271 | 2,282 | 608 | 1,978 | 5,456 | 2.39 | 104 | .255139 | 4,356 | 1,111 | 3,800 | 10,632 | 2.44 |
| 105 | .280168 | 1,674 | 469 | 1,440 | 3,477 | 2.08 | 105 | .272620 | 3,244 | 884 | 2,802 | 6,832 | 2.11 |
| 106 | .356221 | 1,205 | 429 | 991 | 2,037 | 1.69 | 106 | .351771 | 2,360 | 830 | 1,945 | 4,030 | 1.71 |
| 107 | .431565 | 776 | 335 | 609 | 1,047 | 1.35 | 107 | .425403 | 1,530 | 651 | 1,204 | 2,085 | 1.36 |
| 108 | .506224 | 441 | 223 | 329 | 438 | 0.99 | 108 | .498403 | 879 | 438 | 660 | 880 | 1.00 |
| 109 | 1.000000 | 218 | 218 | 109 | 109 | 0.50 | 109 | 1.000000 | 441 | 441 | 220 | 220 | 0.50 |

# Born in 2025

| Male | | | | | | | Female | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ | X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ |
| 0 | .003312 | 100,000 | 331 | 99,735 | 8,325,903 | 83.26 | 0 | .002910 | 100,000 | 291 | 99,767 | 8,699,594 | 87.00 |
| 1 | .000209 | 99,669 | 21 | 99,658 | 8,226,168 | 82.54 | 1 | .000248 | 99,709 | 25 | 99,697 | 8,599,827 | 86.25 |
| 2 | .000165 | 99,648 | 16 | 99,640 | 8,126,509 | 81.55 | 2 | .000161 | 99,684 | 16 | 99,676 | 8,500,130 | 85.27 |
| 3 | .000141 | 99,632 | 14 | 99,625 | 8,026,870 | 80.57 | 3 | .000126 | 99,668 | 13 | 99,662 | 8,400,454 | 84.28 |
| 4 | .000103 | 99,618 | 10 | 99,612 | 7,927,245 | 79.58 | 4 | .000095 | 99,656 | 9 | 99,651 | 8,300,792 | 83.29 |
| 5 | .000073 | 99,607 | 7 | 99,604 | 7,827,633 | 78.58 | 5 | .000071 | 99,646 | 7 | 99,643 | 8,201,141 | 82.30 |
| 6 | .000060 | 99,600 | 6 | 99,597 | 7,728,029 | 77.59 | 6 | .000066 | 99,639 | 7 | 99,636 | 8,101,498 | 81.31 |
| 7 | .000052 | 99,594 | 5 | 99,591 | 7,628,432 | 76.60 | 7 | .000060 | 99,633 | 6 | 99,630 | 8,001,862 | 80.31 |
| 8 | .000044 | 99,589 | 4 | 99,587 | 7,528,841 | 75.60 | 8 | .000055 | 99,627 | 6 | 99,624 | 7,902,233 | 79.32 |
| 9 | .000044 | 99,584 | 4 | 99,582 | 7,429,254 | 74.60 | 9 | .000055 | 99,621 | 5 | 99,618 | 7,802,609 | 78.32 |
| 10 | .000055 | 99,580 | 5 | 99,577 | 7,329,672 | 73.61 | 10 | .000055 | 99,616 | 5 | 99,613 | 7,702,990 | 77.33 |
| 11 | .000054 | 99,575 | 5 | 99,572 | 7,230,094 | 72.61 | 11 | .000056 | 99,610 | 6 | 99,607 | 7,603,377 | 76.33 |
| 12 | .000084 | 99,569 | 8 | 99,565 | 7,130,522 | 71.61 | 12 | .000077 | 99,605 | 8 | 99,601 | 7,503,770 | 75.34 |
| 13 | .000126 | 99,561 | 13 | 99,555 | 7,030,957 | 70.62 | 13 | .000093 | 99,597 | 9 | 99,592 | 7,404,169 | 74.34 |
| 14 | .000182 | 99,548 | 18 | 99,539 | 6,931,403 | 69.63 | 14 | .000114 | 99,588 | 11 | 99,582 | 7,304,577 | 73.35 |
| 15 | .000232 | 99,530 | 23 | 99,519 | 6,831,863 | 68.64 | 15 | .000156 | 99,576 | 16 | 99,569 | 7,204,995 | 72.36 |
| 16 | .000332 | 99,507 | 33 | 99,491 | 6,732,345 | 67.66 | 16 | .000181 | 99,561 | 18 | 99,552 | 7,105,426 | 71.37 |
| 17 | .000333 | 99,474 | 33 | 99,458 | 6,632,854 | 66.68 | 17 | .000195 | 99,543 | 19 | 99,533 | 7,005,874 | 70.38 |
| 18 | .000408 | 99,441 | 41 | 99,421 | 6,533,397 | 65.70 | 18 | .000208 | 99,523 | 21 | 99,513 | 6,906,341 | 69.39 |
| 19 | .000437 | 99,400 | 43 | 99,379 | 6,433,976 | 64.73 | 19 | .000203 | 99,503 | 20 | 99,493 | 6,806,828 | 68.41 |
| 20 | .000498 | 99,357 | 49 | 99,332 | 6,334,597 | 63.76 | 20 | .000224 | 99,482 | 22 | 99,471 | 6,707,336 | 67.42 |
| 21 | .000453 | 99,307 | 45 | 99,285 | 6,235,265 | 62.79 | 21 | .000220 | 99,460 | 22 | 99,449 | 6,607,865 | 66.44 |
| 22 | .000509 | 99,262 | 50 | 99,237 | 6,135,980 | 61.82 | 22 | .000217 | 99,438 | 22 | 99,428 | 6,508,415 | 65.45 |
| 23 | .000517 | 99,212 | 51 | 99,186 | 6,036,743 | 60.85 | 23 | .000222 | 99,417 | 22 | 99,406 | 6,408,988 | 64.47 |
| 24 | .000539 | 99,161 | 53 | 99,134 | 5,937,557 | 59.88 | 24 | .000227 | 99,395 | 23 | 99,383 | 6,309,582 | 63.48 |
| 25 | .000581 | 99,107 | 58 | 99,078 | 5,838,423 | 58.91 | 25 | .000210 | 99,372 | 21 | 99,362 | 6,210,199 | 62.49 |
| 26 | .000577 | 99,050 | 57 | 99,021 | 5,739,344 | 57.94 | 26 | .000214 | 99,351 | 21 | 99,341 | 6,110,837 | 61.51 |
| 27 | .000572 | 98,993 | 57 | 98,964 | 5,640,323 | 56.98 | 27 | .000225 | 99,330 | 22 | 99,319 | 6,011,497 | 60.52 |
| 28 | .000578 | 98,936 | 57 | 98,907 | 5,541,359 | 56.01 | 28 | .000228 | 99,308 | 23 | 99,296 | 5,912,178 | 59.53 |
| 29 | .000590 | 98,879 | 58 | 98,850 | 5,442,451 | 55.04 | 29 | .000243 | 99,285 | 24 | 99,273 | 5,812,882 | 58.55 |
| 30 | .000802 | 98,820 | 79 | 98,781 | 5,343,602 | 54.07 | 30 | .000328 | 99,261 | 33 | 99,245 | 5,713,609 | 57.56 |
| 31 | .000825 | 98,741 | 81 | 98,700 | 5,244,821 | 53.12 | 31 | .000339 | 99,228 | 34 | 99,211 | 5,614,364 | 56.58 |
| 32 | .000854 | 98,660 | 84 | 98,617 | 5,146,121 | 52.16 | 32 | .000365 | 99,195 | 36 | 99,177 | 5,515,153 | 55.60 |
| 33 | .000883 | 98,575 | 87 | 98,532 | 5,047,503 | 51.20 | 33 | .000391 | 99,158 | 39 | 99,139 | 5,415,976 | 54.62 |
| 34 | .000917 | 98,488 | 90 | 98,443 | 4,948,971 | 50.25 | 34 | .000423 | 99,120 | 42 | 99,099 | 5,316,837 | 53.64 |
| 35 | .001039 | 98,398 | 102 | 98,347 | 4,850,528 | 49.29 | 35 | .000463 | 99,078 | 46 | 99,055 | 5,217,738 | 52.66 |
| 36 | .001083 | 98,296 | 106 | 98,243 | 4,752,181 | 48.35 | 36 | .000502 | 99,032 | 50 | 99,007 | 5,118,684 | 51.69 |
| 37 | .001131 | 98,189 | 111 | 98,134 | 4,653,939 | 47.40 | 37 | .000547 | 98,982 | 54 | 98,955 | 5,019,677 | 50.71 |
| 38 | .001172 | 98,078 | 115 | 98,021 | 4,555,805 | 46.45 | 38 | .000581 | 98,928 | 58 | 98,899 | 4,920,722 | 49.74 |
| 39 | .001213 | 97,963 | 119 | 97,904 | 4,457,784 | 45.50 | 39 | .000616 | 98,871 | 61 | 98,840 | 4,821,822 | 48.77 |
| 40 | .001259 | 97,845 | 123 | 97,783 | 4,359,880 | 44.56 | 40 | .000655 | 98,810 | 65 | 98,777 | 4,722,982 | 47.80 |
| 41 | .001324 | 97,721 | 129 | 97,657 | 4,262,097 | 43.61 | 41 | .000709 | 98,745 | 70 | 98,710 | 4,624,205 | 46.83 |
| 42 | .001406 | 97,592 | 137 | 97,523 | 4,164,440 | 42.67 | 42 | .000777 | 98,675 | 77 | 98,637 | 4,525,495 | 45.86 |
| 43 | .001522 | 97,455 | 148 | 97,381 | 4,066,917 | 41.73 | 43 | .000860 | 98,598 | 85 | 98,556 | 4,426,858 | 44.90 |
| 44 | .001654 | 97,306 | 161 | 97,226 | 3,969,537 | 40.79 | 44 | .000964 | 98,514 | 95 | 98,466 | 4,328,303 | 43.94 |
| 45 | .001346 | 97,145 | 131 | 97,080 | 3,872,311 | 39.86 | 45 | .000912 | 98,419 | 90 | 98,374 | 4,229,837 | 42.98 |
| 46 | .001524 | 97,015 | 148 | 96,941 | 3,775,231 | 38.91 | 46 | .001014 | 98,329 | 100 | 98,279 | 4,131,463 | 42.02 |
| 47 | .001672 | 96,867 | 162 | 96,786 | 3,678,290 | 37.97 | 47 | .001129 | 98,229 | 111 | 98,174 | 4,033,184 | 41.06 |
| 48 | .001829 | 96,705 | 177 | 96,616 | 3,581,504 | 37.04 | 48 | .001241 | 98,118 | 122 | 98,057 | 3,935,010 | 40.10 |
| 49 | .001999 | 96,528 | 193 | 96,431 | 3,484,888 | 36.10 | 49 | .001358 | 97,997 | 133 | 97,930 | 3,836,953 | 39.15 |
| 50 | .002083 | 96,335 | 201 | 96,235 | 3,388,456 | 35.17 | 50 | .001514 | 97,863 | 148 | 97,789 | 3,739,023 | 38.21 |
| 51 | .002288 | 96,134 | 220 | 96,024 | 3,292,222 | 34.25 | 51 | .001653 | 97,715 | 161 | 97,635 | 3,641,233 | 37.26 |
| 52 | .002526 | 95,914 | 242 | 95,793 | 3,196,197 | 33.32 | 52 | .001812 | 97,554 | 177 | 97,465 | 3,543,599 | 36.32 |
| 53 | .002790 | 95,672 | 267 | 95,539 | 3,100,404 | 32.41 | 53 | .001979 | 97,377 | 193 | 97,281 | 3,446,133 | 35.39 |
| 54 | .003072 | 95,405 | 293 | 95,259 | 3,004,865 | 31.50 | 54 | .002164 | 97,184 | 210 | 97,079 | 3,348,853 | 34.46 |

# Born in 2025 (Continued)

| Male | | | | | | | Female | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ | X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ |
| 55 | .003136 | 95,112 | 298 | 94,963 | 2,909,607 | 30.59 | 55 | .002411 | 96,974 | 234 | 96,857 | 3,251,773 | 33.53 |
| 56 | .003460 | 94,814 | 328 | 94,650 | 2,814,644 | 29.69 | 56 | .002632 | 96,740 | 255 | 96,613 | 3,154,916 | 32.61 |
| 57 | .003825 | 94,486 | 361 | 94,305 | 2,719,994 | 28.79 | 57 | .002870 | 96,486 | 277 | 96,347 | 3,058,303 | 31.70 |
| 58 | .004227 | 94,124 | 398 | 93,926 | 2,625,689 | 27.90 | 58 | .003117 | 96,209 | 300 | 96,059 | 2,961,956 | 30.79 |
| 59 | .004670 | 93,727 | 438 | 93,508 | 2,531,763 | 27.01 | 59 | .003380 | 95,909 | 324 | 95,747 | 2,865,897 | 29.88 |
| 60 | .005126 | 93,289 | 478 | 93,050 | 2,438,255 | 26.14 | 60 | .003754 | 95,585 | 359 | 95,405 | 2,770,151 | 28.98 |
| 61 | .005636 | 92,811 | 523 | 92,549 | 2,345,205 | 25.27 | 61 | .004072 | 95,226 | 388 | 95,032 | 2,674,745 | 28.09 |
| 62 | .006182 | 92,288 | 570 | 92,002 | 2,252,656 | 24.41 | 62 | .004444 | 94,838 | 421 | 94,627 | 2,579,713 | 27.20 |
| 63 | .006747 | 91,717 | 619 | 91,408 | 2,160,654 | 23.56 | 63 | .004844 | 94,417 | 457 | 94,188 | 2,485,086 | 26.32 |
| 64 | .007337 | 91,098 | 668 | 90,764 | 2,069,246 | 22.71 | 64 | .005265 | 93,959 | 495 | 93,712 | 2,390,898 | 25.45 |
| 65 | .008446 | 90,430 | 764 | 90,048 | 1,978,482 | 21.88 | 65 | .005767 | 93,465 | 539 | 93,195 | 2,297,186 | 24.58 |
| 66 | .009182 | 89,666 | 823 | 89,254 | 1,888,434 | 21.06 | 66 | .006292 | 92,926 | 585 | 92,633 | 2,203,990 | 23.72 |
| 67 | .010001 | 88,843 | 888 | 88,399 | 1,799,180 | 20.25 | 67 | .006877 | 92,341 | 635 | 92,023 | 2,111,357 | 22.86 |
| 68 | .010883 | 87,954 | 957 | 87,476 | 1,710,781 | 19.45 | 68 | .007506 | 91,706 | 688 | 91,362 | 2,019,334 | 22.02 |
| 69 | .011807 | 86,997 | 1,027 | 86,484 | 1,623,306 | 18.66 | 69 | .008152 | 91,018 | 742 | 90,647 | 1,927,972 | 21.18 |
| 70 | .014389 | 85,970 | 1,237 | 85,351 | 1,536,822 | 17.88 | 70 | .009296 | 90,276 | 839 | 89,856 | 1,837,325 | 20.35 |
| 71 | .015648 | 84,733 | 1,326 | 84,070 | 1,451,471 | 17.13 | 71 | .010171 | 89,436 | 910 | 88,982 | 1,747,469 | 19.54 |
| 72 | .017076 | 83,407 | 1,424 | 82,695 | 1,367,401 | 16.39 | 72 | .011200 | 88,527 | 992 | 88,031 | 1,658,488 | 18.73 |
| 73 | .018639 | 81,983 | 1,528 | 81,219 | 1,284,706 | 15.67 | 73 | .012358 | 87,535 | 1,082 | 86,994 | 1,570,457 | 17.94 |
| 74 | .020311 | 80,455 | 1,634 | 79,638 | 1,203,487 | 14.96 | 74 | .013603 | 86,453 | 1,176 | 85,865 | 1,483,462 | 17.16 |
| 75 | .022734 | 78,821 | 1,792 | 77,925 | 1,123,849 | 14.26 | 75 | .015438 | 85,277 | 1,316 | 84,619 | 1,397,597 | 16.39 |
| 76 | .025973 | 77,029 | 2,001 | 76,028 | 1,045,925 | 13.58 | 76 | .017069 | 83,961 | 1,433 | 83,244 | 1,312,978 | 15.64 |
| 77 | .028382 | 75,028 | 2,129 | 73,963 | 969,896 | 12.93 | 77 | .018944 | 82,528 | 1,563 | 81,746 | 1,229,733 | 14.90 |
| 78 | .031021 | 72,899 | 2,261 | 71,768 | 895,933 | 12.29 | 78 | .021019 | 80,964 | 1,702 | 80,114 | 1,147,987 | 14.18 |
| 79 | .033853 | 70,637 | 2,391 | 69,442 | 824,165 | 11.67 | 79 | .023254 | 79,263 | 1,843 | 78,341 | 1,067,874 | 13.47 |
| 80 | .041154 | 68,246 | 2,809 | 66,842 | 754,723 | 11.06 | 80 | .027546 | 77,420 | 2,133 | 76,353 | 989,533 | 12.78 |
| 81 | .044804 | 65,437 | 2,932 | 63,971 | 687,882 | 10.51 | 81 | .030498 | 75,287 | 2,296 | 74,139 | 913,179 | 12.13 |
| 82 | .048722 | 62,506 | 3,045 | 60,983 | 623,910 | 9.98 | 82 | .033818 | 72,991 | 2,468 | 71,757 | 839,040 | 11.50 |
| 83 | .052893 | 59,460 | 3,145 | 57,888 | 562,928 | 9.47 | 83 | .037464 | 70,522 | 2,642 | 69,201 | 767,284 | 10.88 |
| 84 | .057295 | 56,315 | 3,227 | 54,702 | 505,040 | 8.97 | 84 | .041390 | 67,880 | 2,810 | 66,476 | 698,082 | 10.28 |
| 85 | .068481 | 53,088 | 3,636 | 51,271 | 450,338 | 8.48 | 85 | .048724 | 65,071 | 3,171 | 63,486 | 631,607 | 9.71 |
| 86 | .073864 | 49,453 | 3,653 | 47,627 | 399,067 | 8.07 | 86 | .053706 | 61,900 | 3,324 | 60,238 | 568,121 | 9.18 |
| 87 | .079571 | 45,800 | 3,644 | 43,978 | 351,441 | 7.67 | 87 | .059196 | 58,576 | 3,467 | 56,842 | 507,883 | 8.67 |
| 88 | .085576 | 42,156 | 3,608 | 40,352 | 307,463 | 7.29 | 88 | .065139 | 55,109 | 3,590 | 53,314 | 451,041 | 8.18 |
| 89 | .091863 | 38,548 | 3,541 | 36,778 | 267,111 | 6.93 | 89 | .071474 | 51,519 | 3,682 | 49,678 | 397,727 | 7.72 |
| 90 | .098443 | 35,007 | 3,446 | 33,284 | 230,333 | 6.58 | 90 | .078279 | 47,837 | 3,745 | 45,964 | 348,049 | 7.28 |
| 91 | .105347 | 31,561 | 3,325 | 29,898 | 197,049 | 6.24 | 91 | .085611 | 44,092 | 3,775 | 42,205 | 302,085 | 6.85 |
| 92 | .112599 | 28,236 | 3,179 | 26,646 | 167,151 | 5.92 | 92 | .093554 | 40,317 | 3,772 | 38,431 | 259,880 | 6.45 |
| 93 | .120169 | 25,057 | 3,011 | 23,551 | 140,504 | 5.61 | 93 | .102038 | 36,545 | 3,729 | 34,681 | 221,449 | 6.06 |
| 94 | .128036 | 22,046 | 2,823 | 20,634 | 116,953 | 5.31 | 94 | .111011 | 32,816 | 3,643 | 30,995 | 186,768 | 5.69 |
| 95 | .136222 | 19,223 | 2,619 | 17,914 | 96,319 | 5.01 | 95 | .120537 | 29,173 | 3,516 | 27,415 | 155,774 | 5.34 |
| 96 | .144751 | 16,604 | 2,404 | 15,403 | 78,405 | 4.72 | 96 | .130680 | 25,657 | 3,353 | 23,980 | 128,358 | 5.00 |
| 97 | .153639 | 14,201 | 2,182 | 13,110 | 63,002 | 4.44 | 97 | .141519 | 22,304 | 3,156 | 20,726 | 104,378 | 4.68 |
| 98 | .162864 | 12,019 | 1,957 | 11,040 | 49,892 | 4.15 | 98 | .152978 | 19,148 | 2,929 | 17,683 | 83,652 | 4.37 |
| 99 | .172403 | 10,062 | 1,735 | 9,194 | 38,852 | 3.86 | 99 | .165011 | 16,218 | 2,676 | 14,880 | 65,969 | 4.07 |
| 100 | .199420 | 8,327 | 1,661 | 7,497 | 29,658 | 3.56 | 100 | .178724 | 13,542 | 2,420 | 12,332 | 51,089 | 3.77 |
| 101 | .210720 | 6,666 | 1,405 | 5,964 | 22,161 | 3.32 | 101 | .192135 | 11,122 | 2,137 | 10,053 | 38,757 | 3.48 |
| 102 | .222440 | 5,262 | 1,170 | 4,676 | 16,197 | 3.08 | 102 | .206313 | 8,985 | 1,854 | 8,058 | 28,703 | 3.19 |
| 103 | .234562 | 4,091 | 960 | 3,611 | 11,521 | 2.82 | 103 | .221190 | 7,131 | 1,577 | 6,343 | 20,645 | 2.90 |
| 104 | .247054 | 3,132 | 774 | 2,745 | 7,909 | 2.53 | 104 | .236705 | 5,554 | 1,315 | 4,897 | 14,303 | 2.58 |
| 105 | .259942 | 2,358 | 613 | 2,051 | 5,164 | 2.19 | 105 | .252921 | 4,239 | 1,072 | 3,703 | 9,406 | 2.22 |
| 106 | .330497 | 1,745 | 577 | 1,457 | 3,113 | 1.78 | 106 | .326349 | 3,167 | 1,034 | 2,650 | 5,703 | 1.80 |
| 107 | .400386 | 1,168 | 468 | 934 | 1,656 | 1.42 | 107 | .394674 | 2,133 | 842 | 1,712 | 3,053 | 1.43 |
| 108 | .469627 | 701 | 329 | 536 | 722 | 1.03 | 108 | .462396 | 1,291 | 597 | 993 | 1,340 | 1.04 |
| 109 | 1.000000 | 372 | 372 | 186 | 186 | 0.50 | 109 | 1.000000 | 694 | 694 | 347 | 347 | 0.50 |

# Born in 2050

| Male | | | | | | | Female | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ | X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ |
| 0 | .002347 | 100,000 | 235 | 99,812 | 8,496,934 | 84.97 | 0 | .002116 | 100,000 | 212 | 99,831 | 8,836,669 | 88.37 |
| 1 | .000151 | 99,765 | 15 | 99,758 | 8,397,122 | 84.17 | 1 | .000183 | 99,788 | 18 | 99,779 | 8,736,838 | 87.55 |
| 2 | .000120 | 99,750 | 12 | 99,744 | 8,297,364 | 83.18 | 2 | .000121 | 99,770 | 12 | 99,764 | 8,637,059 | 86.57 |
| 3 | .000104 | 99,738 | 10 | 99,733 | 8,197,620 | 82.19 | 3 | .000096 | 99,758 | 10 | 99,753 | 8,537,294 | 85.58 |
| 4 | .000077 | 99,728 | 8 | 99,724 | 8,097,886 | 81.20 | 4 | .000073 | 99,749 | 7 | 99,745 | 8,437,541 | 84.59 |
| 5 | .000055 | 99,720 | 6 | 99,717 | 7,998,162 | 80.21 | 5 | .000055 | 99,741 | 5 | 99,739 | 8,337,796 | 83.59 |
| 6 | .000046 | 99,715 | 5 | 99,712 | 7,898,445 | 79.21 | 6 | .000052 | 99,736 | 5 | 99,733 | 8,238,058 | 82.60 |
| 7 | .000041 | 99,710 | 4 | 99,708 | 7,798,733 | 78.21 | 7 | .000048 | 99,731 | 5 | 99,728 | 8,138,324 | 81.60 |
| 8 | .000035 | 99,706 | 3 | 99,704 | 7,699,024 | 77.22 | 8 | .000045 | 99,726 | 4 | 99,724 | 8,038,596 | 80.61 |
| 9 | .000035 | 99,703 | 3 | 99,701 | 7,599,320 | 76.22 | 9 | .000044 | 99,721 | 4 | 99,719 | 7,938,873 | 79.61 |
| 10 | .000044 | 99,699 | 4 | 99,697 | 7,499,619 | 75.22 | 10 | .000045 | 99,717 | 5 | 99,715 | 7,839,153 | 78.61 |
| 11 | .000043 | 99,695 | 4 | 99,693 | 7,399,922 | 74.23 | 11 | .000047 | 99,712 | 5 | 99,710 | 7,739,439 | 77.62 |
| 12 | .000068 | 99,690 | 7 | 99,687 | 7,300,230 | 73.23 | 12 | .000065 | 99,708 | 6 | 99,705 | 7,639,729 | 76.62 |
| 13 | .000102 | 99,684 | 10 | 99,679 | 7,200,543 | 72.23 | 13 | .000077 | 99,701 | 8 | 99,697 | 7,540,024 | 75.63 |
| 14 | .000149 | 99,673 | 15 | 99,666 | 7,100,864 | 71.24 | 14 | .000097 | 99,694 | 10 | 99,689 | 7,440,327 | 74.63 |
| 15 | .000192 | 99,659 | 19 | 99,649 | 7,001,198 | 70.25 | 15 | .000132 | 99,684 | 13 | 99,677 | 7,340,638 | 73.64 |
| 16 | .000276 | 99,640 | 28 | 99,626 | 6,901,549 | 69.27 | 16 | .000154 | 99,671 | 15 | 99,663 | 7,240,960 | 72.65 |
| 17 | .000278 | 99,612 | 28 | 99,598 | 6,801,923 | 68.28 | 17 | .000167 | 99,656 | 17 | 99,647 | 7,141,297 | 71.66 |
| 18 | .000344 | 99,584 | 34 | 99,567 | 6,702,325 | 67.30 | 18 | .000180 | 99,639 | 18 | 99,630 | 7,041,650 | 70.67 |
| 19 | .000368 | 99,550 | 37 | 99,532 | 6,602,758 | 66.33 | 19 | .000176 | 99,621 | 17 | 99,612 | 6,942,020 | 69.68 |
| 20 | .000425 | 99,513 | 42 | 99,492 | 6,503,226 | 65.35 | 20 | .000195 | 99,603 | 19 | 99,594 | 6,842,408 | 68.70 |
| 21 | .000387 | 99,471 | 39 | 99,452 | 6,403,734 | 64.38 | 21 | .000192 | 99,584 | 19 | 99,575 | 6,742,814 | 67.71 |
| 22 | .000434 | 99,433 | 43 | 99,411 | 6,304,282 | 63.40 | 22 | .000189 | 99,565 | 19 | 99,556 | 6,643,239 | 66.72 |
| 23 | .000440 | 99,390 | 44 | 99,368 | 6,204,871 | 62.43 | 23 | .000194 | 99,546 | 19 | 99,536 | 6,543,684 | 65.74 |
| 24 | .000459 | 99,346 | 46 | 99,323 | 6,105,503 | 61.46 | 24 | .000198 | 99,527 | 20 | 99,517 | 6,444,147 | 64.75 |
| 25 | .000494 | 99,300 | 49 | 99,276 | 6,006,180 | 60.49 | 25 | .000183 | 99,507 | 18 | 99,498 | 6,344,630 | 63.76 |
| 26 | .000491 | 99,251 | 49 | 99,227 | 5,906,904 | 59.51 | 26 | .000187 | 99,489 | 19 | 99,480 | 6,245,132 | 62.77 |
| 27 | .000487 | 99,202 | 48 | 99,178 | 5,807,678 | 58.54 | 27 | .000196 | 99,470 | 19 | 99,461 | 6,145,653 | 61.78 |
| 28 | .000493 | 99,154 | 49 | 99,130 | 5,708,499 | 57.57 | 28 | .000199 | 99,451 | 20 | 99,441 | 6,046,192 | 60.80 |
| 29 | .000502 | 99,105 | 50 | 99,080 | 5,609,370 | 56.60 | 29 | .000214 | 99,431 | 21 | 99,420 | 5,946,751 | 59.81 |
| 30 | .000681 | 99,055 | 67 | 99,022 | 5,510,290 | 55.63 | 30 | .000290 | 99,410 | 29 | 99,395 | 5,847,331 | 58.82 |
| 31 | .000700 | 98,988 | 69 | 98,953 | 5,411,268 | 54.67 | 31 | .000299 | 99,381 | 30 | 99,366 | 5,747,935 | 57.84 |
| 32 | .000725 | 98,919 | 72 | 98,883 | 5,312,315 | 53.70 | 32 | .000322 | 99,351 | 32 | 99,335 | 5,648,569 | 56.85 |
| 33 | .000749 | 98,847 | 74 | 98,810 | 5,213,432 | 52.74 | 33 | .000345 | 99,319 | 34 | 99,302 | 5,549,234 | 55.87 |
| 34 | .000778 | 98,773 | 77 | 98,734 | 5,114,622 | 51.78 | 34 | .000374 | 99,285 | 37 | 99,266 | 5,449,931 | 54.89 |
| 35 | .000883 | 98,696 | 87 | 98,652 | 5,015,888 | 50.82 | 35 | .000409 | 99,248 | 41 | 99,228 | 5,350,665 | 53.91 |
| 36 | .000920 | 98,609 | 91 | 98,563 | 4,917,235 | 49.87 | 36 | .000443 | 99,207 | 44 | 99,185 | 5,251,437 | 52.93 |
| 37 | .000961 | 98,518 | 95 | 98,471 | 4,818,672 | 48.91 | 37 | .000482 | 99,163 | 48 | 99,140 | 5,152,252 | 51.96 |
| 38 | .000996 | 98,423 | 98 | 98,374 | 4,720,201 | 47.96 | 38 | .000513 | 99,116 | 51 | 99,090 | 5,053,112 | 50.98 |
| 39 | .001030 | 98,325 | 101 | 98,275 | 4,621,827 | 47.01 | 39 | .000544 | 99,065 | 54 | 99,038 | 4,954,022 | 50.01 |
| 40 | .001068 | 98,224 | 105 | 98,172 | 4,523,552 | 46.05 | 40 | .000579 | 99,011 | 57 | 98,982 | 4,854,984 | 49.03 |
| 41 | .001124 | 98,119 | 110 | 98,064 | 4,425,380 | 45.10 | 41 | .000627 | 98,954 | 62 | 98,923 | 4,756,002 | 48.06 |
| 42 | .001194 | 98,009 | 117 | 97,950 | 4,327,316 | 44.15 | 42 | .000687 | 98,892 | 68 | 98,858 | 4,657,079 | 47.09 |
| 43 | .001292 | 97,892 | 126 | 97,829 | 4,229,366 | 43.20 | 43 | .000760 | 98,824 | 75 | 98,786 | 4,558,222 | 46.12 |
| 44 | .001404 | 97,765 | 137 | 97,697 | 4,131,538 | 42.26 | 44 | .000852 | 98,749 | 84 | 98,707 | 4,459,436 | 45.16 |
| 45 | .001144 | 97,628 | 112 | 97,572 | 4,033,841 | 41.32 | 45 | .000807 | 98,664 | 80 | 98,625 | 4,360,729 | 44.20 |
| 46 | .001311 | 97,516 | 128 | 97,453 | 3,936,269 | 40.37 | 46 | .000897 | 98,585 | 88 | 98,541 | 4,262,105 | 43.23 |
| 47 | .001438 | 97,389 | 140 | 97,319 | 3,838,816 | 39.42 | 47 | .000999 | 98,496 | 98 | 98,447 | 4,163,564 | 42.27 |
| 48 | .001573 | 97,249 | 153 | 97,172 | 3,741,498 | 38.47 | 48 | .001098 | 98,398 | 108 | 98,344 | 4,065,117 | 41.31 |
| 49 | .001719 | 97,096 | 167 | 97,012 | 3,644,326 | 37.53 | 49 | .001201 | 98,290 | 118 | 98,231 | 3,966,773 | 40.36 |
| 50 | .001791 | 96,929 | 174 | 96,842 | 3,547,313 | 36.60 | 50 | .001337 | 98,172 | 131 | 98,106 | 3,868,542 | 39.41 |
| 51 | .001967 | 96,755 | 190 | 96,660 | 3,450,472 | 35.66 | 51 | .001459 | 98,041 | 143 | 97,969 | 3,770,435 | 38.46 |
| 52 | .002172 | 96,565 | 210 | 96,460 | 3,353,812 | 34.73 | 52 | .001600 | 97,898 | 157 | 97,819 | 3,672,466 | 37.51 |
| 53 | .002399 | 96,355 | 231 | 96,239 | 3,257,352 | 33.81 | 53 | .001747 | 97,741 | 171 | 97,656 | 3,574,647 | 36.57 |
| 54 | .002641 | 96,124 | 254 | 95,997 | 3,161,113 | 32.89 | 54 | .001910 | 97,570 | 186 | 97,477 | 3,476,991 | 35.64 |

# Born in 2050 (Continued)

| Male | | | | | | | Female | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ | X | $q_x$ | $l_x$ | $d_x$ | $L_x$ | $T_x$ | $e_x$ |
| 55 | .002697 | 95,870 | 259 | 95,741 | 3,065,116 | 31.97 | 55 | .002125 | 97,384 | 207 | 97,281 | 3,379,514 | 34.70 |
| 56 | .002977 | 95,611 | 285 | 95,469 | 2,969,375 | 31.06 | 56 | .002320 | 97,177 | 225 | 97,064 | 3,282,233 | 33.78 |
| 57 | .003290 | 95,327 | 314 | 95,170 | 2,873,906 | 30.15 | 57 | .002529 | 96,952 | 245 | 96,829 | 3,185,169 | 32.85 |
| 58 | .003637 | 95,013 | 346 | 94,840 | 2,778,737 | 29.25 | 58 | .002748 | 96,706 | 266 | 96,574 | 3,088,340 | 31.94 |
| 59 | .004018 | 94,667 | 380 | 94,477 | 2,683,896 | 28.35 | 59 | .002980 | 96,441 | 287 | 96,297 | 2,991,766 | 31.02 |
| 60 | .004412 | 94,287 | 416 | 94,079 | 2,589,419 | 27.46 | 60 | .003310 | 96,153 | 318 | 95,994 | 2,895,469 | 30.11 |
| 61 | .004851 | 93,871 | 455 | 93,643 | 2,495,340 | 26.58 | 61 | .003592 | 95,835 | 344 | 95,663 | 2,799,475 | 29.21 |
| 62 | .005320 | 93,416 | 497 | 93,167 | 2,401,696 | 25.71 | 62 | .003919 | 95,491 | 374 | 95,304 | 2,703,812 | 28.31 |
| 63 | .005807 | 92,919 | 540 | 92,649 | 2,308,529 | 24.84 | 63 | .004272 | 95,117 | 406 | 94,914 | 2,608,508 | 27.42 |
| 64 | .006314 | 92,379 | 583 | 92,088 | 2,215,880 | 23.99 | 64 | .004643 | 94,710 | 440 | 94,490 | 2,513,595 | 26.54 |
| 65 | .007273 | 91,796 | 668 | 91,462 | 2,123,792 | 23.14 | 65 | .005084 | 94,271 | 479 | 94,031 | 2,419,104 | 25.66 |
| 66 | .007906 | 91,128 | 720 | 90,768 | 2,032,330 | 22.30 | 66 | .005547 | 93,791 | 520 | 93,531 | 2,325,073 | 24.79 |
| 67 | .008611 | 90,408 | 779 | 90,019 | 1,941,562 | 21.48 | 67 | .006063 | 93,271 | 565 | 92,988 | 2,231,542 | 23.93 |
| 68 | .009371 | 89,629 | 840 | 89,210 | 1,851,543 | 20.66 | 68 | .006618 | 92,706 | 613 | 92,399 | 2,138,554 | 23.07 |
| 69 | .010167 | 88,790 | 903 | 88,338 | 1,762,334 | 19.85 | 69 | .007187 | 92,092 | 662 | 91,761 | 2,046,155 | 22.22 |
| 70 | .012395 | 87,887 | 1,089 | 87,342 | 1,673,996 | 19.05 | 70 | .008201 | 91,430 | 750 | 91,055 | 1,954,394 | 21.38 |
| 71 | .013479 | 86,797 | 1,170 | 86,212 | 1,586,653 | 18.28 | 71 | .008974 | 90,680 | 814 | 90,273 | 1,863,338 | 20.55 |
| 72 | .014710 | 85,628 | 1,260 | 84,998 | 1,500,441 | 17.52 | 72 | .009882 | 89,867 | 888 | 89,423 | 1,773,065 | 19.73 |
| 73 | .016055 | 84,368 | 1,355 | 83,691 | 1,415,443 | 16.78 | 73 | .010904 | 88,978 | 970 | 88,493 | 1,683,642 | 18.92 |
| 74 | .017494 | 83,013 | 1,452 | 82,287 | 1,331,753 | 16.04 | 74 | .012004 | 88,008 | 1,056 | 87,480 | 1,595,149 | 18.12 |
| 75 | .019574 | 81,561 | 1,596 | 80,763 | 1,249,465 | 15.32 | 75 | .013623 | 86,952 | 1,185 | 86,360 | 1,507,669 | 17.34 |
| 76 | .022644 | 79,965 | 1,811 | 79,059 | 1,168,702 | 14.62 | 76 | .015063 | 85,767 | 1,292 | 85,121 | 1,421,309 | 16.57 |
| 77 | .024742 | 78,154 | 1,934 | 77,187 | 1,089,643 | 13.94 | 77 | .016717 | 84,475 | 1,412 | 83,769 | 1,336,188 | 15.82 |
| 78 | .027040 | 76,220 | 2,061 | 75,190 | 1,012,456 | 13.28 | 78 | .018547 | 83,063 | 1,541 | 82,293 | 1,252,419 | 15.08 |
| 79 | .029505 | 74,159 | 2,188 | 73,065 | 937,266 | 12.64 | 79 | .020518 | 81,523 | 1,673 | 80,686 | 1,170,126 | 14.35 |
| 80 | .035890 | 71,971 | 2,583 | 70,680 | 864,201 | 12.01 | 80 | .024308 | 79,850 | 1,941 | 78,879 | 1,089,439 | 13.64 |
| 81 | .039068 | 69,388 | 2,711 | 68,033 | 793,521 | 11.44 | 81 | .026912 | 77,909 | 2,097 | 76,861 | 1,010,560 | 12.97 |
| 82 | .042481 | 66,677 | 2,833 | 65,261 | 725,488 | 10.88 | 82 | .029841 | 75,812 | 2,262 | 74,681 | 933,699 | 12.32 |
| 83 | .046114 | 63,845 | 2,944 | 62,373 | 660,227 | 10.34 | 83 | .033058 | 73,550 | 2,431 | 72,334 | 859,018 | 11.68 |
| 84 | .049949 | 60,901 | 3,042 | 59,380 | 597,854 | 9.82 | 84 | .036521 | 71,119 | 2,597 | 69,820 | 786,684 | 11.06 |
| 85 | .059689 | 57,859 | 3,454 | 56,132 | 538,474 | 9.31 | 85 | .043017 | 68,521 | 2,948 | 67,048 | 716,864 | 10.46 |
| 86 | .064380 | 54,405 | 3,503 | 52,654 | 482,342 | 8.87 | 86 | .047415 | 65,574 | 3,109 | 64,019 | 649,816 | 9.91 |
| 87 | .069354 | 50,903 | 3,530 | 49,137 | 429,688 | 8.44 | 87 | .052261 | 62,465 | 3,264 | 60,832 | 585,797 | 9.38 |
| 88 | .074587 | 47,372 | 3,533 | 45,606 | 380,551 | 8.03 | 88 | .057508 | 59,200 | 3,404 | 57,498 | 524,965 | 8.87 |
| 89 | .080067 | 43,839 | 3,510 | 42,084 | 334,945 | 7.64 | 89 | .063100 | 55,796 | 3,521 | 54,035 | 467,467 | 8.38 |
| 90 | .085801 | 40,329 | 3,460 | 38,599 | 292,861 | 7.26 | 90 | .069107 | 52,275 | 3,613 | 50,469 | 413,431 | 7.91 |
| 91 | .091818 | 36,869 | 3,385 | 35,176 | 254,263 | 6.90 | 91 | .075579 | 48,662 | 3,678 | 46,823 | 362,963 | 7.46 |
| 92 | .098136 | 33,483 | 3,286 | 31,840 | 219,087 | 6.54 | 92 | .082590 | 44,985 | 3,715 | 43,127 | 316,139 | 7.03 |
| 93 | .104733 | 30,198 | 3,163 | 28,616 | 187,246 | 6.20 | 93 | .090078 | 41,269 | 3,717 | 39,411 | 273,012 | 6.62 |
| 94 | .111588 | 27,035 | 3,017 | 25,526 | 158,630 | 5.87 | 94 | .097996 | 37,552 | 3,680 | 35,712 | 233,602 | 6.22 |
| 95 | .118721 | 24,018 | 2,851 | 22,592 | 133,103 | 5.54 | 95 | .106403 | 33,872 | 3,604 | 32,070 | 197,890 | 5.84 |
| 96 | .126152 | 21,167 | 2,670 | 19,831 | 110,511 | 5.22 | 96 | .115354 | 30,268 | 3,492 | 28,522 | 165,820 | 5.48 |
| 97 | .133896 | 18,496 | 2,477 | 17,258 | 90,680 | 4.90 | 97 | .124919 | 26,776 | 3,345 | 25,104 | 137,298 | 5.13 |
| 98 | .141933 | 16,020 | 2,274 | 14,883 | 73,422 | 4.58 | 98 | .135031 | 23,431 | 3,164 | 21,849 | 112,194 | 4.79 |
| 99 | .150244 | 13,746 | 2,065 | 12,713 | 58,539 | 4.26 | 99 | .145648 | 20,267 | 2,952 | 18,792 | 90,344 | 4.46 |
| 100 | .175983 | 11,681 | 2,056 | 10,653 | 45,825 | 3.92 | 100 | .157708 | 17,316 | 2,731 | 15,950 | 71,553 | 4.13 |
| 101 | .185950 | 9,625 | 1,790 | 8,730 | 35,172 | 3.65 | 101 | .169541 | 14,585 | 2,473 | 13,348 | 55,603 | 3.81 |
| 102 | .196289 | 7,835 | 1,538 | 7,066 | 26,442 | 3.37 | 102 | .182050 | 12,112 | 2,205 | 11,010 | 42,254 | 3.49 |
| 103 | .206981 | 6,297 | 1,303 | 5,646 | 19,376 | 3.08 | 103 | .195177 | 9,907 | 1,934 | 8,940 | 31,245 | 3.15 |
| 104 | .217998 | 4,994 | 1,089 | 4,450 | 13,730 | 2.75 | 104 | .208865 | 7,973 | 1,665 | 7,141 | 22,305 | 2.80 |
| 105 | .229365 | 3,905 | 896 | 3,457 | 9,280 | 2.38 | 105 | .223171 | 6,308 | 1,408 | 5,604 | 15,164 | 2.40 |
| 106 | .291612 | 3,010 | 878 | 2,571 | 5,823 | 1.93 | 106 | .287958 | 4,900 | 1,411 | 4,195 | 9,560 | 1.95 |
| 107 | .353264 | 2,132 | 753 | 1,755 | 3,252 | 1.53 | 107 | .348255 | 3,489 | 1,215 | 2,882 | 5,365 | 1.54 |
| 108 | .414334 | 1,379 | 571 | 1,093 | 1,497 | 1.09 | 108 | .408004 | 2,274 | 928 | 1,810 | 2,483 | 1.09 |
| 109 | 1.000000 | 808 | 808 | 404 | 404 | 0.50 | 109 | 1.000000 | 1,346 | 1,346 | 673 | 673 | 0.50 |

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