



BERMUDA'S POPULATION PROJECTIONS

2016 – 2026



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FOREWORD

The Department of Statistics continues to produce data and information that is relevant and facilitates informed decision-making. This report is an account of mid-year population projections for Bermuda that spans a ten-year period from July 1, 2016 to July 1, 2026. The information in this report is essential for planners and policy makers, as Bermuda builds upon its initiatives for economic growth.

The report lays out, in detail, concepts and definitions, population projection limitations, technical notes, methodology and the population status. A brief analysis is also provided on the future implications for the social and economic structure of Bermuda. The appendix presents the accuracy of past projections and detailed tabulations (Tables 1A to 5A).

Melinda Williams
Director of Statistics
September 2018

CONCEPTS AND DEFINITIONS

Base Population

The population at the beginning of a period used as a reference or starting point of the projection process. A base population can either be a population estimate or the enumerated population.

De Jure Civilian Non-Institutional Population

The de jure civilian non-institutional population includes persons who usually, for six months or more, reside in Bermuda irrespective of where they were physically on Census Night. As such, residents temporarily overseas for vacation, business, school or other purposes are included. It excludes overseas visitors, the institutional population and the non-sheltered population.

Crude Birth Rate

The crude birth rate indicates the number of live births per 1,000 population in a given year.

$$\frac{\text{Number of Live Births}}{\text{Total Population}} \times 1,000$$

Crude Death Rate

The crude death rate is the number of deaths per 1,000 population in a given year.

$$\frac{\text{Number of Deaths}}{\text{Total Population}} \times 1,000$$

Emigration

The process of leaving a country of residence with the intent to settle in another for a period of at least one year. A student who has gone abroad to study for a specific period or a person seeking medical attention or on vacation (even an extended vacation) is not considered an emigrant.

Growth Rate

The rate at which a population is increasing (or decreasing) in a given year due to natural increase and net migration, expressed as a percentage of the population.

$$\frac{(\text{Births and Immigration}) - (\text{Deaths and Emigration})}{\text{Total Population}} \times 1,000$$

Immigration

The process of entering a country after residing in another with the intent of taking up residence for six months or more.

Infant Mortality Rate

The infant mortality rate is the number of deaths to infants under 1 year of age per 1,000 live births in a given year.

$$\frac{\text{Number of Deaths to Infants Under Age 1}}{\text{Total Live Births}} \times 1,000$$

Life Expectancy at Birth

Life expectancy at birth represents the average length of life of individuals from a hypothetical cohort of births whose members have been subject since birth to the mortality levels of the period in question.

Median Age

The age that divides a population into two numerically equal groups; that is, half the people are younger than this age and half are older.

Mid-Year Population

Estimate of the total number of persons usually resident in a country on 1 July of the year indicated.

Net Migration

This indicator is defined as the contribution of migration to overall population change; the volume of net migration is measured as the annual difference between immigration and emigration.

Old-Age Dependency Ratio

The old age dependency ratio is the ratio of the population 65 years and over to the population 15 to 64 years.

$$\frac{\text{Population 65 Years and Older}}{\text{Population 15 to 64 Years}} \times 100$$

Population

The term population refers to the de jure civilian non-institutional population.

Rate of Natural Increase

The rate at which a population is increasing (or) decreasing in a given year due to a surplus (or deficit) of births over deaths, expressed as a percentage of the population.

$$\frac{\text{Births} - \text{Deaths}}{\text{Total Population}} \times 1,000$$

Sex Ratio

The sex ratio is the number of males per 100 females.

$$\frac{\text{Number of Males}}{\text{Number of Females}} \times 100$$

Total Dependency Ratio

The total dependency ratio is the ratio of the population under 15 years and 65 years and over to the population 15 to 64 years.

$$\frac{\text{Population Under 15 years} + \text{Population 65 Years and Older}}{\text{Population 15 to 64 Years}} \times 100$$

Total Fertility Rate

The average number of children that would be born alive to a woman (or group of women) during her lifetime, if she were to pass through her childbearing years (15-49) conforming to the age-specific fertility rates of a given year.

Youth Dependency Ratio

The youth dependency ratio is the ratio of the population under 15 years to the population 15 to 64 years.

$$\frac{\text{Population Under 15 Years}}{\text{Population 15 to 64 Years}} \times 100$$

EXPLANATORY NOTES

Limitations of Projections

Population projections are not predictions or forecasts. They are illustrations of how the structure, size and characteristics of Bermuda's population would change if certain assumptions on fertility, mortality and migration are held true over the projection period. While the assumptions are based upon an assessment of short-term and long-term demographic trends, there is no certainty that any of the assumptions will be realised. The projections do not take into account future non-demographic factors (e.g. major government policy decisions, economic factors, natural disasters, etc.) which may diminish the accuracy of the projections. Historically, Bermuda's projections are updated after each population and housing census so that new information about demographic trends can be included. The age-sex structure in this population projections report was based on self-reported data collected in the 2016 Population and Housing Census.

Rounding

In this report, some percentage distributions may not add to one hundred percent (100%) due to rounding.

Data Users

The tables in this report do not contain all possible tables of the complete population projections dataset. Data users are therefore encouraged to contact the Department of Statistics, Social Division at (441) 297-7761 to request customized tables for specific user needs.

Technical Note – 2016 Census of Population and Housing

In the 2016 Census, all households were sent letters, called and/or visited giving a 100% coverage rate. The pre-imputation completion rate was 98%, leading to 827 households that were not completed. In order to achieve a complete data set for all households, data was imputed for these missing households. In cases of completed partially households, data was also imputed for some variables.

HIGHLIGHTS (2016-2026)

- Bermuda's mid-year population is projected to decrease from 63,791 to 63,680.
- The annual growth rate is expected to change from 0.2% to -0.2%.
- The crude birth rate is projected to fall from 9.3 to 7.3.
- The crude death rate is expected to increase from 7.6 to 9.4.
- Life expectancy at birth is projected to increase from 81.9 years to 83.5 years.
- The median age is projected to rise from 44.1 years to 48.6 years.
- The proportion of seniors (65 years and older) is projected to climb from 16.9% to 24.9%.
- The old-age dependency ratio is expected to soar from 24.7 to 39.9.

INTRODUCTION

According to Kaneda and Bremner (2014:1), population projections “represent the future size of a population and the age and sex distribution if [fertility, mortality and migration] assumptions hold true.” These demographic rates (fertility, mortality and migration) are applied to the latest census or population estimate to carry the population forward to a future date. Projections are instrumental for suggesting a country's future based on past, present and anticipated trends. Bermuda historically had its census every decade but now conducts its census from time to time (no less frequently than every ten years). During the intercensal period our recourse is population projections.

In this report, Bermuda’s population is projected by age and sex. Population projections are essential to plan and administer government and private programmes. Knowing the number of people expected and their age and sex distribution will provide decision makers with sufficient time to prepare for future needs such as schools and retirement homes.

PROJECTION METHODOLOGY

The input data for the population projections was processed using the Population Analysis with Microcomputers software developed by the United States Census Bureau. One of the modules of this software is the Rural-Urban Projection computer programme which uses the cohort-component method to produce population projections. The Rural-Urban Projection programme was used to project the population by age and sex to 2026.

In the cohort-component method, the components of population change (fertility, mortality, and net migration) are projected separately for persons born in a given year. The base population is advanced each year by using projected survival rates and net migration by single year of age and sex. Each year, a new birth cohort is added to the population by applying the projected fertility rates.

The cohort survival method is preferred as it takes into account the age-sex-specific fertility and mortality rates. It states that the population at the next time interval (interval "t + 1") is the population at the beginning time interval ("t") plus the net natural increase (or decrease) plus the net migration (see formula below).

$$\text{Population [t+1]} = \text{Population [t]} + \text{Natural Increase} + \text{Net Migration}$$

Scope of the Projections

This population projection series is for Bermuda as a whole from July 1, 2016 until July 1, 2026. The time horizon to 2026 carries the projections the same distance into the future as the 2010-2020 projections. Projections are less reliable the further into the future they are because assumptions are less likely to hold true (Kaneda and Bremner, 2014:1). Therefore, a ten-year series would likely increase the accuracy of the projections compared to a longer series.

Base Population

The population projections are based on the de jure civilian non-institutional population as at July 1, 2016. The mid-year population was adopted because it is the traditional methodology used by other statistical agencies and it is useful for stakeholders who may need mid-year population projections as denominators. Another justification is that inputs like the data on births and deaths that are reported for calendar years are for the year surrounding the population. The mid-year population was derived by adjusting the census population of 63,779 as at May 20, 2016 to 63,791 on July 1, 2016 by taking into account birth and death data.

Projection Assumptions

Assumptions are a challenge of demographic projections because of their uncertainty (Kaneda and Bremner, 2014:1).

Estimating Fertility

The assumed total fertility rate (TFR) in 2026 of 1.4 children per woman was based on a three-year average of births recorded from 2015 to 2017. This is in alignment with the United States Census Bureau's recommendations where the TFR is assumed to remain constant for the next 10 years if the most recent estimated TFR is less than 1.7 births per woman.

Estimating Mortality

A five-year average of deaths was inputted into a Population Analysis with Microcomputers spreadsheet with the base population to derive mortality rates and life expectancy at birth for the year 2016. Averages were used to smooth the data. Subsequently, the 2016 age-sex specific death rates were interpolated between the 2016 values and those in a model life table for the year 2026. A model life table represents the future life expectancies based on the available information.

Estimating International Migration

International migration is the most difficult demographic variable to project because:

1. it can change quickly as a result of economic, social, political or environmental factors; and
2. many countries do not have reliable immigration and emigration data (Kaneda and Bremner, 2014:3).

It was assumed that there would be no net migration each year over the projection period. This assumption was made for three reasons.

Firstly, the previously used reverse-forward survival rate methodology is highly dependent on accuracy and comparability of the two census populations. There were 3,321 households that were not accounted for in the 2010 Census for which no imputations were conducted. In contrast, there were 827 households not accounted for in the 2016 Census for which imputations were conducted. As the imputation approaches differed, the two census population counts are not comparable.

Secondly, the emigration and immigration census data could not be used for estimating net migration as the two are not comparable due to the limitations of the emigration data. The main limitation of the census emigration data is that it was unable to capture situations where entire households left the island, as there was no one to provide this information. In addition, if all of the household members of an emigrant moved to another household in Bermuda, the information about the emigrant would not likely have been collected. The result is that the census data could not accurately indicate emigration levels (Bermuda Department of Statistics, 2018:11-12).

Finally, aside from the limited census migration data, there are no other sources of migration data available. This has been the case for projection series from 1991 onwards (Bermuda Department of Statistics, 2005:13).

Sex Ratio

The assumed sex ratio at birth in 2026 of 103 males per 100 females was based on a three-year average of births by sex recorded from 2015 to 2017.

PAST TRENDS

Fertility

The reduction in fertility rates had a great impact on Bermuda's demographic profile. Three indicators of fertility are the number of registered live births, crude birth rate and total fertility rate.

In 1950, the crude birth rate was 30.4 live births per 1,000 people and plummeted to 9.3 by 2016 (Table 1). Some of the factors that could have contributed to the reduction in fertility over the decades include increased use of contraceptives, the increasing labour force participation of women and changing lifestyle preferences. Women are more likely now to aspire for higher education and professional careers which can result in them opting to delay or forgo childbearing. This trend is supported by the 2010 Census which reported mothers starting their families later and completing their fertility later (Bermuda Department of Statistics, 2012:21). This shift in childbearing patterns is reflected also in women's increased labour force participation rate. In 1970, the rate was 63% and by 2016 it was 79%.

The number of live births dropped from 819 in 2009 to a record low of 574 in 2014 then increased slightly to 591 in 2016 (Bermuda Department of Statistics 2018:10). The shrinking of the female population in the reproductive ages of 15-49 years is a likely factor for the declining live births in recent years. Despite the 2010 Census undercount, the number of females aged 15-49 years recorded was lower in 2016. The onset of the recession in 2008 may be another factor for declining live births if couples decided to have fewer children for financial reasons.

Table 1
Bermuda's Fertility Trends, 1950 - 2016

Census Year	Number of Live Births	Crude Birth Rate (per 1,000 population)	Total Fertility Rate (per woman)
1950	1,138	30.4	N/A
1960	1,208	28.3	N/A
1970	1,062	20.3	N/A
1980	807	14.9	1.6
1991	893	15.4	1.8
2000	838	13.5	1.7
2010	769	12.0	1.7
2016	591	9.3	1.4

N/A - Not Available

Source: Department of Statistics and Registrar General

Mortality

Bermuda's crude death rate fell from 9.7 per 1,000 people in 1950 to 7.3 by 1980 (Table 2). Despite this progress, the reduction of the crude death rate in the 1980s and 1990s was hampered by deaths due to Acquired Immune Deficiency Syndrome (AIDS). By 2000, AIDS-related deaths were no longer the leading cause of death for any age group. Some of the factors contributing to the decline in deaths due to AIDS include the following:

- Education
- High quality health care reducing the circulation of the virus
- Prevention of mother to child transmission initiative
- Introduction of anti-retroviral drugs

Life expectancy at birth has improved over the decades. The general improvements in life expectancy are attributable primarily to the advancement in medical technology. For example, in 1987 the King Edward VIIth Memorial Hospital installed its first computerized tomographic scanner and later added a magnetic resonance imaging machine. This equipment increased greatly the scope, accuracy and speed by which many patients could be diagnosed locally. More recently, the island's first radiation therapy unit opened at the Bermuda Cancer and Health Centre on May 17, 2017 (Simpson, 2017). According to clinical oncologist Dr. Chris Fosker, this opening could lead to 100 lives being saved in Bermuda annually (Johnston-Barnes, 2017).

By the twenty-first century, the leading causes of deaths were circulatory illnesses, cancer, respiratory illnesses, accidents and violence. It is evident from the leading causes of death statistics that personal behaviour and lifestyles influenced the patterns and levels of disease and injury. As a result, the population has become less healthy as 40% of the population reported having a long-term health condition in 2010 compared to 18% in 2000 (Bermuda Department of Statistics, 2012:23). Between 2006 and 2011, the overall health of Bermuda's population declined by 3% (Bermuda Health Council, 2011:20).

Table 2
Bermuda's Mortality Levels and Life Expectancy at Birth, 1950 - 2016

Census Year	Total Deaths	Crude Death Rate (per 1,000 population)	Infant Mortality Rate	Life Expectancy at Birth	
				Male	Female
1950	362	9.7	46.6	N/A	N/A
1960	363	9.9	31.5	70.6	65.1
1970	385	7.6	15.1	66.9	73.9
1980	393	7.3	13.9	68.7	76.1
1991	449	7.7	7.8	70.0	78.3
2000	473	7.2	0	75.3	80.6
2010	475	7.4	1.3 r	75.9	83.6
2016	492	7.7	3.4	77.7	85.2

N/A - Not Available

r - revised

Source: Department of Statistics and Registrar General

RESULTS

Population Peaks in 2021

Bermuda's total population is projected to decrease from 63,791 in 2016 to 63,680 by 2026 (Figure 1 and Table 1A). However, population levels are expected to remain above the base population every year with the exception of 2026. Figure 2 and Table 1A show a population increase each year until 2021 followed by a decline each year thereafter. This is a result of natural increase (births exceeding deaths) until 2020 and natural decrease (deaths exceeding births) from 2021. The positive growth rate is projected to be at its highest in 2016 and the negative growth rate at its greatest in 2025 and 2026 (Table 3).

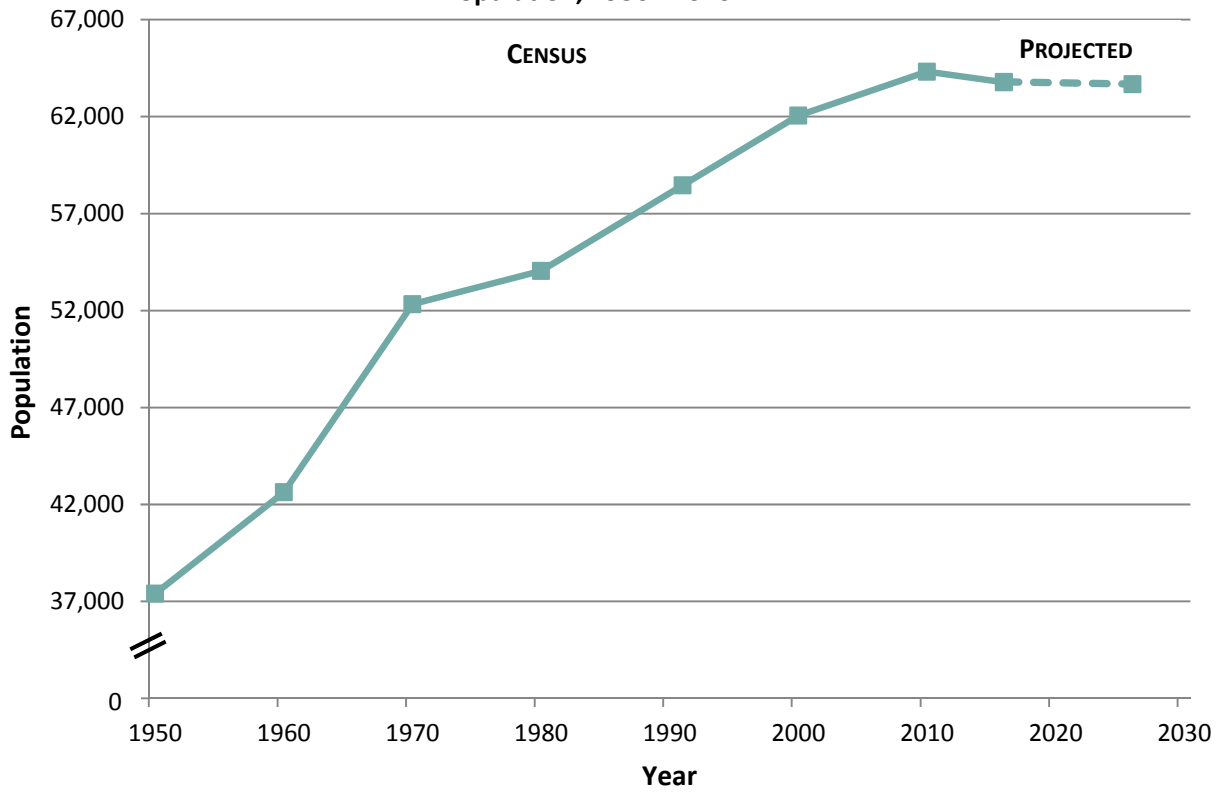
Bermuda's aging population is a factor in this reversal from growth to decline due to population momentum, where an older age structure can promote population decline. In countries where fertility has been below the replacement level of 2.1 children per woman for decades, such as Bermuda (Table 1), the population of reproductive age will be relatively small. Therefore, population momentum would have a negative effect on future growth (United Nations, 2017).

Table 3
Projected Annual Growth Rates by Sex, 2016 - 2026

Mid-Year	Percent		
	Total	Male	Female
2016	0.2	0.2	0.2
2017	0.1	0.1	0.2
2018	0.1	0.1	0.1
2019	0.1	0.0	0.1
2020	0.0	-0.0	0.0
2021	-0.0	-0.0	0.0
2022	-0.1	-0.1	-0.0
2023	-0.1	-0.1	-0.1
2024	-0.1	-0.2	-0.1
2025	-0.2	-0.2	-0.2
2026	-0.2	-0.2	-0.2

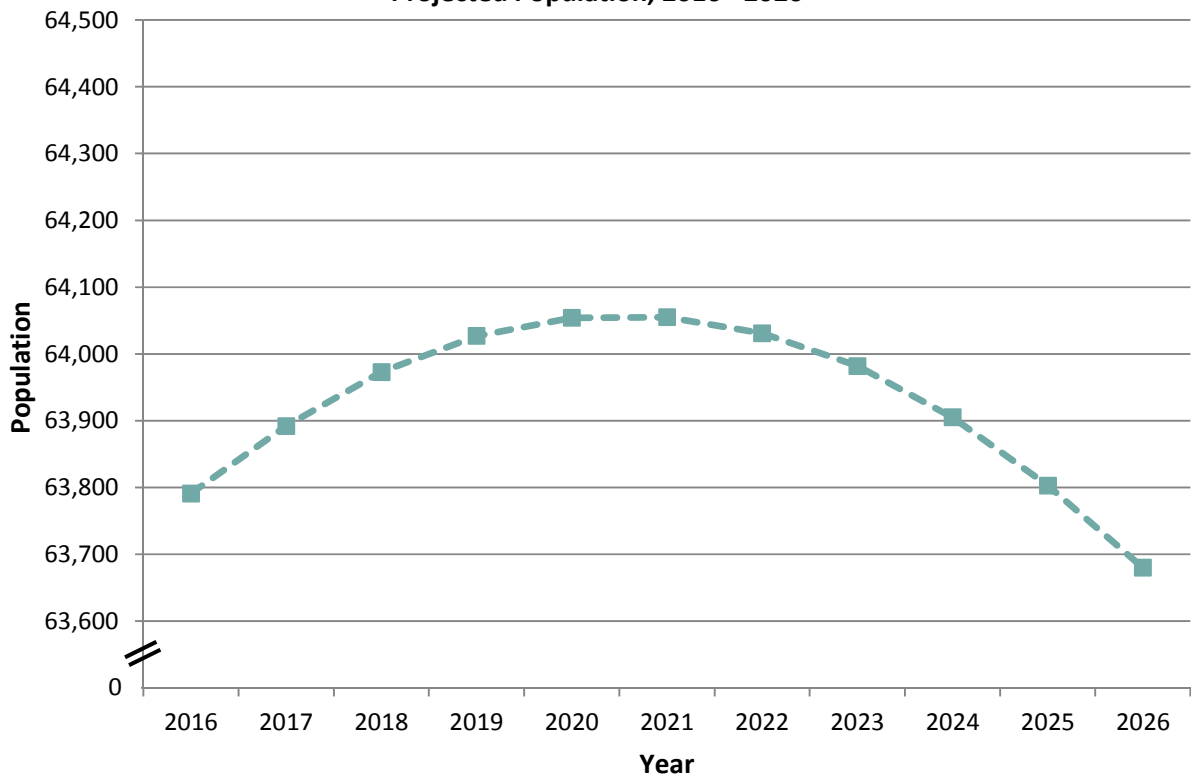
Source: Population Projections

Figure 1
Population, 1950 - 2026



Sources: Population and Housing Censuses and Population Projections

Figure 2
Projected Population, 2016 - 2026



Source: Population Projections

Decreasing Birth Rates and Increasing Death Rates

The crude birth rate is projected to decrease from 9.3 per 1,000 people to 7.3 in 2026 (Table 4). In contrast, the crude death rate is expected to increase from 7.6 per 1,000 people to 9.4 during this same period. The decreasing birth rate trend aligns with a decline in the proportion of the population that are females aged 15-49 years from 22.5% to 19.9% over the projection period. The increase in the death rate may be attributed to baby boomers (persons born between the years 1946 and 1964) reaching an age where the probability of dying is much higher. The rates of natural increase in Table 4 mirror the growth rates in Table 3 as migration was not factored into population change.

Total Fertility Rate Far Below Replacement Level

As a universal convention for developed countries, a woman would need to have about 2.1 children on average to replace herself and her partner and to account for infant mortality. Between 2016 and 2026, the total fertility rate for Bermuda's women is expected to remain constant at 1.4 children per woman (Table 4). Simply, this means that Bermuda's couples are having an insufficient number of children to replace themselves. Many developed countries such as Australia, Canada and United Kingdom also had sub-replacement level fertility in 2016 (World Bank, 2018).

Table 4
Projected Vital Rates for the Total Population, 2016 - 2026

Mid-Year	Rate of Natural Increase (%)	Crude Birth Rate (per 1,000)	Crude Death Rate (per 1,000)	Total Fertility Rate (per woman)
2016	0.2	9.3	7.6	1.4
2017	0.1	9.0	7.5	1.4
2018	0.1	8.8	7.8	1.4
2019	0.1	8.6	8.0	1.4
2020	0.0	8.4	8.2	1.4
2021	-0.0	8.2	8.4	1.4
2022	-0.1	8.0	8.6	1.4
2023	-0.1	7.8	8.8	1.4
2024	-0.1	7.6	9.0	1.4
2025	-0.2	7.4	9.2	1.4
2026	-0.2	7.3	9.4	1.4

Source: Department of Statistics and Registrar General

Life Expectancies at Birth Projected to Increase

The total population's life expectancy at birth is anticipated to rise from 81.9 years in 2016 to 83.5 years by 2026 (Table 5). At the end of the period, males are expected to live for 80.9 years while females are anticipated to live for 86.2 years.

Table 5
Life Expectancy at Birth by Sex, 2016 - 2026

Mid-Year	Total	Male	Female
2016	81.9	78.6	85.3
2017	82.4	79.3	85.6
2018	82.6	79.5	85.7
2019	82.7	79.6	85.8
2020	82.8	79.8	85.8
2021	82.9	80.0	85.9
2022	83.0	80.2	85.9
2023	83.2	80.4	86.0
2024	83.3	80.6	86.1
2025	83.4	80.7	86.1
2026	83.5	80.9	86.2

Source: Population Projections

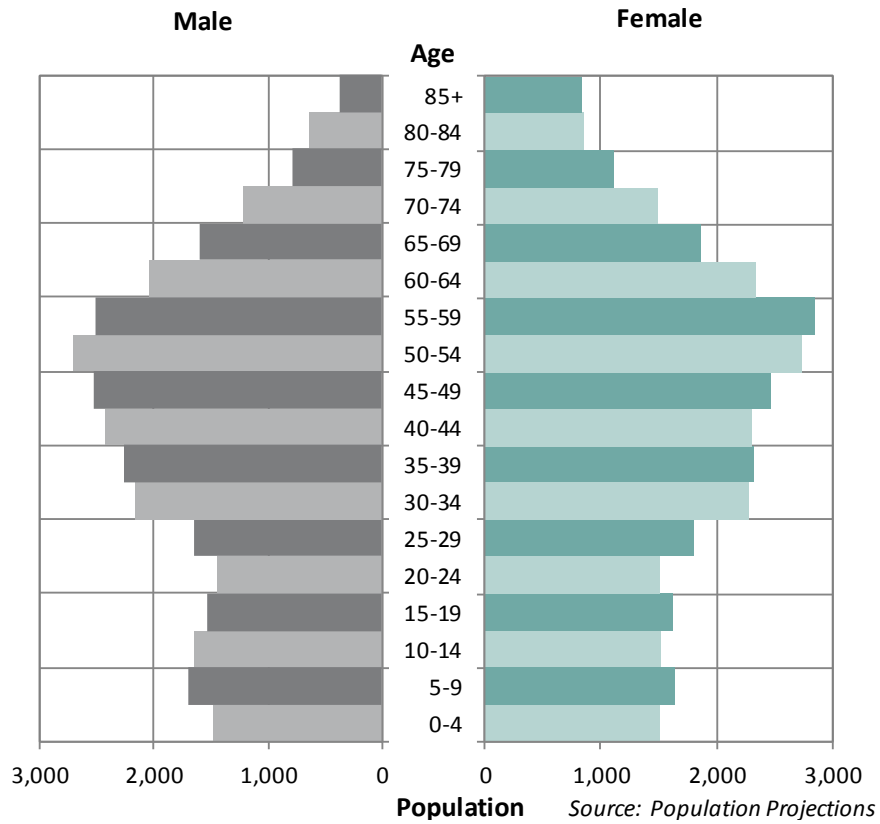
Population Expected to Age

The age structure of a country or region is the demographic engine that drives population growth/decline at given fertility, migration and mortality levels (United Nations, 2017). Population pyramids can be an indicator of the demographic transition of a population. For example, Bermuda's females comprise the larger proportion of the oldest age groups because of their greater life expectancy which is typical among developed countries (Figure 3).

The age structure of the total population will become older during the projection period. Table 6 shows a proportional gain of 8 percentage points in the population 65 years and over during the period resulting in seniors representing nearly one-quarter of the population in 2026. This will occur as life expectancy increases and large groups born during past periods of high fertility become older. With the exception of the 15-24 and 65 years and over age groups, all other age groups are expected to have proportional declines (Table 6 and Figure 4).

One indicator of an aging population is an increasing median age. In 2016, the median age for the total population was 44.1 years and by 2026 the median age is projected to increase to 48.6 years. The median ages of males and females are both expected to increase by 4.5 years during this period.

Figure 3
Population Pyramid by Five-Year Age Groups and Sex, 2016



Population Pyramid by Five-Year Age Groups and Sex, 2026

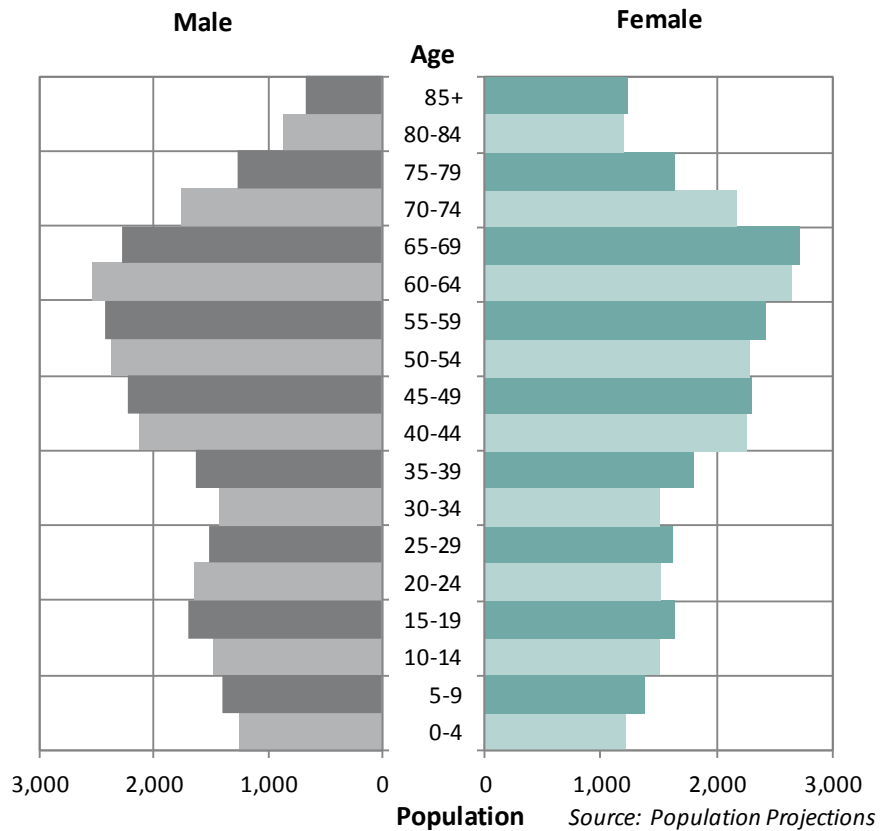
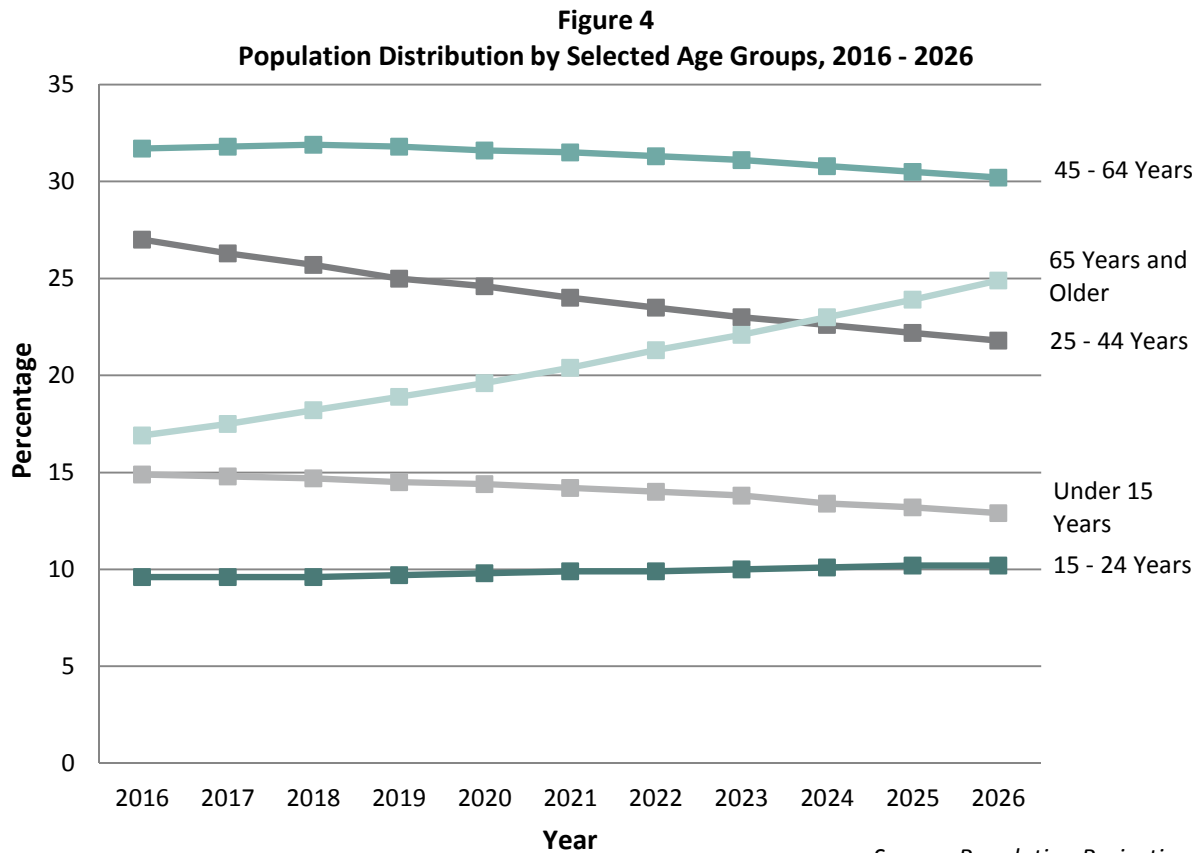


Table 6
Total Population by Sex and Selected Age Groups, 2016 - 2026

Age Groups	2016	2026	2016	2026
	Mid-Year Population		Percentage Distribution	
Total	63,791	63,680	100.0	100.0
Under 15	9,512	8,231	14.9	12.9
15 - 24	6,114	6,501	9.6	10.2
25 - 44	17,207	13,881	27.0	21.8
45 - 64	20,203	19,242	31.7	30.2
65 and over	10,755	15,825	16.9	24.9
Median Age (years)	44.1	48.6		
Male	30,695	30,571	100.0	100.0
Under 15	4,833	4,125	15.7	13.5
15 - 24	2,974	3,342	9.7	10.9
25 - 44	8,484	6,691	27.6	21.9
45 - 64	9,803	9,563	31.9	31.3
65 and over	4,601	6,850	15.0	22.4
Median Age (years)	43.1	47.6		
Female	33,096	33,109	100.0	100.0
Under 15	4,679	4,106	14.1	12.4
15 - 24	3,140	3,159	9.5	9.5
25 - 44	8,723	7,190	26.4	21.7
45 - 64	10,400	9,679	31.4	29.2
65 and over	6,154	8,975	18.6	27.1
Median Age (years)	45.0	49.5		

Source: Population Projections



Another indicator of aging is the old-age dependency ratio which can be a gauge of society’s capacity to maintain the quality of life of seniors. In 2016, the old-age dependency ratio was 24.7 and by 2026 it is projected to soar to 39.9 (Table 7). This means that in 2026 there are expected to be 40 seniors (65 years and older) for every 100 people of working age (15-64 years). During the same period, the youth dependency ratio is anticipated to slip from 21.9 to 20.8. Between 2016 and 2026, the total dependency ratio is expected to rise from 46.6 to 60.7. This measures the working age population’s ability to support persons under 15 years and 65 years and over.

Table 7
Dependency Ratios, 2016 - 2026

Mid-Year	Total	Youth	Old-Age
2016	46.6	21.9	24.7
2017	47.7	21.8	25.9
2018	48.9	21.8	27.0
2019	50.2	21.8	28.4
2020	51.6	21.9	29.8
2021	53.0	21.8	31.2
2022	54.5	21.7	32.8
2023	55.8	21.4	34.4
2024	57.3	21.1	36.1
2025	59.0	20.9	38.1
2026	60.7	20.8	39.9

Source: Population Projections

Ratio of Males to Females to Fall Slightly

The sex ratio for the total population was 92.7 males per 100 females in 2016. By 2026, the sex ratio is projected to drop to 92.3 males for every 100 females. An analysis of the sex ratio by age reveals that at older ages the sex ratio is more unbalanced. Older women outnumber older men in almost every society. Among Bermuda's seniors, there were 74.8 men for every 100 women in 2016. By 2026, the ratio is expected to increase to 76.3 men for every 100 women.

Sex differences in survivorship are significant because older men and women have different social and economic resources available. On average, elderly women are more likely to have a greater need for assistance with services such as income maintenance, housing, meals, transportation and health care because they have less financial resources. According to the 2016 Census, senior women had a median annual personal gross income that was 71.4% of the amount for senior men.

FUTURE IMPLICATIONS FOR BERMUDA

In the future, two phenomena are likely to take place. Firstly, Bermuda's population is expected to decline after medium-term growth as the number of deaths exceeds births; and secondly, there will be a continued shift in the island's age structure as the population ages. Bermuda's evolving demographic profile will have fewer children, an older workforce and more seniors.

Post-2021 Population Decline

Historically, Bermuda has experienced a natural increase, a trend that is projected to be reversed in 2021. Although the overall anticipated population decline of 111 from 2016 to 2026 is relatively small, the establishment of an accelerating natural decrease is noteworthy. In order to prevent this, there needs to be either:

- fewer deaths
- more births
- net immigration
- a combination of the above.

Fewer deaths could be achieved through further advances in medical technology and healthier lifestyle choices. More births could be realized through pro-natalist policies (i.e. incentives to have children) and possibly through less unemployment/ underemployment (more financial security to raise children). Less emigration can be accomplished primarily through improved employment options locally, as factors relating to employment were cited as the main reason for residents emigrating between the 2000 and 2010 Censuses (Bermuda Department of Statistics, 2013:6). More immigration can be achieved by a strengthening or diversifying economy that provides increased job opportunities.

A shrinking population can have environmental benefits as there would be less strain on the island's resources (e.g less traffic congestion, pollution, etc). However, from an economic perspective, continued population loss beyond the projection period could have serious implications, especially if it occurs rapidly over a matter of years rather than decades. Van Dalen and Henkens state population decline can be a negative occurrence "because (1) the tax base decreases, but if government expenditures are fixed or slow to adjust, deficits accumulate, and tax rates will eventually have to rise; and (2) if certain population levels are needed to finance public goods (e.g. schools, hospitals, public transport) that are essential for a community to function, and the population drops below these thresholds, the process of depopulation may speed up" (Van Dalen and Henkens, 2011:445). According to Van Dalen and Henkens, in order to avoid an increase in tax rates, it is important for governments to act quickly once a population begins to decline so that public expenditures are reduced in line with the tax base (2011:445).

Population decline can also lead to excess supply and less demand for certain goods and services, which is problematic as businesses often require a certain target population size to provide the demand needed to remain viable. In addition, population decline can lead to a decrease in housing demand resulting in falling prices. This could be seen as beneficial to persons who are looking to rent or buy a home. However, persons who rely heavily on rental income for their livelihood may suffer (Van Dalen and Henkens, 2011: 446).

Aging Population

Once a relatively small segment of Bermuda's population, older residents are now an expanding portion of the population. If fewer than 4 percent of a country's population is 60 and over (or 65 and over), it is "young"; 4 percent to 7 percent of elderly persons represent a "mature" population and more than 7 percent is an "aged" population (United Nations, 1956). As early as 1950, Bermuda progressed into the mature stage with 5.7% of its population 65 years or older. By 1980, Bermuda's age structure was

considered to be “aged” with 8.3% of its population 65 years and older. In 2016, Bermuda’s elderly population increased to 16.9% and by 2026, it is anticipated to represent 24.9% of the total population.

‘Sandwich’ Generation

As life expectancies are on the rise, adults can be faced with the dual responsibility of taking care of their elderly parents and their own children simultaneously. These persons are known as the ‘sandwich’ generation. The decline in the young population and their ability to look after their parents someday will have consequences on the structure of our society and economy. At the individual level, this situation may be even more precarious. For example, the illness, disability, death or estrangement of even a single adult child can leave elderly parents without the support system they need for a longer duration of time than during past periods of lower life expectancies.

More Will Retire

As baby boomers age over the coming years, more persons will be reaching retirement age than in the past. Due to declining fertility levels, it may be difficult for employers to secure enough qualified young Bermudians to fill these vacant positions. Also, as indicated by the increasing old-age dependency ratio, there will be a greater proportion of elderly dependents who may need to be supported by the working population. One possible option to address this would be to increase the mandatory retirement age of 65 in some industries or to eliminate it altogether as an earlier retirement age diminishes the labour pool. Aside from substantial immigration, another way to increase the labour supply immediately will be to bring more of the elderly into the workforce.

In the future, the needs of the elderly will likely shift public policy and the provision of services. Finding affordable care providers for seniors could become more challenging than finding childcare providers. More or larger retirement facilities, senior citizen daycare programmes and in-home care services will also be required. As a result, Bermuda’s “greying” population will provide challenges in upcoming years.

Resources Needed for Chronic Health Conditions

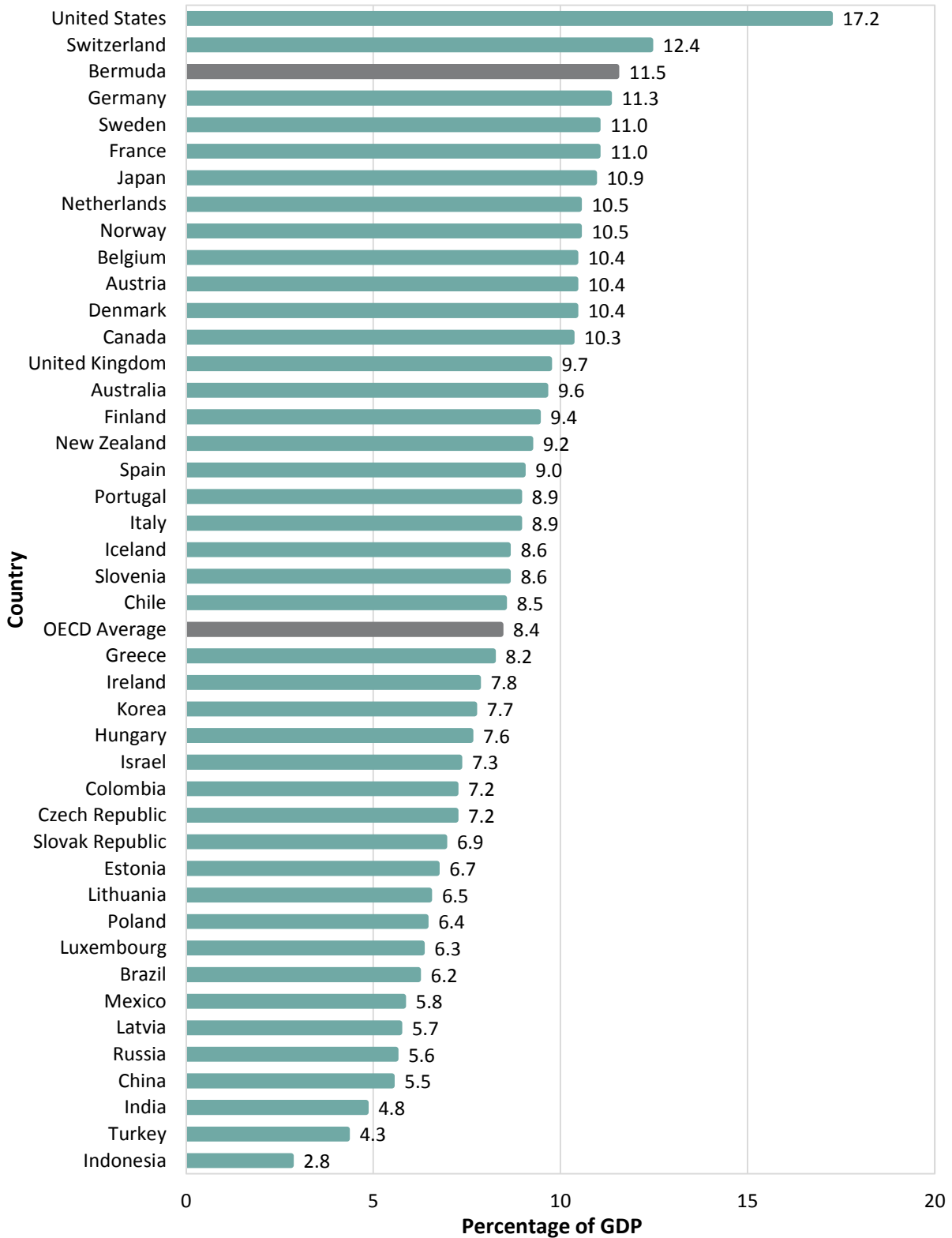
Of all residents, 7.2% were 75 years and older in 2016. By 2026, this proportion is anticipated to increase to 10.8%. The increase in the proportion of older seniors will likely increase the demand for purpose-built residential facilities with trained staff. This is inevitable because with increasing age, seniors are more likely to have chronic health challenges that may require the assistance of another person or permanent care in an institution. According to the 2010 Census, 77% of seniors had a long-term health condition compared with 35% of persons under 65 years of age. Also, 14% of seniors had a disabling long-term health condition in comparison to 4% of the population under 65 years of age. The 2014 Health Survey of Adults in Bermuda indicated that seniors were more likely to have hypertension, diabetes and cardiovascular disease (Bermuda Ministry of Health, Seniors and Environment, 2016).

Rising Health Care Costs Outpaces Inflation

In 2004, each Bermuda household spent about \$7,000 a year on health care on average, a 156% increase from the amount spent in 1993. This represents a greater increase in health care expenditure than the 32% rate of inflation during this period. The amount each household spent on health care was roughly \$10,300 on average in 2013, a 47% increase from 2004. This was also a greater increase than the 30% rate of inflation during this period. In 2013, households headed by seniors spent \$10,919 per year on health care, up from \$6,000 in 2004. Seventy-six percent (76%) of that expenditure was comprised of health insurance (Bermuda Department of Statistics, 2005 and 2014).

Figure 5 indicates that Bermuda’s health system share of Gross Domestic Product is the third highest out of the Organization for Economic Co-operation and Development countries. This is of concern as “although this may reflect prioritisation of health in an economy, it can also highlight the need for improvement in health system efficiency” (Bermuda Health Council, 2018:21).

Figure 5
Health System Share of Gross Domestic Product



Source: 2017 National Health Accounts Report

Inadequacy of Contributory Pension Fund

The importance of private-occupational retirement plans introduced in 2000 will rise to meet the financial needs of retirees. The decline in the number of births mentioned previously has far-reaching consequences for pay-as-you-go type pensions such as the Bermuda Government's Contributory Pension Fund (CPF). This is because the contributions that are paid into the fund in a given year by workers are generally paid out as benefits in the same year.

The financial viability of this type of pension scheme can be problematic if the number of pensioners is rising at a faster rate than the number of workers. In fact, the Spending and Government Efficiency (SAGE) Commission has indicated that "the CPF faces the challenge of a lower ratio of workers to pensioners. This scheme is 43% funded, the underfunded portions amount to \$2,066 million. Left in its current structure, workers would have to pay ever-increasing amounts in contributions for people who are retired. This is an untenable option" (SAGE Commission, 2013:15). Furthermore, the Auditor General has indicated that in the best case scenario, the CPF would be depleted by 2049 (Thomas, 2018:2).

"On August 4, 2010, the National Pension Scheme (Financial Hardship) Regulations 2010 (as amended) under the National Pension Scheme (Occupational Pensions) Act 1998 were passed into law. These regulations permit qualified and approved applicants to receive limited payments from their pension funds for four types of financial hardships: eligible medical expenses, eligible educational expenses, imminent loss of principal residence due to mortgage or debt arrears and imminent threat of eviction from home due to rent arrears" (The Pension Commission, 2008: 20). Although this law allows eligible participants to obtain limited monies from their pension fund to alleviate short-term crises, it can have long-term consequences as making a hardship withdrawal can result in a reduced retirement pension.

CONCLUSION

The projections presented in this report indicate a possible trend of the population by age and sex based on one series of fertility, mortality and migration assumptions. If Bermuda's demographic trends vary, however, it will result in a different population by 2026. The lack of migration data is a significant limitation of this population projection series. As such, it is of importance that comprehensive migration data be collected to supplement birth and death data to enhance future series. Some implications of Bermuda's long-term population decline and aging population have been highlighted and it is important that plans are made for these demographic shifts immediately.

APPENDIX

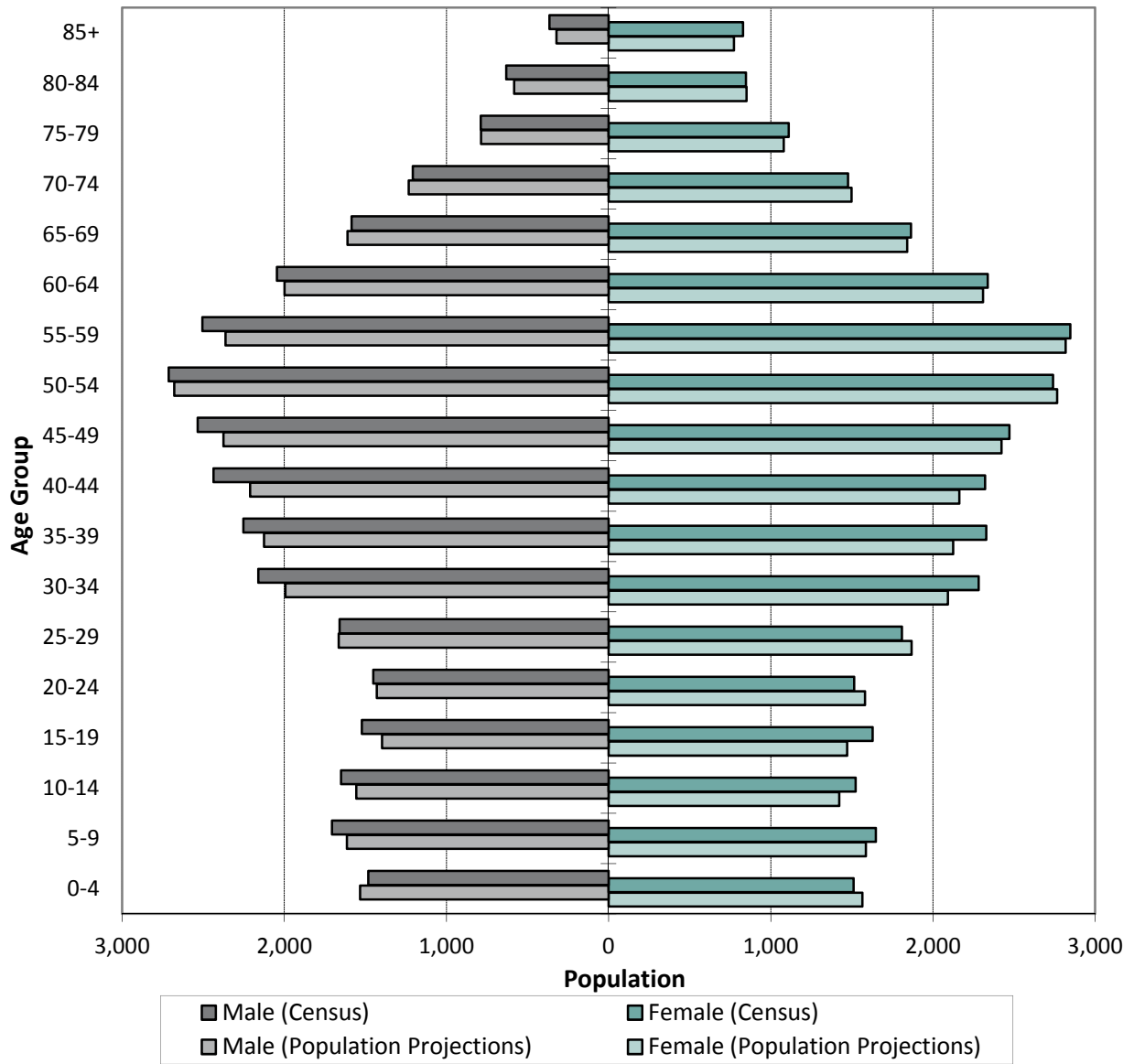
ACCURACY OF PAST PROJECTIONS

Past projections can be evaluated by comparing the 2016 Census population for the entire island with the 2016 projected population based on the 2010 Census. The age pyramid (Figure 1A) shows that the 2016 projected figures by age and sex have a similar pattern as the 2016 Census Day population.

Overall, the 2016 projected total population was 3.3% lower than the 2016 Census count. The number of males and females projected was 4.0% and 2.6% lower, respectively. The differential between the age groups ranged from a population projection overcount of 105 persons in the 0-4 age group to a population projection undercount of 385 persons aged 40-44 years.

The differences may be due partly to assumptions made for the 2010 Population Projections not holding true in their entirety by 2016. The 2010 Census undercount is also a likely factor in the 2016 projected population being lower than the 2016 Census count.

Figure 1A
Population Pyramids for 2016 Census Population and 2016 Population Projections Based on 2010 Census Data



Sources: 2010 Population and Housing Census and 2010-2020 Population Projections

Table 1A
Population Projections by Five-Year Age Group and Sex, 2016 - 2026

Age Group	July 1, 2016			July 1, 2017			July 1, 2018		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	63,791	30,695	33,096	63,892	30,737	33,155	63,973	30,768	33,205
0 - 4	2,995	1,483	1,512	3,003	1,487	1,516	2,911	1,463	1,448
5 - 9	3,344	1,702	1,642	3,266	1,674	1,592	3,241	1,630	1,611
10 - 14	3,173	1,648	1,525	3,177	1,636	1,541	3,227	1,662	1,565
15 - 19	3,154	1,525	1,629	3,193	1,559	1,634	3,207	1,571	1,636
20 - 24	2,960	1,449	1,511	2,925	1,435	1,490	2,959	1,470	1,489
25 - 29	3,454	1,652	1,802	3,334	1,594	1,740	3,201	1,547	1,654
30 - 34	4,424	2,151	2,273	4,257	2,070	2,187	4,015	1,934	2,081
35 - 39	4,580	2,250	2,330	4,569	2,223	2,346	4,603	2,211	2,392
40 - 44	4,749	2,431	2,318	4,672	2,378	2,294	4,596	2,339	2,257
45 - 49	4,998	2,531	2,467	4,956	2,521	2,435	4,982	2,537	2,445
50 - 54	5,447	2,712	2,735	5,369	2,696	2,673	5,186	2,608	2,578
55 - 59	5,356	2,509	2,847	5,413	2,555	2,858	5,499	2,620	2,879
60 - 64	4,402	2,051	2,351	4,558	2,099	2,459	4,728	2,176	2,552
65 - 69	3,468	1,592	1,876	3,626	1,661	1,965	3,717	1,721	1,996
70 - 74	2,699	1,215	1,484	2,824	1,272	1,552	2,942	1,304	1,638
75 - 79	1,907	793	1,114	1,982	837	1,145	2,064	894	1,170
80 - 84	1,479	631	848	1,493	630	863	1,525	641	884
85+	1,202	370	832	1,275	410	865	1,370	440	930

Age Group	July 1, 2019			July 1, 2020			July 1, 2021		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	64,027	30,786	33,241	64,054	30,791	33,263	64,055	30,783	33,272
0 - 4	2,876	1,458	1,418	2,837	1,439	1,398	2,781	1,400	1,381
5 - 9	3,132	1,549	1,583	3,051	1,492	1,559	2,993	1,482	1,511
10 - 14	3,303	1,694	1,609	3,344	1,720	1,624	3,341	1,701	1,640
15 - 19	3,193	1,600	1,593	3,172	1,624	1,548	3,172	1,648	1,524
20 - 24	3,045	1,500	1,545	3,094	1,481	1,613	3,146	1,519	1,627
25 - 29	3,041	1,475	1,566	2,996	1,473	1,523	2,947	1,438	1,509
30 - 34	3,813	1,837	1,976	3,596	1,736	1,860	3,438	1,639	1,799
35 - 39	4,610	2,190	2,420	4,548	2,178	2,370	4,404	2,136	2,268
40 - 44	4,571	2,307	2,264	4,590	2,280	2,310	4,559	2,235	2,324
45 - 49	4,946	2,539	2,407	4,837	2,486	2,351	4,715	2,409	2,306
50 - 54	4,969	2,486	2,483	4,857	2,440	2,417	4,938	2,492	2,446
55 - 59	5,545	2,698	2,847	5,481	2,665	2,816	5,342	2,639	2,703
60 - 64	4,882	2,217	2,665	5,069	2,346	2,723	5,200	2,403	2,797
65 - 69	3,875	1,823	2,052	4,052	1,886	2,166	4,215	1,927	2,288
70 - 74	3,067	1,363	1,704	3,153	1,389	1,764	3,236	1,450	1,786
75 - 79	2,140	928	1,212	2,263	986	1,277	2,421	1,055	1,366
80 - 84	1,556	626	930	1,588	648	940	1,611	644	967
85+	1,463	496	967	1,526	522	1,004	1,596	566	1,030

Table 1A
Population Projections by Five-Year Age Group and Sex, 2016 - 2026

Age Group	July 1, 2022			July 1, 2023			July 1, 2024		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	64,031	30,763	33,268	63,982	30,732	33,250	63,905	30,689	33,216
0 - 4	2,717	1,367	1,350	2,652	1,336	1,316	2,586	1,304	1,282
5 - 9	3,000	1,485	1,515	2,908	1,461	1,447	2,874	1,457	1,417
10 - 14	3,265	1,674	1,591	3,240	1,630	1,610	3,131	1,549	1,582
15 - 19	3,174	1,635	1,539	3,224	1,661	1,563	3,299	1,693	1,606
20 - 24	3,186	1,554	1,632	3,201	1,566	1,635	3,187	1,595	1,592
25 - 29	2,912	1,423	1,489	2,947	1,460	1,487	3,033	1,489	1,544
30 - 34	3,319	1,582	1,737	3,187	1,536	1,651	3,028	1,465	1,563
35 - 39	4,241	2,059	2,182	3,997	1,920	2,077	3,798	1,826	1,972
40 - 44	4,548	2,208	2,340	4,583	2,197	2,386	4,589	2,176	2,413
45 - 49	4,637	2,355	2,282	4,565	2,319	2,246	4,541	2,288	2,253
50 - 54	4,899	2,483	2,416	4,926	2,500	2,426	4,891	2,501	2,390
55 - 59	5,268	2,626	2,642	5,087	2,540	2,547	4,878	2,424	2,454
60 - 64	5,257	2,449	2,808	5,343	2,514	2,829	5,390	2,591	2,799
65 - 69	4,366	1,974	2,392	4,533	2,049	2,484	4,682	2,090	2,592
70 - 74	3,391	1,517	1,874	3,479	1,574	1,905	3,630	1,670	1,960
75 - 79	2,535	1,108	1,427	2,647	1,138	1,509	2,758	1,190	1,568
80 - 84	1,676	682	994	1,744	729	1,015	1,813	757	1,056
85+	1,640	582	1,058	1,719	602	1,117	1,797	624	1,173

Age Group	July 1, 2025			July 1, 2026		
	Total	Male	Female	Total	Male	Female
Total	63,803	30,635	33,168	63,680	30,571	33,109
0 - 4	2,519	1,272	1,247	2,457	1,243	1,214
5 - 9	2,836	1,439	1,397	2,781	1,400	1,381
10 - 14	3,051	1,492	1,559	2,993	1,482	1,511
15 - 19	3,340	1,719	1,621	3,338	1,701	1,637
20 - 24	3,165	1,619	1,546	3,163	1,641	1,522
25 - 29	3,084	1,471	1,613	3,136	1,509	1,627
30 - 34	2,982	1,463	1,519	2,935	1,430	1,505
35 - 39	3,583	1,725	1,858	3,427	1,629	1,798
40 - 44	4,528	2,165	2,363	4,383	2,123	2,260
45 - 49	4,561	2,262	2,299	4,532	2,218	2,314
50 - 54	4,786	2,451	2,335	4,665	2,376	2,289
55 - 59	4,766	2,379	2,387	4,851	2,431	2,420
60 - 64	5,330	2,562	2,768	5,194	2,538	2,656
65 - 69	4,867	2,214	2,653	4,996	2,270	2,726
70 - 74	3,797	1,729	2,068	3,953	1,768	2,185
75 - 79	2,838	1,214	1,624	2,917	1,272	1,645
80 - 84	1,920	807	1,113	2,055	865	1,190
85+	1,850	652	1,198	1,904	675	1,229

Source: Department of Statistics

Table 2A
Population Projections by Single Year of Age and Sex, 2016 - 2018

Age	July 1, 2016			July 1, 2017			July 1, 2018		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	63,791	30,695	33,096	63,892	30,737	33,155	63,973	30,768	33,205
0	587	307	280	582	295	287	568	285	283
1	583	292	291	587	307	280	582	295	287
2	591	284	307	583	292	291	587	307	280
3	660	309	351	591	284	307	583	292	291
4	574	291	283	660	309	351	591	284	307
5	645	317	328	574	291	283	660	309	351
6	663	349	314	644	316	328	574	291	283
7	700	365	335	663	349	314	644	316	328
8	685	353	332	700	365	335	663	349	314
9	651	318	333	685	353	332	700	365	335
10	647	335	312	650	318	332	685	353	332
11	622	323	299	647	335	312	650	318	332
12	624	333	291	622	323	299	647	335	312
13	634	327	307	624	333	291	622	323	299
14	646	330	316	634	327	307	623	333	290
15	647	311	336	646	330	316	634	327	307
16	643	299	344	647	311	336	646	330	316
17	637	304	333	643	299	344	647	311	336
18	620	315	305	637	304	333	643	299	344
19	607	296	311	620	315	305	637	304	333
20	593	272	321	607	296	311	620	315	305
21	593	318	275	593	272	321	606	295	311
22	549	272	277	592	317	275	593	272	321
23	586	279	307	549	272	277	591	316	275
24	639	308	331	584	278	306	549	272	277
25	642	306	336	639	308	331	583	277	306
26	636	318	318	641	305	336	639	308	331
27	706	342	364	635	317	318	639	304	335
28	714	323	391	706	342	364	635	317	318
29	756	363	393	713	322	391	705	341	364
30	797	402	395	755	362	393	713	322	391
31	849	415	434	797	402	395	754	361	393
32	907	438	469	848	414	434	796	401	395
33	952	455	497	905	437	468	848	414	434
34	919	441	478	952	455	497	904	436	468
35	935	439	496	918	440	478	951	455	496
36	909	426	483	935	439	496	917	439	478
37	896	456	440	908	425	483	934	438	496
38	914	464	450	894	455	439	908	425	483
39	926	465	461	914	464	450	893	454	439
40	966	484	482	925	464	461	913	464	449
41	884	448	436	964	483	481	924	463	461
42	915	484	431	884	448	436	963	482	481
43	987	501	486	914	483	431	882	447	435

Table 2A
Population Projections by Single Year of Age and Sex, 2016 - 2018

Age	July 1, 2016			July 1, 2017			July 1, 2018		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
44	997	514	483	985	500	485	914	483	431
45	1,082	557	525	996	513	483	983	499	484
46	988	499	489	1,080	556	524	995	512	483
47	946	478	468	987	498	489	1,078	555	523
48	952	479	473	943	476	467	985	496	489
49	1,030	518	512	950	478	472	941	475	466
50	992	500	492	1,028	517	511	947	476	471
51	1,091	538	553	988	497	491	1,025	515	510
52	1,150	592	558	1,088	536	552	985	495	490
53	1,122	559	563	1,147	590	557	1,085	534	551
54	1,092	523	569	1,118	556	562	1,144	588	556
55	1,115	513	602	1,088	521	567	1,113	553	560
56	1,138	561	577	1,110	509	601	1,083	517	566
57	1,084	500	584	1,131	556	575	1,105	506	599
58	1,010	476	534	1,078	496	582	1,125	552	573
59	1,009	459	550	1,006	473	533	1,073	492	581
60	956	438	518	1,002	455	547	1,000	469	531
61	919	408	511	949	433	516	994	450	544
62	898	438	460	913	404	509	942	428	514
63	809	378	431	891	433	458	907	400	507
64	820	389	431	803	374	429	885	429	456
65	758	374	384	813	384	429	796	369	427
66	704	321	383	749	368	381	805	379	426
67	703	310	393	696	316	380	740	362	378
68	681	293	388	695	305	390	689	311	378
69	622	294	328	673	288	385	687	300	387
70	631	285	346	614	289	325	664	283	381
71	572	267	305	620	278	342	603	282	321
72	531	222	309	562	261	301	610	272	338
73	515	233	282	521	216	305	552	255	297
74	450	208	242	507	228	279	513	212	301
75	410	179	231	440	202	238	495	221	274
76	394	176	218	399	173	226	428	195	233
77	401	157	244	383	170	213	389	167	222
78	381	146	235	389	151	238	373	165	208
79	321	135	186	371	141	230	379	146	233
80	333	157	176	310	129	181	358	135	223
81	302	123	179	318	149	169	297	122	175
82	311	144	167	290	117	173	305	142	163
83	288	103	185	298	137	161	278	111	167
84	245	104	141	277	98	179	287	131	156
85+	1,202	370	832	1,275	410	865	1,370	440	930

Source: Department of Statistics

Table 3A
Population Projections by Single Year of Age and Sex, 2019 - 2021

Age	July 1, 2019			July 1, 2020			July 1, 2021		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	64,027	30,786	33,241	64,054	30,791	33,263	64,055	30,783	33,272
0	557	280	277	545	274	271	531	267	264
1	568	285	283	557	280	277	545	274	271
2	581	294	287	568	285	283	556	280	276
3	587	307	280	581	294	287	568	285	283
4	583	292	291	586	306	280	581	294	287
5	591	284	307	583	292	291	586	306	280
6	660	309	351	590	284	306	583	292	291
7	574	291	283	660	309	351	590	284	306
8	644	316	328	574	291	283	660	309	351
9	663	349	314	644	316	328	574	291	283
10	699	365	334	663	349	314	644	316	328
11	685	353	332	699	365	334	663	349	314
12	650	318	332	685	353	332	699	365	334
13	647	335	312	650	318	332	685	353	332
14	622	323	299	647	335	312	650	318	332
15	623	333	290	622	323	299	647	335	312
16	634	327	307	623	333	290	622	323	299
17	646	330	316	634	327	307	623	333	290
18	647	311	336	646	330	316	634	327	307
19	643	299	344	647	311	336	646	330	316
20	637	304	333	643	299	344	646	311	335
21	619	314	305	636	303	333	642	298	344
22	606	295	311	618	314	304	636	303	333
23	592	271	321	605	294	311	617	313	304
24	591	316	275	592	271	321	605	294	311
25	548	272	276	590	315	275	592	271	321
26	582	276	306	548	272	276	589	314	275
27	638	307	331	582	276	306	548	272	276
28	639	304	335	637	306	331	581	275	306
29	634	316	318	639	304	335	637	306	331
30	705	341	364	633	315	318	638	303	335
31	712	321	391	705	341	364	633	315	318
32	754	361	393	711	320	391	704	341	363
33	795	400	395	753	361	392	710	319	391
34	847	414	433	794	399	395	753	361	392
35	903	435	468	847	414	433	793	398	395
36	951	455	496	902	434	468	847	414	433
37	916	438	478	951	455	496	901	433	468
38	934	438	496	914	437	477	950	455	495
39	906	424	482	934	438	496	913	436	477
40	892	453	439	905	423	482	933	437	496
41	913	464	449	891	452	439	904	423	481
42	922	462	460	912	464	448	890	451	439
43	962	481	481	921	461	460	912	464	448

Table 3A
Population Projections by Single Year of Age and Sex, 2019 - 2021

Age	July 1, 2019			July 1, 2020			July 1, 2021		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
44	882	447	435	961	480	481	920	460	460
45	912	482	430	881	447	434	959	479	480
46	982	498	484	910	480	430	879	446	433
47	993	511	482	980	497	483	909	479	430
48	1,076	553	523	991	510	481	978	496	482
49	983	495	488	1,075	552	523	990	509	481
50	939	474	465	980	493	487	1,072	550	522
51	944	474	470	937	473	464	977	491	486
52	1,022	513	509	941	472	469	934	471	463
53	983	493	490	1,019	511	508	939	471	468
54	1,081	532	549	980	491	489	1,016	509	507
55	1,140	585	555	1,077	529	548	977	489	488
56	1,108	549	559	1,134	581	553	1,071	525	546
57	1,077	513	564	1,104	546	558	1,129	577	552
58	1,100	503	597	1,071	509	562	1,098	542	556
59	1,120	548	572	1,095	500	595	1,067	506	561
60	1,066	488	578	1,114	543	571	1,089	496	593
61	993	464	529	1,058	483	575	1,106	537	569
62	987	445	542	986	459	527	1,050	478	572
63	936	424	512	981	441	540	980	455	525
64	900	396	504	930	420	510	975	437	538
65	877	423	454	891	391	500	922	415	507
66	788	364	424	868	417	451	881	385	496
67	796	373	423	779	358	421	859	411	448
68	733	357	376	789	368	421	771	353	418
69	681	306	375	725	352	373	782	363	419
70	678	295	383	671	300	371	715	346	369
71	652	276	376	668	289	379	660	293	367
72	593	276	317	641	270	371	657	283	374
73	600	266	334	583	270	313	631	264	367
74	544	250	294	590	260	330	573	264	309
75	502	206	296	532	243	289	577	253	324
76	482	214	268	489	199	290	518	235	283
77	416	188	228	469	207	262	476	192	284
78	378	161	217	404	181	223	456	200	256
79	362	159	203	369	156	213	394	175	219
80	367	140	227	350	153	197	357	150	207
81	344	129	215	352	133	219	336	146	190
82	285	116	169	331	123	208	338	127	211
83	293	135	158	273	110	163	318	117	201
84	267	106	161	282	129	153	262	104	158
85+	1,463	496	967	1,526	522	1,004	1,596	566	1,030

Source: Department of Statistics

Table 4A
Population Projections by Single Year of Age and Sex, 2022 - 2024

Age	July 1, 2022			July 1, 2023			July 1, 2024		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	64,031	30,763	33,268	63,982	30,732	33,250	63,905	30,689	33,216
0	517	261	256	503	254	249	490	248	242
1	531	267	264	517	261	256	503	254	249
2	545	274	271	531	267	264	517	261	256
3	556	280	276	545	274	271	531	267	264
4	568	285	283	556	280	276	545	274	271
5	581	294	287	568	285	283	556	280	276
6	586	306	280	581	294	287	568	285	283
7	583	292	291	586	306	280	581	294	287
8	590	284	306	583	292	291	586	306	280
9	660	309	351	590	284	306	583	292	291
10	574	291	283	660	309	351	590	284	306
11	644	316	328	574	291	283	660	309	351
12	663	349	314	644	316	328	574	291	283
13	699	365	334	663	349	314	644	316	328
14	685	353	332	699	365	334	663	349	314
15	650	318	332	685	353	332	699	365	334
16	646	334	312	649	318	331	685	353	332
17	621	323	298	646	334	312	648	318	330
18	623	333	290	621	323	298	646	334	312
19	634	327	307	623	333	290	621	323	298
20	646	330	316	634	327	307	622	332	290
21	646	311	335	645	329	316	634	327	307
22	641	297	344	646	311	335	644	328	316
23	636	303	333	641	297	344	646	311	335
24	617	313	304	635	302	333	641	297	344
25	604	293	311	617	313	304	634	301	333
26	592	271	321	603	292	311	617	313	304
27	588	313	275	592	271	321	602	291	311
28	548	272	276	588	313	275	592	271	321
29	580	274	306	547	271	276	588	313	275
30	637	306	331	579	274	305	546	270	276
31	637	303	334	636	305	331	578	274	304
32	632	314	318	637	303	334	636	305	331
33	704	341	363	632	314	318	636	302	334
34	709	318	391	703	340	363	632	314	318
35	753	361	392	709	318	391	703	340	363
36	792	397	395	752	360	392	708	317	391
37	847	414	433	792	397	395	752	360	392
38	899	432	467	845	413	432	791	396	395
39	950	455	495	899	432	467	844	413	431
40	912	435	477	949	454	495	898	431	467
41	933	437	496	912	435	477	949	454	495
42	902	422	480	931	436	495	910	434	476
43	890	451	439	902	422	480	931	436	495

Table 4A
Population Projections by Single Year of Age and Sex, 2022 - 2024

Age	July 1, 2022			July 1, 2023			July 1, 2024		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
44	911	463	448	889	450	439	901	421	480
45	918	459	459	909	462	447	887	449	438
46	958	478	480	918	459	459	908	461	447
47	877	445	432	956	477	479	917	459	458
48	908	478	430	876	444	432	955	476	479
49	976	495	481	906	477	429	874	443	431
50	988	508	480	974	493	481	904	475	429
51	1,070	548	522	986	507	479	971	491	480
52	974	489	485	1,067	546	521	984	506	478
53	931	469	462	971	487	484	1,064	544	520
54	936	469	467	928	467	461	968	485	483
55	1,013	507	506	933	467	466	925	465	460
56	972	486	486	1,008	503	505	929	464	465
57	1,066	521	545	967	483	484	1,004	500	504
58	1,123	573	550	1,062	518	544	962	480	482
59	1,094	539	555	1,117	569	548	1,058	515	543
60	1,060	502	558	1,088	535	553	1,110	564	546
61	1,082	491	591	1,053	497	556	1,080	530	550
62	1,099	532	567	1,075	487	588	1,046	492	554
63	1,042	473	569	1,092	527	565	1,069	483	586
64	974	451	523	1,035	468	567	1,085	522	563
65	968	432	536	966	446	520	1,027	463	564
66	912	409	503	959	426	533	956	440	516
67	872	379	493	902	403	499	950	420	530
68	851	406	445	864	374	490	894	398	496
69	763	348	415	842	400	442	855	369	486
70	771	356	415	753	342	411	830	392	438
71	704	339	365	759	349	410	742	336	406
72	649	287	362	693	332	361	747	341	406
73	646	276	370	639	281	358	682	326	356
74	621	259	362	635	270	365	629	275	354
75	561	257	304	608	252	356	621	262	359
76	562	245	317	547	249	298	593	245	348
77	504	227	277	547	237	310	533	241	292
78	465	186	279	491	220	271	533	229	304
79	443	193	250	454	180	274	478	213	265
80	381	168	213	427	185	242	440	173	267
81	343	143	200	366	160	206	409	176	233
82	322	139	183	329	136	193	351	152	199
83	325	121	204	309	132	177	316	130	186
84	305	111	194	313	116	197	297	126	171
85+	1,640	582	1,058	1,719	602	1,117	1,797	624	1,173

Source: Department of Statistics

Table 5A
Population Projections by Single Year of Age and Sex, 2025 - 2026

Age	July 1, 2025			July 1, 2026		
	Total	Male	Female	Total	Male	Female
Total	63,803	30,635	33,168	63,680	30,571	33,109
0	479	243	236	470	238	232
1	490	248	242	479	243	236
2	503	254	249	489	248	241
3	516	260	256	503	254	249
4	531	267	264	516	260	256
5	545	274	271	531	267	264
6	556	280	276	545	274	271
7	568	285	283	556	280	276
8	581	294	287	568	285	283
9	586	306	280	581	294	287
10	583	292	291	586	306	280
11	590	284	306	583	292	291
12	660	309	351	590	284	306
13	574	291	283	660	309	351
14	644	316	328	574	291	283
15	663	349	314	644	316	328
16	699	365	334	663	349	314
17	684	353	331	699	365	334
18	648	318	330	684	353	331
19	646	334	312	648	318	330
20	621	323	298	646	334	312
21	622	332	290	619	322	297
22	633	326	307	622	332	290
23	644	328	316	632	325	307
24	645	310	335	644	328	316
25	641	297	344	645	310	335
26	634	301	333	640	296	344
27	616	312	304	634	301	333
28	602	291	311	616	312	304
29	591	270	321	601	290	311
30	588	313	275	591	270	321
31	545	270	275	587	312	275
32	577	273	304	545	270	275
33	636	305	331	577	273	304
34	636	302	334	635	305	330
35	631	313	318	635	301	334
36	703	340	363	631	313	318
37	708	317	391	703	340	363
38	751	359	392	707	316	391
39	790	396	394	751	359	392
40	843	412	431	789	395	394
41	898	431	467	842	412	430
42	948	453	495	897	430	467
43	909	434	475	948	453	495

Table 5A
Population Projections by Single Year of Age and Sex, 2025 - 2026

Age	July 1, 2025			July 1, 2026		
	Total	Male	Female	Total	Male	Female
44	930	435	495	907	433	474
45	901	421	480	930	435	495
46	885	448	437	899	420	479
47	907	460	447	884	447	437
48	915	458	457	905	459	446
49	953	475	478	914	457	457
50	873	442	431	951	474	477
51	901	473	428	871	440	431
52	968	489	479	899	472	427
53	982	505	477	965	487	478
54	1,062	542	520	979	503	476
55	963	482	481	1,059	540	519
56	921	462	459	959	479	480
57	926	462	464	917	459	458
58	998	496	502	922	460	462
59	958	477	481	994	493	501
60	1,053	512	541	952	473	479
61	1,103	559	544	1,046	507	539
62	1,073	525	548	1,096	554	542
63	1,040	488	552	1,067	521	546
64	1,061	478	583	1,033	483	550
65	1,077	516	561	1,053	473	580
66	1,017	457	560	1,066	509	557
67	947	434	513	1,007	451	556
68	940	414	526	939	429	510
69	886	393	493	931	408	523
70	844	363	481	875	387	488
71	817	384	433	831	355	476
72	730	329	401	805	377	428
73	736	334	402	718	322	396
74	670	319	351	724	327	397
75	616	268	348	656	311	345
76	606	254	352	601	260	341
77	578	237	341	591	246	345
78	519	233	286	563	229	334
79	519	222	297	506	226	280
80	463	205	258	502	213	289
81	423	165	258	445	196	249
82	393	168	225	406	157	249
83	337	145	192	377	160	217
84	304	124	180	325	139	186
85+	1,850	652	1,198	1,904	675	1,229

Source: Department of Statistics

BIBLIOGRAPHY

- Bermuda Department of Statistics, *The Changing Face of Bermuda's Seniors*. Island Press: Bermuda 2005.
- Bermuda Department of Statistics (2005), *Benefits and Challenges of Collecting International Migration Statistics: The Case for Bermuda*
- Bermuda Department of Statistics (2005), *2004 Household Expenditure Survey*.
- Bermuda Department of Statistics (2012), *2010 Census of Population and Housing Report*.
- Bermuda Department of Statistics (2013), *Emigration: Bermuda's Qualified Human Capital Departs*.
- Bermuda Department of Statistics (2014), *2013 Household Expenditure Survey Report*.
- Bermuda Department of Statistics (2018), *Bermuda Digest of Statistics No. 40*.
- Bermuda Department of Statistics (2018), *2016 Census of Population and Housing Report*.
- Bermuda Health Council (2011). *Health Survey of Adults in Bermuda 2011*.
- Bermuda Health Council (2018), *2017 National Health Accounts Report*.
- Bermuda Health Department, *Surveillance Report*, Hamilton: Bermuda, June, 1994
- Bermuda Ministry of Health, Seniors and Environment (2016), *Steps to a Well Bermuda: Health Survey of Adults in Bermuda 2014*. Government of Bermuda
- Bermuda Statistical Department, *Census of Bermuda 23rd October, 1950*. Hamilton: Bermuda Government, 1952.
- Bermuda Statistical Department, *Census of Bermuda 23rd October, 1960*. Hamilton: Bermuda Government, 1961.
- Bermuda Statistical Department, *Report of the Population Census 1970*. Hamilton: Bermuda Government, 1973.
- Bermuda Statistical Department, *Bermuda Digest of Statistics No. 1*. Hamilton: Bermuda, 1973.
- Bermuda Statistical Department, *Report of the Population Census 1980*. Hamilton: Bermuda Government, 1980.
- Bermuda Statistical Department, *A Review of Death Statistics 1951 - 1979*. Hamilton: Bermuda, 1981.
- Bermuda Statistical Department, *Bermuda Digest of Statistics No. 11*. Hamilton: Bermuda, 1987.
- Bermuda Statistical Department, *Bermuda Digest of Statistics No. 12*. Hamilton: Bermuda, 1988.
- Census Office, *The 1991 Census of Population and Housing*. Bermuda: Bermuda Press, 1993.
- Census Office, *Report on the 2000 Census of Population and Housing*. Bermuda: Bermuda Press, 2002.
- Haupt, A., Kane T. & Haub C., *Population Reference Bureau's Population Handbook (Sixth Edition)*. Washington, D.C.: Population Reference Bureau Inc., 2011
- Johnston-Barnes, O., (2017, April 20), *Radiation unit up and running*, The Royal Gazette, Retrieved 6 September, 2018 from <http://www.royalgazette.com/news/article/20170612/radiation-unit-up-and-running>
- Kaneda, T. & Bremner, J., (2014). *Understanding Population Projections: Assumptions Behind the Numbers*, Population Reference Bureau, Retrieved 5 September, 2018 from <https://www.prb.org/wp-content/uploads/2014/07/understanding-population-projections.pdf>

SAGE Commission, 2013, *Final Report*.

Simpson, L., (2017, May 18), *Radiation therapy 'may save 100 lives a year'*, The Royal Gazette, Retrieved 6 September, 2018 from <http://www.royalgazette.com/health/article/20170420/radiation-therapy-may-save-100-lives-year>

The Pension Commission, 2008, *Annual Report 2008*.

Thomas, H. (2018), *Report of the Auditor General on the Audits of the Financial Statements of the Consolidated Fund of the Government of Bermuda for the years ended March 31, 2013, March 31, 2014, March 31, 2015 and March 31, 2016*

United Nations, 1979. *Prospects of Population: Methodology and Assumptions*. New York.

United Nations, *The Aging of Populations and its Economic and Social Implications*, Population Studies, No. 26 (United Nations publication, Sales No. 1956. XIII.6);

United Nations (2017), *The impact of population momentum on future population growth*, Retrieved 6 September from https://esa.un.org/unpd/wpp/publications/Files/PopFacts_2017-4_Population-Momentum.pdf

Van Dalen, H.P. & Henkins, K. (2011). Who fears and who welcomes population decline? *Demographic Research* 25(13): 437-464.

World Bank, *Fertility rate, total (births per woman)*, Retrieved 15 August, 2018 from <https://data.worldbank.org/indicator/SP.DYN.TFRT.IN>