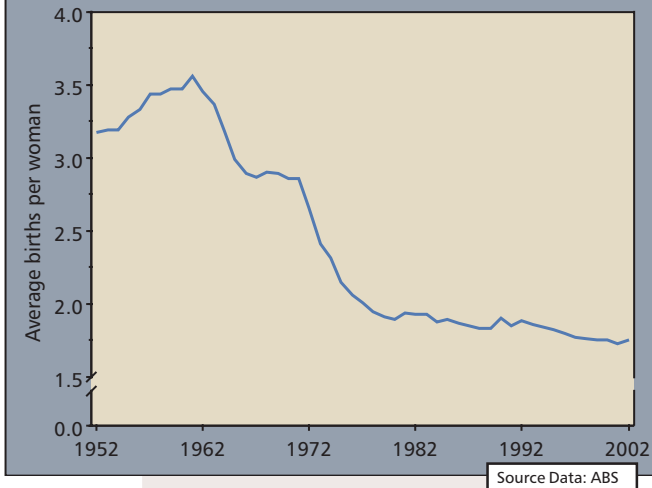
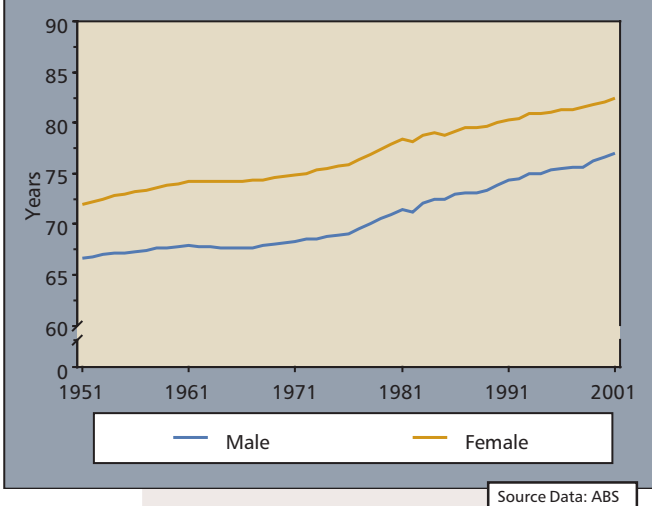


# Population Projections

**Fig. 1-23: Total Fertility Rate 1952–2002**



**Fig. 1-24: Life Expectancy at Birth 1951–2001**



Few issues are as important for Australia as the changes to our population that will occur over the next century. The Prime Minister has identified demographic issues as a key theme for the Government's third term agenda.

Population growth and size, composition, distribution, skill level and age structure are key factors contributing to the economic, social, and environmental well-being of this country.

We have already entered a unique period in our history during which we will go from being a young and growing population, to one that is older and possibly almost stable at around 26 to 27 million by mid century, due primarily to our below replacement and declining fertility rate and our increasing life expectancy. The magnitude of these changes is well illustrated by the likelihood that, in the 2030s, for the first time ever, more Australians are likely to die than are born.

## Factors Involved in Population Change

Australia's demographic future depends on the following key factors:

- fertility;
- life expectancy; and,
- net overseas migration (NOM).

Change in the size of the population is the result of natural increase (births minus deaths) and NOM (permanent and long-term arrivals minus permanent and long-term departures with an adjustment for category jumping).

## Fertility

Australia's total fertility rate (TFR), the average number of children a woman would bear over her lifetime was 3.6 children per woman in 1961. The rate fell strongly in the first half of the 1960s and then again in the first half of the 1970s to reach 1.9 children per woman by 1979. It remained almost constant throughout the 1980s. Since 1992, the rate has fallen by a small amount each year to reach 1.73 children per woman in 2001 (see Figure 1-23), which is the lowest on record. It increased slightly to 1.75 in 2002.

This downward trend has been replicated in almost every developed country, as well as many developing nations. In fact, Australia's TFR is comparatively higher than most other developed nations. For example, Italy, Spain, the Slovak Republic, Japan, Austria, Hungary, Greece, Poland, and Germany, all have TFRs between 1.2 and 1.4. The TFRs of both Spain and Italy declined dramatically over a relatively short period of time ie for Spain, from 2.1 in 1980 to 1.2 in 1995 (a 43 per cent fall over 15 years) and, for Italy, from 1.7 in 1980 to 1.2 in 1994 (a 30 per cent fall over 15 years). In contrast, Australia's TFR declined from 1.9 in 1980 to 1.8 in 1995 (a 5 per cent fall over 15 years).

Many demographers consider that Australia's TFR will fall further over the next ten years. There is, however, no consensus or certainty about how far and how fast it might fall and whether it could stabilise at some point. To account for the uncertainty about the future of Australia's fertility rate, the ABS has constructed projections to 2101 based on average fertility rates of 1.8, 1.6 and 1.4 children per woman.

## Life Expectancy

Expectation of life in Australia rose during the 1950s, but levelled out in the 1960s. At that time, analysts considered that we had come close to the limits of the human life span. Since the 1960s, however, expectation of life in Australia, and in other countries, has increased significantly. Since 1981 life expectancy at birth has increased by 6 years for males and 4 years for females, reaching 77.0 years for males and 82.4 for females in 1999-2001.

Internationally, Australia's life expectancy at birth for males ranks behind Japan (78 years), beside Switzerland, Hong Kong and Sweden (each 77 years), and is above that of New Zealand (76 years), the United Kingdom (75 years) and the United States of America (74 years).

Australia's life expectancy at birth for females is similar to Hong Kong and Sweden (each 82 years). It falls behind Japan (85 years), France, Spain and Switzerland (each 83 years) and is above Canada, Greece and New Zealand (each 81 years), the United Kingdom and the United States of America (each 80 years).

For the purpose of population projections, the ABS has constructed projections to 2101 based on life expectancy for males increasing to 84.2 and 92.2 years for males, and to 87.7 and 95.0 years for females.

## Net Overseas Migration

Over the last 25 years, the contribution of NOM to population growth has averaged around 39 per cent per year but this has fluctuated significantly from a low of 17.8 per cent in 1992-93 to a high of 54.5 per cent in 1988-89.

NOM is subject to considerable fluctuations from year to year. The low points of in-migration and the high points of emigration have in the past tended to coincide with economic downturns in Australia, but the high points, while generally occurring in good economic times, are less directly associated with the economic cycle. Average NOM has been around 90,000 per year over the last 50 years.

For its projections, the ABS has assumed NOM to be 125,000 (high assumption), 100,000 (medium assumption) and 70,000 (low assumption) persons per year.

## Population Prospects for Australia

The ABS population projections span the period from June 2002 to June 2101 for Australia.

These projections are not intended as predictions or forecasts, but as illustrations of growth and change in the population which would occur if certain assumptions about future levels of fertility, mortality and NOM were to prevail over the projection period.

A summary of the ABS assumptions and projections is provided in the table below.

**Fig 1-25 : Main Projection Series, Australia**

	Assumptions				Population as at 30 June	
	Total Fertility Rate <sup>(a)</sup>	Net Overseas Migration <sup>(b)</sup>	Life expectancy at birth (years) <sup>(c)</sup>		2051	2101
	Babies per woman	Persons	Males	Females	million	million
Series A	1.8	125,000	92.2	95.0	31.4	37.7
Series B	1.6	100,000	84.2	87.7	26.4	26.4
Series C	1.4	70,000	84.2	87.7	23.0	18.9

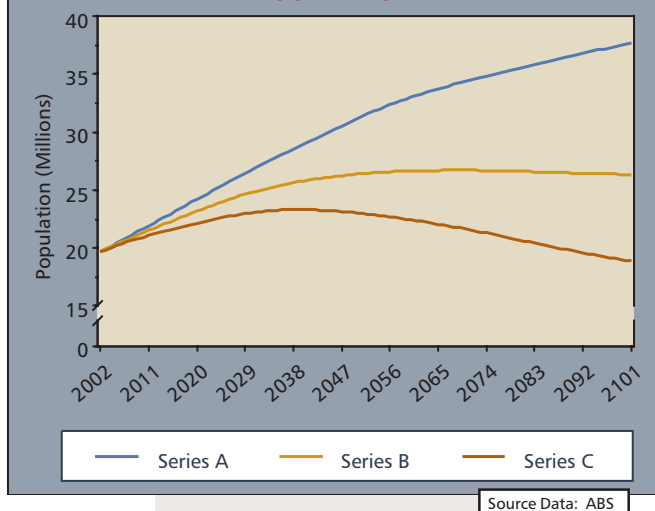
(a) From 2011      (b) From 2005-06      (c) From 2050-51  
Source Data: ABS

Australia's estimated resident population (ERP) at June 2002 of 19.7 million is projected to grow to between 23.0 million and 31.4 million in 2051, and to between 18.9 million and 37.7 million in 2101. Growth will be highest under Series A and lowest under Series C (see Figure 1-25).

Under the medium assumptions (Series B), Australia's population would stabilise around 26.4 million from 2051.

Throughout the 1990s and early 2000s, Australia's annual population growth rate has been in excess of 1 per cent. This is due to natural increase, or an excess of births over deaths as well as NOM. In 2001-02, there were 246,300 births and 130,500 deaths in Australia, contributing 115,900 people through natural increase.

**Fig. 1-26: Projected Population 2002-2101**



Projections indicate that deaths would exceed births in the future, leading to a state of natural decrease from between 2029-30 (Series C) and 2070-71 (Series A). Therefore, while growth would continue at around its current rate for the next 4-15 years (except under Series C), it would slow throughout the remainder of the projection period, as NOM increasingly becomes the main source of growth. Growth would eventually become negative some time between 2040 (Series C) and 2070 (Series B), as NOM does not fully offset natural decrease.

## International Comparisons

According to the United Nations' population projections, some of Australia's major trading partners also show low positive to negative population growth rates between 1995-2000 and 2045-2050. Japan experienced an average annual population growth rate of 0.2 per cent in 1995-2000. However, it is projected that during 2045-2050 Japan's population will decline by an average of 0.6 per cent each year to a level below their current population. The United States of America experienced population growth of 1.1 per cent each year during 1995-2000, while it is projected to be 0.4 per cent per year on average during 2045-2050.

## The Population Debate

There are a number of groups in Australia who advocate high levels of NOM to ensure that the population will grow faster and not stop growing by mid-century. These groups argue that increasing the number of migrants will help slow the rate of ageing of the population, stimulate the economy and help develop the full potential of the country.

On the other hand, other groups argue that, by increasing the number of people living in Australia, immigration is placing further pressures on Australia's diverse and sometimes fragile environment and natural resources. There have also been recent calls for the Government to develop optimum population targets for Australia.

It is important to realise that the range of realistic options for future population levels available to Australia is restricted. This is because the policy levers available to governments to influence population size and distribution are limited, particularly in the case of a liberal democracy such as Australia where many of the kinds of measures generally associated with population policies in less democratic countries (eg control of internal mobility and compulsory birth control programs) would not be acceptable.

Difficulties faced in influencing Australia's population size through immigration include the need to uphold Australia's international humanitarian obligations, the need to allow Australians to reunite with close family, the importance of skilled migration for meeting skill shortages, the increasing global competition for skilled people, the limited influence on emigration, the entry of New Zealanders and temporary entry.

Population targets that have been suggested for Australia have ranged from as low as 6 million to as high as 50 million or even more. The ABS states that such targets are impossible to reach in the foreseeable future, given current levels of fertility and historic levels of migration.

Even if fertility was to fall to 1.0 baby per woman, and NOM was set at zero, the population would be 16 million in 2051, although it would reach 6 million by 2101. In the more likely event that fertility and mortality remain at the levels specified under the medium projection series (Series B), to reach a population target as low as 6 million by 2051 would require negative net migration of around -237,000 per year.

To obtain a population of 50 million by 2051 with fertility at 1.6 babies per woman, migration would need to be 490,000 per year. Alternatively, with migration at 100,000 fertility would need to jump to 3.9. To reach the same target by 2101 would require a net intake of over 300,000 migrants per year, or fertility would need to increase to 2.4 with migration of 100,000 per year.

## Prospect for Other Dimensions of Population

Fertility, life expectancy and NOM have implications for other dimensions of population, including:

1. the workforce's potential growth rate and size;
2. the population age structure; and
3. population distribution.

### 1. Change in the Potential Workforce's Growth Rate and Size

The potential workforce is the number of people in the population of workforce age (ie usually defined as 15-64 year olds). The actual workforce will depend on the proportion of 15-64 years olds that seek to actively participate in the workforce.

As population growth slows, growth in the potential workforce is also projected to slow considerably. Potential workforce growth peaked in 1999 and is projected to steadily decline. In recent years Australia's potential labour force has been growing by about 170,000 people each year. However, for the entire decade 2021-31, the potential labour force is expected to increase in size by less than 200,000 people in total under series B.

The population aged 15-64 years numbered 13.2 million people and made up 67 per cent of Australia's population at June 2002.

Despite quite different outcomes in terms of the population size of those aged 15-64 years under the three different ABS series (see Figure 1-27), this age group follows the same pattern for all series in terms of the proportion of the total population. The proportion will increase slightly over the first six years of the projection for all three series, to between 67 to 68 per cent, before declining to 57 to 59 per cent in 2051 and 54 to 57 per cent in 2101.

### 2. Change in the Population Age Structure

The ageing of our population will continue. This is the inevitable result of fertility remaining at low levels over a long period and increasing life expectancy. As population growth slows, the population is projected to age progressively with the median age of 35 years in 2001 increasing to about 41 in 2021 and to about 48 years in 2051.

By 2051, around 27 per cent of Australia's population is projected to be aged 65 years or over, compared with 13 per cent currently. By 2101, this proportion will be around 29 per cent. The highest annual rate of growth for this age group will occur around 2012, when the peak of the baby-boom generation reaches retirement age.

Those aged 85 years and over currently make up 1.4 per cent of the total population, but will grow to over 7 per cent in 2051 and to around 9 per cent in 2101.

Extensive research has concluded that immigration beyond current levels would have a diminishing impact on retarding the ageing of the population. This reflects ageing being a gradual process and that migrants who enter Australia would themselves be part of the aged population in 30 to 40 years time. Massive levels of immigration would be needed to have any significant impact on the proportion of the population that is aged. Such levels would result in a very large population in future years. Changes in the fertility rate have a far greater impact on the population age structure than changes in migration levels.

### 3. Population Distribution

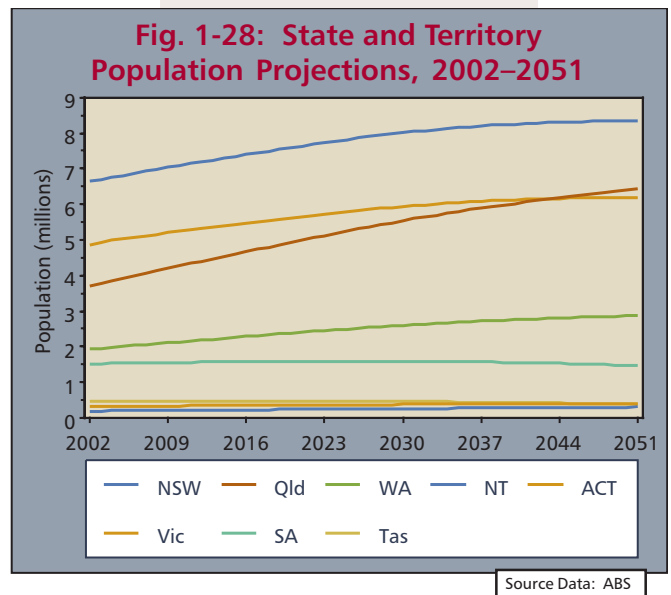
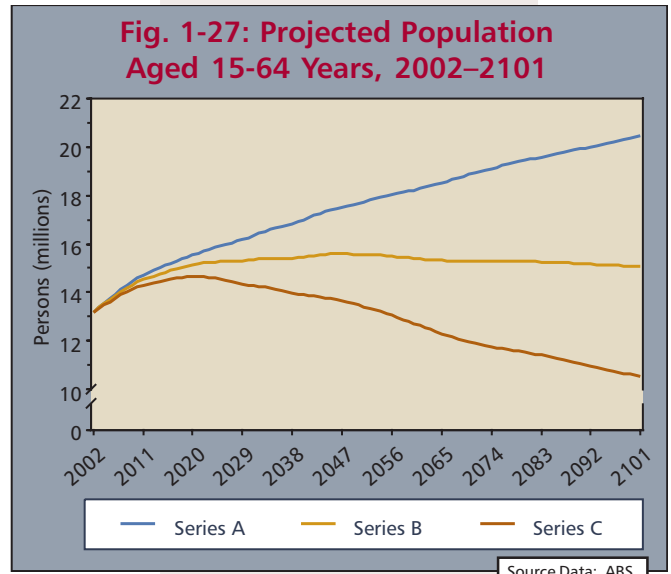
Population is not just about numbers. Where people live is just as important to the economic, social and environmental future of Australia. Over 75 per cent of Australia's population currently lives in three States: New South Wales (33.8 per cent); Victoria (24.8 per cent); and Queensland (18.8 per cent). The remaining 23 per cent live in Western Australia (9.8 per cent); South Australia (7.7 per cent); Tasmania (2.4 per cent); the ACT (1.6 per cent); and the Northern Territory (1.0 per cent).

The ABS notes that interstate migration is probably the most difficult component to measure in Australia's population estimation process. The movement of people between the States and Territories of Australia is unrestricted and depends on many factors such as varying economic opportunities, overseas immigration and settlement patterns, and lifestyle choices of their populations. As fluctuations in these factors cannot be foreseen, the trends and levels of past net interstate migration are used by the ABS for their projections.

Series B projects population increase over the next 50 years in all States and Territories, except Tasmania and South Australia. Between June 2002 and June 2051, the population of the Northern Territory will increase by 55 per cent, Queensland by 73 per cent and Western Australia by 49 per cent, well above the growth projected for Australia (34 per cent). The distribution of Australia's population is therefore projected to be noticeably different in 50 years' time.

Under Series B, New South Wales is projected to remain the most populous state in Australia, while Victoria will be replaced by Queensland as the second most populous state. Western Australia will increase its share of Australia's population, while South Australia's and Tasmania's shares will decline under this Series.

Under Series B, all of the capital cities will experience larger percentage growth than their respective balances, resulting in the further concentration of Australia's population within the capital cities.



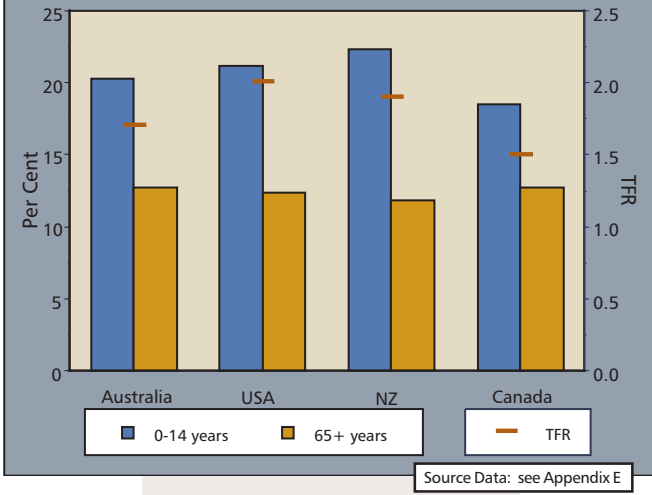
Australia is highly urbanised. At June 2002, 64 per cent of Australians lived in capital cities, but by 2051, this proportion would increase to 67 per cent. Sydney and Melbourne would remain the two most populous cities in Australia at 5.7 million and 4.8 million respectively in 2051. In this series the population of Darwin would exceed that of Hobart from 2045.

Darwin and Brisbane are our two fastest growing cities, and other cities, such as Perth, are growing faster than Sydney. Within the capital cities, the inner areas have begun to experience population growth after years of decline. There is also continued growth in many regional centres including Maitland, Griffith, Dubbo, Ballarat, Wodonga, Townsville, Toowoomba, Mount Gambier and Albany. In contrast, population loss in rural Australia has been occurring for some time, largely as a result of internal migration.

Figure 1-28 illustrates Australia's State and Territory population projections up to 2051.

# Population Characteristics of Other Countries

**Fig. 1-29: Dependency Ratio and Total Fertility Rate**

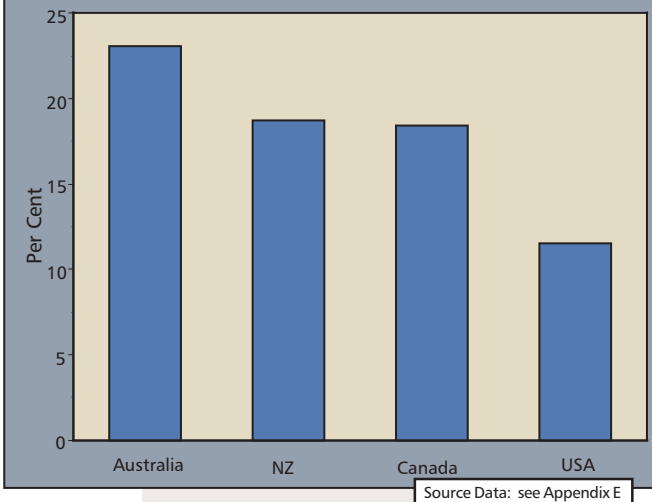


**Fig. 1-30: Life Expectancy**

	Male	Female
Australia	77	82
USA	74	80
NZ	76	81
Canada	76	82

Source Data: see Appendix E

**Fig. 1-31: Proportion of Overseas-born in Population, 2001**



Populations of different countries grow at different rates, depending on the number of births, deaths, immigrants and emigrants. Other than Australia, three other countries operate planned migration programs, the USA, Canada and New Zealand. The characteristics of their populations are similar in some respects and quite dissimilar in others.

The annual average population growth rate between 1995 and 2000 for Australia was 1.2 per cent. Comparable growth rates for the other three countries with planned migration, were 1.0 per cent for New Zealand, 0.9 for Canada and 1.1 for the USA (United Nations Population Division - World Population Prospects: The 2002 Revision). As with many other developed countries the growth rate in Australia has slowed over time due to the decline in the number of children being born. The replacement level of 2.1 children per woman (that is, the number of children a woman will have in her lifetime that is required to replace the population) is not being met. Australia has a total fertility rate (TFR - the average number of children born to a woman during her lifetime) of 1.7 children per woman. Canada has a TFR of 1.5, New Zealand 1.9 and the USA 2.0, with much lower rates for many Western European countries and Japan.

Low fertility impacts on the ageing of the population and consequently on the size of the labour force. As people retire there is no counterbalance of similar numbers of younger people moving into the labour force causing governments to look for workers overseas. In all the migration countries the proportion of those people aged 65 years or more is increasing. Fig. 1-29 shows the proportion of those aged 65 years or more was the same in Australia and Canada (12.7 per cent) while the proportion in the USA (12.4 per cent) and New Zealand (11.8 per cent) were a little lower.

The proportion of the populations in the younger age groups are representative of the trends in fertility in each of the countries. New Zealand has the highest proportion with those aged less than 15 years accounting for 22 per cent followed by the USA with 21 per cent. Both these countries have a TFR that is higher than Australia and Canada. The proportion of the Australian population aged 15 years or less was 20 per cent and for Canada, 19 per cent. The group comprised of those aged less than 15 years and those aged 65 years or more, is collectively known as the dependent population, as they do not generally participate actively in the labour force.

Another component of population growth is life expectancy. All countries throughout the world have experienced a decline in mortality. For the four migration countries the life expectancy at birth (that is, the age that a person is expected to reach when they are born) of males and females is shown in Fig. 1-30. Life expectancy for these four countries compare well with other developed countries, with Canada and Australia ranking amongst the top group.

The proportion of the Australian population born overseas is significantly greater than in the other three migration countries. In 2001 the overseas-born comprised 18.4 per cent of the Canadian population, 18.7 per cent of the New Zealand population and 11.4 per cent of the population of the USA. This compares with 23.1 per cent of the Australian population (2001 Census) who were born overseas.