APPENDIX 11

PAST DEMOGRAPHIC TRENDS IN AUSTRALIA AND POPULATION PROJECTIONS TO 2100

Australia's future population growth depends on future levels of fertility, mortality and net overseas migration (NOM). This paper provides an overview of past demographic trends in Australia and sets out a plausible baseline projection of Australia's population future.

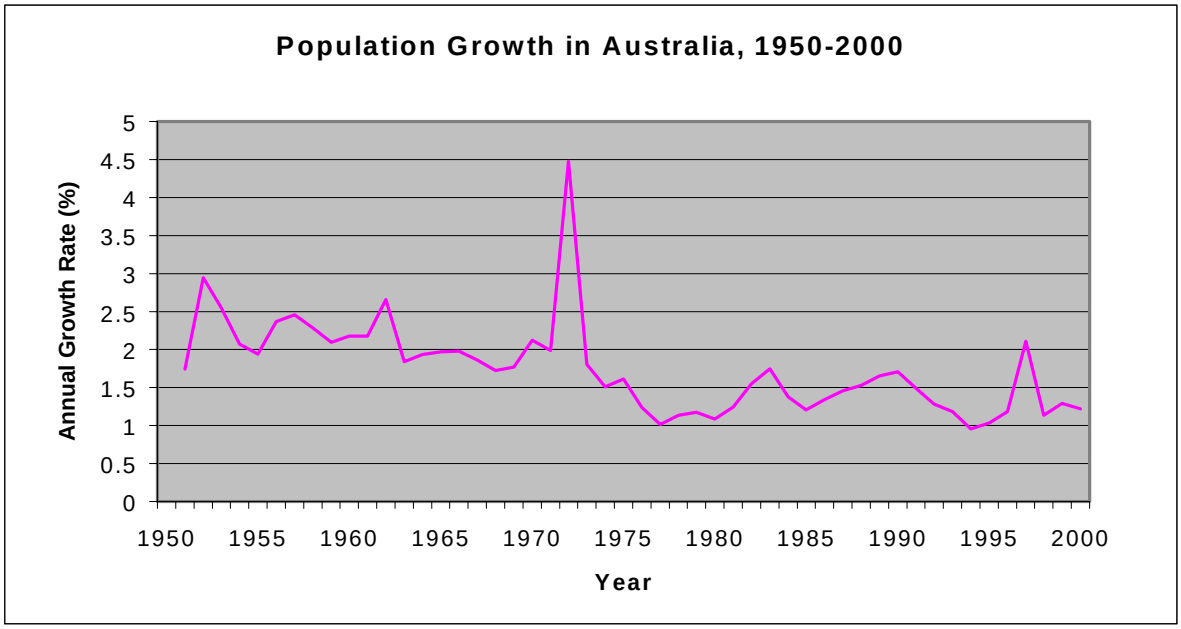
Demographic trends over the last 50 years

Population growth - The preliminary estimated resident population of Australia at December 2001, based on the 2001 Census, was 19,603,500. The population increased by 242,900 persons since December 2000 and by 56,000 persons since September 2001. For the year ended December 2001, the Australian population grew by 1.3%. All States and Territories had positive growth rates, the highest being Queensland (1.9%) and the lowest for Tasmania (0.2%) (ABS 3101.0 December Qtr 2001).

Australia's current population growth rate is one of the highest in the developed world. Only Iceland, Luxembourg and Turkey have higher rates of population growth (1.4-1.5%). By comparison, population is growing in the USA by 0.9 %, the UK by 0.4%, in Japan by 0.2%, and in France by 0.5%.

Australia's highest annual population growth rates of the century were recorded in the period 1947-1960, which averaged 2.3% a year. During the 1960s population growth was slightly lower than in the baby boom era but was still relatively high at an average annual rate of 2.0%. During the 1980s, population growth averaged 1.5% a year. Since the beginning of the 1990s population growth has varied each year, ranging from 1.4% in 1990 down to just less than 1.0% in 1993. Over the five year period from 1996 to 2001, the average annual population growth rate was 1.3%. Over the period 1996-2001, the population continued to age as a result of fertility remaining at low levels over a long period, the ageing of the baby boomers, and increasing life expectancy. The median age of the population increased from 34.0 years in 1996 to 35.7 years in 2001.

Figure 1



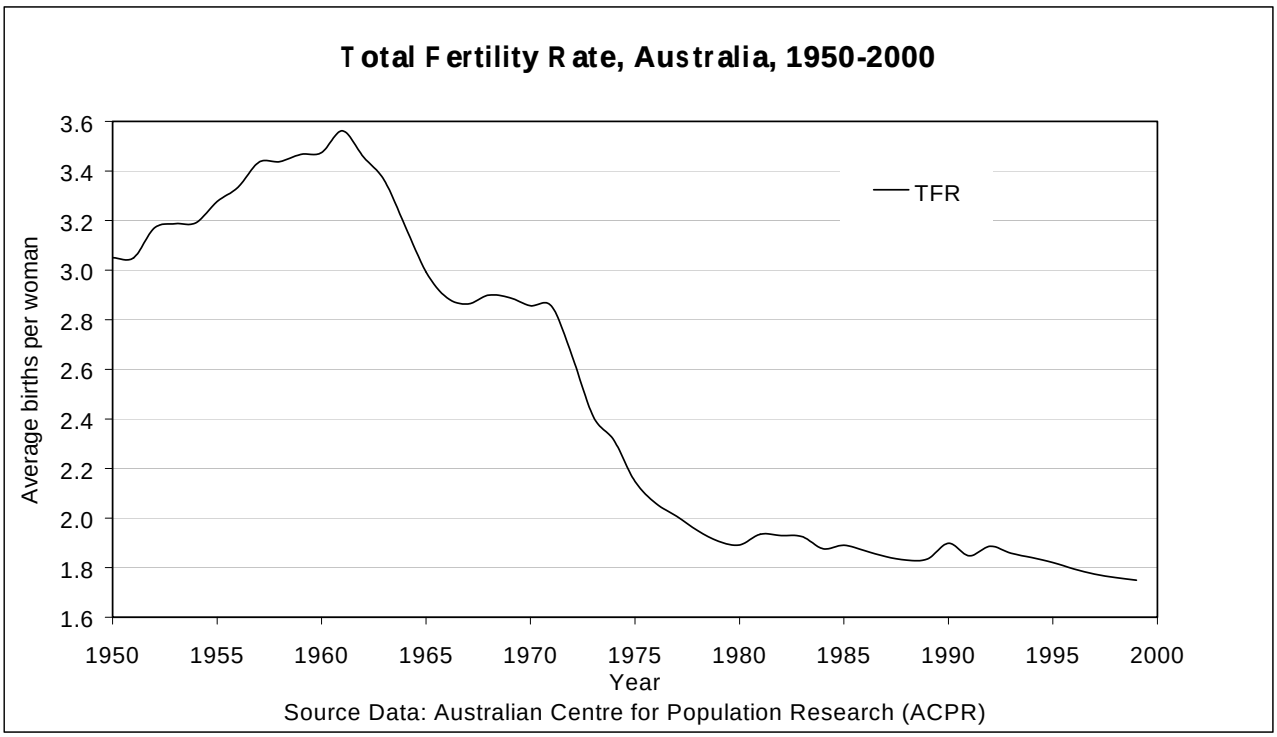
Population distribution - Over 75% of Australia's population lives in three States: New South Wales (33.8%); Victoria (24.9%); and Queensland (18.3%). The remaining 23% live in Western Australia (9.6%); South Australia (8.1%); Tasmania (2.6%); the ACT (1.7%); and the Northern Territory (1.0%).

Australia is highly urbanised with 64% of the population currently living in the capital cities. In recent years, about two thirds of all net overseas migration to Australia has been to the cities of Sydney and Melbourne. This means that as overseas migration plays an increasing part in Australia's population growth, much of that growth is likely to be in Sydney and Melbourne. Out-migration from Sydney tends to be concentrated in the Australia-born but this is less so in Melbourne where the established migrant population appears to have taken on the movement characteristics of the Australia-born population.

Fertility - The total fertility rate (TFR) for Australia is currently 1.74 expected births per woman over her lifetime. 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% fall over 15 years) and, for Italy, from 1.7 in 1980 to 1.2 in 1994 (a 30% fall over 15 years). In contrast, Australia's TFR declined from 1.9 in 1980 to 1.8 in 1995 (a 5% fall over 15 years).

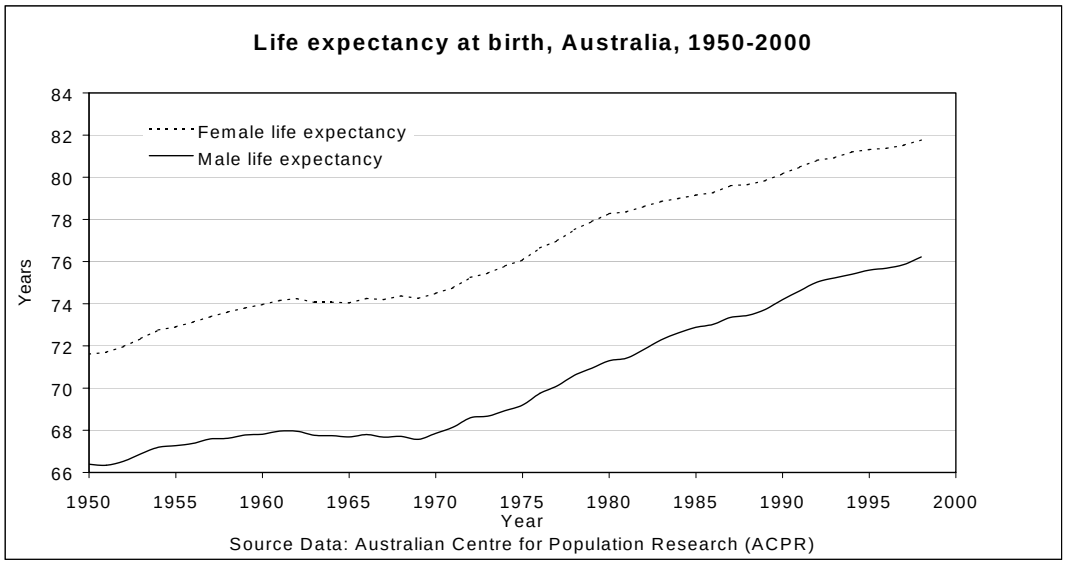
From a peak of 3.1 during the early 1920s, Australia's TFR troughed during the 1930s to 2.1 before gradually rising to peak at 3.6 children per woman in 1961. The rate fell to 1.9 children per woman by 1979 and it remained almost constant throughout the 1980s and into the 1990s. Since 1992, the fertility rate has fallen by a small amount each year to reach 1.74 children per woman in 2000-2001. Estimates of fertility in ten years time indicate that fertility could range from 1.54 to 1.87 births per woman with the lower bound reflecting a continuation of present trends. Baseline projections tend to use a fertility rate of around 1.65 in ten years time.

Figure 2



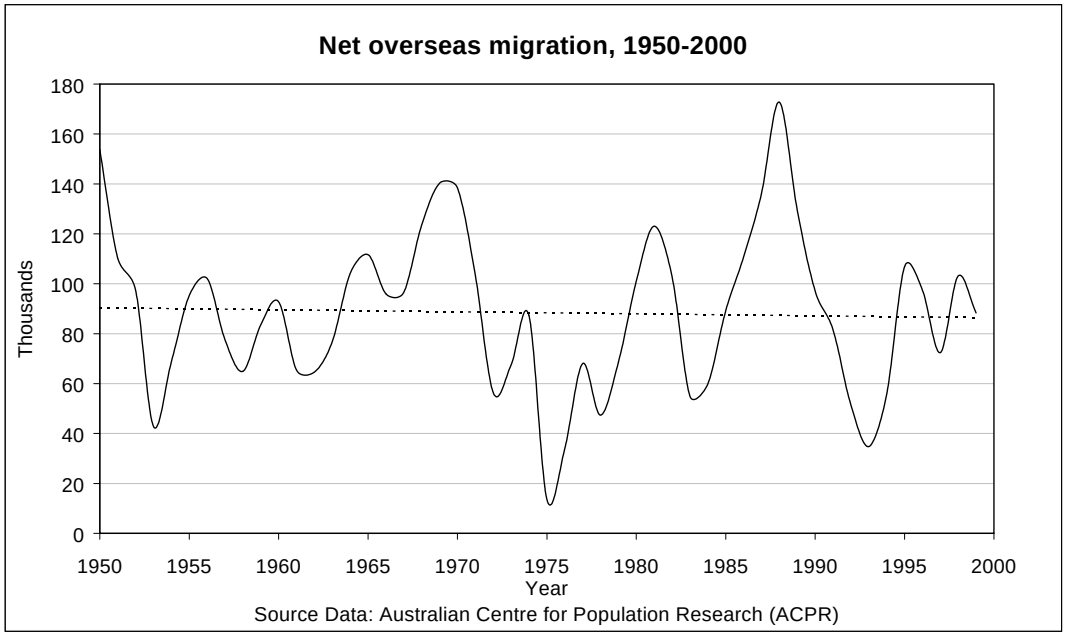
Life Expectancy - Expectation of life in Australia rose during the 1950s, but levelled out in the 1960s. At that time, analysts considered that we had come close to the limits of the human life span. However, since the 1960s, expectation of life in Australia, and in other countries, has increased significantly. Death rates under the age of 50 are now so low that complete elimination of mortality under 50 years would have no noticeable effect on the size of the population at those ages. In demographic terms, the impacts of further falls in mortality will be noticeable only by increases in the numbers of people at the older ages. During the period 1975-2000, expectation of life rose by five years, reaching 76.5 years for males and 82.5 for females).

Figure 3



NOM - 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 annual NOM over the past ten years has been 80,000. It has been 90,000 over the last 17 years.

Figure 4



On the basis of current policy settings, a long-term average level of NOM between 80,000 and 100,000 per annum seems likely – although it should be noted that NOM can be highly volatile. Past trends in net long-term movement and net permanent movement (the main components of NOM) from 1983 to 2000 are illustrated in Figure XX.

Figure XX

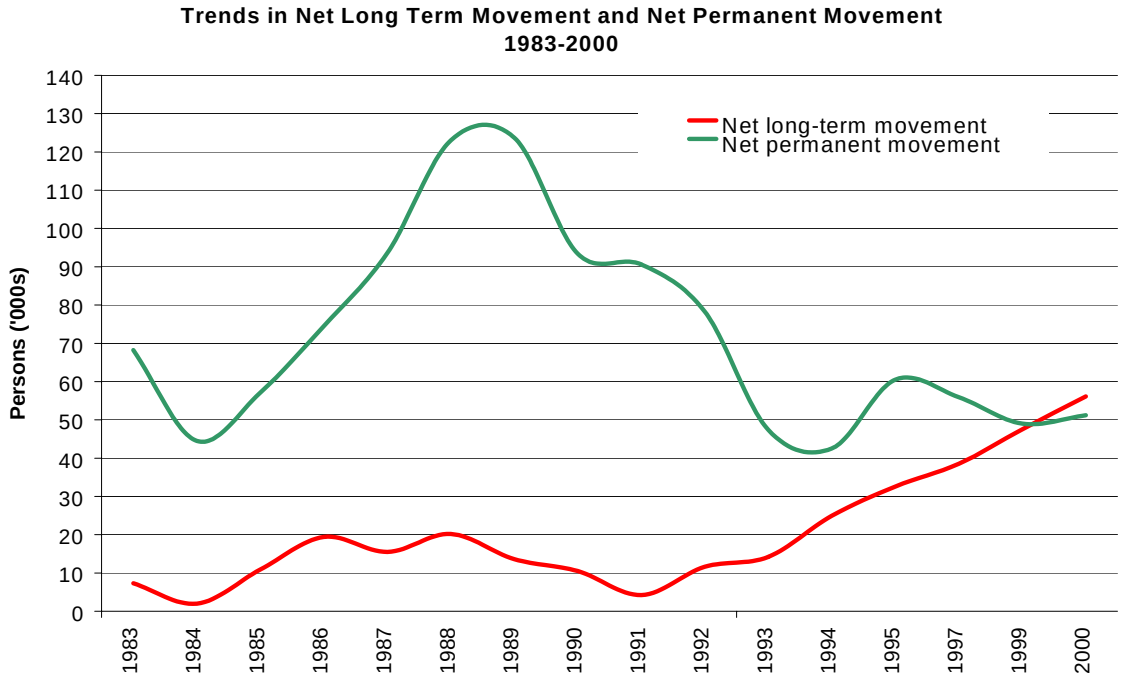
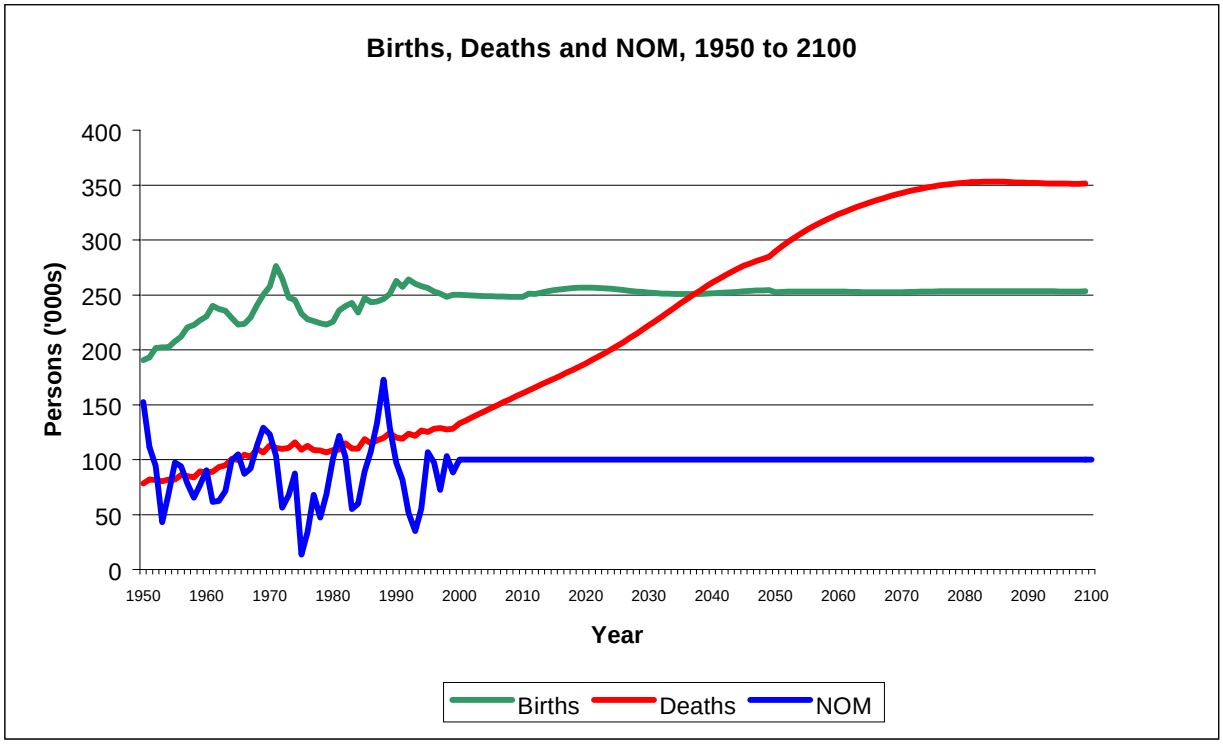


Figure X shows the past trend of births, deaths and NOM from 1950 to 2000 and, based on plausible assumptions about births, deaths and migration, projects these to 2100.

Figure X



Plausible Baseline Population Projection for Australia

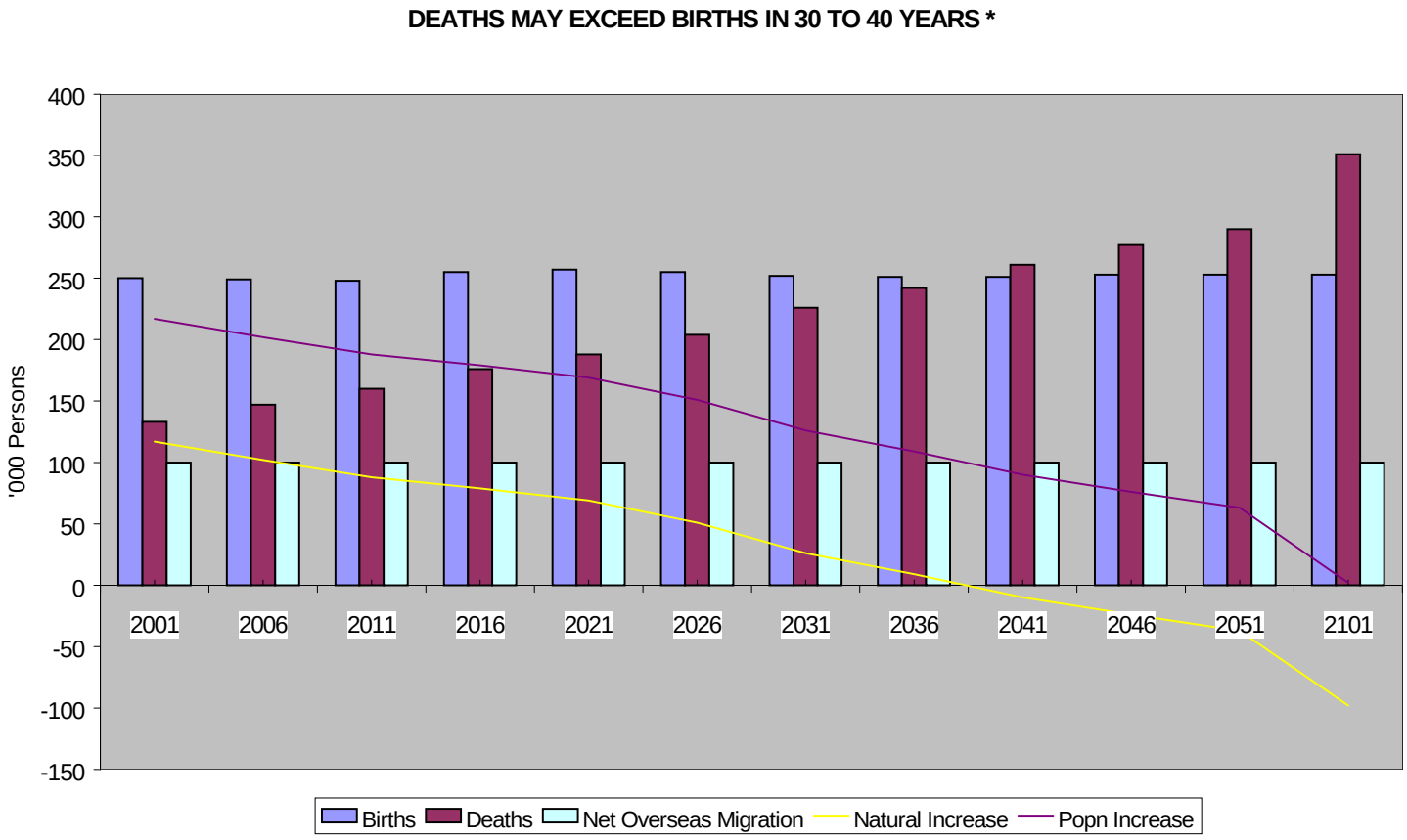
The baseline scenario assumes:

- TFR of 1.65 children per woman. This level implies a continuation of the slow fall in fertility for another ten years from 1.74 currently to 1.65 by around 2010, remaining constant thereafter to 2100.
- Life expectancy is assumed to rise at the rate of one year in every ten-year period from now to 2050. By 2050, expectation of life would be 83.3 years for men and 86.5 years for women. It is assumed to remain constant thereafter to 2100.
- NOM is assumed at 100,000 per annum from now to 2100.

Under the baseline scenario, population growth would fall from 1.3% per annum currently to 0.3% by 2050, reaching zero by 2100. The population would reach about 26.4m around the middle of this century and continue to grow very slowly to about 27.1m by the end of this century.

As Figure 5 below illustrates, under the baseline scenario, deaths are likely to exceed births by around the mid to late 2030s. Beyond this point, only NOM will contribute to population growth.

Figure 5



Source: Population Projections Australia (ABS) and DIMA

Under the baseline scenario, the number of workforce age (ie persons of 15-64 years of age) would slowly rise from its current level of 12.9m (67% of the population), peaking at about 16m around 2046 (60% of the population) and then decline very

slowly to around 15.9m (58% of the population) at the end of the century. The ratio of people of workforce age to population size remains fairly constant after 2050.

Australia's population will continue to age over the next 100 years, under the baseline scenario. Around 2050, about 25% of the population (6.61m) would be over 65 years of age compared to 12% (2.4m) currently, and 15% (4.2m) would be under 15 years of age compared to 21% (3.9m) currently. Over the following 50 years to 2100, the proportion of the population over 65 years of age would slowly increase to about 27% (7.6m) while the proportion under 15 years would slowly decline to about 14% (4.4m). Australia will, however, fare better than many other developed nations. For example, Italy's population aged 65+ years may increase from 18% currently to 36.1% by 2050; Japan's may increase from 17% currently to 34% by 2050 and Spain's may increase from 17% currently to 37% by 2050.

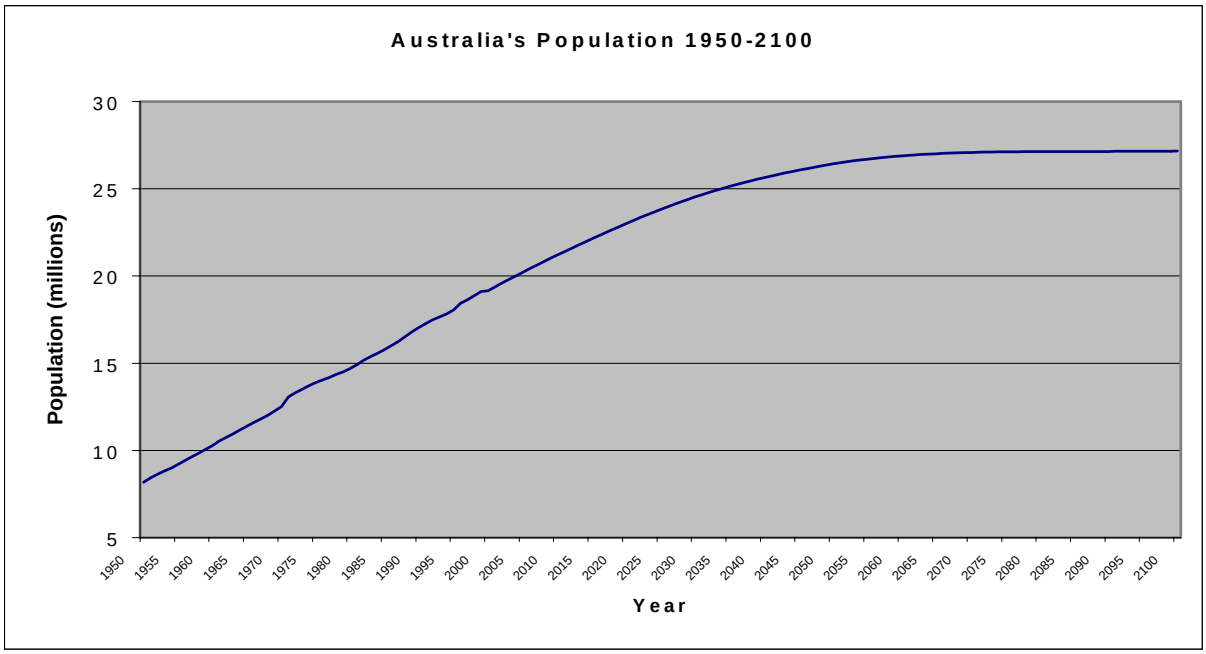
State/Territory baseline population projections

The following graphs set out plausible population projections for each of the States and Territories based on plausible assumptions about fertility, mortality, NOM, and net interstate migration.

These projections assume:

- The ABS preliminary 2000-01 TFR for each State/Territory, which is assumed to decline at the same rate as the national TFR outlined earlier in this paper (ie 0.1 per year for 10 years).
- NOM of 100,000, with each State/Territory pro-rata'd according to the proportion of the ABS' preliminary estimate of 2000-01 NOM.
- Life expectancy is assumed to rise at the rate of one year in every ten-year period from now to 2050. By 2050, expectation of life is assumed to be 81.5 years for men and 87.5 years for women, remaining constant thereafter to 2100.
- Net Interstate Migration for each State/Territory is assumed to be the average for each State/Territory over the last 15 years (see footnote for Table 1).

Figure 6



The projections (illustrated in Figure 7) show declining populations by 2100 for Tasmania, the ACT, South Australia and Victoria. This is due to a combination of low fertility, with low or negative net interstate and overseas migration.

Australia is a highly urbanised country, with 64% of the population currently living in the capital cities. Consistent with projections by the Australian Bureau of Statistics (ABS), the populations of all capital cities are expected to increase, while many areas in rural and regional Australia are expected to experience continued population decline. The ABS projects that an even greater percentage (70-90%) of all population growth over the next 50 years is likely to occur in the capital cities. 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 7

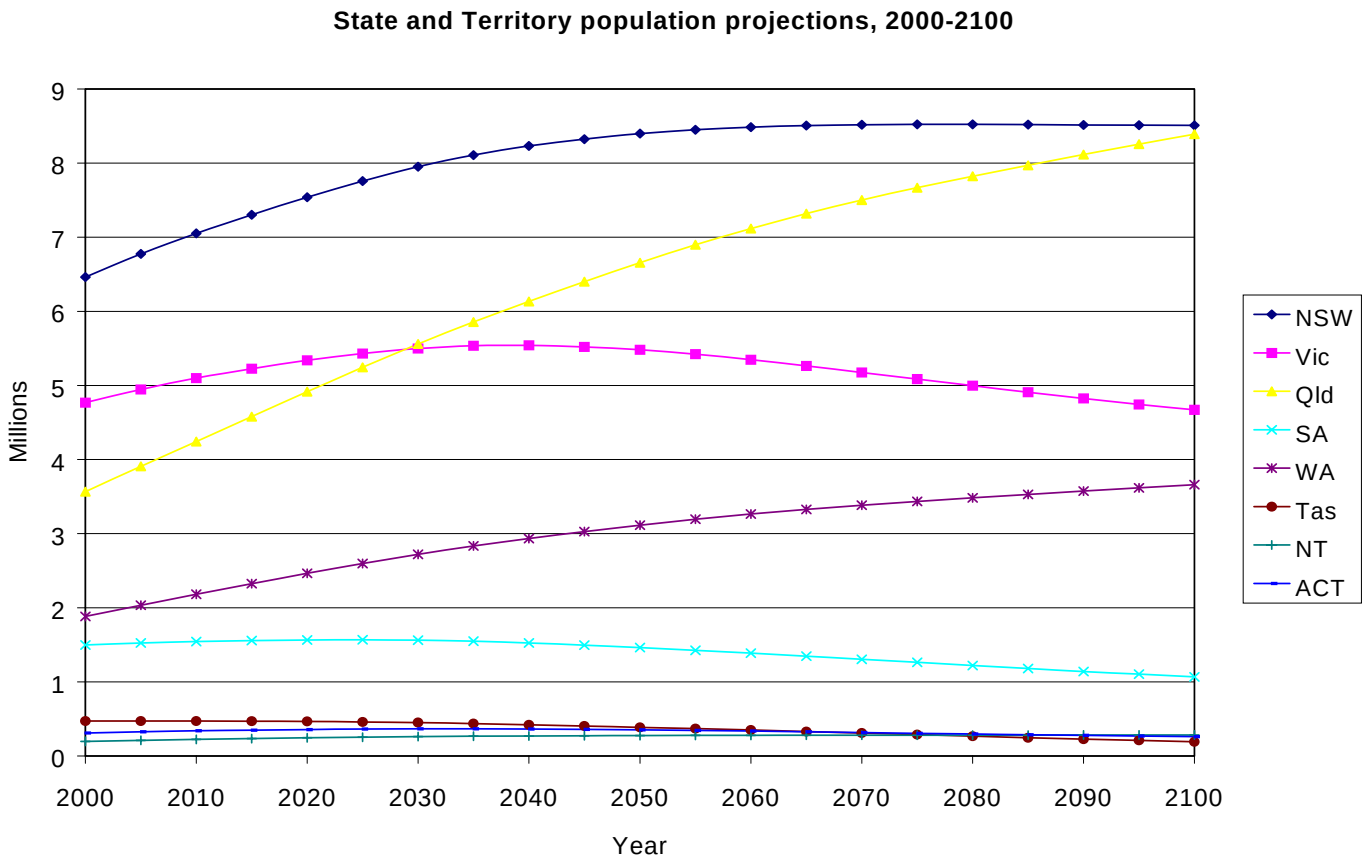
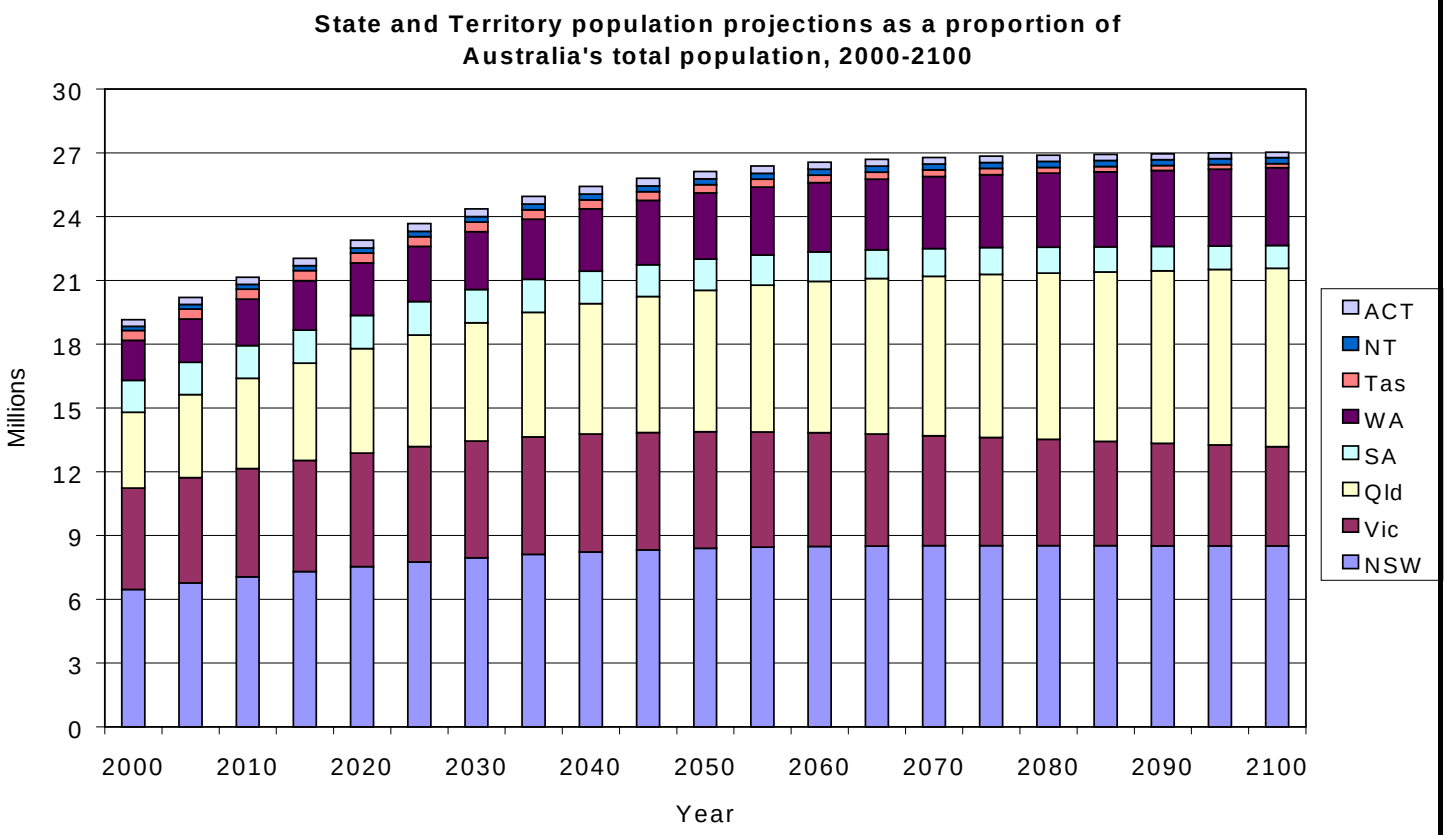


Figure 8 illustrates the proportion of Australia's total population attributable to each State/Territory over the next century. The populations of Queensland and Western Australia would increase both in size and as a proportion of the total population over time, while the populations of New South Wales and the Northern Territory would increase in size but decrease as a proportion of Australia's total population. The populations of Tasmania, the ACT, South Australia, and Victoria would decrease in size and as a proportion of Australia's total population.

Figure 8



All States and Territories would experience significant ageing of their populations (as shown in Figure 9). Tasmania would have by far the highest proportion of its population over the age of 65 years by 2100 (36%), while Queensland (24.8%) and the Northern Territory (20.4%) would have the lowest proportion by 2100.

Figure 9

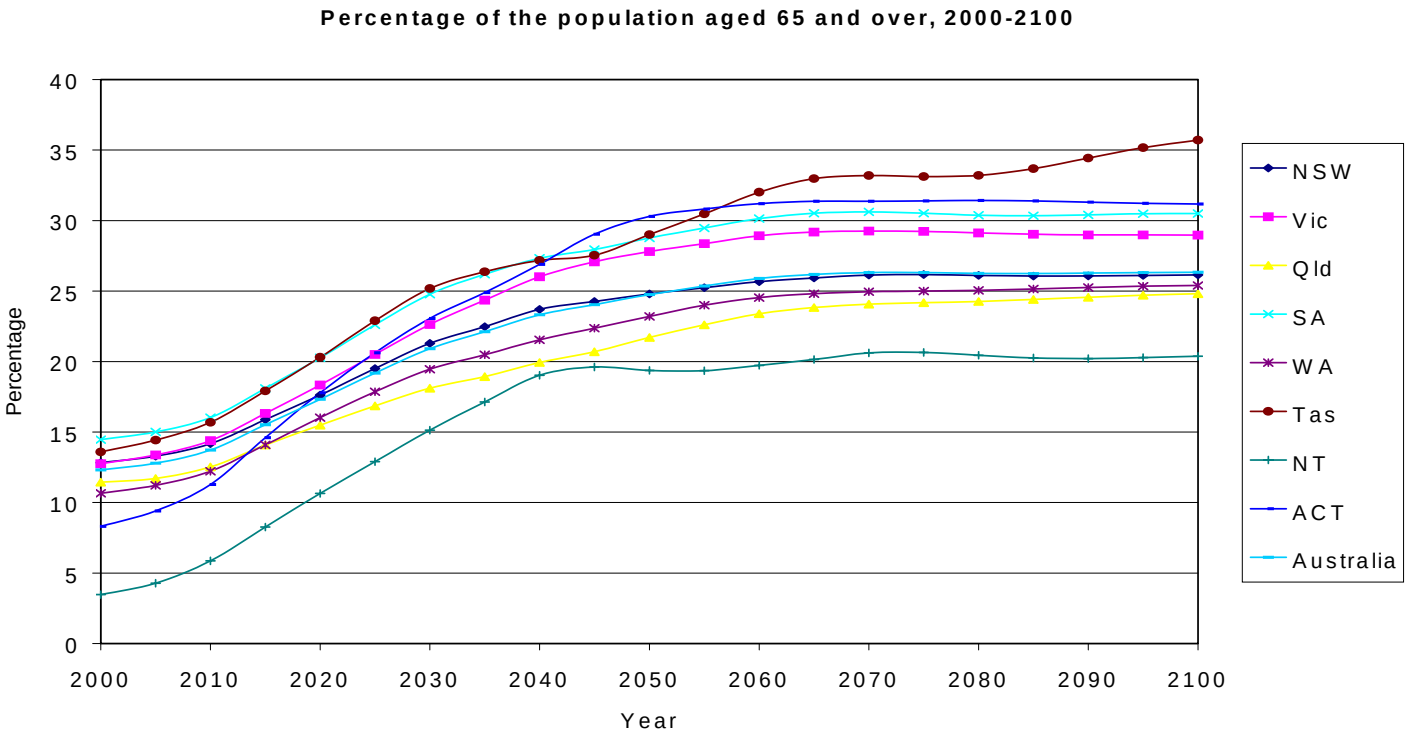


Table 1 below summarises the projection outcomes under the baseline scenario for each State and Territory for the years 2000, 2050 and 2100.

Table 1. State and Territory Baseline Projection Outcomes for the years 2000, 2050 and 2100, Australia

	INPUTS			OUTCOMES IN 2000			OUTCOMES IN 2050			OUTCOMES IN 2100		
	TFR (a)	Life Expectancy (b)	Combined NOM & NIM ('000) (c) & (d)	Popn (mill)	Popn Growth Rate % (e)	65+% (f)	Popn (mill)	Popn Growth Rate % (e)	65+% (f)	Popn (mill)	Popn Growth Rate % (e)	65+% (f)
Current	1.74		100	19.2	1.1	12.3	27.2	0.3	24.3	29.4	0.1	26.0
Baseline Australia	1.65	81.5 – m, 87.5 – f	100	19.2	1.1	12.3	26.4	0.3	25.0	27.1	0	27.0
NSW	1.71	81.4 – m, 87.4 – f	25.5	6.46	0.95	12.8	8.4	0.12	24.8	8.51	0	26.1
VIC	1.56	81.8 – m, 87.6 – f	12.6	4.77	0.74	12.8	5.48	-0.21	27.8	4.67	-0.32	29.0
QLD	1.62	81.1 – m, 87.4 – f	45.0	3.57	1.84	11.4	6.66	0.71	21.7	8.39	0.32	24.8
SA	1.62	81.5 – m, 87.6 – f	-0.6	1.5	0.36	14.5	1.46	-0.51	28.8	1.07	-0.65	30.5
WA	1.66	81.6 – m, 87.8 – f	16.8	1.88	1.55	10.7	3.12	0.5	23.2	3.66	0.23	25.4
TAS	1.69	80.6 – m, 86.4 – f	-1.1	0.47	0.08	13.6	0.39	-0.97	13.4	0.19	-1.76	35.7
NT	1.97	75.9 – m, 81.1 – f	0.3	0.2	1.47	3.5	0.28	0.1	19.4	0.28	0.04	20.4
ACT	1.55	83.0 – m, 87.6 – f	0.4	0.31	0.91	8.3	0.35	-0.44	30.3	0.26	-0.62	31.2

(a) Total Fertility Rate (TFR). 1.65: TFR for Australia as a whole falls from 1.75 in 2000 to 1.65 in 2010 and then remains constant. Each State and Territory's TFR falls at the same rate as the national rate from 2000-2010 and remain constant thereafter as follows: NSW 1.71; VIC 1.56; QLD 1.62 SA 1.62; WA 1.66; TAS 1.69; NT 1.97; ACT 1.55.

(b) Life expectancy at birth. ABS: e_0 rises from 76.5 years for males and 82.5 years for females in 2000 to 81.5 years for males and 87.5 years for females in 2050, remaining constant thereafter. This is varied slightly for each State/Territory as shown in Table 1.

(c) Net overseas migration (NOM). 100,000: NOM is constant at 100,000 per annum for Australia as a whole. Each State/Territory is apportioned its share of NOM based on preliminary 2001 Census data as follows (NSW 42,000; VIC 25,000; QLD 15,000; SA 3,500; WA 13,500; TAS 100; NT900; ACT 0)

(d) Net Interstate Migration (NIM) for each State/Territory is averaged over the last 15 years (NSW: –16,513; VIC: -12,421; QLD: 29,995; SA: -2,909; WA:3,283; TAS: –1,248; NT: –552; ACT: 365).

(e) Annual population growth rate.

(f) Percentage of the population aged 65 and over.