

## POPULATION PROJECTIONS FOR AUSTRALIA. WHAT CAN THEY TELL US?

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### INTRODUCTION

Projections of the population using the standard cohort-component method are a widely accepted and useful means of assessing the future demographic structure of the population. In such projections, the uncertainty lies not in the outcome from the standard methodology, but in the difficulty in choosing the future levels of fertility, immigration, and mortality for the projection. Even the most thorough analysis of past trends in each of the three input variables will not necessarily provide an accurate forecast of future levels. Nevertheless, the value of a population projection is that it accurately shows the effect of a given scenario of fertility, immigration and mortality on the size and age structure of the population. Contrast this with the uncertainty attached to the projection of many economic indicators for even a few years ahead.

A wealth of information is contained in the output from a set of population projections. Standard figures and some less commonly published outcomes of such projections are discussed in this paper, using sets of population projections published by the Australian Bureau of Statistics [ABS] in 1990.

### TOTAL POPULATION

The first question that is asked regarding a population projection is: How big will the population be? The size of Australia's projected population

in 2031 according to four sets of projections from 1989 (ABS, 1990) is given in Table 1. These projections relate to one set of assumptions about mortality, and the four possible combinations of high and low fertility and high and low annual net migration. 'High' and 'low' are used for simplicity and do not necessarily mean high and low; for example, the 'high' fertility assumption is more than 10 per cent below replacement level fertility, and the 'low' net migration assumption approximates the post-war average.

From Table 1 the population in 2031 is expected to range from 26.0 million if the ultimate total fertility rate is 1.78 children and annual net migration remains constant at 125,000 (Series AB), to 23.3 million if the total fertility rate is ultimately 1.66 children and annual net migration stabilises at 80,000 (Series D). (The total fertility rate [TFR] in a given year represents the total number of children that a woman would bear throughout her lifetime if she were subject to the age-specific fertility rates recorded during that year.) Earlier figures published by the ABS in 1988 showed that the population in 2031 could have become as high as 26.8 million with a total fertility rate of 1.8 children and a higher annual net migration of 140,000. This would have produced an increase of 9.5 million on the 1991 population of 17.3 million. The 1990 projections have scaled down the two 'high' assumptions for fertility and migration but

**Table 1: Characteristics of the projected population in 2031 according to various scenarios of fertility and migration.**

Characteristic	Series			
	AB <sup>1</sup>	C	D	E
Assumptions:				
Total fertility rate	1.78	1.66	1.66	1.78
Annual net migration	125 000	125 000	80 000	80 000
Population in 2031 (million)	26.0	25.2	23.3	24.0
Increase since 1991 (million)	8.7	7.9	6.0	6.7
Ratio incr. AB to incr. other	1.00	1.10	1.45	1.30
% aged 15-64	62.94	63.35	62.65	62.28
% aged 65 +	20.08	20.71	21.75	21.06
Median age (years)	41.51	42.66	43.46	42.25

<sup>1</sup> Series A and B are identical as far as national figures are concerned. (They vary at the State level.)

Source: Australian Bureau of Statistics (1990) and microfiche.

Estimated resident population at 30 June 1991 = 17.3 million (Australian Bureau of Statistics, 1992).

they still show that Australia's population could increase by as much as 8.7 million between 1991 and 2031, while the 'low' assumptions give an increase of 6.0 million.

### CHANGES IN AGE STRUCTURE

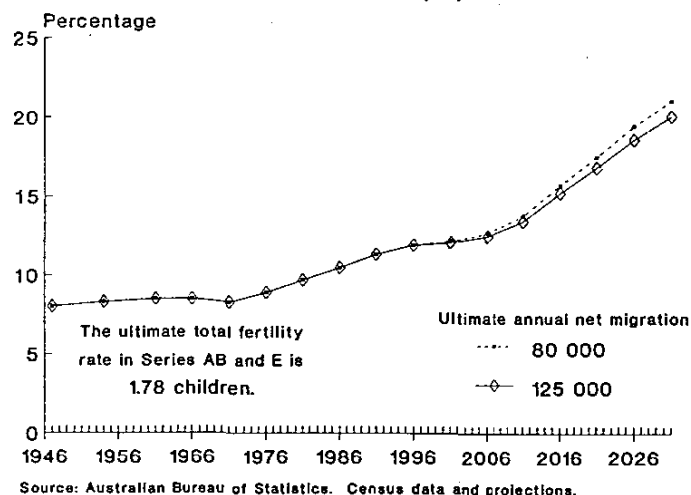
Most published outputs from population projections provide indicators of the ageing of the population, such as the median age and the proportion of elderly. These have been seized upon by various commentators to highlight problems arising from the ageing of Australia's population. Australia's population has been ageing throughout this century, but Figure 1 shows that rapid ageing will occur from about 2011, and this rapid ageing will occur regardless of whether the level of annual net migration is 80,000 or 125,000. The net migration figure of 140,000 also makes very little difference (see ABS, 1988). Table 1 also shows that in 2031 only small

differences occur between the four series of projections with regard to the proportion of the population aged 65 years or more, and the median age of the population. These differences appear even smaller when viewed in a historical context (see Figure 1). It must also be remembered that the total 'burden' of an ageing population depends not only on the numbers or proportion of elderly, but also on their composition. For example, a population with a high proportion of elderly could present less of a 'problem' than one with a lower proportion, if those elderly have a higher level of education, a more stable history of full employment, and better health, and if there is a more efficient system of community care and support for carers.

The next 40 years can be divided into two distinct stages. The first 20 years, 1991 to 2011, is likely to be marked by a large increase in the

working age population (15-64 years) in each five-year period, with relatively small increases in the number of elderly, while the second 20 years will be characterised by large increases in the number of elderly in each five-year period and relatively small increases in the working age population. According to Series E projections shown on Table 2, there would be a 2.9 million increase in the size of the 15-64 year age group during 1991 to 2011, which would produce a very high demand for jobs. In contrast, the major ageing of the population will occur during the following 20 years (2011 to 2031) with an increase of 2.1 million elderly persons. While it certainly is important to begin now to plan for the rapid

Figure 1: Proportion of the population aged 65 years or more 1947 to 2031. Series AB and E projections



increase in future numbers of elderly people, it is odd that so little attention has been directed towards manpower planning during the coming 20 years to ensure full employment and to gain the maximum benefit from the large

Table 2: Increase in numbers of people, 1991 to 2031, shown in five yearly intervals in broad age group categories. Series E (000s)

Interval	Age group (years)			Total
	0-14	15-64	65+	
Population at 30.6.91	3767.1	11 603.6	1966.8	17 337.4
1991-1996	162.7	826.4	252.9	1241.9
1996-2001	41.9	804.7	172.0	1018.6
2001-2006	-3.4	699.7	215.3	911.6
2006-2011	-31.9	530.0	334.4	832.6
2011-2016	-16.3	254.9	536.9	775.4
2016-2021	16.5	185.1	521.9	723.4
2021-2026	40.0	41.5	569.7	651.3
2026-2031	29.1	30.1	493.9	553.1
1991-2011	169.3	2860.8	974.6	4004.7
2011-2031	69.3	511.6	2122.4	2703.2

Source: Australian Bureau of Statistics (1990) and microfiche.

Figures may not add exactly to totals due to rounding.

For consistency, the population at 30.6.91 also refers to projected figures from 1989 (series E).

and growing labour force. In addition, the goal of increased financial independence for the elderly is very much dependent on their being able to enjoy a career of full employment during their earlier adult years. In other words, the future problem of the ageing population in 20 to 40 years time will be worsened if there is insufficient attention given to the labour force needs of the rapidly growing adult population during the coming 20 years.

### COMPONENTS OF INCREASE

With a continuing constant total fertility rate in Australia, natural increase (births minus deaths) is expected to stay relatively steady initially, and then gradually to decrease. However, in each series of projections, it is important to note that the decline in natural increase is largely a result of increasing numbers of deaths (due to the large post-war baby boom cohorts reaching old age) rather than a decreasing number of births. With Series E projection, annual numbers of births would remain relatively constant at around 250,000 to 258,000, at least until 2031 (see

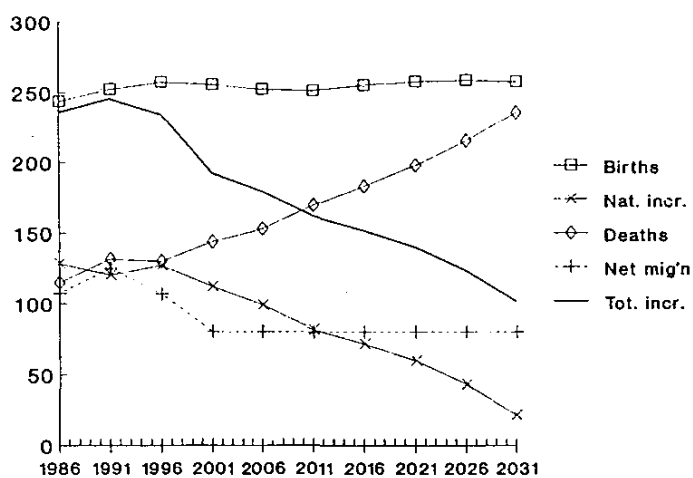
Figure 2). Accordingly, although the population would increase by decreasing amounts each year, the addition of new members through births and net migration would remain relatively constant, at around 330,000 to 338,000 each year. (New entrants would be even higher if net migration was separated into arrivals and departures, but, as many of the departures are relatively new arrivals, this approach has not been used.) Although some commentators might regard a population with a decreasing level of annual increase as 'stagnating', this is hardly the case if the number of new entrants and hence new ideas is continuing at a relatively constant level.

Another observation from the projections is that Series E would produce the most steady number of births to 2031. Series C would produce a slight decline and then an increase, Series D would produce a relatively steep decrease, and Series AB would produce a relatively rapid increase (see Table 3). Many areas of economic, social and welfare planning are made more difficult and less efficient if there are increasing or decreasing numbers in a given age group. Therefore, in terms of planning health services, schools and higher education for successive birth cohorts, Series E projection would seem to have some advantage.

### SUMMARY POINTS

The main effect of a higher level of net migration (125,000 compared with 80,000) is that the total increase between 1991 and 2031 would be 30 per cent higher. The higher level of immigration will have only a

Figure 2: Projected increments in population at each fifth year, 1986 to 2031. Series E projections.



Source: Australian Bureau of Statistics (1990) microfiche.

**Table 3: Projected numbers of births (000s)**

Year ending 30 June	Projection Series			
	AB	C	D	E
1991	252.0	249.5	249.5	252.0
1996	257.5	244.6	244.2	257.1
2001	259.6	242.1	238.2	255.4
2006	260.4	242.9	235.0	252.0
2011	263.0	244.9	233.6	250.8
2016	269.8	249.7	235.2	254.3
2021	276.6	252.6	234.9	257.5
2026	282.1	252.5	231.4	258.4
2031	283.9	252.0	227.6	257.5
TFR	1.78	1.66	1.66	1.78
Migration	125 000	125 000	80 000	80 000

Source: Australian Bureau of Statistics (1990) and microfiche.

TFR = ultimate total fertility rate

Migration = ultimate annual net migration

small effect on the median age and on the proportion of elderly.

It is surprising that so little attention is given by policy planners to the problems associated with the rapidly increasing numbers at the working ages over the next 20 years, in contrast to the great concern expressed about the increase in the numbers of elderly persons, which will take place 20 to 40 years ahead. Neglect of the former will exacerbate the problems associated with the latter.

Even though the total population in Australia is expected to increase by decreasing amounts in the coming

years, this does not imply 'stagnation', because the number of new entrants is expected to remain relatively constant, especially with Series E projection scenario.

#### References

Australian Bureau of Statistics *Australian Demographic Statistics. June Quarter 1992*. Cat. No. 3101.0, Canberra, 1992

Australian Bureau of Statistics *Projections of the Populations of Australian States and Territories 1987 to 2031*, Cat. No. 3222.0, Canberra, 1992

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