Comments on the Economic Implications of an Ageing Population
by Alan Hall

Some reservations about the Draft Report's demography

The Draft Report's analysis of both the demographic and economic implications of ageing for the future of the Australian economy is very impressive. As is appropriate a wide range of possibilities is explored.

There are two aspects of the Report's demography that have tempted comment. The first is an outline of the way in which the effects of ageing on the age structure of a population can be identified in a relatively simple way. It produces a somewhat different perspective on what has been happening and what may be anticipated. The second, with reference to fertility, is partly a matter of judgment about future trends and partly a concern that the possible contribution of fertility to age dependency is being dismissed too lightly.

Only a couple of inter-related economic issues are raised.

Ageing

The first and third columns of a standard life table life may be taken to be equivalent to a single year of age distribution of the population standardised to a base of 100,000. Comparisons of such age distributions over time are therefore directly comparable and are confined to reporting the effects of the changes that have occurred in age-specific mortality. Those characteristics of actual population age distributions that arise from past variations in fertility and differences in the age distribution of net immigration are eliminated.

Table 1 summarises life table data treated as age distributions and converted into the age groupings that are conventionally accepted as appropriate for discussions of age dependency issues. The early years are taken from H P Brown's *Australian Demographic Databank* Vol II Canberra 1979. That for 2000-02 is from the Australian Bureau of Statistics *Deaths 2002* (3302.0). It is probable that the methods of calculating the life tables summarised in Table 1 are essentially the same. For convenience the series used for conversion into a mortality determined age distribution is the number of persons at exact age x.

Table 1 should be interpreted in a similar manner to that appropriate for understanding the Total Fertility Rate (TFR). The table records at quarter century intervals what the age distributions of the populations would be, in the selected age groups, if the current patterns of age-specific death rates were to be maintained for a century. This is obviously a more improbable assumption than the 35 year span appropriate for fertility rates but it nevertheless performs a similar useful purpose. It is a potential age distribution outcome and is directly comparable with other potential outcomes derived in the same manner. By the very nature of their derivation these age distributions are unaffected by the vagaries of past changes in fertility.

As the population of each sex has a maximum single year-of-age population of 100,000 one can obtain maximum populations for each sex and each age group. It is a multiple of the number of years in each age group times 100,000. Thus the maximum size of the under 15s for each sex is 1,500,000. For the 15 to 64s the comparable number is 5,000,000 and for the 65+s some small number greater than 3,500,000. The maximum size of the population is twice the sum of those age group sizes. It follows that the only parts of the table that are directly comparable with the actual populations of the chosen

Table 1 Australia: Life Table Age Structures 1925 to 2000-02

	0-14	15-64	65+	Total
	000	000	000	000
1925				
Males	1382	3860	732	5974
Females	1406	4116	964	6486
Persons	2788	7976	1696	12460
1950				
Males	1448	4384	829	6661
Females	1460	4588	1165	7213
Persons	2908	8972	1994	13874
1975				
Males	1472	4554	944	6970
Females	1479	4747	1454	7680
Persons	2951	9301	2398	14650
2000-02				
Males	1490	4775	1521	7786
Females	1492	4872	1970	8334
Persons	2982	9647	3491	16120
Persons				
	Per cent	Shares		
1925	22.4	64.0	13.6	100.0
Dependency	33.8		21.3	55.1
1950	21.0	64.7	14.3	100.0
Dependency	32.4		22.2	54.6
1975	20.1	63.5	16.4	100.0
Dependency	31.7		25.8	57.5
2000-02	18.5	59.8	21.7	100.0
Dependency	30.9		36.2	67.1

years are the proportions of the surviving populations of each age group and the age dependency ratios. In principle these define the extent to which the actual recorded age group shares and dependency ratios are determined purely by the process of ageing. As they are potential numbers they may be greater than the actual currently recorded age distribution proportions.

Mortality based age distributions, derived from life tables, are equivalent to actual age distributions only if the population is stable or has been growing at a constant rate for 100 years, and if there has been no increase in longevity. Differential rates of growth at different ages (or birth cohorts) increase the weight of youth dependency in actual population age distributions if the relatively high rates of growth are amongst the young or increase the recorded weight of age dependency if the high growth rates are amongst the elderly. Increased longevity may also have the latter effect.

Some aspects of Table 1 are completely unsurprising. Thus the contribution to population growth from declining mortality amongst the under 15s is becoming increasingly negligible and its population share is moving inexorably downwards.

Of more interest are the effects of changes in mortality on the population of working age. Between 1925 and 1950 reductions in mortality were spread more or less evenly across the total population 15+ with the result that there was little change in the relative shares of the workers and the elderly. While there were continued improvements in the mortality experience of the working age population after 1950 the scope for further improvements has been becoming progressively smaller. By 2000-02 96.5% of the notional population of working age were still alive. By then increases in the total population as a result of declining mortality were becoming confined to the 65+ age group. It is now the only age group that can continue to grow significantly as a result of declining mortality.

The detailed pattern of mortality changes over time is more apparent in Table 2.

Table 2 Incremental changes in Australian mortality based age structure over time.
(000)

Period	0-14	15-64	65+	Total
Males				
1925-1950	66	524	97	687
1951- 1975	24	170	115	309
1976-2001	18	221	580	816
Females				
1925-1950	54	472	201	727
1951-1975	19	159	289	467
1976-2001	13	125	516	654
Persons				
1925-1950	120	996	298	1414
1951-1975	43	329	404	776
1976-2001	31	346	1096	1473

Note: The numbers are all standardised not actual ones. They are directly comparable with each other but not with the actual populations of these years.

When the mortality determined dependency ratios of Table 1 are superimposed on the dependency panel of the Draft Report's Figure 2.1, which plots the actual dependency rates, the following observations may be made. That the big swings in youth dependency, and hence in total dependency, are fertility based is fully confirmed. The more interesting comparison is that throughout the 76 years of Table 1 the potential age dependency ratio lies well above the observed ratio. It has also exceeded the youth ratio since the mid 1980s. This intersection is not projected to happen until about 2011. Despite the steadily falling trend of the mortality-determined youth dependency ratio the upward trend of its associated age dependency ratio is so strong that the total dependency ratio is already at a level which will not be attained by the projected trend until the late 2030s. At that time the mortality-determined total dependency ratio will be higher than it is now.

Some speculations on some of the general characteristics of population change and age dependency (on the assumption of stable age-specific mortality rates) are also worth considering. Because of the long cohort-lag between entry to and exit from the working age group, growing populations will usually have recorded age dependency ratios below their potential ones. This fact has already been noted in the comment, above, on the Draft Report's Table 2.1. Also as a result of the same lag, continuously declining populations, which by definition cannot persist indefinitely, will typically have higher actual age dependency rates than their potential ones. A stable population, if such could be maintained for any length of time, would thus probably have the lowest possible age dependency ratio in either of its forms.

One of the most useful facts of Table 1 is the height of the age dependency ratio in 2001 (36.2). This demonstrates that most of the increase in our prospective ageing structure is merely a consequence of our present, already existing, mortality rates. The contribution of increased longevity , beyond that recorded in current life tables, will make a relatively small contribution to total age dependency. Whatever may be the future fluctuations of fertility a long-lived population inevitably has a higher age dependency ratio than that to which we have been accustomed in the past.

Around 2040 it is probable that recorded age dependency will rise above age dependency as determined by the then life table. This is a consequence of past and projected low fertility trends. This is not a sustainable situation and means that recorded (i.e., in this context projected) age dependency will subsequently decline. Before this happens the only certain way of lowering future age dependency ratios below those projected in the Draft Report is to achieve higher fertility rates. The benefits of any such fertility increases will only be fully realised after 2045. For reasons about to be noted the beginning of fertility benefits, in comparison with the Draft Report's projections, are already in the pipe line.

Australian fertility has stabilised and may well increase

When the ABS' *Births 2002* was released late in 2003 it was apparent that fertility had stabilised with a TFR of about 1.75. The recently released *Births* 2003 revealed a 2003 TFR exactly on trend at 1.75. The level of births in the first six months of 2004 shows no sign of declining fertility rates. How many years' evidence do demographers need before this trend is recognised as the current median trend for projection purposes?

The now six years of TFR stability is the statistical outcome of continued declines in age-specific rates below age 30 and of continued increases in those rates above that age. There is still plenty of physiological scope for the latter upward trend to be maintained and hence for stability to be maintained. It is not beyond the realms of possibility that age-specific rates below age 30 will stop declining.

One of the main reasons for the sustained decline in fertility up until the mid 1990s has been the difficulties families face in combining dual work force participation and the bringing up of young families. The present government's passion for mums at home is a significant cause of the continuation of these difficulties. A more equitable tax regime for working mothers, better child-care facilities, paid maternity (or paternity) leave, and lower HECS debts are only some of the possibilities that would increase the probability of rising fertility rates. The principal objective for these policies is not to raise fertility but to improve the quality of life for working couples and their families. If such policies were implemented then, as a serendipitous by-product, there would be a realistic possibility, not merely that fertility will continue to stabilise at its present level, but that it will increase.

Given the present stable trend of fertility at 1.75, and given the probability that attempts to obtain a better match between parents' work and bringing up a family will continue until there is a distinct improvement on the current situation, an alternative feasible set of fertility rates for Australian population projections for the foreseeable future, to those currently officially accepted, is the range of a high rate of 1.9, a medium rate of 1.75 and a low one of 1.6.

Not merely has the Draft Report rejected an increase in fertility as a reasonable possibility it has also protested too much in claiming that fertility doesn't have much effect on the ageing 'problem'. Such a judgment is, indeed, a virtual denial of what is said in the same section about the effects, during Australia's demographic history, of long swings in fertility on the changing age structure of the population.

One can, in fact, use its own fertility scenarios to come to a somewhat different conclusion. From its numbers in Table 2.5 one can derive, by interpolation, the difference in the fertility effects between its preferred TFR of 1.6 and the realistically possible TFR assumption of 1.9. The former age dependency ratio is 44.2%; the latter is 42.2%. The difference of 2% in levels seems modest but is it? When translated into the *change* in the age dependency ratio it becomes one of 4.5%. When further transformed into budgetary numbers this is not an insignificant effect. The quicker the projected path of fertility to

the suggested upper limit (or beyond) the greater is the reduction in the feared future budgetary costs.

From a wider perspective than mere ageing the realisation of a higher fertility future would obviously be economically, socially and humanly preferable to that being wished upon us by too sophisticated economic/demographic model manipulators. A stronger fertility performance would be evidence of the attainment of a better balance between work and family that would be of much greater value than its mere economic dimension. That it would, for a while, probably entail a greater total dependency 'problem' would be a consequence of community choice, not imposed from above, and it would, in any event, probably have its own participation and productivity benefits. The higher the actual fertility rate the more productive and sustainable is the trend supply of labour though this effect is not realised for at least 15 years. In compensation the labour force benefits of increased fertility continue to be felt long after the end of the projection period.

The Productivity Commission needs to re-assess its fertility analysis.

A lesser point - a mere plea for accurate demographic history. Please do not continue the current use of the term 'boom', in the context of babies, as a weasel word. It means *sudden* activity not merely modestly high levels over decades. At least until 1988 the ABS correctly defined it as occurring in "the immediate post-war period …to 1952" *Year Book Australia 1988* (p. 268). That the distinct baby boom was not decades long is vividly illustrated in its 'accelerating' ageing phase as depicted in the Draft Report's Figure 2.2.

Some economic observations

Very wisely the Draft Report keeps close to its brief in discussing age-related economic effects. It also avoids important issues by its avowed intention to identify the implications of existing government policies. A couple of instances illustrate the effects of these constraints.

Consider, for instance, the economic role of net immigration. Some assumption is necessary about net immigration in order to project a feasible future population. It also needs to be noted that variations in immigration, within practical limits, have little effect on the age structure that is the principal issue under examination but it is not really clear whether the immigration number adopted in the Report is merely the ABS' working hypothesis or government policy. It follows that it is uncertain whether the economic effects of alternative levels of immigration are within the Report's purview.

This is important because population growth is one of the key parameters of the economic system variations in which have effects that extend well beyond ageing. The key issues with respect to immigration now, and over the next forty years, are do higher levels of population exacerbate the present undoubted strains on environmental

sustainability, and would a slower population growth trajectory, aimed at a stable population, reduce the developmental burden of population growth so that capital per worker could be increased? The second of these questions has obvious implications for the age-burden focus of the Draft Report's brief. The possibility of greater capital expenditure per worker and its effects are discussed but independently of the question of the appropriate level of immigration.

The Report raises the question of the role of overseas saving in support of Australia's economic growth but effectively does so only in the context of the effects of ageing. It neglects the really important question of the possible role of increased domestic saving on future income.

The greatest weakness of the present Australian economy is the ingrained unwillingness of its inhabitants to live within their produced national income. If they continue to borrow abroad as much as the rest of the world is prepared to lend them, and if these habits are allowed to persist for forty years, then the net domestic national income at the end of that period, available for the then needs of the elderly, will be much less than what it would be with sustained higher proportions of domestic saving.

As increased reliance on domestic saving means less consumption, which few people want, politicians and public servants only tackle the fringe of this problem. Economists, as such, are not really competent to advise on how to make the population behave more frugally other than to alter the character and amount of advertising or to suggest adjusting a few pricing switches the full consequences of which are usually ambiguous. For these reasons the only solution to the current problem and its future implications will probably have to come, as it has done in the past, through the harsh adjustments that accompany a reduction in the willingness of the rest of the world to lend to us. If the Productivity Commission can conjure up a way significantly to increase saving/reduce consumption then it will make a very useful contribution to the operation of the Australian economy and to whatever problems the elderly may pose for its management in the future.