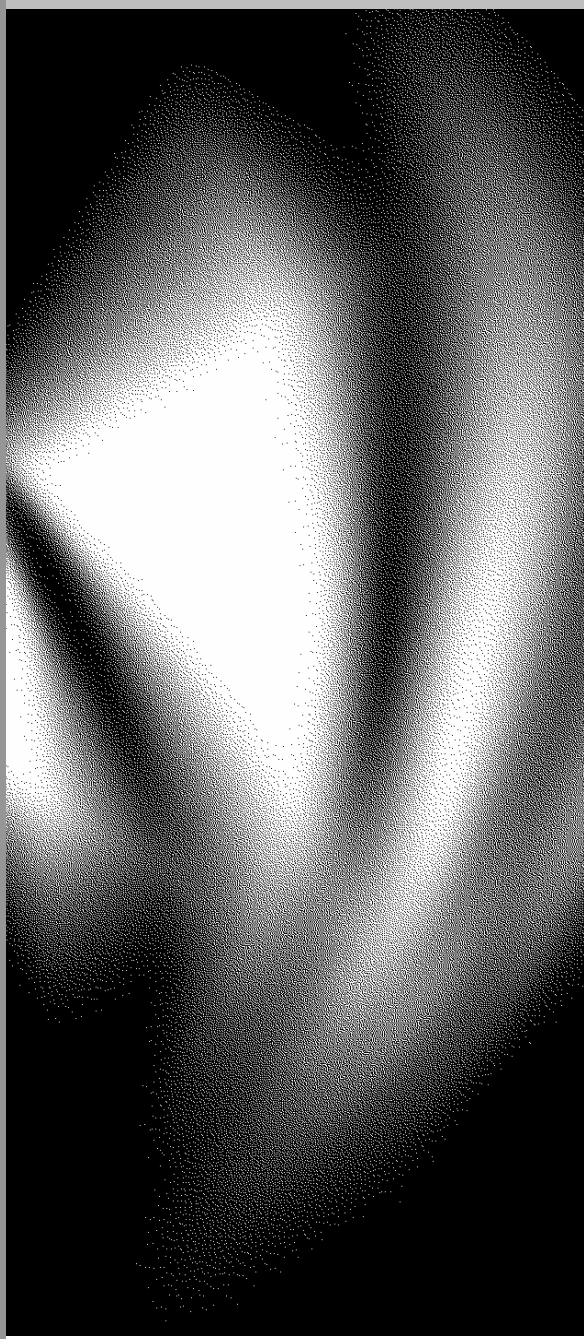
Australian Government
Productivity Commission

Economic Implications of an Ageing Australia

Productivity Commission Research Report

24 March 2005



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The Productivity Commission

The Productivity Commission, an independent agency, is the Australian Government's principal review and advisory body on microeconomic policy and regulation. It conducts public inquiries and research into a broad range of economic and social issues affecting the welfare of Australians.

The Commission's independence is underpinned by an Act of Parliament. Its processes and outputs are open to public scrutiny and are driven by concern for the wellbeing of the community as a whole.

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Foreword

Australia, like most developed countries, has an ageing population. The proportion of people aged 65 and over is expected to more than double over the next few decades, raising questions about how this will affect Australia's long term economic prospects.

The 2002 *Intergenerational Report* examined the fiscal effects of an ageing population from an Australian Government perspective. Following a request from the Council of Australian Governments, the Government asked the Productivity Commission to undertake a research study examining the productivity, labour supply and fiscal implications of likely demographic trends over the next 40 years for all levels of government.

In preparing this report, the Commission has drawn on information from submissions, consultations with all governments, other relevant organisations and research groups, as well as a wide array of studies of the impacts of ageing. The Commission wishes to thank the many people who contributed for their co-operation in providing information and analytical input, including in response to a draft report.

The study was conducted by a research team from the Commission's Canberra office headed by Ralph Lattimore. In overseeing the project, I was assisted in the initial stages by Commissioner Mike Woods and then by Helen Owens.

Gary Banks
Chairman
March 2005

Terms of reference

IMPLICATIONS OF THE FUTURE AGEING OF AUSTRALIA'S POPULATION

PRODUCTIVITY COMMISSION ACT 1998

The Productivity Commission is requested to undertake a research study examining the productivity, labour supply and fiscal implications of likely demographic trends over the next 40 years, to further improve understanding of the challenges and opportunities resulting from an ageing Australia.

The context for this research study is the projected ageing of the Australian population, the associated impacts on growth in the labour force, overall economic growth and the fiscal positions of all levels of government.

In undertaking the study, the Commission is to consult broadly with governments and other key interested groups; and take into consideration any recent work relevant to the study.

The Commission is to report on the following:

1. The likely impact of an ageing population on Australia's overall productivity and economic growth.
2. The potential economic implications of future demographic trends for labour supply and retirement age, and the implications for unpaid work such as caring and volunteering.
3. The potential fiscal impact of the above factors on Commonwealth, State and Territory and, to the extent practicable, local governments.

The Commission is required to provide a report within 9 months of receipt of this reference. The report will be provided to the Council of Australian Governments.

It is anticipated that the analysis and projections in the report would provide useful background information for future planning and policy development by Australian governments.

PETER COSTELLO
Received: 24 June 2004

Contents

Included with this report is a CD-ROM containing 11 technical papers, the demographic model and various data. The technical papers are:

T1 Demographic projections

T2 Growth curves

T3 Cohort analysis

T4 Total health expenditure

T5 Aggregate studies of age and health expenditures

T6 Health cost decompositions

T7 The prevalence of disability

T8 Non-demographic expenditure pressure

T9 Conveyancing revenue

T10 Gambling revenue

T11 Goods and Services Tax

Abbreviations and explanations

Abbreviations

ABS	Australian Bureau of Statistics
ADR	Aged dependency rate
AIHW	Australian Institute of Health and Welfare
ALGA	Australian Local Government Association
AWE	Average weekly earnings
CACP	Community Aged Care Package
CBD	Central business district
CFR	Completed fertility rate
CPI	Consumer Price Index
CRA	Commonwealth Rent Assistance
CSHA	Commonwealth State Housing Agreement
DEST	Department of Education, Science and Training
DEWR	Department of Employment and Workplace Relations
DoFA	Department of Finance and Administration
DoHA	Department of Health and Ageing
DSP	Disability Support Pension
FaCS	Department of Family and Community Services
FAG	Financial Assistance Grant
FTE	Full-time equivalent
GDP	Gross Domestic Product
GFS	Government Finance Statistics
GSP	Gross State Product
GST	Goods and Services Tax

HACC	Home and Community Care
HECS	Higher Education Contribution Scheme
HFE	Horizontal fiscal equilisation
PBS	Pharmaceutical Benefits Scheme
PC	Productivity Commission
SDR	Standardised death rate
SLA	Statistical Local Area
SPP	Special Purpose Payment
TFR	Total fertility rate
VET	Vocational education and training

Explanations

Billion	The convention used for a billion is a thousand million (10^9).
Logistic	An S shaped curve described in technical paper 2.
PC-M	The standard PC population projection series for Australia and the States described in chapter 2.
PC-NTALT	A specific set of population projections for the Northern Territory that takes account of its Indigenous and non-Indigenous populations.
States	Refers to the States of Australia, the Australian Capital Territory and the Northern Territory.

OVERVIEW

Key points

- Australia faces a pronounced ageing of its population over the next forty years. One-quarter of Australians will be aged 65 years or more by 2044-45, roughly double the present proportion. The proportion of the 'oldest old' will increase even more.
  - In itself, population ageing should not be seen as a problem, but it will give rise to economic and fiscal impacts that pose significant policy challenges.
- People aged over 55 years have significantly lower labour force participation rates than younger people. As more people move into older age groups, overall participation rates are projected to drop from around 63.5 per cent in 2003-04 to 56.3 per cent by 2044-45.
  - Hours worked per capita will be about 10 per cent lower than without ageing.
- Assuming the average labour productivity performance of the past 30 years, per capita GDP growth will slump to 1.25 per cent per year by the mid 2020s, half its rate in 2003-04.
- While taxation revenue will largely track GDP growth, government expenditure is likely to rise more rapidly, placing budgets under considerable pressure.
  - Although education and some welfare payments are projected to increase more slowly than GDP, government spending on health, aged care and pensions will grow at a faster rate.
  - The major source of budgetary pressure is health care costs, which are projected to rise by about 4.5 percentage points of GDP by 2044-45, with ageing accounting for nearly one-half of this.
- In the absence of policy responses, the aggregate fiscal gap will be around 6.4 percentage points of GDP by 2044-45, with an accumulated value over the forty years of around $2200 billion in 2002-03 prices.
  - On past trends, much of this could be expected to be borne by the Australian Government, but there are significant potential burdens faced by State and Territory Governments.
- A range of policy measures will be needed to reduce the fiscal pressure from ageing and/or to finance the fiscal gap.
  - Plausible increases in fertility and net migration would have little impact on ageing trends.
  - Measures to raise productivity and participation would enhance income growth and the capacity to 'pay' for the costs of ageing, including through taxation. However their ability to alleviate fiscal pressure directly depends on the extent to which service demands and costs continue to rise with growth.
  - More cost-effective service provision, especially in health care, would alleviate a major source of fiscal pressure at its source.
- Timely action would avoid a need for costly or inequitable 'big bang' interventions later. Population ageing can only be conceived as a crisis if we let it become one.

Overview

Population ageing has been called the quiet transformation, because it is gradual, but also unremitting and ultimately pervasive. Population ageing will accelerate over the next few decades in Australia, with far-reaching economic implications. It will slow Australia's workforce and economic growth, at the very time that burgeoning demands are placed on Australia's health and aged care systems. Unless offsetting action is taken, a gap will open between Government revenue and spending that will need to be closed. Every jurisdiction in Australia is affected in different ways, depending on their specific responsibilities and capacity for raising revenue. Population ageing will require new policy approaches at all levels of government.

This study has been requested by the Australian Treasurer on behalf of the Council of Australian Governments. The terms of reference essentially require the Commission to assess the implications of Australia's ageing population for productivity, labour force and fiscal outcomes across the three tiers of government. The study is complementary to, but updates and builds on, the Australian Treasury's *Intergenerational Report* (2002). A key distinguishing feature is that it includes detailed projections for the States and Territories. It has benefited from submissions and other input from all governments and a range of interested parties.

The Commission's assessment of the impacts of ageing are based on projections, not forecasts. The projections are intended to be a guide to what would happen under existing Government policies and if people's behaviour continues in much the same way as it has recently. But they are not forecasts in the sense that they are expected to occur. Indeed, the projections would be right only if governments chose to do nothing.

Australia's demographic transition

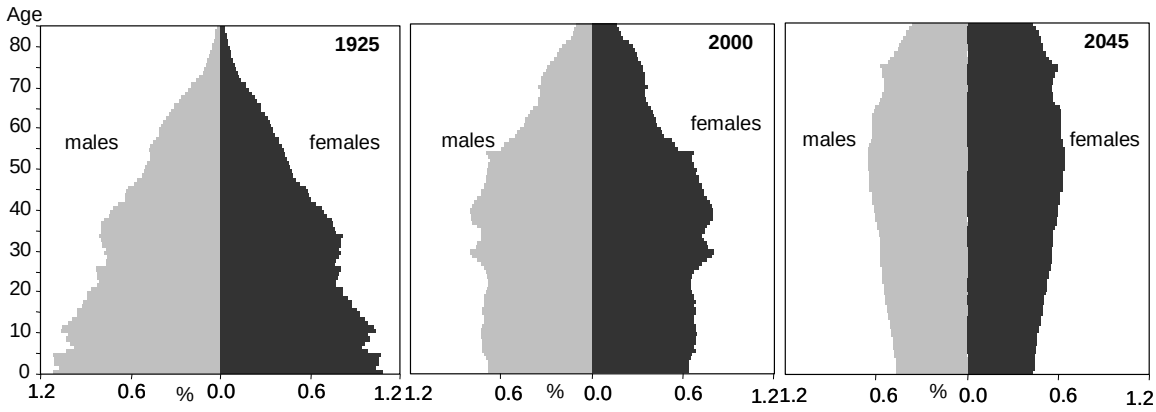
The ageing of our population has been occurring ever since people started to acquire influence over fertility and mortality. As the incidence of deaths in all age groups has declined and the average number of births per women has fallen, the age structure has shifted profoundly. At Federation, the old were scarce. Less than one in 25 of the population were aged 65 years or more. Now, they comprise one in

every eight Australians. By 2044-45, almost one in four will be aged 65 years and over. They will comprise around 7 million Australians.

The age distribution is being squeezed into a different shape by these demographic pressures. It has already shifted from a pyramid to its present beehive shape. Given current trends, the population age structure will continue its inversion and begin to resemble a coffin (figure 1).

Figure 1 **From pyramid to coffin**

Changing age structure of the Australian population, 1925-2045



Ageing is occurring across Australia, with no jurisdiction escaping a significant shift in its age structure (figure 2). South Australia and Tasmania stand out as having the greatest concentrations of the old by 2044-45. This reflects their present above-average representation of the old and the tendency for migration patterns to disproportionately remove the young. The Northern Territory remains, by contrast, a relatively 'young' jurisdiction, as a consequence of its large Indigenous population and the fact that older Territorians often retire to other States.

While population ageing is not a new phenomenon, it will begin to gather pace over the next two decades (figure 3). In every year between 2012 and 2028, the aged share of the Australian population is projected to increase by more than 0.35 percentage points — an increase around 4 times the long-term average.

The generation that will turn 65 years old between 2011 and 2031 is called the 'baby boomers' — born in an era of heightened fertility after World War II. The demographic transition faced by Australia is sometimes seen as a baby boomer 'problem'. However, it is a mistake to see population ageing as just about the number of old people. It is really about the age structure of the population — the ratio of the old to other ages. Any given number of old people's needs can be met as long as there are sufficient numbers of younger people to drive the economy and provide the needed services. Much of the projected change in the age structure

reflects slow growth in the population of younger ages in the coming decades. This is not a symptom of the baby boom, but its opposite, the long-run decline of fertility in Australia since the 1960s.

Figure 2 **Ageing affects all Australian States and Territories**
Change from 2002-03 to 2044-45

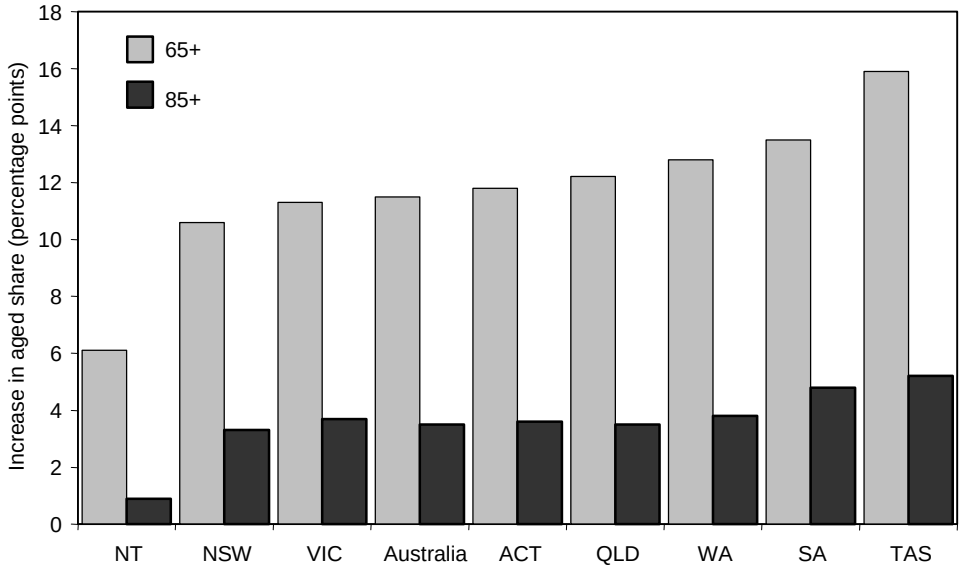
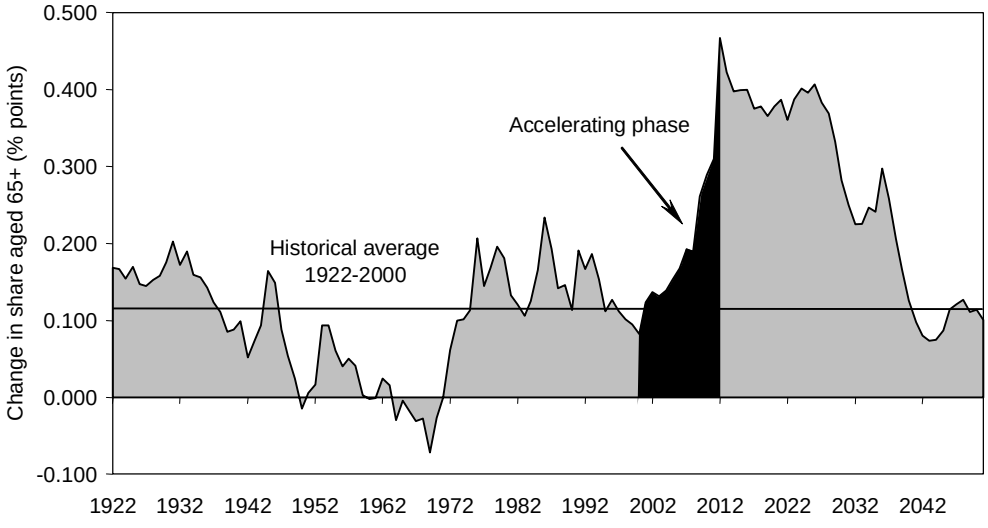


Figure 3 **Ageing is set to accelerate**
Annual change in the share of people aged 65+ in the population: 1922-2051



The Commission examined the contribution of the baby boomers to ageing trends by simulating what would have happened had there been no baby boom. Assuming a slow continuous decline in fertility rates since the Second World War, population ageing would have been brought forward in time and would have generated a

greater age dependency rate than with the baby boom until the mid 2030s (and little difference over the period to 2051). Thus, the main effects of the baby boom have been to *defer* population ageing in Australia and then to make its onset more pronounced. The real drivers of population ageing are the long-term declines in fertility and, more importantly, increased longevity.

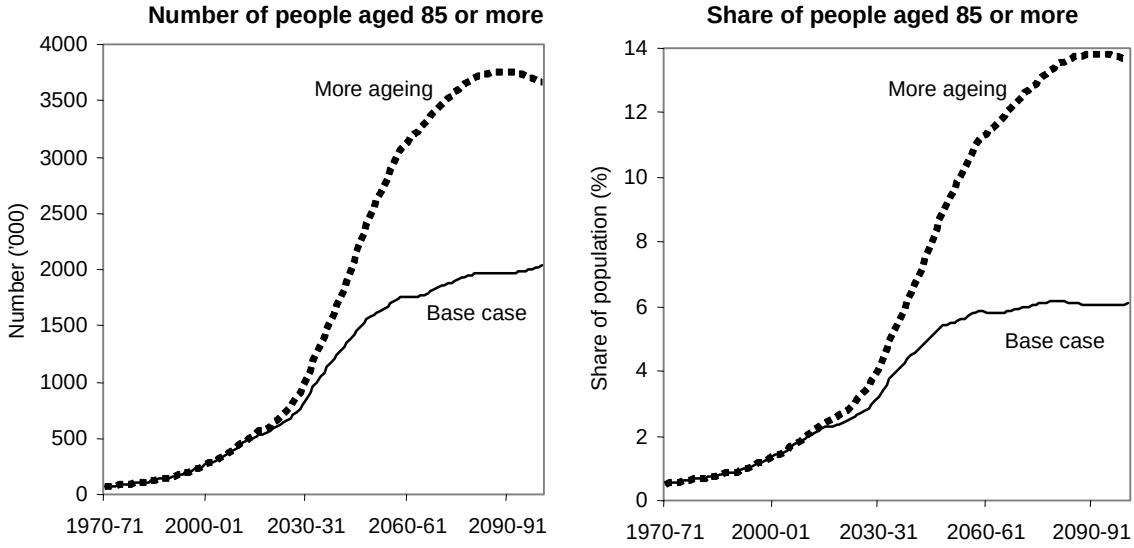
Projections and assumptions

Perspectives on the future age structure involve assumptions about future fertility, mortality and net migration patterns. These contain many uncertainties. In consultation with an expert group, comprising the ABS and some of Australia's leading demographers, the Commission developed population projections. These take into account the most recent information about fertility, mortality and migration trends, which is why they have been used in place of the official Australian Bureau of Statistics population projections produced in 2003. The new projections assume a slight increase in Australia's fertility rate from 1.75 to 1.8 babies per fertile woman (which is the major difference from the official series), yearly net migration into Australia averaging 115 000 people and continued improvements in longevity.

Under any realistic set of assumptions, population ageing is an inevitability. Even if there were no further improvement in life expectancy (a very pessimistic outlook) and fertility rates and migration were constant, population ageing would continue. The aged dependency ratio — the ratio of those aged 65 years and above to those aged 15-64 years — would still rise by nearly 16 percentage points from 2003-04 to 2044-45. This compares with the 22 percentage points rise in the aged dependency ratio under the base case projections used throughout this study.

In fact, there are credible arguments that population ageing may turn out to be more profound than the base case. The population share of the oldest old (people aged 85 years or more) — the group for whom health and aged care costs are the highest — is particularly sensitive to demographic assumptions. For example, under quite feasible alternative assumptions about future fertility and longevity, the share of the oldest old increases from 1.4 per cent of the population in 2001-02 to 8 per cent by 2044-45 and nearly 14 per cent by 2100-01. In raw numbers, this would be an increase in the number of the oldest old from 277 000 to 2.1 million and 3.7 million by 2044-45 and 2100-01 respectively — considerably more than under the Commission's base case (figure 4).

Figure 4 **The 'oldest old' could be more numerous than projected**
1970-71 to 2100-01



Increased migration cannot do much to avoid population ageing

In the absence of *any* net migration, Australia's population would age more rapidly (and, indeed, begin to decline after 2035). Our intake of migrants therefore does act as a brake on population ageing. However, the relevant policy question is whether increases in migration above *present* levels would have significant effects on population ageing. The numbers reveal that feasible increases have only modest and relatively short-lived impacts.

- For example, were migration to remain at 140 000 for the next forty years (25 000 a year more than in the base case projections), then the share of people aged 65 years or more would be 23.8 per cent rather than the projected 24.5 per cent.

Of course, larger intakes can start to make appreciable differences to ageing, but only at the cost of unsustainably large population growth. To take an extreme example:

- to delay *any* increase in the aged dependency ratio by 40 years would require a net migrant inflow to population ratio of 3.1 per cent — more than five times the present ratio. This would result in an Australian population of around 85 million by 2044-45 (compared to the base case projection of 28.3 million).

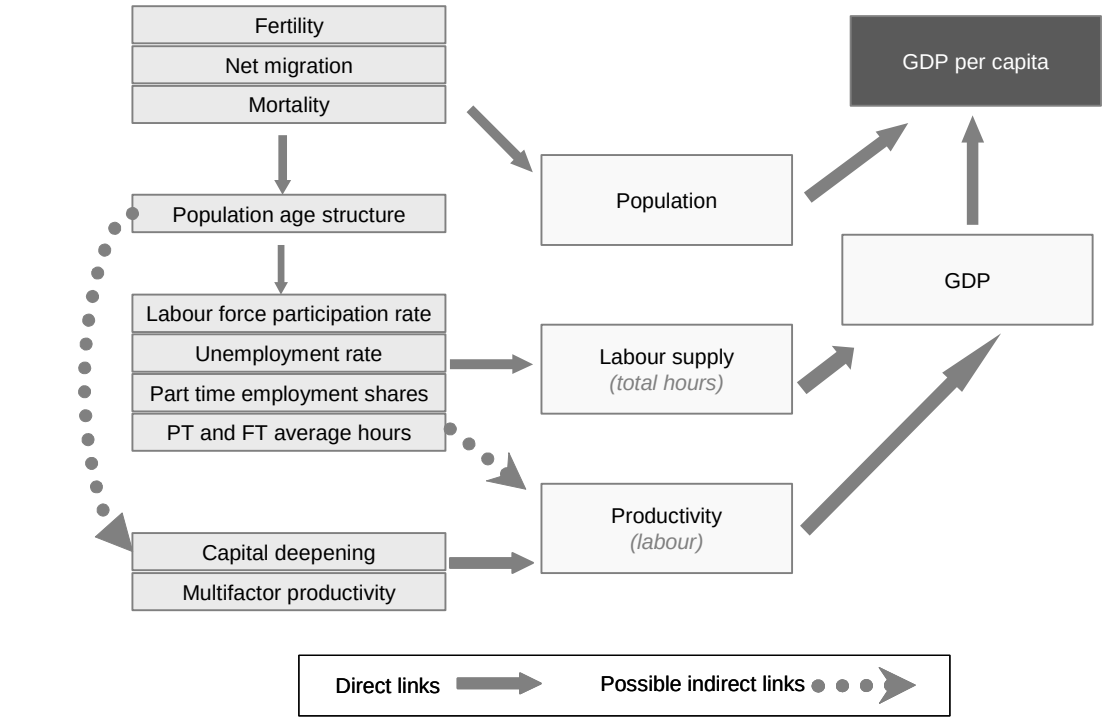
Changes in net overseas migration cannot realistically be engineered to avoid or even substantially to moderate Australia's demographic transition to an older population. Nevertheless, as discussed below, migration policy — especially

relating to skilled migrants — could usefully contribute as part of a package of measures aimed at reducing the fiscal impacts of ageing.

Impacts on labour supply and economic growth

Population ageing will reduce labour supply growth — diminishing Australia's future (per capita) growth prospects (figure 5). There are several factors at work here, but the most important is the impact of ageing on the labour force participation rate. This is the share of the population who are in the labour force (either in a job or actively looking for one).

Figure 5 **The '3 Ps' of economic growth**
Population, participation and productivity



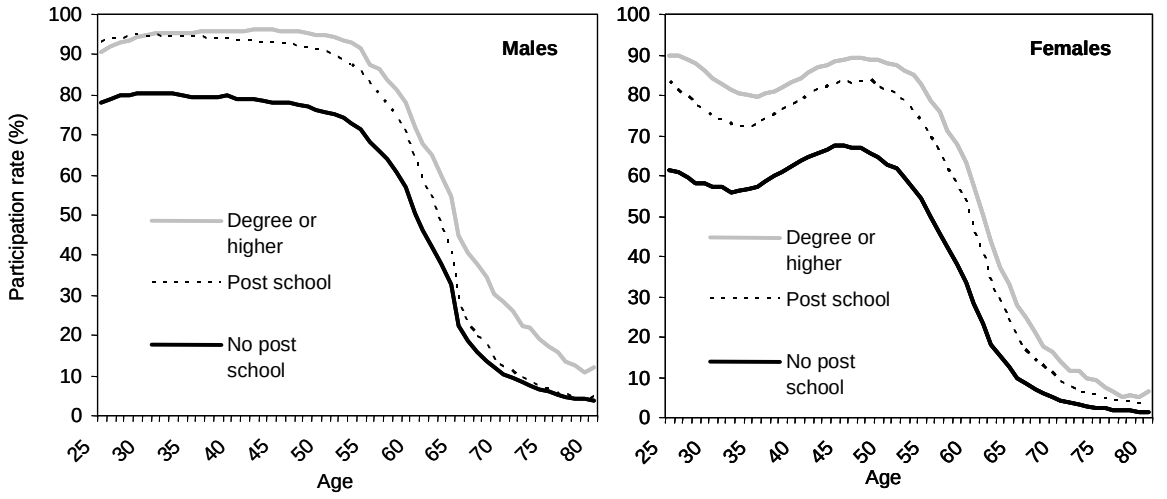
Labour participation currently falls significantly for those over 55 years and is negligible after the age of 70 years. As more people move into these older groups, outflows from the labour force are likely to quicken and the overall labour participation rate to fall. This ageing effect is only partly offset by new young workers, since lower past fertility rates have reduced their numbers. It is also partly offset by a continuing trend for higher female participation at most ages — but this trend must abate at some point.

To develop an overall picture of these counteracting flows, the Commission estimated age-specific participation rates and combined these with projections of

the changing age shares of the workforce. Rather than just look at age-specific participation rates and how they might evolve, the Commission modelled the labour participation rates of *cohorts* of people — groups of people born in distinct periods. It is important to do this because the labour market behaviour of different cohorts can be quite different, reflecting varying social attitudes, access to education and other influences.

It is clear, for example, that currently younger people are on average much better educated than older ones, and that better educated people generally have higher participation rates (figure 6). It is projected that education levels will continue to rise. This will stimulate labour participation rates. However, the benefits of education for labour participation are likely to fall with its extension to a greater share of any generation, so that the effect is unlikely to be as strong as figure 6 would imply.

Figure 6 **Labour force participation differs by age and highest educational attainment, 2001**

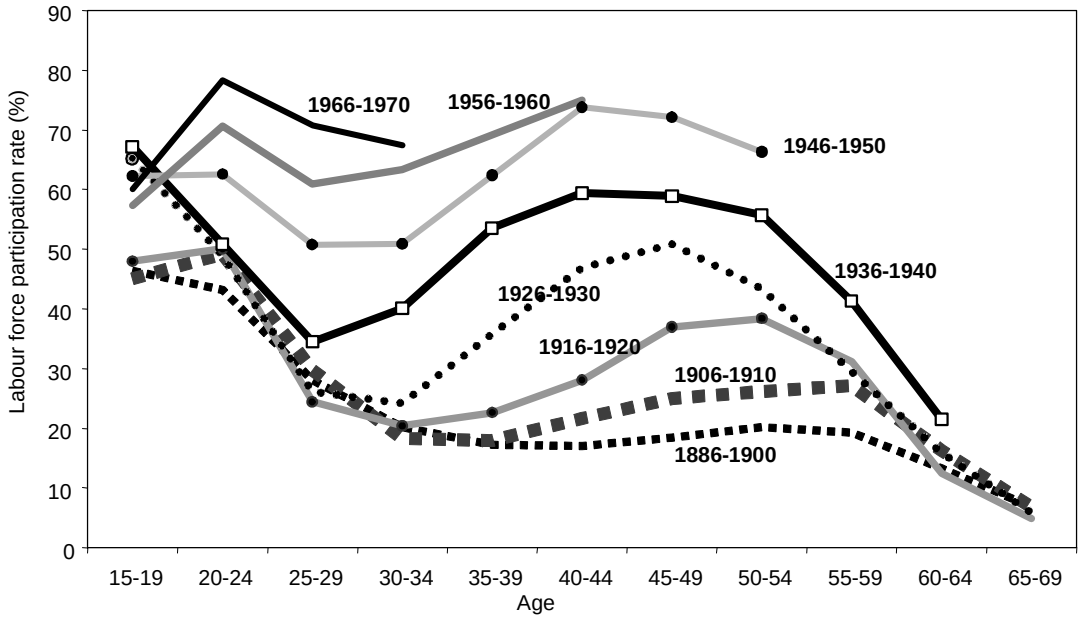


Cohort effects on participation rates are especially strong for women (figure 7). Lifetime female participation in the labour force has increased dramatically and its time profile has also altered.

- A woman born around Federation typically participated in the formal labour market while very young (aged 15 to 19 years), and withdrew with marriage and child bearing. After having (several) children, she generally never returned to a paid job.
- A woman born just before the Second World War also had her peak participation rate when young, but her withdrawal from the labour market with the advent of childbearing was temporary.

- Later female cohorts have significantly lower participation rates when young than pre-1920 females, reflecting greater involvement in senior secondary schooling and tertiary education. But against this, the dip in participation associated with childbearing is smaller and less protracted. Women have become better educated, and have fewer children and greater access to part-time jobs and childcare. The peak involvement of women in the labour force is now around 40-44 years — in stark contrast to their great-grandmothers.

Figure 7 **Recent female cohorts participate much more[a]**



a The years shown are the birth years of the various cohorts.

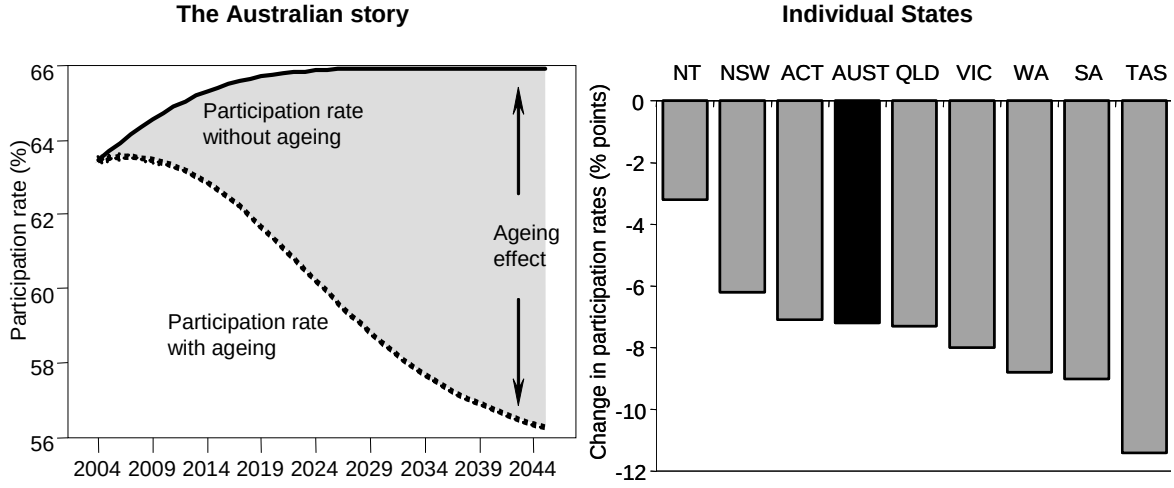
Cohort effects are much less pronounced for males than females, and their long-run impact has been to *reduce* rather than increase labour force participation. A significant factor in this has been an increasing incidence of disability pension uptake among older males in unskilled occupations.

Taking account of these changing cohort patterns, the Commission has projected future participation rates for different age groups by gender. The projections show a continuing tendency for greater female participation for all ages over 25 years and a (slowly abating) trend for lower participation rates for males aged from 25 to 54 years. Ultimately, female and male participation rates are expected to converge for most age groups.

The aggregate participation rate will fall with ageing

Applying these age-specific trends to Australia's ageing population, aggregate labour force participation rates are projected to fall by around 7 percentage points: from their current level of 63.5 per cent to 56.3 per cent by 2044-45 (figure 8). Had there been no change in the age structure of the population, participation rates would have *risen* by around 2.5 percentage points, reflecting the continued importance of increasing female participation. Accordingly, by 2044-45, the difference in participation rates attributable to ageing amounts to nearly 10 percentage points — a margin that would have large effects on Australia's growth prospects.

Figure 8 **Aggregate participation rates fall with ageing**
2003-04 to 2044-45



The most important determinant of this overall reduction in the labour force participation rate is the shift in the age structure of the population towards older, less participating groups. Plausible increases or decreases in age-specific participation rates do not greatly alter the picture that emerges.

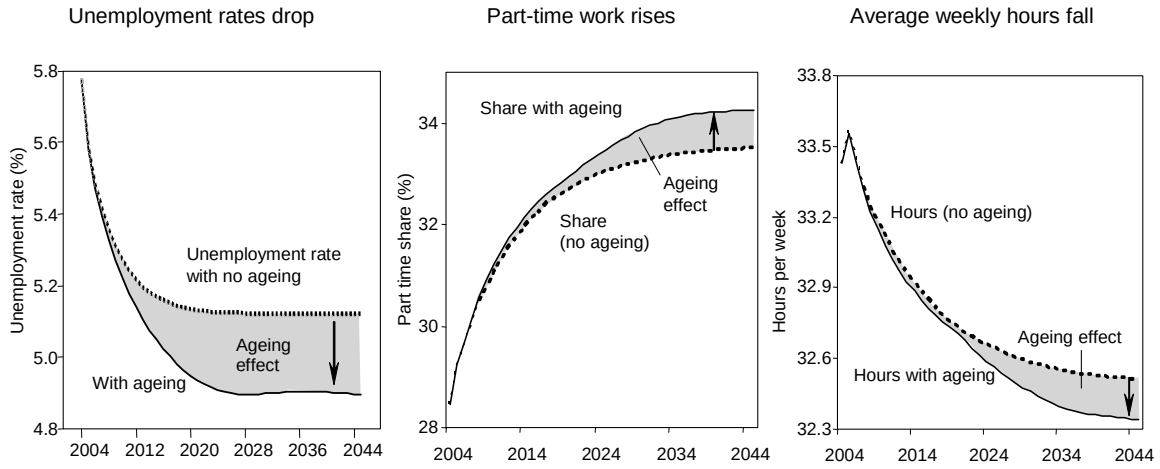
Most States are similar to the national pattern, but two exhibit more extreme results (figure 8). There are large projected declines in participation rates in the most 'greying' jurisdiction — Tasmania. In contrast, participation rates fall by a much smaller amount in the Northern Territory, a reflection of its unique demography.

Unemployment will fall, but so will hours worked

Participation is only part of the labour supply story. The other two important elements are unemployment and hours worked.

Ageing is likely to have a positive twist for *unemployment*. This is because the highest unemployment rates are experienced by young people, who are in transition from education to work, and the lowest by older people, who have the alternative of retirement (or, in many cases, a disability pension). Consequently, the shift in the age structure of the workforce is likely to reduce measured unemployment rates, although the effect is quite small. This effect is reinforced by a generally falling trend in unemployment rates and implies that, for a *given* participation rate, the *effective* labour supply will be higher than otherwise (figure 9).

Figure 9 **Effects of ageing on unemployment, part-time employment rates and average hours worked**
2003-04 to 2044-45



The story for average hours worked is different again. Average hours worked are generally projected to increase modestly for part-time workers of most ages, while being stable for full-time workers generally. However, the *incidence* of part-time work will continue to rise for Australians of most ages (particularly for males). That, and the fact that older workers have a greater tendency to work part-time, mean that average weekly hours per employee are projected to fall.

So ageing has a doubly depressive effect on labour supply — reducing participation rates and cutting average hours worked. These elements greatly outweigh the positive influences of lower unemployment.

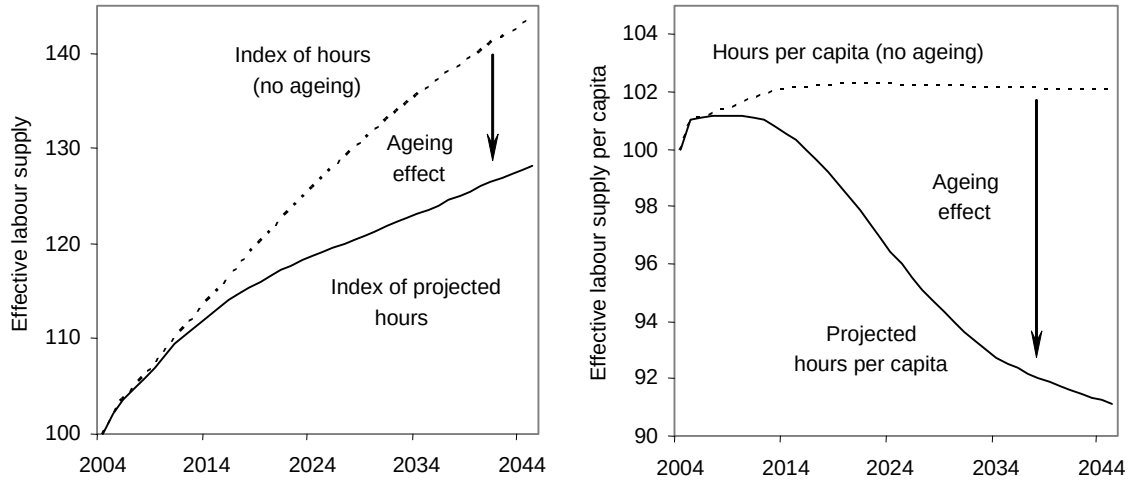
Labour supply growth slows

These components of labour supply — participation, part-time and full-time work, average hours and unemployment — can be brought together to provide two perspectives on labour supply:

- the number of people in employment; and
- the total number of hours actually worked per year (the 'effective' labour supply).

Both are projected to grow sluggishly as a result of ageing (figure 10). For example, the number of workers is projected to grow by over one million in the seven years from 2003-04 to 2010-11. This is about the same growth in the labour supply that is projected to occur over the entire 21 years from 2023-24 to 2044-45. Indeed, in the next forty years, the pace of effective labour supply growth is expected to be slower than population growth (unlike in the past). From a peak in 2011-12, the number of hours worked per capita is projected to decline by around 10 per cent.

Figure 10 **Ageing and effective labour supply**
Australia 2003-04 to 2044-45

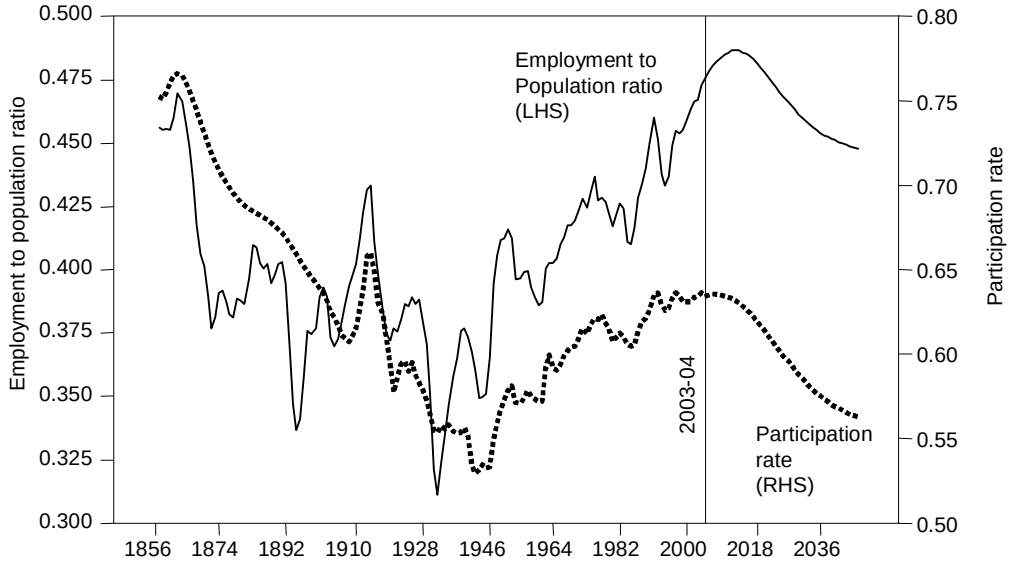


It is sometimes argued that future sluggish labour supply will be partly self-correcting, as the unemployed and those currently out of the labour force acquire jobs in response to labour shortages. However, such an automatic correction is unlikely. Unemployed people and people outside the labour force are generally different from the employed in skill, motivation and aptitude. They cannot simply occupy vacant jobs without triggering wage and cost pressures that invite macroeconomic responses that restore 'equilibrium' unemployment rates (a situation analogous to an overheating economy). This is why government policies to improve the employability of people currently without jobs, or to increase intakes of skilled migrants, would be important for raising future labour supply.

The labour supply 'problem' in historical perspective

Adopting an historical perspective reveals a more positive story than told by the projected outcomes for the next forty years alone (figure 11). The employment to population ratio over the next forty years is not historically low. Even with the projected decline in participation, the ratio of employees to population will still be higher in 2050 than at almost any time in the last century. (This reflects the importance of the reduced young population in the denominator of this ratio.)

Figure 11 **Taking a long view: 200 years of Australian labour supply**



This historical perspective shows why it would be misplaced to *blame* ageing for any economic pains, since the flip side of ageing has been an earlier era of economic gains.

- A significant source of ageing (and the accompanying projected decline in the employment to population ratio over the next 40 years) was the general decline in fertility after the baby boom.
- But the presence of the baby boomers and the relative absence of their progeny was a major factor behind the *rise* in employment to population ratios after the Second World War and its current apex. The baby boomer phenomenon produced a big economic growth bulge, which will inevitably subside as the boomers age.

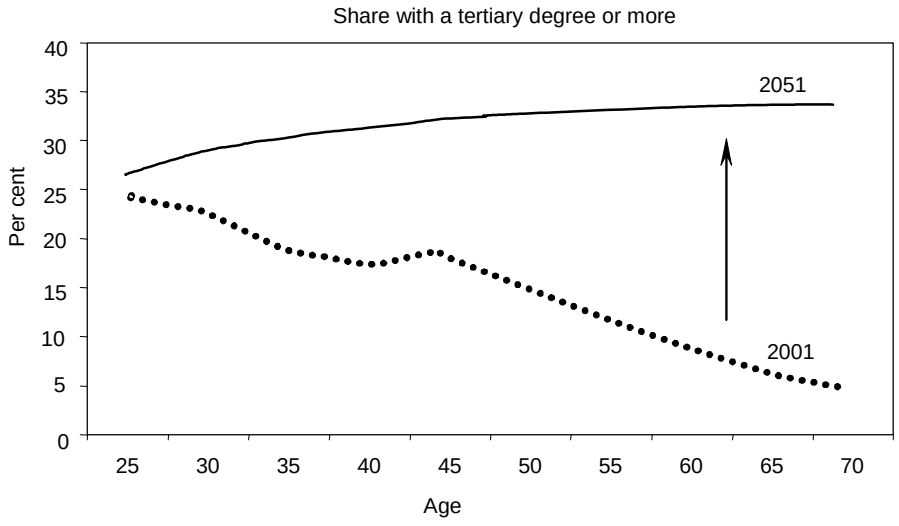
What effect on labour productivity?

The effects of ageing on labour productivity are less clear-cut than its impacts on labour supply. This is because there is a variety of, sometimes offsetting, ways in which ageing could affect productivity.

Information on wage rates and empirical estimates of productivity by age groups suggest that, on average, a person's productivity levels initially increase with age before declining after middle age — with productivity following an inverted u-shape.

However, the old of tomorrow will be different from those of today. Very few older Australians currently have post-secondary educational qualifications. That is set to change as today's more highly educated younger cohorts get older (figure 12). Together with the potential for a healthier older workforce (as new health technologies are developed and employment moves away from more hazardous occupations), this suggests that the productivity disparity between middle-aged and older workers will diminish somewhat over time.

Figure 12 **The old of the future will be more highly educated than younger cohorts**



Overall, the impact on productivity of the gradual shift to an older workforce depends on two things:

- the shape of the productivity profile across different ages (and how this changes over time); and
- the relative shares of the workforce in a given age range.

The net effect on productivity depends on whether the gains from a reduced share of inexperienced (and less productive) younger workers are outweighed by the falls in productivity associated with a growing share of the oldest workers. Overall, the Commission estimates that the net effect is negative, but negligible.

Productivity has an international dimension too. Population ageing is a global phenomenon, which may affect international capital markets as hundreds of millions of old people deplete their retirement assets and as demands for new investment change with slowing labour supply growth in developed economies. These global forces are important because they may affect capital to labour ratios in Australia — historically, an important determinant of labour productivity growth. However, this is a complex area with competing views from different models about likely outcomes. Moreover, growth in capital deepening in Australia has been remarkably stable over the last 40 years, against a backdrop of significantly changing global investment and demographic conditions.

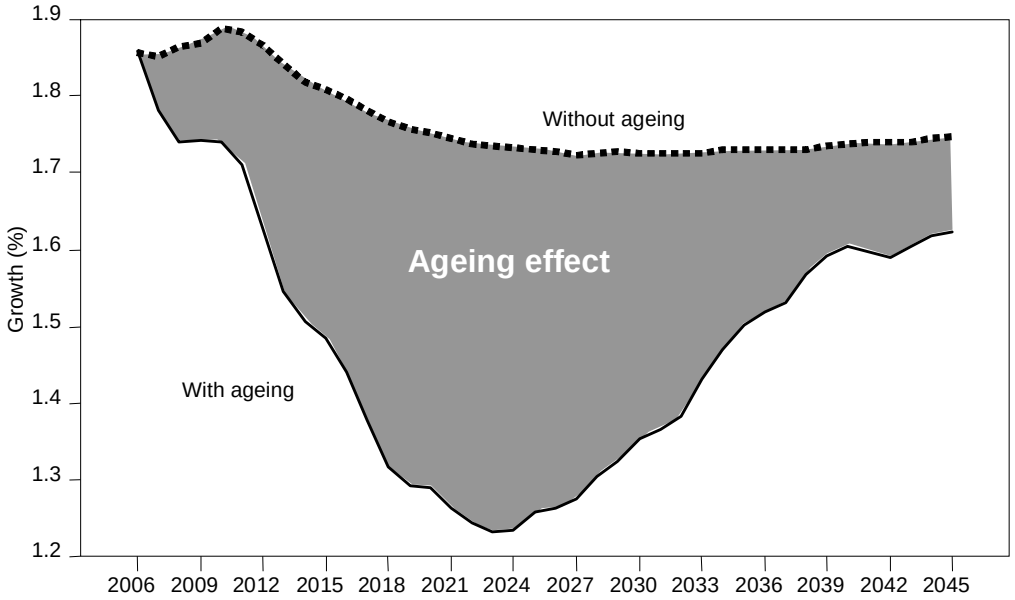
There are also complex links between demographic change and innovation, entrepreneurship and incentives for technical progress. But there is little persuasive evidence that these will undermine labour productivity growth.

Overall, there is insufficient evidence to suggest that ageing per se will either enhance or erode Australia's labour productivity prospects.

Future economic growth — an age of diminished expectations?

For a given labour productivity growth rate, the effect of population ageing on labour supply is to slow Australia's economic growth over the coming decades. GDP per capita growth rates are projected to fall steadily over the period to around 2025, with a partial recovery thereafter (figure 13). The dip mainly reflects the ageing and withdrawal of the baby boomers from the labour force. GDP per capita growth is projected to slump to around 1.25 per cent a year by the mid 2020s — roughly half its rate in 2003-04 and one-third lower than without ageing. The longer run prognosis for economic growth per capita of 1.75 per cent a year reflects the fact that labour supply growth per capita in a stable population will be close to zero, so that growth only depends on the underlying rate of labour productivity growth.

Figure 13 **Economic growth in Australia — a 40 year projection**
Per capita GDP, 2005-06 to 2044-45



However, these impacts need to be placed in perspective. Real per capita incomes will still be much higher than today — indeed by 2044-45 they are projected to be nearly double those of 2003-04. In addition, the measures of output used in the above analysis tend, if anything, to understate the true increase in living standards. This is because — following standard National Accounts conventions — the calculations pre-suppose zero productivity gains in sectors such as education where output is hard to measure.

Moreover, in the modelling behind the above results, nothing adverse is happening to the incomes of individuals from a lifecycle perspective (in fact, every new generation has substantially growing lifetime earnings). The slowdown in *aggregate* growth merely reflects the fact that there are more people in retirement or the part-time working years of their lives. It should also be recalled that people value the leisure received in retirement and often choose to retire voluntarily.

The results also reveal that, in the likely absence of any major resurgence in the workforce, Australia's future economic growth will overwhelmingly depend on productivity growth. To illustrate its significance, suppose that Australia was able to sustain the so-called 'miracle' productivity performance of the 1990s. With an annual productivity growth rate of 2.05 per cent instead of the assumed base case of 1.75 per cent, Australians would be better off in cumulative GDP terms by around $4 200 *billion* over the projection period to 2044-45. (The picture looks correspondingly worse, of course, if productivity rates fall.)

What happens to spending?

Many aspects of an ageing Australia will be accommodated automatically by markets. Private consumption and production patterns will shift over time towards goods and services that best meet the preferences and needs of an ageing population.

But some critical age-related goods and services are funded and regulated by governments, reflecting problems in their market provision — such as access and equity concerns. The demographic transition may place pressure on government finances because GDP — the pie from which services are ultimately funded — is projected to grow more slowly than spending demands.

Of course, not all areas of government spending will be increased by ageing:

- education costs will fall as a share of GDP, as younger cohorts diminish in relative importance;
- a range of social welfare payments — particularly family assistance, parenting payments and unemployment benefits — will also decline in importance;
- other expenditure areas, such as transport, housing, and law and order — while all having an ageing dimension — are not likely to be much affected by ageing; and
- many government expenditure functions — such as defence — are not obviously linked to demography at all.

In one area where ageing *is* likely to increase government costs relative to GDP — age pensions — Australia is relatively well placed compared to most developed countries. This reflects past reforms to superannuation and retirement saving policy.

The most important sources of potential stress on Government spending are health and aged care.

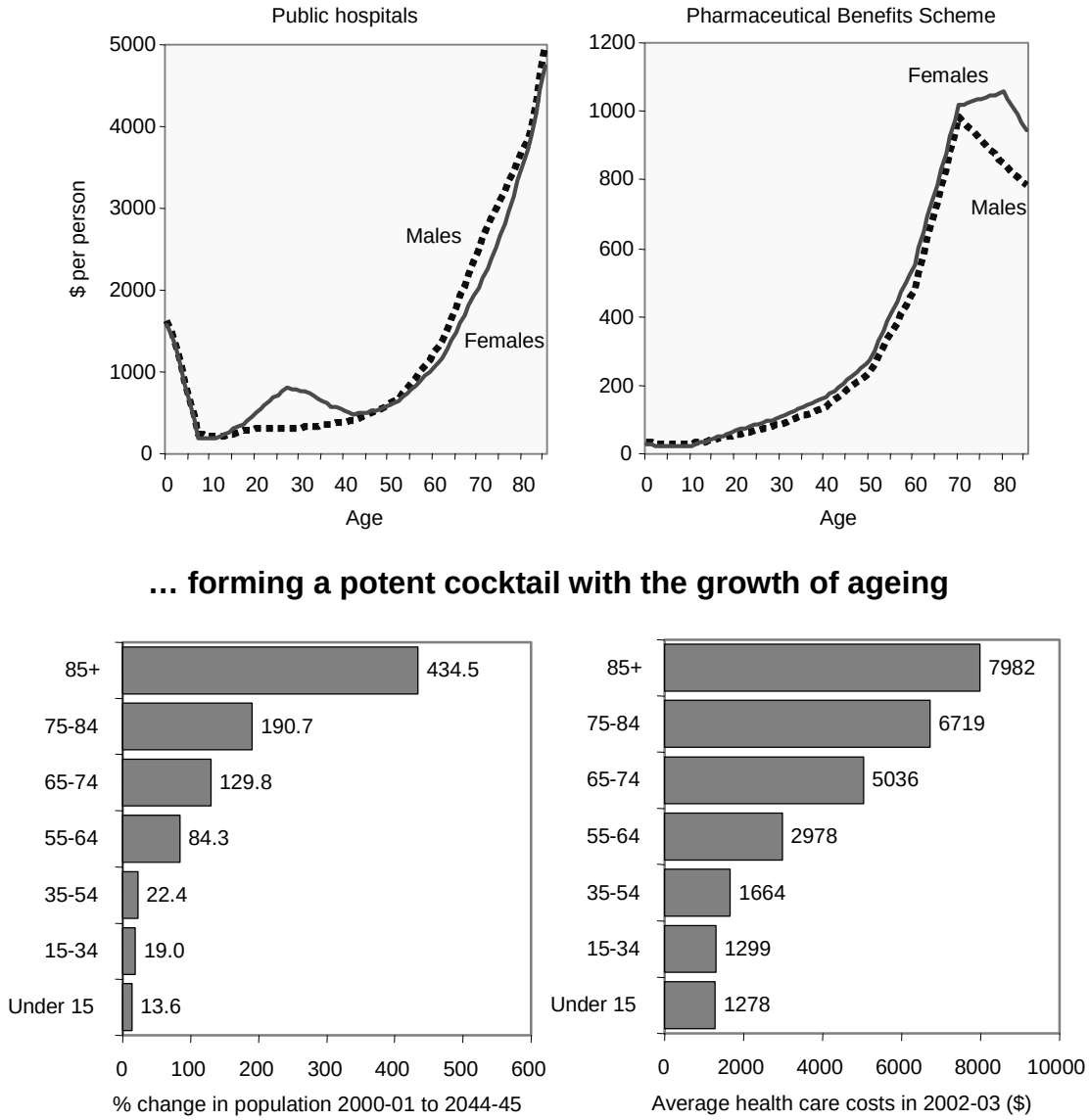
Health care expenditure will escalate

The incidence of sickness and disability rises with age. Accordingly, on average, older people use significantly more health services per person than other Australians. For example:

- Costs per person in the Pharmaceutical Benefits Scheme are strongly age-related — average costs for a male aged 65-74 are more than 18 times those for a male aged 15-24 (figure 14).

- Hospital costs follow a similarly steep age-profile, while Medicare costs also rise with age, though less steeply.

Figure 14 **Costs of hospitals and drugs rise with age**



Across health services as a whole, expenditure on the over 65s amounts to around 4 times more per person than that on those under 65, and rises to between 6 to 9 times more for the oldest groups. Similarly pronounced age-based relationships are observable across time and in all developed countries. With rapidly increasing numbers of the old, the upward-sloping age profile of health expenditure suggests that ageing will increase health spending significantly.

The importance of demand and technology

In itself, ageing has been historically a relatively minor driver of rising health costs. Non–demographic factors, particularly increasing utilisation of services at any given age and the use of new (and expensive) technologies, have been the main source of rising health expenditure over the last 20 years. Real per capita spending has been increasing for all major components of government health expenditure. Real average annual growth rates range from a high 7.5 per cent for pharmaceuticals to a more modest 2.3 per cent for hospital expenditure.

These trends arise because rising incomes simultaneously provide the capacity for increased government funding of health care, create expectations of better and more extensive treatments and prompt investments in new health technologies. While some of these technologies lower the unit cost of care (for example, cataract operations), overall the expansion of treatment is generally considered to have outweighed any unit cost reductions. This may be a negative in expenditure terms, but to a large extent it reflects the success of modern medicine in improving and prolonging peoples' lives. For example, one study found that over 70 per cent of the reduction in mortality for coronary heart disease between 1980 and 1990 has been traced to improvements in medical technology (and the rest to prevention strategies).

These demand and technology developments are sometimes seen as being 'ageing-neutral', because rising trends in expenditure per person occur for all ages. However, this ignores the fact that older people use more health services, so that the aggregate expenditure impact of any given increase in costs arising from technology is amplified the greater the aged share of the population.

A critical question for the future is whether demand and technological factors will serve to steepen or flatten the age-cost profiles of health care (such as those in figure 14). Were health costs to rise more slowly for the aged than for the young, then the fiscal consequences of ageing would be much reduced. However, across all government-funded health expenditure areas in Australia, historical evidence suggests that demand and technology are acting to maintain (and even slightly increase) the age profile of expenditure across different components of health care.

It is sometimes claimed that governments will automatically constrain future rises in health costs relative to GDP arising from ageing by slowing the acquisition of technologies below historical rates. While this could be a way of offsetting the impacts of ageing, it would transmute the cost of ageing from a fiscal to a technology deficit. This may or may not be a useful policy response to ageing, but the Commission's projections are intended to highlight what would happen if the

basic policy stances of governments are preserved, rather than implicitly (or explicitly) making judgments about particular policy responses.

But aren't the old getting healthier?

It has been suggested that ageing will not have as large an impact on health costs as projected because older people will be significantly healthier in the future. An apparent decline in age-specific disability rates is adduced as evidence for this.

The story is complex and, as yet, not fully resolved, but the weight of evidence does not support the view that better health in the elderly will reduce health expenditure.

- For one thing, the findings on disability rate trends remain controversial, and depend on the definitions and contexts in which judgements are made.
- There is evidence of a rise in chronic conditions among the old, even in those populations recording lower disability rates. The connection may be that medical interventions have lowered disability or trauma associated with morbidity, but the condition remains present.
- Even where populations have higher health status, this may reflect the use of effective (but costly) treatments. That is, the causality may well run from additional treatment to better health, rather than from better health to lower treatment costs. For example, hip replacements can provide greater mobility and relief of pain, but are relatively expensive operations.

The risks are more likely to go the other way

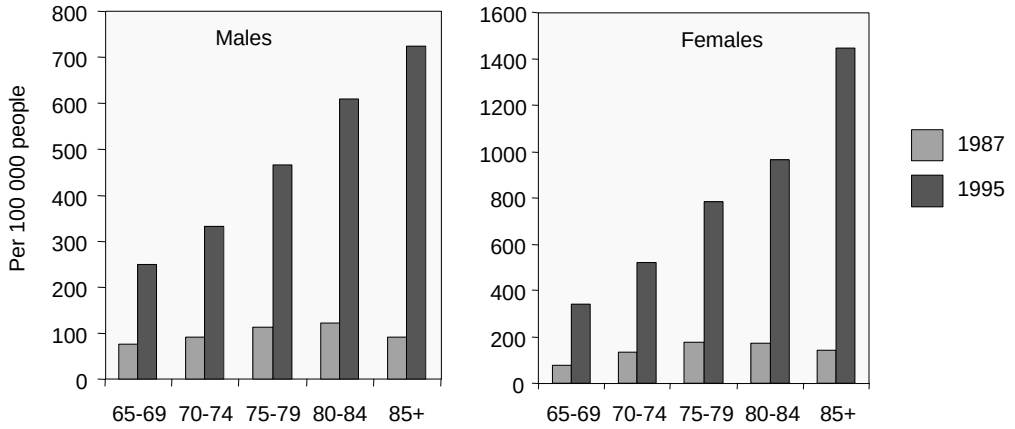
The propositions about 'older but healthier' if true, would tend to flatten the age-cost profile over time. There are greater risks, however, that the profile may steepen. In other words, growth rates in health care spending could be greater for older than younger people, implying bigger pressures on the health system than the Commission has projected. Several forces could bring this about.

- One is that more medical procedures can be performed safely. (While this may be costly, it is beneficial for the old, and may save resources in other parts of the system, such as aged care.) US data show that the incidence of hip replacements in the old has increased most rapidly among the oldest old (figure 15). This reflects less traumatic surgical techniques and better anaesthesia that have improved prognoses for such operations. Increases in interventions among the old are less pronounced using Australian data, but already average annual growth in hospital treatment (separations per person) have grown proportionately more for the old than the young. And for privately insured

patients, costs of prostheses, mainly for the old, have increased substantially in just a few years.

- Social perceptions about treating older people have been changing. As one nurse put it: 'When I was in an intensive care unit 20 years ago, somebody over 75 would have a tough time getting in. They are now 85 and they are having complicated and major surgery.'
- Research and technological developments tend to focus on where the disease burden is greatest — illnesses associated with ageing.
- Finally, there are several emerging public health risks that may *raise* morbidity levels among older Australians. In particular, the sharp rise in obesity rates in advanced countries is associated with a rapid increase in the incidence of diabetes II, with its direct treatment costs and long-run risks for cardiovascular disease, blindness and kidney disease.

Figure 15 **Hip replacement trends among America's aged**



What if most costs were associated with the *end* of life?

A related claim by some health economists is that ageing may not affect heath costs significantly because most of a person's lifetime health costs are concentrated in the period before death, regardless of how long he or she lives. However, this argument is flawed on two counts.

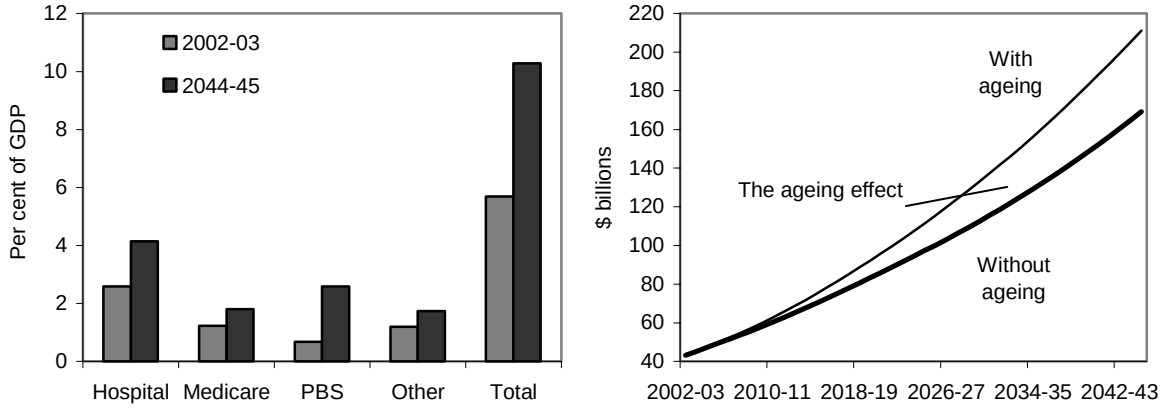
First, most of the evidence suggests that while health costs are important in the year or two preceding death, they do not comprise the bulk of a person's lifetime costs. Ongoing health costs for people who are not close to death still appear to account for most spending (and such health costs still rise with age).

Second, population ageing is not just due to increases in longevity, but also to changes in the historical patterns of fertility and migration inflows. The continuous decline in fertility after the baby boom is particularly important in an Australian context. This created a bulge in the age distribution, which means that ageing will involve a dramatic increase in the incidence of deaths in the population. The number of deaths per 1000 people is expected to rise around 50 per cent between now and 2044-45. So even if costs incurred at the end of life *did* explain most of the upward slope of the age profile of health expenditure, an ageing population would still lead to a major increase in health expenditure in Australia.

Pressures on health care spending

While higher costs at the end of life do not alter the emerging picture of burgeoning health costs in Australia, it is appropriate to take account of this phenomenon when projecting future health costs. Under the assumption of a fixed age-cost profile, population ageing, rising demand and technology trends, and the importance of higher costs at death, the health expenditure of the combined State and Australian governments is projected to increase from 5.7 per cent to around 10.3 per cent of GDP in 2044–45. (Incorporating 'proximity to death' costs only slightly reduces the fiscal pressures associated with health care compared with a projection model that ignored this phenomenon.) All components of health expenditure are projected to rise (figure 16).

Figure 16 **Projected Government health expenditure**



Hospital expenditure remains the largest component of expenditure, although its share is projected to fall slightly. Pharmaceutical expenditure is projected to increase by the greatest relative amount, with Medicare and other expenditure maintaining broadly stable shares of expenditure.

Aged care needs will increase

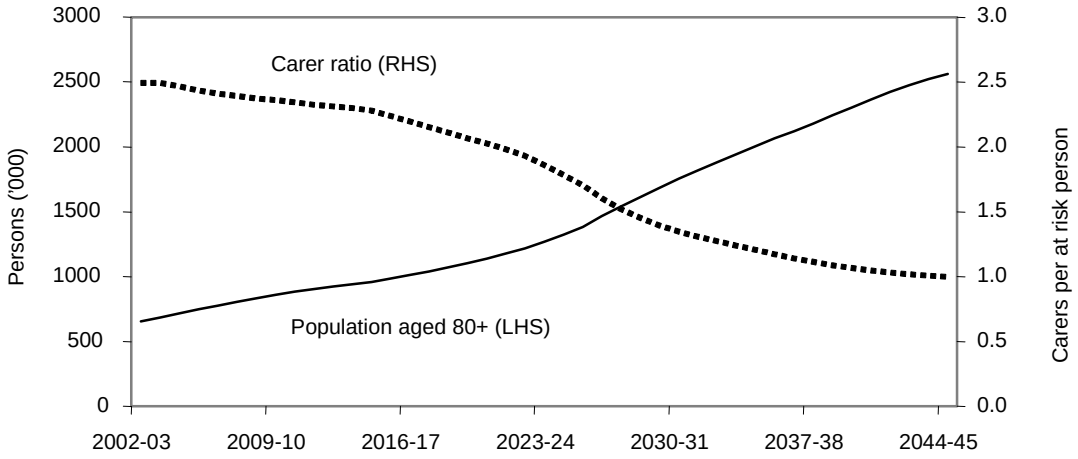
The use of formal aged care increases rapidly after 80 years of age. The proportion of people aged 80 years or more is expected to almost treble, from 3.3 per cent of the population in 2002-03 to 9.1 per cent in 2044–45, suggesting that ageing will exert substantial pressure on aged care expenditure.

This trend may partly be offset by lower profound and severe age-specific disability rates — though the evidence is not clear cut. As in the Hogan report, the Commission has incorporated a modest reduction in the disability rates that are relevant for institutionalisation. Were these reductions not to be realised, the number of residents and associated costs would rise by significantly more.

- With modest reductions in disability rates, the number of low and high care residents is projected to increase by around 215 per cent between now and 2044-45.
- If there were no reductions in disability, the comparable rise would be around 250 per cent.

Changes in the care mix — between residential and community care — will continue, but do not offer a panacea for cost pressures. Per person costs are significant for formal community care, and in any case, the capacity for a significant re-balancing of care to the community is likely to be constrained over the longer run by the availability of informal carers (figure 17).

Figure 17 **The number of carers will not match the growth in the aged**



Ultimately, the costs of aged care are expected to increase by around 2.6 times more than the growth of GDP over the next forty years. As a share of GDP, costs are projected to rise from 0.85 per cent in 2002-03 to around 2.24 per cent in 2044-45.

‘Fiscal pressure’ will build

Fiscal pressure is defined in this report as the extent to which increases in government spending outpace revenue growth. Generally, this study focuses on those revenue and spending areas where at least a significant proportion of spending is age-related (such as health and education). It should be stressed that while the main projections of fiscal pressure in this study are related to ageing, they are not attributable solely to it. For example, as noted earlier, technological change in health care is likely to increase overall costs, and this will occur to a significant degree regardless of population ageing. Where factors other than ageing are important — as they are in health care — the Commission has explored their relative importance.

Moreover, as State governments pointed out, the fiscal position could be exacerbated (or relieved) by non-demographic trends in spending areas where ageing plays a minor or no role. The Commission has assessed the extent to which such trends relieve or aggravate fiscal pressures, and has concluded that their impacts are broadly neutral in aggregate

The incidence of fiscal pressure is complicated by the financial dependence of the States and Territories (‘States’) on the Australian Government. Changes in the payments made by the Australian Government to the States as a result of ageing pressures can shift budget pressures between the different tiers of government. The implication of this is that *aggregate* fiscal pressure borne by governments collectively is the best single measure of the fiscal consequences of ageing, because it is not sensitive to assumptions that affect how it is distributed.

The pressure is expenditure-related

Demographic change has modest effects on the tax revenue shares of GDP. For governments as a group, tax revenue is projected to rise by less than 0.1 percentage points of GDP from 2003-04 to 2044-45.

The more striking story is on the expenditure side. Here, across all levels of Government, spending is projected to rise by around 6.5 percentage points of GDP over the same period. Health care costs are the single most important contributor to future spending pressures. Also significant are the pressures associated with aged care and age pensions. However, educational costs and some social safety net payments, such as unemployment benefits and family-based payments, decline in relative importance, as the age structure shifts away from the young. In the absence of ageing, the aggregate fiscal gap on the spending side is projected to be only around 0.9 per cent of GDP. Accordingly, when aggregate fiscal pressures are

expressed as a share of GDP — the most appropriate measure for assessing whether policy action is needed — population ageing emerges as the dominant source of pressure.

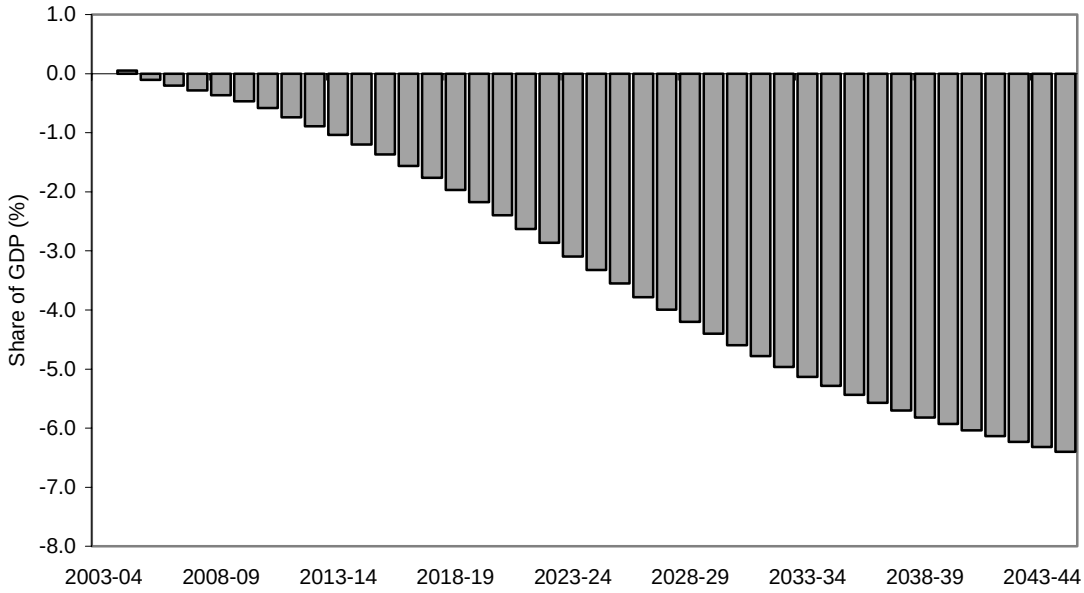
Table 1 **How much fiscal pressure nationally will there be?**
Age-related government spending to GDP ratios

All Government summary	*2003-04*	*2044-45*	*Difference*
	%	%	Percentage points
Health care	5.7	10.3	4.5
Aged care & carers	1.1	2.4	1.4
Age pensions	2.9	4.6	1.7
Other social safety net	3.8	3.1	-0.6
Education	5.2	4.7	-0.5
Total	**18.7**	**25.2**	**6.5**

Fiscal pressure rises smoothly over time for combined governments (figure 18), reflecting the fact that population ageing is a gradual and continuous process.

Overall, as a result of these spending and revenue trends, governments collectively are projected to have a fiscal gap of around 6.4 per cent of GDP by 2044-45 — a pressure that builds gradually (figure 18).

Figure 18 **The pressure builds gradually**
Net fiscal position to GDP relative to 2003-04



Cumulatively, the value in 2002-03 dollars of the fiscal gaps projected from 2003-04 to 2044-45 is around $2.2 trillion ($2150 billion), ignoring the costs of

financing such gaps. Were the gaps to be progressively financed by issuing debt, the stock of debt is projected to be around $4150 billion by 2044-45 in 2002-03 prices (at a 5 per cent interest rate) — around double Australia's GDP at the time.

Which jurisdictions bear most pressure?

In the Commission's 'base' projections, the fiscal pressures on the Australian Government are projected to be higher than for State governments, and indeed somewhat higher than found by the Intergenerational Report.

The lower pressures on the States in the base case reflect several influences:

- Given their rationale, it is assumed that special purpose payments (SPPs) from the Australian Government to the States rise with service needs, rather than say being fixed in real per capita terms. The Commission acknowledges that there are other possibilities, especially over the shorter term. Different assumptions about the growth rate of SPPs by the Australian Government to the States make a substantial difference to the distribution of fiscal pressures between jurisdictions. For example, were SPPs to grow only with inflation and population, then the spending pressure on the States would treble by 2044-45, whereas that on the Australian Government would fall by around 30 per cent.
- The States have a relatively minor role in age-related social welfare, while being fiscally advantaged by their significant role in education funding. Two forces are at work here. First, population ageing results in a lower share of Australians of school age (the area of education for which the States have the greatest responsibility). Second, the Australian Government is a major funder of private schools, which are growing relatively rapidly, displacing students from State-funded public schools.

The Commission has also estimated the 'apparent' fiscal pressure measure for each State, excluding the impact of GST grants. The pressure is more apparent than real, because the future size of the GST grants made to the States recognise their relative spending and revenue-raising disadvantages. For example, Tasmania ages relatively more than other States and so faces steeper health and age care costs. It can, accordingly, expect to receive a greater share of GST revenue to 'equalise' its position relative to other States.

There are fiscal pressures for local governments too, reflecting their involvement in aged care, community transport and a range of other human services. However, the effects on local governments are highly variable, reflecting differential involvement in the provision of age-related services and the wide variation in demographic

change at the regional level. Coastal areas, in particular, have higher concentrations of older people and are expected to 'age' rapidly, with consequently greater fiscal impacts.

Some key implications

Population ageing is *not* a crisis

Notwithstanding the projected magnitude of the fiscal gap, the predominant view in policy discussion is that these potential impacts do not constitute a crisis, at least not yet. There are several reasons for supporting this view:

- An ageing population is predominantly a reflection of beneficial trends — improved life expectancy and voluntary reductions in fertility. At least historically, there was a trade-off between female participation rates and fertility rates. Had many more children been born in Australia in the 1970s and 1980s, our current and impending population structure would have been younger, but our workforce would have included far fewer, and less highly educated, women. Given that education also promotes productivity, two of the 'Ps' bearing on economic growth — participation and productivity — would have been significantly lower.
- Unfunded pension liabilities, while significant, will not exert as much pressure on Government budgets as they will in many other OECD countries.
- Health care expenditure, while burgeoning, will promote community wellbeing and may reduce the need for other age-related outlays, such as residential nursing home care.
- Australia will also be a richer country when these impacts are felt, having a greater capacity to absorb the additional costs of its ageing population. Average per capita incomes in 2044-45 will be almost twice as large as they are today.
- People contribute more to a society than just through their marketplace labour. Older Australians play a significant role as volunteers, carers and community members. The Commission estimates that the value of volunteering will rise from 1.8 to 2.1 per cent of GDP. In any case, the extra leisure that older people are enjoying has value like other activities; it just does not get picked up in GDP estimates.
- Finally, the ageing of the population is a gradual phenomenon and its economic and fiscal impacts will also gradually build up over time. Events with long lead times cannot be considered crises as long as there is scope for anticipatory countermeasures.

There are significant policy challenges

Ageing still raises major policy challenges. The fiscal pressure is substantial and any fiscal gap must be financed. No single policy can plausibly remedy the fiscal problems, without raising other problems. Given the magnitude of the pressures, their resolution will require actions on a number of fronts.

Population policies have limited potential

Since ageing is the outcome of demographics, it might be thought that population policies could significantly ameliorate it. However, such policies have some limitations. For a start, plausible changes in the total fertility rate and in net migration levels make relatively small differences to Australia's age dependency ratios over the projection horizon of this study.

In any case, fertility rates are not very sensitive to policy and it is hard to devise measures that do not provide substantial and tax-inefficient transfers to people who were going to have children anyway. As well, any reversal of declining fertility would initially increase the aggregate dependency rate, with adverse implications for per capita labour supply growth, economic growth and accumulated fiscal gaps in the initial decades.

Increases in net migration are likely to be more amenable to policy action, since Australia is a small country and there are queues of willing migrants. Increases in net migration can partly reduce the fiscal pressures associated with ageing, and could help to overcome some skill deficits. However:

- Migration has a much bigger impact on population numbers than on Australia's age structure, which raises issues of congestion and sustainability.
- A focus on skilled migration could yield a bigger payoff. But migration targets for skilled labour may be difficult to achieve in the future, with other ageing countries competing for skilled migrants and with the potential for greater future emigration of skilled Australians.

But there is scope to lift participation

Increasing Australia's aggregate labour participation rate could raise Australia's future labour supply growth rates. The fact that Australia's present rate is only in the middle ranking of OECD countries suggests this is a viable objective. New Zealand, for example, has a significantly higher aggregate participation rate, a reflection of a different policy mix. Policies that discourage premature retirement and overcome obstacles to work could be effective in stimulating Australia's labour

participation rates. They could also generate significant savings in social welfare payments, such as reduced outlays on Disability Support Pensions.

While such policies may well be worthwhile in their own right, again they can only comprise part of the solution. Even large increases in age-specific participation rates could only claw back part of the decline in aggregate participation. And GDP is unlikely to increase by the same proportion as aggregate participation rates, because on average 'new' participants typically acquire lower productivity jobs and work fewer hours.

Productivity performance is critical

As noted, in the long term, society's capacity to generate income to meet the costs of ageing will depend largely on productivity growth. As the Commission has shown in its recent report on National Competition Policy, there remains considerable potential for Australia to improve its productivity performance through policy reforms that heighten the incentives and the capabilities for firms to be efficient and innovative.

A future reform agenda to enhance Australia's productivity performance needs to be wide-ranging, including economic and social infrastructure, labour markets, taxation, natural resource management, innovation policy and regulatory processes generally. The agenda encompasses all levels of government.

The income gains from higher productivity (or indeed higher labour participation) while clearly desirable, may nevertheless have a limited effect on fiscal pressure. This is because some of the ageing-related costs will rise with productivity (for example, wages of nurses in aged care facilities) and people's expectations of services generally rise with income (as in health care). But, at some point, such expectations may be moderated if the incremental value of such services were to fall, or if taxes and consumer charges needed to be raised greatly to sustain service levels.

Productivity gains would also provide fiscal relief associated with a slower take up of the Age Pension as some people exceed asset and income eligibility thresholds in a higher income economy, and as the value of CPI-indexed allowances falls relative to GDP. And the fiscal benefits from productivity would be more evident were fiscal pressures to be at least partly financed through income taxes. In that case, higher productivity raises real household incomes and, at given real marginal tax rates, increases average tax revenues, alleviating fiscal pressures.

While economy-wide productivity gains are critical to future living standards generally, improvements in the efficiency of Australia's health system would play a

direct role in reducing the costs associated with the demographic transition. There is considerable scope for such gains, including through better coordination across services and jurisdictions, a more flexible healthcare labour market, and better preventative health care.

A need for early action

Population ageing is a slow process, and the impacts on budgets are also gradual. This is fortunate, because in many areas the responses needed to mitigate or accommodate the costs of ageing will themselves take some time to implement and bear fruit. Early intervention would avoid the need for inefficient or inequitable 'big bang' interventions, such as excessive tax increases or service rationing, which would also face considerable public resistance. There are credible risks that the demographic or cost pressures might raise the fiscal stakes of ageing higher than those projected by the Commission. Early action would also help mitigate such risks. Population ageing can only be conceived as a crisis if we let it become one.