

2015 Intergenerational Report

Australia in 2055

Circulated by
The Honourable J. B. Hockey MP
Treasurer of the Commonwealth of Australia

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Treasurer's Foreword

I believe that our best years are ahead of us.

To harness the potential of the future we need to prepare and have a plan that aligns with the demographic challenges and opportunities we face. These important issues are clearly identified in the Intergenerational Report.

The Intergenerational Report is the social compact between the generations – children, grandchildren, parents, grandparents and each other.

We are at a critical juncture in our history. To help us make the right choices, the Intergenerational Report sets out what we need to do if we are to maintain and improve our standards of living.

It is fantastic that Australians are living longer and healthier lives but we need to address these demographic changes. If we don't do something, we risk reducing our available workforce, impacting negatively on growth and prosperity, and our income will come under increasing pressure.

To drive higher levels of prosperity through economic growth, we must increase productivity and participation. If we are to achieve these goals we need to encourage those currently not in the workforce, especially older Australians and women, to enter, re-enter and stay in work, where they choose to do so.

With a growing population that will live longer, the Intergenerational Report shows the growth in the costs of many services, especially in health, that will put pressure on the budget and threaten the sustainability of those services. Every day our spending exceeds Government revenue by more than \$100 million. To make up the shortfall we have to borrow that \$100 million per day.

If the status quo had remained, the growing debt burden projected in the Intergenerational Report would have been a major drag on our prosperity and a threat to services that our community expects – that is not the social compact we want. In response the Government has set out a credible trajectory to once again live within our means, and much progress has been made.

Our economic plan, aligned with the Intergenerational Report, will allow us to focus on the key drivers of economic growth – participation and productivity.

In responding to the Intergenerational Report, the Government will continue to promote growth, jobs and opportunity so that we can relieve the burden on Australians and unlock the immense potential of our future.

J. B. Hockey

Notes

- (a) The following definitions are used in this report:
- ‘real’ means adjusted for the effect of inflation;
 - real growth in spending is calculated by the Consumer Price Index as the deflator; and
 - one billion is equal to one thousand million.
- (b) Figures in tables and generally in the text have been rounded. Discrepancies in tables between totals and sums of components are due to rounding.
- (c) References to the ‘States’ include the Territories.
- (d) GDP refers to Gross Domestic Product.
- (e) CPI refers to Consumer Price Index.
- (f) Projections are based on the 2014-15 Mid-Year Economic and Fiscal Outlook, adjusted for the following demographic data update:
- Australian Demographic Statistics, June Quarter 2014, ABS cat. no. 3101.0 (released 18 Dec 2014);
 - Births, Australia, 2013, ABS cat. no. 3301.0 (released 23 Oct 2014); and
 - Deaths, Australia, 2013, ABS cat. no. 3302.0 (released 6 Nov 2014).
- (g) In this report, the term Commonwealth refers to the Commonwealth of Australia. The term is used when referring to the legal entity of the Commonwealth of Australia.
- The term Australian Government is used when referring to the Government and the decisions and activities made by the Government on behalf of the Commonwealth of Australia.
- (h) 2010 Report refers to the Intergenerational Report 2010.

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Executive Summary

Over the past 40 years, Australia has enjoyed strong economic performance, underpinned by a growing population and a series of major reforms.

This economic success has greatly enhanced our quality of life. Average incomes have doubled in real terms since 1975, with this increased wealth shared broadly across the community.

As a result, Australian families enjoy access to a well-functioning health system, good schools, a strong social safety net and options for recreation and leisure that our grandparents could only dream about.

All Australians share aspirations for economic security and an even more prosperous future — a better place for our children and the generations beyond.

But it is not enough that we share this aspiration. We need to make choices today to build a strong and resilient economy and lay the foundation for future prosperity.

1. How will Australia change over the next 40 years?

Chapter 1 of this report outlines projections of the three long-run drivers of economic growth in Australia: our population, participation in the workforce and improved productivity.

Understanding how these drivers of economic growth are likely to change over the next 40 years will inform the action governments must take to build jobs, growth and opportunity.

Population

Australia's population is projected to change and grow over the next 40 years. The changing size and structure of our population is important as it influences how quickly our economy and our incomes grow, and therefore the rate at which our future living standards will increase.

Australians will live longer and continue to have one of the longest life expectancies in the world. In 2054-55, life expectancy at birth is projected to be 95.1 years for men and 96.6 years for women, compared with 91.5 and 93.6 years today.

In 2054-55, there are projected to be around 40,000 people aged over 100. This is a dramatic increase, well over three hundred times the 122 Australian centenarians in 1974-75.

Not only will Australians live longer, but improvements in health mean they are more likely to remain active for longer. 'Active ageing' presents great opportunities for older Australians to keep participating in the workforce and community for longer, and to look forward to more active and engaged retirement years.

The structure of Australia's population will also continue to change. This has important implications for the demand for health and aged care services and retirement incomes.

A greater proportion of the population will be aged 65 and over. The number of Australians in this age group is projected to more than double by 2054-55 compared with today.

Both the number and proportion of Australians aged 85 and over will grow rapidly. In 1974-75, this age group represented less than 1 per cent of the population, or around 80,000 people. In 2054-55, it is projected that 4.9 per cent of the population, or nearly 2 million Australians, will be aged 85 and over.

There will be fewer people of traditional working age compared with the very young and the elderly. This trend is already visible, with the number of people aged between 15 and 64 for every person aged 65 and over having fallen from 7.3 people in 1974-75 to an estimated 4.5 people today. By 2054-55, this is projected to nearly halve again to 2.7 people.

Fertility is assumed to remain at around the 2013 rate of 1.9 births per woman. The total fertility rate has remained relatively steady since the late 1970s.

Based on patterns of migration, fertility and life expectancy (mortality), Australia's population is projected to grow at 1.3 per cent per year, which is slightly below the average growth rate of the past 40 years. If this were to occur, the population would reach 39.7 million in 2054-55, up from 23.9 million today.

Net overseas migration has a significant impact on population projections. Net overseas migration is mainly comprised of permanent migration (including skilled and family) and temporary migration (including temporary skilled and students). The central assumption of this report is that net overseas migration will be 215,000 people a year beyond the current forward estimates, which is based on current permanent migration intake settings.

The permanent migration intake, which was increased significantly during the mining boom, is reviewed each year in the context of the budget to reflect evolving economic and social circumstances. Temporary migration (including temporary skilled and

students) has also been an important driver of increases in net overseas migration over the past decade.

Participation

Participation refers to the proportion of the population of people aged 15 years and over who are actively engaged in the workforce.

The community and economy will benefit from opportunities to support older Australians who want to work, as well as boosting opportunities for women, young people, parents and people with disability to participate in the workforce. This can be achieved through policies that support people who choose to stay in the workforce for longer, or re-enter it sooner after a temporary absence.

Over the next 40 years, the proportion of the population participating in the workforce is expected to decline as a result of population ageing. A lower proportion of Australians working will mean lower economic growth over the projection period.

By 2054-55, the participation rate for Australians aged 15 years and over is projected to fall to 62.4 per cent in 2054-55, compared with 64.6 per cent in 2014-15.

That said, female employment is projected to continue to increase, following on from strong growth over the past 40 years. In 1975, only 46 per cent of women aged 15 to 64 had a job. Today around 66 per cent of women aged 15 to 64 are employed. By 2054-55, female employment is projected to increase to around 70 per cent.

Nonetheless, Australia's female participation rates remain lower than some other advanced economies such as Canada and New Zealand, and more can be done to encourage women to enter and stay in the workforce. Policies that help to continue to boost female participation will help Australia achieve an even higher level of future prosperity.

As Australians live longer and do so in better health, more Australians will continue to lead an active lifestyle and participate in the workforce after they reach traditional retirement age.

Participation rates among those aged 65 and over are projected to increase strongly, from 12.9 per cent in 2014-15 to 17.3 per cent in 2054-55. This represents a significant opportunity for Australia to benefit more from the wisdom and experience of people aged over 65.

Productivity

Of the three key drivers of economic growth, productivity has historically been the most important to Australia's economic performance. Put simply, productivity is about working more efficiently or producing more or better quality goods and services with the same level of resources.

Australia has enjoyed periods of high productivity growth, which have contributed to growth in incomes and high living standards.

For every hour average Australians work today, they produce twice as many goods and services as they did in the early 1970s. It is no coincidence that average income per person has also broadly doubled in this period.

Technology is changing the way we interact with each other and how we live our lives. It is changing the face of business, markets, governments and social engagement.

In the 1970s, the Internet, mobile phones and social media did not exist as we know them today. Now they are integral parts of our lives and IT-related industries employ nearly as many people in Australia as the mining industry.

Technological advances, such as advanced robotics, 3D printing and self-navigating vehicles have the potential to unlock quality of life improvements.

Harnessing future opportunities to support innovation, adopt new technologies, facilitate foreign trade and investment and foster competition can boost future productivity growth and living standards.

Government policy settings will be very important to helping individuals, businesses and governments take full advantage of opportunities from technological developments so that productivity growth is maintained, or even improved.

During the 1990s, Australia's productivity growth was especially high, with an estimated average of 2.2 per cent growth per year. This has been widely attributed to economic reforms during the 1980s and 1990s. These reforms created more competitive and flexible markets in which businesses became more efficient and innovative, and new and improved technologies were adopted.

More recently, our productivity growth has slowed, with an average of 1.5 per cent growth per year observed through the 2000s.

This report takes historical productivity growth as a guide, and assumes that average annual labour productivity growth over the next 40 years will be 1.5 per cent. Reforms to enhance productivity over the next 40 years will be crucial if we are to achieve the growth in living standards we have enjoyed since the mid-1970s.

Economic projections

Taken together, population, participation and productivity drive the economic growth projections in this report.

With an ageing population, economic growth is projected to be slightly slower over the next 40 years than over the past 40 years. Slower growth is due to slightly lower projected population growth and declining participation rates.

Chart 1 Components of real GDP growth per person



Source: ABS cat. no. 5206.0, 6202.0 and Treasury projections.

However, it is important to acknowledge that the past 40 years include an unprecedented 23 year stretch of unbroken economic growth that is continuing.

This has only been matched by one other advanced country, the Netherlands, which experienced close to a 27 year stretch of unbroken economic growth between 1981 and 2008.

It is also important to keep in mind that the long-term projections look through business cycles and assume a smooth growth path through to 2054-55. In reality, it is almost certain that any economy will go through such cycles over a 40 year time period. However, the outlook to 2054-55 will not be driven by these cycles, but by the underlying trends in population, participation and productivity.

The average annual growth of real GDP is projected to be 2.8 per cent over the next 40 years compared with 3.1 per cent over the past 40 years. Average annual growth in real GDP per person is projected to be 1.5 per cent over the next 40 years compared with 1.7 per cent over the past 40 years.

National income growth is expected to slow more markedly than real GDP growth as the decline in the terms of trade takes place during the current decade and the construction phase of the mining boom ends.

Real gross national income (GNI) per person is the measure of how much we earn, not just what we produce. Real GNI per person is projected to grow at 1.4 per cent over the next 40 years, compared with 1.9 per cent over the past 40 years. If this level of growth is achieved over the next 40 years, the annual average Australian income will increase from \$66,400 today to \$117,300 in 2054-55 in today's dollars.

Over the next 40 years, changes in the share of population aged 15 and over are projected to make a small positive contribution (0.1 percentage points) to average annual GDP growth per person. This is less than its contribution over the past 40 years.

Increasing participation rates contributed 0.2 percentage points to average growth over the past 40 years. Over the next 40 years declining participation is projected to detract 0.1 percentage points from average growth.

This report illustrates why, over the next 40 years, ongoing improvements in Australian living standards will remain primarily contingent upon continually improving our productivity, and require us to take every opportunity to increase participation rates.

Environment

The environmental changes that unfold over the next 40 years will affect Australians' quality of life across a range of dimensions.

It is difficult for individual governments to control or affect the collective and cumulative impact of human activity globally, but there is a role for the Australian Government to continue in its efforts in leading and coordinating domestic environmental policies to drive better environmental management and economic growth for the generations to come.

Economic growth and strong environmental outcomes are complementary objectives. Policies that create strong economic growth and a sustainable budget will mean that governments are better placed to invest in environmental protection. Additionally, protecting the environment can also contribute to economic growth, particularly in sectors such as tourism.

2. Government budgets over the next 40 years

Chapter 2 explores the current state of the Australian Government budget and how economic and demographic trends are projected to impact the budget over the next 40 years.

The fiscal position contained in the 2014-15 Mid-Year Economic and Fiscal Outlook (MYEFO) is the starting point of this report. Three scenarios are presented to illustrate the long-term sustainability of alternative policy settings:

- The scenario '**previous policy**' shows fiscal projections associated with the set of policies in place prior to the 2014-15 Budget.
- The scenario '**currently legislated**' shows fiscal projections on the basis of laws passed by the Australian Parliament. It shows the anticipated fiscal outcomes based on the current state of play, given that a range of policies the current Government announced in the 2014-15 Budget remain unimplemented.
- Finally, the scenario '**proposed policy**' shows fiscal projections based on the full implementation of the policies of the government of the day. This scenario follows the usual practice of presenting fiscal projections on the basis of announced policy (as taken to the 2014-15 MYEFO), and assumes all outstanding measures are implemented.

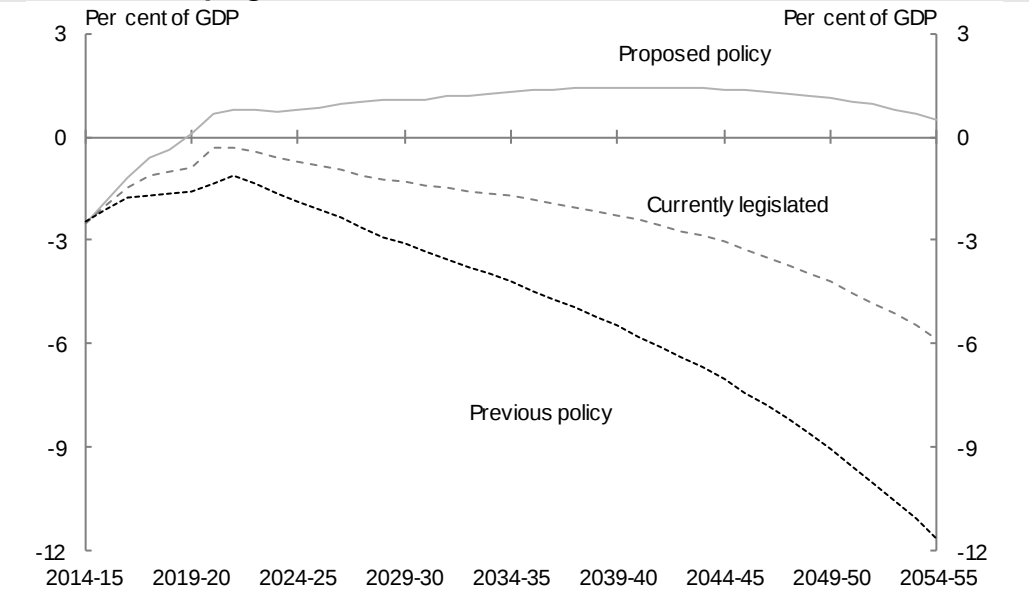
The first two scenarios show an unequivocal deterioration in fiscal sustainability. The third scenario shows that the Government's current set of policies would bring the budget back to a sustainable path over the medium to long term.

The scenarios show that repairing the budget is possible, and is well underway. However, the policies currently legislated would not see the budget in surplus at any point over the next 40 years. If all outstanding measures — or alternatives of similar value — were implemented, the budget would be on track to a sustainable surplus.

Fiscal aggregates

Under the ‘previous policy’ scenario, by 2054-55, the underlying cash deficit is projected to reach 11.7 per cent of GDP (\$532.8 billion in today’s dollars) (Chart 2). However, considerable progress has been made under the ‘currently legislated’ scenario with the underlying cash deficit projected to almost halve to around 6 per cent of GDP (\$266.7 billion in today’s dollars) by 2054-55. The ‘proposed policy’ scenario projects the underlying cash balance to improve from a deficit of 2.5 per cent of GDP in 2014-15 to a sustained surplus from 2019-20 to the end of the reporting period.

Chart 2 Underlying cash balance



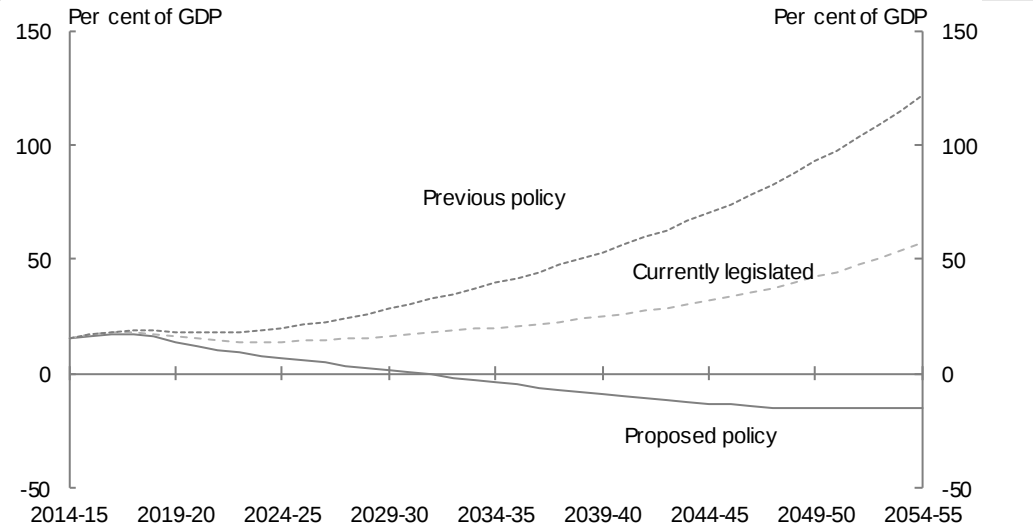
Note: Net Future Fund earnings are included in projections of the underlying cash balance from 2020-21.
Source: Treasury projections. Projections assume trend economic growth from 2021-22 to 2054-55.

Similarly, under the ‘previous policy’ scenario, net debt is projected to reach 122 per cent of GDP (or \$5,559 billion in today’s dollars) by 2054-55 (Chart 3).

The ‘currently legislated’ scenario projects that net debt would more than halve to 60 per cent of GDP (or \$2,609 billion in today’s dollars).

If the ‘proposed policy’ scenario were to eventuate, net debt would decline from 15.2 per cent of GDP in 2014-15 to be zero by 2031-32, after which the Australian Government is projected to begin accumulating assets utilising underlying cash surpluses.

Chart 3 Net debt



Note: The projections of net debt include net interest payments.
Source: Treasury projections. Projections assume trend economic growth from 2021-22 to 2054-55.

The debt levels in both the ‘previous policy’ and ‘currently legislated’ scenarios would negatively impact economic growth, waste significant resources on interest payments, and leave Australia exposed in the event of an economic downturn. Ireland’s experience during the Global Financial Crisis, which saw gross debt reach 124 per cent of GDP in 2013, is a warning of how rapidly government balance sheets can deteriorate in the face of large economic shocks.

In contrast, the ‘proposed policy’ scenario would afford scope for future governments to reduce taxes and make productivity-enhancing investments to improve the resilience of the budget to future economic shocks.

Nevertheless, we are living beyond our means. The Australian Government is currently spending over \$100 million a day more than it collects, and is borrowing to meet the shortfall.

Government expenditure

The report outlines in detail the projected trends in the main items of government spending.

Over the next 40 years, Australian governments will face increasing fiscal pressures as the population grows and ages. The report considers the anticipated patterns of spending across the programs most affected by demographic factors: health expenditure, Age and Service Pensions and aged care funding.

Based on 'previous policy', the ratio of payments to GDP would have been on track to reach 37.0 per cent in 2054-55. This would be dramatically higher than the historic high of 27.6 per cent in 1984-85. If left unchecked, this would mean drastic future cuts to payments, higher taxes, or both.

Australian Government real **health expenditure** per person is projected to more than double over the next 40 years.

Australian Government health expenditure is projected to increase from 4.2 per cent of GDP in 2014-15 to 5.5 per cent of GDP in 2054-55 under the 'proposed policy' scenario. In today's dollars, health spending per person is projected to more than double from around \$2,800 to around \$6,500. State government expenditure is also expected to be significantly higher.

If no changes to policy had been made, health expenditure was on track to reach 7.1 per cent of GDP in 2054-55 under the 'previous policy' scenario.

The report explains how non-demographic factors, including higher incomes, health sector wages growth and technological change, are more significant drivers of the projected increase than demographic changes. The area of largest growth is Medicare services, which is projected to increase by over 15 per cent per person in real terms over the next decade.

Payments made through **Age and Service Pensions** are projected to increase each year. In today's dollars, spending per person is projected to increase from almost \$2,000 in 2014-15 to around \$3,200 in 2054-55. As a share of GDP, these payments are expected to broadly stabilise. This is as a result of the structural changes to indexation and age of eligibility proposed in the 2014-15 Budget.

Age and Service Pension payments are currently equal to 2.9 per cent of GDP. In the 'proposed policy' scenario, this is projected to stand at 2.7 per cent of GDP in 2054-55, when real incomes per person will be much higher. If the structural changes to indexation and age of eligibility are not implemented, spending is projected to continue rising over the period, reaching 3.6 per cent of GDP by 2054-55.

A significant change over the past 40 years has been the increase in the number of people accessing aged care services. The Australian Government provides **aged care funding** for residential aged care and a range of community care services, including care in the home. Australian Government expenditure on aged care has nearly quadrupled since 1975. Expenditure is projected to nearly double again as a share of the economy by 2055, as a result of the increase in the number of people aged over 70. Specifically, under the 'proposed policy' scenario, expenditure is projected to increase from 0.9 per cent of GDP in 2014-15 to 1.7 per cent of GDP in 2054-55, and from \$620 to \$2,000 in real, per person terms.

A range of Australian Government programs provide income support to individuals, for example Family Tax Benefit and the Disability Support Pension. Successive governments have taken steps to make payments to individuals more sustainable.

Total Australian Government **payments to individuals**, excluding the Age and Service Pensions, are projected to fall as a proportion of GDP as a result of changes in the structure of the population and rising incomes. This result is in line with the 2010 Intergenerational Report. Under the 'proposed policy' scenario, expenditure is projected to fall from 4.5 per cent of GDP in 2014-15 to 3.2 per cent of GDP in 2054-55. If the 2014-15 Budget measures remain unimplemented, projections in the 'currently legislated' scenario show that expenditure on payments to individuals are projected to fall less, to 3.4 per cent of GDP by 2054-55.

In aggregate, Australian Government spending on **education and training** is projected to be maintained in real terms per person over the reporting period. Once higher education and vocational education loans are also taken into account, the amount the Australian Government provides per person (in today's dollars) is projected to rise from \$1,500 in 2014-15 to \$1,900 in 2054-55.

Total government spending on the **National Disability Insurance Scheme (NDIS)** is projected to increase rapidly from less than 0.1 per cent of GDP in 2014-15 to 1.1 per cent in 2019-20. Spending on the NDIS is then projected to be broadly stable at 1.1 per cent of GDP between 2019-20 (when fully operational) and 2054-55. The Australian Government's contribution is projected to grow as a proportion of the total NDIS spending, increasing from under 55 per cent in 2019-20 to around 75 per cent in 2054-55.

Consistent with government policy, **defence** expenditure is projected to remain at 2 per cent of GDP through to 2054-55.

Revenue

The Australian Government collects the majority of Australia's taxation revenue. The largest source of taxation revenue for the Australian Government is income taxes, comprising taxes on both personal income and corporate income. The Australian Government also taxes goods and services.

The composition of Australian Government taxes and heavy reliance on income taxes has remained largely unchanged since the 1950s. Over the past fifteen years, some modest compositional changes in tax revenue have occurred partly as the result of movements in commodity prices and policy changes (for example, the introduction of the GST).

Tax receipts are projected to continue to recover following the Global Financial Crisis. Under current policy settings, the tax-to-GDP ratio would reach the long-term assumption of 23.9 per cent of GDP in 2020-21. This is expected to be largely driven by 'bracket creep', which occurs when rises in nominal income from employment and investments push people into higher income tax brackets over time. Bracket creep will entail an increase in the personal income tax burden. Beyond 2020-21, projections of tax receipts are assumed to remain capped at a constant 23.9 per cent of GDP. This ratio of tax-to-GDP reflects the average of the period 2000-01 to 2007-08.

Although projections in this report have been prepared on the basis of the current tax settings, a better tax system would help Australia to take advantage of global opportunities and improve economic growth.

In recent decades, financial deregulation, the growth of multinational companies using global supply chains and the increasing digitisation of global commerce have all transformed the economic environment in which tax systems operate. This is putting strain on the tax system in Australia, as well as all around the world. Other economies are responding with reforms that reduce the average burden of corporate tax, while also addressing global tax avoidance activities. Australia's reliance on corporate income taxes is amongst the highest in the developed world and significantly higher than key regional competitors.

Bracket creep and higher personal income taxes also impact on participation incentives for some people. Increases in workforce participation will have a strong influence on future economic growth, alongside productivity improvements.

Governments need to manage carefully the taxes collected from Australians and ensure that they are allocated judiciously and prudently. Unchecked government spending would require even higher taxes or severe future spending cuts, posing difficult allocative decisions for subsequent governments.

Superannuation

The superannuation system helps Australians enhance their retirement incomes, and supplement or reduce reliance on the Age Pension.

Employers are currently required to make minimum payments equivalent to 9.5 per cent of an employee's salary to a superannuation fund, to help the employee save for retirement. This rate is scheduled to rise to 12 per cent between 1 July 2021 and 30 June 2026.

Total Australian superannuation assets have increased strongly since compulsory superannuation was introduced in 1992. At the end of 2013-14, total superannuation assets were \$1.84 trillion, around 116 per cent of GDP. As the superannuation system matures and wages grow, total Australian superannuation assets are expected to continue to increase and make a growing contribution to national savings.

As more Australians receive compulsory superannuation contributions for longer periods of their working lives, they are likely to retire with higher superannuation balances. This will have important implications for reliance on payments made through the Age Pension.

An ageing population also underlines the importance of considering the overall adequacy of our retirement incomes system — which combines compulsory and voluntary superannuation, and the Age Pension as a safety net. The Government will consider several aspects of the superannuation system as part of the review of the tax system. The Government is also considering improving the way in which the superannuation system transforms savings into retirement income streams.

Major balance sheet items

The Australia Government currently has a gross debt of around \$360 billion, equivalent to around 22 per cent of GDP, and it is continuing to rise. Without stabilising and reducing this debt, the 'previous policy' scenario shows that future generations will not only have to fund their own government services, they will be funding the services used by Australians today.

Without the Government's budget repair strategy, the 'previous policy' scenario projects gross debt will reach \$5,707 billion in today's dollars, and 125 per cent of GDP by 2054-55. With budget repair efforts reflected in the 'currently legislated' scenario, gross debt projections have halved to \$2,820 billion in today's dollars, and 61.8 per cent of GDP by 2054-55.

If all policy measures were implemented, as in the 'proposed policy' scenario, Australia would be on course to pay off this debt. Gross debt is projected to peak at 26.1 per cent of GDP in 2016-17 and is projected to decline as it is paid off.

Once the budget returns to balance, new debt issuance will no longer be needed to finance government activities. However, the Government is committed to a well-functioning and liquid debt market. In this report, government debt on issue is assumed to be maintained equivalent to 13 per cent of GDP from the late 2020s.

The Australian Government's public sector defined benefit superannuation liability is expected to decline from around 10 per cent of GDP currently to less than 2 per cent of GDP by 2054-55. This reflects the phase-out of defined benefit superannuation schemes in favour of self-funding accumulation schemes. Around \$400 billion of Australian Government superannuation payments between 2020 and the mid-2040s will be funded from the Future Fund.

3. Preparing for the future

Chapter 3 prompts consideration of the policy settings required to build jobs, growth and opportunity and ensure that Australians continue to enjoy higher living standards over the next 40 years.

The annual growth in real GDP is projected to average 2.8 per cent over the next 40 years, compared with 3.1 per cent over the past 40 years.

Continued steps to boost productivity and encourage higher workforce participation will be critical to driving this economic growth. Budget repair must also be delivered to stabilise and reduce debt, and position governments to respond to any future economic shocks.

To enhance both productivity and participation, Australia will need a better tax system to deliver taxes that are lower, simpler and fairer. A well-structured tax system can assist in making Australia a more attractive place to invest, boost economic growth and create new jobs. The forthcoming review of the tax system will provide a longer-term, considered approach to tax reform.

To ensure government expenditure is sustainable and better targeted, particularly as we face major demographic change, governments need to focus their efforts on achieving the efficient provision of services.

Different levels of government need to work together as efficiently and effectively as possible. The Government is working with the States and Territories to produce a White Paper on the Reform of the Federation to clarify roles and responsibilities. The objective is to reduce and end, as far as possible, waste, duplication and second-guessing between different levels of government.

It will be critical to continue to support workforce participation, and there are many opportunities to do so. A number of existing policy measures are designed to support the participation of mature age job seekers, people with disability, youth, women, prospective parents, and parents. Other measures are designed to assist the unemployed into work. Encouraging higher participation requires constant and ongoing reform commitment from the Government and all Australians.

Australia's future productivity performance will be influenced by technological developments, both domestically and abroad, which create new possibilities for production. As a net importer of technology, the pace of global innovation and Australia's ability to absorb technological advances from abroad and convert them into new business opportunities will be particularly important.

It is also important that government policies facilitate the development of new markets, and allow businesses and the public sector to harness innovation. The Government's policy agenda will support productivity growth by helping to position Australian

businesses to be flexible, competitive and robust in the face of dynamic global conditions. To this end, the Government is:

- making and facilitating investments in critical aspects of Australia's infrastructure;
- delivering three new free trade agreements with South Korea, Japan and China, and negotiating other agreements, including negotiations with India and the Gulf States;
- reducing the complexity and scale of the compliance burden on business through a continued focus on red and green tape reduction;
- establishing the Digital Transformation Office with the objective of delivering government services digitally from start to finish to better serve the needs of citizens and businesses;
- undertaking a comprehensive review of Australia's workplace relations framework to ensure the existing laws are meeting their objectives and contributing to productive, rewarding, competitive, and harmonious workplaces;
- considering its response to the final report of the inquiry into the performance of the Australian financial system (the Murray Inquiry); and
- expecting to receive the final report of the review of competition policy in March 2015.

The fiscal projections in this report show that progress has been made to repair the budget. However, the task is incomplete.

Without the Government's proposed policies, or alternative savings measures, the budget will not return to surplus at any point over the next 40 years and net debt will rise to almost 60 per cent of GDP by 2054-55, or \$2,609 billion in today's dollars.

The projections highlight the importance of placing the budget in the strongest possible position to meet whatever challenges the future may bring. Continued budget discipline together with policies that promote growth will help to avoid the need for a sharper adjustment in the future and to afford quality government services in the years to come.

The 2015 Intergenerational Report shows that we can have a positive and more prosperous future if we plan for tomorrow, today.

What is the Intergenerational Report?

Every five years, the Australian Government is required to produce an Intergenerational Report. These reports assess the long-term sustainability of current Government policies and how changes to Australia's population size and age profile may impact economic growth, workforce and public finances over the following 40 years.

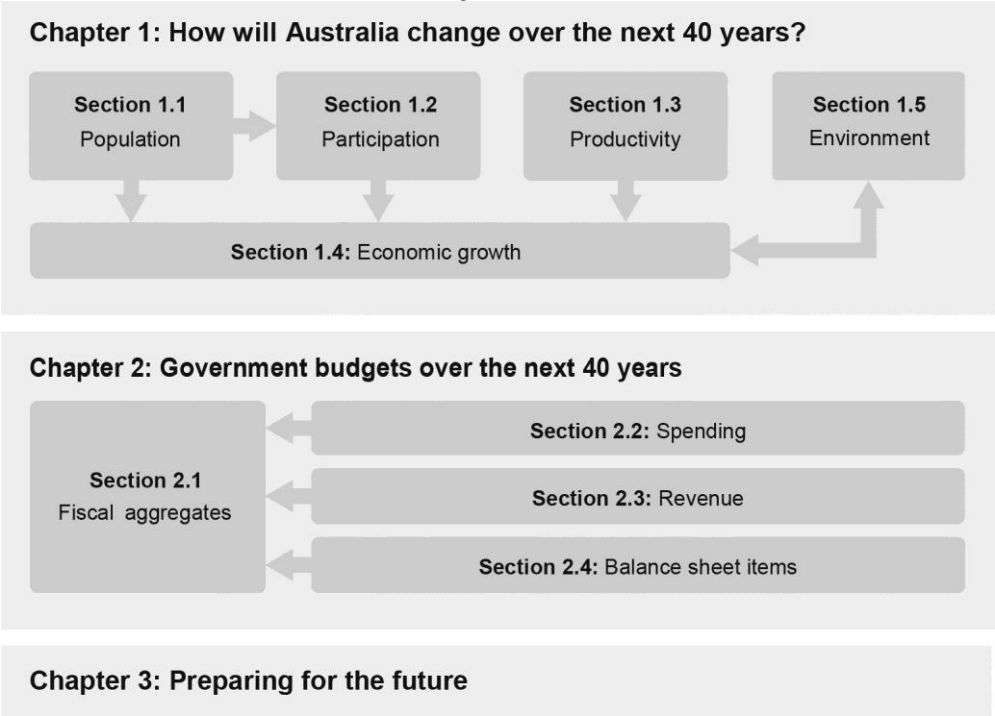
Each report provides projections adopting a 'point-in-time' format—that is, using the assumption that current government policies will continue over the next 40 years, without change.

The 2015 Intergenerational Report is the fourth intergenerational report (previous reports were released in 2002, 2007 and 2010). It provides important information and analysis that can help everyone consider what policies Australia needs going forward.

The 2015 Intergenerational Report presents what could happen to Australia over the next 40 years based on a detailed analysis of recent trends and existing policy settings. The report is broken up into a number of sections which consider different aspects of the outlook—Australia's population, our labour force, the economy, the budget, the environment and what governments can do to address the challenges of the next 40 years.

These stories are interlinked, because what is happening to Australia's population will affect the economy, the economy will affect the budget, and so on. The chart below shows how the different chapters of the document relate to each other.

Chart 1: The structure of this report



Chapter 1 contains projections for the economy over the next 40 years. There are five main parts to this story:

Section 1.1 focuses on the outlook for the population over the next 40 years.

Section 1.2 explains what is expected to happen to the labour force, workforce participation and jobs.

Section 1.3 focuses on productivity, how much more efficient we are expected to get at producing goods and services and creating value.

Section 1.4 brings all these elements together to examine the outlook for the economy, and how incomes will grow along with it.

Section 1.5 is about the environment, and how it might change over the next 40 years.

Chapter 2 focuses on how the Australian Government’s budget will adjust over the next 40 years. There are four parts to this story.

Section 2.1 looks at the overall budget position.

Section 2.2 looks at Australian Government spending, and the important components including health, assistance to older Australians and payments to individuals.

Section 2.3 shows how revenue is projected to change over the next 40 years.

Section 2.4 looks at the balance sheet of the Australian Government, and how the major liabilities such as debt and public sector superannuation are expected to change.

Finally, Chapter 3 looks at the different options for responding to the challenges and opportunities of the next 40 years.

Understanding long-term projections

All projections are inherently uncertain, particularly over long timeframes. This report presents projections based on current stated policy settings, assumptions and historical trends, using the 2014-15 Mid-Year Economic and Fiscal Outlook (MYEFO) as the base for the first four years of the projections.

Over the rest of the report's 40 year projections, various simplifying assumptions are used, which reflect the long-term averages of key variables like growth and productivity, or the long-term trends of variables like participation.

The projections of the budget position take into account how spending per person is likely to change for different age groups based on current policy, and then use the expected age structure of the population to work out total spending, which in turn can be used to work out the overall budget position over the next 40 years.

The projections in this report are very unlikely to unfold over the next 40 years exactly as outlined. Things will happen that are not anticipated in the report's assumptions, and government policy will change. The projections are not intended to be a prediction of the future as it will actually be, rather they are designed to capture some of the fundamental trends that will influence economic and budgetary outcomes should policies remain similar to current settings. They help to inform us about where there are opportunities to be seized, and where there are challenges to be overcome.

Successive intergenerational reports have been important in focusing public attention on some of Australia's longer term challenges and spurring some significant policy adjustments even as other long-term challenges have developed.

Chapter 1: How will Australia change over the next 40 years?

Key facts

The number of Australians aged 65 and over is projected to more than double by 2054-55, with 1 in 1,000 people projected to be aged over 100. In 1975, this was 1 in 10,000.

Australians will live longer and continue to have one of the longest life expectancies in the world. In 2054-55, life expectancy at birth is projected to be 95.1 years for men and 96.6 years for women, compared with 91.5 and 93.6 years today.

The average annual rate of growth in the population is projected to be 1.3 per cent, compared with 1.4 per cent over the past 40 years.

By 2054-55, the participation rate for people aged over 15 years is projected to fall to 62.4 per cent, compared to 64.6 per cent in 2014-15.

The number of people aged 15 to 64 for every person aged 65 and over has fallen from 7.3 people in 1975 to an estimated 4.5 people today. By 2054-55, this is projected to nearly halve again to 2.7 people.

Female employment is projected to continue to increase, following on from strong growth over the past 40 years. In 1974-75, only 46 per cent of women aged 15 to 64 had a job. Today around 66 per cent of women aged 15 to 64 are employed. By 2054-55, this is projected to increase to around 70 per cent.

During the 1990s, Australia's productivity grew at an estimated average rate of 2.2 per cent per year. Today, Australians produce twice as many goods and services for each hour worked as they did in the early 1970s.

The economy and incomes are projected to continue to grow, but at a slightly slower rate than over the past 40 years.

This chapter explains the long-term demographic projections underpinning the analysis in this report. It also outlines the long-term projections for key drivers of the economy: population, participation and productivity, and illustrates how projected changes would impact on our economy.

Economic growth is the increase in the quantity of goods and services a country produces (often referred to as Gross Domestic Product or GDP). Three main factors determine the quantity of goods and services that a country produces: population, participation and productivity.

While other variables, including natural disasters such as cyclones, can influence a country's GDP in the short term, intergenerational reports have used changes to population, participation and productivity to help explain the impact of government policies on GDP over 40 year timeframes. Chart 1.1 provides a framework for this analysis.

In the context of economic growth, the key component of population is considered to be the number of people over the age of 15 who may be available to work.

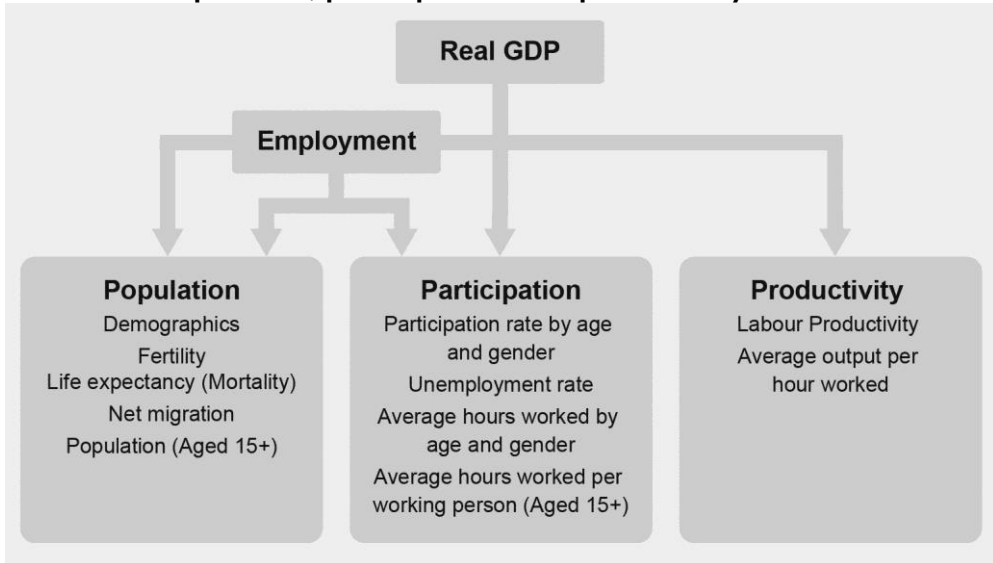
Participation is made up of three elements: how many people choose to seek work (the workforce participation rate), how many of them can get jobs when they do seek work (the unemployment rate) and the average number of hours worked by individuals who have jobs. Improvements in participation happen as more people choose to look for work, and more of them are able to find work.

Productivity is a measure of how much is produced, on average, for every hour that is worked. Over the long-term, technological developments are a key contributor to improvements in efficiency, as people and businesses find better ways to do their work. For example, the adoption of information and communications technologies in the 1990s helped workers undertake existing tasks more quickly and cheaply by enabling more efficient products, processes and organisational structures.

When combined, projections for population and participation give the number of hours worked in the economy. Combining this figure with productivity gives the total quantity of goods and services produced in the economy.

The future size and structure of the Australian economy are key determinants of the living standards of all Australians. These factors will have a strong influence over governments' ability to continue to afford to provide services and deliver community support into the future.

Chart 1.1 Population, participation and productivity



Source: Treasury.

1.1 Demography

1.1.1 Population projections

Australia's population over the next 40 years is, to a large extent, determined by the current population. Most of the likely future population is already living in Australia today. But the actual course that the Australian population takes will also depend on the particular interplay of future patterns and trends in fertility, mortality and migration. Each of these factors will have implications for both the size and the age structure of the population. Births clearly add to the younger cohorts of the population, deaths are concentrated in the older cohorts, and migrants tend to be concentrated in younger to middle age ranges.

Australia's population is projected to grow and change over the next 40 years. A growing population means greater demand for goods and services from businesses, and also more people available to work in businesses to produce those goods and services. The changing population means that the types of goods and services being consumed will be different, on average, from what they are today.

Under the central projection covered in this report, the average annual rate of growth in the population is 1.3 per cent, slightly slower than the annual average population growth rate of 1.4 per cent over the past 40 years. This growth rate would see Australia's population rise to 39.7 million by 2054-55. However, population projections are particularly sensitive to assumptions about the rate of net overseas migration. Australia's permanent migration intake is determined by government policy and is

subject to review each year as part of the Budget process to reflect evolving economic and social circumstances, as discussed further below.

1.1.2 Factors that influence population projections

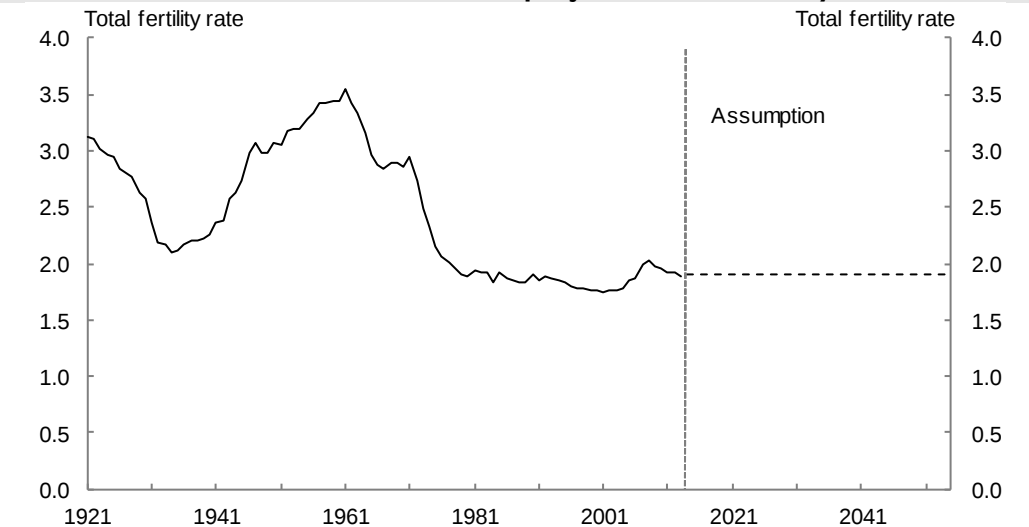
Fertility

In 2013 the total fertility rate was 1.9 births per woman. This report assumes that the total fertility rate remains at 1.9 over the next 40 years, which is consistent with the observed trend in fertility over the past 35 years.

While the total fertility rate has remained steady since the late 1970s (Chart 1.2), a larger proportion of women are having their first child in their late 20s and early 30s, which is later than previous generations. This trend has been evident since the 1990s, and influences the structure of the population. This led to a lower total fertility rate in the 1990s, followed by a temporary period of higher fertility in the mid-2000s.

Over a period in the 2000s there was a short-term increase in fertility rates, with a particularly high number of births to women aged 30 to 39 years. The causes of this upswing in fertility are widely debated. A range of reasons has been put forward in this debate including favourable economic conditions, more flexible working arrangements, and increased levels of government support, including the baby bonus and Family Tax Benefit. Changing social expectations around parenting, particularly supporting the role of fathers may also have been influential. Finally, delayed fertility in a large cohort of women may have led to higher fertility rates in the short term.

Chart 1.2 Australia’s historical and projected total fertility rate



Note: The total fertility rate is the number of children a woman would bear during her lifetime if she experienced the current age-specific fertility rates at each age of her reproductive life.
Source: ABS cat. no. 3105.0.65.001, 3301.0 and Treasury projections.

Mortality and life expectancy

This report assumes continuing overall decline in mortality rates and improvement in life expectancies. Life expectancy at birth is projected to increase from 91.5 years in 2015 to 95.1 years in 2055 for males, and from 93.6 years in 2015 to 96.6 years for females (Table 1.1).

Table 1.1 Australian's projected life expectancy (years)

	2015	2025	2035	2045	2055
Life expectancy at birth					
Men	91.5	92.6	93.6	94.4	95.1
Women	93.6	94.5	95.3	96.0	96.6
Further life expectancy at age 60					
Men	26.4	27.9	29.3	30.5	31.5
Women	29.1	30.3	31.5	32.4	33.3
Further life expectancy at age 70					
Men	16.9	18.2	19.3	20.4	21.3
Women	19.3	20.4	21.4	22.3	23.1

Note: Cohort life expectancy at a given age takes into account known or projected changes in mortality over the remainder of the person's lifetime.

Source: Treasury projections.

There are two methods of measuring life expectancy: the 'period' method and the 'cohort' method.

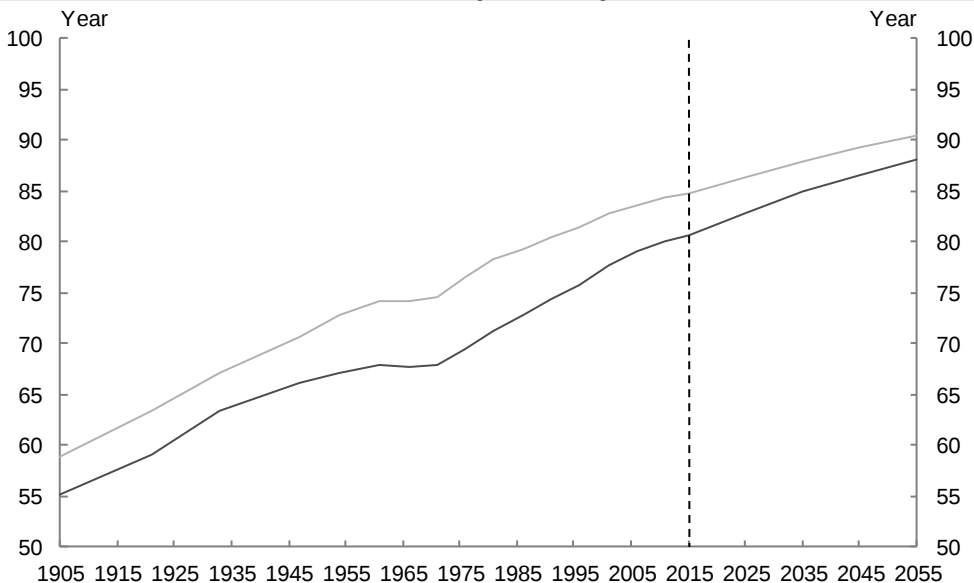
The period life expectancy method measures life expectancy as the average age to which a person is likely to live given the mortality rates prevailing in that year. This method of measuring life expectancy does not take into account the advances in life expectancy that could reasonably be assumed during a person's lifetime.

Previous reports have used the period method to report life expectancy. In this report, life expectancy is reported using the cohort method unless otherwise indicated. The cohort life expectancy method takes into account assumptions of improvements in mortality rates over people's lifetimes, and therefore takes a better account of increasing life expectancy trends over time. These projections assume ongoing changes in lifestyles and advances in medicine and technology will continue to improve life expectancy in the future. By capturing these effects, the cohort life expectancy measure provides a more realistic estimate. Further discussion of this method is at Appendix C.

Australian life expectancies have risen over the past few decades (Chart 1.3) as a result of improvements in health, education, and public safety. For example, improvements in road safety such as seat belt laws and random breath testing during the 1970s contributed to increased life expectancy following their introduction. Significant health developments have also been influential, for example, widespread availability of heart by-pass surgery and reduction in smoking prevalence. These influences are further discussed in Box 1.1.

There is a notable difference between life expectancies at birth for Indigenous Australians and the Australian community more broadly. Based on data from 2010 to 2012, Indigenous life expectancy was estimated to be 69.1 years for males and 73.7 years for females (period method). A major policy objective for the Council of Australian Governments is to close the gap between Indigenous and non-Indigenous life expectancy within a generation, that is, by 2031.

Chart 1.3 Male and female life expectancy, 1905 to 2055



Note: these figures are period life expectancies.
Source: ABS cat. no. 3105.0.65.001 and Treasury projections.

Life expectancies at birth in Australia for both males and females remain among the highest in the world. According to UN data for the period 2010-15, Australia ranks equal first with Iceland in male life expectancy. For females, Australia ranks only behind Japan, Spain, France and Italy.

Box 1.1: Life expectancy improvements

This report assumes that life expectancy continues to improve over the projection period, reflecting recent trends.

The projections, however, cannot take into account all of the improvements in life expectancy that might happen over the next 40 years.

A projection of life expectancy for 2015 made in 1975 would not necessarily have fully taken into account the significant changes that have contributed to the life expectancy improvement of the past 40 years. For instance, since the 1970s we have seen dramatic improvements in health care for older people. In 1975, a 65 year old could expect to live another 13 years on average, while in 2015 this has improved to 19 years, thanks to better cardiac care and many other improvements in health care.

Similar breakthroughs could well be possible in the next 40 years. Medical research underway today in areas such as stem cell therapy, new medicines and other biotechnology has the potential to provide further dramatic improvements in life expectancy. It is for this reason that some experts have suggested that life expectancy may reach in excess of 140 years. The projections assume that the improvements from medical research continue at the same rate as the past.

There is also considerable scope for particular improvements in life expectancy in some specific age groups. Despite improved medical technology, life expectancy for people aged over 80 has changed by much less over the past century than for younger age groups. As there is a growing population in this age group it is expected to become an increased focus for medical research over the next 40 years.

According to the Australian Institute of Health and Welfare there have also been substantial ongoing increases in the length of time for which Australian men and women can expect, on average, to live without disability — so-called healthy life expectancy (Box 1.2).

Box 1.2: Healthy life expectancy

Australians are living longer, and importantly the increases in life expectancy are matched by increases in healthy life expectancy.

To measure this, the Australian Institute of Health and Welfare (AIHW) has estimated 'health expectancies' for Australians. A male born in 2012 could expect to live 79.9 years (period method) and an average of 62.4 of those years without disability. A female could expect to live 84.3 years, and an average of 64.5 of those years without disability. Of the years spent living with disability, an estimated 11.8 were without severe or profound core activity limitation for men, and 12.0 for women; that is, not needing help with activities of self-care, mobility or communication.

Recent improvements in life expectancy have been met or exceeded by improvements in these health expectancies. That is, not only are Australians' lives getting longer, they are enjoying good health for an increasing number of those extra years. Between 1998 and 2012, the AIHW has estimated that life expectancy at birth for males has increased by 4 years, while the number of years without disability increased by 4.4 years — that is, all of the additional life expectancy was in years without disability. For women, this was an increase of 2.8 years of life expectancy, with 2.4 in years without disability. For Australians at age 65, more of their increase in life expectancy has been for years without any severe disability.

The World Health Organisation publishes estimates of 'healthy life expectancy' at birth. This measures the average number of years that a person can expect to live in 'full health' by taking into account years lived in less than full health due to disease and/or injury. By this measure, in 2012 Australians had the equal fourth highest healthy life expectancy at birth in the world (73 years for both sexes combined), along with Spain, South Korea, Switzerland, Italy and San Marino.

Source: Australian Institute of Health and Welfare Bulletin 126, Healthy Life Expectancy in Australia: Patterns and Trends 1998 to 2012; World Health Organisation, Healthy Life Expectancy at Birth.

Box 1.3: Australia's demography — an international perspective

Australia's current total fertility rate of 1.9 births per woman is below the replacement level.¹ Still, Australia's fertility rate is well above many European countries and countries in Australia's region such as China and Japan, although below that of New Zealand and the United States.

Table 1.2 International comparison of Australia's demographic indicators

	Total fertility rate 2005-10 Children per woman	Median age (years) 2010	Population 65+ (per cent) 2010	Total dependency ratio (a) (per cent) 2010	Population (millions) 2010	Annual average population growth (per cent) 2005 to 2010
Australia	1.9	36.8	13.4	48	22.4	1.8
Canada	1.6	39.7	14.2	44	34.1	1.1
China	1.6	34.6	8.4	36	1,359.8	0.6
France	2.0	40.0	16.8	54	63.2	0.6
Germany	1.4	44.3	20.8	52	83.0	-0.2
Greece	1.5	41.8	19.0	50	11.1	0.1
Hungary	1.3	39.9	16.7	46	10.0	-0.2
India	2.7	25.5	5.1	54	1,205.6	1.4
Indonesia	2.5	26.9	5.0	53	240.7	1.4
Italy	1.4	43.3	20.3	52	60.5	0.6
Japan	1.3	44.9	23.0	57	127.4	0.1
Netherlands	1.7	40.8	15.4	49	16.6	0.4
New Zealand	2.1	36.6	13.0	50	4.4	1.1
Poland	1.3	38.0	13.5	40	38.2	0.0
Spain	1.4	40.2	17.1	47	46.2	1.3
Sweden	1.9	40.7	18.2	53	9.4	0.8
United Kingdom	1.9	39.8	16.6	52	62.1	0.6
United States	2.1	37.1	13.1	49	312.2	0.9
WORLD	2.5	28.5	7.7	52	6,916.2	1.2

(a) Total dependency ratio is the ratio of population aged 0-14 and 65+ per 100 population aged 15-64.

Source: United Nations, Population Division, 2012 Revision.

1 The replacement rate is the level of fertility where each woman gives birth to enough children to sustain the population at its current level. It is around 2.1 for Australia and other developed countries.

Australia's population, although ageing, is neither as aged nor ageing as fast as some other countries. Japan's median age is almost 45 years and many European countries have a median age in the forties. By contrast Australia's median age is 36.8. The proportion of the Australian population aged 65 years and over is smaller than many OECD countries, including Canada, France, Germany, Italy, Japan and the United Kingdom. On the other hand Australia has a much larger proportion of its population aged 65 years and above than China, India and Indonesia.

Japan and a number of European countries have experienced either very low population growth (for example Greece and Poland) or negative population growth (for example Germany and Hungary). This has been the result of a combination of low fertility rates and very low migration. According to the UN population projections, Japan's population is projected to decline to 105 million by 2055, and then to 84.5 million by 2100.

Migration

Net overseas migration is the net gain or loss of population through immigration to Australia and emigration from Australia. For the central scenario presented in this report, net overseas migration is assumed to be 215,000 per annum from 2018-19, consistent with the assumption used in the 2014-15 Mid-Year Economic and Fiscal Outlook (MYEFO).

Net overseas migration has varied substantially over recent decades. During the decade to 2005, it averaged around 105,000 per annum. Over the period since 2005, net overseas migration was much more rapid, averaging around 220,000 per annum, and reaching a peak of 300,000 in 2008-09.

Consistent with this, there has been significant variation in the levels of net overseas migration underpinning population projections across the series of intergenerational reports. In the 2002 report, the long-term net overseas migration assumption was 90,000 persons per annum. In the 2007 report, the assumption was 110,000 persons per annum, and in the 2010 report, the assumption was 180,000 persons per annum.

Variation in net migration outcomes reflects changes in both out-migration, influenced by economic circumstances domestically and overseas, and in government policy regarding immigration into Australia. Australia's permanent migration intake is determined by government policy (including the mix between skilled and family reunion places) and is subject to review each year as part of the Budget process to reflect evolving economic and social circumstances.

As such, actual population outcomes over coming decades will depend upon the future immigration policy settings of successive governments, as well as Australia's relative economic performance. By way of illustration, if net overseas migration were instead to

average 180,000 per annum over coming decades, the projected population in 2054-55 would be 37.9 million, while an average net overseas migration of 140,000 per annum would see a projected population of 35.7 million in 40 years' time. Lower levels of net overseas migration would lead to lower population growth rates over time and, therefore, lower economic growth.

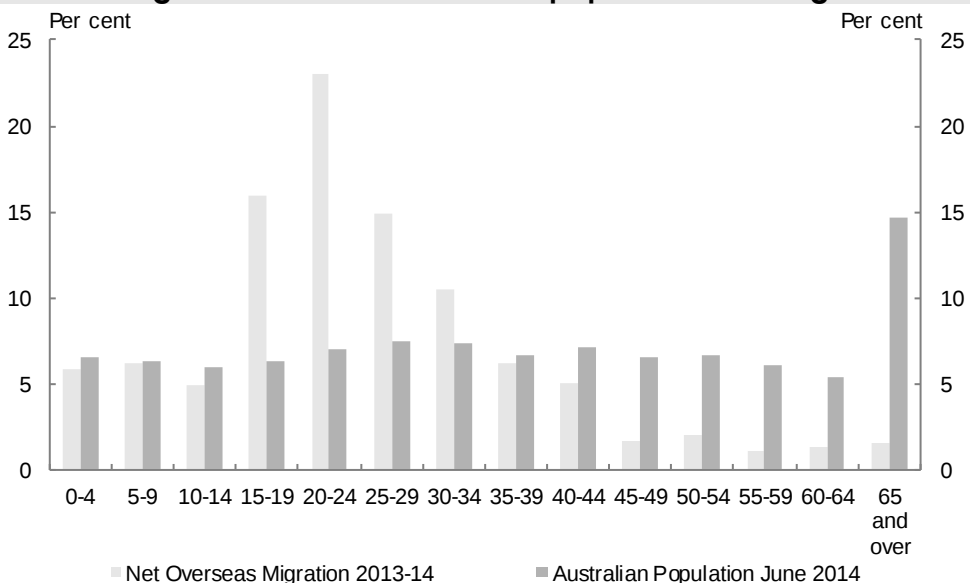
Historically, immigration has been an important source of labour supply for Australia. Since at least the 1980s, immigration has made the largest contribution to growth in Australia's working age population (aged 15 years and over).

As permanent migration has increased since the mid-1990s greater emphasis has been placed on skilled migration and the choice of skills has been made largely demand-driven by employers, supporting economic growth.

Migration also has an impact on the age distribution of the population. Migrants, on average, are younger than the resident population. Migration reduces the average age of the population and slows the rate of population ageing. This increases the proportion of the population that are of working age and raises aggregate workforce participation, increasing economic growth. This trend has been relatively stable over time.

In 2013-14, around 88 per cent of migrants were aged under 40 years (Chart 1.4). In comparison, at 30 June 2014, around 54 per cent of the resident Australian population was aged under 40. Around 54 per cent of migrants were aged from 15 to 29 years. The share of the resident Australian population aged from 15 to 29 years at 30 June 2014 was 21 per cent.

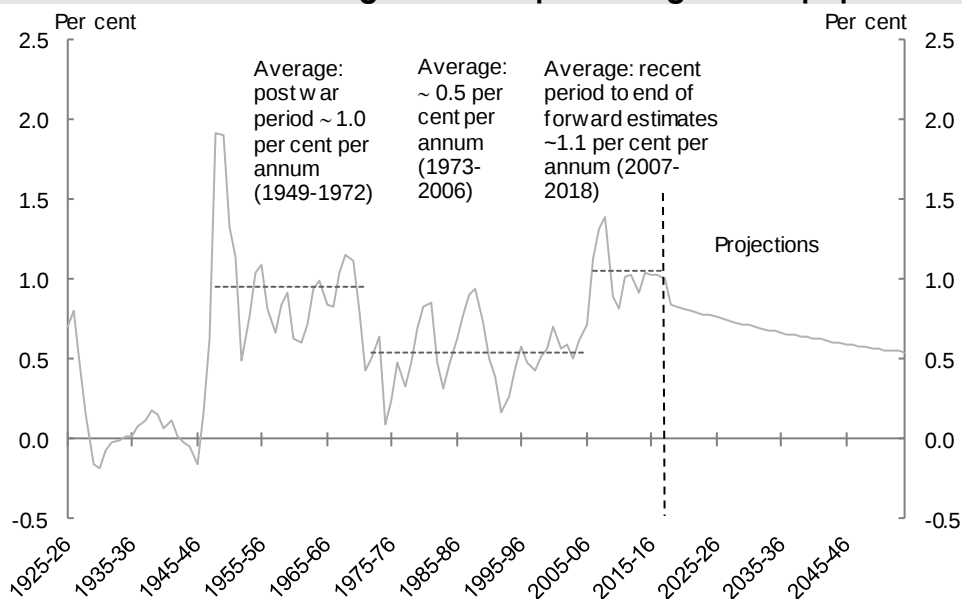
Chart 1.4 Age distribution of Australia's population and migrants



Source: ABS cat. no. 3101.0 and 3412.0.

Under the central scenario, net overseas migration is projected to fall as a percentage of the resident population over the next 40 years, to just over 0.5 per cent per annum, which would bring it back in line with the average of 0.5 per cent observed between 1973 and 2006 (Chart 1.5).

Chart 1.5 Net overseas migration as a percentage of the population



1.1.3 Population structure

Consistent with previous reports, the structure of Australia's population is projected to change significantly over the next 40 years. By mid-century, a greater proportion of the population will be aged 65 and over and a significantly smaller proportion of the population will be of traditional working age, that is, 15 to 64 years (Table 1.3).

Table 1.3 Population projections (millions of persons at 30 June)

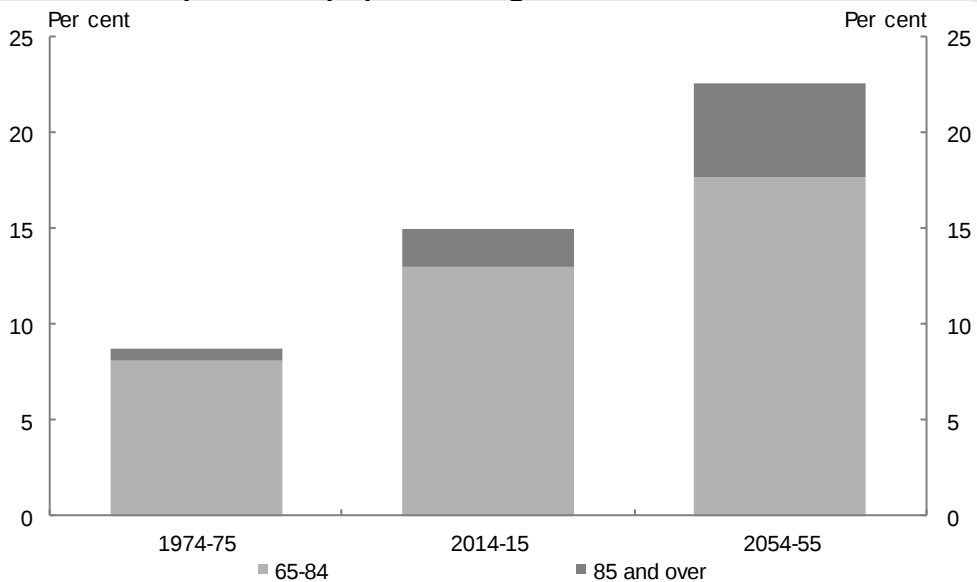
Age range	1974-75	2014-15	2024-25	2034-35	2044-45	2054-55
0-14	3.8	4.5	5.3	5.9	6.3	6.9
15-64	8.9	15.8	17.8	19.9	22.1	23.8
65-84	1.1	3.1	4.3	5.2	5.9	7.0
85 and over	0.1	0.5	0.6	1.0	1.5	1.9
Total	13.9	23.9	28.0	32.0	35.8	39.7
Percentage of total population						
0-14	27.5	18.8	19.0	18.3	17.6	17.5
15-64	63.8	66.2	63.6	62.1	61.6	60.0
65-84	8.1	13.0	15.2	16.3	16.6	17.7
85 and over	0.6	2.0	2.2	3.2	4.2	4.9

Source: ABS cat. no. 3105.0.65.001 and Treasury projections.

By 2054-55, the number of people aged 65 to 84 will have increased substantially. By 2054-55 there are projected to be 7.0 million Australians aged 65 to 84, compared with around 3.1 million in 2015. This would represent just under 18 per cent of the total population, compared with 13 per cent in 2014-15. In 1974-75, around 1.2 million persons were aged over 65, or around 9 per cent of the population.

Both the number and proportion of Australians aged 85 and over is projected to grow rapidly (Chart 1.6). In 1974-75, this group represented less than 1 per cent of the population — around 80,000 persons. In 2015, around 500,000 persons, or 2 per cent of the population, are projected to be aged 85 and over. By 2054-55, this group is projected to be around 2 million persons, or around 5 per cent of the population.

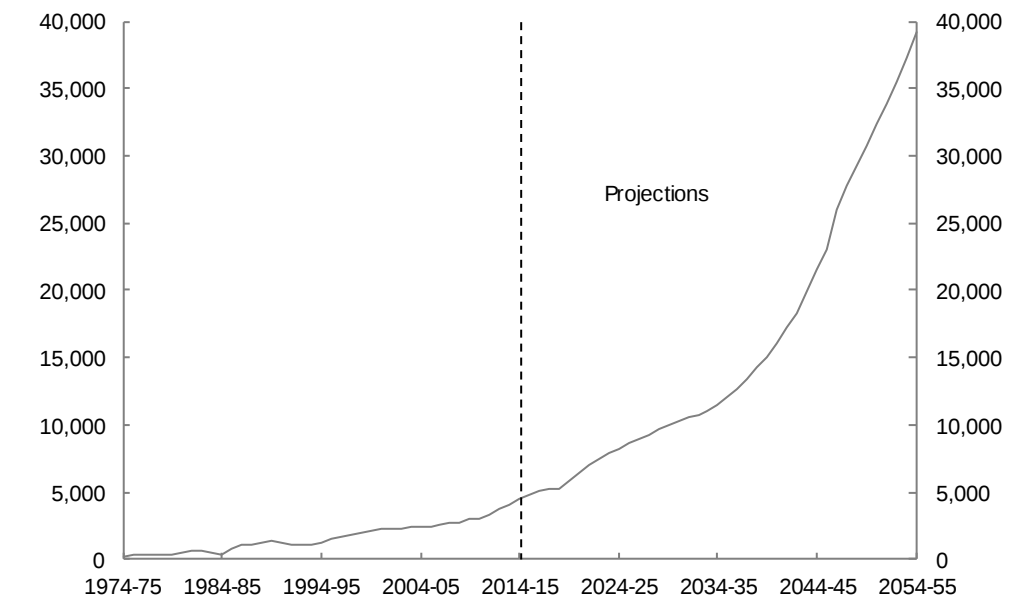
Chart 1.6 Proportion of population aged 65 and over



Source: ABS cat. no. 3105.0.65.001, 3101.0 and Treasury projections.

Finally, the projections suggest there will be around 40,000 centenarians in 2054-55 (Chart 1.7). This would be almost nine times the number expected in 2014-15, and well over three hundred times the 120 or so centenarians alive in 1974-75.

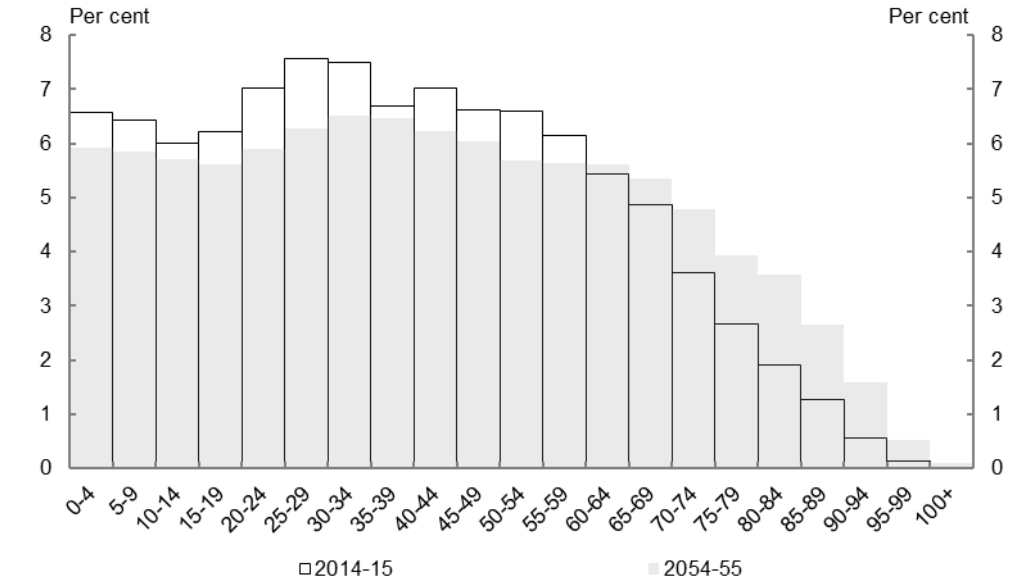
Chart 1.7 Number of centenarians



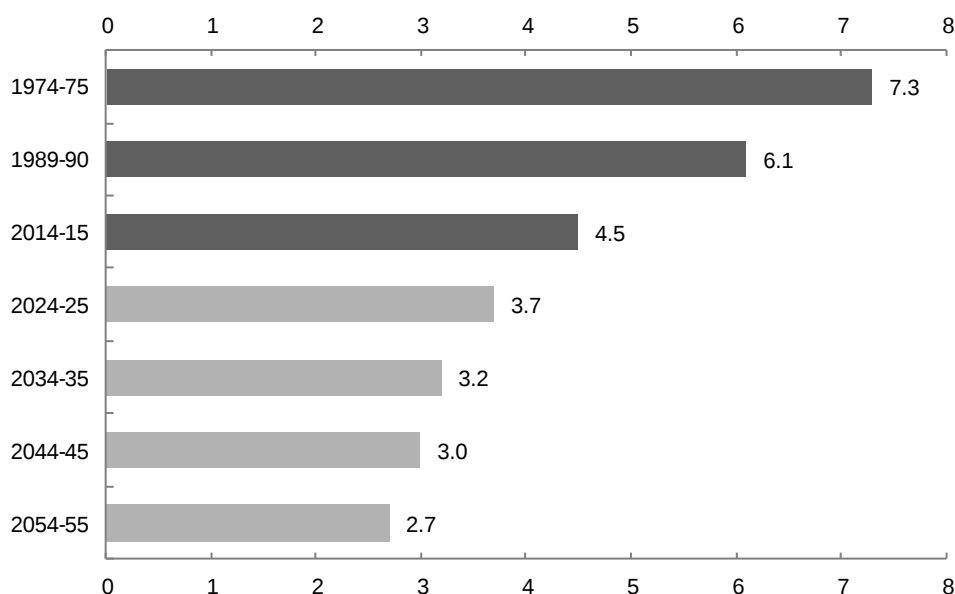
Source: ABS cat. no. 3105.0.65.001, 3101.0 and Treasury projections.

Charts 1.8 and 1.9 illustrate the changing structure of Australia’s population. In particular, it shows how the percentage of the population aged in their younger years will fall and the proportion of the population aged in their later years will increase markedly.

Chart 1.8 Proportion of the Australian population in different age groups in 2014-15 and 2054-55 as a percentage of the total population



Source: Treasury projections.

Chart 1.9 Number of people aged from 15 to 64 relative to the number of people aged 65 and over

Source: ABS cat. no. 3105.0.65.001, 3101.0 and Treasury projections.

1.1.4 Uncertainty in population projections

Table 1.4 Sensitivity analysis of population projections — fertility and life expectancy

	Central case	Fertility		Life Expectancy	
		Low	High	Lower	Higher
		TFR 1.7 births per woman	TFR 2.1 births per woman	ABS Medium assumption	ABS High assumption
Proportion of population aged 65 and over (per cent of population)					
As at June 2055	22.5	23.6	21.6	21.4	23.5
Change from central case	-	1.0	-1.0	-1.1	0.9
Median age of population (years)					
As at June 2055	40.4	42.2	38.6	39.7	40.9
Change from central case	-	1.7	-1.8	-0.7	0.5

Note: Life expectancy sensitivity analysis based on medium and high mortality assumptions from ABS population projections (ABS cat. no. 3220.0). The ABS uses two mortality assumptions which it terms 'high life expectancy' and 'medium life expectancy'. The 'higher life expectancy' case assumes continued improvement in life expectancy, while the 'lower life expectancy' case assumes declining improvement. The ABS uses the 'medium' assumption for its low population scenario. TFR = Total Fertility Rate.

Sources: Treasury projections.

There is inevitable uncertainty around the assumptions used to produce these projections. Several scenarios are presented to illustrate the effects that adopting different assumptions would have on the projections. The results are presented in Table 1.4 and show population projections for scenarios of low and high fertility, and low and high life expectancy. The alternative projections show that the ageing of the

population is a future that Australia cannot avoid given any reasonable set of assumptions about future fertility, life expectancy and migration trends.

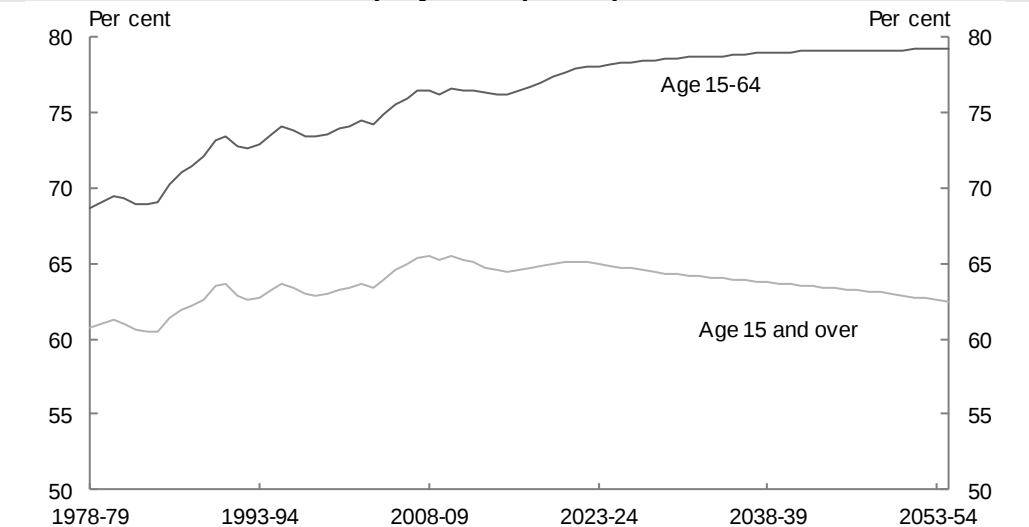
1.2 Participation

1.2.2 Participation and future economic growth

The number of people who are able and choose to seek work, how many of them can get jobs when they do seek work and the average number of hours worked by individuals who have jobs are important influences on growth in GDP. Over the next 40 years, the proportion of the population participating in the labour force is expected to decline as a result of population ageing. This declining participation rate is projected to detract slightly from real GDP growth per person over this period. Encouraging and valuing greater workforce participation, in particular amongst older age groups, presents an opportunity to further lift GDP growth per person.

Overall, participation for all people aged 15 years and over is projected to fall from 64.6 per cent in 2014-15 to 62.4 per cent in 2054-55 (Chart 1.10). This figure masks a number of underlying trends in participation rates.

Chart 1.10 Historical and projected participation rates



Source: ABS cat. no. 6291.0.55.001 and Treasury projections.

Labour force participation rates are affected by changes in the age distribution of the population and changes in participation rates within each age group. Factors affecting each age group's participation in the labour force, such as educational attainment, also play an important role in changes to overall participation rates.

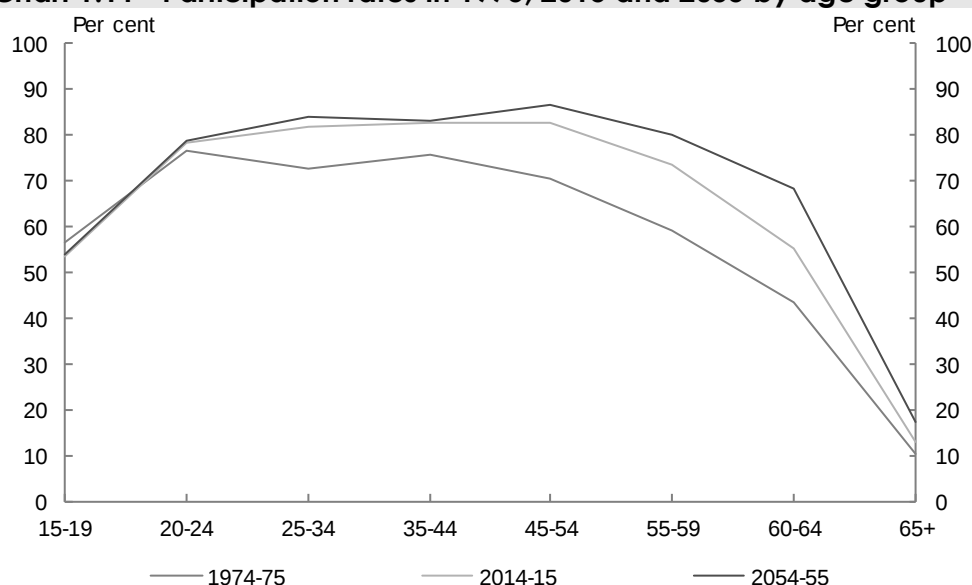
The changing age structure of the population will result in overall participation falling (Table 1.5). This is because there will be fewer people in the age groups where participation is highest (the ages from 15 to 64) and more people in the age groups where participation begins to decline (people aged over 65).

However, participation rates for every male and female age cohort are expected to continue to increase or stabilise. Chart 1.11 shows the participation rates for different age groups and how they have increased from 1975 to 2015 and how they are projected to increase to 2055. The most significant increases are expected for 60-64 and 65-69 year olds.²

Female employment is projected to continue to increase, following on from strong growth over the past 40 years. In 1975, only 46 per cent of women aged 15 to 64 had a job. Today around 66 per cent of women aged 15 to 64 are employed. By 2055, this is projected to increase to around 70 per cent of women aged 15 to 64.

Based on current trends, female labour force participation rates for most age groups are projected to continue to increase, but at a slower rate, and stabilise in the long run.

Chart 1.11 Participation rates in 1975, 2015 and 2055 by age group



Source: ABS cat. no. 6291.0.55.001 and Treasury projections.

² A cohort method based on the methodology used by the Productivity Commission has been used to project the participation rates of older people. This changed modelling assumption has resulted in higher projected participation rates for older people than in previous reports.

Table 1.5 Trend participation rates by age group

	2014-15	2024-25	2034-35	2044-45	2054-55
15-24	66.6	66.7	66.6	66.9	66.9
25-54	82.3	83.7	84.2	84.5	84.7
15-64	76.2	78.2	78.8	79.1	79.3
15+	64.6	64.9	64.0	63.4	62.4
65+	12.9	15.9	16.9	16.7	17.3

Note: Appendix D contains further details of the participation rate projections by age and gender.

Source: Treasury projections.

With the exception of those aged 15 to 19, the total age specific participation rates (full-time and part-time employment combined) are higher for men than for women. This is projected to continue. Of those aged 25 to 54, around 90 per cent of men, compared to around 76 per cent of women, participated in the labour force in 2013-14.

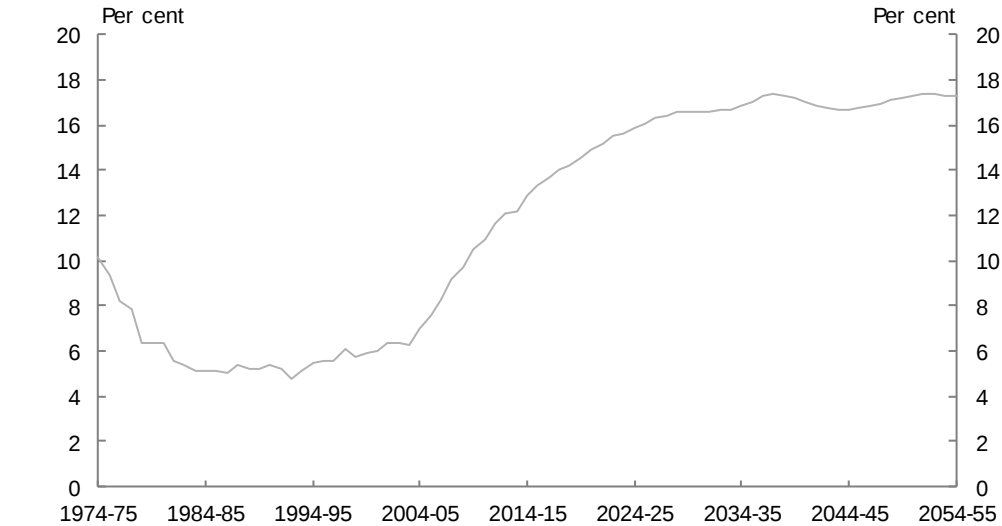
Changes to the age at which people become eligible for the Age Pension have affected the total participation rate. Between 1995 and 2013, the Age Pension eligibility age for women was brought into line with that for men, rising from 60 to 65 years. From July 2017 the eligibility age for the Age Pension will rise from 65 reaching 67 from 1 July 2023. The Government's policy is to continue the increase in the Age Pension age to reach 70 years by 1 July 2035.

The change in the Age Pension eligibility age from 65 to 70 years is estimated to add around 0.8 percentage points to the total participation rate in 2054-55, bringing it to 62.4 per cent, compared with 61.6 per cent without the changes.

1.2.3 Trends in participation

The trend of overall declining participation, expected in decades to come, is in contrast to the experience over the past 40 years. During this period there was a significant increase in the proportion of people that participated in the labour force. This contributed around 0.2 percentage points to annual economic growth over the period.

Chart 1.12 Participation rates of people aged 65 years and over



Source: ABS cat. no. 6291.0.55.001 and Treasury projections.

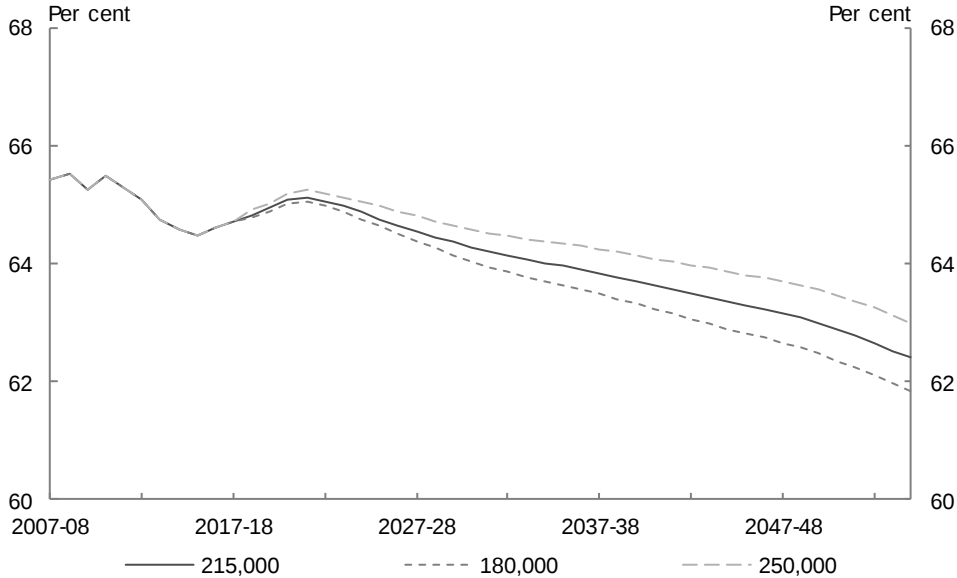
Previous years' gains in participation rates were driven by increases in participation by women and older people (Chart 1.12).

The increase in female participation rates resulted from increased levels of education, changing social attitudes towards gender roles, declining fertility rates, better access to childcare services and more flexible working arrangements.

Older people have been able to extend their labour force participation as a result of the improvements that have led to longer life expectancy, the rise of less physically demanding work and new technologies. Between 1978-79 and 2013-14, the participation of people aged 55 to 64 increased from 45.6 per cent to 63.8 per cent.

Participation rates also increase as the level of net overseas migration increases (Chart 1.13). Migrants tend to be younger, on average, than the resident population, and therefore increase overall labour force participation rates. While there is some evidence that migrants participate in the labour force more than the Australian average for their age and gender, the projections have not taken this effect into account.

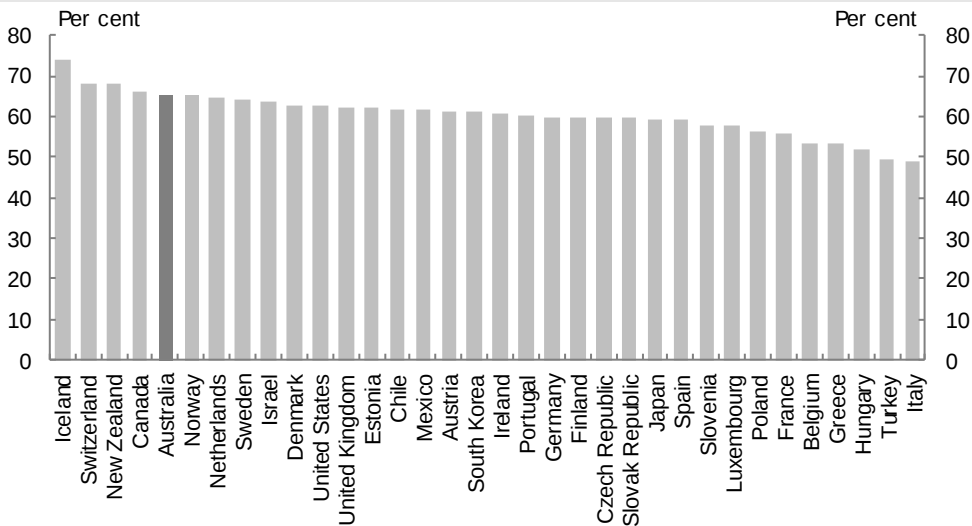
Chart 1.13 Participation rates by net overseas migration assumptions



Source: ABS cat. no. 6291.0.55.001 and Treasury projections.

In 2013, Australia’s participation rate for people aged 15 and over was fifth highest in the OECD (Chart 1.14).

Chart 1.14 Participation rates of OECD countries 2013, people aged 15 and over

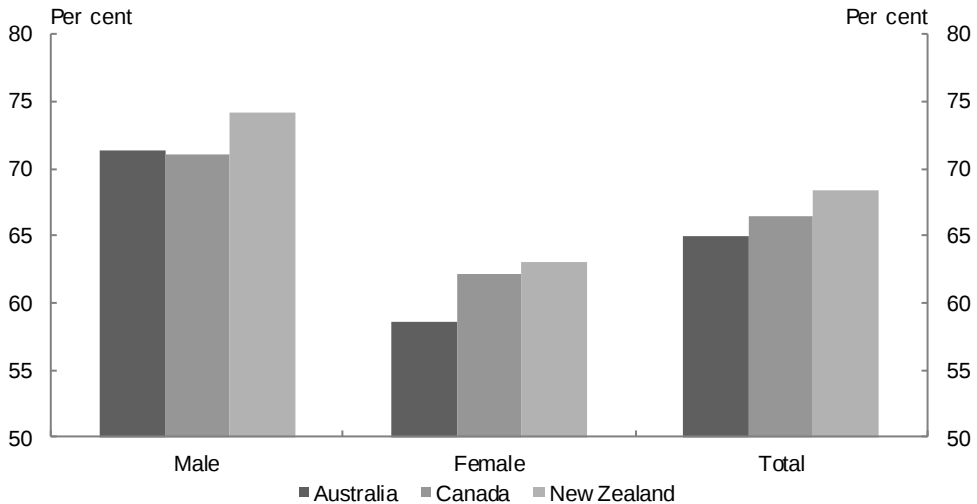


Source: World Bank.

The experience of Iceland, Switzerland, New Zealand, and Canada, all with higher participation rates, demonstrates that further gains can be made, particularly in the female participation rate. Australia’s female participation rate is around 4 percentage

points lower than that in New Zealand and Canada (Chart 1.15). If Australia's female participation rate reached that of Canada, the Grattan Institute estimate that Australia's GDP would be a permanent \$25 billion higher.

Chart 1.15 International comparison of participation rates, 2013



Source: International Labour Organisation.

Participation rates in other countries reflect their specific circumstances, for example, the interaction of the tax and transfer systems, availability of childcare, and policies on parental leave. Nonetheless, policy settings that seek to remove barriers to participation of females and older age groups in Australia and encourage them to work, if they wish to do so, can drive gains in GDP and income growth.

These policy settings include availability of childcare, flexible working arrangements, and removal of discrimination. Policies seeking to remove barriers or support participation for other groups where this has been challenging, for example, young unemployed people and people with disability, would also be expected to generate gains in GDP and income growth.

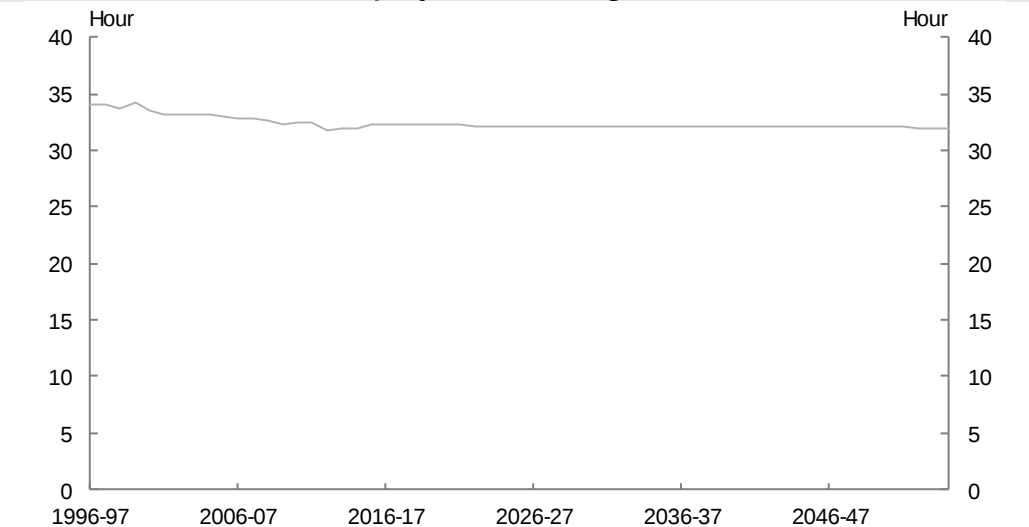
1.2.4 Hours worked

In addition to the participation rate, the average number of hours worked also has a significant impact on economic outcomes. Over the past three decades, the average number of hours worked per week has decreased, due partly to an increase in the number of people working part-time, reflecting the increase in female and older workers, who particularly benefit from a flexible workplace environment.

The average number of hours worked is projected to fall slightly over the next 40 years. Population ageing is expected to be the main driver of the decline in average hours worked. Historically, those in older age groups have worked for fewer hours per week,

on average, than those in younger age groups. This is expected to continue. Changes in the Age Pension eligibility age are projected to have a minimal impact on the average hours worked as the effects of a higher proportion of older workers on part-time hours are taken into account (Chart 1.16).

Chart 1.16 Historical and projected average hours worked



Source: ABS cat. no. 6202.0 and Treasury projections.

1.2.5 Unemployment

Projections in this report use an assumption of a constant rate of unemployment of around 5 per cent over the projection period.

While employment growth depends on the dynamics of the labour force and the wider economy, the assumption of 5 per cent unemployment is based on estimates of the Non-Accelerating Inflation Rate of Unemployment (NAIRU). The NAIRU is the lowest sustained unemployment rate that does not cause inflation to increase.

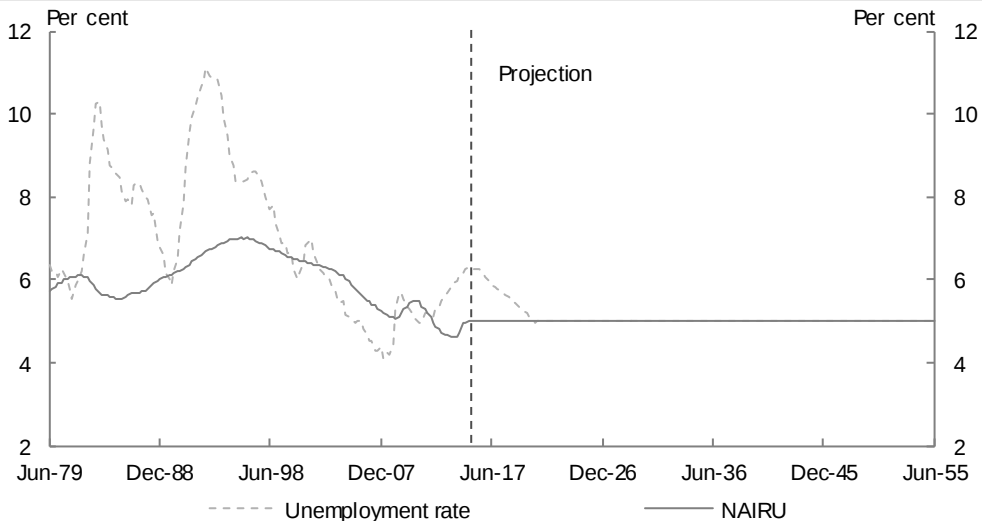
The NAIRU varies over time, driven by a complex range of economic, demographic and institutional factors, including the way inflation expectations are formed, the wage-setting environment, labour mobility, and the education and skills of people in the labour force. The NAIRU cannot be measured directly and is typically estimated using economic models (Chart 1.17). There is a wide range of uncertainty around estimates for the NAIRU, of the order of ½ to 1 percentage point.

Under the projections methodology, the unemployment rate returns to 5 per cent. This does not imply that difficulties faced by certain cohorts of the labour force, such as youth, will disappear. After falling to a record low of 7.6 per cent in August 2008, the rate of youth unemployment sits at 14.2 per cent as of January 2015. Ensuring that

more young people are able to find employment when they leave education and training will be important to avoid entrenching disadvantage over the longer term.

As a result of the constant unemployment assumption, employment growth from 2020-21 onwards (where the economy is projected to return to full employment) reflects growth in the labour force. Prior to 2025 the unemployment rate assumed is consistent with the 2014-15 MYEFO economic forecasts and projections. Labour force growth, and therefore employment growth, is projected to slow over the remainder of the projection period, associated with a falling total participation rate and slower growth in the working age population.

Chart 1.17 Estimated NAIRU



Source: ABS cat. no. 6202.0 and Treasury projections

1.3 Productivity

1.3.1 Productivity and future economic growth

Australians have high living standards which have been boosted by rapid growth in incomes over the past two decades. This increased wealth over the past 40 years has increased incomes across the community. Average annual income growth increased from 1.7 per cent in the 1980s to 2.2 per cent in the 1990s and to 2.3 per cent through the 2000s to 2013. This has seen average income levels rise from around \$40,500 (in today's dollars) in the early 1990s to around \$66,400 today. Income is one of the most important determinants of living standards. Increasing real incomes give people the capacity to buy more goods and services, save and invest, as well as more freedom to choose how to spend their time. Higher income generates more tax revenue for government services and income support.

Labour productivity is a measure of how much is produced, on average, for every hour that is worked. On this measure, Australians today produce twice as many goods and services per hour of work than they did in the early 1970s. Labour productivity can be thought of as having two components: capital deepening, and multifactor productivity. Capital deepening reflects the increases in the ratio of capital to labour, and allows more to be produced in each hour worked.

Multifactor productivity measures the efficiency with which the key inputs of labour and capital are used to produce goods and services. Many factors can influence changes in measured multifactor productivity, particularly over shorter periods of time, including educational attainment, the extent and type of regulation, levels of competition and other incentives for businesses to operate efficiently, business and economic cycles, economies of scale, and weather patterns.

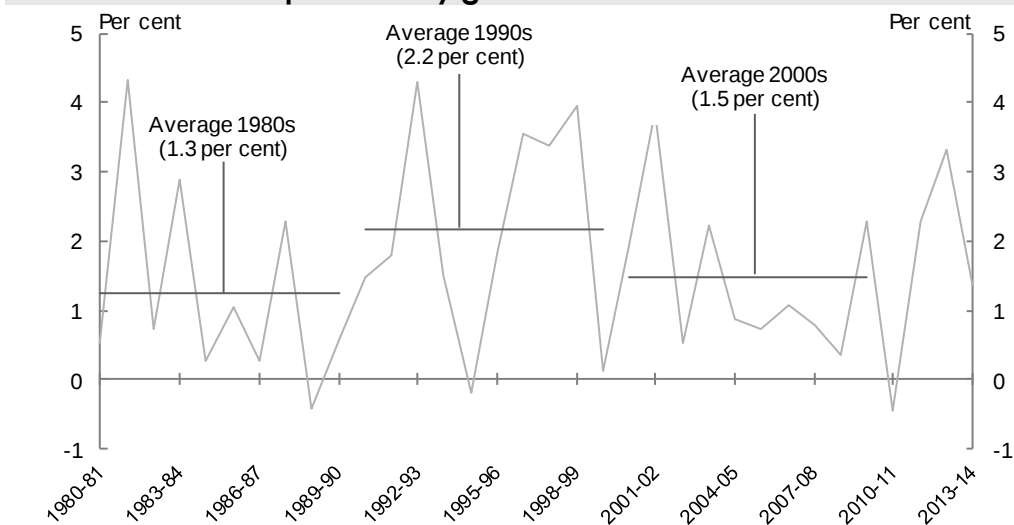
Productivity has consistently been the most significant driver of income growth. Growth in productivity enables more or better goods and services to be produced with the same, or fewer resources, which can result in higher profits and wages, and lower prices for consumers.

The measure of productivity used throughout this report is labour productivity, consistent with the framework for constructing projections of long-term real GDP based on population, participation and productivity.

This report shows that, given the expected changes in the age structure of the population and the projected gradual decline in the participation rate, productivity will play an even more critical role as a driver of income growth into the future.

1.3.2 Productivity growth

Productivity growth over the next 40 years is assumed to be 1.5 per cent per annum in the projections in this report. This is the same growth rate as the 30-year average assumption used in the 2014-15 Budget and MYEFO. Labour productivity growth averaged 1.3 per cent in the 1980s, increased to 2.2 per cent in the 1990s, and was 1.5 per cent in the 2000s (Chart 1.18).

Chart 1.18 Labour productivity growth

Source: ABS cat. no. 5206.0.

The increase in productivity growth rates seen in the 1990s is widely attributed to significant policy reforms of that decade and the 1980s. These included removing industry protections and opening up the economy to overseas trade, reducing controls over labour, capital and product markets, reforms to improve the efficiency of markets providing essential services, such as electricity, and taxation reforms. Reforms to macroeconomic policy settings included letting market forces determine the exchange rate, introducing the independent setting of interest rates and placing fiscal policy in a medium-term framework.

These reforms created more competitive and productive markets, in which businesses became more efficient and more innovative. The reforms also encouraged businesses to adopt and exploit new and improved technologies developed overseas, including those embedded in new capital, such as information and communications technologies. The reforms engendered greater flexibility in the use of resources and allowed relative prices of goods and services to reflect the balance of supply and demand more accurately, improving overall resource allocation and returns on investments in both physical and human capital. Continued exploitation of new technologies and policy settings conducive to their adoption, will be vital to Australia's future productivity performance.

Since 1970, more Australians have been completing higher levels of education, which has also contributed to growth. In 1970, a third of boys were undertaking their Year 12 High School Certificate or equivalent.³ By 2011, that stands at almost 75 per cent.⁴ In 1970, 25 per cent of girls were undertaking their Year 12 High School Certificate or equivalent. By 2011, that stands at over 80 per cent.

³ ABS cat. no. 4221.0.

⁴ ABS cat. no 4102.0.

The slowdown in productivity growth between the 1990s and the 2000s has partly reflected the very high investment activity in the resources and utilities sectors and the slowing of growth internationally and in Australia since the Global Financial Crisis. Productivity growth often slows during a significant investment phase as there are long lead times before increased output is achieved. That is, in the early investment phase, there will be a high level of capital input, but it will be associated with very little increased output, leading to a fall in measured productivity.

Nonetheless, these factors do not explain fully the breadth and magnitude of the slowdown in Australia's productivity growth rates since the 1990s. This has been observed in the majority of industries, suggesting that more fundamental factors are at play. Part of the slowdown may reflect the fading impact of past reforms. There have been fewer significant policy reforms since the early 2000s. Strong income growth, low unemployment and high rates of profitability through the 2000s may have significantly lowered the pressure on governments to undertake the necessary productivity enhancing reforms and reduced the incentive for businesses to become more competitive during this period.

There is also evidence that policy requirements have constrained how inputs are used in some sectors and increased regulatory burdens, thereby detracting from measured productivity growth. For example, some new environmental, water and electricity service standards have required many utilities service providers to invest in higher cost production technologies, which, while potentially enhancing the quality of service, reduce measured productivity.

There is little evidence that slower productivity growth has been the result of inadequate investment in skills, education and innovation more broadly. Australia has not been alone among advanced economies in experiencing slower productivity growth over the 2000s, which suggests that the rate of growth in technological advance — which expands production possibilities — may have been slower than in previous decades.

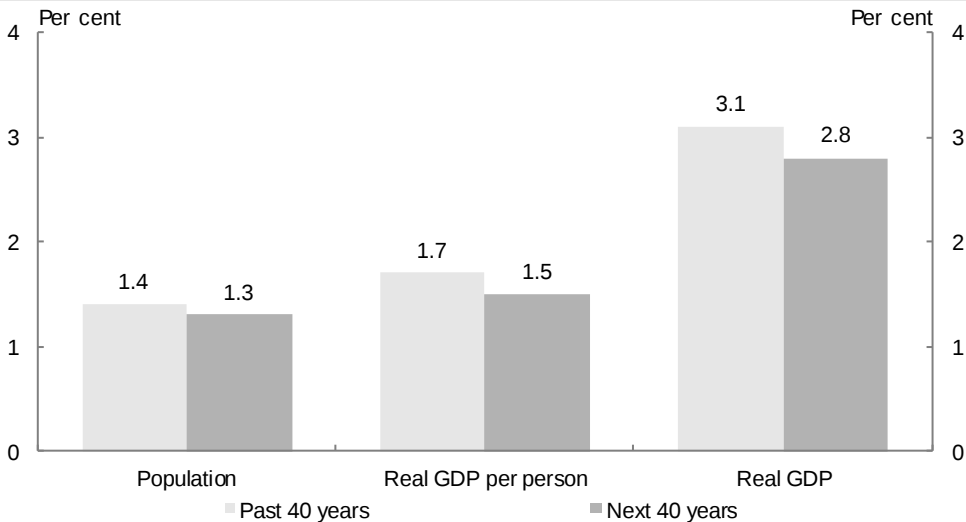
There is some evidence that high levels of net overseas migration might increase productivity, as the skills focus of Australia's migration program means that migrants may, on average, be better educated than the average Australian. Migrants can also be highly motivated, owing to their decision to move to Australia.

1.4 Long-term economic projections

1.4.1 Economic projections

The projections for economic and income growth over the next 40 years have a significant bearing on the fiscal projections. Economic growth is projected to slow over the next 40 years (Chart 1.19). The average annual growth of real GDP is projected to be 2.8 per cent over the next 40 years, compared to 3.1 per cent experienced over the past 40 years. The average annual growth of real GDP per person is projected to be 1.5 per cent over the next 40 years, compared to 1.7 per cent over the past 40 years.

Chart 1.19 Average annual growth of real GDP and real GDP per person



Source: ABS cat. no. 5206.0 and Treasury projections.

Income growth is projected to slow over the next 40 years. Income is measured by real gross national income (GNI). Real GNI is the value of goods and services produced by Australians (either in Australia or overseas), adjusted for changes in purchasing power due to changing trade prices. In other words, real GNI measures changes in what Australians can buy with their income.

The average annual growth rate of real GNI per person is projected to be 1.4 per cent over the next 40 years, compared to the 1.9 per cent experienced over the past 40 years. This would see real GNI per person increase from \$66,400 in 2014-15 to \$117,300 in 2054-55. This increased wealth over the past 40 years has increased incomes across the community.

The long-term economic projections take current economic conditions and economic forecasts as a base — these are the same parameters as those used in the 2014-15 MYEFO. Over the longer term, trend growth rates are used to develop projections. Trend growth rates are a function of the factors that underpin economic growth — population, participation and productivity.

To 2015, Australia has experienced a record 23 years of uninterrupted economic growth. If history is any guide, the economy will continue to go through business cycles or economic shocks over the next 40 years, which could have significant impacts on growth. However, the outlook to 2054-55 will be driven not by these cycles, but by the underlying trends in population, participation and productivity.

The prospect of business cycles or economic shocks over the next 40 years highlights the importance of achieving fiscal sustainability and positioning Australia's economy to offset the effects of potential downturns. Further discussion is at Box 1.4.

It is also important to keep in mind that the long-term projections look through business cycles and assume a smooth growth path through to 2054-55. The timing, length and magnitude of potential economic downturns are very difficult to forecast. The economic growth projections need to be understood as an average growth projection through to 2054-55, and not as a forecast of uninterrupted growth.

1.4.2 Economic growth and income projections

The contribution of population, participation and productivity to annual real GDP growth per person is shown in Chart 1.20. Economic growth rates are expected to decline gradually over the long run. This decline is expected to be caused by a slowing in population growth and a decline in the trend workforce participation rate as a result of population ageing.

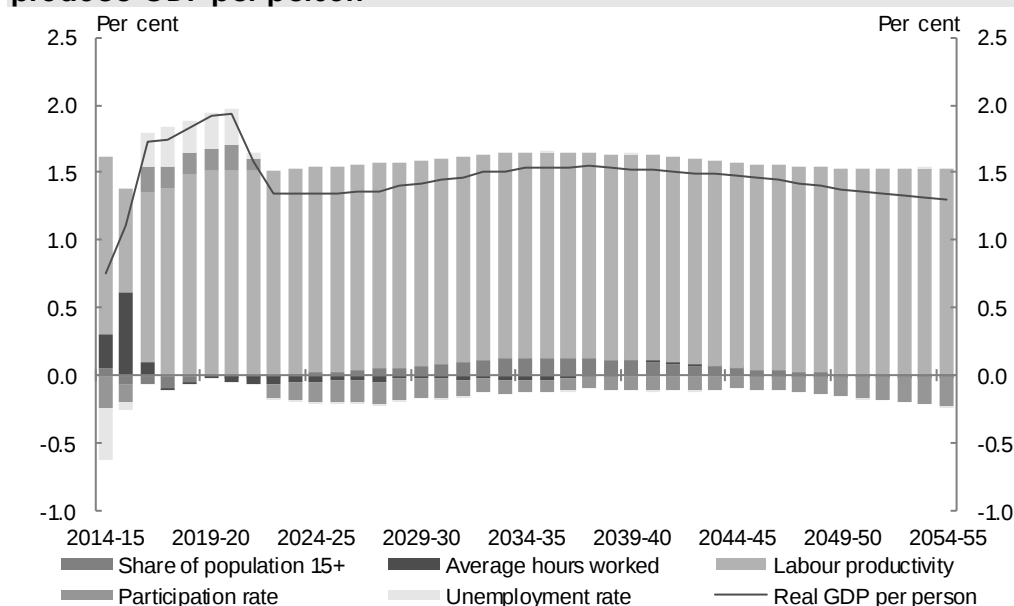
Chart 1.20 Population, productivity and participation combine to produce GDP per person

Chart 1.21 identifies the drivers of GDP growth per person over the next 40 years. Labour productivity is expected to be the main driver of real GDP growth, with a smaller contribution coming from compositional changes in population. Falling overall participation rates are expected to reduce GDP growth.

Over the past 40 years, population factors have contributed to per person economic growth, with the growth in the working age share of the population lifting per person growth by 0.3 percentage points per annum. The increase in the participation rate, particularly the participation rate of women, lifted growth by 0.2 percentage points per annum, but this was offset by an increase in the unemployment rate and falling average hours worked. All together, the population and participation factors increased economic growth by 0.2 percentage points per annum. Productivity growth was the largest contributor to per person growth.

Over the next 40 years the increase in the working age share of the population will increase by less than over the previous 40 years, but will still contribute slightly to per person growth. The participation rate is expected to fall, mainly as a result of ageing of the population. The unemployment rate and average hours worked are expected to remain broadly constant, and hence not contribute or detract from growth. Productivity growth is expected still to be the largest contributor to per person growth.

Chart 1.21 Components of growth in real GDP per person



Source: ABS cat. no. 5206.0, 6202.0 and Treasury projections.

Nominal GDP, prices and wages

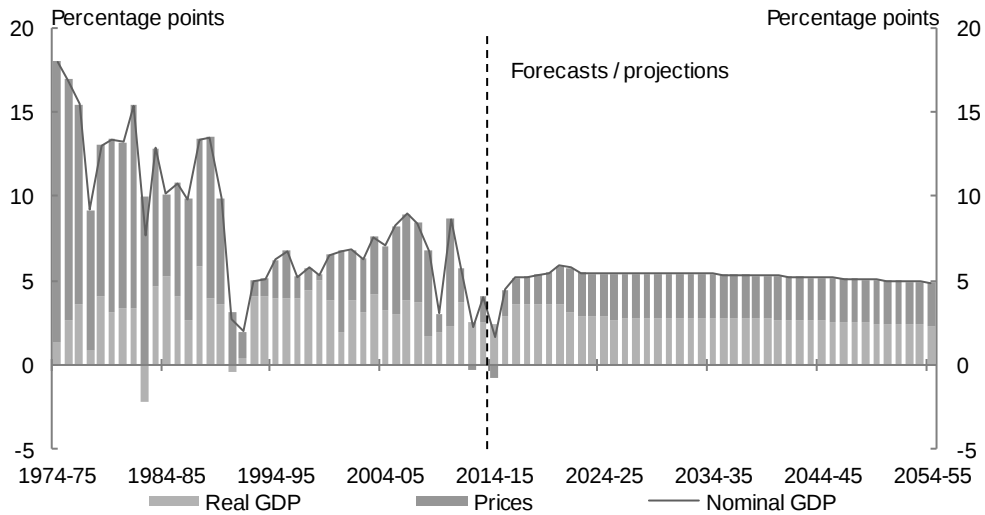
Nominal GDP is the value of the economy’s output. Growth in nominal GDP reflects growth in both the quantity and price of output. Projections of nominal GDP growth therefore depend on assumptions regarding real GDP growth and growth in prices. Nominal GDP is the primary determinant of taxation revenue.

Nominal GDP is projected to grow at an average of around 5¼ per cent a year over the projection period, unchanged from the 2010 report (Chart 1.22).

Consistent with assumptions in the 2014-15 MYEFO, Australia’s terms of trade are expected to return to the level observed in 2005-06 by 2019-20 and remain at that level over the projection period.

Over the long-run, domestic prices are projected to grow by 2½ per cent a year, consistent with the Reserve Bank of Australia’s medium-term inflation target. Wages are projected to grow at around 4 per cent, consistent with domestic inflation and productivity growth of 1.5 per cent.

Chart 1.22 Nominal GDP growth projections



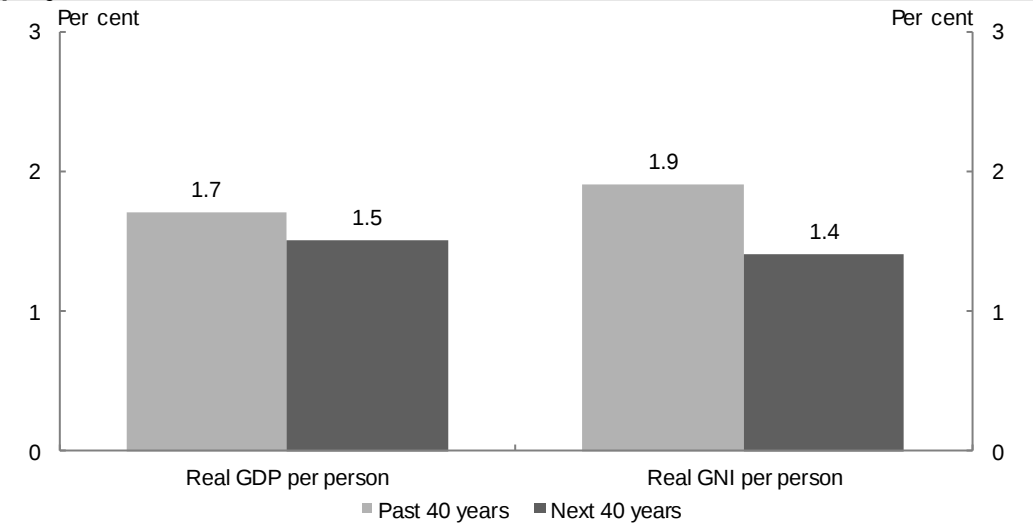
Source: ABS cat. no. 5206 and Treasury projections.

Income growth

Income growth is likely to slow considerably over the next 40 years.

The average annual growth rate of real GNI per person is projected to be 1.4 per cent over the next 40 years, which would see real GNI per person increase from \$66,400 in 2014-15 to \$117,300 in 2054-55. This compares to the average annual growth rate of 1.9 per cent of the past 40 years. This means that the projected change in the average annual growth of real GNI per person over the projection period is likely to be greater than the change in average annual growth in real GDP per person (Chart 1.23).

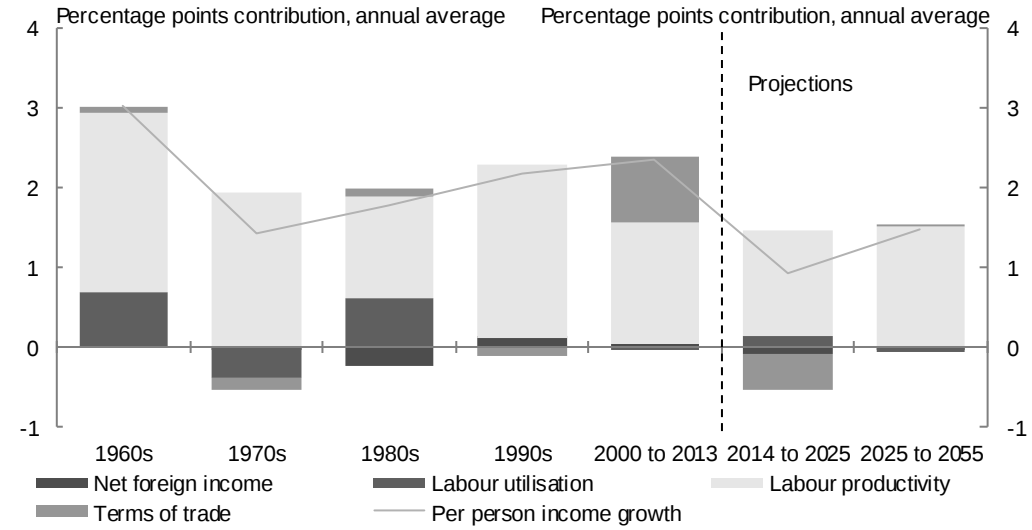
Chart 1.23 Average annual growth rates for real GDP and GNI projections



Source: ABS cat no. 5206 and Treasury projections.

These projections take into account the decline in the terms of trade since their peak in 2011. As a result, the increase in average incomes projected over the period from 2014 to 2025 is expected to be slower than experienced over the past decade. Beyond 2024-25, it is assumed that the terms of trade no longer detract from growth, resulting in a projected improvement in real GNI per person growth. The ageing of the population slows GNI growth through its effect on workforce participation.

Growth in real GNI per person is driven by growth in labour productivity (how much is produced for each hour worked), labour utilisation (how many hours an average person works), net foreign income receivable from abroad and the terms of trade. Income growth over the past five decades as well as projections for the medium and long term, broken down by source, are shown in Chart 1.24.

Chart 1.24 Sources of growth in real national income per person

Source: ABS cat. no. 5206.0 and Treasury projections.

Productivity growth has been the main driver of growth in real average incomes over the past 50 years and is assumed to remain so in the future.

In the 1980s, growth in real GNI per person was supported by a significant contribution from labour utilisation, reflecting an increase in the proportion of the population being of working age and increases in workforce participation. The 1990s saw strong growth in labour productivity, which offset a small negative impact of the terms of trade.

Over the past decade, and despite a broad-based slowdown in productivity growth, income growth increased due to unprecedented growth in the terms of trade as a result of the resources boom.

As has been widely analysed and discussed, over the next decade or so, the fall in the terms of trade is projected to reduce growth in GNI, with growth for the majority of the next 40 years driven by productivity growth.

1.4.3 Uncertainty in economic projections

The results presented in this report are one demonstration of many potential outcomes. To demonstrate the effects of the uncertainty of the economic projections, alternate projections based on different assumptions and parameters have also been prepared. The results are presented in Table 1.6 and show real GDP and real GNI per person projections under high and low productivity and participation assumptions.

Table 1.6 Sensitivity analysis of economic projections

	Central case	High productivity	Low productivity	High participation	Low participation
Changed assumption		1.6	1.4	1.5 per cent higher	1.5 per cent lower
Projected real GDP level					
Change from central scenario (per cent)		3.7	-3.7	1.5	-1.5
Projected real GNI per capita					
As at 2055	\$117,300	\$121,900	\$113,000	\$119,200	\$115,500
Change from central scenario		\$4,500	-\$4,300	\$1,800	-\$1,800

Source: Treasury projections.

The sensitivity analysis in Appendix B provides more results for reasonable alternative assumptions to the central case presented in this report.

Box 1.4: What happens if there is an economic shock?

Long-term economic projections present one possible outcome based on a set of well-informed projections and assumptions about future changes in Australia's population, workforce participation and productivity.

Australia's current long-run average growth rate includes the period of strong productivity growth following the reforms of the 1980s and 1990s. We should not take for granted that this experience will be repeated, particularly in the absence of a reinvigorated structural reform effort.

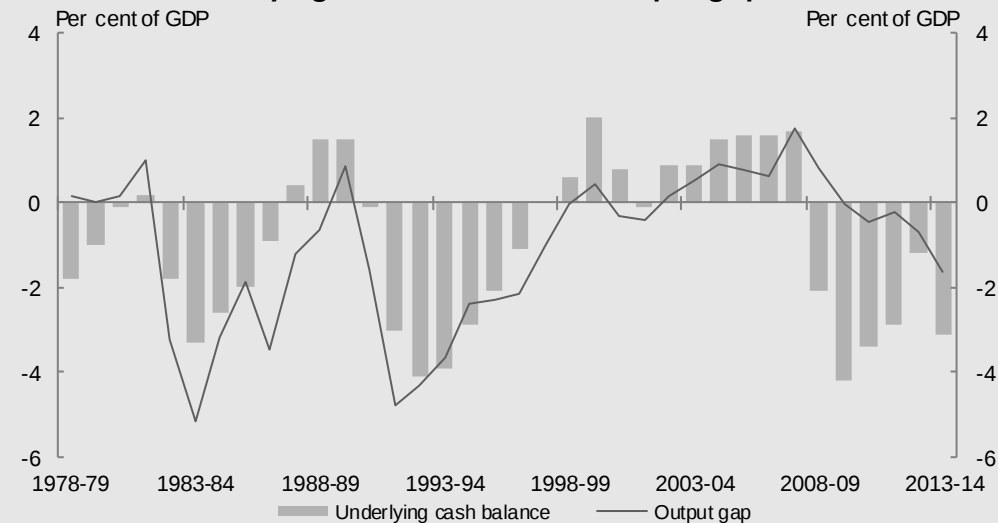
If history is any guide, it is almost certain that any economy will experience business cycles and shocks over a 40 year time horizon.

When downturns strike the first sign is flagging demand and weakening sales. Capacity utilisation falls as businesses produce less, employ fewer people and delay investment plans. This produces downward pressure on prices and wages growth. Governments tend to collect less in taxes and pay out more in benefits (the so called automatic stabiliser effects), and the result is a deterioration in the budget balance. As the budget position is weaker, and this is typically sustained over several years, this flows through to higher debt levels.

While the economy will recover to its trend real GDP path and full employment over the long run, the pre-downturn trajectory of nominal GDP may never be fully attained if there are long-lasting impacts on domestic prices. There may also be long-lasting changes to the budget position, in particular the level of debt.

Chart 1.25 highlights the persistent and significant impacts that the recessions of the 1980s and 1990s had on Government budgets. In the early 1990s the underlying cash balance moved from a surplus of 1.5 per cent of GDP to a deficit of 4.1 per cent of GDP. Net debt rose from 4.0 per cent of GDP to a peak of 18.1 per cent of GDP. As the chart highlights, deterioration in the deficit due to a recession tends to be swift, while repair of the budget is more protracted and requires sustained spending discipline.

Chart 1.25 Underlying cash balance and output gap



Source: ABS Cat. No. 5206.0 and Treasury

1.5 Managing the environment

There are many pressures affecting our environment, particularly water and land resources, which may impact the environmental endowment that we leave future generations. The environmental changes that unfold over the next 40 years will affect Australians' quality of life across a range of dimensions. Over-used, damaged or depleted resources could reduce Australians' well-being and the ability of future generations to rely on the environment for economic activity.

Achieving strong economic growth and strong environmental outcomes are complementary objectives. Policies that create strong economic growth and a sustainable budget will mean that government is better placed to invest in environmental protection. More broadly, domestic and international experience shows that as real per capita incomes rise people are more willing not only to devote more resources to environmental improvement, but actually a growing share of their higher incomes.

Conversely, protecting the environment can also contribute to economic growth, particularly in certain sectors. For example, an improved environment can boost opportunities for tourism, while appropriate and sustainable management of fisheries can enhance the long-term health of the fishing industry.

The Government has structured its environmental management under four key pillars — clean water, clean land, clean air and heritage protection — to improve the quality of Australia's environment for future generations.

Clean water

Water is and will continue to be a vital resource in Australia. Australia is one of the driest continents on earth and has large natural variations in inland water flows. Historically, high levels of water extraction from our rivers have compounded the effects of natural variations in water flows and made water management an increasingly important part of environmental policy.

The pressure on Australia's water resources has been most acutely felt in southern Australia, where measures show that water quality has declined as flow declined. Northern Australian and Tasmanian inland water environments, on the other hand, have faced water pressures because of substantial water extraction in specific areas for hydro-electric power.

With regard to water management policy, significant agreement has been reached to address past over-allocation of water resources. The Murray Darling Basin Plan provides an essential framework for managing water use across the Murray Darling Basin in Queensland, NSW, Victoria, South Australia and the ACT for future generations. The Murray Darling Basin Plan provides greater certainty to businesses and communities and aims to achieve a balance between economic, environmental and social considerations. For these benefits to be achieved, it will be important that the Murray Darling Basin Plan withstands the test of time, including future droughts.

Future generations will benefit from actions taken now to ensure that our water resources are maintained and well managed. This includes ensuring human activity does not result in damage to, or overuse of, our water systems or harm the productive capacity of our resources.

A significant challenge over coming decades will be the protection of the Great Barrier Reef. The Great Barrier Reef supports nearly 70,000 jobs and is worth \$5.6 billion a year to the economy.⁵ While it remains the best managed marine ecosystem in the world, it is facing threats, including from climate change. A growing population with rising per capita incomes, as well as expanding tourist numbers, will require careful policy management to support economic development in the region whilst minimising

5 Great Barrier Reef Outlook Report 2014.

the environmental impact. Recent initiatives in this space include ending the disposal of capital dredge material for ports in the marine park: five major projects for disposal in the park have been cut to nil and this has been further backed by regulation to ban future disposal in the marine park.

Water quality in the World Heritage Area is improving as a result of a partnership between farmers and governments to reduce the amount of fertilisers, chemicals and sediments running off farming land. This has seen a 28 per cent reduction in pesticides, 11 per cent reduction in sediment and 16 per cent reduction in dissolved inorganic nitrogen.⁶ Improved water quality is one of the most effective ways to improve the Reef's resilience, including against climate change.

The Australian Government is committed to making strong decisions in managing the Great Barrier Reef and, along with Queensland, is investing \$2 billion for its protection over the next decade.

The Australian and Queensland governments' comprehensive strategic assessment of the Great Barrier Reef World Heritage Area and adjacent coastal zone was the most complex and comprehensive analysis of and blueprint for environmental management arrangements ever undertaken in Australia. The Reef 2050 Long-Term Sustainability Plan builds on that work. The Plan has been developed in partnership with stakeholders including environmental representatives, the tourism industry and the fishing industry.

Clean land

It is important that Australia employs effective land management policies to ensure the preservation and improvement of this essential natural resource.

Australia is a continent of significant land mass with climatic zones which vary considerably. Our land resources are used for a range of purposes including livestock grazing, agriculture, forestry, urban development and nature conservation. Past practices from these various uses have had significant impacts on Australia's land resources. For example, pastoral and agricultural land use has sometimes degraded soil structure and water infiltration, and depleted soils of carbon and nutrients.

Whilst there have been improvements in land management in Australia in recent decades, more can and is being done to ensure that the productive capacity of pastoral and agricultural land is maintained for future generations and that protected areas effectively conserve Australia's unique biodiversity (Box 1.5).

⁶ Great Barrier Reef Report Card 2012 and 2013 — detailed results, Australian and Queensland governments.

Box 1.5: Biodiversity and land management

A major biodiversity initiative is the Government's appointment of Australia's first Threatened Species Commissioner. The Commissioner is tasked with bringing a national focus to conservation efforts for Australia's endangered native flora and fauna and developing a plan of priority actions to prevent extinctions and halt the decline of Australia's most threatened species. Efforts will be supported by the Government's \$30 million investment in a new Threatened Species Recovery research hub, under the National Environmental Science Programme (NESP).

On the land, programs with investments of more than \$2 billion are being rolled out to engage individuals and communities in work on the ground, exploiting the local knowledge and commitment of those who know their land best.

A key component is a single National Landcare Programme committed to supporting action in natural resource management. This Programme is based on three important values: simple, local and long-term.

Through the National Landcare Programme the Government funds actions to tackle weed and feral animal threats, restore and link habitat, manage fire regimes and protect wildlife.

Working alongside the National Landcare Programme is the Government's Green Army, which is funded to support environmental improvements each year such as revegetation, weed removal and habitat restoration. The Green Army will be a significant environmental resource to deploy across the country and is already making significant and lasting improvements to our environment.

As Australia's population grows, careful land management planning and strategies will be required to mitigate the risk of biodiversity loss. Greater links between conservation and protected areas, national parks and private lands could provide corridors through which native flora and fauna can travel in response to changing habitats.

Close cooperation between federal, state and local governments will also be essential. The introduction of One Stop Shops for environmental approvals will see the start of a new era of cooperation between states and the Australian Government on environmental regulation. Responsibilities for environmental regulation will be consolidated and roles for respective parties will be clearer. This will help ensure that issues do not fall through gaps between the Australian Government and state systems and that high environmental standards are maintained while delivering a more efficient system which will also provide for enhanced monitoring of environmental outcomes over the longer term.

Clean air

The Government's Clean Air Plan incorporates strategies both to address climate change and to reduce air pollution. The strategies to address climate change are discussed further in Section 1.5.4, below. The second focus of the Government's Clean Air pillar is the objective of achieving a National Clean Air Agreement.

Particulate and ozone pollution continue to be a concern and increasing urbanisation and population growth will only add to these problems.

A National Clean Air Agreement will lay the groundwork for improvements in Australia's air quality and for responding to emerging air quality issues over the coming decades. The Government has secured the agreement of all states and territories to work towards a National Clean Air Agreement by mid-2016.

Heritage protection and Antarctica

Australia is acknowledged internationally as a leader in heritage protection but more can be done to ensure our historic, natural and indigenous heritage is well-managed and conserved for future generations.

Australia has been a leader in the exploration and conservation of Antarctica for more than a century and asserts sovereignty over 42 per cent of the Antarctic continent. To strengthen and support our role in the region over the coming decades, the Government has released an independent 20-Year Australian Antarctic Strategic Plan. This Plan critically assesses Australia's national and environmental interests in Antarctica and the Southern Ocean and makes recommendations on how Australia can remain a leading Antarctic nation.

The Government has already taken several steps to secure our future engagement with Antarctica. These include: budgeting for and undertaking the procurement of a new world-class icebreaker, to replace the 'Aurora Australis', which will serve the country for the next three decades; and investing \$87 million in Tasmania under the Government's Economic Growth Plan for Tasmania to build on its status as a leading gateway city to east Antarctica. Specific measures include investing further in science to develop a greater knowledge of the impacts of climate change on Antarctica and the Southern Ocean.

1.5.3 Budgetary implications

The Commonwealth's budget is impacted by the environment and climate. Commonwealth Government spending on environment protection is allocated to protection and conservation of the environment, water and waste management, pollution abatement and environmental research. The budget also has other spending

programs and taxation arrangements that are affected by the environment and climate (for example, drought relief programs).

This intergenerational report focuses primarily on government expenses that are affected by demographic change. The level of Commonwealth Government spending on the environment is not directly linked with demographic factors. Commonwealth environment programs do not vary automatically with population changes. This differs to other expenses, such as transfer payments, health and aged care, where demographic change more directly affects the level of government spending.

Nevertheless, there are costs associated with changes in the environment and climate. The Government is already making significant investments to mitigate the impact of climate change including the \$2.55 billion Emissions Reduction Fund (ERF), along with major investments to support biodiversity and, in particular, the Great Barrier Reef.

1.5.4 Climate change

Australia will meet its Kyoto target for 2020 and will join with the international community to establish post 2020 targets with the aim of reducing global greenhouse gas emissions. The international community has agreed to aim to keep global warming to a less than 2°C increase above pre-industrial climate levels.

The Government has committed to reducing Australia's domestic emissions by 5 per cent below 2000 levels by 2020 through its \$2.55 billion ERF.

The ERF will provide incentives for cleaning up Australia's environment through activities such as revegetation, investing in soil carbon, increasing industrial and commercial building energy efficiency, cleaning up power stations and capturing gas from the millions of tonnes of waste deposited in our cities' landfills each year.

This will reduce Australia's emissions through direct investment in projects that improve the environment and increase productivity. By achieving verified domestic emissions reductions through incentives, the ERF will avoid achieving such reductions simply by driving domestic production offshore — a process which would cost Australian jobs for no decrease in global emissions.

The ERF will also achieve other direct environmental and economic benefits, beyond its role in reducing greenhouse gas emissions. For example, improvements in energy efficiency can reduce emissions while boosting productivity for a range of businesses.

The Government will also introduce a safeguards mechanism to complement the ERF. The safeguards mechanism will ensure that emissions reductions paid for by the ERF are not displaced by a significant rise in emissions elsewhere in the economy.

The ERF and safeguards mechanism align with actions being taken internationally (Box 1.6).

Box 1.6: International approaches

There is no one-size-fits-all way to reduce emissions and around the world governments are choosing approaches that best suit their national circumstances, in keeping with the Government's Direct Action approach.

Many of the approaches used in jurisdictions overseas have features in common with the ERF. These include incentive-based measures that reward positive action like baseline and credit schemes, and direct purchasing. Energy efficiency, emissions standards and direct support for investment in better practices and technologies are other approaches. For example:

- Japan is establishing its Joint Crediting Mechanism to help meet emissions reduction targets by purchasing direct emissions reductions and funding low-carbon technology diffusion through bilateral agreements with developing countries.
- In California, about 16 million offset credits have been issued for emissions reductions from projects such as the destruction of ozone depleting substances, under the framework of California's climate change response legislation.

Energy efficiency measures are widely used to reduce greenhouse gas emissions. In the United Kingdom, all new homes built from 2016 will need to have zero emissions for heating, hot water, cooling and lighting. Under the Korean Target Management Scheme, around 500 large emitting entities are required to meet energy efficiency targets. There are energy intensity and efficiency schemes in countries such as China, India, Indonesia, Japan, New Zealand, Thailand, Turkey and the United States. New Zealand has an economy-wide energy intensity improvement target of 1.3 per cent annually to 2016.

Box 1.7: Summary of the state of the climate 2014

Data and analysis released by the Bureau of Meteorology (BOM) and Commonwealth Scientific and Industrial Research Organisation (CSIRO) shows that:

- Australia's climate has warmed by 0.9°C since 1910, and the frequency of extreme weather has changed.
- Rainfall averaged across Australia has slightly increased since 1900, with the largest increases in the northwest since 1970.
- Rainfall has declined since 1970 in the southwest. Autumn and early winter rainfall has mostly been below average in the southeast since 1990.
- Extreme fire weather has increased, and the fire season has lengthened, across large parts of Australia since the 1970s.
- Global mean temperature has risen by 0.85°C from 1880 to 2012.

Average rainfall in southern Australia is projected to decrease and heavy rainfall is projected to increase over most parts of Australia.

Research

Governments must continue to plan for the potential economic and environmental effects of climate change. Some economic effects may be beneficial — where regions become warmer or wetter this may allow for increased agricultural output — while others may be harmful. For example, lower rainfall may reduce crop yields, or transport infrastructure (such as roads, ports and rail networks) may become more susceptible to damage from extreme weather events.

To inform and support action on this issue, the Government has committed \$9 million over three years to re-fund the National Climate Change Adaptation Research Facility (NCCARF). NCCARF will provide decision-makers, including state and local governments, with advice and guidance on assessing and responding to the risks associated with climate change. Particular emphasis will be placed on responding to risk in Australia's coastal zone.

Under the new NESP, more than \$23 million over six years has also been allocated to an Earth Systems research hub to improve our understanding of how the climate system may change in the future.

This research hub will be led by the CSIRO, in partnership with the BOM and several Australian universities, and will build on the knowledge and expertise developed under the National Climate Change Science Programme.

1.5.5 The way forward

National environmental governance is shared among the three levels of government (Commonwealth, state and local), households, businesses and the community sector. There is a role for the Commonwealth in leading and coordinating environmental policies to drive better environmental management for the generations to come.

In many areas, the Commonwealth is already implementing policies with a long-term objective. Nonetheless, some environmental challenges and opportunities are not defined by state or international borders. These challenges will require cooperation from all levels of Government, business and the community.

Chapter 2: Government budgets over the next 40 years

Key facts box

- The Australian Government is currently spending over \$100 million a day more than it collects, and is borrowing to meet the shortfall.
- Under the 'previous policy' scenario, by 2054-55, the underlying cash deficit is projected to have reached 11.7 per cent of gross domestic product (GDP) (\$532.8 billion in today's dollars). However, considerable progress has been made under the 'currently legislated' scenario with the underlying cash deficit projected to almost halve to around 6 per cent of GDP (\$266.7 billion in today's dollars).
- The 'proposed policy' scenario projects the underlying cash balance to improve further, from a deficit of 2.5 per cent of GDP in 2014-15 to a sustained surplus from 2019-20 to the end of the reporting period.
- Under the 'previous policy' scenario by 2054-55, net debt is projected to reach 122 per cent of GDP (or \$5,559 billion in today's dollars). The 'currently legislated' scenario projects that net debt would more than halve to 60 per cent of GDP (or \$2,609 billion in today's dollars).
- If the 'proposed policy' scenario were to eventuate, net debt would decline from 15.2 per cent of GDP in 2014-15 to be zero by 2031-32 after which the Australian Government is projected to begin accumulating assets utilising projected underlying cash surpluses. This is the first intergenerational report to project that, based on current government policy, Australian taxpayers will not be carrying a significant debt burden.
- The debt levels in both the 'previous policy' and 'currently legislated' scenarios would negatively impact economic growth, waste significant resources on interest payments, and leave Australia exposed in the event of an economic downturn.
- In contrast, the 'proposed policy' scenario would afford scope for future governments to reduce taxes and/or make productivity enhancing investments and improve the resilience of the budget to future economic shocks.

2.1 Projections of the overall budget position

The 2014-15 Mid-Year Economic and Fiscal Outlook (MYEFO) provides the starting point for the fiscal projections contained in this report. It estimates that in 2014-15 the underlying cash deficit will be \$40.4 billion (2.5 per cent of GDP) and net debt will reach \$245 billion (15.2 per cent of GDP). From this base, this report contains fiscal projections under three key scenarios to illustrate the long-term sustainability of alternative policy settings.

The first scenario, '**previous policy**', shows a set of fiscal projections associated with the set of policies in place prior to the 2014-15 Budget. Under this scenario, the underlying cash deficit would reach 11.7 per cent of GDP (\$532.8 billion in today's dollars) and net debt would reach almost 122 per cent of GDP (\$5,559 billion in today's dollars).

The second scenario, '**currently legislated**', shows a set of fiscal projections on the basis of laws currently passed by Parliament, given a range of policies of the current Government remain unimplemented. Under this scenario, the underlying cash balance is projected to remain in deficit, deteriorating to almost 6 per cent of GDP by 2054-55 (\$266.7 billion in today's dollars). Net debt is projected to reach almost 60 per cent of GDP (\$2,609 billion in today's dollars) by the end of the projection period. The 'currently legislated' scenario shows that the budget position is stronger than it would have been prior to the changes made from the 2014-15 Budget onwards.

The first two scenarios show an unequivocal deterioration in fiscal sustainability. And both of these scenarios assume a further 40 years of unbroken economic growth.

The third scenario, '**proposed policy**', shows what would happen if the outstanding unlegislated measures, or alternative measures of equivalent value, are implemented. This scenario follows the usual practice of projecting fiscal aggregates based on the full implementation of the policies of the Government of the day, and the Charter of Budget Honesty Act 1998 requirement that the Intergenerational Report model current government policy. This scenario presents fiscal projections on the basis of announced policy (as taken to the 2014-15 MYEFO), and assumes all outstanding measures are implemented. These measures would make a significant contribution to reducing fiscal pressures over the longer term by addressing the unsustainable rates of growth in expenditure and government debt. Such an improvement increases governments' capacity to respond to the challenges of coming decades, in particular the ageing population and the changing domestic and global economic environment.

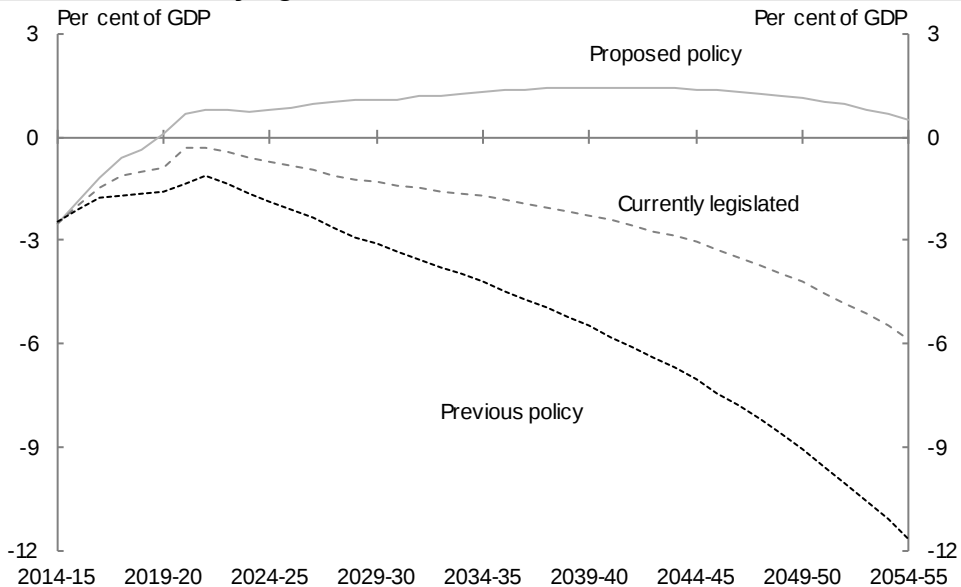
This scenario projects the underlying cash balance to improve from a deficit of 2.5 per cent of GDP in 2014-15 to a surplus of 1.4 per cent of GDP in 2039-40, and then moderate to a surplus of around 0.5 per cent of GDP in 2054-55 (\$24.3 billion in today's dollars). Net debt is projected to decline from 15.2 per cent of GDP in 2014-15, to around 0 per cent by 2031-32, before declining further to 15 per cent negative net debt in 2054-55 (that is, \$691 billion more in assets than debt in today's dollars). This

fundamentally stronger budget position would allow the government to provide future tax relief, or make productivity-enhancing investments, rather than accrue substantial financial assets.

2.1.1 Underlying cash balance

The underlying cash balance shows the difference between the cash receipts of the Australian Government and cash expenditure (excluding the net purchases of financial assets).

Chart 2.1 Underlying cash balance



Note: Net Future Fund earnings are included in projections of the underlying cash balance from 2020-21.
Source: Treasury projections. Projections assume trend economic growth from 2021-22 to 2054-55.

Under the 'previous policy' scenario, the projected underlying cash deficit would have reached 11.7 per cent of GDP (\$532.8 billion in today's dollars) by the end of the projection period (Chart 2.1).

Under the 'currently legislated' scenario considerable progress has been made to repair the budget. This scenario projects the underlying cash deficit almost halving to 5.8 per cent of GDP in 2054-55 (\$266.7 billion in today's dollars).

If no changes were made to payment levels under this scenario, taxes would need to rise to and remain at a sustained level of around 26 per cent of GDP to balance the budget. The previous historic high for tax receipts to GDP was 24.2 per cent of GDP. This level of taxation would significantly reduce the real rewards for effort over time by tax payers — discouraging workforce participation and investment, and depressing economic growth.

Balancing the budget under the 'previous policy' scenario would require taxes to rise even further to a sustained level of around 28 per cent of GDP.

The 'proposed policy' scenario shows the underlying cash deficit is projected to improve significantly over the next decade, and reach a maximum surplus of 1.4 per cent of GDP in 2039-40. By 2054-55, the surplus is projected to be 0.5 per cent of GDP (\$24.3 billion in today's dollars). This strong budget position would offer the Government the fiscal space to prudently allow for future tax relief, over and above the relief from the negative impacts of income tax bracket creep on workforce participation already allowed for.⁷

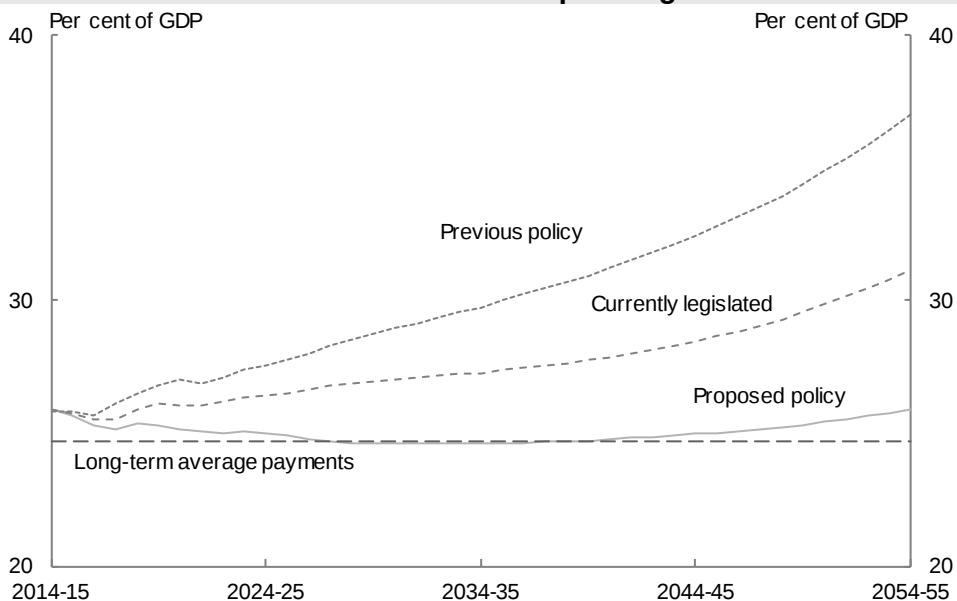
⁷ All scenarios assume that taxes will not grow to exceed 23.9 per cent of GDP. This is the average ratio of the years following the introduction of the GST and prior to the Global Financial Crisis (from 2000-01 to 2007-08 inclusive).

Under the 'previous policy' scenario Australian Government spending is projected to reach 37.0 per cent of GDP in 2054-55 (\$1,687 billion in today's dollars) and average 3.6 per cent real annual growth (Chart 2.2).

However, these levels of projected spending have been reduced, and under the 'currently legislated' scenario real spending growth is projected to average 3.1 per cent per annum, leading to Australian Government spending of 31.2 per cent of GDP in 2054-55 (\$1,422 billion in today's dollars). In both scenarios, projected spending as a proportion of GDP is dramatically higher than the post-World War II high of 27.6 per cent of GDP.

Under the 'proposed policy' scenario, total spending is projected to reach 25.9 per cent of GDP in 2054-55 (\$1,197 billion in today's dollars), broadly similar to current levels, with real spending projected to grow at an average rate of 2.7 per cent per annum.

Chart 2.2 Total Australian Government spending



Notes: The long-term average payments-to-GDP ratio is 24.7 per cent of GDP, calculated over a 40 year period from 1974-75 to 2013-14.

Source: Treasury projections. Projections assume trend economic growth from 2021-22 to 2054-55.

Box 2.1: Fiscal strategy in the medium to long term

The Government's medium-term fiscal strategy is to achieve budget surpluses, on average, over the course of the economic cycle. The fiscal strategy includes a commitment to paying down debt by maintaining strong fiscal discipline during relatively good times. This will provide greater flexibility for supportive fiscal policy, if needed, in the event of an economic downturn.

Projections in this report assume that the economy returns to full employment over the next seven years and then remains at full employment over the remainder of the projection period. These are simplifying assumptions. In reality, Australia's output and employment may not always be equal to its potential. There is more scope for the economy to fall below full capacity for extended periods than to exceed full capacity, implying that risks around the projected fiscal outlook are asymmetric. Given this asymmetry, a responsible approach would be to aim for precautionary surpluses over the cycle. This approach would also mitigate constraints on the use of fiscal policy in a future downturn.

A strong fiscal position is important for mitigating external vulnerabilities, reducing longer term fiscal pressures by reducing interest payments and government debt, and providing some insurance against risks, such as funding risks and contingent liabilities. Australia's reliance on external borrowing increases the importance of maintaining a strong fiscal position, including relative to most other advanced economies. This approach enables flexibility and avoids the unenviable policy choices that arise when access to international credit markets is lost or impaired.

Determining the optimal amount of fiscal flexibility is difficult. Economic cycles do not follow a regular pattern, but depend on exogenous shocks affecting the economy and any build-up of internal imbalances. The impacts of a downturn will also depend on the nature of the policy response and the monetary and fiscal policy mix. Although we cannot predict such events, a prudent approach is to plan for contingencies, informed by experience over previous cycles.

Past experience suggests that economic downturns occur roughly every decade. In considering the likelihood and magnitude of possible deficits it is also relevant that downturns have, in the past, led to cumulative deficits of over 10 per cent of GDP. This would suggest that a responsible approach would be to aim for budget surpluses of around 1 per cent of GDP, on average, over the cycle.

2.1.2 Primary balance

The primary balance is an important measure of fiscal sustainability. The primary balance includes the same expenditure and receipts as the underlying cash balance, but excludes net interest payments and earnings from the Future Fund — that is,

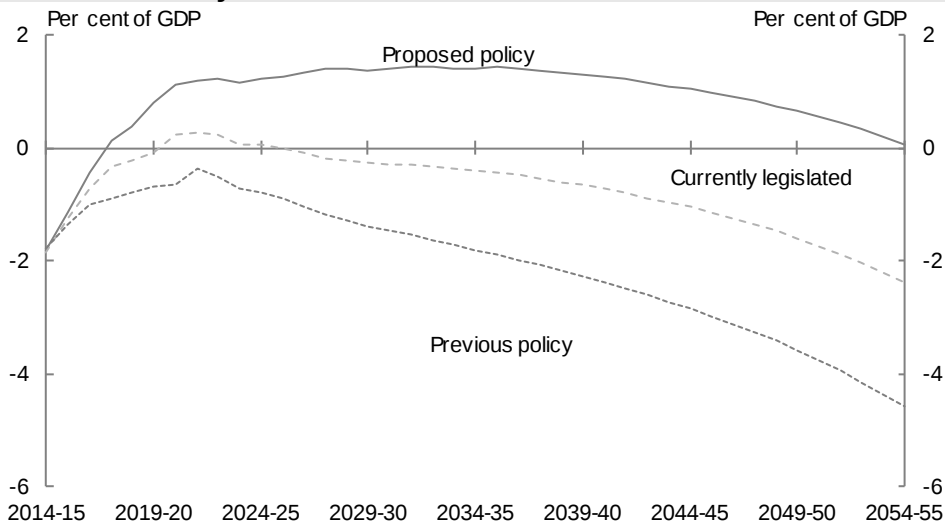
balance sheet impacts from prior year surpluses and deficits. In doing so, the primary balance reveals underlying spending pressures in a particular year.

Under the 'previous policy' scenario the primary balance is projected to deteriorate to a deficit of 4.6 per cent of GDP (\$209.2 billion in today's dollars) in 2054-55 (Chart 2.3).

Under the 'currently legislated' scenario, the primary balance is projected to improve over the next five years, before returning to deficit around 2026-27 and then continuing to deteriorate, reaching a deficit of 2.4 per cent of GDP (\$109.1 billion in today's dollars) at the end of the projection period.

The primary balance is projected to rise to a surplus of 1.4 per cent of GDP in 2035-36 under the 'proposed policy' scenario and then fall gradually to around 0 per cent of GDP by 2054-55. The difference of 0.5 per cent of GDP between the primary and underlying cash balances reflects the exclusion of net interest earnings.

Chart 2.3 Primary cash balance



Note: The projections are of the primary cash balance (which excludes net interest payments and net Future Fund earnings).

Source: Treasury projections. Projections assume trend economic growth from 2021-22 to 2054-55.

2.1.3 Balance sheet

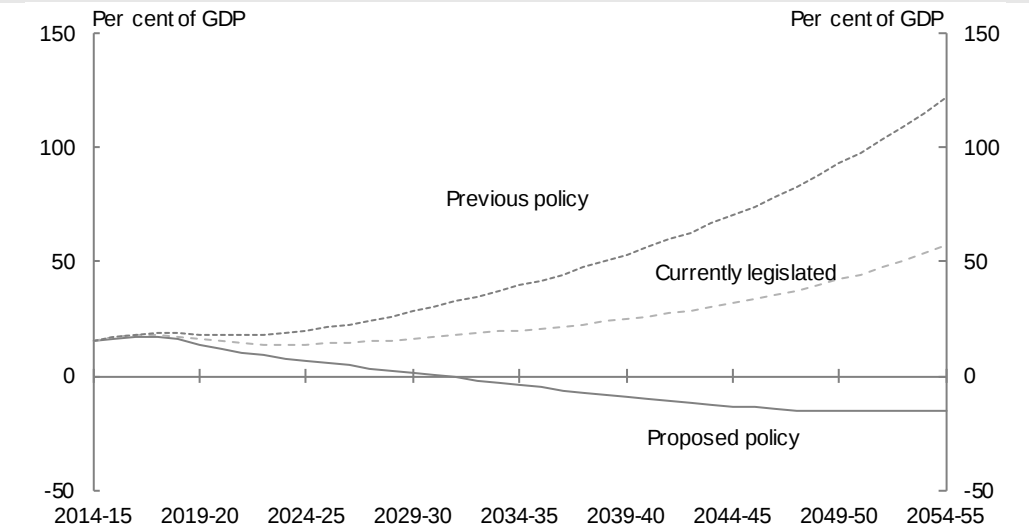
The balance sheet shows how the assets and liabilities of the Australian Government are likely to change over the next 40 years. The balance sheet provides a further assessment of the sustainability of Australian Government finances. A strong fiscal position means that the Government can reduce debt and build up assets over time to meet accumulated liabilities and avoid future spending pressures.

Net debt

Under the ‘previous policy’ scenario, net debt is projected to reach 122 per cent of GDP in 2054-55. This represents \$5,559 billion in today’s dollars and is equal to \$139,900 per person (Chart 2.4).

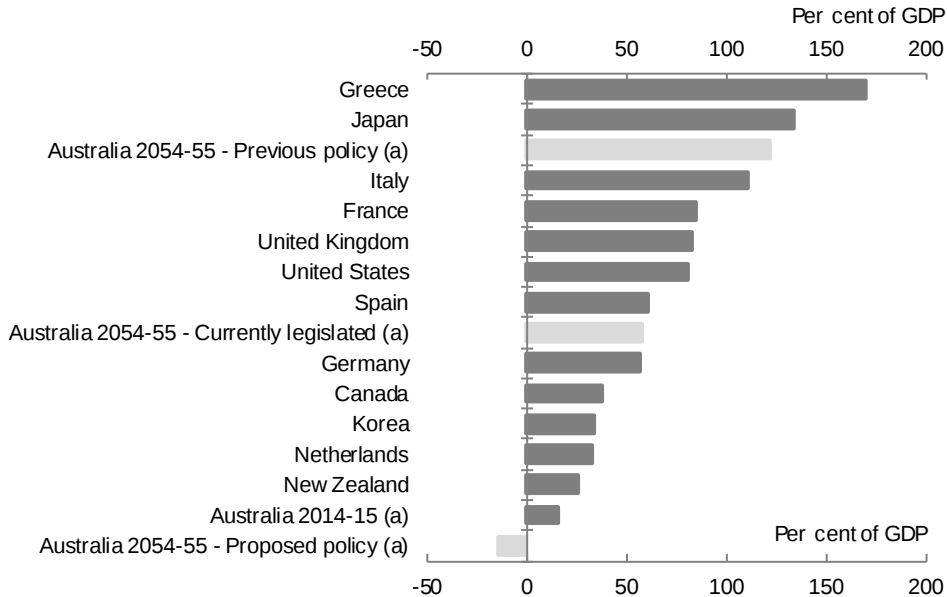
The projected level of Australian Government debt is significantly improved under the ‘currently legislated’ scenario. Net debt is projected to reach 57.2 per cent of GDP in 2054-55 (\$2,609 billion in today’s dollars) under the ‘currently legislated’ scenario. Net debt per person is projected to rise from \$10,400 in 2014-15 to \$65,600 in today’s dollars by the end of the projection period.

Chart 2.4 Net debt



Note: The projections of net debt include net interest payments.
Source: Treasury projections. Projections assume trend economic growth from 2021-22 to 2054-55.

In contrast to the first two scenarios, net debt is projected to decline from 15.2 per cent of GDP in 2014-15 to around 0 per cent of GDP by 2031-32 under the ‘proposed policy’ scenario. After this point, net debt improves further, to reach around 15.0 per cent negative net debt in 2054-55 (that is, \$691 billion more in assets than debt in today’s dollars). Net debt per person is projected to fall from around \$10,200 in 2014-15 to be fully paid off in 2031-32, and assets continue to build thereafter to negative net debt of \$17,400 in 2054-55 in today’s dollars. Rather than continue to build up significant net financial assets, this degree of balance sheet improvement would afford significant scope for future governments to adjust policy to provide tax relief, or make productivity-enhancing investments.

Chart 2.5 Net debt — international comparison

Note: For cross-country comparability, net debt levels reported by national statistical agencies for countries that have adopted the 2008 System of National Accounts (Australia, Canada, and the United States) are adjusted to exclude unfunded pension liabilities of government employees' defined benefit pension plans.

(a) Commonwealth general government net debt only; does not include net debt of states and territories.

Source: Treasury projections for Australia, IMF World Economic Outlook (October 2014) estimates for 2013 for all other countries.

Australia's net debt is currently lower compared to many other developed countries (Chart 2.5). Under the 'previous policy' scenario net debt in 2054-55 would be higher than most countries today. In contrast, the proposed policy scenario projects a dramatically improved position with negative net debt.

This negative net debt position (that is, more assets than debt) stems from the purchase of additional financial assets from underlying cash surpluses. The 'proposed policy' scenario projections for this report show the government building up substantial financial assets from around 2030-31. This implies that from that point the government would have a growing share of the economy held on its balance sheet.

This is the first Intergenerational Report to project a net debt position of zero or below by the end of the projection period. The projections also include allowance for future tax relief, with projections showing that the Government would have the fiscal space from the early 2020s under the 'proposed policy' scenario. This fiscal space means that the Government would be in a position to reduce taxes or otherwise adjust its fiscal parameters. It would likely make such an adjustment once net debt reaches around zero.

To some extent it makes sense to have some fiscal room, to allow for the economic shocks that might happen over the next 40 years. Between 2007-08 and the expected peak of net debt in 2016-17 the Australian Government's net debt is expected to have deteriorated by around 20 per cent of GDP. Recent international experience suggests that government debt levels can change rapidly as a result of economic shocks (Box 2.2).

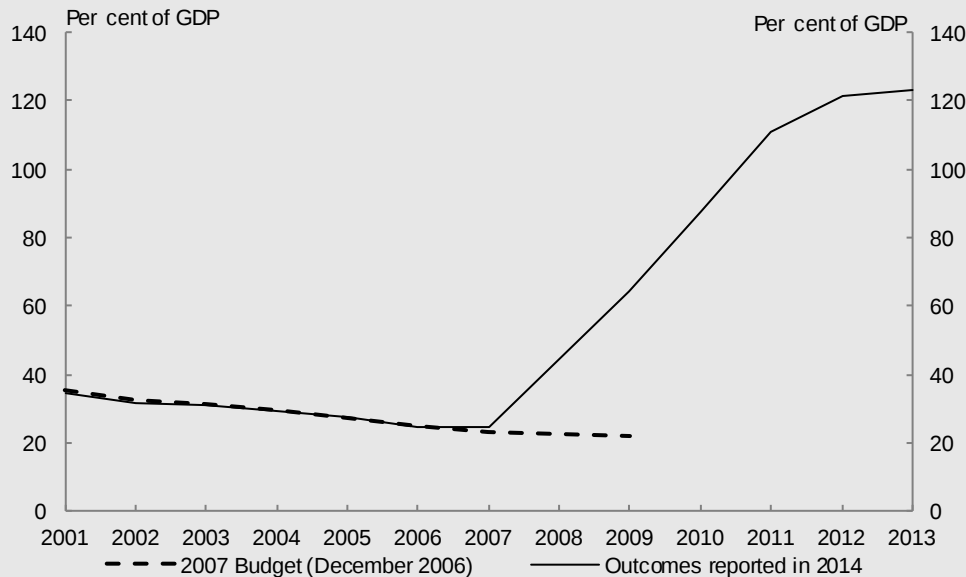
Box 2.2: Rapid debt increase in Ireland

In Ireland, gross debt was estimated at around 25.1 per cent of GDP in 2006 (Chart 2.6). The 2007 Budget, which was released in 2006, forecast that gross debt would decline across the forward estimates, falling to 21.9 per cent of GDP in 2009.

The onset of the Global Financial Crisis pushed the Irish economy into a recession and brought an end to its housing boom. Irish banks required substantial Government support, in turn increasing the public debt burden. This alongside a fall in revenues saw a rapid increase in Irish gross debt between 2008 and 2013. In contrast with the outlook presented in the 2007 Budget, the Irish Government recorded gross debt of 124 per cent of GDP in 2013.

Ireland's experience provides a cautionary warning for all governments. Government balance sheets can deteriorate rapidly in the face of large economic shocks, especially when public finances are exposed to contingent liabilities in the financial sector.

Chart 2.6 Irish gross debt expected at 2007 Budget and outcomes, 2001 to 2013



Note: Outcomes and projections for the financial year ending 31 December.
Source: Irish Department of Finance, Budgetary Statistics 2014; Irish Department of Finance, Budget 2007.

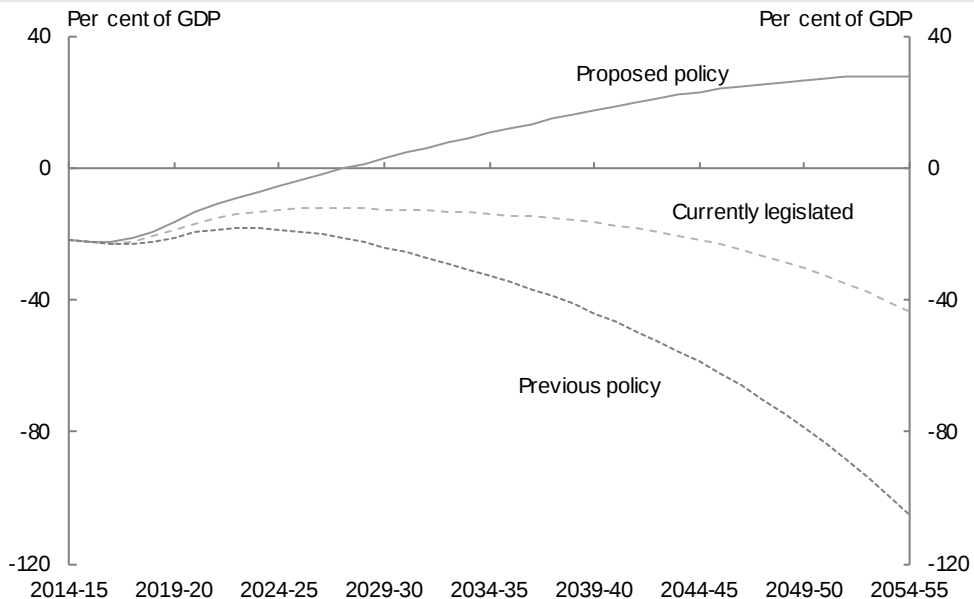
Net financial worth

Net financial worth measures the difference between the financial assets and financial liabilities of the Australian Government, and provides a broader indication of fiscal sustainability than net debt. This measure includes government borrowing as well as superannuation liabilities and all financial assets.

Under the 'previous policy' scenario, net financial worth is projected to deteriorate to negative 104.9 per cent of GDP in 2054-55 (-\$4,786 billion in today's dollars). This deterioration moderates markedly under the 'currently legislated' scenario, in which net financial worth is projected to be negative 43.4 per cent of GDP in 2054-55 (-\$1,980 billion in today's dollars) (Chart 2.7).

Net financial worth is projected to be substantially higher under the 'proposed policy' scenario, projected to reach 27.7 per cent of GDP in 2054-55 (\$1,279 billion in today's dollars).

Chart 2.7 Net financial worth



Source: Treasury projections. Projections assume trend economic growth from 2021-22 to 2054-55.

2.1.4 Sensitivity of the fiscal projections

Projections of fiscal aggregates are an estimate of the Government's future fiscal position given the current policy environment and projections of the population and economic aggregates. Projections are therefore sensitive to changes in underlying assumptions.

The economic projections assume that the economy returns to full employment over the next seven years and then remains at full employment over the remainder of the

projection period. These are simplifying assumptions. In reality, Australia's output and employment may not always be equal to its potential. Deterioration in the employment assumption would have a negative impact on the fiscal projections. In particular, actual growth outcomes that are lower than assumed in this report would have a negative impact on revenue collected by the Government, including tax receipts. This would lead to deterioration in the underlying cash balance and higher net debt.

Projections of fiscal aggregates are also affected by the projected levels of the various Australian Government payments. These payments are also sensitive to many of the underlying assumptions used. For instance:

- a higher than projected unemployment rate will result in higher Australian Government assistance to people of working age; and
- changes to demographic assumptions will have an impact on the projections of Australian Government health expenditure.

2.2 Government spending

This section contains more detailed projections of Australian Government spending in key areas based on the long-term demographic and economic growth trends outlined in Chapter 1, and other factors that are expected to affect spending. For the purpose of this section, total expenditure excludes interest payments, and reveals underlying spending pressures. Appendix A provides further details of the projections.

In 2014-15, around 55 per cent of Australian Government spending is directed to health, the National Disability Insurance Scheme (NDIS), aged care, pensions, payments to individuals, and education. These spending areas are sensitive to demographic change as spending is dependent on the size and age structure of the population. Other areas of spending — such as defence, official development assistance and infrastructure — are not linked explicitly to demographic factors and tend to be variable and highly dependent on discretionary government decisions (see Appendix C for further detail on modelling methodology).

In the coming decades, all levels of government will face growing fiscal pressures as the population ages and expectations for greater government support of ageing-related programs increase (Box 2.3).

Box 2.3: Age-related demand for government resources

The Australian population is projected to age significantly over the next 40 years. In this context, it is worth considering how patterns of consumption and labour income vary through the life cycle of education, work, and retirement.

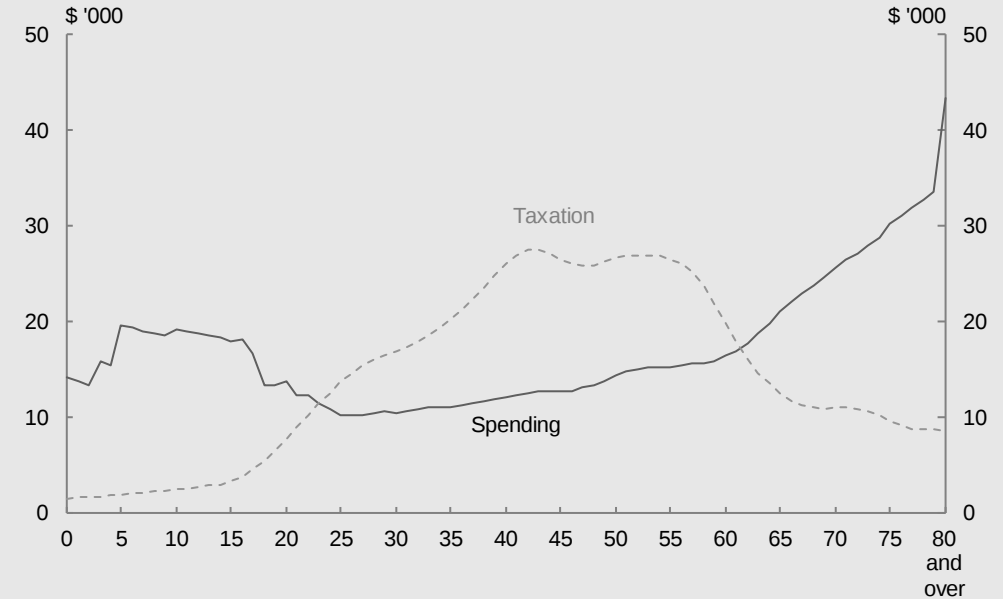
The value of total consumption of goods and services is relatively constant over an individual's life. Between age 25 and 58, this consumption, on average, can be more than funded through their labour income.

This age group also contributes more in taxes to government budgets than it receives in government funded goods and services (Chart 2.8). Outside these years, because individual income is not sufficient to fund demand for goods and services, some other source is needed: their own savings, transfers within households, or the government. These trends in consumption and income are not unique to Australia. The United States, Canada, Europe and Japan all exhibit similar patterns.

Government funds are not the only source available to bridge this gap between income and consumption for the very young or older cohorts. Private transfers and

asset income, from properties or capital, provide a significant contribution to funding the difference between consumption and income for these groups. Further, many people in older age groups continue to bring valuable skills and experience to the economy, which is evident in the recent trend of rising participation of those aged 65 and over.

Chart 2.8 Total government spending and taxes by age (2009-10)



Note: Total government refers to Australian Government and State and Territory governments.
Source: Rice, Temple and McDonald, 2013.

Public spending is relatively high for the young, as they are not yet in the workforce and are generally consuming education services. Public spending per person is highest beyond age 65, with a substantial increase for people aged 80 and over. The reason for this is two-fold. People aged 65 and over tend to scale down their participation in the workforce, for example, in favour of other activities such as volunteering, spending time with family or leisure activities. At the same time, demand for government-provided services and payments such as the Age Pension and aged care, tends to increase.

In the critical area of health services, population ageing is an important component of the trend for higher consumption, though non-demographic factors are also major drivers (see Box 2.4).

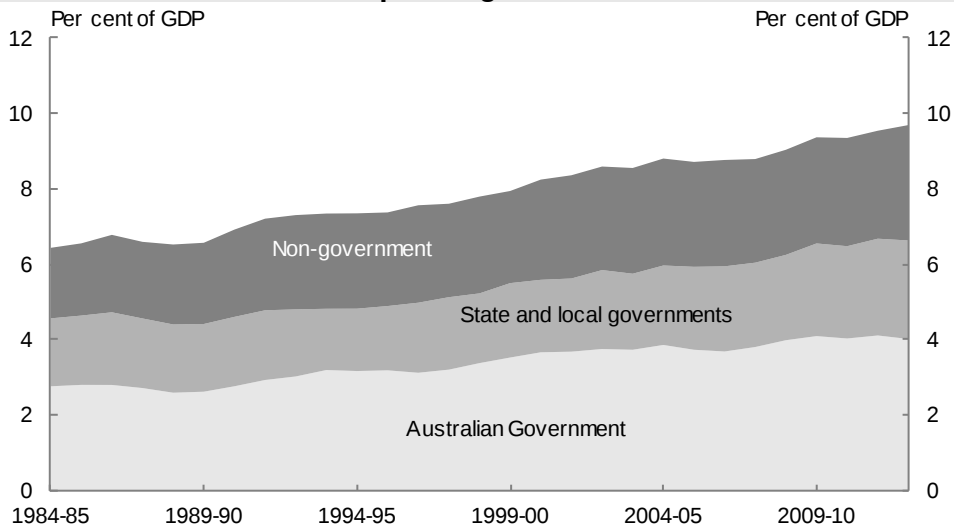
Under the 'currently legislated' scenario, government spending in a number of areas is projected to rise as a proportion of GDP. Despite the efforts made already to implement budget repair, spending pressures remain. The most significant spending pressures are increased spending on health, and age-related spending on aged care and pensions.

Even under the 'proposed policy' scenario — which reflects all of the Government's 2014-15 Budget measures to constrain expenditure growth — spending on health and aged care are projected to rise as a proportion of GDP.

2.2.1 Health spending

In 2012-13, the Australian Government provided around 41 per cent of total health spending and was the major source of public funds for health. State and local governments contributed 27 per cent, and private contributions made up the remaining 32 per cent (Chart 2.9).

Chart 2.9 Historical health spending



Source: Australian Institute of Health and Welfare health spending database.

The key drivers of growth in real per person health spending over the past two decades have been non-demographic factors such as rising income, wage costs in the sector, changes in disease rates, and technological change. Demographic factors such as population growth and the ageing of the population have had a smaller impact (see Box 2.4).

Australian Government health expenditure

The Australian Government provides funding for health services to improve the health and wellbeing of Australians, and to ensure access to timely, affordable and high-quality health care services.

Major health programmes funded by the Australian Government include the Medicare Benefits Schedule and the Pharmaceutical Benefits Scheme. The Australian Government also makes a major contribution to the funding of public hospital services

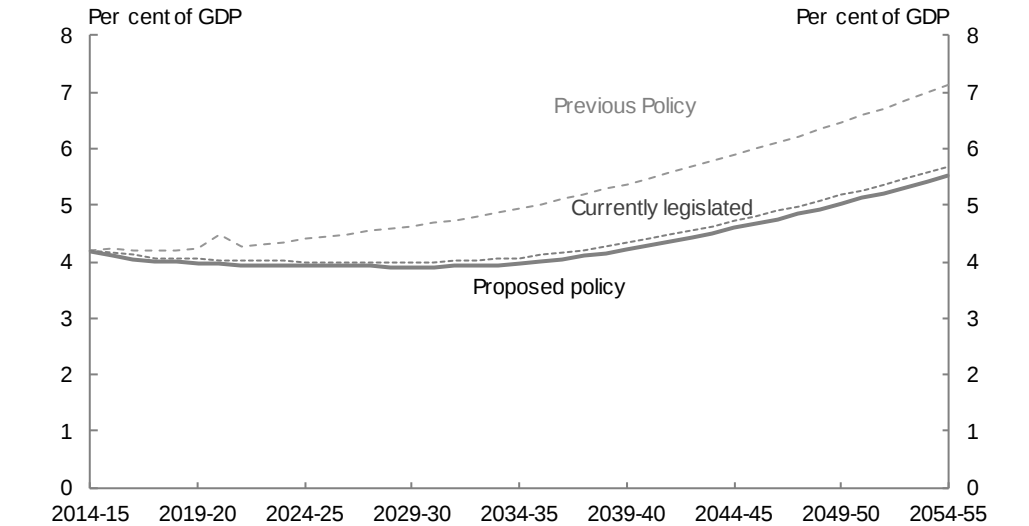
provided by State and Territory governments, subsidises the cost of private health insurance and provides financial support in other areas, including medical research, public health, Indigenous health services and medical workforce development; and provides health care services to veterans via White and Gold Card arrangements.

Under the ‘previous policy’ scenario Australian Government health expenditure was projected to rise to 7.1 per cent of GDP by 2054-55 (\$324 billion in today’s dollars) (Chart 2.10). Under this scenario real health spending per person, which was \$1,400 in 1984-85, would have risen to \$2,900 in 2014-15 and be expected to reach \$8,200 in 2054-55.

Under the ‘currently legislated’ scenario, Australian Government health expenditure is projected to increase as a proportion of GDP from 4.2 per cent in 2014-15 to 5.7 per cent of GDP in 2054-55 (\$260 billion in today’s dollars) (Chart 2.10). Under this scenario real health spending per person would be \$2,800 in 2014-15 and is expected to reach \$6,600 in 2054-55.

At the 2014-15 Budget and MYEFO, the Government made a number of decisions to improve the sustainability of health spending. Some of these announced measures remain unimplemented. Under the ‘proposed policy’ scenario health expenditure is projected to rise to 5.5 per cent of GDP in 2054-55 (\$255 billion in today’s dollars).

Chart 2.10 Australian Government health spending



Note: Under the ‘previous policy’ scenario, health spending in 2020-21 is significantly higher than in the adjacent years owing to guarantee payments under the National Health Reform Agreement.
Source: Treasury projections. Projections assume trend economic growth from 2021-22 to 2054-55.

In addition to Australian Government spending, the Government will invest health savings announced at the 2014-15 Budget and the 2014-15 MYEFO measure ‘A strong and sustainable Medicare’ into the Medical Research Future Fund until the

Fund reaches \$20 billion. The Fund will provide significant new funding to medical research and will facilitate Australia maintaining a world-class medical research sector.

Box 2.4: Drivers of health spending

The drivers of real growth in health spending can be split into demographic factors, such as population growth and the ageing of the population and other, non-demographic factors.

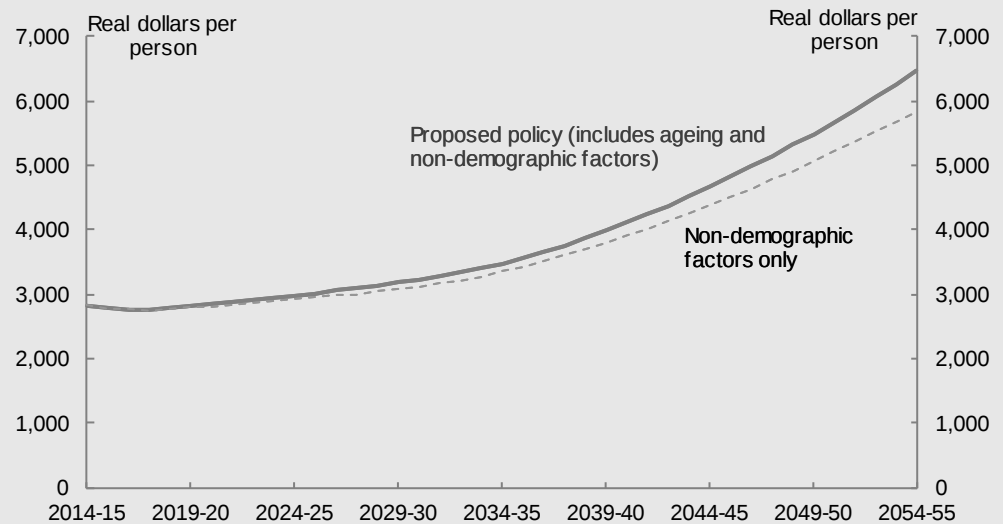
Non-demographic growth refers to increases in health spending that occur independently of changes to the size and age of the population. A number of different factors influence either, or both of, demand and price growth. They include:

- Higher incomes are associated with an increased preference of individuals and society to consume greater or higher quality health care services (see Appendix C).
- Wage growth, which generally rises faster than the consumer price index (CPI), leads to price growth in labour intensive health industries, including hospitals and publicly funded medical services.
- Changes in disease rates, in particular increased prevalence of chronic health conditions which increase demand for treatments.
- Technological change also has impacts on both the price of, and demand for, health services.
 - Some treatments that come on to the market are expensive, pushing up health expenditure.
 - New ways of treating a condition can also be more efficient, leading to lower prices.
 - New treatments such as keyhole surgeries often cause lower discomfort to the consumer than treatments previously available for the same condition. These treatments are therefore more popular and increase the demand for services.

Non-demographic factors are expected to be the largest contributor to growth in real per person health spending. Non-demographic factors on their own (in the absence of the effects of an ageing population) account for around 80 per cent of the projected increase in real expenditure per person.

While non-demographic factors are the biggest driver of growth in health spending, the ageing of the population will also contribute to increases. The impact of ageing on its own is expected to contribute around 10 per cent of the projected increase in real expenditure per person (Chart 2.11).

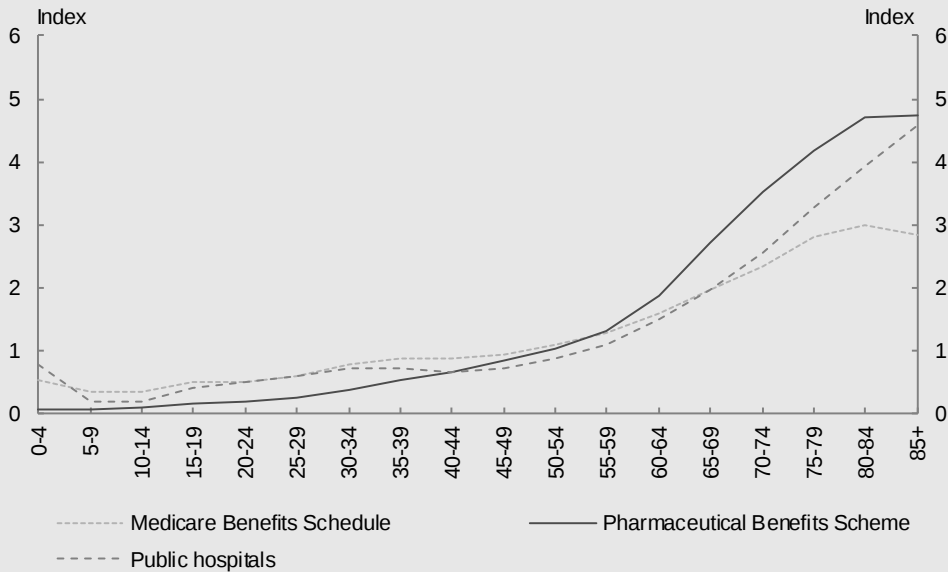
Chart 2.11 Australian Government health spending per person with and without ageing (real 2014-15 dollars)



Source: Treasury projections. Projections assume trend economic growth from 2021-22 to 2054-55.

In addition, the ageing of the population and non-demographic factors interact to accentuate their individual effects. For example, new medicines are more likely to be used by those who are already heavy users of the health system, often older people. This interaction effect contributes the remainder of the projected increase in real expenditure per person.

The impact of demographics on the Government's health spending projections is a result of the health care of older people costing substantially more than the average person across major health programmes (Chart 2.12). For instance, for both pharmaceutical benefits and public hospitals expenditure, spending on the average person aged 85 years and older is over four times the spending on the average person across all ages.

Chart 2.12 Australian Government health spending by program based on age

Note: Index of average cost per person in 2012-13 = 1.
 Source: Department of Health.

Components of Australian Government health spending

The major components of Australian Government health spending are projected individually for 10 years beyond the forward estimates, to 2027-28. Largely because of current policy settings for hospitals and private health insurance, it is projected that growth in Australian Government spending will be slower than projected in previous intergenerational reports, yet broadly keep pace with Australia's growing and ageing population.

During the period for which components are projected separately, from 2014-15 to 2027-28:

- **Medicare services** is projected to be the fastest growing component of health expenditure. In real terms, spending per person on Medicare services is projected to grow from \$855 in 2014-15 to \$1,071 in 2027-28 (in today's dollars). This is an increase of over 25 per cent in real spending per person.
- Real **pharmaceutical spending** per person is projected to grow from \$420 in 2014-15 to \$474 in 2027-28 (in today's dollars).
- Australian Government funding for **public hospitals** has increased from \$568 per person in 2007-08 (in today's dollars) to \$647 in 2014-15 and is expected to increase further to around \$680 in 2017-18 (in today's dollars). From

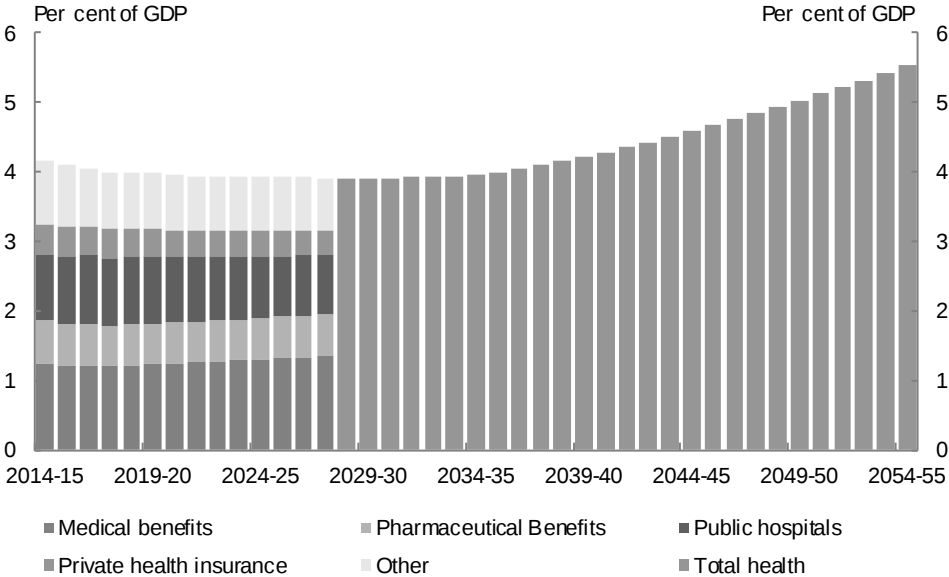
2017-18 onwards, real per person funding from the Australian Government for public hospitals will remain constant.

- Real per person expenditure on the **private health insurance rebate** is projected to remain fairly stable, increasing slightly from \$280 real per person in 2014-15 to \$283 real per person in 2027-28 (in today's dollars).

From 2028-29 onwards, total Australian Government health spending is projected in aggregate based on the long-term trend in the spending on health by all levels of government. This growth rate is adjusted for different usage by age and sex.

The methodology adopted in these projections from 2028-29 reflects the strong likelihood that the Australian Government health budget will face spending pressures over the longer term, while recognising that the source of these pressures is uncertain. For example, the mix of health services is expected to shift gradually away from in-hospital treatment, towards (Australian Government funded) primary care and pharmaceutical interventions, which are less invasive and less costly per treatment.

Chart 2.13 Australian Government health spending by component
(excludes contributions to the Medical Research Future Fund)



Source: Treasury projections, 'proposed policy' scenario. Projections assume trend economic growth from 2021-22 to 2054-55.

2.2.2 Assistance to the aged

Payments to the aged

The Age Pension is designed to provide income support to older Australians who need it, while encouraging pensioners to maximise their overall incomes through superannuation and private savings.

Assistance to people older than the working age includes the Age Pension and similar payments to veterans and war widows (the Service Pension). Australian Government expenditure on payments to the aged is currently equal to around 2.9 per cent of GDP.

The Age Pension is a means tested payment for people over 65. From 1 July 2017, the qualifying age for the Age Pension will gradually increase to 67 by 1 July 2023. The 2014-15 Budget announced that the eligibility age would increase at the same rate to reach 70 by 1 July 2035. The rate of payment is dependent on the current level of a single person or couple's combined income or assets (excluding the family home) and does not depend on previous labour force experience or individual contributions.

Australia's Age Pension payment is designed to provide pensioners with a basic standard of living and is only one of three retirement income pillars — the others being compulsory superannuation and private savings. In addition to a cash payment, pensioners may also be eligible for a comprehensive range of concessions and assistance for health, rent, pharmaceuticals and other living expenses.

In 2013-14, about 70 per cent of people of Age Pension age were receiving the Age Pension. Of these pension recipients, around 60 per cent receive a full rate pension. Under the 'proposed policy' scenario, the proportion of people of Age Pension age receiving the Age Pension is projected to fall to around 67 per cent by 2054-55 (Box 2.5).

Box 2.5: Superannuation

The superannuation system helps Australians to enhance their retirement incomes and can supplement or reduce reliance on the Age Pension. Since the advent of compulsory superannuation in 1992, employers have been required by law to make minimum payments to a complying superannuation fund to help employees save for retirement.⁸ This rate is currently 9.5 per cent and is scheduled to rise to 12 per cent between 1 July 2021 and 1 July 2025.

Australians are also able to make additional voluntary contributions to superannuation in order to boost their retirement savings. Superannuation benefits are generally preserved until the age of 55 years (increasing to 60 years).

Superannuation is generally taxed more concessional than some other forms of saving, such as bank deposits, in recognition of the fact that superannuation saving cannot be accessed until retirement.

- Pre-tax contributions of up to \$30,000 pa (\$35,000 for those aged 50 or over) into superannuation funds are taxed at a flat rate of 15 per cent in the fund.
- It is also possible to make post-tax contributions of up to \$180,000 per annum.
- Superannuation fund earnings in the accumulation phase are taxed at 15 per cent, while superannuation fund assets that support a retirement income stream are tax exempt.
- Most superannuation benefits to those aged over 60 are tax exempt.

Tax concessions for superannuation seek to encourage long-term saving for retirement.

At the end of 2013-14, total superannuation assets were \$1.84 trillion, around 116 per cent of GDP. Superannuation assets are expected to continue to increase as the system matures and wages grow. Compulsory superannuation savings appear to have made a significant contribution to national savings (around 1.5 per cent of GDP in 2011 and rising to close to three per cent over the next few decades). This is despite some reduction in other forms of savings. The Financial System Inquiry (FSI) noted a Treasury estimate that the size of the sector could reach around \$9 trillion by 2040 (Interim Report, pages 2-84).

⁸ Superannuation Guarantee (SG) does not apply to employees who earn less than \$450 per month; the maximum base for the SG is \$49,430 per quarter.

The median superannuation balance for a person in the accumulation phase in 2011-12 is estimated to be around \$30,000. The median account balance for a person aged 60 or over in the accumulation stage in 2011-12 is estimated to be \$95,000. These retirees may have received no compulsory superannuation or lower Superannuation Guarantee (SG) contributions for part of their careers. In the future, retirees are likely to achieve higher balances as a result of receiving higher SG payments for longer periods.

Future growth in retirement balances has potential implications for the size of Australian Government outlays on the Age Pension. In 2013-14, around 70 per cent of people of Age Pension age were receiving the Age Pension. Of these, 60 per cent were in receipt of the full-rate pension. As Australia's superannuation system matures, and compulsory contributions increase, many Australian workers will retire with much larger superannuation balances. The proportion of part-rate pensioners relative to full-rate pensioners is expected to increase. The proportion of retirees receiving any pension is not projected to decline.

An important issue identified by the FSI concerns how the superannuation system transforms savings into retirement income streams. The FSI highlighted the extent to which concern among retirees about outliving their benefits leads them to fail to draw down their superannuation balances in retirement, resulting in lower standards of living and significant transfers to beneficiaries. The Government is reviewing regulatory obstacles to the development of better post-retirement products and will respond to the FSI recommendations later in 2015.

Box 2.6: Age Pension means tests

The Age Pension provides a basic level of income to senior Australians and is one of the three pillars of the Australian retirement income system (along with compulsory superannuation and voluntary saving). Age Pension recipients may also receive Rent Assistance if they are renting privately and the Pensioner Concession Card, which provides a range of non-cash benefits including reduced-cost medicines and more refunds for medical expenses through the Medicare Safety Net.

The Age Pension is means tested with two tests: an income test and an assets test.

The assets test reduces the pension amount by \$1.50 per fortnight for every \$1,000 of assets over the threshold (currently \$202,000 for a single and \$286,500 combined for couple homeowners and \$348,500 for a single and \$433,000 combined for a couple who are not homeowners). The income test reduces the pension amount by 50 cents for every dollar over the income-free area (currently \$160 per fortnight for a single pensioner and \$284 a fortnight for a couple combined).

The test that results in the lower rate of payment is the one used to calculate the benefit received. Amounts over the means test thresholds result in a (tapered) reduction of the Age Pension payment. Payment rates also vary according to whether a person is single or a member of a couple.

Nearly all assets and income a pensioner owns or earns are included in the means tests. The primary residence is not included in the asset test. Financial assets, such as shares and superannuation, are deemed to earn income. This deemed income is added to any other income, such as income from running a business, employment or rent from an investment property, for the purpose of the income test.

A pensioner can continue to receive some payment and the Pensioner Concession Card with assets (excluding their primary residence) up to \$771,750 for single homeowners and \$1,145,500 combined for couple homeowners. A single person who does not own a home can have assets up to \$918,250 and a couple up to \$1,292,000 combined and still receive a part pension. A single pensioner can also earn up to \$1,868.60 per fortnight (approximately \$48,580 per annum) in income and continue to receive a part pension, while a couple can earn up to \$2,860 per fortnight combined (approximately \$74,360 per annum).

For example:

- Kathleen and Steve are 68, own their home and have \$1.1 million in superannuation, shares and bank accounts. They have no other income. They will receive a part-rate pension.
- Liam is 75 is single and has superannuation, an investment property and shares valued at \$910,000. He does not own a home and has no other income. He also receives a part-rate pension.
- Lillian is 85, single and lives in her own home worth \$1.5 million. She has bank accounts valued at \$50,000 but has no other income. Lillian receives a full-rate pension.
- Kushla is 68, works part time and earns \$750 a week. She also has superannuation and bank accounts valued at \$123,000. She does not own a home. Kushla receives a part-rate pension.

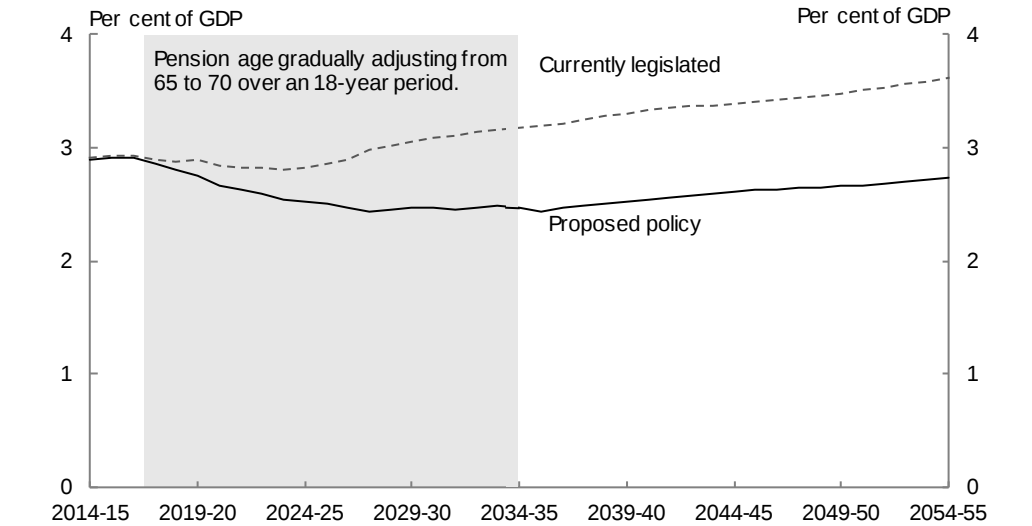
Under the 'currently legislated' scenario, Australian Government expenditure on Age and Service pensions is projected to rise as a per cent of GDP from 2.9 per cent in 2014-15 to 3.6 per cent in 2054-55 (\$165 billion in today's dollars).

The Government announced a number of reforms at the 2014-15 Budget which would place Age and Service Pension spending on a more sustainable path. These reforms include increasing the eligibility age of the Age Pension and changes to indexation and the deeming thresholds, which will reduce the drivers of spending by reducing the eligible population and growth in payments. As the majority of these reforms remain unimplemented, projections of Age and Service Pension spending under the 'previous policy' scenario are broadly similar to the projections under the 'currently legislated' scenario.

Under the 'proposed policy' scenario, Australian Government expenditure on Age and Service Pensions is projected to decrease slightly from 2.9 per cent of GDP in 2014-15 to 2.7 per cent of GDP in 2054-55. However, pension rates are projected to increase each and every year.

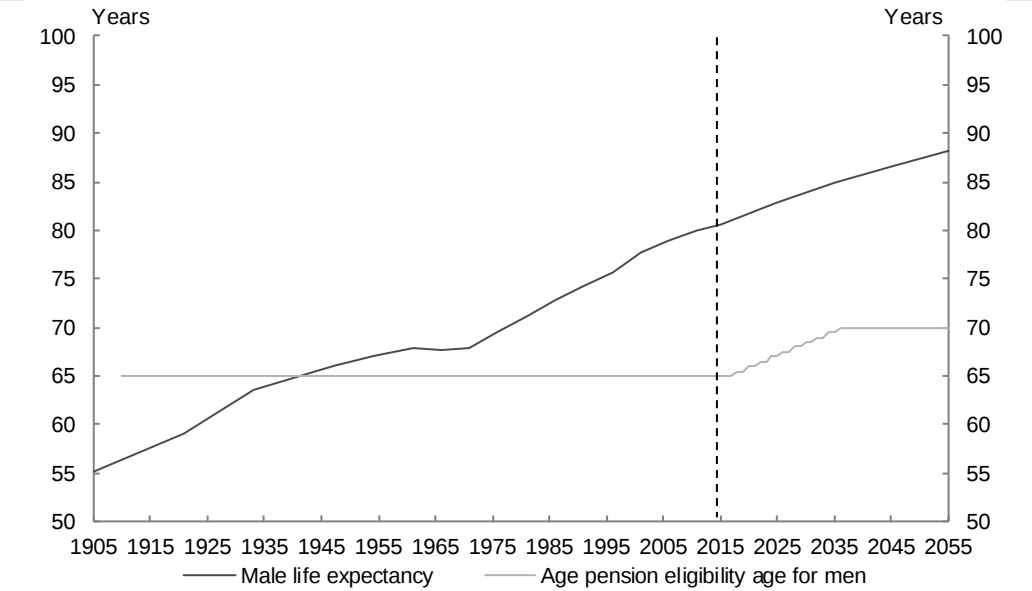
As outlined in the 2014-15 MYEFO, once the Budget returns to a surplus of 1 per cent of GDP, there will be more capacity to revisit the level of Government support to groups such as Age Pensioners. The Budget is projected to reach a 1 per cent surplus in 2028-29. For modelling purposes, the projections for assistance to the aged assume that indexation of pensions switches from the Consumer Price Index to Average Weekly Earnings in that year.

Chart 2.14 Australian Government Age and Service pensions



Source: Treasury projections. Projections assume trend economic growth from 2021-22 to 2054-55.

Chart 2.15 Male life expectancy and age pension age



Note: Period life expectancies have been used for this chart to allow comparisons over time. Data is for the financial year ending June 30.

Source: Australian Government Actuary Life Tables, Treasury projections.

Aged care spending

The Australian Government provides aged care funding for residential aged care and a range of community care services, including care in the home. In 2014-15, the Australian Government provided around 0.9 per cent of GDP for total government aged care expenditure. The States contributed a small proportion of less than 0.1 per cent.

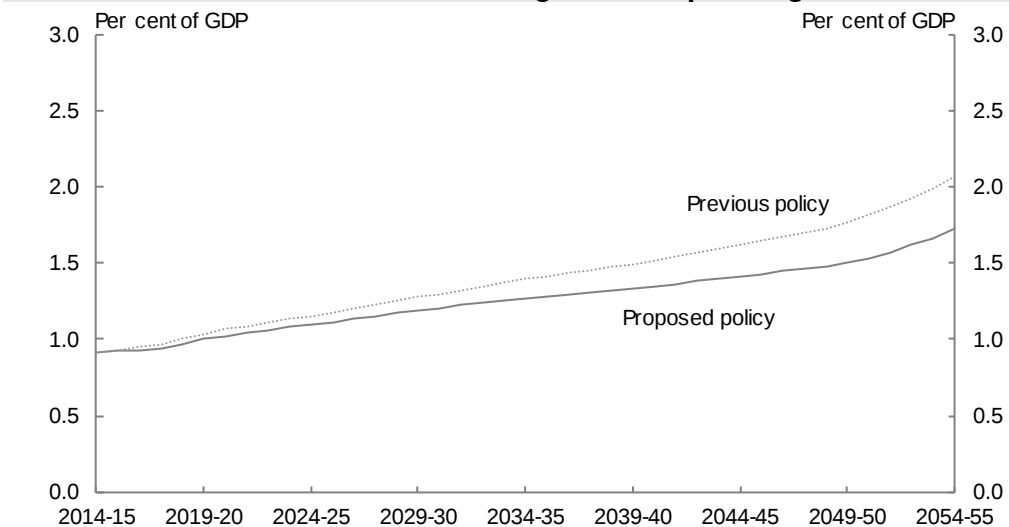
The dominant influence on aged care spending projections is the number of people over the age of 70, reflecting the government's commitment to provide 125 aged care places per thousand people aged over 70. The number of people aged 70 years and over is expected to almost triple over the next 40 years, reaching around 7 million people by 2055.

In the 2014-15 Budget the Australian Government took measures to adjust the real rate of growth in the Commonwealth Home Support Programme (which will replace the current Home and Community Care Programme) to 3.5 per cent annually. As these measures have been implemented, projections of Australian Government Aged Care expenditure are similar under both the proposed policy and 'currently legislated' scenario.

Under the 'proposed policy' scenario, Australian Government Aged Care expenditure is projected to rise from 0.9 per cent of GDP in 2014-15 to 1.7 per cent of GDP in 2054-55 (\$80 billion in today's dollars) (Chart 2.16).

Under the 'previous policy' scenario, projections show that spending would increase to 2.1 per cent of GDP by 2054-55 (\$94 billion in today's dollars).

Chart 2.16 Australian Government aged care spending

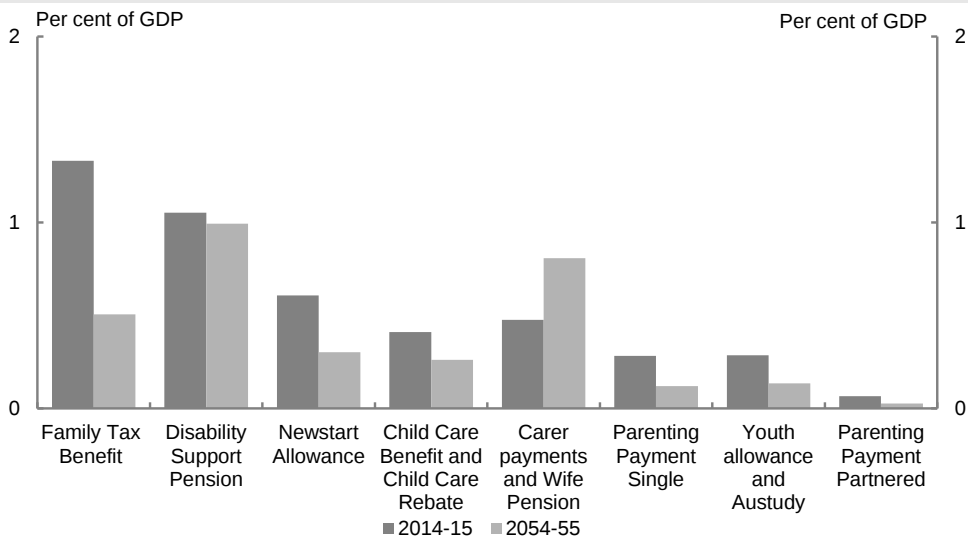


Source: Treasury projections. Projections assume trend economic growth from 2021-22 to 2054-55.

2.2.3 Other payments to individuals

In addition to the Age and Service Pensions and assistance to the aged, a range of Australian Government programs provide income support to individuals who require support or supplementary assistance. These payments fall across two broad groups: assistance to those of working age; and assistance to families. The two largest components are the Disability Support Pension (DSP) and the Family Tax Benefit.

Chart 2.17 Composition of Australian Government payments to individuals



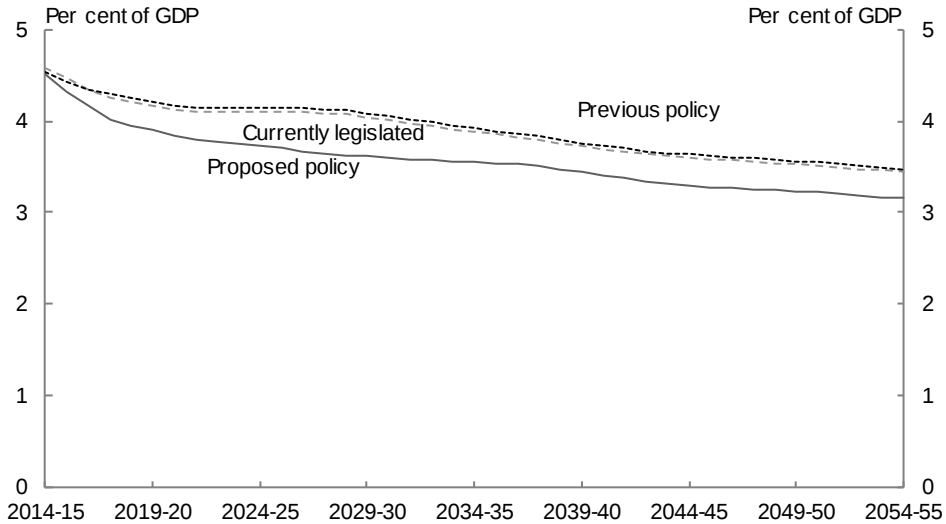
Note: Carer payments = Carer Allowance + Carer Payment.
This chart shows projections under the 'proposed policy' scenario.
Source: Treasury projections.

Under the 'currently legislated' scenario, projections show that payments to individuals are projected fall from 4.5 per cent of GDP in 2014-15 to 3.4 per cent of GDP by 2054-55 (\$157 billion in today's dollars) (Chart 2.18).

As the majority of the Government's measures to improve the sustainability of income support remain unimplemented, projections of payments to individuals under the previous policy scenario are broadly similar to the projections under the 'currently legislated' scenario.

This trend is broadly similar to the 2010 report where spending on payments to individuals was projected to fall from 4.2 per cent of GDP in 2009-10 to 3.0 per cent of GDP in 2049-50.

Under the 'proposed policy' scenario, Australian Government payments to individuals, excluding the Age and Service Pensions, are projected to fall to 3.2 per cent of GDP in 2054-55 (\$146 billion in today's dollars).

Chart 2.18 Australian Government payments to individuals

Source: Treasury projections. Projections assume trend economic growth from 2021-22 to 2054-55.

Assistance to those of working age

The Government provides assistance to people of working age who are in genuine need of assistance. This includes people who, because of certain factors such as disability and caring responsibilities, are unable to earn their own incomes.

The Government also provides income support to assist jobseekers who are temporarily unable to support themselves through work, targeted to those most in need and designed to encourage self-reliance and participation.

The main payments to people of working age are the Disability Support Pension (DSP), Newstart Allowance, Parenting Payment Single, Parenting Payment Partnered, Carer Payment, Carer Allowance, Youth Allowance (other), Youth Allowance (student) and Austudy.

Under the 'currently legislated' scenario, Australian Government assistance to those of workforce age is projected to decline from 2.8 per cent of GDP in 2014-15 to 2.6 per cent of GDP in 2054-55 (\$117 billion in today's dollars) (Chart 2.19).

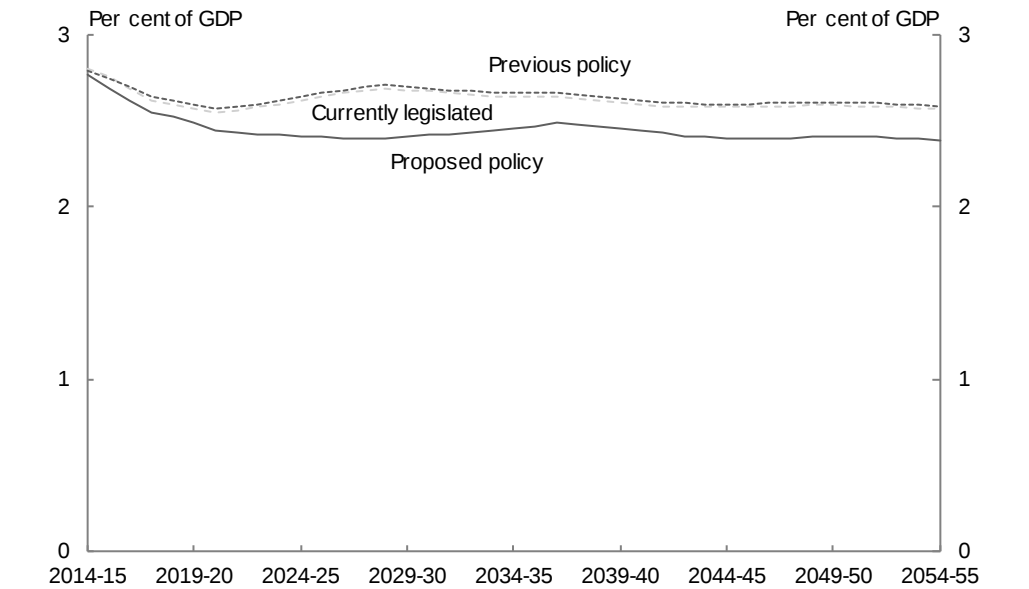
Under the 'proposed policy' scenario, Australian Government spending on assistance to those of working age is projected to decline to 2.4 per cent in 2054-55 (\$110 billion in today's dollars).

This trend is broadly similar to the 2010 report where Australian Government assistance to the workforce age was projected to fall as a per cent of GDP from 2.4 per cent in 2009-10 to 2.2 per cent in 2049-50.

Improvements in the sustainability of Australian Government expenditure on working-age payments partly reflect decisions made in the 2014-15 Budget. Most significantly, key working age pension or pension-equivalent payments, including the DSP and Carer Payment, will be indexed to CPI from 2017-18.

Further, the indexation of all income and asset thresholds will be paused for three years and jobseekers under 30 years of age applying for Newstart or Youth Allowance (other) will have a new waiting period before receiving any payments. Some DSP recipients will be reviewed with the current Impairment Tables and there are new requirements regarding participation for DSP recipients under 35.

Chart 2.19 Australian Government assistance to those of working age



Source: Treasury projections. Projections assume trend economic growth from 2021-22 to 2054-55.

Assistance to families

The main payments that provide assistance to families are the Family Tax Benefit, Child Care Benefit and Child Care Rebate. Family Tax Benefit is designed to assist low and middle income families with the costs of raising dependent children.

The Government provides funding for childcare to facilitate increased workforce participation of parents, particularly women, and generate community-wide benefits from enhanced child-development.

One driver of reductions in spending on assistance to families is demographic change. The proportion of the population aged less than 15 is projected to fall from 18.8 per cent in 2014-15 to 17.5 per cent in 2054-55.

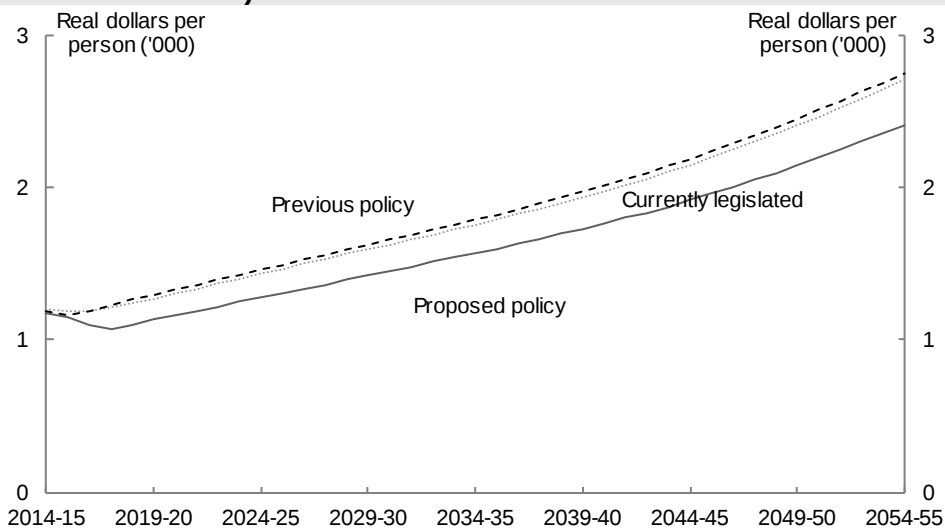
Under the 'currently legislated' scenario, Australian Government expenditure on assistance to families is projected to fall as a per cent of GDP from 1.8 per cent in 2014-15 to 0.9 per cent in 2054-55 (Chart 2.20).

At the 2010 report, Australian Government assistance to families was projected to fall as a per cent of GDP from 1.6 per cent in 2009-10 to 0.9 per cent in 2049-50.

2014-15 Budget measures improve the targeting and sustainability of Family Tax Benefit payments. This includes tighter eligibility conditions for Family Tax Benefit Part B from 1 July 2015 and pauses to indexation of payment rates. In addition, the Schoolkids Bonus payment will be means tested from 1 January 2015 and cease from 31 December 2016.

Under the 'proposed policy' scenario, Australian Government expenditure on assistance to families is projected to reach 0.8 per cent of GDP by 2054-55 (\$35 billion in today's dollars).

Chart 2.20 Australian Government assistance to families per person (real 2014-15 dollars)



Source: Treasury projections. Projections assume trend economic growth from 2021-22 to 2054-55.

2.2.4 Education and training spending

The Australian Government provides funding for the delivery of education services in schools and the vocational education and training (VET) and higher education sectors to support human capital formation, improved productivity and labour market outcomes, and social opportunity.

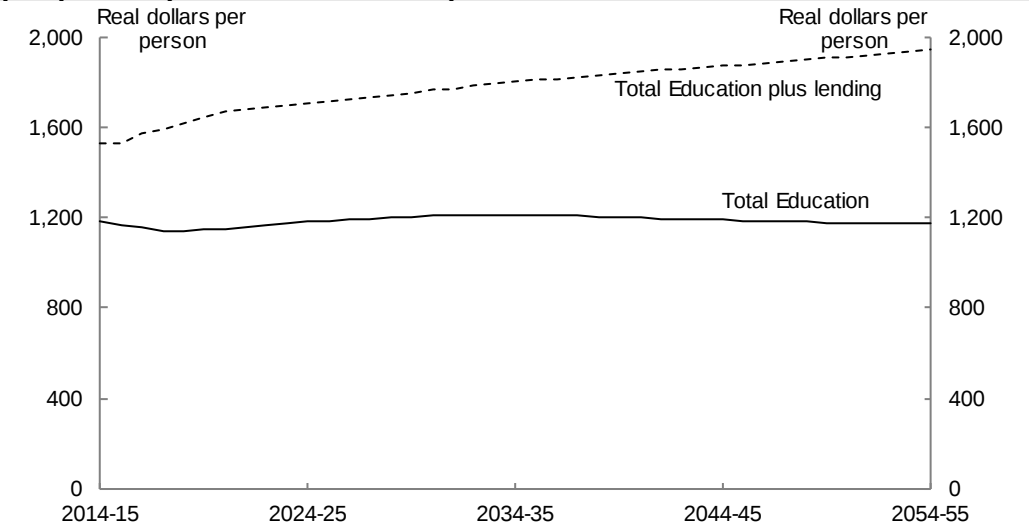
Education and training services in Australia comprise schools, VET and higher education. Australian Government education spending is estimated to be 1.7 per cent

of GDP in 2014-15. Just over half of this spending is on government and non-government schools delivered as specific purpose payments to State and Territory governments.

In 2010 and then in 2012, the then Australian Government introduced changes to higher education to partially and then fully uncap the number of Commonwealth supported places, leading to a sharp increase in the number of undergraduate students and related Australian Government expenditure.

The Government has proposed various reforms to the higher education sector. These reforms include deregulating fees for higher education providers, extending Commonwealth supported places to sub-bachelor as well as bachelor courses at all approved higher education institutions, and a reduction in the Australian Government's contribution towards a new student's course fees. These measures are yet to be implemented.

Chart 2.21 Australian Government Spending on Education and Training per person (real 2014-15 dollars)



Source: Treasury projections, 'proposed policy' scenario. Projections assume trend economic growth from 2021-22 to 2054-55.

Under the 'currently legislated' scenario, Australian Government spending on education and training is projected to rise as a per cent of GDP from 1.7 per cent in 2014-15 to 2.0 per cent in 2054-55.

This is broadly similar to the projections under the 'previous policy' scenario as the Government is yet to implement a number of the education reforms announced at the 2014-15 Budget. These include the changes to indexation of recurrent schools funding and reforms to the higher education system.

Under the 'proposed policy' scenario, Australian Government spending on education and training is projected to decline to 1.0 per cent of GDP by 2054-55. However, these figures do not take into account the significant increase in lending to students through the higher education and vocational education and training loan schemes.

Australian Government spending per person (in today's dollars) on education and training is projected to be \$1,200 in 2014-15 and in 2054-55. If Higher Education Loan Programme (HELP) loans and VET FEE-HELP are taken into account then the amount the government provides per person (in today's dollars) is projected to rise from \$1,500 in 2014-15 to \$1,900 in 2054-55.

Spending per higher education student (in today's dollars) is projected to fall from \$11,800 in 2014-15 to \$9,400 in 2054-55. If HELP loans to students are taken into account then the amount the government provides per higher education student (in today's dollars) is projected to rise from around \$19,100 per student in 2014-15 to \$23,100 per student in 2054-55.

If VET FEE-HELP provided to students is taken into account, then the amount the government provides per vocational education and training student (in today's dollars) is projected to rise from around \$3,600 per student in 2014-15 to \$3,700 per student in 2054-55.

Spending per school student (in today's dollars) is projected to rise from \$4,200 in 2014-15 to \$4,600 in 2054-55.

2.2.5 National Disability Insurance Scheme

The National Disability Insurance Scheme (NDIS) is a mechanism for funding long-term care and support for people with disability. The Australian and State governments jointly fund the scheme, and established a single agency, the National Disability Insurance Agency, to administer and fund the NDIS.

The NDIS is expected to be fully operational in 2019-20, before which cost estimates reflect the transition to the full scheme agreed with the States.

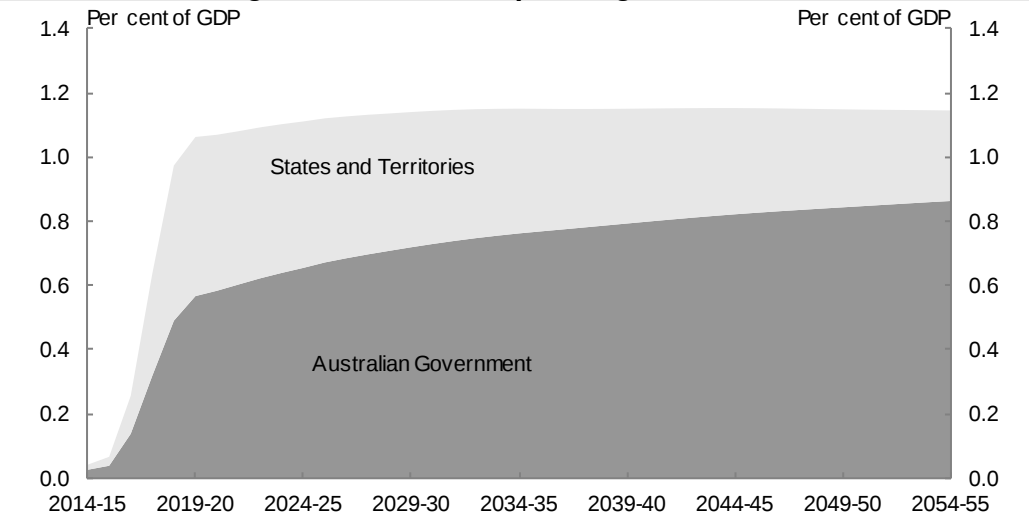
From 2020-21, the model used for projections builds on the cost estimates from the Productivity Commission's 2011 report into Disability Care and Support, and projects the total cost of the NDIS based on the number of participants and the average cost per participant.

Total government spending on the NDIS is projected to be broadly stable at 1.1 per cent of GDP between 2019-20 and 2054-55 (Chart 2.22), following a significant increase from less than 0.1 per cent of GDP in 2014-15.

As a per cent of GDP, State spending on the NDIS is projected to decrease from 0.5 per cent of GDP in 2019-20 to 0.3 per cent in 2054-55. Consequently, the Australian

Government's contribution is projected to grow as a proportion of the total NDIS spending, increasing from under 55 per cent in 2019-20 to around 75 per cent in 2054-55.

Chart 2.22 Total government NDIS spending



Note: This chart shows projections under the 'proposed policy' scenario. There are no pending measures for this area of spending.

Source: Treasury projections. Projections assume trend economic growth from 2021-22 to 2054-55.

2.2.6 Defence

The Australian Government provides funding for the delivery of navy, army, air and intelligence capabilities, support for Australian military operations overseas and strategic policy advice for the defence of Australia and its national interests. Funding for defence (excluding operations) in 2014-15 is estimated to be 1.8 per cent of GDP, following a low of 1.6 per cent of GDP in 2012-13 and, consistent with government policy, is projected to increase gradually to 2 per cent of GDP by 2023-24.

As a defence expenditure profile for the years beyond 2023-24 will be agreed in the 2015 Defence White Paper, defence funding is held constant at 2 per cent of GDP from 2023-24 onwards to enable defence funding to reflect changes in national income without representing a significant change in policy. The projection methodology is detailed in Appendix C.

2.3 Revenue projections

This report assumes, in the long run, a constant tax-to-GDP ratio of 23.9 per cent. This rate is based on the average tax-to-GDP ratio of the years following the introduction of the GST and prior to the global financial crisis (2000-01 to 2007-08 inclusive). This methodology is similar to that used in previous intergenerational reports. Appendix C sets out the methodology and the rationale for a constant tax-to-GDP assumption.

Consistent with other economic assumptions, under the 'proposed policy' scenario, tax receipts continue to recover from the global financial crisis and are projected to increase as a proportion of GDP to 2020-21, when it reaches the tax-to-GDP ratio assumption. The projected path is shown in Chart 2.23. The tax-to-GDP ratio is projected to increase from 22.0 per cent of GDP in 2014-15 to 23.9 per cent of GDP in 2020-21. The increase occurs largely because individuals will pay increasing average tax rates on personal income over time owing to bracket creep.

Chart 2.23 Projected tax-to-GDP ratio



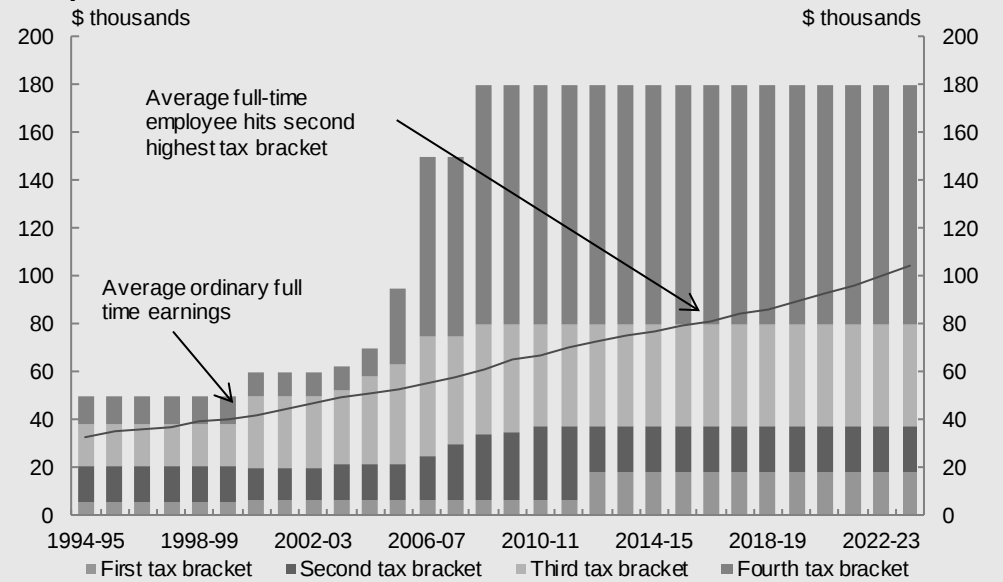
Source: Treasury projections. Projections assume trend economic growth from 2021-22 to 2054-55.

Box 2.7: Bracket creep

Under our progressive tax system individuals pay higher marginal rates of tax as their taxable income increases. Tax thresholds do not automatically keep pace with inflation or wage growth. Bracket creep refers to the fact that taxpayers will face higher average, and sometimes marginal, tax rates over time even if their income has only increased by inflation. While bracket creep exists because of the progressivity of the individuals income tax system, unchecked bracket creep affects lower and middle income earners proportionally more than higher incomes earners.

For example, average ordinary full time earnings were around \$75,000 in 2013-14, and are expected to be around \$104,000 in 2023-24. Someone on average full time earnings therefore had an average tax rate of 22.7 per cent in 2013-14, which would increase to 27.4 per cent by 2023-24 without any tax cuts. By contrast, someone with only half that income earned \$37,500 in 2013-14, increasing to \$52,000 in 2023-24. However, their average tax rate will increase from 10.3 per cent to 17.8 per cent, a larger percentage point increase. Someone earning twice the average full time wage is on \$150,000, increasing to \$208,000 in 2023-24, but their average tax rate will only increase from 30.5 per cent to 34.3 per cent.

Chart 2.24 Personal income tax rates and the effects of bracket creep



Source: ABS cat. no. 6302.0 and Treasury calculations.

For some people, particularly those on relatively low incomes, bracket creep can reduce incentives to work. At higher incomes, bracket creep increases the incentives for tax planning and structuring, and even overseas relocation.

2.3.1 Pressures and risks to revenue

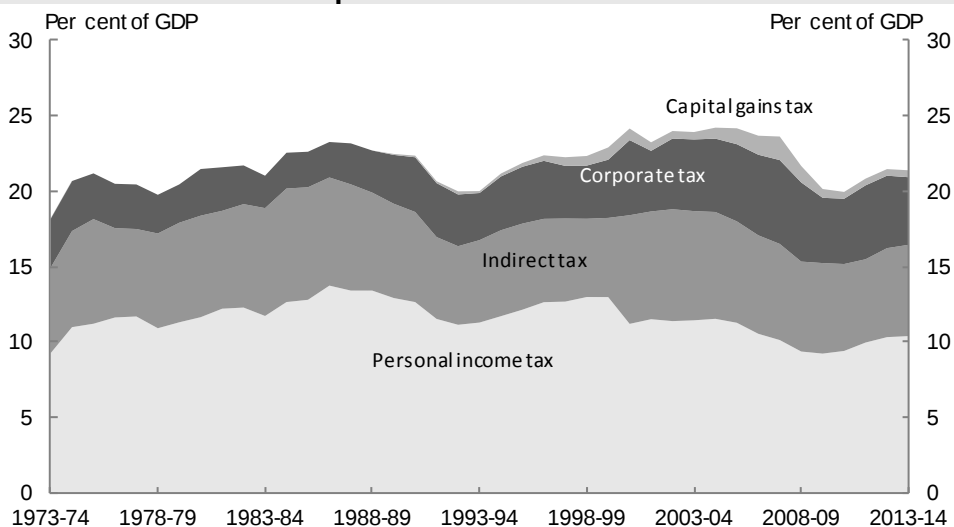
The overall level of Australian Government taxation has remained broadly steady as a share of GDP over the past 30 years. In the coming decades, taxation receipts are expected to continue to closely track the strength of the Australian economy. This highlights the importance of improving workforce participation and increasing productivity, key drivers of economic growth. Changes to Australia's tax system could help Australia take advantage of global opportunities and improve economic growth (discussed in chapter 3).

The composition of Australian Government taxes and heavy reliance on income taxes has also remained largely unchanged. Over the past fifteen years, some modest compositional changes in tax revenue have occurred partly as a result of movements in commodity prices and policy changes, for example, the introduction of the GST (see Chart 2.25).

In recent decades, however, financial deregulation, the growth of multinational companies using global supply chains and the increasing digitisation of global commerce have all transformed the environment in which tax systems must operate.

Demographic influences clearly have an impact on aggregate GDP, and they may also affect the composition of GDP. This means that the various tax bases may generate either more or less revenue than is assumed by the constant tax-to-GDP ratio. It is likely that the impact of demographic changes on the composition of tax revenue will be small and ambiguous.

Chart 2.25 Historical composition of tax



Source: Treasury.

Superannuation

There are two offsetting effects on tax revenues stemming from the superannuation and taxation system.

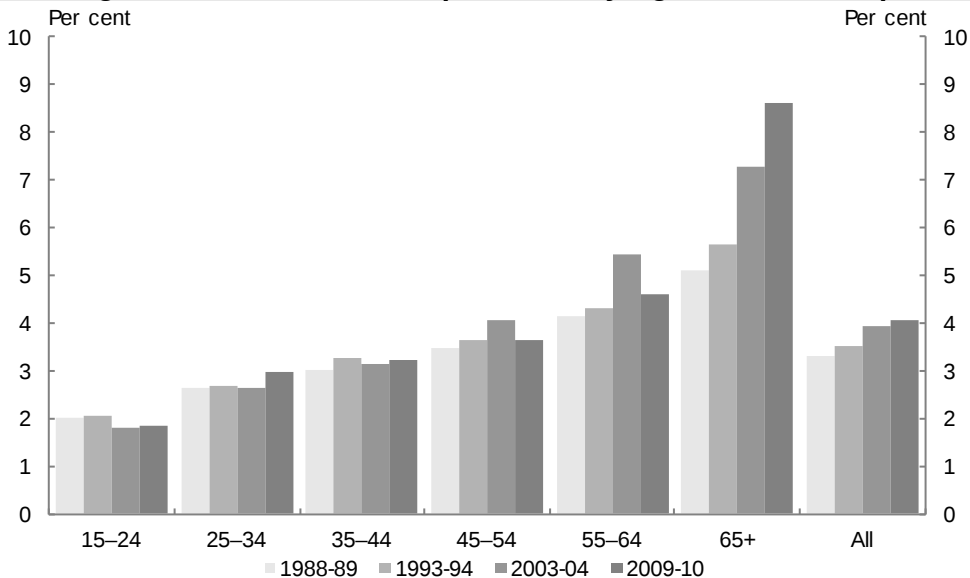
First, recognising the restriction on accessing superannuation, superannuation income is generally taxed at a lower rate than other income to provide an incentive to save for retirement. As the population ages and a greater share of income is earned through superannuation funds, the overall average tax rate may decrease.

Second, the superannuation system is expected to grow faster than GDP, at least until the pre-Super Guarantee workforce moves through the system. According to current projections, the superannuation system is expected to mature at about the same time as the old-age dependency ratio stabilises.

Changed consumption patterns

As the population ages, consumption patterns are likely to change. For example, older people spend a greater proportion of their income on health services than the average individual, and this proportion has been rising over time (Chart 2.26). An ageing population will increase the overall average proportion of income spent on health, hence decreasing GST receipts (as health services are GST-free). At the same time, however, an ageing population will also decrease the overall average proportion of income spent on education, which is also GST-free.

Chart 2.26 Expenditure on medical care and health expenses as a percentage of total household expenditure by age of reference person



Source: ABS cat. no. 6530.0.

Excise

In the 2014-15 Budget, the Government re-introduced biannual indexation by the consumer price index of excise and excise-equivalent customs duty for all fuels except aviation fuels. Not indexing would see fuel excise collections fall from around 1 per cent of GDP in 2014-15 to less than 0.5 per cent in 2054-55. In that circumstance, a constant tax-to-GDP ratio would imply that other taxes would increase as a share of total tax.

In addition, taxes levied on a volumetric basis, such as fuel, tobacco and some alcohol, may grow at a slower rate than nominal GDP. For example, a continuation of the long-run decline in per-capita tobacco consumption will mean that tax receipts from tobacco excise continue to decline as a share of total tax receipts, leading to a change in the composition of taxes.

Changed labour and capital shares of income

This report assumes that the labour-capital ratio is constant in the projection period. Changes in the labour-capital ratio will affect the relative proportion of taxes derived from wages and capital. For example, a change to saving rates or the composition of expenditure will affect the composition of income between wages and profits.

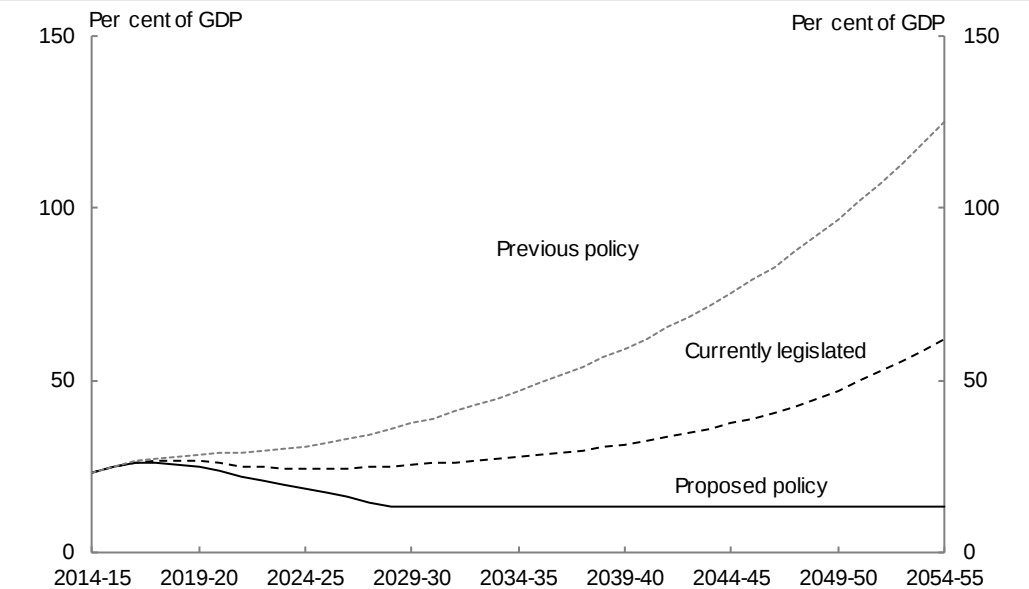
The impact on total tax revenue will depend on the difference between tax rates on wages and profits. Historically, both rates average around 24 to 28 per cent, depending on the year and definitions used. The small range of these rates suggests that a very large compositional change between wages and profits would be required before there was a significant effect on tax revenues.

2.4 Major balance sheet items

2.4.1 Gross debt

With the budget in balance or surplus over the longer term, Commonwealth Government Securities (CGS) issuance (gross debt) will eventually not be required to finance the government's activities. The Government is committed to a well-functioning and liquid debt market. This supports the Treasury bond futures markets (used by financial institutions to manage interest rate risk), supports the corporate bond market by providing a risk-free benchmark and provides a low-risk investment vehicle. The balance sheet projections therefore incorporate a technical assumption that gross debt will be maintained at a level equivalent to 13 per cent of GDP. Under the 'proposed policy' scenario, gross debt is projected to fall from a projected peak of 26.1 per cent of GDP in 2016-17 to the assumed 13 per cent minimum by around the late 2020s, where it will remain over the rest of the projection period (Chart 2.27).

Chart 2.27 Gross debt

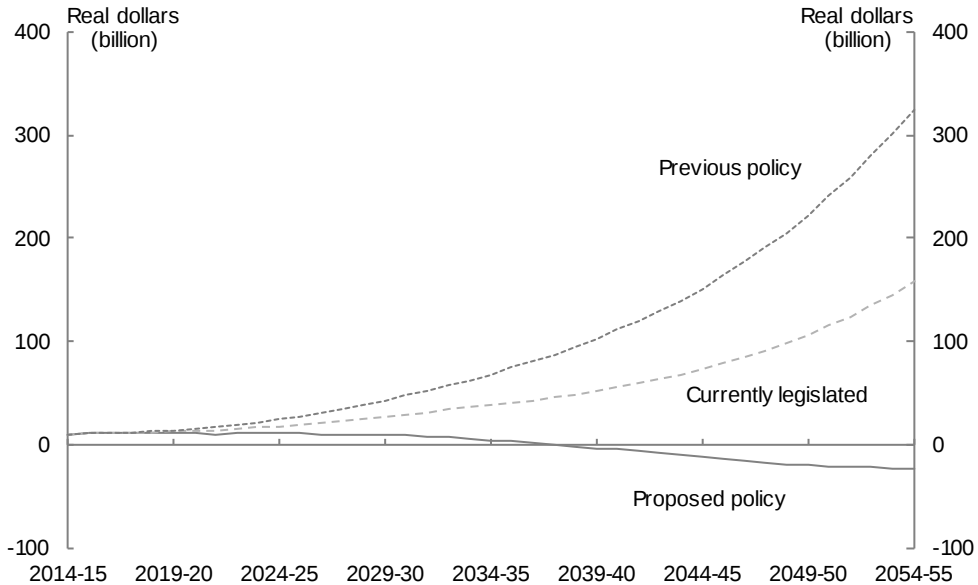


Source: Treasury projections. Projections assume trend economic growth from 2021-22 to 2054-55.

Under the ‘currently legislated’ scenario, gross debt is projected to reach 61.8 per cent of GDP by 2054-55 (\$2,820 billion in today’s dollars), substantially lower than under the ‘previous policy’ scenario projections of 125.1 per cent of GDP (\$5,707 billion in today’s dollars).

The ‘proposed policy’ scenario shows that the Government’s budget measures would stabilise interest payments on gross debt (as a per cent of GDP) over the projection period. However, under the ‘currently legislated’ scenario, net interest payments are projected to rise from 0.7 per cent of GDP in 2014-15 to 3.5 per cent of GDP in 2054-55 (\$157.6 billion in today’s dollars). This is an improvement compared to 7.1 per cent (\$323.6 billion in today’s dollars) under the ‘previous policy’ scenario (Chart 2.28).

If all proposed policy is implemented, net interest payments are projected to fall to negative 0.5 per cent of GDP in 2054-55 (that is, annual net interest receipts of 0.5 per cent of GDP — \$22.3 billion in today’s dollars).

Chart 2.28 Net interest payments (2014-15 dollars)

Source: Treasury projections. Projections assume trend economic growth from 2021-22 to 2054-55.

2.4.2 Public Sector Superannuation

The largest of the Australian Government's future superannuation obligations are the defined benefit schemes for civilian and military employees. These schemes have historically been mostly unfunded, with the bulk of entitlements being funded at the time benefits are paid rather than when they accrue — the unfunded superannuation liability as at 30 June 2014 for these schemes was estimated at \$155 billion (just under 10 per cent of GDP).

Almost all of the unfunded superannuation liability relates to the Commonwealth Superannuation Scheme (CSS), the Public Sector Superannuation Scheme (PSS), the Defence Force Retirement and Death Benefits Scheme (DFRDB) and the Military Superannuation and Benefits Scheme (MSBS). The first three of these schemes are now closed to new entrants, and the Government has announced that the MSBS will close from 1 July 2016.⁹

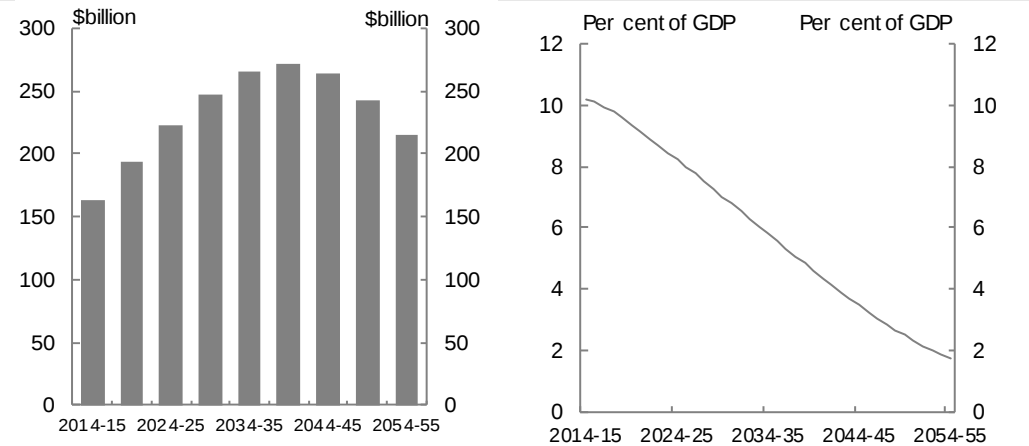
Since the closure of the PSS in 2005, the Australian Government has been funding the superannuation entitlements for new civilian employees as they accrue. This will also be largely the case for military personnel from 1 July 2016. In the medium to long term, this will considerably reduce future unfunded accruals. In the shorter term, existing contributory members of the closed schemes will continue to accrue unfunded benefits and the unfunded liability is projected to continue to grow in nominal value.

⁹ Following the closure of the MSBS, new military personnel will continue to have access to unfunded salary-related death and disability benefits. Retirement benefits will be provided under a funded defined contribution arrangement.

Given this, the liability is projected to grow more slowly than the economy over the next 40 years, and consequently it represents a declining share of GDP, falling from around 10 per cent of GDP in 2014-15 to less than 2 per cent in 2054-55.

Chart 2.29 projects the combined liabilities of the CSS, PSS, DFRDB and MSBS.

Chart 2.29 Defined benefit unfunded superannuation liabilities



Source: The Australian Government Actuary.

2.4.3 Future Fund

The Future Fund was established by the Australian Government in 2006 to assist future governments in funding the cost of the superannuation liabilities of the Commonwealth public sector.

From 2020, superannuation payments will be financed by drawing down on assets in the Future Fund rather than from general revenue. This will ease the fiscal adjustment task associated with other projected fiscal pressures.

The Future Fund had assets of \$101 billion as at 30 June 2014 and generated a return of 13.9 per cent in 2013-14.¹⁰ Projections in this report suggest that assets will peak in the late 2020s at around \$165 billion, contributing earnings of \$7 billion a year to the Australian Government's cash position.

As a result of drawdowns made from the Fund from 2020, the balance is projected to be depleted by around the late-2040s, during which time the Fund is projected to have funded around \$400 billion of Commonwealth superannuation payments. These are payments that would otherwise have to be funded from general government revenue and borrowings.

¹⁰ See www.futurefund.gov.au/__data/assets/pdf_file/0011/6104/August_2014_Portfolio_update_to_June_2014_A368923.pdf.

Between 2014-15 and 2019-20, annual net earnings (interest and dividends less operating expenses) of the Future Fund are excluded from the Australian Government underlying cash balance. This is consistent with the treatment in Australian Government budget updates since the Fund was established in 2006. Once drawdowns commence in 2020-21, net earnings are included in the underlying cash balance, because the Fund's earnings are available to finance government liabilities from that date. This has only a marginal impact on the reported underlying cash balance. On average, the underlying cash balance is 0.1 per cent of GDP higher over the 40 year projection period than if net Future Fund earnings are excluded.

2.4.4 Higher Education Loan Programme

The Higher Education Loan Programme asset (that is, the value of future repayments on outstanding student debt) is projected to increase as a share of GDP over the projection period. This reflects both increasing demand, which is assumed to result in growing numbers of students incurring a debt in each year, and higher average debts per student. The expansion of the student population and the longer repayment periods associated with higher average debts both have the potential to lead to different repayment patterns from those that have been seen in the past. This introduces significant uncertainty around the estimates.

Chapter 3: Preparing for the future

Projections in this report illustrate that Australia can continue to build prosperity and improve living standards over the next 40 years.

Real growth in GDP is projected to average 2.8 per cent a year going forward, compared to an average of 3.1 per cent a year over the past 40 years.

To achieve this growth, continued steps will be needed to boost productivity and encourage higher workforce participation. Further, the budget must be stabilised and debt levels reduced to ensure governments are well placed to respond to any future economic shocks.

3.1. Building jobs, growth and opportunity

The Government is responding to the twin challenges of the ageing population, and the changing international and domestic economic environment. A number of important structural reform processes have been initiated. These will help to achieve more efficient funding and delivery of government services, and contribute to the objectives of improving productivity and participation, as well as constraining expenditure growth.

3.1.1. Review of the tax system

To enhance both productivity and participation, Australia will need a better tax system to deliver taxes that are lower, simpler and fairer.

While Australia collects taxes from a number of sources, taxes levied on personal and corporate income remain major sources of taxation revenue. This is despite the introduction of the GST and reductions in corporate and personal tax rates in recent decades.

Under current policy settings, Australia's reliance on income taxes will continue to increase. Bracket creep, for example, means that wage and salary earners will pay higher effective rates of tax on that income as their incomes grow over time. Studies, both in Australia and internationally, have also suggested that Australia's high reliance on company income tax imposes costs on the economy.

The rise of the digital economy, multinational corporations operating across international borders using global supply chains, and increasing mobility of capital are overwhelmingly positive economic developments. However, these developments are

posing substantial challenges for the tax system. Other countries are responding to these challenges by reducing company tax rates.

A well-structured tax system can assist in making Australia a more attractive place to invest, which will boost economic growth and create new jobs. The Government will undertake a review of the tax system to provide a longer-term considered approach to tax reform. The review will consider the competitiveness of Australia's tax system, consistent with the Government's aim for a better tax system that delivers taxes that are lower, simpler and fairer.

3.1.2. Reform of government service delivery

To ensure government expenditure is sustainable and better targeted, particularly as we face major demographic change, governments need to focus their efforts on achieving the efficient provision of services. Important developments in this regard are the examination of the roles and responsibilities of the Australian Government and state governments, and moves to make better use of technology to improve the efficiency and responsiveness of government service delivery.

Roles of the Commonwealth, and State and Territory Governments

Over time, the Commonwealth Government has for various reasons become increasingly involved in matters that have traditionally been the responsibility of the States and Territories.

Rather than seeking ever greater centralisation of power in the national government as a way of dealing with increasing complexity, the Government is undertaking a review of the current arrangements, seeking to strengthen the way our federal system works by being clear about which level of government is responsible for what.

To this end, the Government is working with the States and Territories to produce a White Paper on the Reform of the Federation. Through the White Paper, the Government is seeking to clarify roles and responsibilities between levels of government to ensure that, as far as possible, the States and Territories are sovereign in their own sphere.

The objective is to reduce and end, as far as possible, the waste, duplication and second guessing between different levels of government. It is also an opportunity to address the lack of accountability between the levels of government.

Through the White Paper, the Government is seeking to:

- achieve a more efficient and effective federation and, in so doing, improve national productivity;

- make interacting with government simpler;
- ensure our federal system is better understood and valued by Australians (and the case for reform supported);
- deliver a clearer allocation of roles and responsibilities;
- enhance governments' autonomy, flexibility and political accountability; and
- support Australia's economic growth and international competitiveness.

Consideration will need to be given to where governments are best placed to provide services and where there should be greater space for private providers. As many government entities do not directly face the discipline of a competitive market, they are generally less efficient, so reducing or eliminating activity that can be better performed by the private sector can also increase productivity.

Better use of technology

Importantly, governments will need to learn lessons from the private sector — which has harnessed new technology to achieve efficiencies in service delivery.

The establishment of a Digital Transformation Office (DTO) as an executive agency in the Communications portfolio is an important step in this direction. The DTO will focus on end-user needs in developing digital services, so that government services can be delivered digitally from start to finish and better serve the needs of citizens and businesses.

The establishment of the DTO is recognition that, like any other service provider, government should design its services in the most user-friendly way.

By designing digital services that are consistent and easy to use, fewer people will need to visit government shop-fronts or make phone calls. This will deliver efficiencies in operating costs, while making government services simpler, clearer and faster for Australian families and businesses.

Government policy development is heavily reliant on available data. There is huge potential to modernise and better manage Australia's national data infrastructure, with appropriate data sharing and access arrangements that take advantage of new technologies, and make the best use of existing data and scarce resources. Improved data quality and the ability to respond more quickly to emerging trends and issues will better inform policies for the benefit of all Australians.

3.2. Harnessing further gains in productivity and participation

3.2.1. Productivity

Australia's future productivity performance will be influenced by technological developments, both domestically and abroad, which create new possibilities for production. As a net importer of technology, the pace of global innovation and Australia's ability to absorb technological advances from abroad and convert them into new business opportunities will be particularly important.

There is evidence to suggest that the pace of technological development globally has slowed. Many developed countries have experienced a slowdown in productivity growth over the past decade or so. Furthermore, some commentators suggest that future technological advances may not yield the productivity improvements seen in the past. If this were the case, developed countries may see a slowdown in income growth. In contrast, other commentators have noted that there may be significant growth potential from technological developments which are yet to be seen.¹¹

It is not clear how much or how quickly future technological advancement will drive improvements in living standards globally. Despite this uncertainty, closer trade and broader relationships with emerging economies may provide Australia with greater scope for productivity growth, as these emerging economies represent new sources of global economic growth and innovation.

As previously noted, history also suggests that policy settings can have significant implications for growth in productivity and living standards. As a result of competition reforms in the 1980s and 1990s, for example, it has been estimated that productivity and price changes (in key infrastructure sectors such as energy and water) increased GDP by 2.5 per cent above what it would otherwise have been over the 1990s.¹² Continuing to encourage entrepreneurship and innovation, enhancing resource allocation, investing in and using infrastructure efficiently, facilitating trade with other countries and improving physical and human capital investment will all be critical to Australia's future productivity performance.

Efficient provision of infrastructure, including public infrastructure, is a hallmark of a well-functioning economy. Currently, deficiencies in certain aspects and usage of Australia's infrastructure — including roads, rail and ports — limit business expansion and growth and undermine productivity growth and living standards.

11 For further discussion of these issues, please see Budget Paper No. 1: *Budget Strategy and Outlook 2014-15*, Statement 4: Sustaining strong growth in living standards.

12 Productivity Commission, 2005, *Review of National Competition Policy Reforms*, Inquiry Report No. 33, Canberra.

Effective transportation networks bring consumers closer to more businesses, and they bring workers in contact with more opportunities. They promote competition, greater specialisation by both firms and workers, and promote innovation and a more dynamic economy. Poor transportation can impede the competitiveness of businesses and reduce their ability to provide services efficiently to their customers and hurt our national productivity.

Investment in new infrastructure and making better use of Australia's existing infrastructure assets is important to generating economic activity in the near term as the economy transitions from resources-investment-led growth.

Box 3.1: The changing Australian business environment

The way consumers and businesses interact is changing. This is driven by globalisation, the growth and proliferation of online services and disruptive technologies.

Over the past two decades, the continuing economic re-emergence of Asia has led to a shift in the world's economic activity. It is projected that by 2030, there could be around 3.2 billion middle class people in the Asia Pacific region.¹³ Asia's continued rise will bring great economic opportunities closer to Australia's doorstep. Australia needs to be in a position to take full advantage of these opportunities.

Open markets give Australians access to overseas goods, finance and new business opportunities, and mean that domestic firms need to be more dynamic and competitive in order to prosper. Comprehensive free trade agreements, such as those concluded recently with Japan, South Korea and China, are important contributors to trade and investment liberalisation, helping Australian businesses compete on the global stage. The Government is also negotiating other free trade agreements, including negotiations with India and the Gulf States.

Mobile devices, social networking, cloud computing and other technologies are profoundly transforming the relationships between businesses and their customers. In this digital economy, consumers are becoming more powerful, and companies find themselves with new avenues for building competitive advantage.

As the Australian economy continues to move beyond the investment peak of the resources boom, it will be important that individuals and businesses in all sectors of the economy continue to innovate and adopt new technologies to work smarter and, by doing so, deliver higher quality, greater value or more output from a given set of inputs.

3.2.2. Supporting Australian businesses to thrive

There are a range of other measures that governments can pursue to support productivity growth. These measures will help position Australian businesses to be flexible, competitive and robust in the face of dynamic global conditions.

The most recent review of competition policy in Australia, the Hilmer Review, was undertaken in 1993. The Productivity Commission has estimated the competition-enhancing reforms that followed the Hilmer Review delivered substantial

13 Homi Kharas and Geoffrey Gertz, 'The New Global Middle Class: A Cross-Over from West to East', in Cheng Li (editor), *China's emerging middle class: beyond economic transformation*, Washington, DC: Brookings Institution Press, 2010, p 37.

benefits to the Australian economy during the following decade, with reforms in key infrastructure sectors leading to a 2.5 per cent increase in GDP.

In the 2000s, it was the surge in our terms of trade and the mining investment boom, rather than sustained microeconomic reforms, that underpinned growth in our living standards. In order to boost productivity and to recognise the considerable change in the business and global environment since 1993, the Government commissioned an independent review of competition policy in 2013. The Competition Policy Review released its Draft Report in September 2014, with draft recommendations to reform competition policy to position business to meet the challenges and opportunities of the global marketplace, digital disruption and the ageing population. Following consultation on the draft recommendations, the Final Report is due to be delivered to Government in March 2015.

At present, the Government is also working towards reducing the complexity and compliance burden of doing business in Australia by continuing its focus on red tape and green tape reduction. Since 2013, the Government has announced more than \$2.1 billion in net red and green tape savings for individuals, businesses and the not-for-profit sector. This is more than double the Government's commitment to remove \$1 billion in red and green tape from the economy each year, and includes the removal of around 10,000 pieces of redundant legislation.

It is important to continue to energise enterprise and to make it easier for business to start up in new and emerging markets. A review is underway by the Productivity Commission on the barriers to entry and exit for business.

Workplace regulation has been progressively and substantially reformed in recent decades. Many of the fundamental reforms were undertaken in the 1980s and 1990s, in particular the shift from centralised wage-fixing to enterprise bargaining. These reforms have delivered substantial benefits, for example a more flexible labour market that is better placed to adjust to macroeconomic shocks, such as economic downturns.

The Government has asked the Productivity Commission to undertake an inquiry into Australia's workplace relations framework.

Reforms to Australia's financial system in the 1980s and 1990s underpinned Australia's economic stability and growth over the past 25 years. These reforms are amongst the main reasons that Australia weathered the global financial crisis well in comparison to international peers. Additionally, deregulation of the financial sector has meant the volume and quality of financial services in Australia has dramatically improved.

To sustain high performance in the financial system, the Government commissioned in 2013 an independent inquiry into the performance of Australia's financial system. The Murray Inquiry was tasked with examining how the financial system can be positioned to meet Australia's evolving needs and support Australia's economic growth.

The Murray Inquiry found that, overall, the Australian financial system had performed well over the past two decades and has many strong characteristics. Nevertheless, it found room for improvement and made 44 recommendations designed to foster an efficient, competitive and flexible financial system that is capable of meeting future challenges. The Government is currently considering its response to the report.

3.2.3. Encouraging higher participation

Continued efforts to encourage higher participation across the community would have widespread benefits for Australia's economy and society.

In general, Australians are living longer and healthier lives than in years past, and are more active in their older years. Over the next 40 years, Australia will need to embrace the potential of this talented older population group, particularly by valuing their increased and ongoing engagement in the workplace and community. The Government has introduced the Restart Programme, which provides a clear and long-term financial incentive for employers to employ and retain older Australians.

The Government will also continue to support prospective parents and parents (particularly women) in the workplace through accessible, flexible and affordable child care and early learning. The Productivity Commission's report on Childcare and Early Childhood Learning notes that although Australian Government funding for childcare facilities, services and fee assistance rebates has escalated to around \$7 billion a year, many parents report difficulties in finding early childhood education and care at a location, price, quality and hours they want. By addressing barriers such as the availability of appropriate child care, governments can support increased workplace participation. The Government is committed to child care becoming more flexible and accessible for Australian families. The Government is carefully and methodically considering the Productivity Commission's recent report on Childcare and Early Childhood Learning and will shortly announce its response as part of a comprehensive families' package.

Higher workforce participation can reduce the fiscal pressures associated with providing welfare support and serve social inclusion and equity goals. The Government believes that assistance to the unemployed should help them move into employment rather than encouraging them to remain on welfare. A number of programs are being introduced, including a new employment services system and a reinvigorated Work for the Dole, to meet the needs of job seekers, employers and service providers. Programs such as the Job Commitment Bonus and Relocation Assistance to Take Up a Job have also been introduced to assist young, long-term unemployed jobseekers to move off welfare and into paid work.

As discussed in previous chapters, attracting skilled migrants can provide both economic and social benefits to Australia. In an increasingly competitive global labour market, skilled migration that is well targeted and appropriately adjusted to our

economic circumstances will support Australian employers and businesses, and provide benefits through a younger and more skilled population in which there are more workers supporting the rest of the community.

3.3. Continuing budget repair

The fiscal projections in this report show that significant progress has been made to repair the budget, but this task is incomplete. Without the Government's proposed policies, or alternative measures with an equivalent fiscal impact, the budget will not return to surplus at any point over the next 40 years and net debt would rise to 57.2 per cent of GDP by 2054-55, or \$2,609 billion in today's dollars.

As explained in Part 1, the projections in this report are sensitive to the underlying assumptions, and reflect just one possible outcome based on a set of well-informed assumptions.

The economic growth projections also need to be understood as an average growth projection through to 2054-55, and not as a forecast of uninterrupted growth. In reality, it is almost certain that any economy will experience business cycles or external shocks over a 40 year time horizon.

The uncertainty around projections highlights the importance of placing the budget in the strongest possible position to meet whatever challenges the future may bring. To prepare for the future, taking early action to address budget challenges is imperative to avoid the need for a sharper adjustment in the future and to afford quality government services in the years to come.

The 2015 Intergenerational Report shows that we can have a positive and more prosperous future if we plan for tomorrow, today.

Appendix A: Projections summary

Table A.1 Economic and fiscal projections

	2014-15	2024-25	2034-35	2044-45	2054-55
Economic projections					
Real GDP growth (%)	2.5	2.8	2.8	2.6	2.3
Real GDP per person (\$)	67,800	79,500	91,500	106,400	121,900
Real GDP per person growth (%)	0.8	1.3	1.5	1.5	1.3
Real GNI per person (\$)	66,400	76,100	87,900	102,300	117,300
Real GNI per person growth (%)	-1.9	1.4	1.5	1.5	1.3
Total participation rate 15-64 (%)	76.2	78.2	78.8	79.1	79.3
Total participation rate 15+ (%)	64.6	64.9	64.0	63.4	62.4
Male 15+	70.8	70.7	69.8	69.1	68.1
Female 15+	58.5	59.1	58.4	57.7	56.8
Fiscal projections (% of GDP) (a)					
Underlying cash balance	-2.5	0.8	1.3	1.4	0.5
Primary balance	-1.8	1.2	1.4	1.0	0.0
Net debt	15.2	6.7	-4.0	-13.2	-15.0
Net financial worth	-21.6	-5.4	10.4	23.0	27.7
Net worth	-14.3	1.3	17.3	30.0	34.8

(a) Based on the 'proposed policy' scenario.

Source: Treasury projections.

Table A.2 Demographic projections

	2014-15	2024-25	2034-35	2044-45	2054-55
Population (millions)					
0-14	23.9	28.0	32.0	35.8	39.7
15-64	4.5	5.3	5.9	6.3	6.9
65-84	15.8	17.8	19.9	22.1	23.8
85 and over	3.1	4.3	5.2	5.9	7.0
0.5	0.5	0.6	1.0	1.5	1.9
Life expectancy at birth (years) (a)					
Male	91.5	92.6	93.5	94.4	95.1
Female	93.6	94.5	95.3	96.0	96.6
Total fertility rate	1.9	1.9	1.9	1.9	1.9
Dependency ratio (b)	4.5	3.7	3.2	3.0	2.7
Net overseas migration (% total population)	1.0	0.8	0.7	0.6	0.5

(a) Life expectancy figures are calculated using the cohort method.

(b) The dependency ratio refers to the number of people of traditional working age (15-64) for every person over 65. These figures use year average population numbers rather than end of year population numbers.

Source: Treasury projections.

Table A.3 Projections of major components of Australian Government spending (per cent of GDP)

	2014-15	2024-25	2034-35	2044-45	2054-55
Health	4.2	3.9	4.0	4.6	5.5
Aged care	0.9	1.1	1.3	1.4	1.7
Age and Service Pensions	2.9	2.5	2.5	2.6	2.7
Other income support					
Disability Support Pension	1.1	0.9	1.0	1.0	1.0
Assistance to families					
Family Tax Benefit	1.3	0.9	0.7	0.6	0.5
Child Care Benefit and Rebate	0.4	0.4	0.4	0.3	0.3
Parenting Payment Single	0.3	0.2	0.2	0.1	0.1
New start Allowance	0.6	0.4	0.4	0.3	0.3
Youth Allowance and Austudy	0.3	0.2	0.2	0.2	0.1
Carers Payments and Wife Pension	0.5	0.6	0.7	0.8	0.8
Parenting Payment Partnered	0.1	0.0	0.0	0.0	0.0
Total other income support	4.5	3.7	3.5	3.3	3.2
Education					
Schools	1.0	0.9	0.8	0.7	0.6
Tertiary Education(a)	0.8	0.6	0.6	0.5	0.4
Total education	1.7	1.6	1.4	1.2	1.0
National Disability Insurance Scheme	0.0	0.7	0.8	0.8	0.9
Public Sector Superannuation(b)	0.4	0.4	0.3	0.3	0.2
Defence	1.8	2.0	2.0	2.0	2.0
Total modelled payments	19.8	19.4	19.2	19.5	20.4
Total payments	25.9	25.0	24.6	25.0	25.9
Total payments (excluding interest)	25.0	24.1	23.9	24.2	25.1

(a) Includes Higher Education and Vocational Education and Training. These figures do not take into account the significant increase in lending to students through the higher education and vocational education and training loan schemes.

(b) Refers to the government's superannuation spending associated with the public sector defined benefit schemes. The projections of public sector superannuation payments are from the 2011 Long Term Cost Report. The Report relies on economic assumptions which differ slightly from those underpinning this report. The impact of this inconsistency on the above proportions is not considered to be material.

Figures may not add due to rounding.

Source: Treasury projections.

Table A.4 Projections of major components of Australian Government spending (real spending per person, 2014-15 dollars)

	2014-15	2024-25	2034-35	2044-45	2054-55
Health	2,800	3,000	3,500	4,700	6,500
Aged care	620	830	1,100	1,400	2,000
Age and Service Pensions	2,000	1,900	2,200	2,700	3,200
Other income support					
Disability Support Pension	710	700	830	980	1,200
Assistance to families					
Family Tax Benefit	900	660	630	600	590
Child Care Benefit and Rebate	280	330	320	310	310
Parenting Payment Single	190	150	150	140	140
New start Allowance	410	310	340	340	350
Youth Allowance and Austudy	190	160	160	160	160
Carers Payments and Wife Pension	320	470	630	780	940
Parenting Payment Partnered	40	30	30	30	30
Total other income support	3,100	2,800	3,100	3,400	3,700
Education					
Schools	660	710	720	700	690
Tertiary Education(a)	530	470	490	490	480
Total education	1,200	1,200	1,200	1,200	1,200
National Disability Insurance Scheme	20	500	670	840	1,000
Public Sector Superannuation(b)	280	290	300	290	230
Defence	1,200	1,500	1,800	2,000	2,300
Total modelled payments	13,500	14,800	16,800	19,900	23,900
Total payments	17,600	19,000	21,600	25,400	30,300
Total payments (excluding interest)	17,000	18,300	20,900	24,600	29,400

(a) Includes Higher Education and Vocational Education and Training. These figures do not take into account the significant increase in lending to students through the higher education and vocational education and training loan schemes.

(b) Refers to the government's superannuation spending associated with the public sector defined benefit schemes. The projections of public sector superannuation payments are from the 2011 Long Term Cost Report. The Report relies on economic assumptions which differ slightly from those underpinning this report. The impact of this inconsistency on the above proportions is not considered to be material.

Figures may not add due to rounding.

Source: Treasury projections.

Appendix B: Sensitivity analysis of long-run economic and spending projections

Projections in this report have been developed using a range of assumptions. These assumptions are detailed in Table B.1. There are significant uncertainties around these assumptions. As such, this report should not be viewed as a forecast.

This appendix contains analysis of how variations to assumptions related to population, participation and productivity may impact on the proposed policy projections. The results show that the proposed policy results are robust to variations in underlying assumptions.

Table B.1 Assumptions underlying sensitivity analysis

	Lower	Proposed policy	Higher
Economic			
Total labour force participation rate (15+) (%)	61.5 (a)	62.4	63.3 (b)
Unemployment rate (%)	4.0	5.0	6.0
Labour productivity growth (%)	1.4	1.5	1.6
Demographic			
Net migration (no. of people per year)	180,000	215,000	250,000
Fertility (total fertility rate)	1.7	1.9	2.1
Life expectancy at birth (years)			
Males in 2054-55	84.7 (c)	88.1	90.7 (d)
Females in 2054-55	87.9 (c)	90.6	92.6 (d)

(a) The lower labour force participation sensitivity assumes that total participation decreases by 1.5 per cent by 2054-55 which is factored in from 2018-19 across all age and gender groups.

(b) The higher labour force participation sensitivity assumes that total participation increases by 1.5 per cent by 2054-55 which is factored in from 2018-19 across all age and gender groups.

(c) Lower life expectancy uses the ABS's Medium Series which assumes that male and female life expectancy increases from 2009-2011 levels by 0.25 and 0.19 years per year respectively, until 2015-16 and then increases at declining rates. Life expectancy figures are calculated using the period method reflecting ABS figures.

(d) High life expectancy uses the ABS's High Series which assumes that male and female life expectancy increases from 2009-2011 levels by 0.25 and 0.19 years per year respectively until 2054-55. Life expectancy figures are calculated using the period method reflecting ABS figures.

Source: Treasury projections.

Table B.2 Sensitivity analysis results

	Proposed policy in 2054-55	Participation		Unemployment		Productivity	
		Low	High	Low	High	Low	High
Economic							
Real GDP (growth rate)(a)	2.78	-0.04	0.04	0.03	-0.03	-0.10	0.10
Real GDP per person (growth rate)(a)	148	-0.04	0.04	0.03	-0.03	-0.10	0.10
Real GDP per person(b)	\$121900	-\$1800	\$1800	\$1300	-\$1300	-\$4,300	\$4,500
Real GNI (growth rate)(a)	2.74	-0.04	0.04	0.03	-0.03	-0.10	0.10
Real GNI per person (growth rate)(a)	143	-0.04	0.04	0.03	-0.03	-0.10	0.10
Real GNI per person(b)	\$117,300	-\$1800	\$1800	\$1300	-\$1300	-\$4,300	\$4,500
Labour force participation(c)	62.4	-0.93	0.93	0.00	0.00	0.00	0.00
Labour force size(d)	20,340,000	-148	148	0.00	0.00	0.00	0.00
Dependency ratio (e)	2.7	0.00	0.00	0.00	0.00	0.00	0.00
Spending (per cent of GDP) (c)							
Health	5.5	0.06	-0.06	-0.05	0.05	0.14	-0.14
Aged care	17	0.02	-0.02	-0.02	0.02	0.07	-0.07
Age and Service Pensions	2.7	0.05	-0.05	-0.03	0.03	0.03	-0.03
Payments to individuals	3.2	0.04	-0.04	-0.10	0.10	0.07	-0.07
Education	10	0.02	-0.01	-0.01	0.01	0.04	-0.04
	Proposed policy in 2054-55	Fertility		Life expectancy		Migration	
		Low	High	Low	High	Low	High
Economic							
Real GDP (growth rate)(a)	2.78	-0.08	0.07	-0.02	0.01	-0.14	0.14
Real GDP per person (growth rate)(a)	148	0.04	-0.04	0.03	-0.02	-0.02	0.02
Real GDP per person(b)	\$121900	\$1700	-\$1700	\$1300	-\$1200	-\$900	\$1100
Real GNI (growth rate)(a)	2.74	-0.08	0.08	-0.02	0.01	-0.15	0.15
Real GNI per person (growth rate)(a)	143	0.03	-0.03	0.03	-0.02	-0.03	0.03
Real GNI per person(b)	\$117,300	\$1500	-\$1500	\$1200	-\$1100	-\$1200	\$1300
Labour force participation(c)	62.4	-0.34	0.32	0.86	-0.73	-0.58	0.61
Labour force size(d)	20,340,000	-3.07	3.08	-0.79	0.25	-5.28	5.42
Dependency ratio (e)	2.7	-0.09	0.09	0.18	-0.13	-0.12	0.11
Spending (per cent of GDP) (c)							
Health	5.5	-0.03	0.01	-0.14	0.15	0.02	-0.05
Aged care	17	0.05	-0.05	-0.11	0.10	0.08	-0.08
Age and Service Pensions	2.7	0.08	-0.08	-0.19	0.19	0.03	-0.12
Payments to individuals	3.2	-0.05	0.05	0.01	0.00	-0.02	-0.03
Education	10	-0.06	0.06	0.01	0.00	0.00	-0.02

(a) Represents the percentage point difference in the average annual growth rate for the period 2014-15 to 2054-55, compared to proposed policy.

(b) Represents the real dollar value difference in 2054-55 compared to proposed policy.

(c) Represents the percentage point change in 2054-55 compared to proposed policy.

(d) Represents the percentage change in the size of the labour force by 2054-55 compared to proposed policy.

(e) Represents the difference in the number of people aged 15-64 years to support people aged 65 years and above, compared to proposed policy.

Source: Treasury projections.

Table B.2 contains results of the sensitivity analysis. Lower unemployment, higher migration and higher labour force participation increase the proportion of the population in the workforce at a particular time. This generally leads to decreased government spending. Higher migration, for example, increases participation by 0.6 percentage points in 2054-55 compared to proposed policy. This results in lower spending as a per cent of GDP on Age and Service Pensions by around 0.12 percentage points in 2054-55.

Factors that increase participation also increase growth and incomes. For example, under the higher participation assumption, the annual average growth rates of real GDP per person and real GNI per person both increase by 0.04 points. This highlights that encouraging and valuing greater workforce participation, in particular amongst older age groups and females, presents an opportunity to further lift economic and income growth.

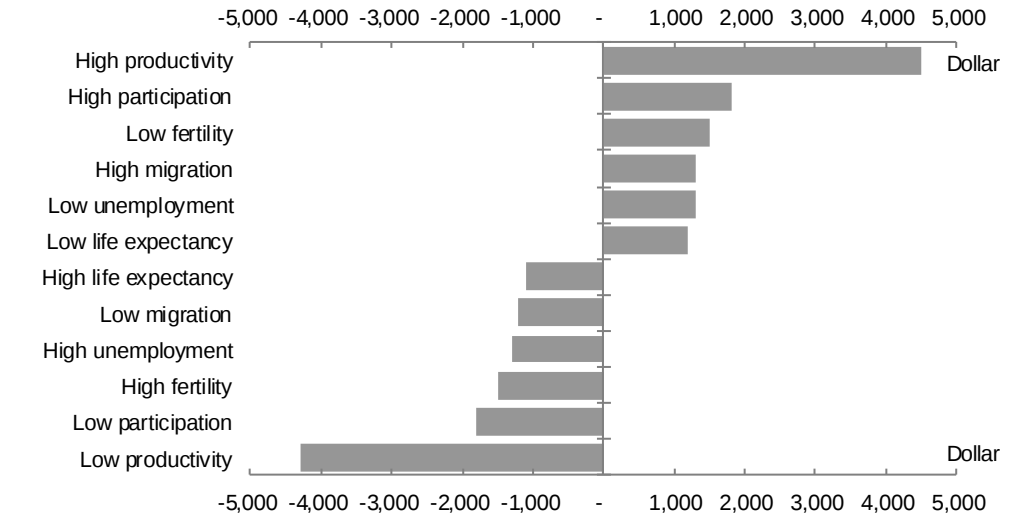
Higher fertility and life expectancy lead to lower levels of real GDP per person and real GNI per person. This is because the corresponding increases in the population are greater than the increases in real GDP and real GNI. Higher fertility and higher life expectancy lead to increases in government spending as a per cent of GDP because the oldest and youngest people in the population tend to participate less in the labour force and utilise more government support programs and services. Government spending on payments to individuals and education are concentrated on these two groups. Spending on aged care and Age and Service Pensions decreases as a per cent of GDP when fertility is higher because the older cohorts are a smaller proportion of the population. The full impact of higher fertility on the labour force is not seen within the 40-year projections due to the delay before the young reach working age.

Real GNI per person is affected the most by productivity. Whereas the sensitivity analysis of the other underlying assumptions projects increases and decreases in real GNI per person of between \$1,100 and \$1,800, higher productivity would lead to a projected increase of \$4,500 and lower productivity would lead to a decrease of \$4,300 (Chart B.1).

Variations in the growth of productivity have the most significant direct effect on the economy. For every 0.1 percentage point increase in the productivity assumption over the projection period, a corresponding change to real GNI per person of \$4,500 would be projected. A 1.7 per cent productivity assumption would be expected to increase real GNI per person by \$9,000 and likewise a productivity growth rate of 1.3 would be expected to decrease real GNI per person by \$8,600 in 2054-55.

This sensitivity analysis highlights the importance of increasing productivity to driving income growth over the coming decades. If productivity growth slows then growth in living standards will be at risk. If productivity growth is lifted through economic reform then future growth in living standards can also be lifted substantially.

Chart B.1 Change in real GNI per person in 2054-55 compared with proposed policy



Source: Treasury projections.

Appendix C: Methodology

This appendix outlines the modelling methodology underpinning the projections in this report.

C.1 Demographic and economic projections

Population projections

Treasury population projections are undertaken using the 'cohort-component' method. This is a standard approach which is also used, for example, by the ABS and the Productivity Commission. It involves age-specific assumptions about future fertility and age-sex-specific assumptions about future mortality and migration being applied year by year to the population broken down into groups or 'cohorts'. With the Treasury projections, these cohorts are males and females broken down by single year of age. The base data for the projections are ABS data on the current Australian population and patterns of fertility, mortality and net overseas migration.

Table C.1 Population projection assumptions

	Assumptions				
	Total	Net	Period life expectancy		Projected
	fertility	overseas	at birth in year 2050		population
	rate	migration	Males	Females	June 2050
	Children per woman	Persons	Years	Years	Million persons
Intergenerational Reports					
IGR 4 (2015)	1.9	215,000	87.5	90.1	37.8
IGR 3 (2010)	1.9	180,000	87.7	90.5	35.9
IGR 2 (2007)	1.7	110,000	87.6	90.2	28.5
IGR 1 (2002)	1.6	90,000	83.2	88.2	25.7
Australian Bureau of Statistics (2013)					
Series A	2.0	280,000	89.4	91.5	41.9
Series B	1.8	240,000	84.4	87.7	37.6
Series C	1.6	200,000	84.4	87.7	34.3
Productivity Commission (2013)	1.85	180,000	87.8	90.1	35.3

(a) Period life expectancy is reported here for comparability between reports and series.

(b) Life expectancy figures are presented in calendar years for comparability.

Source: ABS cat. no. 3222.0, Productivity Commission 2013 and Treasury projections.

Box C.1 Period and cohort life expectancy methodology

Period life expectancy at a given age is the average number of years a person will live if the age-specific mortality rates at that point in time, given the person's gender, were to apply for the rest of the person's life. It is the measure used by the ABS when reporting life expectancy in its annual publication 'Life Tables, Australia', and used for reporting in previous intergenerational reports.

In reality, mortality rates are likely to improve in the future, as advances are made in medicine and technology, so period life expectancy is likely to underestimate the number of years someone could actually expect to live. A more realistic measure of how long a person of a given age and gender can expect to live is 'cohort' life expectancy. Instead of being based on the mortality rates for all ages in a given year (the period life expectancy approach), the cohort life expectancy approach takes the age-specific mortality rate year-by-year for the particular year in which the person would be that age. Cohort life expectancy thus takes better account of likely future improvements in mortality rates.

Using the period method, the life expectancy of a male born in 2014-15 is described as 80.7 years and for a female 84.8 years. If expected improvements in mortality rates during the lifetime of a child born in 2014-15 are taken into account, the life expectancy of a male born in 2014-15 is projected to be 91.5 years and for a female 93.6 years. That is, expected improvements in mortality rates over their lifetimes are expected to add 10.8 years for males and 8.8 for females to the life expectancy of persons born in 2014-15.

Table C.2 Australians' projected life expectancy — period method (years)

	2014-15	2024-25	2034-35	2044-45	2054-55
Life expectancy at birth					
Men	80.7	82.9	84.9	86.6	88.1
Women	84.8	86.4	87.9	89.3	90.5
Life expectancy at age 60					
Men	23.8	25.5	27.0	28.3	29.5
Women	26.8	28.1	29.3	30.4	31.4
Life expectancy at age 70					
Men	15.7	17.0	18.1	19.2	20.2
Women	18.1	19.2	20.2	21.1	22.0

Period life expectancy at a given age is the average number of years a person will live if the age-specific mortality rates at that point in time, given the person's gender, were to apply for the rest of the person's life.

Source: Treasury projections.

Participation rate projections

Trend participation rates are broadly consistent with the 2010 report's methodology. For each five-year age group, gender and employment status (full-time and part-time) cohort, a participation rate is projected from the historical trend. The historical trend is determined as the ratio of the historical trends of the labour force and working age population.

Projected trend participation rates by age, gender and employment status are compared to maintain relativities between age groups, between genders, and between full-time and part-time status. The projected trend total participation rate is the sum of the projected trend participation rates across age groups, genders and employment statuses weighted by their share of the total working age population.

For youth (15-24 years of age), participation rate projections are held constant at the most recent historical trend value. This reflects limited historical information about how these cohorts will behave. For mature age workers (aged 60-64 and over), projected trend participation rates are modelled using cohort analysis, based broadly on the methodology described by the Productivity Commission.¹⁴ Following the Productivity Commission approach,¹⁵ labour force participation rates for the remaining cohorts are projected using Richards' curves.

Economic projections

Economic projections framework

Long-run projections of economic growth take short-term forecasts and medium-term projections as a base. This report is based on the forecasts and projections set out in the 2014-15 Mid-Year Economic and Fiscal Outlook (MYEFO). Details on these forecasts and projections can be found in the 2014-15 MYEFO, with the methodology to construct medium-term and long-run projections discussed in a recent Treasury Working Paper 2014-02.¹⁶ The 2014-15 MYEFO forecasts and projections extend until 2024-25. Using the same projection methodology, this report extends these projections to 2054-55.

Nominal GDP, prices and wages

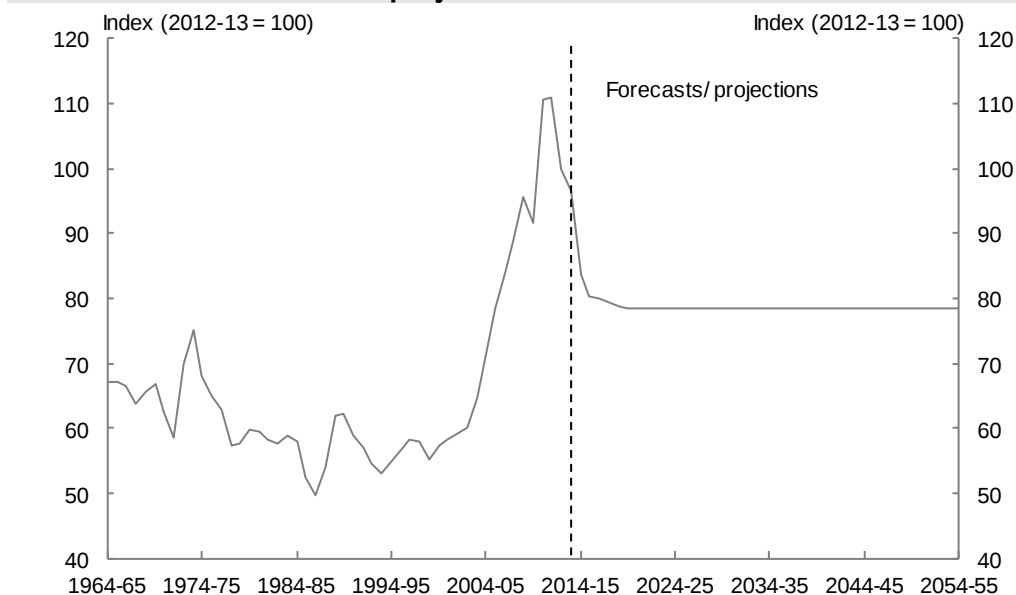
Output prices are a volume-weighted average of the price received for goods and services sold domestically and internationally.

Treasury has undertaken detailed modelling to project export prices, which was outlined in Treasury Working Paper 2014-01. Based on global demand and supply models for Australia's key commodity exports, this analysis suggests that even over the long-run, the real prices received for Australia's key commodity exports are likely to remain elevated compared with prices received in the early 2000s. The export price projections from this modelling underpin the 2014-15 MYEFO and this report, and indicate that Australia's long-run terms of trade will settle at the level observed in 2005-06 by 2019-20.

14 Productivity Commission (2005) *Economic Implications of an Ageing Australia*, Research Report, Productivity Commission: Canberra (Technical Paper No. 3: Cohort Analysis).

15 Productivity Commission (2005) *Economic Implications of an Ageing Australia*, Research Report, Productivity Commission: Canberra (Technical Paper No 2: Growth Curves).

16 Commonwealth Treasury (2014) Treasury's medium-term economic projection methodology, Treasury Working Paper 2014-02, The Treasury, Canberra.

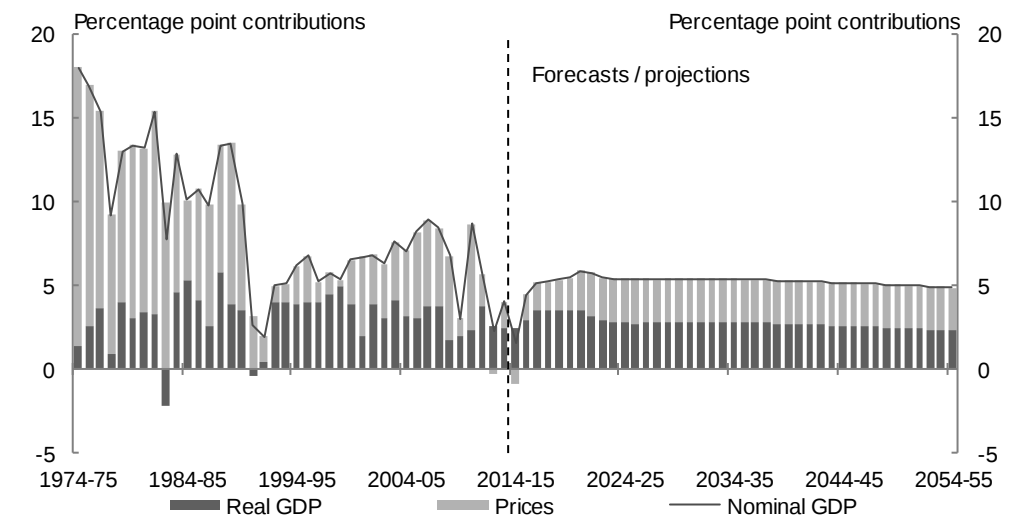
Chart C.1 Terms of trade projections

Source: ABS cat. no. 5206.0 and Treasury projections.

Under the framework outlined in Treasury Working Paper 2014-02, domestic price growth is driven by growth in wages. Over the cyclical adjustment period, spare capacity in the economy leads to below-trend wage growth. Below-trend wage growth helps to facilitate sufficient employment growth to transition unemployment back to its trend rate. Over the long-run, domestic prices grow by $2\frac{1}{2}$ per cent per annum, consistent with Australia's medium-term inflation target, and wages grow at around 4 per cent, consistent with domestic inflation and productivity growth of 1.5 per cent.

Over the cyclical adjustment period, the declining terms of trade and below-trend wage growth mean that output prices growth is modest (Chart C.2). Modest output price growth leads to subdued nominal GDP growth over the cyclical adjustment period, notwithstanding the above trend real GDP growth that is required to close the output gap. Over the long run, output prices grow at their constant trend rate of $2\frac{1}{2}$ per cent. Variations in long-run nominal GDP growth are therefore driven only by changes in potential output growth.

Chart C.2 Nominal GDP projections

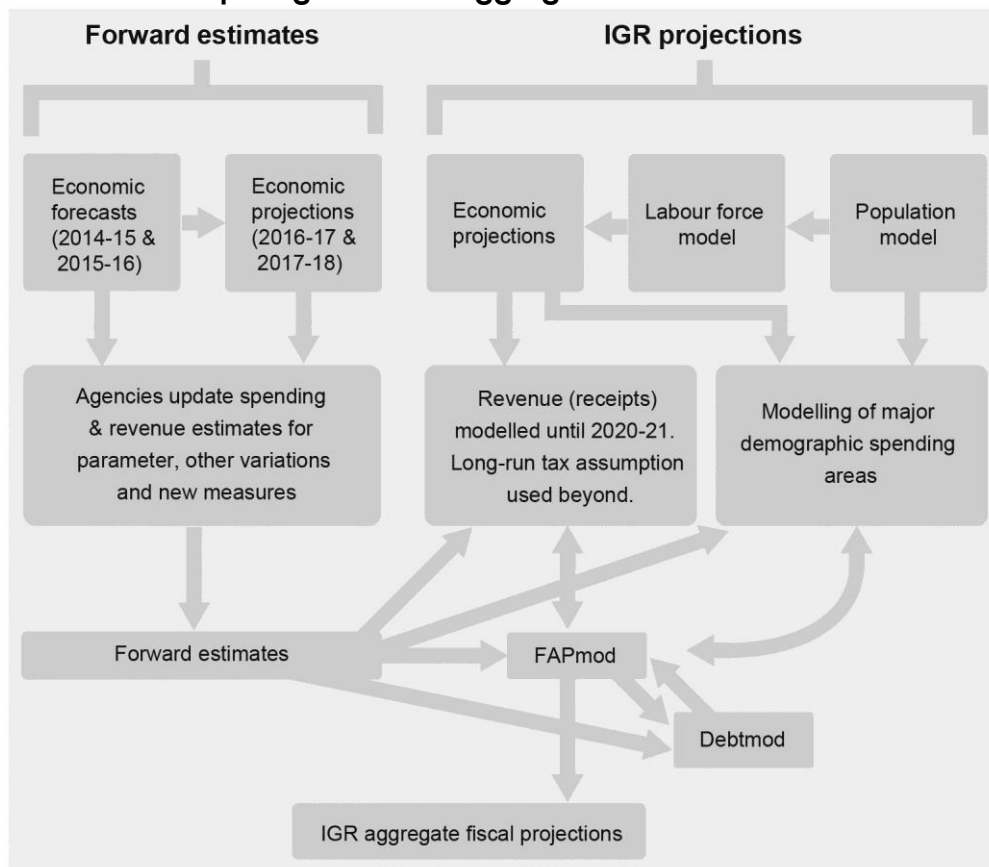


Source: Treasury projections. Projections assume trend economic growth from 2021-22 to 2054-55.

C.2 Aggregate fiscal projections

Fiscal aggregate projection model

The fiscal aggregate projection model (FAPmod) used to prepare the aggregate fiscal projections reported in this report draws together the outputs of a wide range of separate but consistent models (Chart C.3).

Chart C.3 Preparing the fiscal aggregates

For this report, FAPmod takes the updated fiscal and economic forward estimates and medium-term projections published in the 2014-15 MYEFO as its starting point. Beyond the forward estimates, the fiscal projections draw together the population and economic projections developed within the '3Ps' framework that underlies this report. These projections, in turn, underpin the separate but related models of revenue, health, income support payments, education and training, aged care, major defined superannuation benefit schemes for public sector employees, and defence personnel. Consistent with previous reports, this involves various models that produce projections under the guidance of a senior Treasury steering committee designed to ensure internal consistency and legitimacy of assumptions.

FAPmod is designed to replicate an internally consistent cash and accrual accounting system so that all fiscal aggregates can be produced. This means the operating statement, the cash flow statement, and the balance sheet are interconnected, with changes in one statement affecting the other statements.

FAPmod provides the capacity to model a broad range of fiscal aggregates. It was first developed to model the medium-term fiscal projections published in the

2009-10 Budget (for further information, see The Australian Treasury's fiscal aggregate projection model, Economic Roundup Issue 3, 2009). Since then, improvements in how modelling captures the interactions between flow concepts, such as the budget balance, and stock concepts, such as debt, has allowed for a more detailed assessment of the long-term fiscal outlook.

Debt model

This report builds on the debt modelling of previous reports by incorporating more detailed modelling of the face and market value of Commonwealth Government Securities (CGS) on issue (commonly referred to as gross debt) and the interest payments on CGS, known as public debt interest.

CGS on issue and public debt interest are modelled in a separate model — DebtMod. The key inputs to this model are the financing task in each year, the level of CGS at the end of the forward estimates and the assumed CGS yield curve in each year.

The financing task in each year is an output of FAPMod, and is comprised of the underlying cash balance excluding interest payments on CGS (which is an output of DebtMod), plus other financing requirements, for example investments in financial assets.

To model debt and public debt interest over the 40-year projection period, the yield curve used for the 2014-15 MYEFO forward estimates is used as the base yield curve. Outside the forward estimates, the yield curve is assumed to converge towards a fixed long-term yield curve with the gap being reduced each year by a quarter. The long-term yield curve is based on an assumption that the long-term yield on 10-year CGS is 6 per cent. This is consistent with the Long-Term Cost Reports prepared by the Australian Government Actuary.

DebtMod assigns new debt to specific bond lines in each year to meet the Government's projected financing needs. These bond lines are priced over time using the Treasury Bond and Treasury Indexed Bond pricing formulae and the assumed yield curve. This allows both the market and face value of CGS to be calculated.

Public debt interest on CGS issued in the past is calculated using the weighted average issuance yield for each individual bond line and debt issued over the projection period is calculated each year using the assumed yield to maturity for each individual bond line.

Debt modelling assumes that a floor on CGS on issue is maintained at 13 per cent of GDP. This is consistent with the policy and practice of governments since the 2003-04 Budget to support bond market liquidity by maintaining a minimum amount of CGS on issue, with the latest review in 2011 recommending a floor be set at 12-14 per cent.

C.3 Revenue projections

This report assumes, in the long-run, a constant tax-to-GDP ratio of 23.9 per cent. This rate is based on the average tax-to-GDP ratio of the years following the introduction of the GST and prior to the global financial crisis (2000-01 to 2007-08 inclusive). This methodology is similar to that used in previous reports.

Tax receipts continue to recover from the global financial crisis and are projected to increase as a proportion of GDP to 2020-21, when they reach the tax-to-GDP ratio assumption. The projected path is shown in Chart C.4. The increase in the tax-to-GDP ratio, until the tax-to-GDP ratio assumption is reached, is largely driven by increases in taxes on individuals reflecting increasing tax rates on personal income over time owing to the progressivity of the personal income tax scale and the fact that the personal income tax thresholds are set in nominal terms.

Chart C.4 Projected tax-to-GDP ratio



Source: Treasury projections. Projections assume trend economic growth from 2021-22 to 2054-55.

Historical trends and drivers

Australian Government receipts are derived from taxation and non-taxation sources.

Taxation receipts averaged 23.9 per cent of GDP over the eight years from 2000-01 (the year the GST was introduced) to 2007-08 and accounted for 94.1 per cent of total Australian Government receipts. Over this period:

- income taxes accounted for around 71 per cent of total taxation receipts;
- indirect taxes amounted to around 29 per cent of total taxation receipts; and
- GST accounted for around 15 per cent of total taxation receipts.

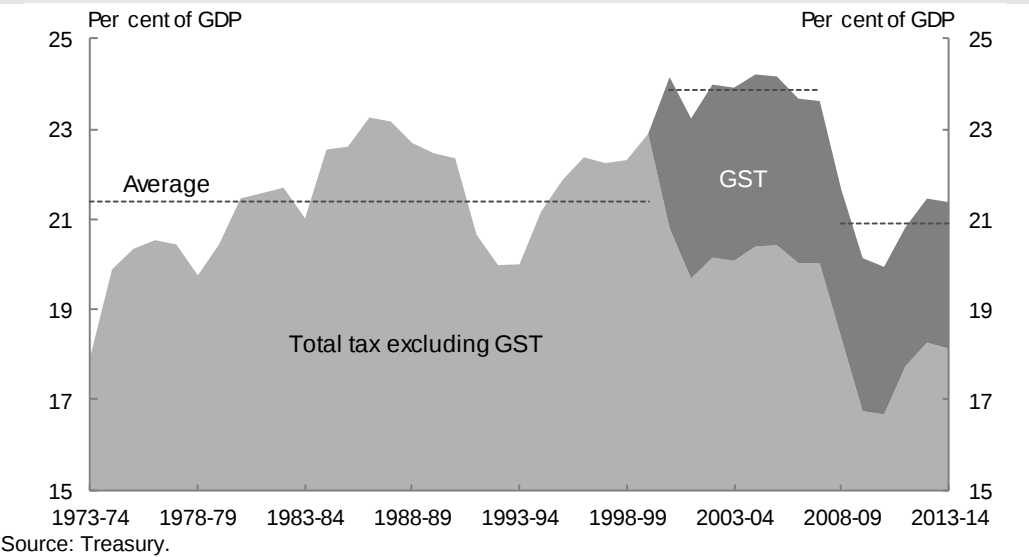
Non-taxation receipts include sales of goods and services, interest, dividends, petroleum royalties and seigniorage from circulating coin production. Non-taxation receipts averaged 1.5 per cent of GDP over the period 2000-01 to 2007-08 and accounted for 5.9 per cent of Australian government receipts.

Over time, taxation receipts are broadly correlated with nominal economic activity. Most tax bases correspond broadly to major elements of nominal GDP (such as compensation of employees, gross operating surplus and nominal consumption).

In the 20 years prior to the introduction of the GST, the ratio of Australian Government taxation receipts to GDP fluctuated between 20.0 and 23.3 per cent and averaged 21.9 per cent.

In 2000-01, the introduction of the GST and associated changes in Commonwealth-State financial arrangements resulted in proportionately more tax revenue being levied by the Australian Government and less by the States and Territories. The impact of this change can be seen in the upward step in the Australian Government's tax-to-GDP ratio in 2000-01 (Chart C.5).

Chart C.5 Total Australian Government taxation receipts, 1973-74 to 2013-14



Medium and long-term revenue projections

Previous reports have adopted an assumption that total Australian Government receipts as a proportion of GDP would remain constant at some point following the end of the four year 'forward estimates' period. This assumption was largely based on:

- an observation that the tax-to-GDP ratio had remained relatively stable over the past 30 years, and that such stability was observed widely in developed economies;
- that a strict no-policy-change scenario was unrealistic as it would imply constantly increasing average tax rates on personal income; and
- the emphasis of the reports rested on pressures that demographic change was likely to impose on future government spending rather than the way these spending pressures may be financed (such as through increasing revenues or raising debt).

Similarly, this report also assumes an unchanged tax-to-GDP ratio in the long-term and builds off the projections and methodology in the 2014-15 MYEFO. The tax-to-GDP ratio is projected to rise from 22.0 per cent of GDP in 2014-15 to 23.9 per cent of GDP in 2020-21 (Chart C.4).

Non-tax revenues are relatively small, rising from 1.6 per cent of GDP in 2014-15 to 2.5 per cent in 2054-55.

Policy assumptions

The relative overall stability of the historical tax-to-GDP ratio is largely the result of policy adjustments, particularly periodic adjustments to the personal income tax scale. Under strict no-policy-change assumptions (including no change to personal income tax scales), tax collections would rise faster than GDP (and be reflected in higher tax-to-GDP ratios). This mainly reflects the progressivity of the personal income tax system.

The projections from the end of the forward estimates period out to 2020-21 are based on a strict 'no policy change' scenario, allowing for the natural recovery of tax receipts revenues to be dedicated to improving the budget position and eliminating net debt. Beyond 2020-21, the estimates are prepared using a 'top-down' approach, as described earlier, assuming a constant tax-to-GDP ratio of 23.9 per cent. Within the overall long-run assumption, GST is assumed to comprise around 3.4 per cent of GDP.

The aggregate constant tax-to-GDP ratio is not intended to imply that different types of receipts will remain constant as a share of GDP. In the absence of policy adjustments, the current structure of the tax system will lead to some types of receipts not remaining constant as a share of GDP.

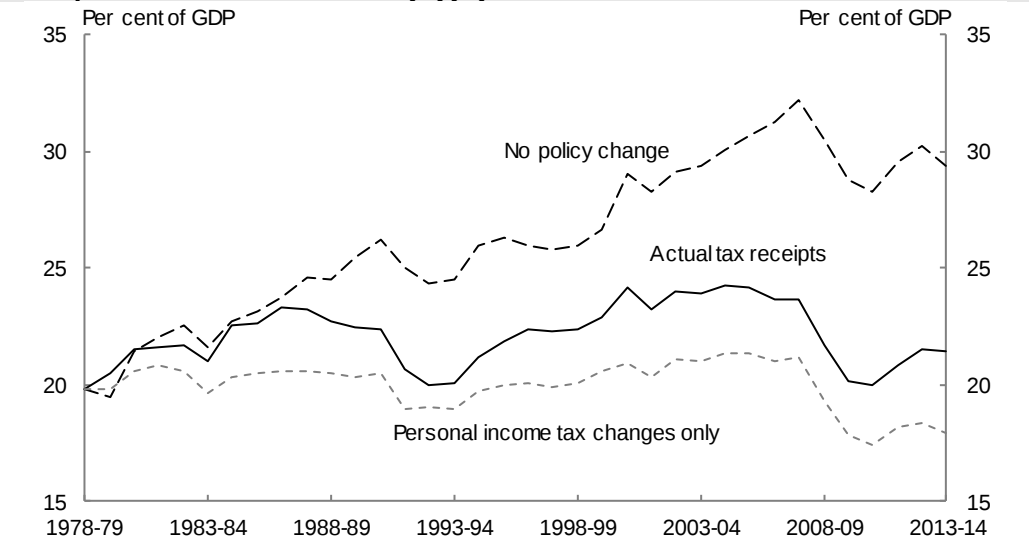
Progressivity of the nominal personal tax system

With no policy change tax collections would have risen much faster than GDP over time, resulting in a tax-to-GDP ratio considerably higher than actually occurred. This reflects increasing tax rates on personal income over time owing to the progressivity of

the personal income tax scale and the fact that the personal income tax thresholds are set in nominal terms.

History shows that in practice governments make substantial periodic adjustments to the personal income tax scale.

Chart C.6 Impact of policy changes on Australian Government tax receipts, 1978-79 to 2013-14 (a)(b)



(a) Wholesale Sales Tax (WST) has been included in all three series on the basis of actual collections, as a no-policy-change series for this tax is not available.

(b) The impact of policy changes in this analysis was calculated between pairs of sequential years and then aggregated. As the analysis period increases, there is an increased level of uncertainty with the total policy impact since 1978-79.

Source: ABS cat. no. 5206.0 and Budget Paper No. 1 (various years).

If individual taxpayers in 2011-12 had been taxed under the personal income tax scales of 1980-81, over half would have faced the then top marginal tax rate of 60 per cent and over 75 per cent would have faced a marginal rate of 46 per cent.

C.4 Spending projections

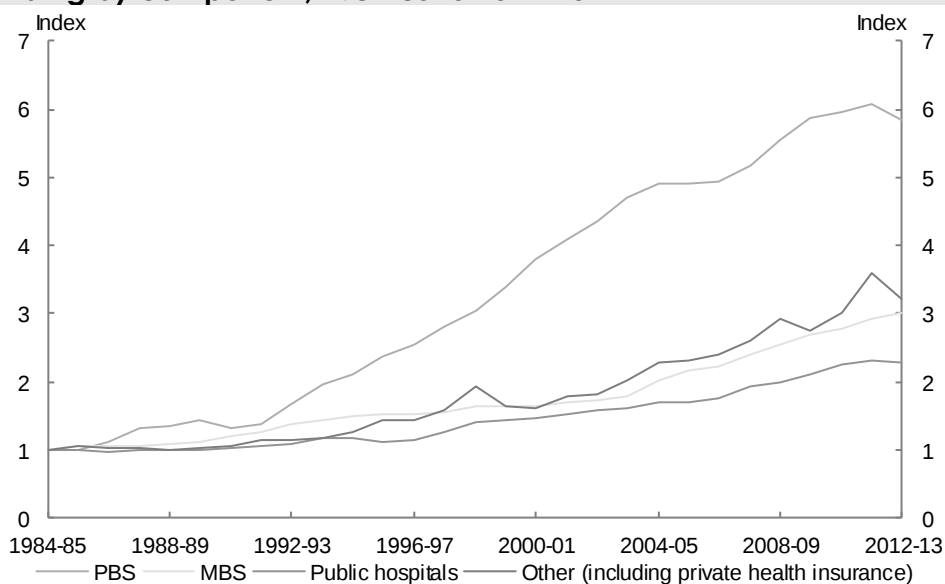
C.4.1 Health

General methodology

As with previous reports, health expenditure beyond the forward estimates is projected initially on the basis of individual component models for public hospitals, pharmaceutical benefits, medical benefits and private health insurance rebates. Expenditure not captured in the component models, such as veterans' health, public health programs and medical research, is held constant as a percentage of nominal GDP. This report has also made projections for the Medical Research Future Fund.

Consistent with the 2010 report, this report uses these component models to project the cost of health services per person for the first ten years beyond the forward estimates. The use of component models for this period seeks to balance the desire for more detailed projections against the uncertainty as to whether recent trends in individual components of government health expenditure will be representative of longer term trends. Over the past 30 years, growth for components of health spending has been variable which poses challenges for projecting health expenditure over a 40-year period (Chart C.7).

Chart C.7 Historical real growth in Australian Government health spending by component, 1984-85 to 2012-13



Note: Spend in 1984-85 = 1. Other health expenditure includes expenditure on the private health insurance rebate as the rebate commenced in July 1997 and therefore no index can be calculated independently over this time frame.

Source: Department of Health, Australian Institute of Health and Welfare and the Commonwealth Government Budget papers.

The uncertainty around the distribution of health expenditure between the components of health spending increases with the length of the projection. Because of this, from 2027-28 onwards, an aggregate model is used to project total Australian Government health spending, and assumes non-demographic growth trends towards the historical non-demographic growth rate for health spending by all levels of government over the longer term. This approach is consistent with that used in the 2010 report.

An alternative approach would be to project Australian Government health spending based on component models over 40 years. This methodology would assume that long-term growth in Australian Government health expenditure would occur at the historical rates relating only to those components.

The share of health spending made up by each component has changed significantly over time. For example, a shift in the composition of health care away from acute care and towards early intervention through pharmaceuticals and primary care has increased the Australian Government's exposure to the growth in all government health spending. In 1984-85, spending on the Pharmaceutical Benefits Scheme was approximately 7 per cent of Australian Government spending on health, but by 2013-14 this had risen to around 15 per cent.

The aggregate projection methodology is considered more likely to provide a more robust projection in the long-term than a component based methodology. In particular, long-term modelling on a component basis would risk underestimating future spending pressures on the health budget, which are driven by a variety of factors including technological changes, demographic changes and income growth.

Main changes to methodology since the 2010 report

Since the 2010 report, projection methodologies have been refined to reflect data availability and policy developments. Major changes include:

- using an exponential trend model (to replace the previous linear trend model) for medical benefits expenditure to align projections more closely with historical trends;
- projecting Australian Government hospital funding in accordance with current government policy on funding for hospitals, which was announced in the 2014-15 Budget;
- projecting private health insurance expenditure on the basis that, from 1 April 2014 onwards, private health insurance rebates are indexed annually by the lesser of the consumer price index (CPI) or the actual increase in premiums charged by insurers;

- including health departmental expenses as health spending rather than including it as residual government spending — this approach is consistent with the classification of health expenditure in Commonwealth budget papers; and
- technical amendments to the treatment of veterans' health expenditure to make the projections more consistent with other areas of health spending.

Medical Benefits

The medical benefits component model includes spending under the Medicare Benefits Schedule.

Projections are derived by first applying non-demographic growth to current spending on medical benefits per person for each age group in each gender. Population (excluding the veterans' population) and CPI projections are then applied to derive nominal projections of spending. The historical population series removes the veterans' population, as they receive medical services under separate arrangements from the Medicare Benefits Schedule. Spending on medical benefits for veterans has been included as other health spending (methodology described below) to ensure consistency with government budget presentation.

The non-demographic growth rate is derived from trends in historical Medicare Benefits Schedule expenditure data. This is done by adjusting historical spending data for CPI growth and changes in the size and age structure of the population to derive real age-adjusted spending per person. The non-demographic growth rate is determined by fitting an exponential trend to this series. Non-demographic growth is applied as a constant percentage increase in spending each year across all age groups.

The age profile of medical benefits spending shows that spending per person is higher for older age groups than for younger age groups (Table C.3). Spending per person on medical benefits peaks for those aged between 80 and 84 years for both males and females.

Table C.3 Index of the age profile of medical benefits spending per person, 2013-14

Age group	Male	Female
0-4	0.60	0.53
5-9	0.39	0.35
10-14	0.38	0.40
15-19	0.39	0.63
20-24	0.34	0.71
25-29	0.35	0.87
30-34	0.44	1.12
35-39	0.54	1.17
40-44	0.62	1.10
45-49	0.74	1.11
50-54	0.89	1.22
55-59	1.10	1.35
60-64	1.45	1.60
65-69	1.88	1.92
70-74	2.28	2.23
75-79	2.81	2.64
80-84	3.15	2.80
85+	3.03	2.70
Weighted average	0.85	1.15

Note: Index of average cost per person = 1.

Source: Treasury estimates based on data from the Department of Health.

Pharmaceutical Benefits

The pharmaceutical benefits model covers spending under the Pharmaceutical Benefits Scheme (including the Highly Specialised Drugs programme) and the Repatriation Pharmaceutical Benefits Scheme.

Projections are derived by applying non-demographic growth to current spending on pharmaceutical benefits per person for each age group in each gender. Population and CPI projections are then applied to derive nominal projections of spending. As expenditure through the Repatriation Pharmaceutical Benefits Scheme is included in the projection there is no need to remove veterans from the historical population (in contrast to projections of medical benefits expenditure). The age profile of spending for veterans is assumed to be the same as that for the general population.

The non-demographic growth rates are derived from trends in historical data on pharmaceutical benefits expenditure. This is done by adjusting historical spending by age group for CPI growth to derive real spending per person for each age group in each gender. As a linear trend fits the historical data better than an exponential trend model, the non-demographic growth rate is determined by fitting a linear trend to these series. Non-demographic growth is projected forward as a constant real dollar increase in spending each year for each age group in each gender. Where historical spending

for a particular age and gender-specific group has a negative linear trend, the model assumes that non-demographic growth for that group is zero.

The age profile of pharmaceutical benefits spending shows that spending per person is higher for older age groups than for younger age groups (Table C.4). Spending per person on pharmaceutical benefits peaks for those aged between 80 and 84 years for females and those aged 85 years and over for males.

Table C.4 Index of the age profile of pharmaceutical benefits spending per person, 2013-14

Age group	Male	Female
0-4	0.07	0.05
5-9	0.08	0.06
10-14	0.12	0.08
15-19	0.15	0.16
20-24	0.19	0.23
25-29	0.26	0.29
30-34	0.38	0.41
35-39	0.53	0.57
40-44	0.68	0.73
45-49	0.88	0.88
50-54	1.08	1.10
55-59	1.33	1.34
60-64	1.83	1.83
65-69	2.71	2.60
70-74	3.46	3.22
75-79	4.20	3.84
80-84	4.66	4.19
85+	4.69	4.14
Weighted average	0.97	1.03

Note: Index of average cost per person = 1.

Source: Treasury estimates based on data from the Department of Health.

Hospitals

Significant policy changes to hospitals funding have occurred since the 2010 report and the modelling methodology has been amended to reflect these changes. From 2017-18 onwards, funding in each year is calculated by increasing the previous year's funding by the product of the population growth factor and the CPI growth factor.

Spending on hospital services for veterans has been included in the other health spending category (methodology described below) to ensure consistency with government budget presentation.

Private health insurance rebates

From 1 April 2014, the Government's contribution to an individual's private health insurance rebate is indexed annually by the lesser of the CPI or the actual increase in the premium charged by insurers. Reflecting this policy, the private health insurance rebate model projects spending based on growth in the CPI and population. This assumes that premiums will generally rise faster than the CPI, as has occurred historically.

The current proportion of private health insurance holders in each five-year age cohort is assumed to remain constant beyond the forward estimates. This model therefore assumes zero non-demographic real growth, as increases in price are capped at the CPI and increases in demand are assumed to be primarily driven by demographic factors.

The proportion of individuals holding private hospital cover is higher for children than for those aged between 20 and 29 years, and increases until it peaks for those aged between 60 and 64 years for both genders (Table C.5). From this age onwards the proportion of individuals holding private hospital cover falls.

Table C.5 Proportion of population holding private hospital cover, by age, June 2014

Age group	Male	Female
0-4	0.42	0.42
5-9	0.47	0.47
10-14	0.46	0.46
15-19	0.45	0.45
20-24	0.33	0.36
25-29	0.29	0.35
30-34	0.43	0.49
35-39	0.48	0.51
40-44	0.48	0.52
45-49	0.50	0.52
50-54	0.52	0.55
55-59	0.55	0.57
60-64	0.57	0.59
65-69	0.55	0.58
70-74	0.53	0.53
75-79	0.50	0.50
80-84	0.49	0.47
85+	0.40	0.39
Weighted average	0.46	0.48

Source: Private Health Insurance Administration Council.

Medical Research Future Fund Contributions

Consistent with other spending areas, the policy assumption in this report for the Medical Research Future Fund (the Fund) is that of the 2014-15 MYEFO. It is assumed that the capital of the Fund is to be preserved in perpetuity. The annual rate of return is assumed to be equal to the 10-year Australian Government bond rate. Payments of the Fund's net interest earnings commence in 2015-16 and in a given year are assumed to be available in the following year to fund medical research priorities. These assumptions are consistent with government policy announced in the 2014-15 Budget. The investment of funds collected from health expenditure savings make a positive contribution to reducing projections of government net debt insofar as they are comprised of cash or debt or debt-like securities.

Other health spending

Other health spending includes all other Australian Government health spending. Major components of other health spending include:

- health workforce programs, including payments to general practitioners for infrastructure, training and support, and the Practice Incentive Programme;
- population health and safety programs, including funding for essential vaccines;

- health and medical research; and
- spending on veterans' health care.

Other health spending excluding veterans' health care is assumed to remain constant as a proportion of GDP.

This approach is consistent with how other non-demographic payments, other than public debt interest, are modelled.

Veterans' health care

Veterans' health care includes all spending on veterans' health care administered by the Department of Veterans' Affairs except spending on the Repatriation Pharmaceutical Benefits Scheme, which is included in the pharmaceutical benefits projections.

As veterans' health care spending per person is higher than that of the general population, veterans' spending is projected in two steps.

Firstly, veterans' spending per person is modelled as if expenditure per person was equivalent to spending for the general population. For medical benefits, per person spending on veterans is assumed to be at least equivalent to that derived for the general population in the medical benefits model.

For veterans' hospital services, per person Australian Government spending is assumed to be at least equivalent to per person spending on public hospitals by all levels of government for the general population. This requires the use of age-cost profiles for the general population based on public hospital expenditure by all levels of government.

The age profile of hospitals spending shows that spending per person is higher for older age groups than for younger age groups (Table C.6). Spending per person on hospitals peaks for those aged 85 years and over for both males and females.

Secondly, residual veterans' health spending per person (the part of veterans' health expenditure higher than the general population) is projected as a constant proportion of GDP per person.

Table C.6 Index of the age profile of hospital spending per person by all levels of government, 2012-13

Age group	Male	Female
0-4	0.84	0.68
5-9	0.21	0.17
10-14	0.20	0.19
15-19	0.34	0.44
20-24	0.38	0.60
25-29	0.37	0.82
30-34	0.43	1.03
35-39	0.50	0.91
40-44	0.58	0.73
45-49	0.71	0.74
50-54	0.91	0.86
55-59	1.19	1.02
60-64	1.64	1.33
65-69	2.21	1.73
70-74	2.85	2.30
75-79	3.71	2.91
80-84	4.51	3.52
85+	5.42	4.15
Weighted average	0.97	1.03

Note: Index of average cost per person = 1.

Source: Department of Health.

Aggregate model

Historical trends suggest that the components of health spending will grow at different rates in the short to medium term. History also suggests that these differences are unlikely to remain consistent over the long term. For this reason, the projection transitions to an aggregate model of health expenditure from 2027-28. It does this by growing the projected real spend per person in each age and gender group by an aggregate non-demographic growth rate.

The non-demographic growth rate is calculated from the growth in real, age-adjusted spending per person from all governments.

The growth rate is derived from the series of all government health spending over the past 29 years, adjusted for CPI growth and changes in the size and age structure of the population. As an exponential trend fits the historical data more closely, the non-demographic growth rate is determined by fitting an exponential trend to the series. The historical series was chosen to be 29 years, rather than 30 years, as this allows the growth rate to be calculated using only data for the period after the introduction of Medicare — the most recent major reform to have a pronounced impact on funding shares.

To aid a smooth transition between models, non-demographic growth in the aggregate model starts out at the rate implied by the component models at the end of their

projections — around 0.7 per cent. This is transitioned up to the all-government growth rate of 2.9 per cent using a logistic curve.

Box C.2 Health expenditure and national income

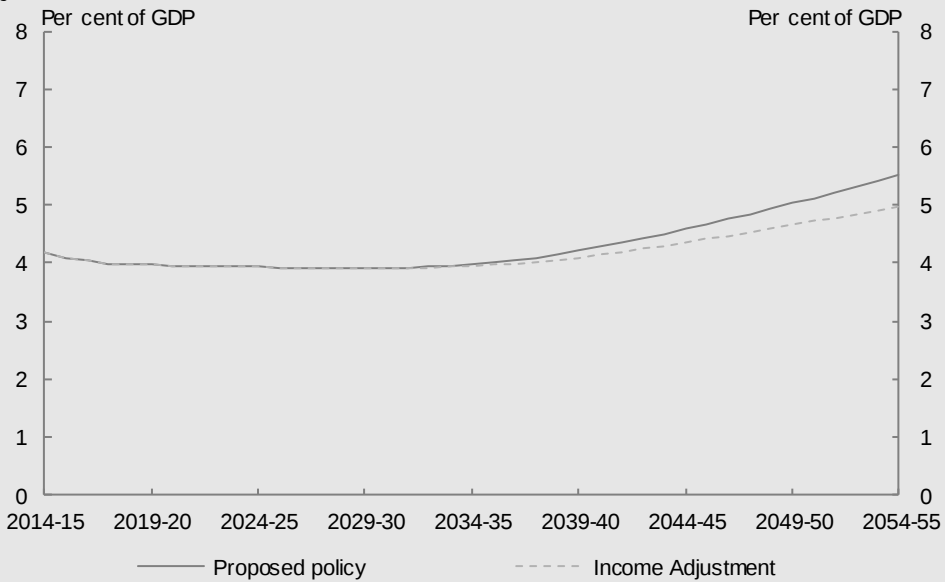
Generally, with higher incomes, individuals demand more, and higher quality, health care services. Over the past 30 years Government expenditure on health services has grown rapidly alongside fast growth in national income. This expansion in Government expenditure on health programs has, in part, been facilitated by changes to government policy over this period.

In the medium to long term, growth in national income is expected to slow, compared with income growth over the past 40 years. For growth in government health spending to decelerate in line with national income, Government would need to make significant changes to the funding of health care programs.

Given that a change in policy action would be necessary to adjust health expenditure growth in line with national income growth, the methodology of this report (as with previous reports) does not take into account the effect of slowing growth in national income on health expenditure. If policy action were taken to manage growth in health expenditure such that it was linked to income growth, long-term projections of health expenditure would be substantially lower than those projected under the 'proposed policy' scenario.

Incorporating an income adjustment with an elasticity of one (based on GNI per person) into the health modelling methodology would cause Australian government health expenditure projections to fall from 5.5 per cent to 5.0 per cent of GDP in 2054-55, as shown in Chart C.8 below.

Chart C.8 Australian Government health spending — income adjustment



Source: Treasury projections. Projections assume trend economic growth from 2021-22 to 2054-55.

Methodologically, an income adjustment would split the estimation of the non-demographic growth rate used in the 'proposed policy' scenario methodology into income growth and a residual growth rate. In this sense, the residual growth rate represents the growth above income growth per person (and is equivalent to adjusting for income growth with an elasticity of 1). Health projections would then be calculated by applying projected future income growth and the residual growth rate to age-specific spending rates per person.

GNI per person rather than GDP per person is the preferred measure of income, because GNI excludes foreign owned income, and is therefore more closely correlated with tax collections and public health expenditure.

Table C.7 Health spending data sources

Pharmaceutical benefits

Age-cost profiles

Five year age-cost profiles by gender from 2002-03 to 2013-14. Data includes all Pharmaceutical Benefits Scheme and Repatriation Pharmaceutical Benefits Scheme spending administered by the Department of Human Services and sourced from the Department of Health. Where expenditure was not attributed it was imputed to have been distributed according to the profile of expenditure which was attributed.

Historical program spending

Pharmaceutical Benefits Scheme and Repatriation Pharmaceutical Benefits Scheme data from the Department of Health.

Medical benefits

Age-cost profiles

Five year age-cost profiles by gender from 1984-85 to 2013-14. Data includes Medicare Benefits Schedule paid by the Department of Human Services and sourced from the Department of Health. Where expenditure was not attributed it was imputed to have been distributed according to the profile of expenditure which was attributed.

Historical program spending

Medicare Benefits Schedule data from the Department of Health.

Hospitals

Historical program spending

Australian Government funding for public hospitals from the Australian Institute of Health and Welfare.

Private health insurance

Proportion of individuals holding hospital cover

Calculated using coverage by age data from the Private Health Insurance Advisory Council.

Historical program spending

Private Health Insurance Rebate spending data from the Department of Health and the Australian Taxation Office.

Other health

Age-cost profiles for hospitals spending

Five year age-cost profiles by gender for 2012-13 provided by the Department of Health. Data includes expenditure on hospitals by all levels of government.

Historical program spending

Healthcare spending on veterans from Commonwealth budget papers and Department of Veterans' Affairs Annual Reports.

Veterans' population

Veterans' population historical data and projections supplied by the Department of Veterans' Affairs.

C.4.2 Aged care

Aged care expenditure projections are based on projections of Commonwealth funding levels per occupied Commonwealth aged care place and the number of occupied Commonwealth aged care places.

The average (Commonwealth) costs per occupied Commonwealth aged care places are indexed to reflect policies and other relevant factors including growth in cost of service, wages and frailty of recipients. Occupied Commonwealth aged care place numbers for the main aged care programmes are combined with population projections to calculate the projected number of occupied Commonwealth aged care places. The

per-occupied Commonwealth aged care place costs are then combined with place numbers to provide a base projection.

The projections directly allow for factors influencing the participation rate by programmes as well as the cost of administering the programs. The model also includes reductions in costs to government owing to increased private contributions in line with the tightening of means testing announced in April 2012.

Drivers of aged care spending

The growth in aged care spending is driven by both increasing provider costs and growth in the number of people aged 70 and over (the eligible age for most aged care programs). The relative impact of recipient growth falls over the projection period and the growth in costs becomes the dominant factor in aged care spending growth. This is a result of the decreased growth in the number of people aged 70 and over as the smaller cohort following the baby boomers move into aged care eligibility age.

Many older people wish to remain and be cared for in the community for as long as possible. Reflecting both current trends and policy, the projections incorporate some change in care mix away from low-level residential care to community care.

The projected higher private incomes and wealth interacts with tighter means tests to constrain future spending on aged care, with projections including the reduction in Australian Government costs in line with higher private contributions.

C.4.3 National Disability Insurance Scheme

The National Disability Insurance Scheme (NDIS) model projects spending on certain NDIS services as well as the National Injury Insurance Scheme (NIIS). Spending on the NDIS is apportioned between the Australian Government and State and Territory governments in accordance with the NDIS Heads of Agreement.

There is limited data available on the NDIS as it is still in the early stages of implementation. The NDIS model is therefore largely based on the findings in the Productivity Commission's 2011 inquiry report into Disability Care and Support (PC Report), with some variations for more recent data.

The cost of the NDIS is calculated as the sum of total Tier 3 costs (access to individualised supports for people with significant care and support needs), Tier 2 costs (information and referral services to people with a disability), the National Disability Insurance Agency (NDIA) costs and non-agency costs. Those who are cared for by the NIIS will not need to call on NDIS services, so the cost of the NIIS is subtracted from the above total to derive the total cost of the NDIS.

The number of participants in the NDIS is expected to increase rapidly until 2019-20 as the scheme progressively expands to cover all eligible individuals. During the transition phase projections for the NDIS are estimated by the Department of Social Services based on expected participant numbers.

Participant numbers

The projections assume no change in age-specific disability rates. As a result, from 2020-21 the number of Tier 3 participants aged under 65 increases in line with the population growth rates for those age cohorts, with around 440,000 participants aged under 65 expected to benefit from the scheme in 2019-20. To calculate the NDIS population over 65, assumptions are made about mortality rates and numbers of people turning 65 each year.

Not all people with disability will be funded by the NDIS. Some of those who suffer a catastrophic accident will be covered by the NIIS (which is premium-funded, rather than government-funded). NIIS participant numbers are based on the figures in the PC Report, and grow more quickly in the early years, reflecting that the NIIS only applies to accidents that occur after the implementation of the scheme. This initial higher growth rate tapers down so that in the longer term the number of participants in the NIIS increases in line with population growth.

Package costs

From 2020-21, Tier 3 package costs are assumed to grow in line with wages (Average Weekly Earnings). This reflects cost growth pressures for attendant care, which the PC estimated to be the largest component of Tier 3 packages. The Department of Social Services' estimate of average package costs in 2019-20 (around \$43,700 for those aged under 65) is used as a starting point for projections. The average NIIS package cost is assumed to grow at the same rate as aggregate Tier 3 average package costs.

Tier 2, NDIA and non-agency costs are assumed to grow at a constant rate.

Total Tier 3 cost is calculated by multiplying the Tier 3 population and the average package costs for the different age cohorts.

C.4.4 Income support payments

Comprehensive policy models

RIMGROUP is a cohort projection model of the Australian population, which starts with population and labour force models. The model tracks accumulation of superannuation, estimates non-superannuation savings and calculates pension payments and the generation of other retirement incomes (after taxes).

The model is consistent with proposed policy and includes announced future policy changes such as increases to the superannuation guarantee rate, changes in indexation of the Age Pension, and the raising of the eligibility age to receive the Age Pension from 65 to 70 progressively commencing in 2017.

RIMGROUP's ability to estimate improvements in retirement income and assets make it superior to trend projections of age-related pensions or those using a coverage rate approach. It projects the higher retirement incomes of Australian retirees as the superannuation system matures and reflects this as a restraining influence on Australian Government spending on age-related pensions over time.

Coverage trend models

Coverage trend models are used where spending is strongly related to participation rates for a payment and the unit cost growth was linked to a price index. These models are used to project spending on Disability Support Pension, Parenting Payment Single, Parenting Payment Partnered, Newstart Allowance, Youth Allowance (Student and other), Austudy, Wife Pension, Carer Payment, Carer Allowance, Family Tax Benefit, Paid Parental Leave, Child Care Benefit and Child Care Rebate.

The approach takes historical data on coverage or participation (in a payment or service) and extracts the trend to give a coverage or participation projection for the future, usually by age and gender. This projection is used with the population (or unemployment) projections and a standard unit cost to project the future level of expenses. The standard unit cost is usually independent of age or gender and assumed to grow in the future in line with either wages or CPI growth (or a combination). The projection of coverage often involves non-linear techniques such as logistic functions.

Increases in the Age Pension age announced in the 2009-10 Budget and the 2014-15 Budget will reduce the number of people eligible to receive the Age Pension. It is assumed that a proportion of those who would otherwise have been eligible to receive an Age Pension will receive other benefits. Coverage rates for other payments such as the Disability Support Pension, Carer Payment and Newstart Allowance have been upwardly adjusted to account for increases in the Age Pension age.

Table C.8 Summary of income support payment projection methodology

	Coverage rates	Future trends	Unit cost growth outside forward estimates
Disability Support Pension	Based on age and gender	Logistic curves used to taper growth	CPI to 2028-29 and AWE thereafter
Parenting Payment Single	Based on age and gender	Logistic curves used to taper growth	CPI
New start Allowance and Youth Allowance (Other)	Based on age and gender	Based on current take-up ratios	CPI
Parenting Payment Partnered	Based on age	Based on current take-up ratios	CPI
Carer Payment	Based on age and gender	Logistic curves used to taper growth	CPI to 2028-29 and AWE thereafter
Carer Allowance	Based on total population	Linear regression	CPI
Wife Pension	Based on total population	Linear regression	CPI to 2028-29 and AWE thereafter
Youth Allowance (Student)	Based on age and gender	Based on current take-up ratios	CPI
Austudy	Based on age and gender	Based on current take-up ratios	CPI
Family Tax Benefit	Based on age	Based on current take-up ratios	CPI
Child Care Benefit	Based on age	Based on current take-up ratios	CPI
Child Care Rebate	Based on age	Based on current take-up ratios	CPI

C.4.5 Education

Projections of Australian Government expenditure on education are based on projections of average funding amounts per student and total student numbers.

Following changes introduced in 2014-15 Budget, average Australian Government funding amounts per student for schools and higher education are indexed by inflation (CPI) from 1 January 2018. For vocational education and training, average funding amounts per student are indexed by wages.

Student numbers are calculated by combining current participation rates and population projections by age.

While school-age participation rates are projected to remain relatively stable over the projection period, the trend towards enrolments in non-government schools and away from government schools is an important factor influencing expenditure. This trend has been incorporated into the projections.

University participation rates for both males and females have been increasing steadily since 2009-10. This effect has been included in the projections after an initial slow down following recent changes to university funding arrangements. Only students in Australian Government supported places are included in the projections.

Vocational education and training participation rates for apprentices and students are projected to increase in line with recent trends. Apprentice participation rates for younger cohorts increase at a greater rate than older cohorts whose participation rates remain relatively constant.

Average Australian Government contributions per student were calculated for each component separately, and were then indexed for projected increases in inflation and wages growth, and multiplied by the projected student populations to obtain nominal spending for each sector.

Higher Education Loans Program (HELP)

Projections of the HELP receivable rely on a model of incomes and repayment parameters using data on the income of current and former HELP debtors provided by the Australian Taxation Office. The model simulates future incomes for each individual with an outstanding HELP debt based on the incomes, if any, reported to date and a limited number of demographic variables. The simulated income profiles allow future repayments against the outstanding debt to be estimated.

Under the 'previous policy' scenario, the repayment pattern generated by the model for debt incurred in the most recent financial year is applied to debt that is expected to be incurred in future years. This approach implicitly assumes that any growth in the aggregate debts being incurred, over and above normal indexation in charge rates, is the result of increased numbers of students rather than higher average debts in real terms. For the 'proposed policy' scenario, adjustments are made to allow for policy changes announced as part of the Government's higher education reforms.

There is considerable uncertainty attached to the modelling of future incomes of HELP debtors. The model relies on historical income profiles to project what might happen in the future. Over recent years, there has been a substantial change in the composition of those taking out loans both as a result of the move towards a demand-driven funding system for higher education and the extension of income-contingent loans to vocational training through the VET system. There are indications that the repayment characteristics for new debt may be significantly different from those for the debt incurred in the past. At this stage, the quantum of difference is unknown, so the model does not attempt to adjust for these changes.

C.4.6 Government employee superannuation

Projections of the unfunded defined benefit superannuation liabilities over the next 40 years are based on actuarial valuations using membership data to 30 June 2013 and the demographic and economic assumptions from the 2011 Long Term Cost Reports. The economic assumptions used in those reports differ slightly from those underpinning the intergenerational report. The impact of this inconsistency is not material.

The valuations project the unfunded liabilities and Commonwealth outlays associated with the four major defined benefit superannuation schemes: the Commonwealth Superannuation Scheme, the Public Sector Superannuation Scheme, the Defence Force Retirement and Death Benefits Scheme and the Military Superannuation and Benefits Scheme. These schemes account for almost all of the Australian Government's unfunded superannuation liability.

The projected decline in the liabilities as a percentage of GDP and, from 2040-41, in nominal dollar terms, is primarily a function of the move away from unfunded defined benefit schemes to funded accumulation arrangements.

C.4.7 Defence

This report projects defence expenditure to increase from 1.8 per cent of GDP in 2014-15 to 2 per cent of GDP by 2023-24 and then remain at 2 per cent of GDP from 2023-24 onwards. This approach holds the proportion of defence expenditure spent on non-financial assets constant at 33 per cent as provided in the 2014-15 Budget.

This aligns with the Government's pre-election commitment to increase defence expenditure to 2 per cent of GDP by 2023-24 which was included in the 2014-15 Budget. As a defence expenditure profile for the years beyond 2023-24 will be agreed in the 2015 Defence White Paper and the 2015-16 Budget, defence expenditure is held constant at 2 per cent of GDP from 2023-24 onwards. This enables defence expenditure to reflect changes in national income without representing a significant change in policy.

Projections of defence expenditure do not include funding for future international operations because of the inherent difficulty in anticipating future operational requirements.

C.4.8 Other spending

Other government spending includes GST payments to the States, purchases of non-financial assets and 'other payments'. These areas of spending generally do not have a clear link with demographic factors. Consequently these spending categories are not modelled separately.

GST payments

As the GST is entirely passed on to the States, GST payments are assumed to equal GST receipts, which in turn are modelled as a revenue head to 2020-21 (see Section C.2). Beyond then, GST is assumed to remain constant as a share of consumption, which equates to 3.4 per cent of GDP on average over the projection period.

Purchases of non-defence, non-financial assets

Purchases of non-defence, non-financial assets account for a relatively small proportion of other spending (around 0.2 per cent of GDP in 2014-15). They include purchases of fixed assets such as property, plant and equipment from outside the government sector, and prepayments. This spending falls to 0.1 per cent of GDP in 2017-18, and is held fixed from that year onwards.

Other payments

Major components of other payments include spending on the environment, transport and communications infrastructure, core government services such as departmental operating expenses and housing and community amenities.

Future Fund modelling

The Future Fund was established by the Australian Government in 2006 to provide for Commonwealth unfunded superannuation liabilities. For modelling purposes, drawdowns from the Fund are assumed to commence in 2020-21 and be equal to the Commonwealth's annual unfunded superannuation payments, consistent with the intent of the Fund's establishment.

The Future Fund is modelled over two separate periods, 2014-15 to 2019-20, the period prior to the commencement of annual drawdowns; and 2020-21 to 2054-55 following the commencement of drawdowns. Modelling assumes that the holdings of the Fund are allocated between two financial asset classes: investment (cash and other liquid assets such as interest-bearing liabilities) and equity holdings, with the asset portfolio weighted towards investment products. This is consistent with the current asset allocation of the Fund.

In the period 2014-15 to 2019-20, the assumed target rate of return is consistent with the Future Fund Investment Mandate Directions 2006 and the Fund's investment strategy. The investment mandate states that the benchmark annual average return is to be equal to at least the Consumer Price Index + 4.5 to + 5.5 per cent per annum over the long term.

Once drawdowns commence in 2020-21, it is assumed for modelling purposes that the Future Fund's asset allocation shifts further towards a more conservative and liquid portfolio of investment products with a lower assumed target rate of return. This reflects the requirement for greater liquidity following the commencement of annual drawdowns.

Between 2014-15 and 2019-20, annual net earnings (interest and dividends less operating expenses) of the Future Fund are excluded from the Australian Government underlying cash balance. This is consistent with the treatment in Commonwealth budget updates since the Fund was established in 2006. Once drawdowns commence in 2020-21, net earnings are included in the underlying cash balance, reflecting that the Fund's earnings are available to finance government liabilities from that date.

C.5 Fiscal scenario modelling

This report includes fiscal projections under three scenarios:

Previous policy

This scenario projects spending, revenue and fiscal aggregates based on the policy environment that existed immediately prior to the 2014-15 Budget. That is, a scenario that projects the fiscal position assuming that the measures contained in the 2014-15 Budget are never implemented.

The projections in this alternative scenario are based off the 2014-15 MYEFO projections (as with the 'proposed policy' scenario), with the impacts of the measures introduced in the 2014-15 Budget reversed. The underlying economic and demographic assumptions are those of the 'proposed policy' scenario, with economic projections adjusted by removing from the participation rate the impact of the increase in the Age Pension eligibility age.

This allows for variations in underlying parameters between the 2014-15 Budget and MYEFO to be included (for example, updates to nominal GDP growth forecasts) and therefore isolates the impacts of policy change. In turn, this allows for the direct comparison of projections made in this scenario with those of the 'proposed policy' and 'currently legislated' scenarios.

Currently legislated

This scenario reflects the number of 2014-15 Budget measures that are still pending legislation or implementation, including elements of the Government's reforms to health, income support and education. This scenario uses the same methodology as the 'previous policy' scenario to project spending, revenue and fiscal aggregates, but adjusts projections to account for those pending measures. This scenario therefore shows what would happen if pending measures, or measures of equivalent value, are never implemented.

Proposed policy

This scenario presents spending, revenue and fiscal aggregates on the basis of announced policy (as taken to the 2014-15 MYEFO), and assumes all outstanding measures, or measures of equivalent value, are implemented. This scenario follows the usual practice of projecting fiscal aggregates based on the full implementation of the policies of the Government of the day, and the *Charter of Budget Honesty Act 1998* requirement that the Intergenerational Report model current government policy.

Appendix D: Age specific participation rates

The age-specific participation rates for both men and women are projected to increase or stabilise in all age groups to 2054-55 (Chart D.1).

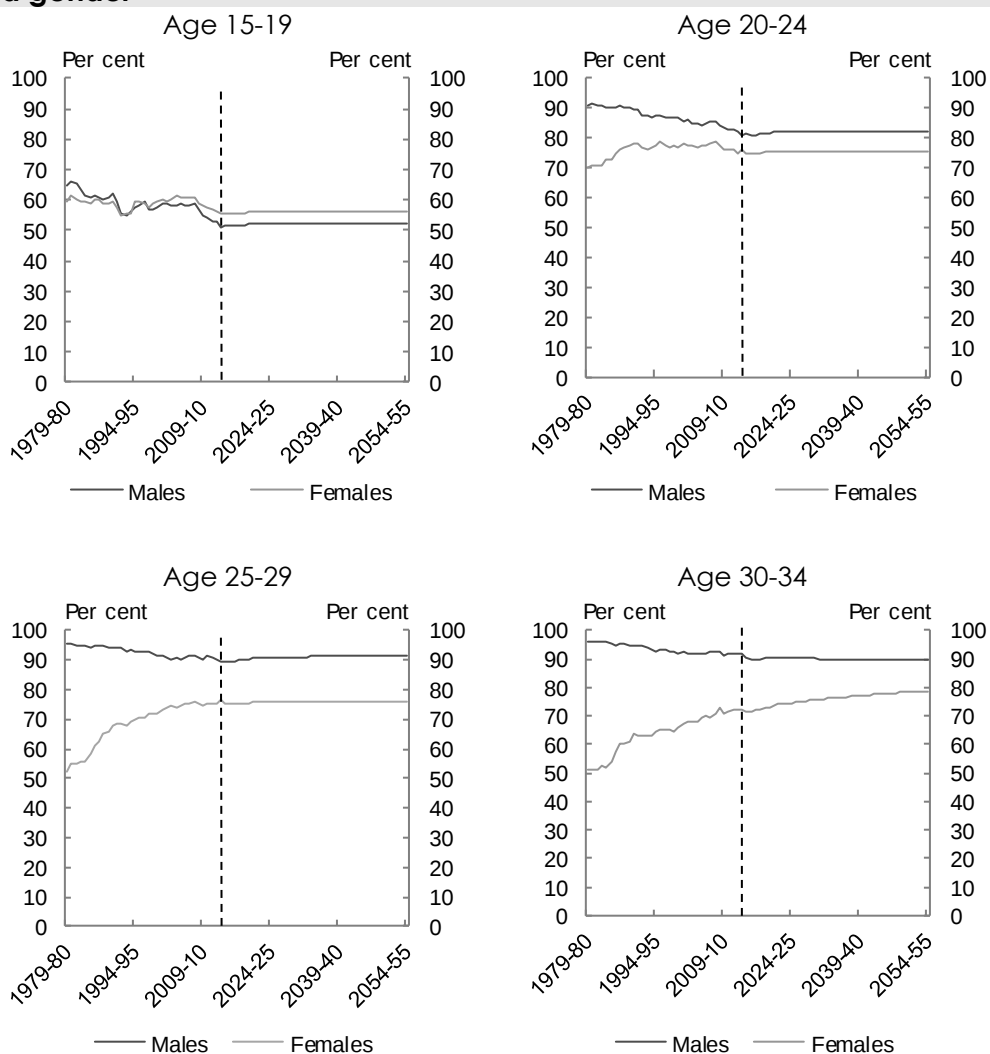
While total labour force participation is projected to decline as the population ages, based on recent trends, some age groups are expected to experience rising labour force participation rates.

Labour force participation rates for females in most age groups have increased significantly over the past 20 years, and are expected to continue increasing over the projection period. This is attributed to the increased levels of educational attainment among women and continued better access to childcare services and more flexible work arrangements.

For all age groups (other than those aged 15-19 years) the total participation rate for men is higher than for women. In 2013-14, around 71 per cent of men, compared to 58.6 per cent of women, participated in the labour force. This trend is projected to continue, with 68.1 per cent of men and 56.8 per cent of women in the labour force in 2054-55.

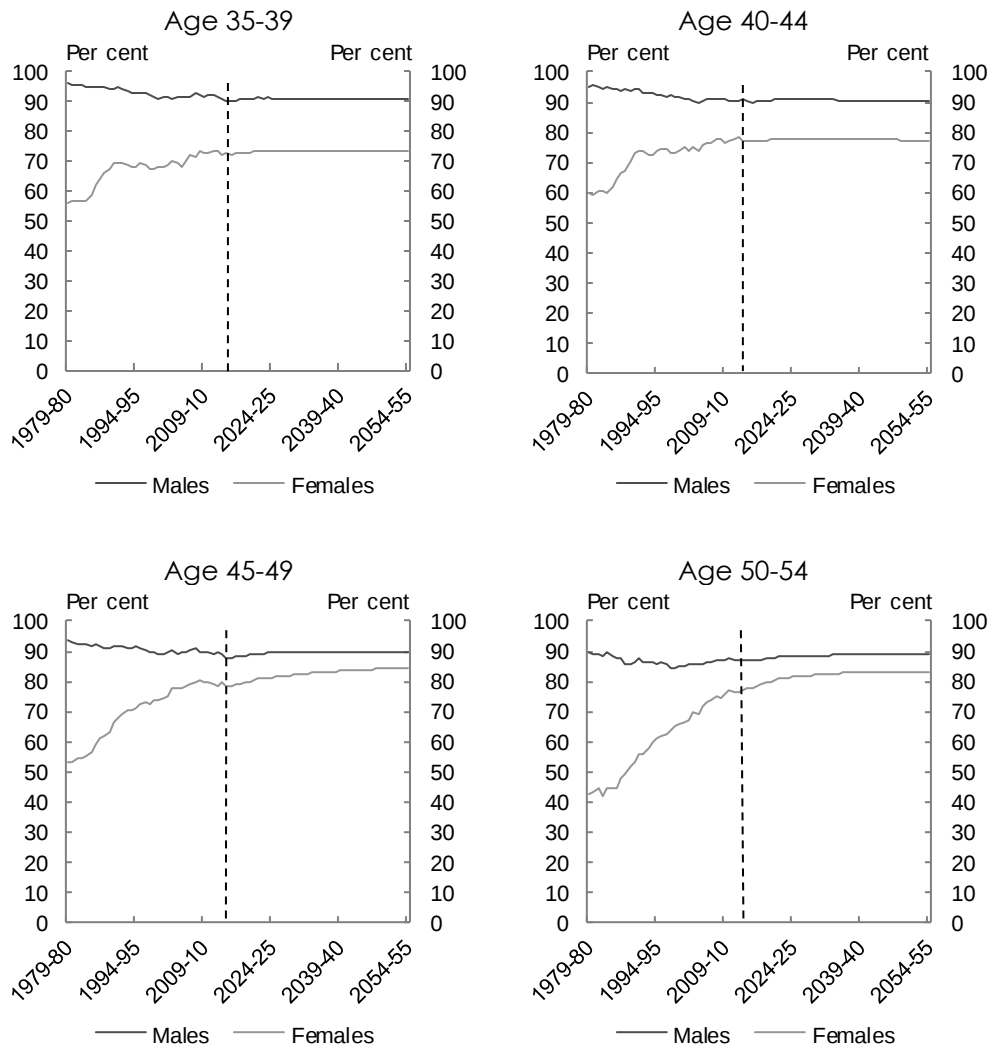
Participation rates of older age groups (aged 55+) have risen in recent years, a trend that is expected to continue as life expectancy increases and the availability of less physically demanding work rises.

Participation rates for men and women are projected to increase significantly for those aged 60-69 years. This is partly associated with the gradual increase in the Age Pension eligibility age from 65 to 70 years between 2017 and 2035.

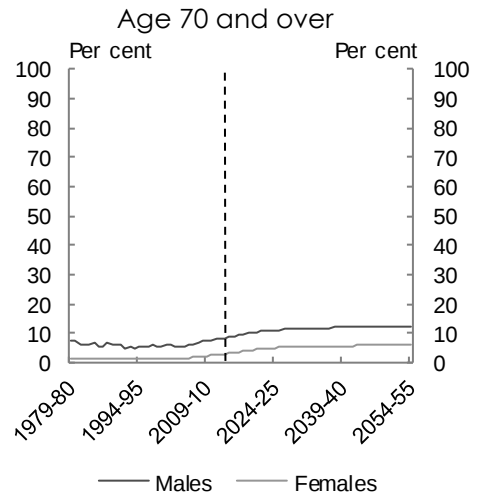
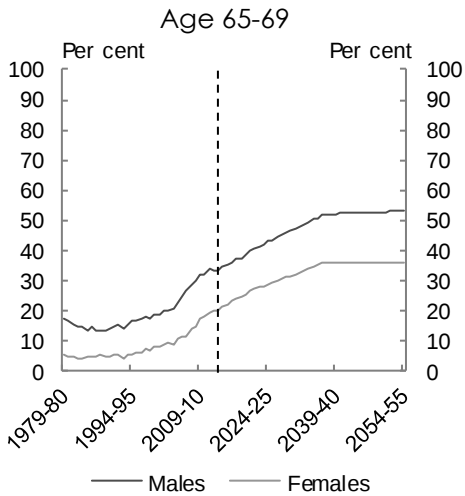
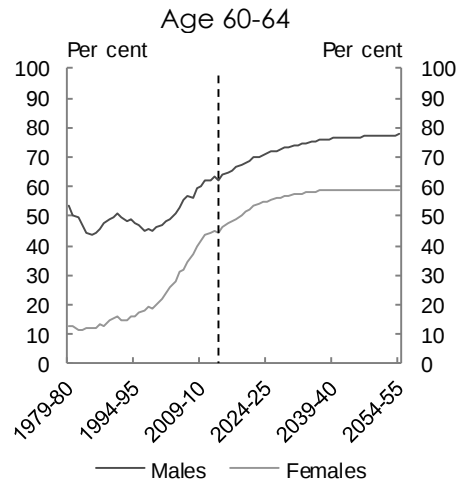
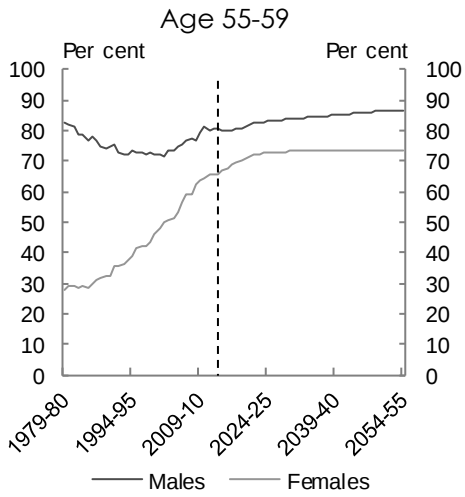
Chart D.1 Participation rates — history and projections by age group and gender


Note: Dashed line is placed over 2013-14 to distinguish history from projections.

Source: ABS cat. no. 6291.0.55.001 and Treasury projections.



Note: Dashed line is placed over 2013-14 to distinguish history from projections.
Source: ABS cat. no. 6291.0.55.001 and Treasury projections



Note: Dashed line is placed over 2013-14 to distinguish history from projections.
Source: ABS cat. no. 6291.0.55.001 and Treasury projections.

References

Australian Bureau of Statistics (various), *Australian Demographic Statistics*, cat. no. 3101.0, ABS, Canberra

Australian Bureau of Statistics (various), *Australian Historical Population Statistics*, cat. no. 3105.0.65.001, ABS, Canberra

Australian Bureau of Statistics (various), *Australian National Accounts: National Income, Expenditure and Product*, cat. no. 5206.0, ABS, Canberra

Australian Bureau of Statistics (various), *Australian Social Trends*, cat. no. 4102.0, ABS, Canberra

Australian Bureau of Statistics (various), *Australian System of National Accounts*, cat. no. 5204.0, ABS, Canberra

Australian Bureau of Statistics (various), *Average Weekly Earnings, Australia*, cat. no. 6302.0, ABS, Canberra

Australian Bureau of Statistics (various), *Births, Australia*, cat. no. 3301.0, ABS, Canberra

Australian Bureau of Statistics (various), *Household Expenditure Survey, Australia: Summary of Results*, cat. no. 6530.0, ABS, Canberra

Australian Bureau of Statistics (various), *Labour force, Australia*, cat. no. 6202.0, ABS, Canberra

Australian Bureau of Statistics (various), *Labour force, Australia, Detailed*, cat. no. 6291.0.55.001, ABS, Canberra

Australian Bureau of Statistics (2012), *Life Tables for Aboriginal and Torres Strait Islander Australians (2010-2012)*, cat. no. 3302.0.55.003, ABS, Canberra

Australian Bureau of Statistics (various), *Migration, Australia*, cat. no. 3412.0, ABS, Canberra

Australian Bureau of Statistics (various), *Population Projections, Australia*, cat. no. 3222.0, ABS, Canberra

Australian Bureau of Statistics (various), *Schools, Australia*, cat. no. 4221.0, ABS, Canberra

Australian Government Actuary (2014), *Australian Life Tables 2010-12*, Australian Government Actuary, Canberra

Australian Government Department of the Prime Minister and Cabinet (2015), *Closing the Gap - The Prime Minister's Report 2015*, Department of Prime Minister and Cabinet, Canberra

Australian Government and Queensland Government (2014), *Great Barrier Reef Report Card 2012 and 2013*

Australian Institute of Health and Welfare Bulletin 126 (2014), *Healthy Life Expectancy in Australia: Patterns and Trends 1998 to 2012*, Australian Institute of Health and Welfare, Canberra

Charter of Budget Honesty Act 1998 (Cth)

Commonwealth of Australia (2002), *2002-03 Budget Paper No. 5, Intergenerational Report 2002-03*, Commonwealth of Australia, Canberra

Commonwealth of Australia (2007), *Intergenerational Report 2007*, Commonwealth of Australia, Canberra

Commonwealth of Australia (2010), *Australia to 2050: future challenges, Intergenerational Report 2010*, Commonwealth of Australia, Canberra

Commonwealth of Australia (2014), *2014-15 Mid-Year Economic and Fiscal Outlook*, Commonwealth of Australia, Canberra

Commonwealth of Australia (2014), *Budget Papers 1-4 and the Budget Overview*, Commonwealth of Australia, Canberra

Commonwealth of Australia (various), *Budget Paper No. 1*, Commonwealth of Australia, Canberra

Commonwealth Treasury (2009) *The Australian Treasury's fiscal aggregate projection model*, Economic Roundup, Issue 3, 2009, The Treasury, Canberra

Commonwealth Treasury (2014) *Treasury's medium-term economic projection methodology*, Treasury Working Paper 2014-02, The Treasury, Canberra

The Future Fund (2014), *Portfolio update at 30 June 2014*, The Future Fund, Melbourne

Great Barrier Reef Marine Park Authority (2014), *Great Barrier Reef Outlook Report*, Great Barrier Reef Marine Park Authority, Townsville

International Labour Organisation (2015), *ILOSTAT Database*, International Labour Organisation, Geneva

International Monetary Fund (2014), *Legacies, Clouds, Uncertainties, World Economic Outlook October 2014*, IMF

Irish Department of Finance (2007), *Budget 2007*, Department of Finance

Irish Department of Finance (2014), *Ireland - Budgetary Statistics 2014*, Department of Finance

Kharas, H and Gertz, G (2010), *The New Global Middle Class: A Cross-Over from West to East*, in Cheng Li (editor), *China's emerging middle class: beyond economic transformation*, Washington, DC: Brookings Institution Press

Productivity Commission (2013) *An Ageing Australia: Preparing for the Future*, Research Report, Productivity Commission, Canberra

Productivity Commission (2011), *Disability Care and Support*, Inquiry Report No. 54, Productivity Commission, Canberra

Productivity Commission (2005) *Economic Implications of an Ageing Australia*, Research Report, Productivity Commission, Canberra

Productivity Commission, (2005), *Review of National Competition Policy Reforms*, Inquiry Report No. 33, Productivity Commission, Canberra

Rice, J, Temple, J and McDonald, P (2014), *National Transfer Accounts for Australia*, ARC Centre of Excellence in Population Research, Canberra

United Nations, Population Division (2012), *World Population Projections, 2012 release*

World Bank (2015), *World Bank Data*, Washington D.C.

World Health Organisation (2012), *Healthy Life Expectancy at Birth*

