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## Stagnation nation? Australian investment in a low-growth world

Jim Minifie



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## Overview

As the mining investment boom fades, Australia risks falling into the stagnation that afflicts much of the rich world. This report examines what policymakers can do so that Australia remains a dynamic, growing economy. It focuses on private sector investment, a key to growth.

Investment in Australia has been exceptionally strong. Since 2005, the capital stock per person has grown by a third. Even excluding mining, capital per person has grown by more than 15 per cent. By contrast, in both the US and UK the capital stock per person grew by just 7 per cent. Strong investment has helped to increase output per person in Australia by 10 per cent between 2005 and 2015, compared to 6 percent in the US and just 4 per cent in the UK.

But Australia is now experiencing its biggest ever five-year fall in mining investment, as a share of GDP. And non-mining business investment has fallen from 12 per cent to 9 per cent of GDP, lower than at any point in the 50 years from 1960 to 2010.

It is important to keep this problem in perspective. Investment in the 2000s was buoyed by rapid growth and easy finance that masked long-term structural changes in the economy. With the shift to a services economy, and with lower capital goods prices, businesses can thrive with lower levels of investment. But about a third of the fall in non-mining investment is a result of the economy growing slowly, which discourages businesses from investing.

What should the Australian government do to encourage investment? There are no silver bullets – only tough choices. And we need to set realistic expectations that these choices will only produce incremental increases in investment.

The Turnbull Government proposes a cut in the company tax. It would probably attract more foreign investment. But there are trade-offs. A cut would also reduce national income for years and would hit the budget. Committing to a tax cut before the budget is on a clear path to recovery risks reducing future living standards.

Alternative company tax models like accelerated depreciation or a cash flow tax can make investment more attractive, but would cost the budget even more in the early years. An investment allowance would be cheaper, but may be difficult to administer. Calls for tax breaks for small business should be rejected.

Other policies can encourage investment. Government deficits can expand expenditure and hence investment. But they impose costs on future taxpayers and can reduce flexibility in a crisis. The RBA should keep interest rates low; risks to financial stability can be managed by tightening prudential standards.

Governments, state and federal, should build more infrastructure, but only if they can build better infrastructure. And of course policy to support economic growth (by reducing tax distortions, boosting labour participation, encouraging competition, improving the efficiency of land use, and tightening regulatory frameworks) would also encourage private investment.

Lower growth may well be the 'new normal', and investment is likely to remain below previous peaks. There is no reason to panic. But there is also no excuse for policy complacency. Australia should prudently encourage investment through this new reality.

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## 1 Why investment matters

Eight years after the Global Financial Crisis (GFC), economic growth remains weak in many rich nations. Australia has been an exception to the malaise, but growth has slowed as the mining boom winds down.

As Australian policymakers seek to secure and revive economic growth, they must understand one important contributor to growth: capital investment.<sup>1</sup> This report seeks to inform policymakers by analysing:

- how investment influences output and income in Australia and across the advanced economies in the short, medium, and long-runs;
- what drives non-mining business investment in Australia, and why it has appeared weak in recent years; and
- how policy change might increase investment in Australia so as to increase the *potential output* of the economy, and to close the *gap* between actual and potential output.

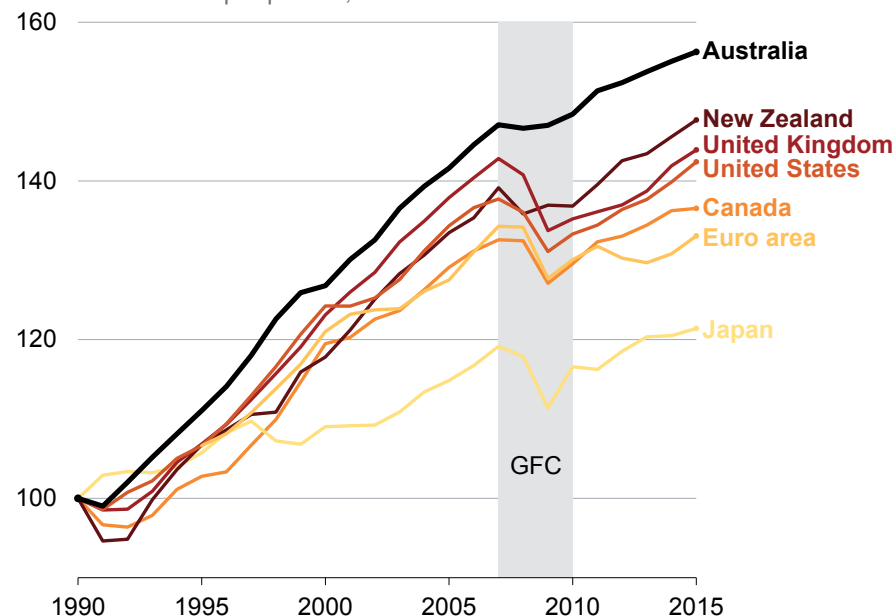
### 1.1 Growth in advanced economies should not be taken for granted

Most rich-world economies experienced sharp recessions in 2009. Recessions were particularly deep in the Euro area and the UK, as Figure 1.1 shows. By 2011, much of the rich world was growing again.

1. Capital investment is expenditure on assets which are used in the process of production. These assets are often referred to as the capital stock. A broad definition of the capital stock includes physical capital (buildings, machinery, equipment), intellectual property (including patents and software), human capital (education, skills), social capital (trust) and natural capital (including resource stocks and ecosystems). Investment replaces worn-out capital and builds the capital stock. This report focuses mainly on business investment in produced physical capital and intellectual property.

**Figure 1.1: Most of the rich world experienced sharper downturns than Australia**

Index of real GDP per person, 1990 = 100



Notes: The chart follows the source OECD dataset in attributing Australian July–June financial year data to the previous calendar year. The shading highlights 2007 to 2010, when many economies experienced recessions, before beginning to recover.

Source: Grattan analysis of OECD (2016a, Gross domestic product {expenditure approach}, per head, constant prices, constant PPPs, OECD base year).

But the recovery has been weak: advanced economies grew just 1.6 per cent a year on average from 2012 to 2015, compared to 2.5 per cent in the two decades to 2008.<sup>2</sup> Recovery was particularly weak and protracted in Japan and Europe.

Even now, seven years after the deepest point of the recession, GDP in much of the rich world is far below what had been expected before the crisis. This has fuelled fears that lower growth may be the 'new normal' for the rich world (Box 1).

### 1.2 Australia's economy is growing more slowly and there is no guarantee it will bounce back

Australia fared better than most advanced economies in the global recession (Figure 1.1). Several things helped. Australian banks had not invested much in toxic assets. The exchange rate depreciated sharply, helping to increase demand for Australian products. And China, Australia's major trade partner, continued to grow strongly.

Policy responses also softened the effects of the crisis. The Reserve Bank cut interest rates sharply. The government guaranteed Australian banks' bond issues and temporarily increased spending, including payments to households. Together, these factors limited the downturn in Australia in 2009 and 2010.<sup>3</sup>

In the years to 2013, growth in resource prices and investment supported Australian national income and output. While resource prices fell sharply at the time of the crisis, they had risen to record highs by mid-2010. Mining investment climbed almost unabated through the crisis.<sup>4</sup> The resource boom tended to constrain growth in trade-exposed

2. OECD (2016a).

3. McDonald et al. (2011).

4. Minifie et al. (2013).

#### Box 1: Why might advanced economies grow slowly?

Two schools of thought suggest that the rich world may need to get used to slow growth.

The first view centres on evidence that the 'speed limit' of advanced economies has fallen.<sup>a</sup> If the pace and scope of innovation and education slows, then productivity growth slows. For example, productivity grew fast in the US after the Second World War, faltered in the 1970s, revived briefly in the mid-1990s, faltered again in the early 2000s and has since remained weak. Similarly, ageing can cut an economy's speed limit, mostly because the workforce shrinks as a share of the population. In advanced economies, ageing has cut about a quarter of a percentage point from annual growth since 2000. Ageing in Japan and Italy curtailed growth even more.

The second view centres on evidence that advanced economies have fallen short of their speed limits.<sup>b</sup> On that view, demand shortfalls and financial disruptions can lead to long periods in which the economy does not operate at potential. Very low interest rates and low inflation can render monetary policy less effective. Households, firms and even government may focus on paying down debt, further slowing demand and output.

These two contributors to slow growth can reinforce one another. If firms have excess production capacity, they have little reason to invest in expansion. If workers are idle, their skills erode. Innovators, too, may see less opportunity. In this way, when the economy falls below potential for a while, its potential can also decline: a cyclical downturn can lead to lasting stagnation.

a. Gordon (2016).

b. Summers (2015).



sectors including manufacturing, tourism and agriculture. Less trade-exposed sectors grew relatively strongly, reflecting rising incomes.<sup>5</sup> Australian productivity growth was weak (Figure 1.5 on page 12), but output kept growing due to more capital investment and more hours worked.

But the Australian economy has grown more slowly since the crisis. The potential growth rate of the economy has fallen, as discussed in Chapter 3. Lower productivity growth dragged down potential growth in the mid-2000s, and the Australian working-age population share has fallen by about a quarter of a percentage point a year since 2011.<sup>6</sup> The economy has also operated a little below potential in recent years.

And Australia could yet fall more deeply into the slow-growth trap. A recession could be triggered by an economic slowdown in China, a further crisis in the Eurozone, a trade war, or even just a strong appreciation of the dollar driven by capital inflows. Internal shocks, such as a house price collapse, could also trigger a recession.

If one or more such shocks occur, Australian policymakers will have less scope to respond than they did during the financial crisis. The conventional tools of monetary policy offer less scope now than in 2009, because interest rates are already close to zero. The Commonwealth Government has less scope to provide tax cuts or spending increases, because it now has substantial recurrent deficits, and its debt is higher, though it remains low by international standards.

As the experience of other rich economies shows, a downturn that is not countered by strong policy responses can lead to a deep recession and to prolonged economic weakness. Slow economic growth in Australia has already reduced the incentives for firms to invest, as shown in Chapter 3. Even without recession, the potential economic growth rate

in Australia will probably remain lower than in the decade prior to the financial crisis.<sup>7</sup>

### 1.3 Investment is the most volatile part of short-term demand

In the typical advanced economy, firms, households and governments invest between a fifth and a quarter of GDP in assets such as dwellings, roads, factories, office buildings, equipment, and software. Investment is the most volatile part of GDP.<sup>8</sup>

Investment was by far the largest contributor to the drop in GDP during the GFC. In the Euro area, investment dropped by almost four percentage points of GDP between 2008 and 2009 (Figure 1.2 on the following page). Investment contributed almost as much to the downturns in the US, Canada, the UK, and New Zealand. Business investment and dwelling investment both fell (Figure 2.4 on page 15 and Figure A.4 on page 52). As investment declined, a gap opened up between *potential output* (what the economies were capable of producing) and what was actually produced. As a result, actual GDP fell, and unemployment rose in many economies.

After a recession, investment rarely rises fast. Investment in most advanced economies has recovered only gradually in recent years, contributing to relatively slow growth in output (Figure 1.3 on the next page) and in productivity. In the US, investment has slowly recovered after a prolonged contraction. GDP in the Eurozone as a whole has hardly grown: investment remains about twenty per cent below its level prior to the crisis.<sup>9</sup>

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5. Ibid.

6. Borland (2016).

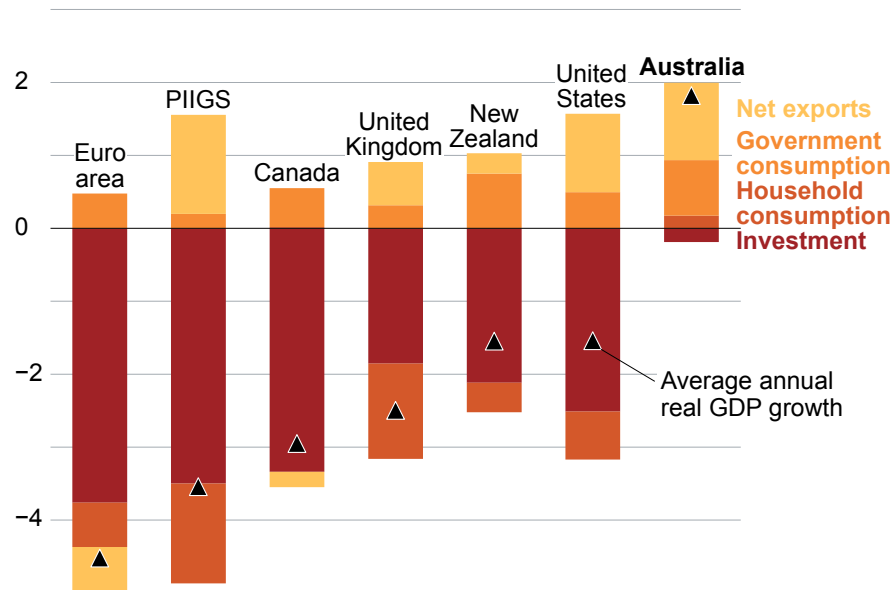
7. Discussed in Chapter 3; see also Commonwealth of Australia (2015a).

8. Banjeree et al. (2015); and Pinto et al. (2014).

9. RBA (2017a, Graph 1.10).

**Figure 1.2: Investment collapsed in many economies in the late 2000s**

Contribution to average annual percentage change in real GDP, peak to trough from 2007 to 2010



Notes: PIIGS: Portugal, Ireland, Italy, Greece and Spain.

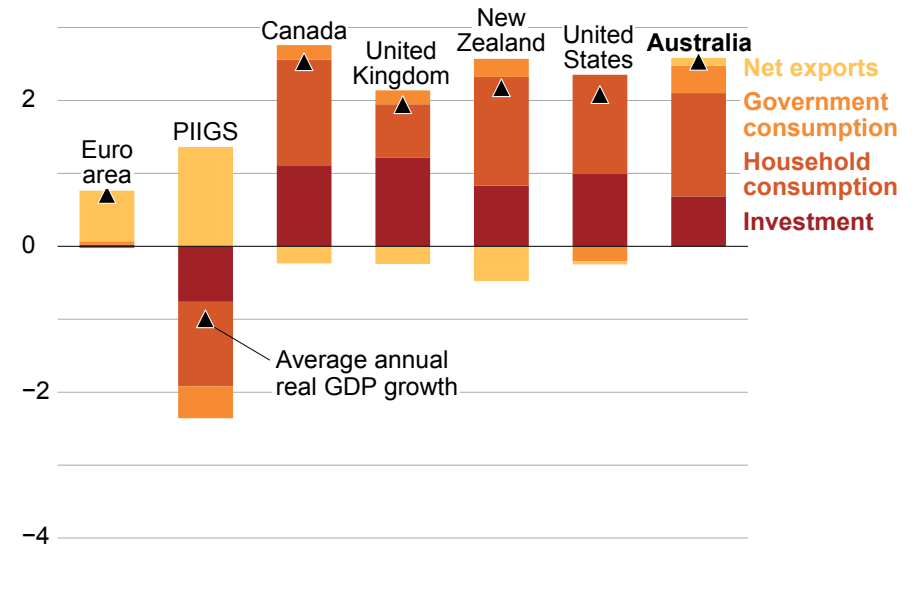
Peak: maximum GDP year between 2006 and 2008.

Trough: minimum GDP year between 2008 and 2010.

Source: Grattan analysis of OECD (2016a, GDP (expenditure approach)).

**Figure 1.3: Investment did not recover strongly after the crisis**

Contribution to average annual percentage change in real GDP, GFC trough to 2014



Notes: Trough: minimum GDP year between 2008 and 2010.

Source: Grattan analysis of OECD (ibid., GDP (expenditure approach)).

## 1.4 Investment is a key to medium-term growth

Over the medium term, investment shapes the productive capacity of an economy. Investment builds up the capital stock, and that in turn increases output. Much investment is needed just to replace worn-out assets. In the average advanced economy, investment of over 15 percentage points of GDP is required to do so. Australia, for example, needs to invest about 18 per cent of GDP to maintain the capital stock.<sup>10</sup>

Business assets depreciate faster than dwellings and government-owned assets, so productivity is even more prone to decline when gross business investment falls. In Australia, about 10 percentage points of GDP is needed to replace business assets that wear out.<sup>11</sup>

Further investment is needed to keep up with any growth in the labour force. If investment is too low to replace worn-out assets and keep up with population growth, the capital stock per worker falls and productivity drops. In the OECD since 2007, potential output has grown at only about three-quarters of its rate in the seven years before 2007 (Figure 1.4). About half of the decline in potential output growth was due to lower capital per worker.<sup>12</sup>

Australia's high investment has contributed to higher output growth (and higher labour productivity growth) than in other advanced economies (as shown in Figure 1.1), despite similarly sluggish total factor productivity growth (as shown in Figure 1.5).

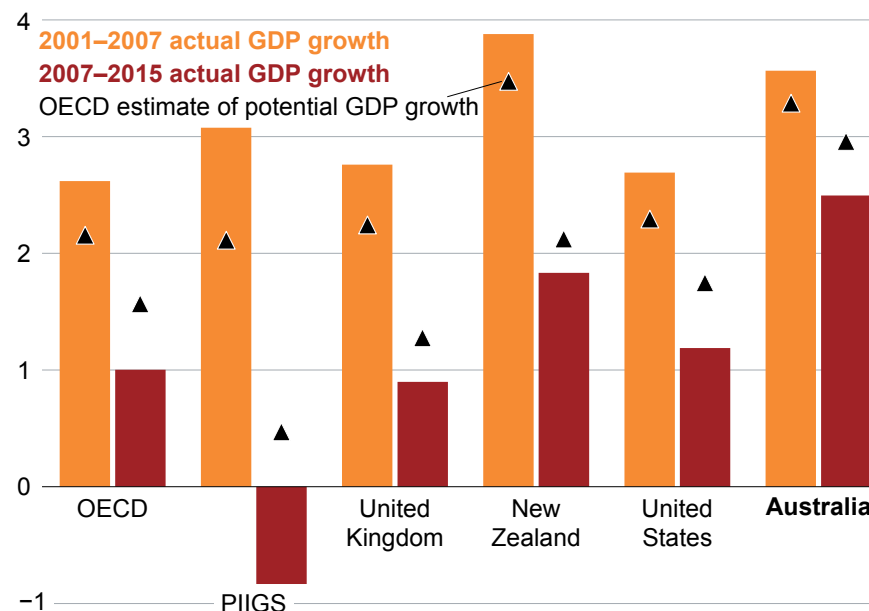
10. Australia's capital stock is valued at more than three times GDP, and is estimated to wear out at a rate of 5.5 per cent each year; see ABS (2016a).

11. Business capital in Australia is estimated to depreciate at about 6.5 per cent per year. The business capital stock is somewhat larger than GDP; see ABS (ibid., Table 57).

12. Ollivaud et al. (2015, p. 48).

**Figure 1.4: Recessions can reduce potential output**

Average annual growth rate, real and potential GDP, 2001 to 2007 and 2007 to 2015



Notes: Potential output is an estimate of the maximum amount of goods and services an economy can produce without inflationary price pressures, given current human and physical capital stocks.

PIIGS: Portugal, Italy, Ireland, Greece and Spain.

Source: Grattan analysis of OECD (2016a, Table 1. GDP, and Economic Outlook No 99 – June 2016).

### 1.5 Investment supports long-run productivity growth

Over the long run, the pay-off from investment is not just from adding to the stock of physical capital. New capital goods can also embody innovations or better suit an increasingly skilled workforce. And investment is often a marker for broader dynamism: firms that are growing quickly tend to invest more because they have lower costs or better products.

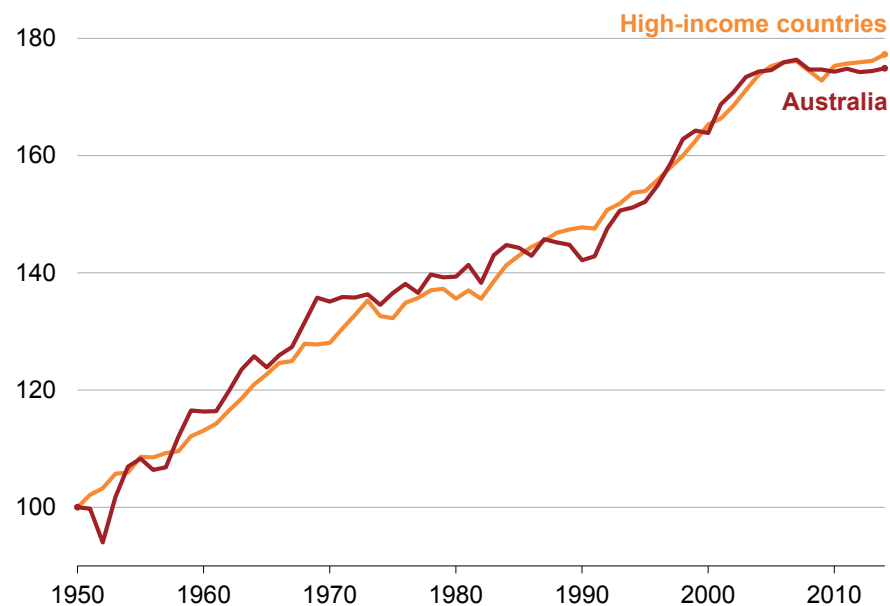
### 1.6 Summing up: why investment matters

The rich world is still experiencing the effects of many years of insufficient investment. While investment is no guarantee of growth, it can support demand in the short run and is essential to increasing the productive capacity of the economy.

The rest of this report explains the pattern of investment in Australia (Chapter 2), and why non-mining investment has hardly grown over the past five years (Chapter 3). To increase investment, Australia could reduce the company tax rate or make other changes to how companies are taxed (Chapter 4), or change other policies (Chapter 5). No single policy will make a big difference to investment on its own, and all policies entail trade-offs.

**Figure 1.5: Australia's long-term productivity growth is similar to that of other developed economies**

Weighted index of total factor productivity, 1950 = 100, 1950 to 2014



Notes: High-income countries: those with per-capita incomes in 1950 above US\$8,000 (in 2011 dollars): Australia, Belgium, Canada, Denmark, the United Kingdom, Iceland, Luxembourg, Norway, New Zealand, Sweden Switzerland, the United States. Weighted by population.

Source: Grattan analysis of Feenstra et al. (2015).

## 2 Australian investment has come back to earth

### 2.1 Australia has invested much more than other advanced economies since 2000

Australia has had relatively high levels of investment, reflecting strong population growth and some capital-intensive industries. Going back to the 1960s, investment (as a share of GDP) in the Australian economy exceeded that in most advanced economies. It averaged about 25 per cent of GDP through the 1990s and early 2000s. By the mid-2000s, investment in Australia was a full 5 percentage points above the average for advanced economies (Figure 2.1). In 2008–09, even as investment collapsed in other advanced economies to less than 20 per cent of GDP, Australia continued to invest well above 25 per cent of GDP.

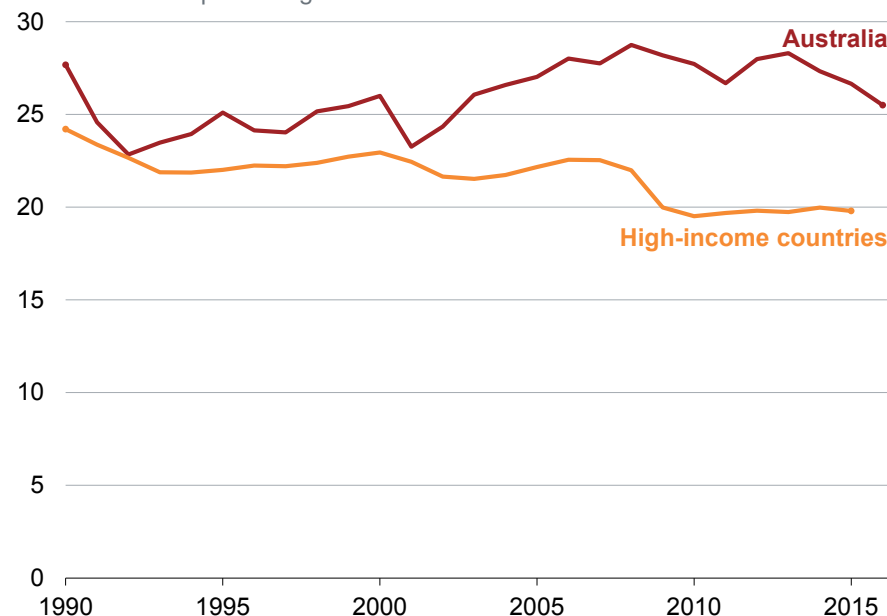
As a result, the capital-to-labour ratio has grown much faster in Australia than in other advanced economies (Figure 2.2 on the following page). It grew by about 30 per cent after 2005; even excluding mining, it increased by about 16 per cent. By contrast, the capital-to-labour ratio increased by just 10 per cent in the US and about 5 per cent in the UK over the same period.<sup>13</sup>

### 2.2 Australian business investment spiked and is now returning to rich-world norms

Total investment in Australia increased after 2000 primarily because business investment grew strongly.<sup>14</sup> After falling sharply in the re-

**Figure 2.1: Australia has invested more than the average advanced economy**

Investment as a percentage of GDP



Notes: Includes public investment and private dwellings.

High-income countries are OECD members, excluding Australia, with GDP per capita greater than US\$10,000 in 1990.

Weighted by population. Some data unavailable for 2015.

Source: Grattan analysis of ABS (2016a, Table 2) and OECD (2016a, Table 1. GDP).

13. See references to Figure 2.2 on the next page.

14. Investment, or gross fixed capital formation (GFCF), can be grouped into two main areas: public (investment undertaken for or by governments), and private. Private investment comprises private business investment (investment by firms), ownership of dwellings (residential investment in houses, units and other buildings primarily designated as residences) and ownership transfer costs; see ABS (2015).

cession of the early 1990s, business investment had risen to well over 15 per cent of GDP by the late 2000s. It peaked at over 17 per cent of GDP in 2013 (Figure 2.3 on the following page).

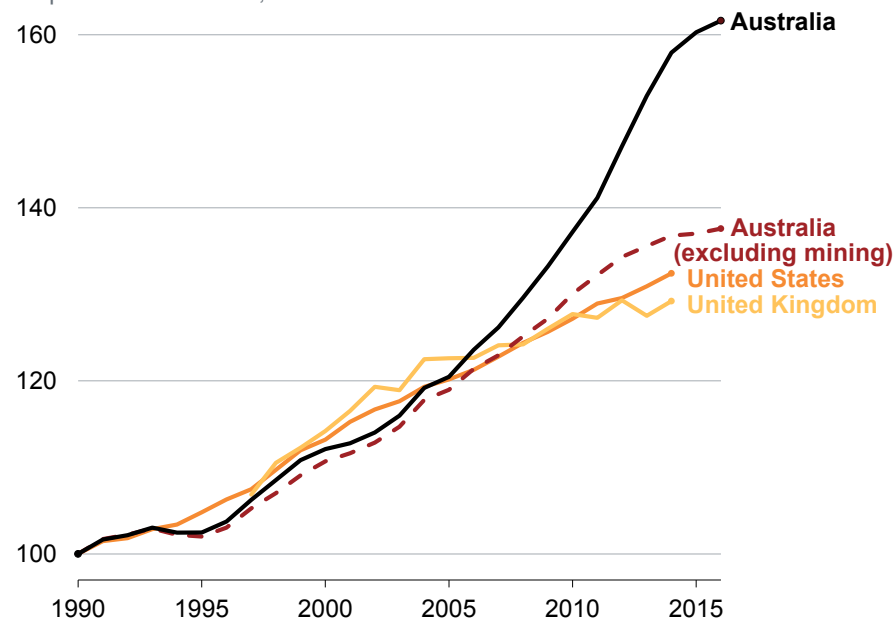
Investment in other sectors was steadier, as Figure 2.3 shows. Public investment grew from about 4 per cent of GDP in the early 2000s to a peak of 6.2 per cent in 2010, before declining. Residential investment hovered around 5 to 6 per cent of GDP.

Business investment has been much stronger in Australia than in other advanced economies (Figure 2.4 on the next page). Business investment in advanced economies fell by about 2 per cent of GDP in the 2009 crisis.<sup>15</sup> Since then, business investment in other advanced economies has substantially recovered as a share of GDP, to above what would be expected given the path of output.<sup>16</sup> But GDP, investment and the capital stock are all far below forecasts for 2015 made before the crisis.

Australian business investment has fallen sharply from its high of over 17 per cent of GDP to about 13 per cent. Some forecasters expect it to decline further to about 10 to 12 per cent of GDP, well within the range of other advanced economies in recent years, as discussed in Chapter 3.<sup>17</sup>

**Figure 2.2: The capital-to-labour ratio has grown more strongly in Australia than elsewhere**

Capital-to-labour ratio, 1990 = 100



Notes: Capital stock excluding dwellings in chain volume measures to labour force (number of persons), indexed to 1990. UK is indexed to 1997, set to mid-point of US and Australian indices in that year.

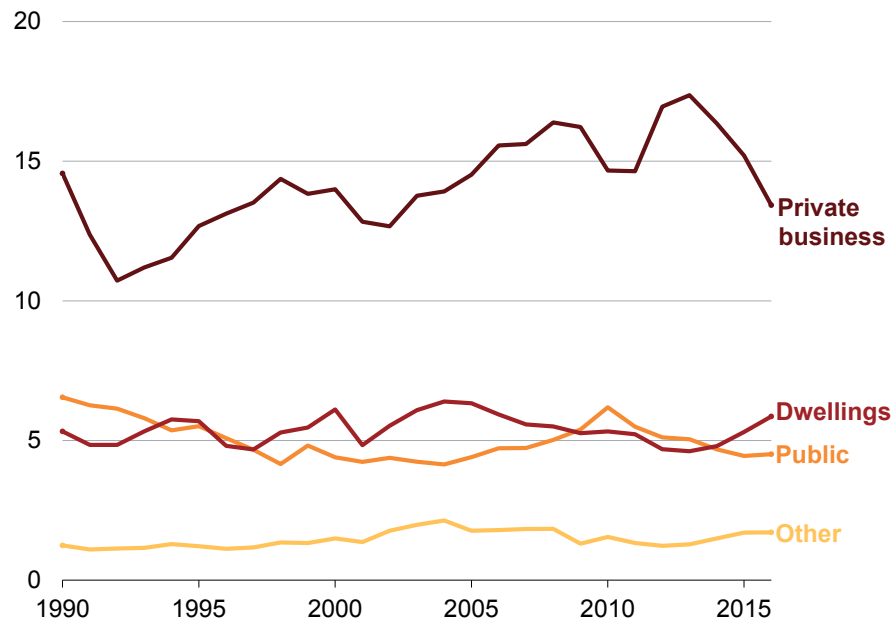
Source: Grattan analysis of ONS (2016), OECD (2016a, 9A. Fixed assets by activity and by asset, ISIC rev4, and Labour force from Economic Outlook No 99 – June 2016) and ABS (2016a, Table 63, chain volume measures).

15. Housing investment fell more sharply, as discussed in Appendix A.

16. IMF (2015, Chapter 4).

17. NAB Group Economics (2016).

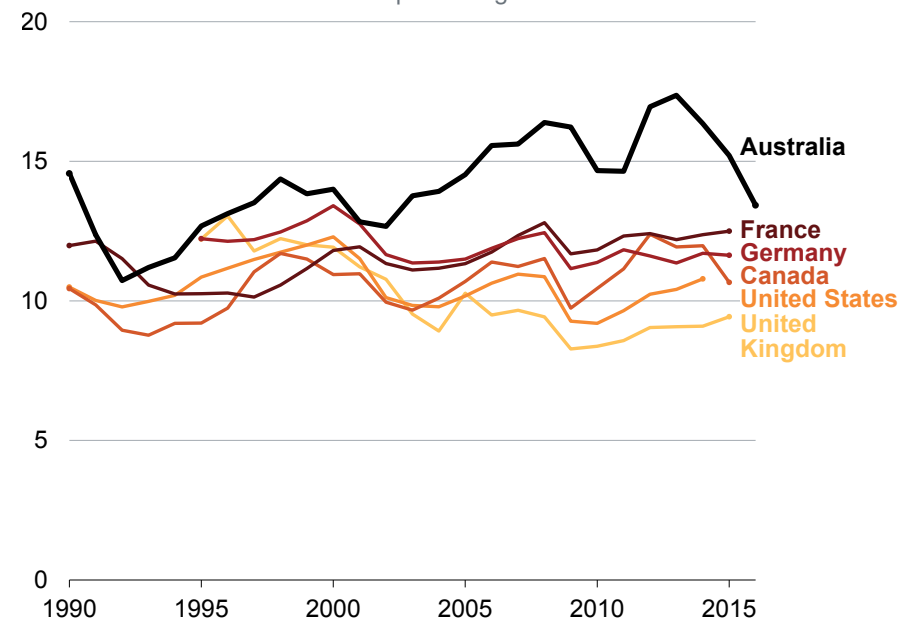
**Figure 2.3: Australian business investment grew in the decade to 2013**  
Investment as a percentage of GDP



Notes: 'Other' is ownership transfer costs.

Source: ABS (2016a, Table 2).

**Figure 2.4: After peaking in 2013, Australian business investment is moving toward the advanced-economy average**  
Private business investment as a percentage of GDP



Notes: Includes mining and non-mining.

Source: Grattan analysis of ABS (2016a, Table 2) and OECD (2016a, National Accounts at a Glance: 3. Expenditure, Gross fixed capital formation, Corporations, percentage of total GFCF, and B1\_GE: Gross domestic product {expenditure approach}).

### 2.3 Mining dominated investment during the boom

Mining transformed Australian business investment over the past decade. From 1960 to 2005, mining investment averaged just 1.9 per cent of GDP. Since 2006, it has averaged 5.7 per cent of GDP, and it peaked at 9 per cent of GDP in 2013, which was more than half of all business investment, dwarfing previous mining booms (Figure 2.5 on the following page). Since 2013, mining investment has fallen by almost 4 per cent of GDP, although it remains high by historical standards. Mining investment is likely to fall by a further 2 to 3 percentage points of GDP (potentially down to 1.5 per cent of GDP) by 2018.<sup>18</sup>

As mining boomed, non-mining investment fell as a proportion of business investment and of GDP. Over the decade to 2008, non-mining investment averaged about 12 per cent of GDP. By 2013, it had fallen below 9 per cent, lower than at any time in the past half-century.<sup>19</sup> Explaining why non-mining investment remains near that historic low is a key concern of the following chapter.

### 2.4 Business investment was much weaker in non-mining states, and has picked up to some extent

The mining boom was also a mining-state boom. Starting in 2005, business investment in Australia's resource states increased to well above its historical average. It peaked at about 25 per cent of Gross State Product (GSP) in 2013 (Figure 2.6 on the next page).<sup>20</sup>

Much of the extra investment in resource states was directly in mining, though more was also invested in non-mining activities. In the resource states, non-mining investment peaked as a share of GSP in 2008; total and mining business investment peaked as a share of GSP in 2013. Since then, total and non-mining business investment have continued to fall in the resource states.

In the non-resource states, non-mining investment peaked in 2007 at 13 per cent of GSP. By 2013 it had dropped by more than a third, to just over 8 per cent of GSP. Total business investment in Australia's non-resource states since 2008 has been about as weak as it was in the US from 2008 to 2011 (Figure 2.6 on the following page). Since 2011, non-mining business investment in Australia has been much weaker than that in the US, though in the non-resource states it has recovered modestly, to about 10 per cent of GSP.<sup>21</sup>

### 2.5 Summing up: the end of the investment boom

High investment in Australia built the capital stock per member of the labour force by a third since 2005. Even excluding mining, it grew by 15 per cent. But since 2009, non-mining business investment has fallen by a quarter, as a share of GDP. Chapter 3 reviews why non-mining investment has fallen and remains close to record lows.

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18. Ibid.

19. The 2015–16 release of the ABS' Australian System of National Accounts (issued on 28 October 2016) included large revisions to investment (and gross value added) by industry, notably a large upwards revision in mining investment.

20. The resource states are Western Australia, Queensland, Northern Territory and South Australia.

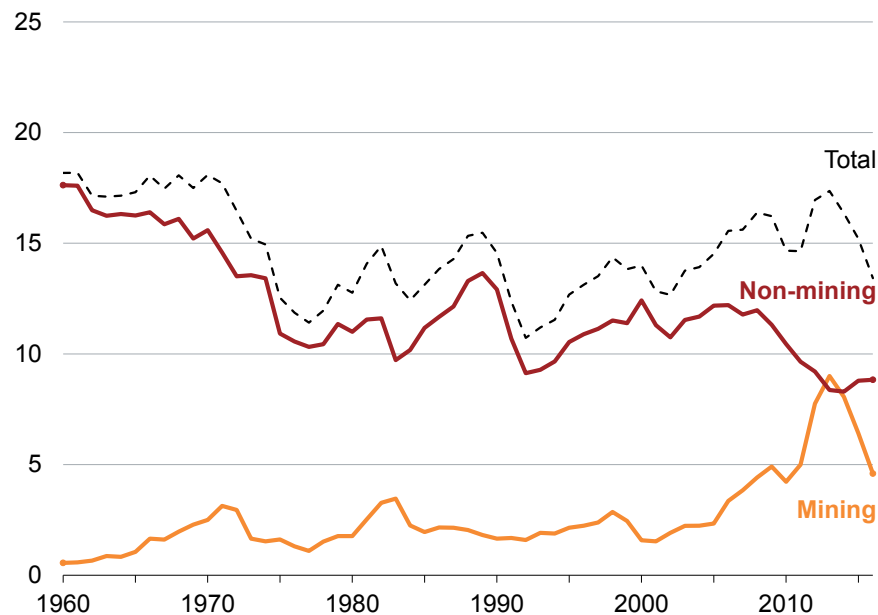
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21. See Figure 3.10 on page 27 for non-mining investment by state.



**Figure 2.5: Mining investment is falling from record highs**

Private business investment as a percentage of GDP

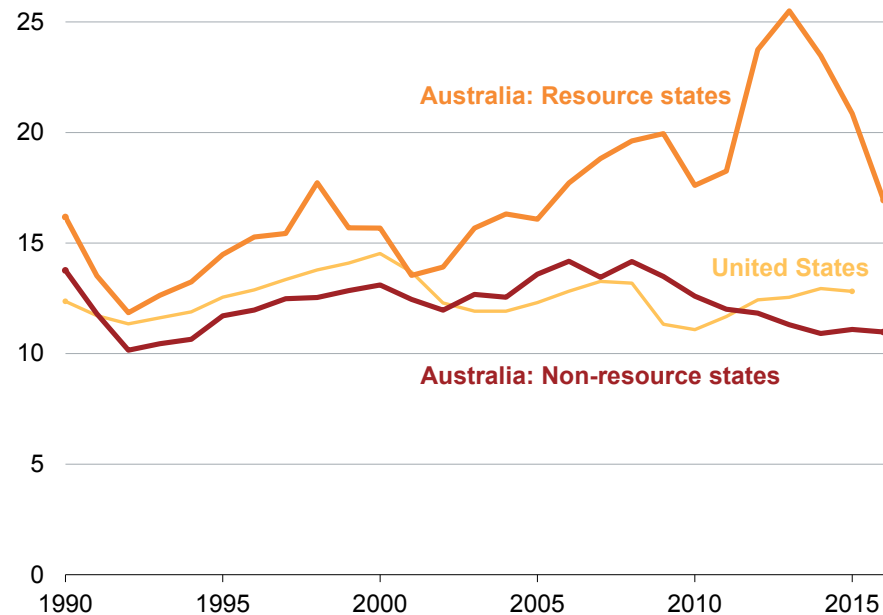


Notes: Total business investment excludes dwellings, transfer costs, and government and public corporations investment.

Source: Grattan analysis of ABS (2016a, Tables 2 and 52).

**Figure 2.6: Investment in non-mining states has been subdued**

Private business investment as a percentage of output



Notes: Excludes dwellings, transfer costs, and government and public corporations GFCF. US business investment is non-residential gross private domestic investment.

Source: ABS (2016b, Tables 2, 3, 4, 5, 6, 7, 8, 9), US Bureau of Economic Analysis (2016a) and US Bureau of Economic Analysis (2016b).

### 3 Why non-mining business investment is low

Non-mining private business investment in Australia is far below its historical average, as a share of GDP. It is lower than at any time in at least the past half century (Figure 2.5). Why is it so low, and is it a problem?

To analyse what drives current investment, we look back over a quarter of a century to understand the role of short-term movements (in output growth, for example) and long-term trends (in finance costs and capital goods prices, for example).<sup>22</sup>

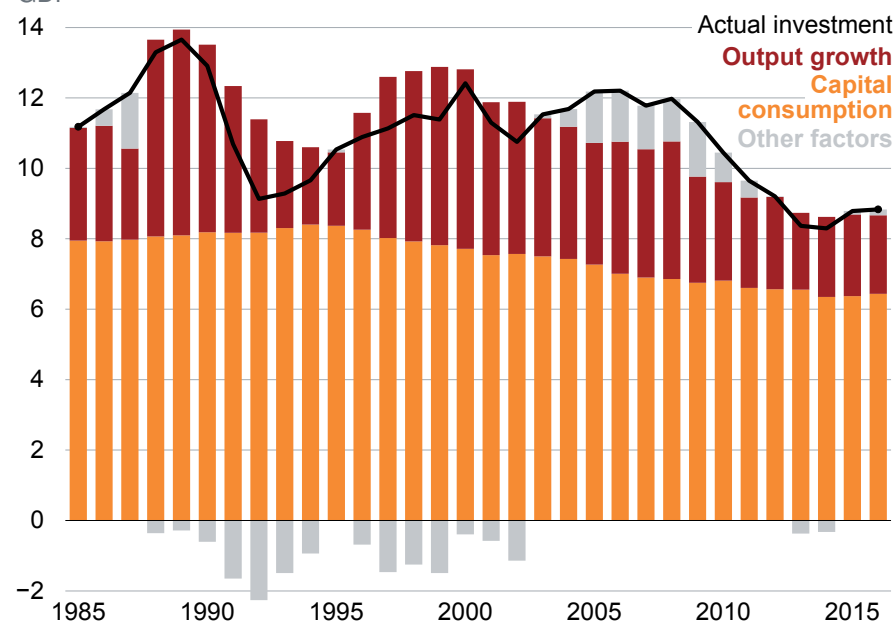
We show in this chapter that most of the gap between today's non-mining investment rate and that of the early 1990s is due to benign long-term structural changes in the economy. The non-mining market sector slowly became less capital intense, it shifted towards capital-light services, and it shrank as a share of GDP. Together, these benign factors reduced non-mining business investment by almost 2 per cent of GDP. They account for about two-thirds of the decline in investment since the early 1990s (Figure 3.2 on the following page).

A less benign factor, slow output growth, has cut non-mining business investment by a further 0.9 per cent of GDP, compared to its level in the years around 1990.

How do these long-term changes relate to the fall in investment since 2009? Non-mining business investment did not appear particularly high in the decade prior to 2009: it averaged about 11.7 per cent of GDP (Figure 3.1). But in reality, it was well above a slowly declining trend. This trend was masked in the 2000s as investment was temporarily boosted by rapid growth and unusually attractive finance conditions.

**Figure 3.1: Non-mining business investment reflects growth and capital consumption**

Modelled contributions to non-mining business investment as a percentage of GDP



Notes: Modelled investment is equal to capital consumed (called depreciation in commercial accounting) plus output growth. It is scaled using the trailing 5 year average capital-output ratio and the estimated GDP share of the non-mining market sector. See Appendix A for detail.

Source: Grattan analysis of ABS (2016a, Tables 2, 57, 58).

22. Caballero (1999); and Elias et al. (2014).

In the years since 2009, potential growth has fallen, due primarily to low productivity growth and, more recently, low population growth.<sup>23</sup> Actual growth has fallen further. In this light, low investment is no mystery. Today's non-mining investment level is about what should be expected given long-term trends and today's slow growth. Unless the trends reverse, and the economy returns – against expectations – to the growth rates and financial buoyancy of the mid-2000s boom, it appears unlikely that non-mining investment will recover to the levels seen in the mid-2000s. The rest of this chapter sets out the evidence in more detail.

### 3.1 The non-mining economy has become less capital intense

The main reason non-mining investment is at historic lows is that capital intensity has fallen (Figure 3.3 on the next page). Less capital (in dollars) is needed per dollar of output. This explains around half of the fall in non-mining investment from its average level in around 1990, as a share of GDP.<sup>24</sup> The capital-output ratio of the non-mining market sector declined by about 15 per cent between 1990–94 and 2012–16, from 2.3 to just under 2 (Figure 3.3). That has reduced non-mining investment by about 1.5 per cent of GDP. Figure 3.4 on the following page shows capital intensity has fallen for two reasons:

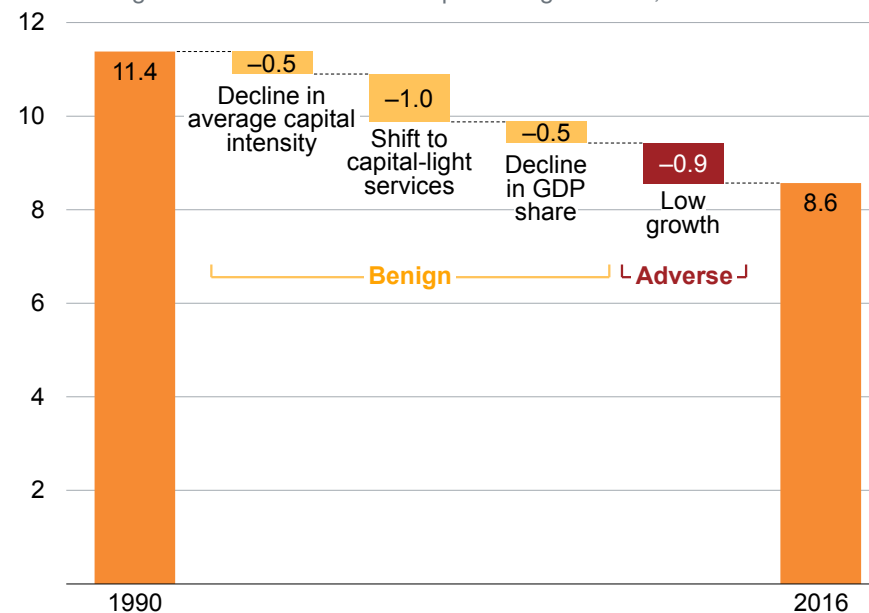
- A greater proportion of non-mining business is in industries that do not use much capital.
- The average sector has become less capital intense, mainly because prices of capital goods have fallen.

These declines are benign. As capital goods prices fall, Australia can maintain its productive assets at lower cost, leaving more of GDP for

23. IMF (2017a).

24. Nominal (dollar) measures of capital intensity are appropriate in this context, rather than volume measures, as we are seeking to explain the investment share of GDP, which is a ratio of two nominal values.

**Figure 3.2: Four factors explain the decline in non-mining investment**  
Non-mining business investment as a percentage of GDP, 1990 and 2016

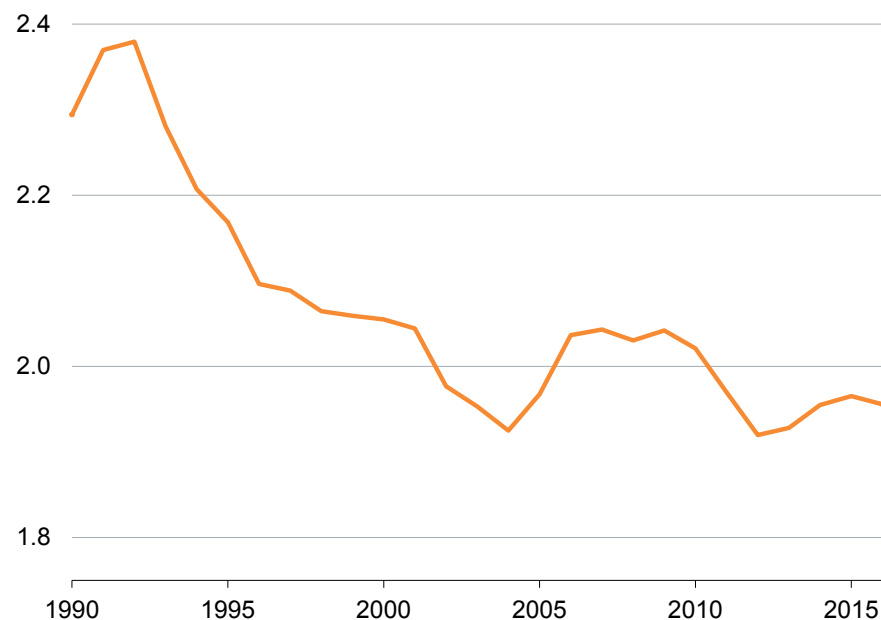


Notes: Start and end points smoothed: 1990 is the 1986 to 1994 average and 2016 is the 2013 to 2016 average.

Analysis uses non-mining market sector output, capital intensity and depreciation to explain non-mining private business investment. (The market sector excludes public administration and safety, education and training, health care and social assistance, and ownership of dwellings). Private investment outside the market sector is small and has hardly changed over the period, but public investment in the market sector declined from about 4 per cent to about 2.5 per cent of GDP. Some of the decline in market sector capital intensity may be due to lower public sector investment.

Source: Grattan analysis of ABS (2016a, Tables 2, 57, 58).

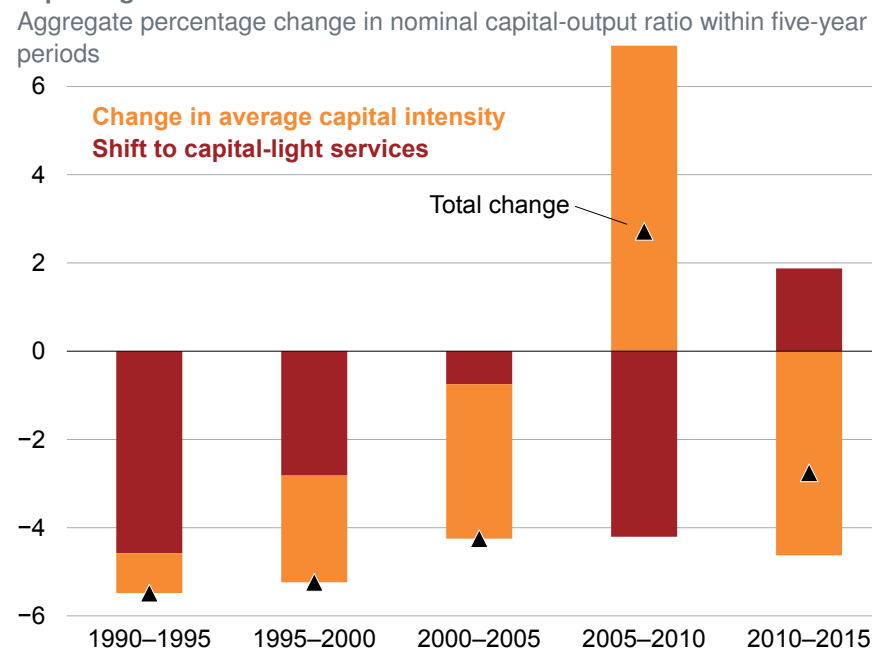
**Figure 3.3: Australia's nominal capital intensity declined in the 1990s**  
Capital-output ratio of non-mining market sector, nominal



Notes: Excludes the non-market sectors (public administration, health and social services, education, and ownership of dwellings) and mining.

Source: Grattan analysis of ABS (2016a, Table 5 and 58).

**Figure 3.4: The decline in capital intensity is largely due to the growth of capital-light industries**  
Aggregate percentage change in nominal capital-output ratio within five-year periods



Notes: Excludes the non-market sectors (public administration, health and social services, education, and ownership of dwellings) and mining.

Source: Grattan analysis of ABS (*ibid.*, Table 5 and 58).

consumption. The shift to capital-light services largely reflects households choosing to spend more of their income on these services as their incomes grow. As well, the economy has adjusted to higher commodity prices and lower prices of manufactured goods.<sup>25</sup> In addition, firms are investing more in intangible assets, some of which may not be fully captured as investment in the national accounts.

### 3.1.1 Capital-light sectors have grown

The shift to capital-light services and construction has cut non-mining business investment by about 1 per cent of GDP since the early 1990s (Figure 3.2). A group of services that are less than half as capital intense as the average non-mining market sector have grown faster and are now a much bigger share of the non-mining market economy (Figure 3.5).<sup>26</sup> These sectors comprised about half of market sector output in the early 1990s and have grown to almost two-thirds.

Most of the sectors that declined as a share of non-mining output were capital intense. Agriculture, forestry and fishing, electricity, gas, water and waste services, information, media and telecommunications, and rental, hiring and real estate services declined by nearly 3.5 percentage points of non-mining output. Manufacturing declined by almost ten percentage points of non-mining output.

This shift in industry mix is mirrored in many other advanced economies.<sup>27</sup> In the UK between 1997 and 2011, for example, the

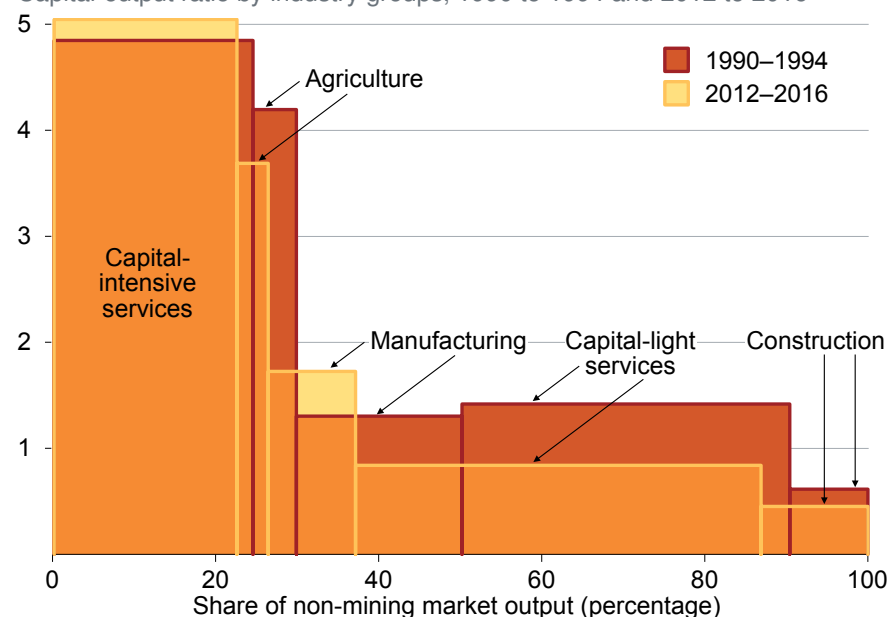
25. Minifie et al. (2013) analyses the transition of the economy through the mining boom.

26. The fastest growing market-sector non-mining industries were financial and insurance services (up 4.7 percentage points to 13.7 per cent of non-mining market sector output); professional, scientific and technical services (+4.4 percentage points); and construction (+3.5 percentage points). These industries all have capital-output ratios well under half the non-mining market sector average.

27. Oulton et al. (2015).

**Figure 3.5: The industry mix has become more capital light**

Capital-output ratio by industry groups, 1990 to 1994 and 2012 to 2016



Notes: Capital-light services industries: wholesale trade, retail trade, accommodation and food services, financial and insurance services, professional, scientific and technical services, administrative and support services, and other services (all have a capital-output ratio of less than 2.0 in 2016).

Capital-heavy services industries: electricity, gas, water and waste services, transport, postal and warehousing, rental, hiring and real estate services, information media and telecommunications, and arts and recreation services (all have a capital-output ratio of at least 3.4 in 2016).

Source: Grattan analysis of ABS (2016a, Table 5 and 58).

fastest growing sectors were the capital-light financial services and business services.<sup>28</sup>

### 3.1.2 The average non-mining sector requires less capital than in the past

Capital intensity has also fallen because many non-mining industries now require less capital per dollar of output than they did in the past (Figure 3.4 and Figure 3.5). That has cut non-mining business investment by about half a percentage points of GDP since 1990. The main cause was that the price of capital goods fell (discussed below); there may also have been a shift within sectors towards capital-light sub-sectors.

The trend to lower capital intensity within industries temporarily reversed between 2005 and 2010 (Figure 3.3), with strong investment in transport, postal and warehousing; information, media and telecommunication; and electricity, gas, water and waste services. Manufacturing, too, became more capital intense, reflecting a shift to capital-intensive sub-sectors including mineral processing. One contributor was a large decline in financing costs. Since 2010, the trend of falling capital intensity has resumed.

### Capital goods prices have fallen sharply over time

The main reason non-mining business is using less capital (measured in nominal terms) is that capital goods have fallen in price. The price of business capital goods has fallen by almost half since 1990 (Figure 3.6 on the following page). Price declines were far from uniform (Figure 3.7 on the next page). The price of machinery and equipment has fallen by 60 per cent since 1990, relative to the GDP price index, thanks to productivity growth in global manufacturing and the rise of China as a low-cost global manufacturing centre. The strong Australian dollar

during the mining boom also contributed.<sup>29</sup> The price of construction, by contrast, rose in line with the general price level, as Figure 3.7 shows.

### Growing investment in intangible assets is not fully captured in the national accounts

Australian non-mining business investment has shifted towards intangible assets and away from machinery and equipment, as it has in many other high-income countries.<sup>30</sup> Only around a third to a half of intangible investment is included in the national accounting measure of investment.<sup>31</sup> This shift towards intangibles may therefore account for some of the decline in non-mining investment as a share of GDP, as it is measured in the national accounts. Private business investment in intangibles that *is* measured as investment in the national accounts grew from 1.4 per cent of GDP on average between 1988 and 1992 to 2.4 per cent between 2012 and 2016. Unmeasured intangibles may have risen from about 3 to about 4 per cent of GDP over that time. Appendix A discusses the rise of investment in intangible assets.

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28. Government of the United Kingdom (2012, p. 11).

29. For example, the price of motor vehicles fell by 37 per cent compared to GDP between 2003 and 2016; see ABS (2016a). Prices also reflect how statistical agencies measure quality improvements; see Gordon (1990). The quality adjustments inherent in splitting expenditures into prices and volumes become difficult to interpret over long periods; see ABS (2015, p. 87) and ABS (2016a).

30. Andrews et al. (2012) and Barnes et al. (2009).

31. Andrews et al. (2012); and Corrado et al. (2010).

**Figure 3.6: The investment share of GDP reflects the falling price of capital goods**

Measures of investment as a percentage of GDP

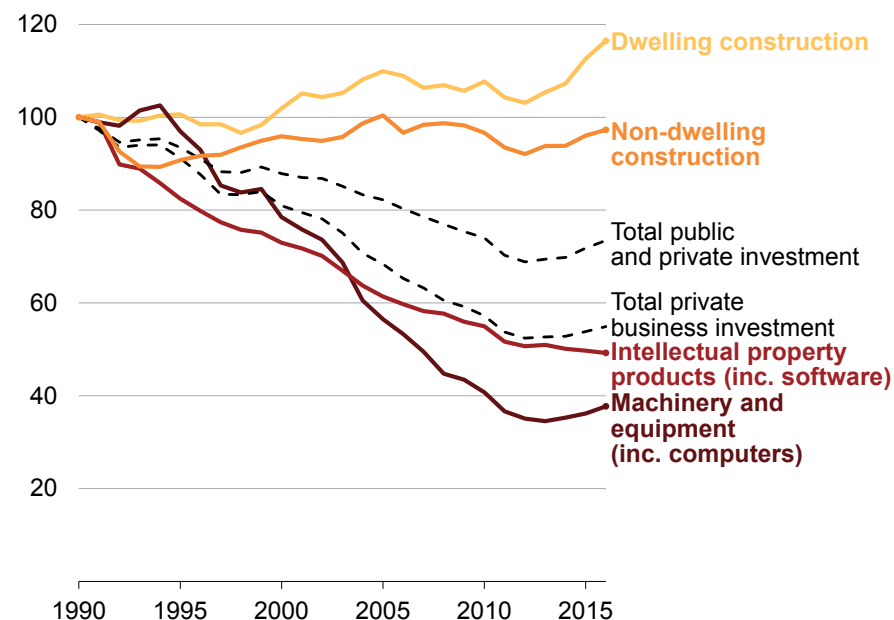


Notes: Chain volume measures and price deflators are available for total business investment, not non-mining investment.  
The base year (i.e., the year in which chain volume measures are equal to nominal values and price indices are equal) is 2015.

Source: Grattan analysis of ABS (2016a, Table 2, 4 and 52).

**Figure 3.7: The price falls in capital goods were not uniform**

Relative prices of capital goods to GDP, index 1990 = 100



Notes: Relative prices are the implicit price deflator for gross fixed capital formation series divided by the implicit price deflator for GDP, indexed from 1990. The absolute position of 'real' series is set arbitrarily by the index of relative prices.

Source: Grattan analysis of ABS (*ibid.*, Table 2 and 4).

### Financing costs have fallen

Finance costs have tended to fall over the long run, supporting investment. Real interest rates have been much lower since the early 2000s than they were in the 1990s (Figure 3.8), though small business interest rates have not declined as much as large business rates in recent years. The cost of equity has also declined more recently.<sup>32</sup>

A lower cost of capital should have supported more investment, in dollar terms. Lower finance costs probably slowed (and temporarily reversed, in the mid-2000s) the trend towards lower capital intensity (Figure 3.3). But they did not outweigh the falling price of capital goods and the trend to less capital-intensive industries over the long run.<sup>33</sup>

### 3.2 The non-mining economy has declined as a share of GDP

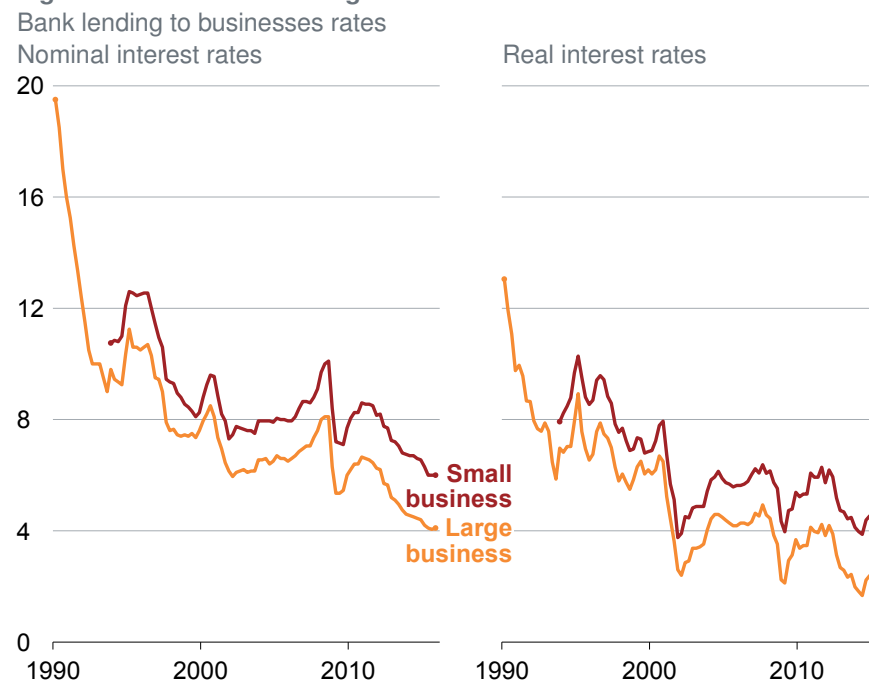
A third benign factor behind the fall in non-mining business investment is that the non-mining market sector has declined as a share of GDP, from 65 per cent in 1990 to about 61 per cent in 2016. Most of the decline occurred between 2005 and 2010. Business investment has declined in parallel, by half a percentage point of GDP.

Output in mining grew as a share of nominal market output from 2004 to 2012, from about 5 per cent to about 10 per cent. It has declined somewhat as prices have fallen, but remains above its average level prior to the boom. Non-market sectors (health care and community services, education, and public administration and safety) have risen by about 2 per cent of GDP since 2008. The value of services from dwellings rose just under a percentage point in recent years.

32. Fang et al. (2015, p. 37).

33. For surveys of the economics of investment, see Chirinko (1993) and Caballero (1999). Recent Australian studies that address finance costs include La Cava (2005), Cockerell et al. (2007) and Lane et al. (2015).

**Figure 3.8: Business lending rates have fallen**



Notes: Real lending rates are adjusted for CPI.

Source: RBA (2016a) and RBA (2016b).



### 3.3 Slow output growth has reduced investment

Another contributor to the decline of non-mining investment is less benign: slow growth has cut the need for firms to invest.<sup>34</sup>

The period of strong output growth from the mid-1990s was associated with strong non-mining investment. Non-mining market sector output grew at an average of 4 per cent per year in the decade to 2008, pushing investment above the slow trend decline discussed above.<sup>35</sup>

Since 2009, non-mining market sector output growth has slowed to just 2.2 per cent on average. In the past three years, growth has fallen further to just 1.9 per cent, about a percentage point lower than in the years around 1990 and 2 percentage points lower than in the decade to 2008 (see Figure A.6 on page 54).<sup>36</sup>

Slow recent output growth accounts for about a third of the gap in non-mining business investment as a share of GDP in 2016 compared to its average level in the years around 1990 (Figure 3.2), or 0.9 percentage points of GDP. It accounts for about half of the fall in investment since 2009, or about 1.6 percentage points of GDP.<sup>37</sup>

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34. Firms invest in part to accommodate expected output growth, so low output growth reduces investment; see Caballero (1999) and Cockerell et al. (2007).

35. Financing conditions were also helpful.

36. Non-mining output growth is proxied by the chain volume gross value added (GVA) of all industries, minus the chain-volume GVAs of the non-market industries (including dwellings) and mining; see ABS (2016a, Table 5).

37. A 1 per cent fall in the medium-run non-mining GDP growth rate reduces non-mining investment by just under 1 per cent of GDP. The stock of private non-mining business capital is coincidentally just below annual GDP. If GDP grows 1 per cent slower per year, firms can maintain a constant capital-to-output ratio by reducing investment by just under 1 per cent of GDP.

#### 3.3.1 Potential growth has declined

In turn, output has grown more slowly for two reasons: slower potential output growth, and a widening gap between actual and potential output (Figure 3.9).<sup>38</sup> Understanding the contribution of each is important because the policies that help expand potential output can differ from the policies needed to close the gap.<sup>39</sup>

The potential growth rate of the economy has declined in recent years.<sup>40</sup> The International Monetary Fund (IMF) estimates that potential GDP is now growing at just over 2.5 per cent a year, about a percentage point below its pace between 1995 and 2004, as shown in Figure 3.9.

Potential growth has declined mainly because productivity growth has slowed and the working-age population is growing more slowly. Productivity growth was exceptionally weak between 2004 and 2010. It recovered in recent years, but remains weaker than it was in the 1990s and early 2000s.<sup>41</sup> The working-age population is growing more slowly, mainly because of a decline in net migration since its peak in about 2012 and, in part, because the population is ageing, as discussed in Appendix A.

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38. Figure 3.9 charts growth for the whole economy (including the non-market sector (dwellings, health and community services, etc.) and mining, for which growth was a bit faster than for the non mining market economy.

39. Jahan et al. (2013).

40. Potential output growth is a function of changes in the working age population, changes in labour participation rate ceilings, and productivity growth (which in turn is a function of investment and other factors like changes in technology and policy settings).

41. Productivity Commission (2016a, Table 1.1); and ABS (2016c).

### 3.3.2 Growth has fallen short of potential

In addition, actual growth has been a bit slower than potential in recent years, as also set out in Figure 3.9. The IMF estimates the gap between actual and potential output to be about 1.7 per cent of GDP, though it is difficult to estimate with much precision.<sup>42</sup>

Several pieces of evidence suggest that actual output is below potential. Inflation is relatively weak and there is some spare capacity in the labour market. The capital stock is ample given the current level of output: office vacancy rates are high, while business capacity utilisation is close to its long-term average.<sup>43</sup> Some of the evidence is reviewed in Appendix A.

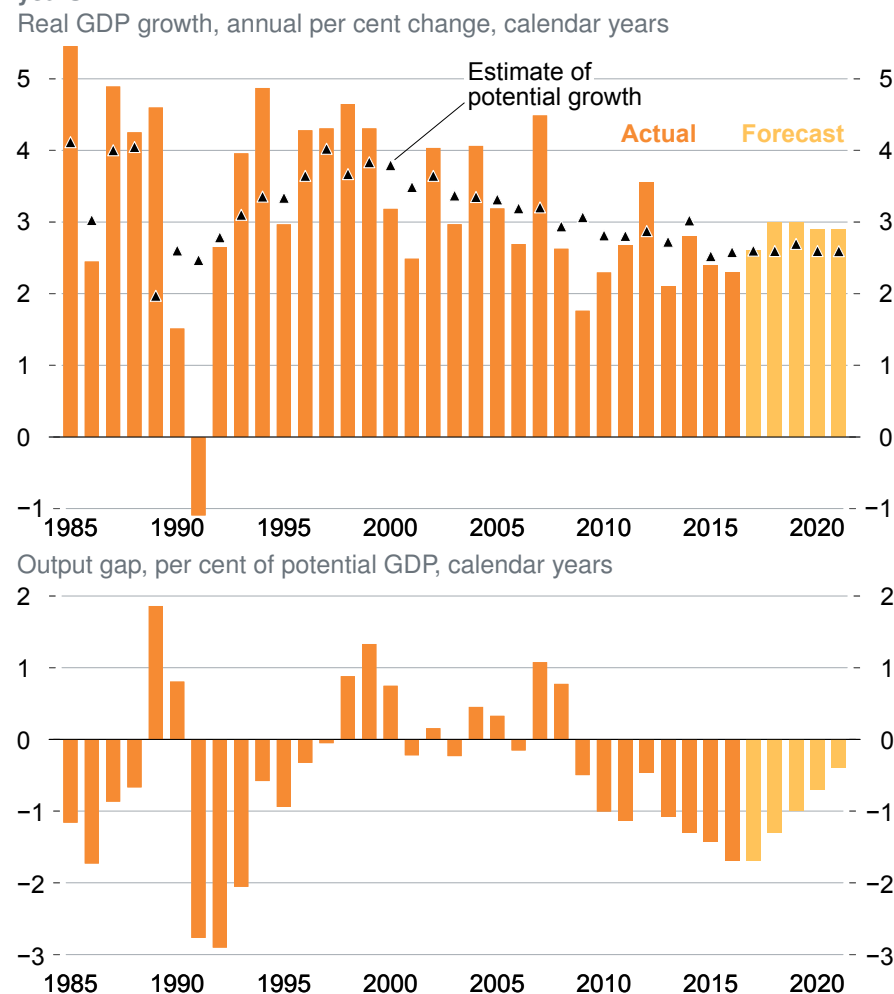
Fiscal and monetary policy have played a role in the shortfall from potential growth, as discussed in Chapter 5. In addition, transition from the mining boom may have made it difficult for the economy to operate at potential. In theory, as the terms of trade and mining investment decline, the real exchange rate can depreciate to maintain full employment. But in practice, slow output growth is common after mining booms, perhaps because businesses and workers take some time to reassess their opportunities.<sup>44</sup>

42. IMF (2017a); and RBA (2017a, Section 3).

43. Capacity utilisation is an aggregate of firms' estimates of their current output as a percentage of potential output. The NAB measure of capacity utilisation has risen since 2013, but is close to the middle of its post-2000 range; see NAB (2016). Australian CBD office vacancy rates are 11 per cent, the highest they have been since the mid-1990s; see Property Council of Australia (2016).

44. Minifie et al. (2013).

**Figure 3.9: Potential and actual growth rates have declined in recent years**



### 3.4 Summing up and outlook

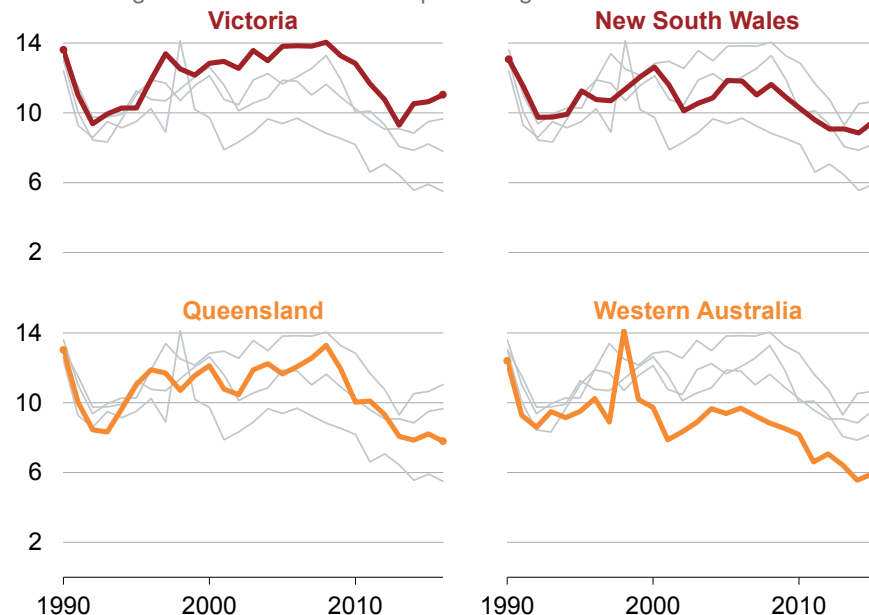
Non-mining investment is at historic lows, as a share of GDP. But about two-thirds of the shortfall from its level of a quarter-century ago is due to structural changes in the economy, including a shift to capital-light service sectors. Only one-third is due to recent slow output growth.

Looking ahead, if output growth remains subdued, the current level of non-mining business investment may be the 'new normal'. If the economy continues to rebalance, non-mining investment is likely to increase. There are encouraging signs that non-mining investment responds to the exchange rate and other aspects of the business environment in the medium term: it has begun to pick up in NSW and Victoria (Figure 3.10). Output could even grow above potential for a few years, as the IMF forecasts (Figure 3.9). But investment is not likely to return to the levels of the mid-2000s.

However, policymakers are right to review their options to increase the potential growth rate of the economy, and to increase actual growth. The next two chapters analyse policy options that would encourage investment to these ends.

**Figure 3.10: Non-mining investment has started to pick up in the non-resource states**

Non-mining business investment as percentage of GDP



Notes: Non-mining private business investment based on ABS experimental estimates. Grey lines represent the other states.

Source: ABS (2016d) and ABS (2016b).

## 4 Company tax changes to encourage investment

The Federal Government has proposed cutting the company tax rate from 30 per cent to 25 per cent in order to encourage investment.<sup>45</sup> Taxes on corporate income make business investment less attractive. In particular, a high corporate tax rate can deter foreign investment. International capital – the supply of funds from foreign investors – is mobile between countries, as investors seek to maximise their returns. This chapter summarises how investment may respond to changes in company tax. It also reviews several alternatives: a cut for small companies only; accelerated depreciation; an investment allowance; an allowance for corporate equity; and a cash-flow tax.

Reducing the company tax rate would increase investment in Australia. But it is not a silver bullet. The government estimates that business investment would increase by 0.2 to 0.4 percentage points of GDP in response to a 5 percentage point cut in the company tax rate, mostly through more foreign investment. The benefits would accumulate gradually over a number of years, while some costs (notably, the reduction in tax revenues as foreigners pay less tax) would be felt immediately. Income or other taxes would need to be increased, or spending reduced, to compensate for the reduction in federal revenue.

Setting a lower tax rate for small companies than for big companies is difficult to justify. Accelerated depreciation schemes would probably increase investment, but also have substantial budget costs, potentially higher in the early years than cutting the company tax rate. An investment allowance would encourage investment at lower cost, but may be administratively costly.

Permitting firms to take an allowance for corporate equity could encourage investment, by reducing the tax rate on marginal investments while

increasing the rate on firms that earn rents from market power and natural resources. A cash-flow tax, such as the one under consideration in the US, would allow firms to immediately write off all capital purchases, making investment very attractive. But transitioning to such a scheme would significantly increase the budget deficit for many years.

### 4.1 Cutting the company tax rate

#### 4.1.1 A lower company tax rate increases the rate of return on capital

A company tax cut would increase the rate of return on investment in Australia to both domestic and foreign equity investors. The impact would be larger for foreign investors. In response, they are likely to increase investment, as discussed below.

Foreign investment plays an important role in building Australia's capital stock. Australia saves more than many advanced economies (as a share of GDP), but investment in Australia has usually been higher still (see Figure 4.2 on the next page). Without net inflows of foreign investment, Australians would have to sacrifice additional consumption to maintain the same investment level.

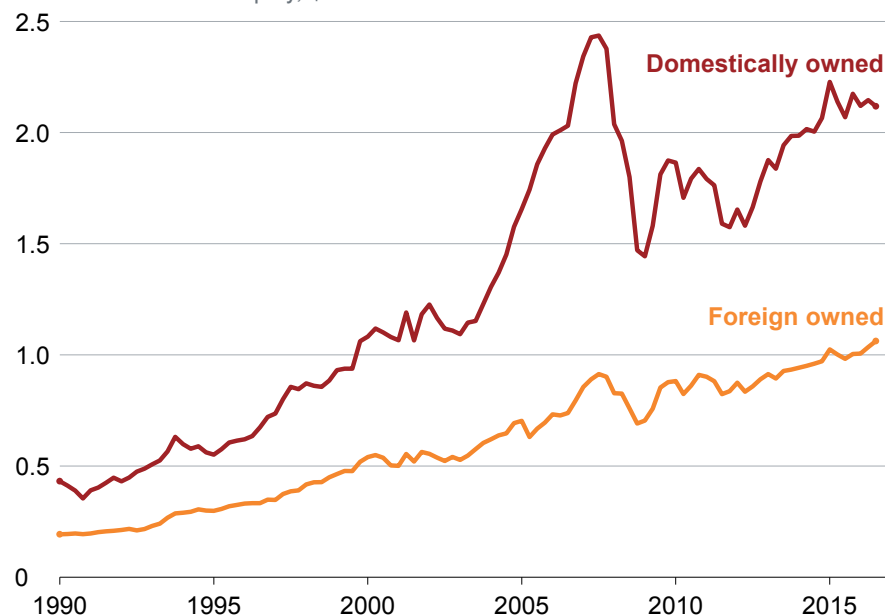
Foreign investment provides benefits that extend well beyond filling the savings gap shown in Figure 4.2. Multinational corporations operating in Australia can introduce new products and services, transfer skills, technical knowledge, and business models, and increase competitive pressure on Australian firms. Foreign investment in Australia also makes it easier for Australian individuals and firms to invest and access financial products overseas.

Reflecting this, the gross stock of foreign investment is much larger (at over \$3 trillion) than the net stock (about \$1 trillion). One third of

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45. See Treasury Laws Amendment (Enterprise Tax Plan) Bill 2016 (Cth).

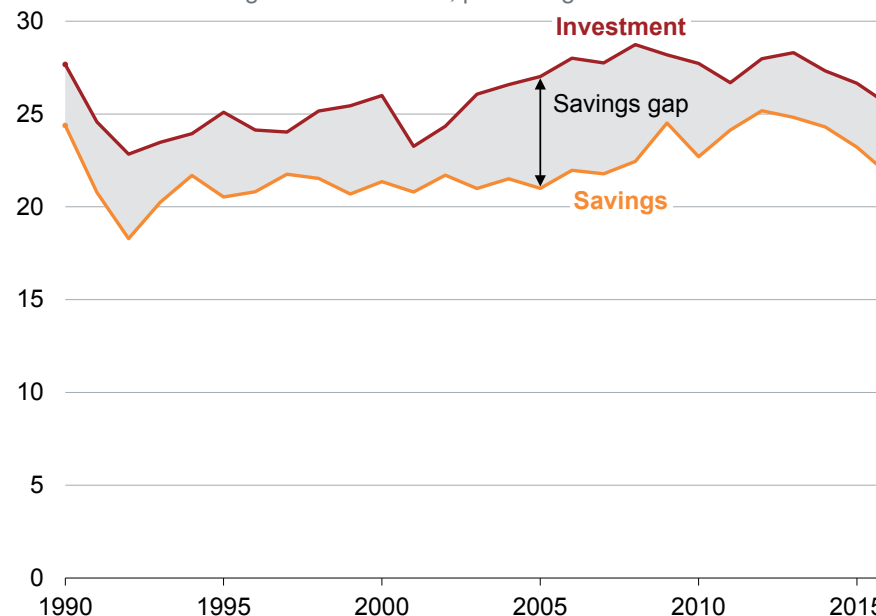
**Figure 4.1: More than a trillion dollars of Australian equity is foreign owned**  
Value of Australian equity, \$2016 trillion



Notes: Includes listed and unlisted shares and other equity, excluding securitisers, government-controlled corporations, the central bank, and central borrowing authorities. The ABS definition of equity includes ownership of property by non-residents.

Source: ABS (2016e, Tables 47 and 48).

**Figure 4.2: Investment in Australia is partly funded by foreign savings**  
Gross national savings and investment, percentage of GDP



Notes: The savings gap is equal to net foreign investment: gross inflows of foreign equity and debt less gross outflows (foreign debt and equity assets purchased by Australian investors).

Source: ABS (2016a, Table 1 and Table 2).

Australian equity is foreign owned (see Figure 4.1 on the preceding page), while Australian holdings of offshore equities are of a similar value.<sup>46</sup>

Foreign investors take a number of factors into account in determining where to invest, including the corporate tax rate.<sup>47</sup> Countries around the world compete to attract global capital; many have cut their corporate tax rates in recent years, while Australia's rate has not changed since 2001 (see Box 2 on the next page). As this tax competition continues, Australia is becoming a less attractive place for foreigners to invest. Keeping the Australian company tax rate at 30 per cent does not mean all foreign investors will stop investing here, but it may mean missing out on a higher level of investment than otherwise.

The Australian company tax rate has a direct impact on the rate of return received by foreign equity investors. Cutting the tax rate from 30 to 25 per cent would increase the after-tax rate of return on Australian equity by about 7 per cent for foreign investors. The rate of return would increase both for individuals who own shares in Australian companies and for multinational firms paying Australian company tax.<sup>48</sup>

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46. ABS (2016e, Tables 47 and 48). Equity is defined as the market value of shares in companies, equivalent interests in unincorporated entities, and units in trusts. Roughly half of foreign equity is direct investment; the other half is portfolio investment. Including debt and other forms of investment, the level of gross foreign investment exceeds \$3 trillion.

47. Other factors include the size and profitability of the market, capabilities of the local workforce, the ease of doing business, and the quality of the legal environment.

48. After Australian taxes, foreign investors currently receive 70 cents of every dollar of distributed pre-tax profits. If the company tax rate was cut to 25 per cent, this amount would increase by 7 per cent, to 75 cents. US-owned multinational firms may not increase their rate of return by as much because they must pay the higher US corporate tax rate when they repatriate profits to the US, receiving a tax credit for Australian company tax already paid. But the repatriation of profits by US-owned multinationals accounts for as little as 5 per cent of the total Australian company tax, in part because US-owned multinationals tend not to repatriate profits; see Murphy (2016, p. 40) and Mather (2016).

The average rate of return to domestic investors would increase by just over 2 per cent.<sup>49</sup> The impact of a company tax cut is lower for them than for foreign investors because of Australia's *dividend imputation* system. When Australian investors receive dividends, they usually also receive a credit for company tax already paid (called a *franking credit*) before paying personal income tax. Thus, a lower company tax rate only benefits domestic investors via company earnings that are not paid as dividends, but retained by companies. Between 2005 and 2015, a third of the profits of listed Australian companies were retained.<sup>50</sup>

#### 4.1.2 Investment will increase if the company tax is cut

Foreign investors, and perhaps domestic investors, could be expected to invest more if the company tax rate is cut. The Australian Government Treasury commissioned Independent Economics and KPMG to model the long-term impact of cutting the company tax rate from 30 to 25 per cent. Treasury also did its own modelling. According to these models, a 5 percentage point cut in the company tax rate will increase the size of the capital stock by 1.6 to 2.9 per cent in the long run due to increased foreign investment (shown in Figure 4.4 on page 32).<sup>51</sup> With business investment currently around 13 per cent of GDP, the increase would amount to 0.2 to 0.4 percentage points of GDP.<sup>52</sup>

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49. See Appendix B.

50. Bergmann (2016, p. 47). Private companies retain more of their reported profits; see ATO (2016, Company – Table 2).

51. Kouparitsas et al. (2016, p. 28), Independent Economics (2016, p. 25) and KPMG Economics (2016, p. 8). The range of estimates arises from modelling assumptions, including how government taxing and spending is adjusted to offset the company tax cut.

52. This assumes that all of the increased investment is business investment. In the short run, investment may rise by more, as firms adjust their capital stock to the new, higher ratio to output. There is evidence, however, that it takes four or more years for investment to respond to a tax cut and rise towards a new long-run level; see Cockerell et al. (2007).

**Box 2: Governments around the world have been cutting company taxes**

Australia taxes the income of companies at a rate of 30 per cent, typically raising \$65 billion to \$70 billion a year, comprising about 17 per cent of total Commonwealth taxation revenue.<sup>a</sup>

The Australian company tax rate was last reduced in 2001, when the rate was cut over two years from 36 per cent to 30 per cent. At that time, Australia's rate was just below the OECD average. Since then, however, nearly all OECD countries have reduced their corporate tax rates, from an average of over 30 per cent in 2001 down to an average below 25 per cent in 2016, as shown in Figure 4.3.<sup>b</sup> Australia now has the equal sixth-highest corporate tax rate in the OECD. And countries including the United Kingdom, France, Japan and Italy have announced future cuts to their corporate tax rates.<sup>c</sup>

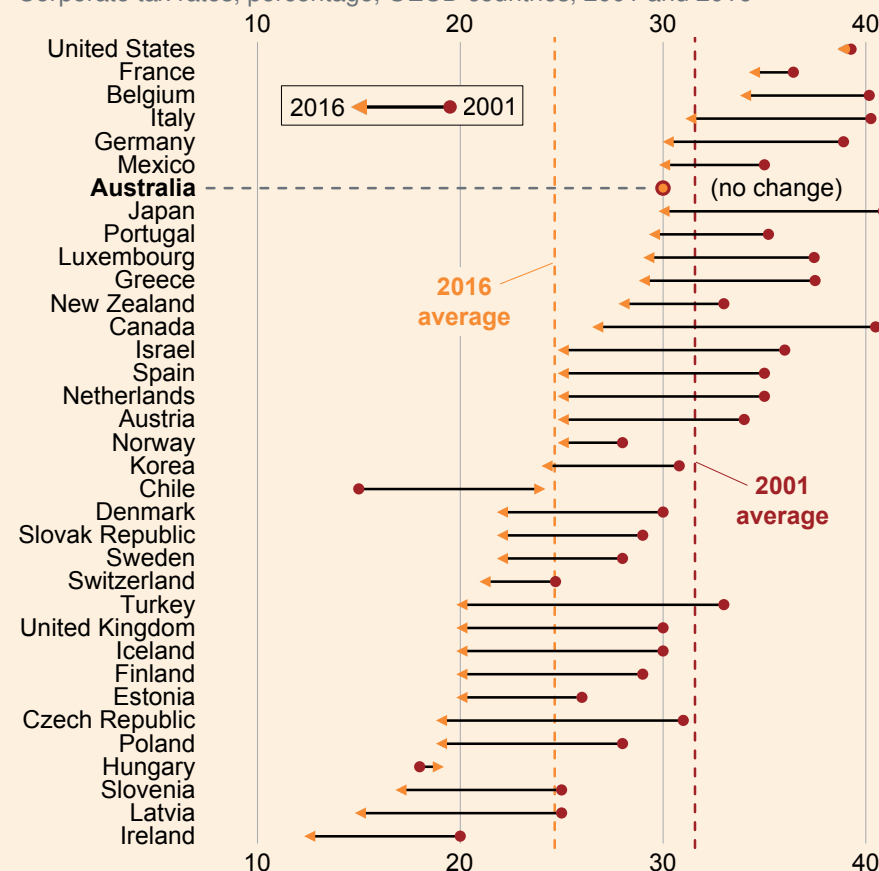
The effective tax rate faced by domestic investors across countries differs greatly from the headline rate, because there are different systems of dividend taxation, such as Australia's system of dividend imputation. For foreign investors, the headline rates are broadly comparable, although they do not take into account tax deductions available in different economies.<sup>d</sup>

The Federal Government's proposal to reduce the company tax rate to 25 per cent would move Australia closer to the current OECD average.

- a. Commonwealth of Australia (2016a, p. 37) and ATO (2016, Company – Table 1). Companies with less than \$2 million in turnover are taxed at a lower rate of 28.5 per cent.
- b. OECD (2016b)
- c. OECD (2016c, p. 41). The US may also cut the corporate tax rate.
- d. The US has the highest corporate tax rate in the OECD, but many deductions.

**Figure 4.3: Nearly all advanced economies have reduced their corporate tax rates since 2001**

Corporate tax rates, percentage, OECD countries, 2001 and 2016



Notes: Includes taxes collected from central and sub-central governments.

Source: OECD (2016b).



Compared to the fall in non-mining business investment since the early 1990s – about 2.8 percentage points of GDP – this is a modest increase. But it would offset a significant portion of the decline in investment due to lower growth (0.9 percentage points of GDP).

### The modelling results have some support from empirical literature

Many empirical studies have analysed the response of investment to changes in the corporate tax rate across economies. Most relevant to Australia are those that analyse the response of foreign investment. A number of papers have estimated the response of *foreign direct investment* (FDI) to corporate tax cuts.<sup>53</sup>

A synthesis of 45 studies found that the median estimated impact of a one percentage point cut in the corporate tax rate was a 2.3 per cent increase in FDI.<sup>54</sup> If this estimate applied to Australia, then cutting the company tax rate by 5 percentage points would increase FDI by about 0.4 percentage points of GDP, consistent with Treasury's model.<sup>55</sup>

However, the empirical literature suggests there is significant uncertainty about how FDI might respond. Most studies estimate that FDI will increase, but there is a broad range of estimates, and one in seven studies suggests it will stay the same or fall, as shown in Figure 4.5.<sup>56</sup>

53. FDI is a form of foreign investment where the investor has a controlling interest, such as foreign-owned multinational firms operating in Australia.

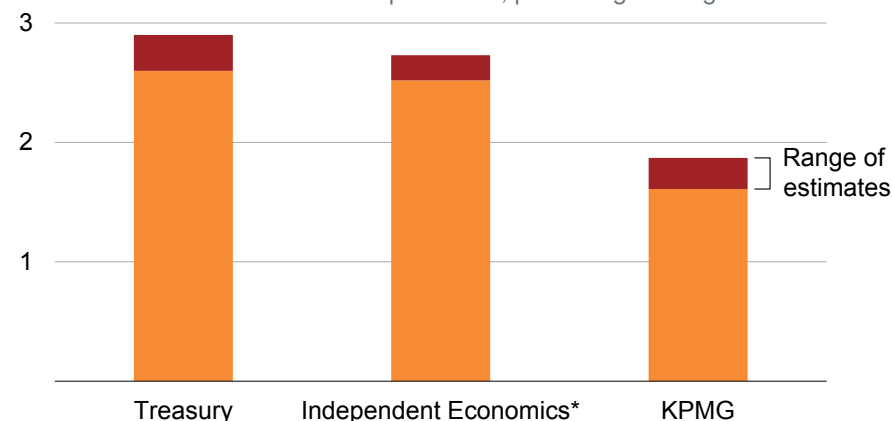
54. Feld et al. (2011, p. 263). In comparison, the IMF estimates that FDI increases by 4.4 per cent in advanced economies for a one percentage point corporate tax reduction; see IMF (2016a, p. 48).

55. Grattan analysis of ABS (2016f, Table 15), ABS (2016a, Table 2) and Feld et al. (2011, p. 263). FDI is one part of investment. The overall effect may differ: foreign equity portfolio investment would probably increase, while foreign debt and domestic investment would increase less and could even fall. In addition, investment may respond more strongly initially than it does in the long run; see KPMG Economics (2016, pp. 4–5).

56. Feld et al. (2011, p. 240). This is before taking into account publication bias: studies that report a negative or insignificant impact are less likely to be published.

**Figure 4.4: A company tax cut would lead to a modest investment increase**

Estimated long-term impact of a 5 percentage point reduction in the company tax rate on investment and the capital stock, percentage change



Notes: \*Independent Economics report the estimated impact on business investment only. If there is no impact on non-business investment, then Independent Economics' estimated impact on total investment is likely to be closer to that of KPMG..

Source: Kouparitsas et al. (2016, p. 28), Independent Economics (2016, p. 25) and KPMG Economics (2016, p. 8).



The evidence on whether FDI has responded to recent changes to Australia's company tax rate relative to other jurisdictions is mixed. Over the decade to 1999, gross FDI inflows averaged 1.7 per cent of GDP. Over the next decade – after the company tax rate was cut from 36 to 30 per cent – they averaged more than 3 per cent of GDP. But even as Australia's company tax rate has been drifting up relative to other nations, FDI has remained relatively stable, averaging 3.5 per cent since 2010.<sup>57</sup> It is difficult to separate the impact of the mining boom and the GFC from the impact of changes in company tax rates relative to other countries.

The uncertainty about how investment would respond to lower tax rates reflects broader puzzles about how investment responds to overall rates of return. While there is strong evidence investment does respond, the size and timing of the response is much less clear.<sup>58</sup>

It is not clear whether long-term investment by *domestic* investors would be higher under a lower company tax. While the rate of return to domestic investors increases a little if company taxes are lower, the rate of return may be reduced as foreign investment increases.<sup>59</sup> And international empirical evidence on how domestic investors respond to tax cuts cannot be directly applied to Australia, because dividend imputation is not widely used elsewhere. Nonetheless, empirical studies suggest that cuts to corporate tax rates typically result in a long-term increase in *total* investment.<sup>60</sup>

57. Grattan analysis of ABS (2016f, Table 15) and ABS (2016a, Table 2). Non-mining FDI has declined over this time, but may be picking up again as the mining boom winds down (See Appendix A).

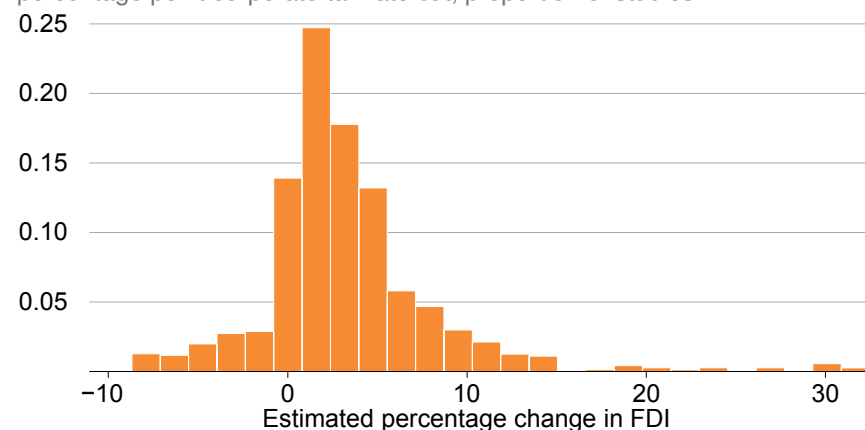
58. Boivin et al. (2010); Caballero (1999); and Chirinko (1993).

59. Where domestic and foreign capital are close substitutes, a strong response by foreign investors could drive down returns to domestic investors to below the level prior to the tax cut, causing domestic investors to reduce investment, and so offsetting some of the increase in foreign investment.

60. See, for instance, Cummins et al. (1996), Djankov et al. (2010) and Arnold et al. (2011).

**Figure 4.5: There are a wide range of empirical estimates on how FDI responds to a corporate tax cut**

Distribution of estimated increase in FDI inflows in response to a one percentage point corporate tax rate cut, proportion of studies



Notes: Based on 704 estimates across 45 studies.

Source: Chart taken directly from Feld et al. (2011, p. 241).

#### 4.1.3 Australians would have to wait for the benefits from a company tax cut

A 5 percentage point company tax cut would increase investment, albeit modestly. But investment is merely a means to an end. Whether a company tax cut is in the national interest depends on whether it improves the living standards of Australians. A company tax cut would have to be funded, in part, by increases in other taxes or cuts to government spending.

Increased investment resulting from a tax cut will increase Australia's economic output. But payments to foreign investors also increase. To determine whether a company tax cut is in the national interest, the best measure is the impact on Gross National Income (GNI), rather than GDP. GNI differs from GDP in that it excludes income earned in

Australia by overseas residents (such as by foreign owners of assets in Australia) and includes income earned overseas by Australian residents.

### In the long run, a company tax cut will probably benefit Australians

The economic modelling of a company tax cut conducted by and for Treasury focuses on the long-term impact on GNI. The models assume that the reduction in the company tax is offset with increases in other taxes.<sup>61</sup> Under a scenario in which a 5 percentage point cut in the company tax rate is funded by an increase to personal income tax rates, GNI is predicted to increase by 0.5 to 0.6 per cent (\$8 billion to \$10 billion in today's economy) in the long run.<sup>62</sup>

In the long run, workers are likely to be the main Australian beneficiaries of increased foreign investment. A larger capital stock increases labour productivity, which means companies are likely to bid up wages. A 5 percentage point cut in company tax rates is predicted to lead to a long-term increase in after-tax wages of 0.4 to 0.8 per cent. This is net of increases in personal income tax rates to offset the impact of company tax cuts on the budget.<sup>63</sup>

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61. According to one model, company tax cuts could be up to 55 per cent self-funded; see Murphy (2016, p. 27). This is because a larger capital stock increases earnings, leading to higher tax collections, while a lower tax rate also acts as a disincentive for multinationals to shift profits to low-tax jurisdictions.

62. Kouparitsas et al. (2016, p. 28), Independent Economics (2016, p. 25) and KPMG Economics (2016, p. 8). The other scenarios considered funding a company tax cut via an efficient lump-sum tax, or via reducing government spending. In these scenarios, the impact on GNI was estimated to be as high as 0.8 per cent, as discussed in Daley et al. (2016a).

63. Kouparitsas et al. (2016, p. 28), Independent Economics (2016, p. 25) and KPMG Economics (2016, p. 8). If immigration responds strongly to an increase in the demand for labour, then the impact on wages may be less than predicted by these models. Net overseas migration does respond to labour market conditions (Terrill et al. (2016, p. 24)).

The predictions of these models depend on the assumptions made. As discussed above, how much investment responds to a change in after-tax rates of return is not known with much precision. Not all economic models come to the same results. For instance, the Centre of Policy Studies (CoPS), in analysing a reduction in the company tax rate to 22 per cent, found that while output and investment increase, the long-term impact on GNI is negative.<sup>64</sup>

### In the short run, a company tax cut would reduce national income

Cutting the company tax rate today would immediately benefit the shareholders of corporations operating in Australia, while the federal budget would take an immediate hit. The market value of Australian equity would increase, as shareholders would anticipate a temporarily higher rate of return after tax. Investors in firms with a high proportion of foreign ownership would probably benefit the most, because dividend imputation would limit the benefits of the tax cut to firms mainly owned by domestic investors.<sup>65</sup>

GNI would be reduced by about 0.25 per cent (\$4 billion) immediately after the tax is cut.<sup>66</sup> As investors respond to a higher rate of return and the capital stock grows, GNI would begin to increase. According to the Treasury models, GNI would eventually rise above where it would have been without a tax cut. But the transition phase could take years.<sup>67</sup> A

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64. Dixon et al. (2016).

65. Multinational firms that report large profits in Australia would benefit the most. Multinationals that shift some of their Australian profits to lower-taxed jurisdictions would gain the same increase in the rate of return on their *reported* profits, but the benefit would be less relative to the profits they would have reported had they not engaged in profit shifting.

66. Grattan analysis of OECD (2016d), ABS (2016e, Tables 47 and 48) and ATO (2016, Company – Table 1, Individual – Table 1, SuperFunds – Tables 1 and 2, Partnerships – Table 1, Trusts – Table 1).

67. The Treasury cites an analysis that suggests the full adjustment to the capital stock takes about 20 years, with half completed in 10 years; see Kudrna et al. (2010).

company tax cut may not be in the national interest if the costs in the transition phase outweigh any future benefit.

#### 4.1.4 Company tax cuts should be part of a balanced budget package

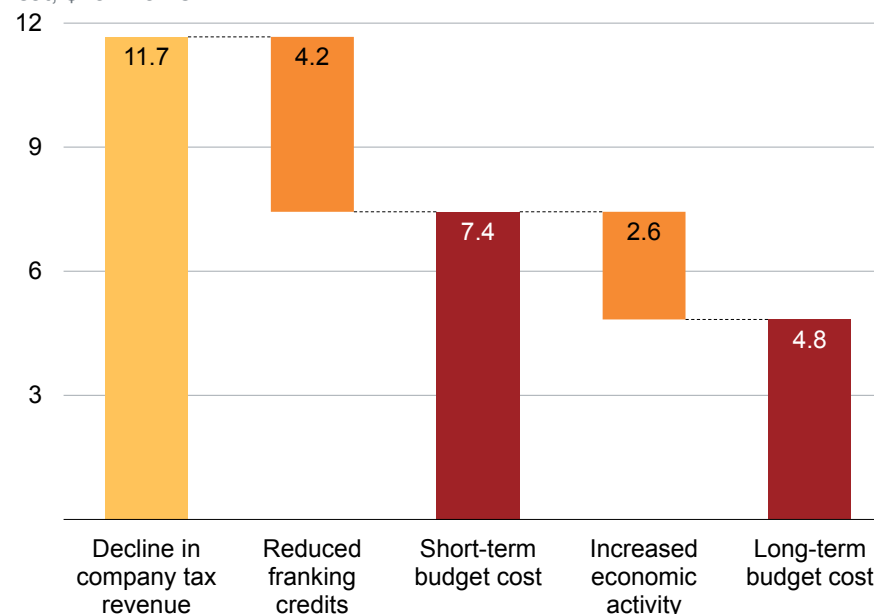
An unfunded company tax cut would add to already-large budget deficits. Given the difficulty successive governments have had in reducing the budget deficit, any cut to the company tax rate should only be implemented as part of a wider tax (and spending) reform package that does not increase budget deficits.

If the company tax rate in Australia were cut to 25 per cent from 1 July 2017, the budget deficit for 2017–18 would increase by about \$7.4 billion.<sup>68</sup> Over time, the company tax cut is expected to increase profits and wages, which will lead to budget improvements via increased company tax and personal income tax revenue (see Figure 4.6). There are also likely to be smaller increases in other sources of tax revenue, such as the GST.<sup>69</sup>

The annual figure of \$7.4 billion differs from the \$50 billion budget cost often quoted.<sup>70</sup> The \$50 billion is the estimated cost over ten years of the Government's *Enterprise Tax Plan*, where smaller companies receive a tax cut before larger companies. This plan costs much more

**Figure 4.6: The budget cost of a company tax cut will decline as economic activity increases**

Estimated contribution to budget deficit of a 5 percentage point company tax cut, \$2017 billion



Notes: The improvement to the budget position due to increased economic activity is assumed to be 35 per cent of the net short-term cost, based on Treasury's estimate when the long-term cost is financed by increasing personal income tax.

Source: Grattan analysis of Commonwealth of Australia (2016a, p. 37), ATO (2016, Company – Table 1, Individual – Table 1, SuperFunds – Tables 1 and 2, Partnerships – Table 1, Trusts – Table 1) and Kouparitsas et al. (2016).

68. Grattan analysis of OECD (2016d), ABS (2016e, Tables 47 and 48) and ATO (2016, Company – Table 1, Individual – Table 1, SuperFunds – Tables 1 and 2, Partnerships – Table 1, Trusts – Table 1). Of this, domestic investors would benefit by about \$3.5 billion, and foreign investors by \$3.9 billion; see Appendix B.

69. The degree to which increased economic activity will improve the budget position depends on how the company tax cut is financed. Estimates range from 35 to 55 per cent of the short-term budget cost; see Kouparitsas et al. (2016) and Murphy (2016).

70. PBO (2016, Appendix F, p. 210); and Fraser (2016).

in later years. In 2026–27, for instance, the nominal cost is estimated to be \$14 billion.<sup>71</sup>

One of the benefits of the Government's approach is that it delays much of the budget impact, while investors may respond to the promise of a future tax cut.<sup>72</sup> But investors may not believe that the Government can deliver on its promise. Even if the plan is legislated in the current term of parliament, a future parliament may reverse the cuts before they are implemented.

The modelling conducted by and for Treasury assumed that the company tax cut is budget neutral, under three alternative sources of funding: a 'lump sum' tax; a reduction in 'wasteful' government spending; and an increase in personal income taxes. A lump sum tax is purely hypothetical, and it may be challenging to cut spending sufficiently to fund the tax cut.<sup>73</sup> It is likely a company tax cut would have to be funded, at least in part, by increasing other taxes.

The Government has not explicitly stated how it plans to fund a company tax cut. Projected improvements of the budget balance predominantly rely on growth in personal income tax receipts.<sup>74</sup> Budget projections assume that national income growth accelerates to 5 per cent over the next four years, higher than it has been in recent years.<sup>75</sup> While national income is likely to recover, as resource prices will probably not fall as fast as they once did, there is still a significant risk that revenues will be weaker than the government expects.

71. PBO (2016, Appendix F, p. 210). This estimated cost reflects projections that company tax revenue will increase significantly over the next ten years; it does not mean that cutting the company tax becomes more costly to the budget if it is delayed.

72. Kouparitsas et al. (2016, p. 5).

73. The lump sum tax is assumed to have no impact on economic behaviour. It is economically similar to a broad-based land tax.

74. Bracket creep – income growth that pushes wage earners into higher tax brackets – is likely to play a role in budget repair; see Daley et al. (2015a).

75. Commonwealth of Australia (2016b, pp. 2–4).

### Box 3: Company tax balances competing objectives

Advanced economies face trade-offs in determining the tax rate on corporate income.

The first trade-off is between raising revenue and competing with other jurisdictions for global capital. Large reductions in corporate tax rates normally require increases to other taxes. This trade-off explains, in part, why there has not been a race all the way to the bottom on corporate tax rates.<sup>a</sup>

Another trade-off is between an economy's overall tax system and the ability of entities to minimise their tax. If the difference between the corporate and personal income tax rates is high, for example, some individuals may seek to recategorise personal income as company income to reduce their tax.<sup>b</sup> In Australia, the gap between the highest marginal income tax rate and the small company tax rate is already high (18.5 cents in the dollar).

Governments that do not levy taxes on economic rents (such as a natural resource rent tax) may rely on a company tax to capture some revenue from rents, albeit at the cost of deterring some investment across the economy.

How firms respond to changes in company tax depends, in addition, on the extent to which they can move their reported income to lower-tax jurisdictions. The Australian Government, and governments around the world, are implementing laws seeking to ensure that firms pay an appropriate amount of tax.<sup>c</sup>

a. Mendoza et al. (2005). Despite tax competition over many years, the vast majority of OECD countries still have corporate tax rates of 20 per cent or higher.

b. There are laws that seek to prevent this, but it can be costly to monitor.

c. OECD (2015).

If the company tax rate is cut, it should be part of a wider package of reforms that explicitly fund the cost to the budget. The government should look to raise more efficient taxes rather than relying on bracket creep to do the work. A variety of reforms could be used to fund the initial budget impact, equal to \$7.4 billion a year if the tax is cut to 25 per cent in 2017: increasing the GST to 15 per cent (raises \$11 billion a year, even after compensating lower-income households); reducing the capital gains tax discount to 25 per cent (\$3.7 billion); restricting negative gearing (\$1.6 billion); and further winding back of tax concessions on superannuation (\$4 billion to \$5 billion).<sup>76</sup> If the package is sufficient to fund the initial budget cost, this will ultimately reduce the deficit, as the company tax cut should increase economic activity and wages, adding to government revenue over time.

## 4.2 Other options for company taxation

### 4.2.1 Tax cuts for small companies

Both Australia's major parties favour more cuts to the company tax rate for small businesses. But this is unlikely to lead to a substantial increase in investment. The profits of companies with an annual turnover of up to \$2 million are currently taxed at 28.5 per cent (compared to 30 per cent for larger companies). The ALP supports reducing the rate to 27.5 per cent for companies with an annual turnover of up to \$2 million, while the Coalition's policy is to reduce the company tax rate to 25 per cent for all companies, with smaller companies receiving a tax cut first.

Cutting the company tax rate for small companies from 28.5 to 27.5 per cent would cost the budget about \$260 million.<sup>77</sup> While the tax cut would be welcomed by those who receive it, it is not large enough to result in any noticeable increase in investment.

A larger cut to the tax rate of small companies would affect investment more, but applying different tax rates to small and large companies creates problems that grow as the gap between the tax rates gets larger. A different tax rate adds complexity and can increase compliance costs.<sup>78</sup> The turnover threshold can also act as a disincentive for businesses to expand.

In any event, there is no strong economic rationale for a different tax rate for small companies.<sup>79</sup> While compliance costs are higher for small companies (relative to their profits), it makes little sense to compensate them via a differentiated tax system. A lower tax rate compensates small companies with high profits much more than those with lower profits, for instance, even though the relative compliance costs are larger for companies with lower profits. The Government should ensure that the small and large company tax rate is equalised over the next few years.

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76. Daley et al. (2015b); Daley et al. (2016b); and Daley et al. (2015c).

77. Grattan analysis of ATO (2016, Company – Table 6). This assumes small companies are domestically owned and that the franking rate is kept at 30 per cent.

78. See Freebairn (2015) and Evans (2015).

79. A large political constituency would welcome them, however: three-quarters of companies in Australia are classified as 'small'; see ATO (2016, Company – Table 6).

#### 4.2.2 Accelerated depreciation and immediate asset deductibility schemes

An alternative to cutting the tax rate is to allow firms to write off new capital investments faster. Accelerated depreciation schemes are often touted as a more efficient way of increasing investment than company tax cuts, because the tax break only applies to new investment.<sup>80</sup> But the initial budget cost of such schemes can be high.

Accelerated depreciation schemes allow firms to depreciate their capital investments at a faster rate, providing them with a tax deduction earlier. Often this involves firms being able to immediately write off some or all of the cost of new investments as they occur.

Australia uses accelerated depreciation schemes for certain types of assets, usually those that have a long life.<sup>81</sup> Temporary schemes have been used to stimulate investment in the past. For instance, small businesses were able to immediately write off up to 50 per cent of new capital investments made in 2009 as part of a wider stimulus package.<sup>82</sup> The 2015–16 federal budget temporarily increased the amount of new investment small businesses could immediately write off, from \$1000 to \$20,000. Existing schemes could be expanded to apply to all capital investment.

When a firm is able to immediately write off a proportion of new asset purchases, it pays less tax at the beginning and more tax later on compared to standard depreciation schemes. Unless the immediate write-off is implemented as 'bonus' depreciation, the dollar amount

of tax paid over the life of the asset does not usually change.<sup>83</sup> But bringing forward depreciation reduces the real cost of investing for firms, particularly in assets with a long life, such as plant and equipment.<sup>84</sup> It is as though the government provides an interest-free loan to companies.

#### Evidence on how accelerated depreciation affects investment

International evidence suggests that the ability to bring forward depreciation will increase investment. For instance, a US study found that in the long run, investment rose when firms could write off costs faster.<sup>85</sup> Short-term schemes can also stimulate investment as firms rush to beat a deadline.<sup>86</sup> A study of a bonus investment allowance scheme in Germany, for instance, found capital investment increased, particularly in assets with a long life.<sup>87</sup> But after the scheme expired there was a significant decline in investment, suggesting that much of the boost was due to firms bringing their investment forward.

While a temporary accelerated depreciation scheme may boost investment, frequent changes to depreciation rules can create uncertainty for business.<sup>88</sup> And firms may hold off investing in assets if they anticipate a future favourable change to depreciation rules.<sup>89</sup>

In theory, an accelerated depreciation scheme could be introduced permanently. It is possible to design a scheme that would have a similar impact on investment as cutting the company tax rate. For a firm deciding whether or not to invest in an asset, an immediate deduction of 22 per cent of new investment is approximately equivalent to a

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80. Emerson (2016) and Dennis (2016).

81. When the company tax rate was last cut in 2000–01, a number of accelerated depreciation arrangements were phased out; see Commonwealth of Australia (1999).

82. The immediate write-off acted as a 'bonus' under this scheme – firms were still able to depreciate 100 per cent of their capital purchases over the asset life times in addition to the immediate deduction. This type of scheme is often referred to as an *investment allowance*.

83. An asset's life is the period over which it is usually depreciated.

84. Gravelle (2014).

85. Park (2016).

86. Gravelle (2014).

87. Eichfelder et al. (2014).

88. See, for instance, Miller et al. (2015) and Knittel (2005).

89. See House et al. (2006).



5 percentage point company tax cut.<sup>90</sup> The immediate write-off reduces the after-tax upfront cost of an asset purchase, while a company tax cut increases the value of the after-tax profit the asset generates.

### How accelerated depreciation affects tax revenue

In the long run, the budget cost of introducing a permanent accelerated depreciation scheme is lower than the cost of a company tax cut that has the same effect on investment. In later years, governments recover more and more of the tax revenue foregone earlier. But the cost to the budget in the initial years can be very high. An immediate tax deduction of 22 per cent on all new capital purchases would cost the government about a third more than a 5 percentage point company tax cut in the first year of operation, and it would not be until the sixth year that the yearly budget cost fell below that of a tax cut (see Figure 4.7).

There is also some empirical evidence suggesting that accelerated depreciation schemes can have substantial budget costs in the initial years. For instance, allowing small businesses to immediately write off \$20,000 in asset purchases was estimated to cost the budget \$800 million in the 2016–17 financial year.<sup>91</sup> Yet small companies are likely to account for only a twentieth of total business investment.<sup>92</sup> Allowing an immediate write-off for *all* investment would cost significantly more.

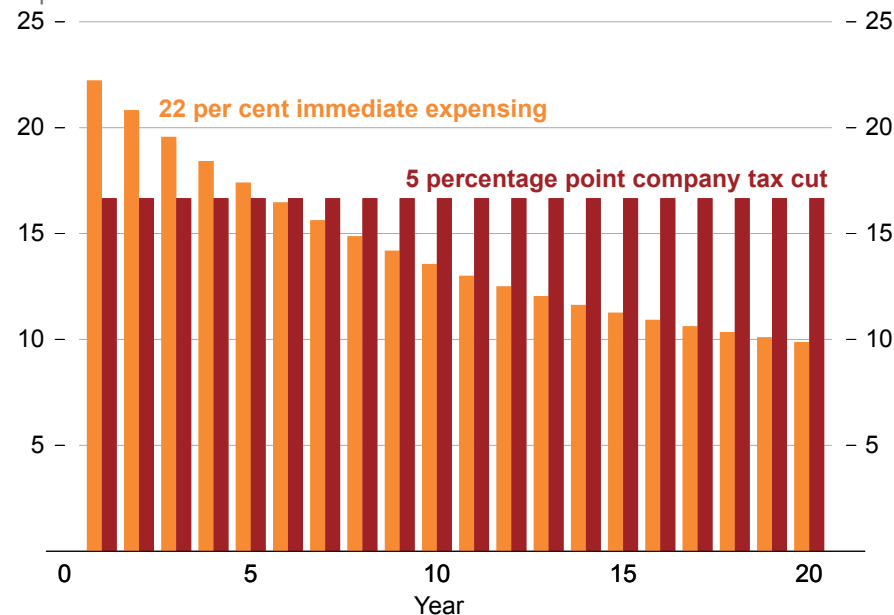
90. See Appendix B.

91. Commonwealth of Australia (2015b, p. 19).

92. Of the total depreciation by taxable companies in 2013–14, only 5 per cent was made by companies with a turnover of less than \$2 million; Grattan analysis of ATO (2016, Company – Table 2).

**Figure 4.7: The short-term budget cost of accelerated depreciation could be higher than that of a company tax cut**

Percentage of company tax revenue lost relative to baseline scenario, representative firm



Notes: Baseline scenario: company tax rate of 30 per cent, no immediate expensing of capital purchases.

Parameter assumptions are based on economy-wide aggregates (capital stock depreciates at a rate of 6.5 per cent, investment rate of 10 per cent, ratio of profits before tax to capital of 10 per cent).

The model does not account for additional investment driven by either scenario (though both are likely to have a similar impact), nor any resulting increase in economic activity. Dividend imputation is not taken into account, but this would be likely to impact both scenarios in a similar way. See Appendix B for details.

Source: Grattan analysis of ABS (2016a, Table 57).

#### 4.2.3 Investment allowances

An alternative would be to give firms an *investment allowance*: that is, they would be able to claim a tax deduction for a proportion of new capital investment, but continue to depreciate 100 per cent of an asset's value over its life – essentially amounting to an investment subsidy. The investment allowance that would generate an equivalent amount of investment as a 5 percentage point company tax cut depends on the life of the asset, but would generally be less costly to the budget.<sup>93</sup>

But there are non-budgetary costs to investment allowances. Such schemes add complexity to the tax system and increase compliance costs for firms. They add to the incentive for individuals to buy assets for personal use through a company balance sheet (see Box 3), or even for companies to claim expenses as capital purchases. It may be costly for governments to manage these risks.

Despite these costs, investment allowances could be used to boost investment and better manage budget costs in the transition to a company tax cut. For instance, a small investment allowance could be introduced alongside a plan to cut the company tax rate over a number of years, such as the Government's *Enterprise Tax Plan*. The investment allowance could then be phased out as the tax rate is cut.

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93. For an asset usually written off over 20 years, we estimate that a firm would require an investment allowance of about 14 per cent. This would reduce government revenue by about 16 per cent less than a 5 percentage point company tax cut. The required investment allowance is smaller for assets usually written off faster, and larger for those with a longer life.

#### 4.2.4 Allowance for corporate equity

Under an allowance for corporate equity (ACE), corporate profits would be taxed in the conventional way, but companies would be able to claim a tax deduction (allowance) based on the amount of equity invested. The allowance could be set equal to the interest rate on a safe asset, such as government bonds, so that companies are only taxed on profits that exceed this return.<sup>94</sup>

Some investment projects that are not economically viable under a conventional tax system would become viable with an allowance. Highly profitable companies, including those extracting economic rents, would pay relatively more tax under such a scheme, while companies earning lower returns would pay less tax. An ACE could be budget-neutral if the tax rate was increased at the same time as the allowance was introduced. As a result, an ACE could make Australia less attractive for some multinational companies to invest. It is not clear whether net investment would increase under a budget-neutral ACE.

Alternatively, an allowance could be introduced without changing the tax rate. That would increase the rate of return on investment. The government would have to increase other taxes or reduce spending to ensure the deficit does not increase.<sup>95</sup>

ACE schemes are difficult to design: there are only a few countries in the world that have such schemes in place, and none that have dividend imputation. Nonetheless, given that Australia does not directly tax most economic rents, an ACE should be considered as part of any review of corporate taxation.

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94. As an example, consider an allowance equal to 3 per cent. A company that makes a return on equity of 10 per cent would be taxed on 70 per cent of their profits, while a company that makes a return on equity of 5 per cent would be taxed on 40 per cent of their profits.

95. Sørensen et al. (2010) note that it is possible to design an allowance that only applies to the issue of new equity; this would reduce the budgetary costs of an ACE, while still making new investment attractive.



#### 4.2.5 A destination-based cash-flow tax

A cash-flow tax is levied on a company's net cash flow – the difference between cash inflows (sales) and cash outflows – rather than net profits. Capital purchases would be immediately deductible, which means switching to a cash-flow tax is likely to have a much greater impact on investment than a 5 percentage point company tax cut.<sup>96</sup> Like an ACE, a cash-flow tax applies to economic rents. But the budget costs of transitioning to a cash-flow tax would be extremely high.

The US government is considering implementing a *destination-based* cash-flow tax (DBCFT) that would be applied according to the location of the purchaser. Revenue from imports would be taxed without a deduction for the costs of production. Revenue from exports would not be taxed, although the costs of producing them would be claimed as a deduction. Under this scheme, there would be no benefit to multinational corporations to shift costs to reduce their reported profits in the US. Instead, multinationals would have an incentive to shift their profits and business activities to the US, which may put pressure on other nations, including Australia, to adopt the same tax system.<sup>97</sup>

For Australia, moving from the company tax to a DBCFT would result in a severe hit to government revenue. In the transition to a DBCFT, firms would receive deductions for depreciation of the existing capital stock, as well as immediate deductions for new capital purchases, potentially reducing the tax paid by companies to close to zero. But

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96. Section 4.2.2 showed that a 5 percentage point company tax cut would have a similar impact on investment as a 22 per cent immediate deduction. A 100 per cent deduction would have a larger impact.

97. This may benefit the US, but having different systems across different countries could increase the degree to which multinationals engage in tax minimisation. But if all countries adopted a DBCFT, it would be much harder for firms to profit shift, since the tax applies to the location of sales, not the location of production. In future, international tax competition may involve nations reforming their tax systems rather than simply lowering their rates; see Auerbach et al. (2017).

foreign investors would also be less sensitive to the tax rate under a DBCFT. As conventional depreciation is phased out over time, the government may be able to recover much of the lost revenue by raising the tax rate. Nonetheless, changing the tax system in this way would be complex, especially managing the transition period.

#### 4.3 Conclusion

Cutting the company tax rate would increase investment and would probably benefit Australians in the long run. But there are short-term costs, while the benefits are not known with much precision and would take a number of years to flow through. Any cut to the company tax rate in Australia should be part of a package of reforms, so that it does not increase budget deficits.

If the Government is unable to increase other taxes or cut spending sufficiently, another option would be to commit to a smaller company tax cut than the one it proposes. For instance, the rate for medium and large companies could be reduced to that of small companies (28.5 per cent), particularly given there is no strong case for small companies having a different tax rate.

Accelerated depreciation schemes are an alternative to company tax cuts that would boost investment. But transitioning into such a scheme has potentially higher budget costs than a company tax cut. An option that may have lower transition costs would be for the Government to introduce a temporary investment allowance that covers all capital purchases, and phase this out with a future cut to the company tax rate.

Finally, while the Government should review how companies are taxed, evaluation is needed before deciding whether to implement alternative arrangements such as an allowance for corporate equity or a destination-based cash-flow tax.

## 5 Other policy options to encourage investment

As rich nations around the world struggled to get their economies to grow after the Global Financial Crisis, they experimented with a wide range of policies to encourage investment, expand potential output, and close the gap between actual and potential growth. These included:

- *macroeconomic* policies that affect aggregate demand: changes in interest rates or purchases of financial assets (*monetary policy*); and changes in the overall level of spending and taxation (*fiscal policy*);
- increased *public investment* in infrastructure and skills; and
- broader reforms to promote productivity, participation, and other drivers of economic growth.

### 5.1 Macroeconomic policies

Fiscal policy and monetary policy can encourage business investment if there is spare capacity in the economy. They can help to close a gap between actual and potential output, and help to prevent potential output growing more slowly.

Australia does have some spare economic capacity (Section 3.3). But there are constraints on both arms of macroeconomic policy. The RBA is reluctant to cut interest rates from their already low levels, as it is concerned about risky lending. Public debt has grown (though it is still not high by international standards), though bank balance sheets remain large compared to GDP, limiting the scope to expand public sector debt.

Given these constraints, policymakers have to balance the risks of over- and under-stimulating the economy. But they should also seek

opportunities, however modest, to overcome the constraints, for example by increasing the quality of public sector spending, or combining monetary support with measures to limit risks from excessive lending.

#### 5.1.1 Monetary expansion

Business investment responds to monetary stimulus through a range of channels including finance costs, asset values, cash flows, exchange rates, household spending and residential construction.<sup>98</sup> While interest rate policy may become less effective when rates are very low, central banks have other monetary policy tools, including asset purchases. The Reserve Bank of Australia (RBA) has drawn lessons from the experience of its peer central banks in how and when to use these tools.<sup>99</sup>

But private sector investment is not the only factor considered by central banks in setting monetary policy. Currently, the RBA has set interest rates higher than would provide a rapid return to the target band for inflation of 2 to 3 per cent (and perhaps to higher private investment), because it judges that lower rates would raise undue risks to financial stability.<sup>100</sup>

There may be scope for the RBA to maintain or expand monetary stimulus if the Australian Prudential Regulation Authority (APRA) continues to tighten prudential standards.<sup>101</sup> That would limit the risks to financial stability, while helping to support prices, output, and investment.

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98. Boivin et al. (2010); and RBA (2015).

99. Heath (2016).

100. Lowe (2016).

101. IMF (2016b).

### 5.1.2 A general fiscal expansion

Fiscal expansion – increasing government deficits – would probably increase output and so boost investment, at least in the short term. There is spare capacity in the labour market and inflation is below target, so the RBA is unlikely to increase short-term interest rates to fully offset a moderate increase in government deficits. Central government debt has increased in recent years, but remains below the level at which fiscal policy seems to become less effective.<sup>102</sup>

But Australia's high household debt and large bank balance sheets may limit how much higher deficits increase output. Agencies and institutional lenders see bank debt and government debt as linked.<sup>103</sup> A fiscal expansion when the combined total of government and bank debt is high may increase longer-term interest rates and push up the dollar. Together, higher long-term interest rates and a higher dollar would partly or fully offset the effect of fiscal stimulus on output.

In any event, the Government must consider trade-offs. Unless the deficits fuel strong output growth, taxpayers must pay more in the future to repay the additional debts incurred by higher deficits. Australia began running structural budget deficits (that is, deficits even after adjusting for the effects of business cycle and changes in commodity prices) about a decade ago, and has not made much progress in reducing them.<sup>104</sup> If a larger output gap were to open up in future, fiscal expansion is likely to play a valuable role. But the case for expansion now is weaker.

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102. Ilzetzi et al. (2013).

103. One such link is that future government may offer guarantees on bank debt, as the Australian and other governments did during the financial crisis.

104. OECD (2014); and Minifie et al. (2013).

### 5.1.3 Public investment

Given the risks associated with a general fiscal expansion, some analysts advocate public investment rather than other forms of expansion such as tax cuts or transfers to households.<sup>105</sup> Public investment can increase aggregate demand and the productive capacity of the economy, and may even help reignite business investment if it targets constraints on business activity, such as transport bottlenecks.

Public investment provides the greatest long-run benefit when it is allocated to projects that have a high rate of return and when the budget overall is fiscally sustainable. In the short run, public infrastructure investment can provide a boost to output if it is made during a downturn and as part of a fiscal expansion. The IMF found in advanced economies an increase in public investment of 1 percentage point of GDP increases GDP by an average of 1.5 percentage points after four years, if all these conditions hold.<sup>106</sup>

But public investment is not a sure-fire way to expand output or investment.<sup>107</sup> Poor quality public investment is a burden on government budgets and can reduce GDP, even in the short-run.<sup>108</sup>

Provided high-quality projects are chosen, some analysts argue that Australia should spend more on infrastructure even if it means reducing budget deficits by less than the Government plans over the next year

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105. IMF (2014); Fournier (2016a); and Fournier (2016b).

106. IMF (2014).

107. The IMF (*ibid.*, p. 87) found evidence that increases in public investment increased GDP, but the impact on private business investment was not significant. The IMF also used a dynamic general equilibrium model to estimate long-term impacts of an increase in public investment of 1 per cent of GDP in the current economic environment of low rates. In the model, private investment increased by about 1.5 per cent (under 0.2 per cent of GDP) from the baseline in the following decade.

108. *Ibid.*

or two.<sup>109</sup> Public investment has risen recently, and infrastructure spending is expected to continue to increase in 2018 due to rising state infrastructure budgets (Figure 5.1 on the following page).<sup>110</sup> Australian public investment is already high relative to other high-income countries, and increasing, as shown in Figure 5.2 on the next page.<sup>111</sup>

If infrastructure spending is to be increased further, the main challenge will be finding quality projects that can be built quickly.<sup>112</sup> Australia does not have a backlog of independently assessed, high-quality, priority infrastructure projects.<sup>113</sup> Currently there are 14 projects on Infrastructure Australia's priority list. Only seven of them are designated as high priority. Australia may not even need to increase public investment as a proportion of GDP to build all the projects on the priority list. The total publicly funded component of these multi-year projects is about \$16 billion (equivalent to all public transport investment or about one-fifth of total public investment in 2016).<sup>114</sup>

Moreover, funding major infrastructure projects is not the best way to provide a timely fiscal stimulus. Construction of a large project typically starts only after several years of preparation; spending may then be

spread over several more years. Increasing infrastructure maintenance may be a better option. It has a shorter lead time until works commence, so it is better suited as a timely fiscal stimulus. In addition, Australia currently under-invests in infrastructure maintenance relative to new capital works.<sup>115</sup> Australia spends more than most other rich countries on new transport infrastructure, but less on maintenance.

## 5.2 Broader growth-promoting reforms

There are broader reforms that would increase the potential output of the economy, encourage firms to invest more, and are worth doing in their own right. They include:

- To increase the efficiency of the Commonwealth tax base: the government should review capital gains tax discounts and the scope of negative gearing, and align tax treatment across different types of savings by reducing taxes on other savings income such as net rental income and bank deposits;
- To improve workforce participation: the government should ensure tax, transfer, and childcare support do not impose high effective marginal tax rates on the second earners in households;
- To intensify competition: the government should implement Competition Policy Review reforms, and seek to remove barriers to effective competition in high-cost industries including superannuation and in concentrated non-traded sectors;
- To improve the efficiency of urban land and infrastructure use: the states should revise planning and other policies to permit greater density in inner and middle areas of major cities; review options to charge users for the full costs of road use; and replace stamp duties with broad-based property levies.

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109. IMF (2017a); and IMF (2016b).

110. ABS (2016g); and IMF (2017a).

111. 27 OECD countries with available data; see OECD (2016a) and ABS (2016a).

112. Terrill et al. (2016) finds that transport infrastructure investment has not been spent where there is the greatest need. Projects have been funded despite weak or undisclosed businesses cases and in some cases delivering no net benefit to the community.

113. To achieve a high rate of return a project should only be considered if it has a benefit-cost ratio of greater than 1, and has been validated through an independent, centralised review process such as Infrastructure Australia; see IMF (2014).

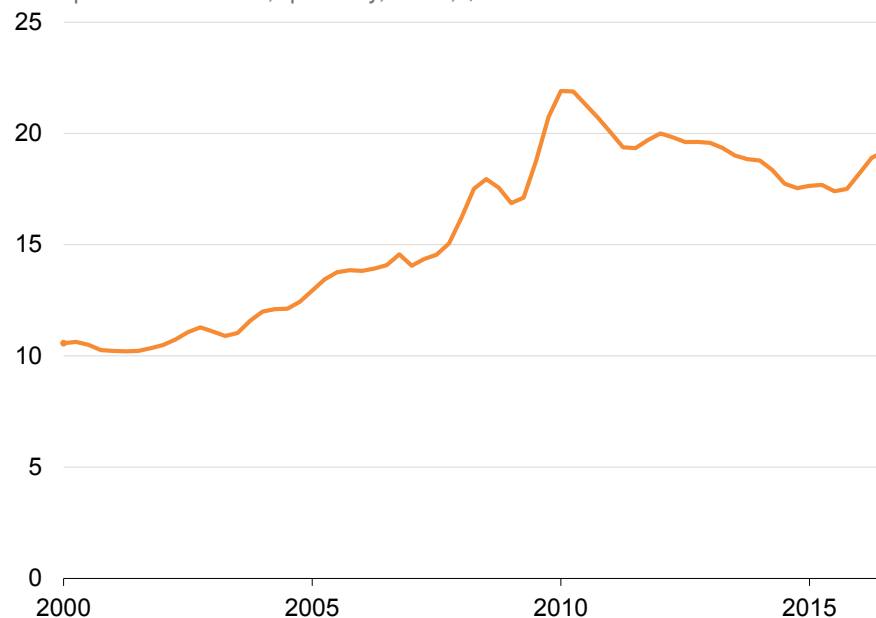
114. The total capital cost (nominal) of the 15 priority projects is about \$52 billion which will be partially privately funded. The proposed cost to the Federal and State governments is between \$26 and \$31 billion, depending on funding arrangements for Western Sydney Airport. Excluding Inland Rail the publicly funded costs are less than \$16 billion. Infrastructure Australia (2016a) and Infrastructure Australia (2016b).

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115. Terrill et al. (2016, p. 8).

**Figure 5.1: Public investment has recently increased due to major state infrastructure projects**

Real public investment, quarterly, trend, \$ billion

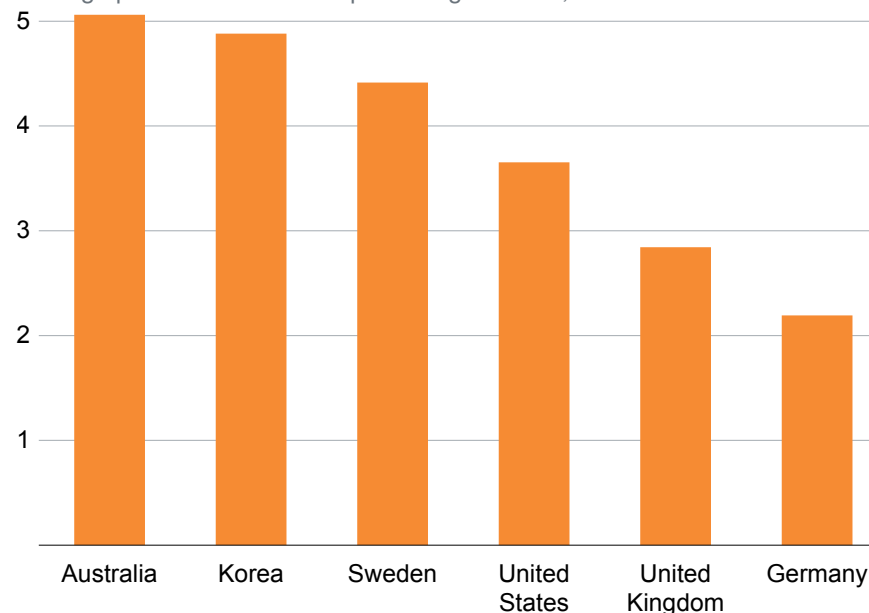


Notes: Includes all gross fixed capital formation by public corporations and general government across federal, state and local governments. Chain volume measures, reference year 2014–15.

Source: ABS (2016g, Table 2).

**Figure 5.2: Australia has a high level of public infrastructure investment relative to other advanced economies**

Average public investment as percentage of GDP, 2007 to 2016



Notes: Includes all gross fixed capital formation by the public sector. 2015 and 2016 data not available for all jurisdictions. For the purpose of calculating an average, missing 2015 and 2016 figures have been imputed using the most recent year of available data.

Source: Grattan analysis of OECD (2016a) and ABS (2016a).

The Productivity Commission (2016b) and the Grattan Institute have assessed in detail many of these reform areas.<sup>116</sup>

### 5.2.1 Streamlining regulation

Adjusting regulations and red tape that impede business activity may stimulate investment. Proponents of cutting red tape argue that improving government processes for planning and zoning, workplace relations and environmental approvals would reduce costs and improve the business environment, and that firms would invest more in response.<sup>117</sup>

Australia is already a fairly business-friendly environment, but there is little room for complacency. Australia was recently ranked 15th out of 190 countries on ease of doing business overall.<sup>118</sup> It was ranked 22nd out of 138 countries on competitiveness.<sup>119</sup> The performance of the countries ranked highest should not be considered the benchmark. Even they can improve, and many do in fact do so from year to year.<sup>120</sup>

Australia ranks much less well on some important measures. For example, Australia ranks poorly on the burden of government regulation (77th out of 138), the strength of investor protection (63rd out of 138), and the business impact of rules on FDI (49th out of 138).<sup>121</sup>

Strong prudential regulation should not be mistaken for ‘red tape’. Nor should strong regulation to promote competition, protect consumers and protect the environment. Not all regulation is inefficient; nor is all unregulated business activity efficient. Poor quality regulation can give firms incentives to invest in unproductive activities, resulting in excessive costs to consumers, taxpayers, the broader economy and society.

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116. See reports cited in Daley et al. (2016c).

117. Business Council of Australia (2013).

118. World Bank (2017).

119. World Economic Forum (2016).

120. Ibid.

121. World Economic Forum (2016); and World Bank (2017).

There are many global examples of inadequate regulatory regimes that result in costly health care, risky finance, or polluting energy.<sup>122</sup> By the same token, sensible regulation can encourage private investment in productive activities that do not impose costs on the rest of society.

Australian governments at all levels should work to improve the business environment. But there is limited evidence on how business investment might respond.

### 5.3 Conclusion

Policymakers have a range of options to improve the climate for investment. No single policy will suffice, but a range of policies can make a difference. Expansionary monetary policy backed by tough prudential standards, and high-quality public investment in infrastructure (with a focus on smaller projects and maintenance, rather than large projects), can both play a role, though scope for additional support may be limited.

Broader policy options to support economic growth (for example, reducing tax distortions, encouraging labour participation, encouraging competition and the spread of innovations, improving the efficiency of land use, and tightening regulatory frameworks) can all help to create an environment that encourages investment.

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122. Cohen et al. (2016); and Stern (2015).



## 6 Conclusion

Business investment is vital to economic growth and to lifting living standards. Over the 15 years to 2015, Australian business investment outstripped investment in other advanced economies. Investment in mining peaked at an all-time high in 2013, and has now come back to earth. Non-mining investment, too, was strong in the 2000s, buoyed by rapid growth and easy finance. But after 2009, it slumped by a quarter as a share of GDP, and remains unusually low.

Long-term structural changes partly explain why non-mining business investment remains low. With the shift to a services economy, and with lower capital goods prices, businesses can thrive while investing less.

But low output growth has also dampened investment. The decline in mining investment has reduced demand for construction, but much broader factors are also at work. Potential growth (the economy's 'speed limit') has declined gradually over the last fifteen years, due at first to weak productivity growth, and more recently to ageing and lower population growth. And in the last few years, actual output has grown even more slowly than potential.

There are some green shoots. Non-mining investment has increased in Victoria and New South Wales. Since mid-2016, global growth has strengthened, supporting demand for Australian resources, service and manufacturing exporters. Even so, lower growth may well be the new normal, and investment is likely to remain below previous peaks.

What should Australian governments do to encourage investment? The Government has proposed cutting the company tax rate from 30 per cent to 25 per cent. That would attract more foreign investment and could increase total business investment by up to half a percent a year.

But such a cut would also reduce national income for years and would hit the budget. Committing to a tax cut before the budget is on a clear path to recovery risks reducing future living standards. Government should ensure the company tax cut is offset by other tax increases or spending cuts.

Other company tax changes could help. An allowance for corporate equity would make currently marginal investment projects more attractive, though highly profitable firms would pay more tax.

Accelerated depreciation would encourage investment, as would a cash flow tax. But they would hit the budget hard in the early years, and would have to be phased in slowly. An allowance for investment (for example, permitting firms to claim over 100 per cent of depreciation) would support new investment without giving tax breaks on existing assets, but may be costly to administer.

Monetary policy should remain supportive, and tough prudential standards can help limit risky lending. There may be modest scope to build more infrastructure, if governments can improve the quality of what they build.

Broader policies to support economic growth would also lead to more and better private investment. They include reducing tax distortions, boosting labour participation, encouraging competition, improving the efficiency of infrastructure and urban land use, and tightening regulatory frameworks. No single policy is a silver bullet, but together, they can help make better use of Australia's existing assets and make new investment more attractive.

## A Appendix: Private investment trends

### A.1 Estimating non-mining private business investment

This section describes the methodology and data used to estimate the trend and cyclical components non-mining private business investment (Figure 3.1 on page 18 and Figure 3.2 on page 19). They are estimated using a simple accelerator model that is a function of trailing moving averages of capital intensity and output growth. Firms are assumed to invest to target their recent average level of capital intensity, and to assume that recent average output growth continues. Investment (for a given capital-output ratio) is then a function of the growth rate of output plus the rate of capital consumption. The model does not attempt to estimate desired capital intensity (for example, as a function of financing costs and capital goods prices, or deviations of output from expected level). The results are shown in Figure A.1.

Figure A.1 shows the model output and trend. The trend estimate is derived by holding output growth constant at 3.4 per cent. The trend declines due to falling capital intensity since 1990 and the falling share of non-mining business relative to GDP more recently.

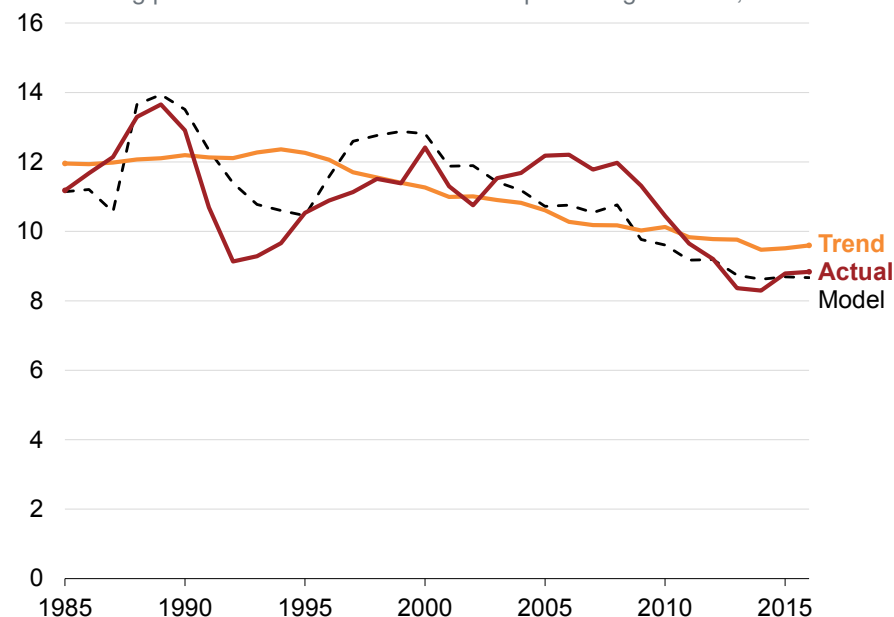
Due to data limitations, the non-mining market sector has been used as a proxy for the non-mining private business sector. Most non-mining private business investment is in the market sector. Only 0.7 per cent of GDP is invested by private businesses in the non-market sector (up from 0.5 per cent in 1990). Public investment in the non-mining market sector is around 2.5 per cent of GDP (down from about 4 per cent in 1990).

The model is estimated using:

- non-mining market sector consumption of capital, five-year trailing average;

**Figure A.1: Modelled, trend and actual non-mining investment**

Non-mining private business investment as a percentage of GDP, nominal



*Notes: Analysis uses non-mining market sector output, capital intensity and depreciation to explain non-mining private business investment. (The market sector excludes public administration and safety, education and training, health care and social assistance, and ownership of dwellings). Private investment outside the market sector is small and has hardly changed over the period, but public investment in the market sector declined from about 4 per cent to about 2.5 per cent of GDP. Some of the decline in market sector capital intensity may be due to lower public sector investment.*

*Source: Grattan analysis of ABS (2016a, Tables 2, 5, 52, 58).*



- approximate non-mining market sector growth in chain volume measures, five-year trailing average. Values are approximate due to non-additivity of chain volume measures;
- aggregate, nominal capital-output ratio of non-mining market sector industries, five-year trailing average; and
- non-mining market sector share of GDP.

The ratio between non-mining private business investment and non-mining market sector investment over the past decade is used to scale the model.<sup>123</sup>

## A.2 Factors affecting investment

This section provides further information about the causes of lower capital intensity. Three possible drivers are: a rise in intangible investment; crowding out from residential investment; and changes in foreign direct investment (FDI).

Secondly, this section sets out some of the context for assessing the contribution of a slowdown in the growth rate of potential output and the gap between actual and potential output.

### A.2.1 Measured and unmeasured intangible asset investment has risen

Measured and unmeasured intangible asset investment has increased, influencing measured nominal capital intensity in two ways.<sup>124</sup> First, an increase in unmeasured intangible investment can increase the *actual* capital stock, but the *measured* capital-output ratio does not increase. Second, some intangible assets have low diffusion or production costs compared to tangible assets (such as software or organisational process knowledge). This may reduce the nominal value of intangible assets relative to output.

In Australia, non-mining business investment has shifted towards intangible assets and away from machinery and equipment since 1990. This has also occurred in many other high-income countries, including the UK, US, Japan, Canada and most countries in the European Union.<sup>125</sup>

Investment in intellectual property products (IPPs) tripled between 1990 and 2016. IPPs are the measured component of intangible assets in the national accounts.<sup>126</sup> Investment in IPPs rose from about 7 per cent of measured private business investment to 21 per cent between 1990 and 2016 (top left panel in Figure A.2 on the following page). R&D alone increased from 3 per cent of non-mining private business investment to 11 per cent over that period. As IPP investment

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123. All data sourced from ABS (2016a).

124. The national accounts measure of investment includes only intellectual property products (such as software, and research and development) of all intangible investments. Intangible investments such as business processes and brand equity are not counted as investment in capital stocks; see ABS (2015) and Barnes et al. (2009).

125. The shift to intangible investment may be partly due to the growth of the knowledge economy. Capital-light service sectors such as finance and insurance services, and professional and technical services, have grown as a proportion of GDP; see Andrews et al. (2012) and Barnes et al. (2009).

126. IPPs comprise research and development R&D, computer software, mineral and petroleum exploration, and entertainment, literary and artistic originals; see ABS (2015).

expanded, machinery and equipment investment declined, from 60 per cent of non-mining investment in 1995 to 45 per cent in 2016, while non-dwelling construction remained about 30 per cent from the late 1990s onwards (lower two panels in Figure A.2).<sup>127</sup>

Only about a third to a half of intangible investment is included in the national accounting measures of capital and investment, according to some studies.<sup>128</sup> Expenditure on intangibles such as brand equity, firm-specific human capital, and organisational capital are not measured as investment in the national accounts.

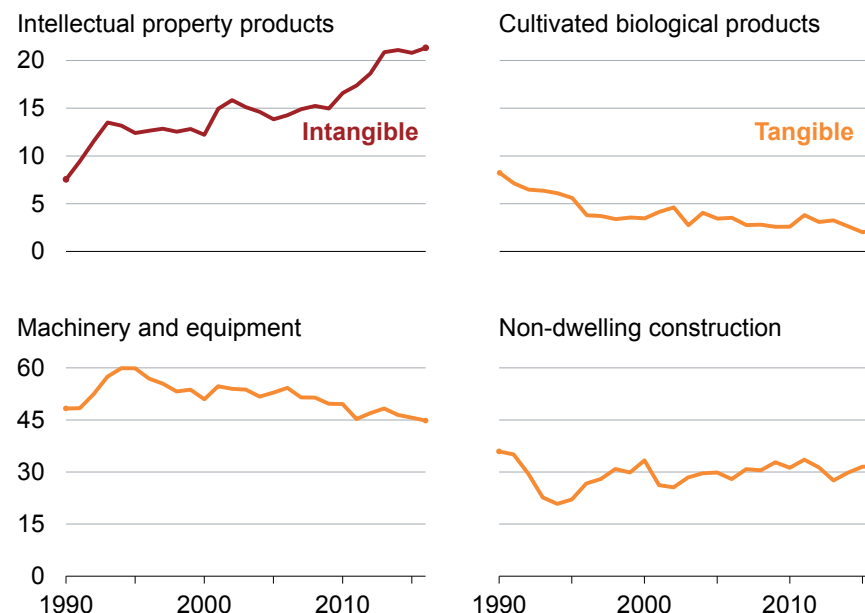
If the ratio of measured to unmeasured investment in intangible assets has remained approximately equal, then total measured non-mining investment would now be missing more of actual investment than in the past. Measured private business intangible investment (that is, investment in IPPs) grew from 1.4 per cent of GDP on average between 1988 and 1992 to 2.4 per cent between 2012 and 2016. Unmeasured intangibles may have risen from about 3 to 4 per cent of GDP over that time.<sup>129</sup>

127. ABS (2016a).

128. Barnes et al. (2009); Andrews et al. (2012); and Corrado et al. (2010).

129. Private business investment in tangible assets was \$185 billion in 2016. Barnes et al. (2009) estimated that the average ratio of intangible to tangible investment was about 0.3 in the early 1990s, rising to about 0.48 between 1995–96 and 2005–06. If the ratio remains about 0.5, total intangible private business investment would be about \$90 billion. The national accounts measure of intangible investment, the IPPs GFCF, is about \$40 billion, so perhaps \$50 billion of intangible investment is not included in the national accounts measure as GFCF. Due to recent large falls in tangible mining investment, five-year averages are used; see Barnes et al. (2009) and ABS (2016a).

**Figure A.2: Intangibles have risen as a share of measured investment**  
Investment by asset types as a percentage of non-mining private business investment, nominal



Notes: Excludes dwellings, transfer costs and mining investment. Excludes asset types: weapons systems, cultivated biological products, and artistic originals. Includes public investment.

Source: ABS (2016a, Table 64).

## A.2.2 Home lending and residential dwelling construction have not crowded out private investment

Some have suggested that the expansion of mortgage lending or home construction may have crowded out business lending.<sup>130</sup>

### Business credit kept pace with GDP

There is not much evidence the growth of home lending has come at the expense of business investment. It is true that business credit has fallen as a share of total outstanding credit. But this is because housing credit growth outstripped both business credit growth and GDP growth.<sup>131</sup>

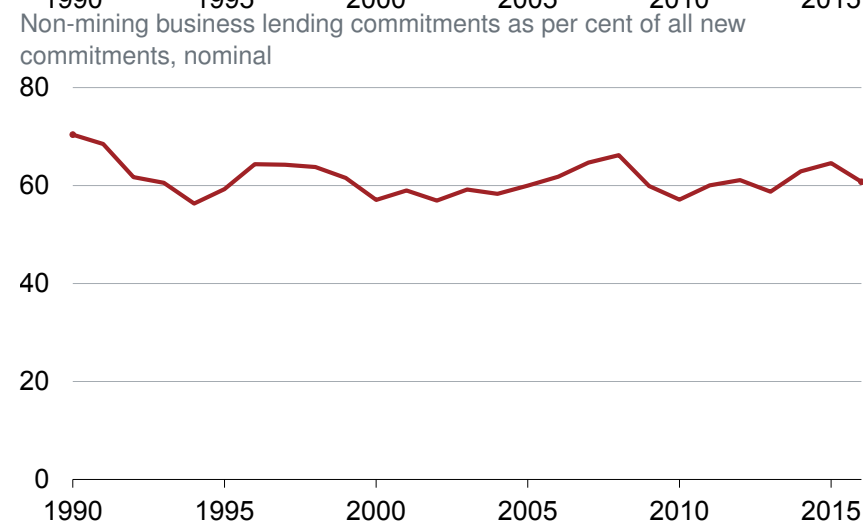
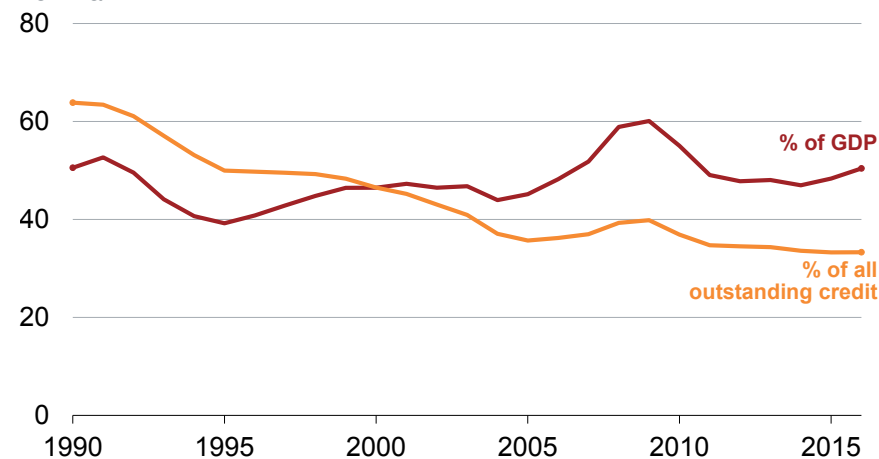
Business credit as a percentage of GDP grew strongly in the mid-2000s, from 45 per cent to 60 per cent, fuelling strong business investment over the same period. Non-mining business lending commitments as a per cent of all lending commitments have been stable (Figure A.3). Housing commitments and business commitments on average have grown at the same rate annually since 1990. Because business loans have a shorter term than housing finance, the share of total outstanding housing credit grows more quickly than the relative share of new commitments. Although mortgage debt grew more quickly than business debt, this is not evidence that business lending is lower than it otherwise would have been.

Small businesses may be more credit-constrained because small business interest rates have not fallen as far as large business or home lending rates since 2009, as shown in Figure 3.8 on page 24. But much small-business lending is secured by property, and higher property values serve as greater collateral, possibly making it easier for some small businesses to obtain credit than if property values were lower.

130. West et al. (2016); and Cecchetti et al. (2014).

131. RBA (2017b).

**Figure A.3: Business lending and credit do not show crowding out**  
Total outstanding business credit as per cent of total and per cent of GDP, nominal



Notes: Financial year average of monthly credit and lending data, annual GDP.

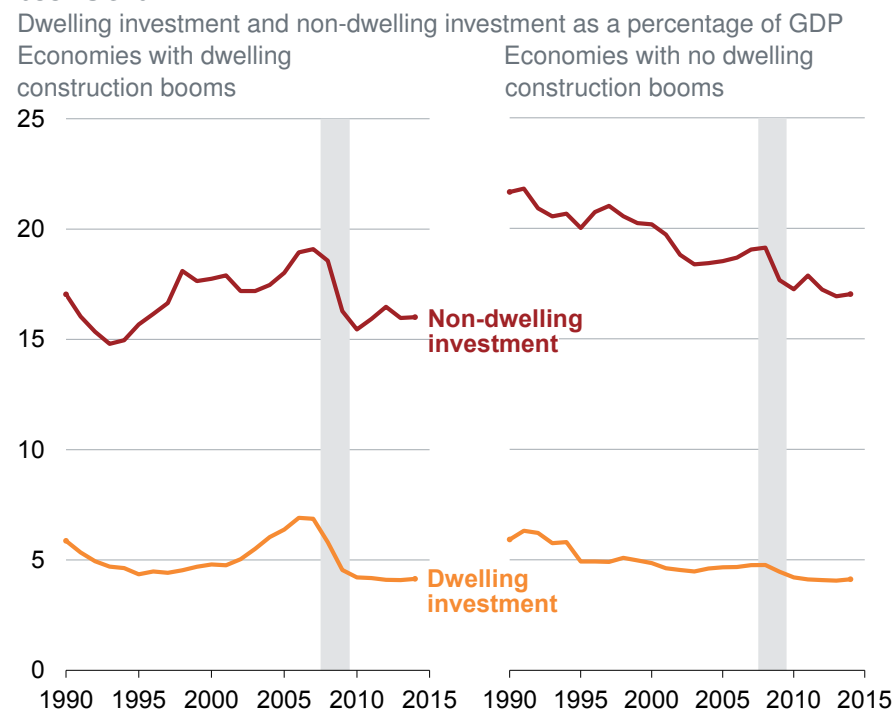
Source: Grattan analysis of RBA (2017b) and ABS (2017).

### Dwelling investment was stable

There is little evidence that housing construction has risen at the expense of non-residential investment in Australia. Since 1990, dwelling construction has fluctuated within a relatively narrow band, between 4.6 and 6.4 per cent of GDP (as shown in Figure 2.3 on page 15). Since 2012 dwelling investment has increased by just over one percentage point of GDP.

The cross-country evidence also suggests that housing construction does not crowd out business investment. Countries that had larger housing investment run-ups in the mid-2000s also had bigger non-dwelling investment booms (Figure A.4). And they tended to have much bigger dwelling and non-dwelling crashes.

**Figure A.4: Business investment falls when dwelling construction booms end**



Notes: Non-dwelling investment is gross fixed capital formation less dwelling construction. It includes business investment and government investment. Countries with a dwelling construction boom were the countries with the greatest increase in average dwelling construction as a per cent of GDP between 1998–2002 and 2003–2007. Boom countries are: Canada, Denmark, Estonia, Finland, France, Greece, Iceland, Ireland, Italy, Latvia, New Zealand, Norway, Spain, Sweden, United Kingdom, United States. Non-boom countries are: Austria, Belgium, Czech Republic, Germany, Hungary, Israel, Japan, Korea, Luxembourg, Netherlands, Poland, Portugal, Slovak Republic, Slovenia, Switzerland, Turkey. Australia is excluded.

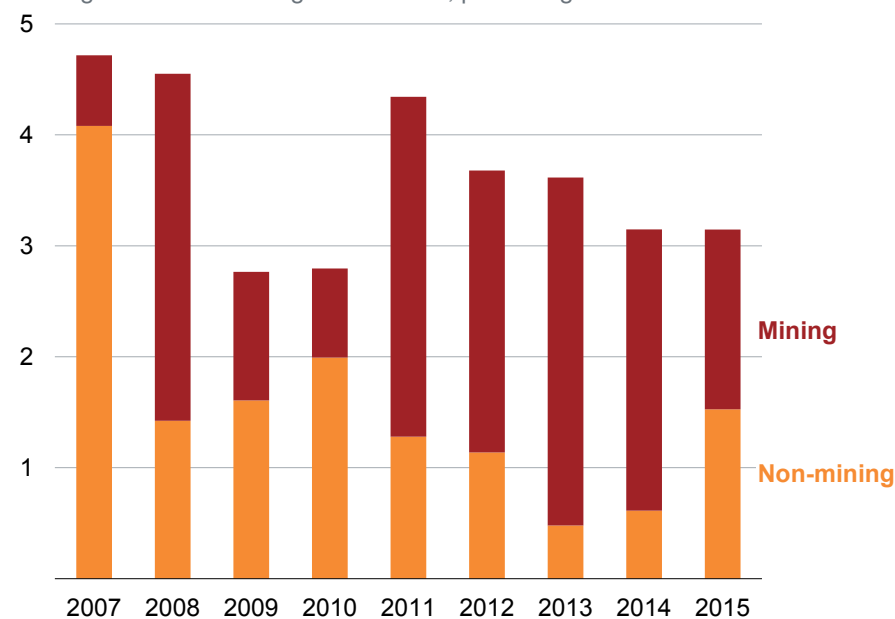
Source: OECD (2016a, B1\_GE: Gross domestic product {expenditure approach}).

### A.2.3 Non-mining FDI declined during the mining boom

Foreign investment plays an important role in Australia's economy.<sup>132</sup> About one quarter is FDI, which typically involves management control of the business – for example, a multinational firm establishing an Australian branch.

Over the mining boom from 2011, net transactions in non-mining FDI declined sharply, from well over 1.5 per cent of GDP between 2008 and 2010 to as low as half a per cent a year in 2013 and 2014 (see Figure A.5). High resource prices and exchange rates made non-mining sectors less attractive for foreign investors. Non-mining FDI declined, proportionally, by much more than overall non-mining investment. Non-mining FDI may already be picking up again as the mining boom winds down.

**Figure A.5: Non-mining FDI declined sharply during the mining boom**  
Changes in FDI reflecting transactions, percentage of nominal GDP



Notes: Breakdown of FDI into mining and non-mining not available before 2007.

Source: Grattan analysis of ABS (2016h, Table 14), ABS (2016f, Table 15) and ABS (2016a, Table 2).

132. The leading investor countries in Australia are the US (28 per cent), UK (17 per cent), Belgium (8 per cent) and Japan (7 per cent); see ABS (2016f, Table 2).

### A.2.4 Slower output growth has contributed to falling investment

Slow output growth since 2009 accounts for about a third of the gap in non-mining business investment as a share of GDP in 2016 compared to its average level in the years around 1990 (Figure 3.2 on page 19).

Non-mining market sector output growth has averaged about 1.9 per cent a year since 2013, just under a percentage point lower than in the years around 1990 (see Figure A.6 and Figure A.1).<sup>133</sup> If average growth is lower by one percentage point for a sustained period, non-mining investment can also be expected to be lower by about 1 per cent of GDP.<sup>134</sup> Non-mining market sector output growth was close to 4 per cent on average between 2002 and 2008, so low output growth contributed to a large part of the decline in non-mining business investment after 2009.

Recent slow growth in Australia is estimated by the IMF to be a result of lower potential output growth and a demand shortfall (Figure 3.9 on page 26).<sup>135</sup> Productivity growth has recovered in the past few years from its very low pace between 2004 and 2010, but it remains weaker than it was in the 1990s and early 2000s.<sup>136</sup> In addition, the labour force is growing more slowly, mainly because of the decline in net migration, but with a small contribution from population ageing.

133. Non-mining output growth is proxied by the chain volume gross value added (GVA) of all industries, minus the chain-volume GVAs of the non-market industries and mining; see ABS (2016a, Table 5).

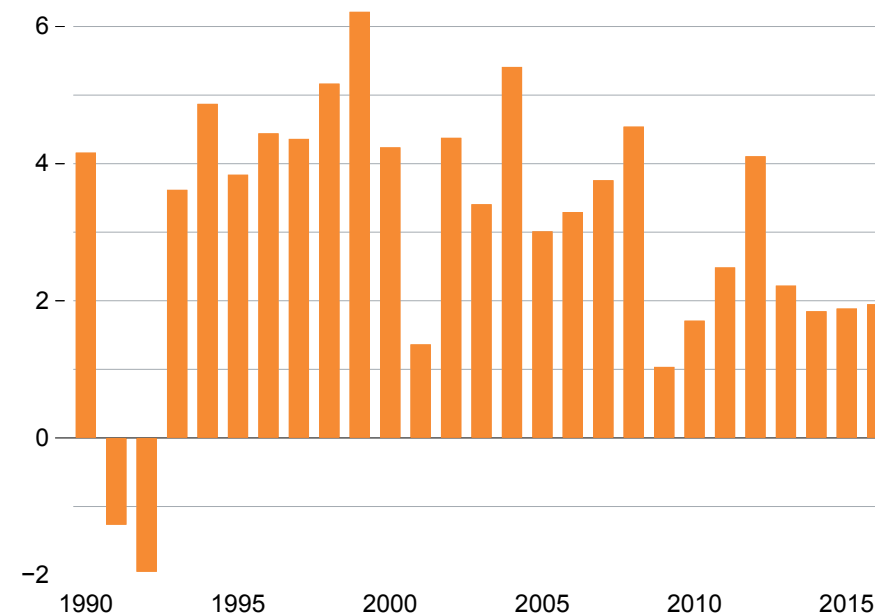
134. The stock of non-mining private business capital is coincidentally very close to annual GDP. If GDP grows 1 per cent slower per year, firms can maintain a constant capital-to-output ratio by reducing investment by about 1 per cent of GDP.

135. Potential output is an estimate of the level of output the economy could produce without inflationary pressure. It is estimated by the IMF using measures of productivity, and the available stock of capital and labour; see IMF (2017a).

136. Productivity Commission (2016a, Table 1.1); and ABS (2016c).

**Figure A.6: Non-mining output has grown slowly in recent years**

Annual per cent change in estimated non-mining market sector real value added



Notes: Estimate of non-mining market real output growth. Derived by subtracting chain volume mining, dwelling ownership, and public sector industries' GVA from chain volume all industries' GVA. Chain volume measures have non-additive properties.

Source: ABS (2016a, Table 5, chain volume measures).

The following sections present additional evidence that the economy is operating below potential.

### Inflation and real wages are subdued

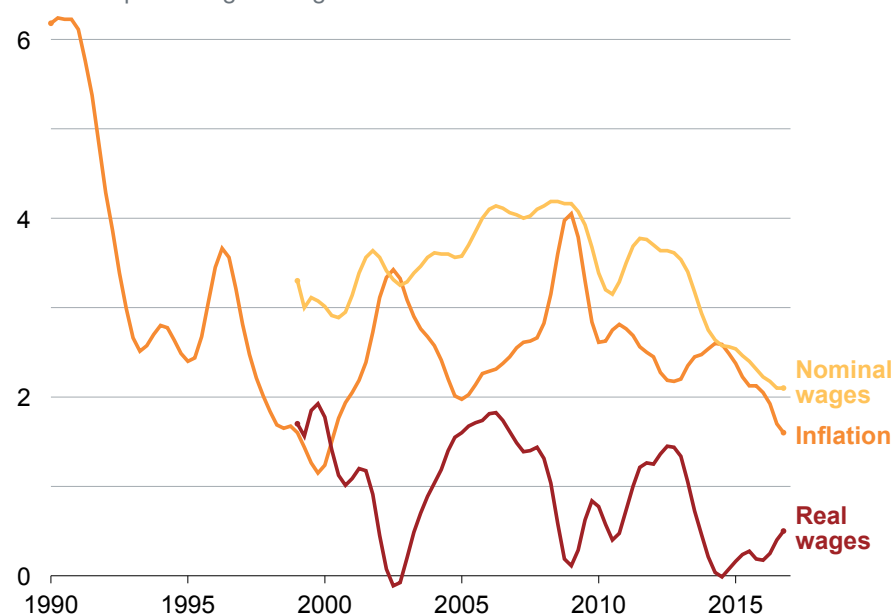
Australia's non-mining businesses have experienced subdued demand in recent years. Together with slow output growth, low inflation is strongly suggestive of weak demand.

Inflation, including volatile items, has been below the RBA's long-term target band of 2 to 3 per cent since late 2014. Excluding volatile items such as fuel, inflation dropped below 2 per cent in early 2016 (as shown in Figure A.7).

Low growth in real wages is also a function of both demand and supply factors, including the decline in the terms of trade and low productivity growth. Real wages grew at just 0.6 per cent per year between 2009 and 2016, down from about 1.1 per cent per year from 2001 to 2008 (Figure A.7).

**Figure A.7: Declining price and wage growth is consistent with weak demand**

Year-end percentage change



Notes: 5-period moving average. Inflation excludes volatile items.

Source: RBA (2016a) and ABS (2016i, Table 1).

### Labour market conditions are also weak

Broader conditions in the labour market also appear weak, suggesting demand has been subdued. Growth in total hours worked halved after 2008, from 1.9 per cent per year from 2000 to 2008 to 0.9 per cent from 2008. The rise in underemployment and fall in labour force participation both contributed to slow hours growth, and are probably mostly due to weak demand (Figure A.8).<sup>137</sup>

Slower growth in the working-age population is slowing potential output growth. Growth in the working-age population fell from a high of 2.3 per cent in 2009 to just over 1 per cent in 2015. This is in part due to a large fall in net migration, in response to weaker labour demand in the mining states as mining construction declines.<sup>138</sup>

### Capacity utilisation is about average

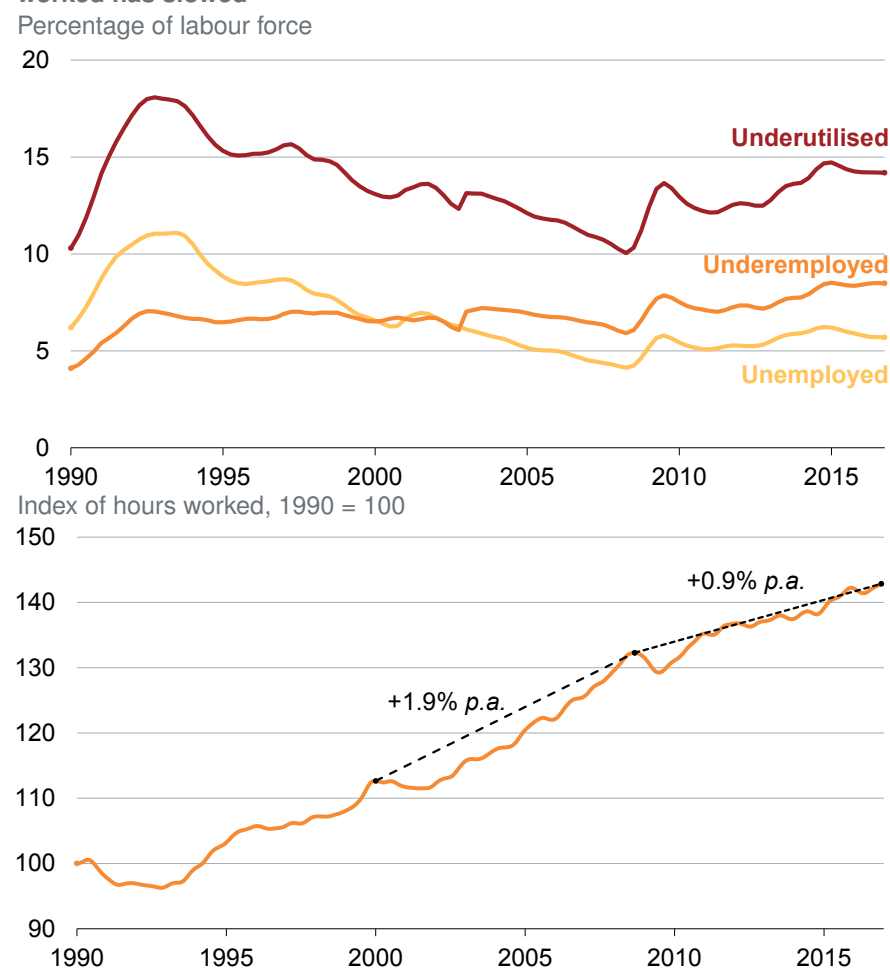
The capital stock is ample given the current level of demand. Office vacancy rates are high, while business capacity utilisation is close to its long-term average.<sup>139</sup>

137. Borland (2016). The RBA (2017a) finds there is little increase in underemployment if the measure is adjusted for hours actively sought. This finding suggests that moves in the unemployment rate are more telling than the aggregated underutilisation measure. The underutilisation rate is the sum of the number of persons unemployed and the number of persons in underemployment, expressed as a proportion of the labour force. Underemployed workers are employed persons who want, and are available for, more hours of work that they currently have.

138. Net migration has fallen about 40 per cent from its 2009 peak.

139. Capacity utilisation is an aggregate of firms' estimates of their current output as a percentage of potential output. The NAB measure of capacity utilisation has risen since 2013, but is close to the middle of its post-2000 range; see NAB (2016). Australian CBD office vacancy rates are 11 per cent, the highest they have been since the mid-1990s; see Property Council of Australia (2016).

**Figure A.8: Labour force underutilisation has increased, growth in hours worked has slowed**



Notes: Annual growth rate is calculated from peak-to-peak.

Source: ABS (2016j, Tables 22 and 19).



## B Appendix: Calculating the impacts of company tax changes

### B.1 Calculation of rate of return increases

Section 4.1.1 on page 28 claimed that a 5 percentage point company tax cut would increase the rate of return to foreign investors by 7 per cent, and to domestic investors by 2 per cent. This appendix explains how these figures are calculated.

#### B.1.1 Foreign investors

Assumptions:

1. Foreign investors do not receive a credit for Australian company tax paid.
2. Companies choose to retain a proportion of profits at the point where investors are indifferent between an additional dollar of dividends and an additional dollar of retained profit.

Under these assumptions, the increase in the rate of return to foreign investors is equal to the increase in after-tax profits. Under a company tax rate of 30 per cent, after-tax profits are equal to 70 per cent of before-tax profits. If the company tax rate is cut to 25 per cent, after-tax profits will be equal to 75 per cent of before-tax profits, an increase of 7 per cent (Figure B.1).

Most foreign portfolio investors will pay tax in their home countries when they receive dividends or capital gains from Australian companies.<sup>140</sup> For instance, the US – which owns more than 40 per cent of foreign portfolio equity – taxes dividends from Australian companies at

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140. Australia has taxation treaties with over 40 countries, which covers the vast majority of foreign investment; see Treasury (2017) and DFAT (2017).

the same rate as those from US companies.<sup>141</sup> But this does not affect the proportionate increase in the rate of return.

The rate of return increase of 7 per cent will hold for the majority of foreign investment. There are, however, some cases where the increase may be lower. First, as noted in Section 4.1.1, US-owned multinationals are able to claim a credit for the Australian company tax paid if they repatriate profits to the US. They must then pay the US corporate tax rate, which is currently higher. International tax credits may account for 5 per cent of the total Australian company tax.<sup>142</sup> Most Australian profits earned by US-owned multinationals are not repatriated, but the Australian company tax rate will not impact the rate of return on the profits that are repatriated to the US.<sup>143</sup> Second, some multinational firms may be involved in shifting some of their Australian profits to lower-taxed jurisdictions. The increase in the rate of return on their *reported* profits will be the same, but the increase in the rate of return on their 'true' Australian profits (that is, those that would be reported in the absence of profit shifting) would be lower.

#### B.1.2 Domestic investors

Assumptions:

1. Australian companies retain 33 per cent of their after-tax profits under a company tax rate of 30 per cent.<sup>144</sup>

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141. IRS (2017).

142. Murphy (2016, p. 40).

143. Reducing the Australian company tax rate may impact the *decision* to repatriate profits for some multinational firms. For instance, should Australia cut the company tax rate, and the US keep theirs the same, the cost of repatriating profits would be higher, increasing the incentive to hold profits in Australia.

144. This is the average retained earnings for listed Australia companies over the last decade; see Bergmann (2016, p. 47). Smaller private companies retain a higher

2. Companies will choose to retain the same dollar amount of after-tax profits under a company tax rate of 25 per cent (and therefore grow at the same rate) – they will distribute additional after-tax profits as dividends.<sup>145</sup>
3. At the assumed level of retained earnings, shareholders are indifferent between an additional dollar of after-tax retained earnings and an additional dollar of after-tax dividends (inclusive of franking credits).<sup>146</sup>
4. Domestic investors face a marginal personal income tax rate of 32.5 per cent.

Under these assumptions, the rate of return to domestic investors is estimated to increase by 2 per cent. Australian companies would be able to increase their dividend distribution by just over 3 per cent if the company tax is cut 5 percentage points, while continuing to reinvest the same amount every year as they would have without the tax cut.

The estimated increase in the rate of return varies according to the marginal tax rate of the domestic investor and the proportion of profits that are retained. For instance, investors with a marginal income tax rate of 46.5 per cent increase their rate of return by 2.00 per cent, while those with a marginal income tax rate of 0 increase their rate of return by 2.4 per cent. For companies that currently retain 60 per cent of their after-tax profits, a tax cut would increase the rate of return to domestic investors by 3.9 per cent.

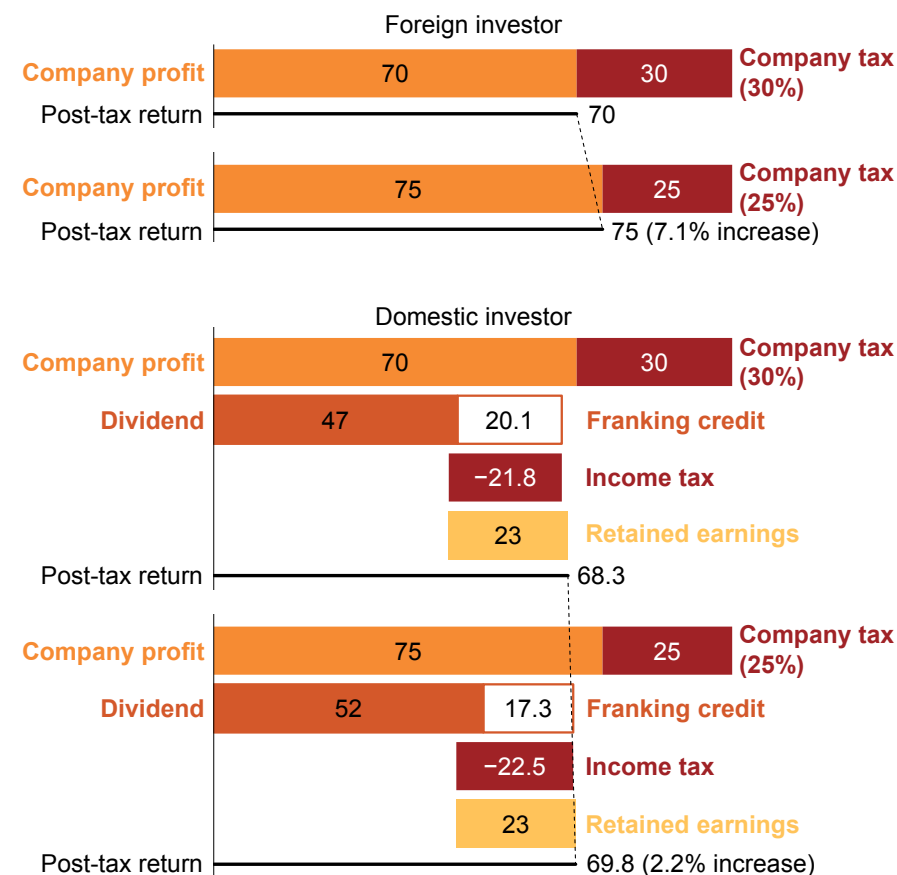
proportion of their reported profits, but some of their earnings are often paid as a salary.

145. This is not what companies would be expected to do – a lower tax rate will make retaining earnings more attractive relative to distributing dividends. This is therefore a conservative assumption for the purposes of calculating a rate of return increase.

146. This reflects that shareholders' return is comprised of both dividends and capital gains.

**Figure B.1: Calculation of the rate of return increase to a foreign and domestic investor**

Percentage of company profit



Notes: Assumes domestic investor faces a marginal income tax rate of 32.5 per cent.

Source: Grattan analysis.

## B.2 Calculation of budget costs of company tax cut

Calculating the immediate budget impact of a 5 percentage point cut to the company tax rate must take into account the revenue usually raised by the tax, as well as the size of franking credits usually claimed.<sup>147</sup> Over the four financial years to 2013–14, franking credits claimed by domestic investors (including individuals, superannuation funds, partnerships and trusts) averaged 36.3 per cent of total company tax revenue.<sup>148</sup>

The Mid-Year Economic and Fiscal Outlook forecast company tax revenue of \$67.8 billion for the 2016–17 financial year.<sup>149</sup> There has been little growth in company tax revenue in recent years. Nonetheless, we assume that company tax revenue would be \$70 billion in 2017–18 under the current tax regime.

If the company tax rate is cut from 30 to 25 per cent, both company tax revenue and franking credits would fall by 16.7 per cent (5 percentage points out of 30), assuming no resulting changes to economic activity. This gives a net cost to the budget of \$7.4 billion (see Figure B.2).

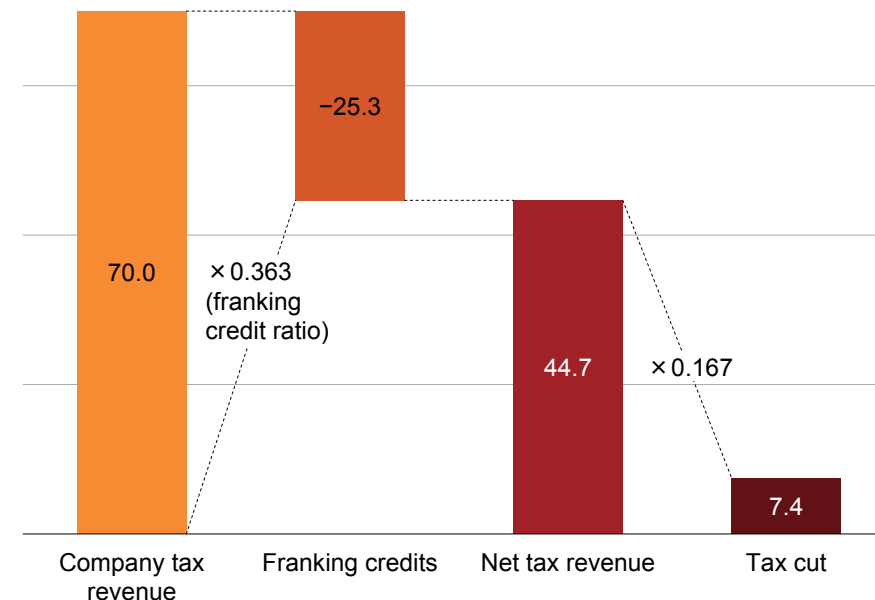
We assume that foreign investors own one-third of the equity in companies operating in Australia (see Figure 4.1 on page 29), and that the reduction in gross tax revenue is uniformly distributed between foreign and domestic investors, on average. Under this assumption, the gain to foreign investors will be equal to one third of the reduction in company tax revenue, prior to the deduction of franking credits:  $70 \times \frac{5}{30} \times \frac{1}{3} = \$3.9$  billion. By definition, the remaining budget cost, \$3.5 billion, must be equal to the gain made by domestic investors.

147. This calculation ignores any second-round effects, e.g. increased investment and economic activity as a result of the company tax cut.

148. ATO (2016, Company – Table 1, Individual – Table 1, SuperFunds – Tables 1 and 2, Partnerships – Table 1, Trusts – Table 1). This does not include franking credits claimed by individuals that did not submit a tax return (no data is available), those claimed by companies, nor those claimed by charities.

149. Commonwealth of Australia (2016a, p. 37).

**Figure B.2: Impact of a 5 percentage point company tax cut on government budget in 2017–18**  
Billions of dollars



Source: Grattan analysis of Commonwealth of Australia (2016a, p. 37) and ATO (2016, Company – Table 1, Individual – Table 1, SuperFunds – Tables 1 and 2, Partnerships – Table 1, Trusts – Table 1).

### B.3 Calculation of immediate write-off (accelerated depreciation) that is equivalent to a given company tax cut

Section 4.2.2 on page 38 asserted that a 5 percentage point company tax cut would be equivalent to an accelerated depreciation scheme with a 22 per cent immediate write-off for a firm investing in a new asset with a net present value of zero (see Figure B.3).

Assumptions:

1. A firm will invest in the asset if the net present benefits outweigh the upfront cost.
2. The asset is depreciated over its life using the straight-line method.<sup>150</sup>
3. The asset produces a fixed return each year across its life.
4. Tax deductions are written off against other income in the same period.

The results from a two-period model can be generalised for assets of an arbitrary life. We assume that the asset is purchased in time period 0, while any immediate deduction provides a tax benefit in the same period. In period 1, the asset produces a return, is depreciated, and the firm pays company tax on the net profits.

Model parameters:<sup>151</sup>

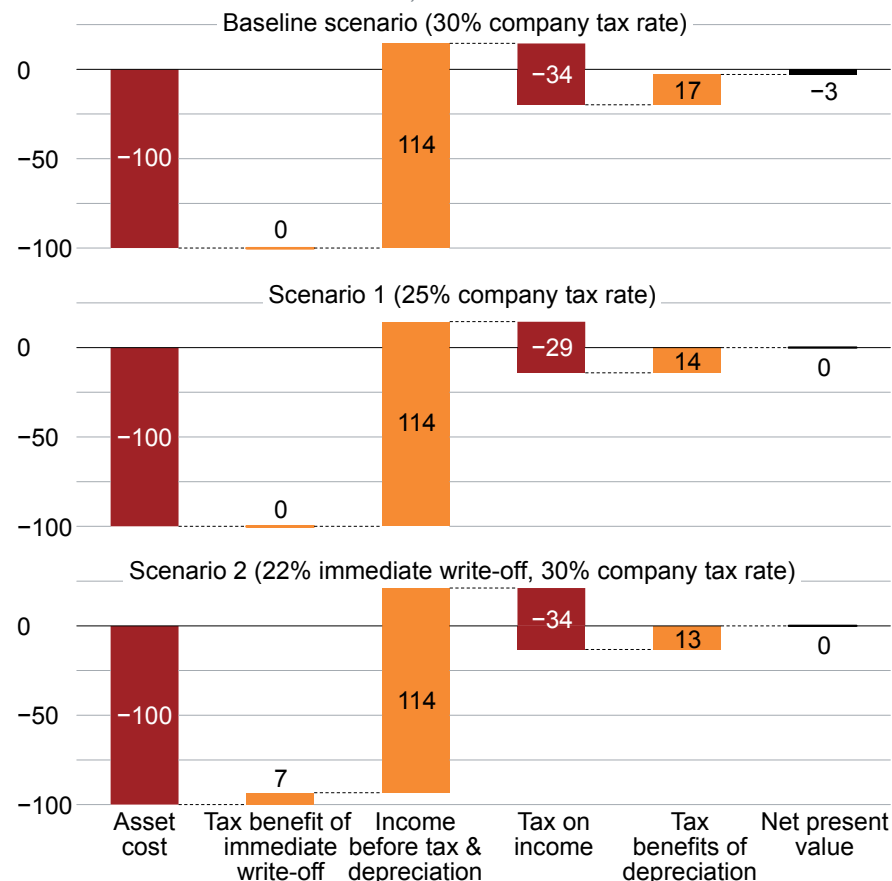
|   |                         |
|---|-------------------------|
| $r$ rate of return on initial capital   | $\rho$ discount rate    |
| $\delta$ depreciation rate              | $\tau$ company tax rate |
| $\phi$ immediate write-off / asset cost | 1 asset cost            |

150. Under diminishing-value depreciation, the equivalent write-off is larger.

151. In a two-period model the depreciation rate is equal to the 1 minus the proportion of the asset written off in period 0.

Figure B.3: Example showing the equivalence of a 5 percentage point company tax cut and a 22 per cent immediate write-off

Present value of costs and benefits, dollars



Notes: For simplicity, asset cost is set to \$100. Example assumes a discount rate of 12 per cent for an asset with a 10-year life (the net present value of the two scenarios are equivalent for assets of any life with any discount rate, but the composition will depend on the model's parameters).

Source: Grattan analysis.

**Baseline scenario:**  $\tau, \phi = 0$

**Scenario 1 (company tax cut):**  $\tau^* < \tau, \phi = 0$

Firm's net present value:

$$-1 + \frac{1}{1+\rho} (r(1-\tau^*) - \tau^*) \quad (\text{B.1})$$

**Scenario 2 (immediate write-off):**  $\tau, \phi > 0$

Firm's net present value:

$$-1 + \phi\tau + \frac{1}{1+\rho} (r(1-\tau) - \tau(1-\phi)) \quad (\text{B.2})$$

Finding the value of  $\phi$  for which Equation (B.1) and Equation (B.2) are equal to zero requires the following steps:

- Set (B.1) equal to zero and solve for  $r$  in terms of  $\rho$  and  $\tau^*$ .
- Substitute solution for  $r$  in terms of  $\rho$  and  $\tau^*$  into (B.2).
- Set (B.2) equal to zero and solve for  $\phi$  in terms of  $\tau, \tau^*$  (the solution will not depend on  $\rho$ ).

This gives the following result:

$$\phi = \frac{\tau - \tau^*}{\tau(1 - \tau^*)}$$

Substituting in  $\tau = 0.3$  and  $\tau^* = 0.25$  gives  $\phi = 0.222$ .

Thus, a 5 percentage point cut to the company tax rate is equivalent to an accelerated depreciation scheme with a 22.2 per cent immediate write-off.

## B.4 Calculation of budget cost of immediate write-off (accelerated depreciation) compared to a company tax cut

### Capital accumulation model

Figure 4.7 on page 39 showed the budget costs of a 5 percentage point company tax cut and a 22 per cent immediate write-off (accelerated depreciation) relative to a baseline scenario. The calculation is based upon a multi-period model of a representative firm that takes into account investment, depreciation, profits, and taxation.<sup>152</sup> The model does not take dividend imputation into account.

Assumptions:

1. Depreciation, profits, and investment are fixed proportions of the capital stock.
2. A lower company tax rate or introducing an accelerated depreciation scheme does not impact investment relative to the baseline scenario.<sup>153</sup>

Model parameters:

|   |                            |
|---|----------------------------|
| $r$ profits (before depreciation and tax) / capital stock | $i$ investment rate        |
| $\delta$ depreciation rate                                | $\tau$ company tax rate    |
| $\phi$ immediate write-off / asset cost                   | $K_t$ capital stock at $t$ |

It is assumed that  $\phi = 0$  in period zero. Any changes to the company tax rate or immediate write-off occur in period 1.

Capital accumulation equation:  $K_t = K_{t-1}(1 - \delta + i)$

152. See, for instance, Auerbach (1983, Section III).

153. In reality, cutting the company tax or introducing accelerated depreciation would increase investment. Over time this would reduce the budget impact. But for the purposes of comparing the relative budget impact of the two policy options, this is not consequential.

Accounting capital accumulation equation:<sup>154</sup>

$$K_t^* = K_{t-1}^* (1 - \delta + i[1 - \phi])$$

Taxable income in period  $t$ :  $[r - i\phi]K_{t-1} - \delta K_{t-1}^*$

Tax revenue received in period  $t$ :  $\tau ([r - \phi i]K_{t-1} - \delta K_{t-1}^*)$

**Baseline scenario:**  $\tau, \phi = 0$

Tax revenue received in period  $t$ :  $\tau K_{t-1} (r - \delta)$

**Scenario 1 (company tax cut):**  $\tau^* < \tau, \phi = 0$

Tax revenue received in period  $t$ :  $\tau^* K_{t-1} (r - \delta)$

Proportion of tax revenue lost relative to baseline in year  $t$ :

$$1 - \frac{\tau^*}{\tau}$$

**Scenario 2 (immediate write-off):**  $\tau, \phi > 0$

Tax revenue received in period  $t$ :  $\tau ([r - i\phi]K_{t-1} - \delta K_{t-1}^*)$

Proportion of tax revenue lost relative to baseline in year  $t$ :

$$\frac{\phi i}{r - \delta} - \frac{\delta}{r - \delta} \left( 1 - \frac{K_{t-1}^*}{K_{t-1}} \right)$$

In time-period 1,  $K_{t-1} = K_{t-1}^* = K_0$ , so the second term of the equation is equal to zero. This means the budget cost relative to the baseline in year 1 is:

$$\frac{\phi i}{r - \delta}$$

154. This represents the capital stock that has not yet been depreciated. If  $\phi > 0$  it will be smaller than the *actual* capital stock.

Over time, the ratio  $\frac{K_{t-1}^*}{K_{t-1}}$  will converge to  $(1 - \phi)$ , meaning that the long-run budget cost relative to the baseline is:

$$\frac{\phi(i - \delta)}{r - \delta}$$

The main factor driving the short-term budget cost is the *gross* rate of investment, while the long-term budget cost is driven by the rate at which the capital stock is growing.

### Choice of parameters

To produce Figure 4.7, we chose parameters that reflect the Australian economy. Based on capital stock and investment data from the ABS over the past 15 years, as well as company profit data from the ATO, we choose the following parameters:<sup>155</sup>

$\delta = 0.065$  reflecting that *consumption of fixed capital* has averaged about 6.5 per cent since 2000.<sup>156</sup>

$r = 0.165$  reflecting that taxable income *after* depreciation expenses has averaged about 10 per cent over the past five years.

$i = 0.1$  reflecting that *gross-fixed capital formation* has averaged about 11 per cent of the capital stock over the past 15 years, though has been below 10 per cent in 2014–15 and 2015–16.

Using  $\tau = 0.3$  and  $\phi = 0.222$ , the immediate budget revenue lost from accelerated depreciation is 22.2 per cent relative to the baseline scenario, while the long-run budget cost is 7.8 per cent. This compares to a yearly budget cost of 16.7 per cent under a company tax cut where  $\tau^* = 0.25$ .

155. ABS (2016a, Table 57); and ATO (2016).

156. We note, however, that *accounting* depreciation is likely to be lower than this due to inflation. Thus, the long-run budget cost of Scenario 2 may be larger than our results suggest.

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