



## Increasing Australia's future prosperity

Productivity Commission  
Discussion Paper

*5 year productivity review*  
November 2016

The Commission has released this discussion paper to frame this inquiry. This paper outlines:

- the context in which this inquiry is taking place
- the scope of the inquiry
- a framework for generating new ideas for microeconomic reform in Australia over the coming years.

## **The Discussion Paper**

The Commission has released this discussion paper to frame this inquiry. This paper outlines:

- the context in which this inquiry is taking place
- the scope of the inquiry
- a framework for generating new ideas for microeconomic reform in Australia over the coming years

The Commission is accepting submissions on the issues that this discussion paper raises and will also be consulting more broadly.

## **Key inquiry dates**

Receipt of terms of reference	16 September 2016
Due date for submissions	9 December 2016

## **Submissions can be made**

How do you make a submission?	Please see <a href="http://www.pc.gov.au/inquiries/current/productivity-review/make-submission#lodge">http://www.pc.gov.au/inquiries/current/productivity-review/make-submission#lodge</a>
By email:	Productivity.Review@pc.gov.au
By post:	Productivity Review Inquiry Productivity Commission GPO Box 1428 CANBERRA CITY 2601

## **Contacts**

Administrative matters:	Tracey Horsfall	Ph: 02 6240 3261
Other matters:	Nicholas McMeniman	Ph: 03 9653 2228
	Damian Mullaly	Ph: 03 9653 2112
Freecall number for regional areas:	1800 020 083	
Website:	<a href="http://www.pc.gov.au">www.pc.gov.au</a>	

## **The Productivity Commission**

The Productivity Commission is the Australian Government's independent research and advisory body on a range of economic, social and environmental issues affecting the welfare of Australians. Its role, expressed most simply, is to help governments make better policies, in the long term interest of the Australian community.

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

Further information on the Productivity Commission can be obtained from the Commission's website ([www.pc.gov.au](http://www.pc.gov.au)).

---

## **Contents**

1	Scope and aim of the inquiry	1
2	Government policy and productivity	5
3	The ‘nothing era’: what has been happening to productivity?	7
4	Difficulties of measuring productivity in the non-market sector	15
5	A framework for gathering ideas for reform: the issue of priorities	17
6	Where to from here?	21
	Attachment: Terms of reference	22
	References	24



---

## 1 Scope and aim of the inquiry

There is a justified global anxiety that growth in productivity — and the growth in national income that is inextricably linked to it over the longer term — has slowed or stopped. Across the OECD, growth in GDP per hour worked was lower in the decade to 2016 than in any decade from 1950.<sup>1</sup>

Australia is no stranger to this trend. While labour productivity gets much of the focus year on year, it is multifactor productivity ('doing things better') that has delivered strong long-run economic growth. But no longer. Since 2004, multi-factor productivity has stalled, here and around the developed world. This is a long enough period to suggest something is seriously awry in the economic fundamentals and the consequent generation of national wealth and individual opportunity.

Mismeasurement has been cited as a reason to worry less about this trend. And there are difficulties in measuring productivity, including in times when quality and price move in opposite directions; or when free goods (for example, open source software and other internet services) become significant. But sound research suggests that the sectors of the economy most subject to such shifts are simply not large enough to explain the shift and nor is the timing of the slowdown right.

Australia's high living standards may not appear under threat from this collapse in productivity. We recently had a decade of commodity price growth and, more recently, inflating housing prices to make us feel wealthier, even if the reality of low wage growth and falling fixed capital investment suggest that a weak income outlook may persist now past the terms of trade decline. And it certainly indicates that incentives to invest and so create the tools and training for the future are weak.

If we were waiting for a crisis to indicate that government should act, there is none — just an inexorable slowing towards reduced opportunity, greater dispute over shares of a smaller than expected pie, and selective protection.

We have strong legacy endowments of resources, a better savings performance than throughout the 1990s and early 2000s and many of us have good skills for today's work environment. We may well be able to draw down on them for some time yet, unless external factors move adversely. But just as persistent borrowing by government may burden the future, so failure to develop the policies most relevant to future higher productivity — and its outcome, higher income — will burden future generations with the eventual adjustment cost. We saw this last in the 1980s.

---

<sup>1</sup> Based on data from the 2016 Conference Board Total Economy Database for the 26 OECD countries where there is a full record of data from 1950 to 2016.

---

Complacency is not a sound policy option. Aside from the productivity collapse itself, the fiscal and labour market effects of population ageing, the potentially sweeping structural changes in labour markets following digital disruption and climate change impacts are all challenges to a slow growing economy. If nothing changes, achieving people's expectations will prove increasingly difficult and the costs of this may be measured not just in incomes, but in alterations to quality of life.

It is in this evolving economic context that the Australian Government has requested the Commission to undertake an inquiry into Australia's productivity performance.

### **This inquiry is the first of a continuing series of reviews**

This inquiry will be the first in a regular series of such inquiries, undertaken at five yearly intervals, to develop and prioritise reforms to improve the wellbeing of Australians by supporting greater productivity growth. It is the microeconomic equivalent to the periodic Australian Treasury's Intergenerational Report, with the same intent to look to the future and to take account of emerging reform trends, but with the added dimension that it will make recommendations as new reforms are required.

All levels of government — local, state and national — are the relevant policy actors. The Commission plans to consult at each level actively in pursuit of this task.

### **What does productivity mean?**

Productivity is a measure of the capacity of a business, government or economy to convert its resources into a valued output. Productivity refers to a related family of concepts rather than to just the one thing. To many people, it means labour productivity — the amount of output produced by a worker. But there are many variants of even that simple idea — for example output per worker and output per hour of worker are quite distinct, and data on their trends tell different and interesting stories. Broadly speaking, if output per hour rises, then workers can expect wages to rise.

Economic policy largely focuses on the factors behind growing labour productivity. One of the most important long-run drivers has been higher physical capital per worker. Another has been investment in the skills of workers through training and education. And, most fundamental of all is technological progress (in effect new knowledge), which leads to new products, new machines, and new ways of doing things. (This is usually also labelled as a productivity measure in its own right.)

The various technical definitions of these species of productivity are well-documented. And their variety is not problematic so long as they are appropriately differentiated and interpreted (ABS 2016; Li 2013; PC 2013b).

---

The long-term trends are not always easy to detect in annual data because of the effects of economic downturns (when labour and capital are only partially used, depressing productivity over the short run). For that reason, most productivity analysis examines trends across the peaks of the business cycle.

The Commission has interpreted ‘productivity’ as encompassing all of the above, but also intends to consider some broader concepts of productivity.

First, greater engagement of people in labour markets can increase the level of national income and output *per capita* (a more macro measure of productivity), even if it does not increase output *per hour* (the standard measure). To ignore the first is to lose sight of policies that could reduce premature retirement and bring people who have given up job aspirations back into the labour market.

Second, what is relevant to people’s lives is greater than the various aspects of the economy captured by ‘headline’ economics (the reporting of financial news of outcomes in commercial markets).

- There are large and growing parts of the economy where goods and services are provided to customers with no or little pricing. This makes it hard to measure the value of production, and therefore productivity. The Australian Government has asked the Commission to analyse productivity in the non-market sector, which comprises health care and social assistance, public administration and safety, and education and training. This will necessarily involve some different measurement approaches. Government provision of services like health and education dominate these industries. Indeed, making such services better meet people’s needs or doing so more productively and efficiently may be one of the most fertile areas for reform (and may produce fiscal benefits). There should not be an assumption that future microeconomic reforms in these areas use the same approaches of competition, corporatisation, privatisation and pricing that were the keystones of the pre-1990s reform agenda (though these may still be elements). For example, in health care and some other government-funded services, the design of the system can be paramount in improving productivity.
- In addition, other parts of the economy are not measured at all in the official statistics, but have major implications for the quality of people’s lives and their capacity to work. For example, road congestion lowers the efficiency of people’s personal travel as well as that of public and commercial transport (which would appear in standard estimates of productivity). Time spent in slow traffic reduces the capacity of people to work or enjoy genuine leisure. Similarly, the technological advances in the mid-20<sup>th</sup> century that led to washing machines, vacuum cleaners and refrigerators, all taken for granted now, provided a boost to household productivity that freed up people for employment and leisure. These gains are not captured in official statistics. It may seem that such developments are untouched by government policy, but widespread mains electricity networks were required for the diffusion of these technologies (Strange 2014).

Given the ultimate ambition is a more prosperous society, policies that move resources to their most productive uses are also relevant to this inquiry. The microreforms that led to

---

greater competition in telecommunications and other utilities, fewer barriers to entry into some occupations and retail shopping restrictions are examples. Tariff reform was one of Australia's most successful policy shifts because it has subsequently allowed people and capital to flow to industries where Australia has greater comparative international advantages. The same issue can arise in non-market services. As an illustration, when the Commission examined the disability services and aged care sectors, it found funding was allocated according to principles that took very little account of the preferences of people who were the focus of those sectors (PC 2011a, 2011b). Shifting resources to match people's preferences is a key, if sometimes, neglected aspect of efficiency (an issue also being considered by the Commission's current inquiry into human services). Prosperity is sometimes as much about *where* resources are used as much as narrowly-defined productivity *per se*.

Another dimension of prosperity is its effect on income growth for higher and lower-income households and, associated with this, inequality. Public support is more likely for reforms that offer benefits to the bulk of people. As for many other OECD countries, inequality increased in Australia from the 1990s to 2007, although the extent to which it did so depends on the statistics used.<sup>2</sup> Some of the evidence suggests that it has stabilised or even fallen since. However, unlike many OECD countries, income growth in Australia has still been strong for the lowest income households from the mid-1980s to the later 2000s (OECD 2011, p. 23). Indeed, the growth rate for the poorest households in Australia exceeded that of the highest-income households in most OECD countries (testimony to Australia's much higher income growth generally).

While the dividends of economic growth in Australia have been more widely shared than in some countries, the extent to which this continues will depend on policy and structural changes in the economy. Productivity growth provides a capacity for higher incomes and poverty alleviation — either directly through higher wages or indirectly by providing a 'bigger cake' from which transfers can be funded. This direct avenue may not be relevant for all jobs if there are major technological shifts (such as automation of routine tasks), in which case governments may have a role in increasing the capacity of people to move to productive jobs and in re-distributing incomes (through policies relating to the tax/transfer system, skill formation, and labour market efficiency). In that context, there is evidence that policy changes that avoid too great a dispersion in incomes can increase productivity (OECD 2015, 2016b; Ostry, Berg and Tsangarides 2014).

---

<sup>2</sup> The results depend on whether the measure relates to wealth, consumption, and income before or after net transfers earnings. The RBA finds relatively small changes in inequality (Dollman et al. 2015), as has other research (Greenville, Pobke and Rogers 2013; Wilkins 2015).

---

## 2 Government policy and productivity

Businesses are the immediate drivers of long-run productivity improvement in the market economy. In trying to increase their profits, they often seek to do things differently and better — drawing on their own ideas and those of their customers, employees, suppliers and rivals. Research (either inside the organisation or outside) can lead to entirely new products and processes. In a world akin to the ‘tooth and claw’ of Darwinian evolution, firms that fail to keep pace with technology or to provide goods and services valued by their customers die or change their business models (or are supposed to).

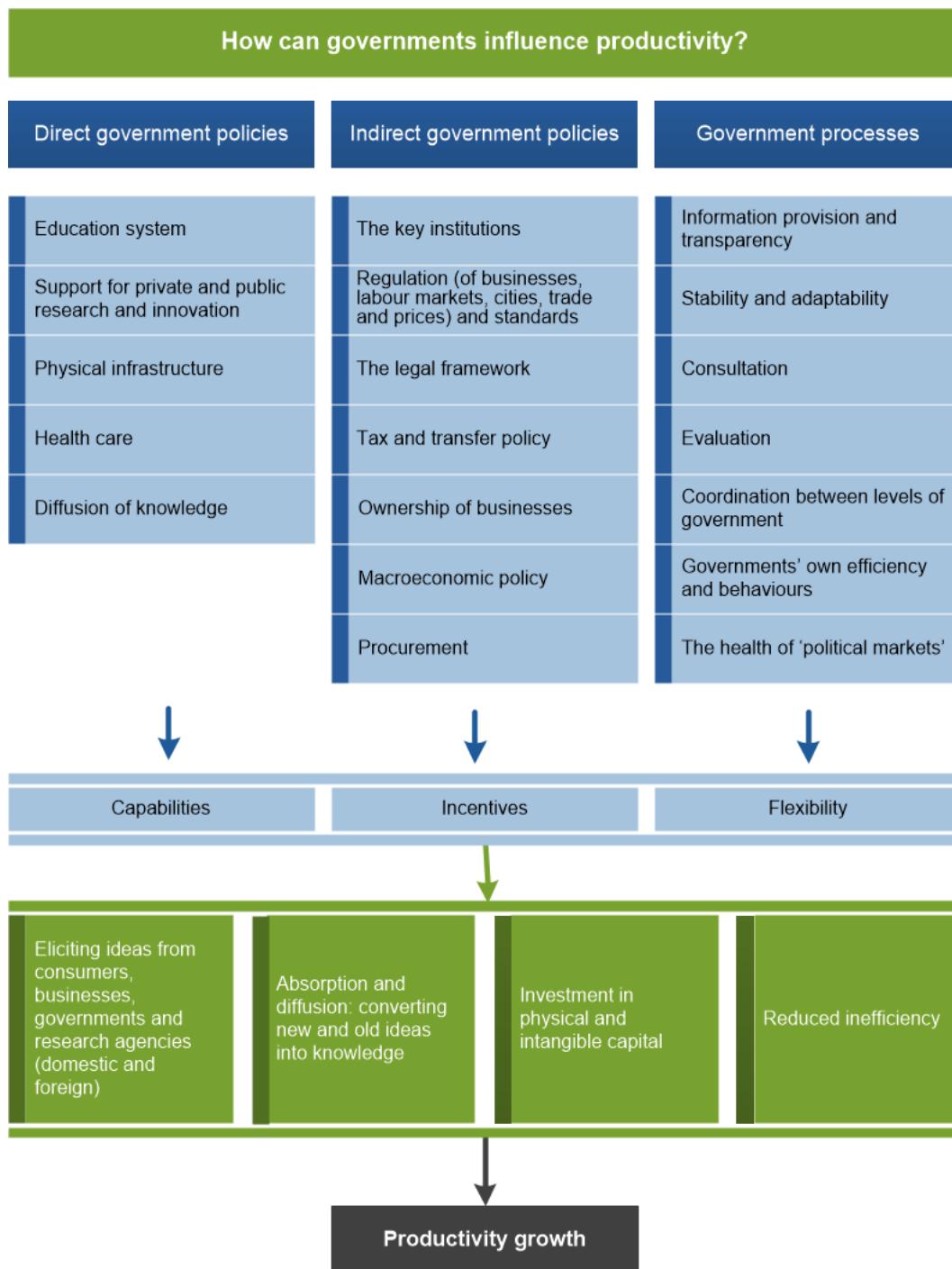
Government policy also plays a large role in outcomes, and through many avenues (figure 1). Government sets many of the fundamentals in an economy: its key institutions, laws, standards, regulations, education and health systems, public infrastructure, taxes and macroeconomic policies. Some markets are as much creatures of government as businesses and consumers because of the degree and complexity of regulation. As an illustration, version 82 of the *National Electricity Rules* number some 1432 pages and the *Competition and Consumer Act 2010* 1621 pages — which are bibles for markets in some industries. Whether they are yet the best regulations is a matter of persistent contest, as highlighted by the recent Harper review (2015).

Government is also a dominant provider, regulator and funder of many non-market services, and its performance is critical to productivity (including the quality of outcomes). Government contributes to the idea pool by supporting research and by being a demanding customer for its own purchases. It can encourage efficiency in the business world by being efficient itself and by being transparent and predictable. It can share its data or withhold it — an increasingly important issue in the digital age (an issue being considered as part of the Commission’s inquiry into data availability and use). The extent to which governments can adapt their policies in line with the public interest depends on the operation of the ‘political market’ — the set of incentives that punish or reward politicians and governments for their choices. Political market failures — such as structures that allow capitulation to vested interests — can limit prosperity.

The importance of government for productivity is perhaps best grasped when its settings fail. The global financial crisis — with its accompanying massive and protracted adverse effects on global productivity and income — reflected poor regulatory oversight overseas as much as financial market (mis)behaviour. In a contrasting case where the problem is too much regulation, Latin America’s productivity malaise has been attributed to the predominance of the informal sector, a symptom of over-regulation of larger, formal businesses (*The Economist* 2015). Australia has had its share of government-induced productivity mishaps. Examples have included the long, but now largely discarded, policy of protecting industry from import competition, agricultural marketing monopolies, and the government ownership of businesses much better run in the private sector (not just utilities, but historically even butchers, bakers, publishers and brickworks - Goot 2010).

Recalibrating, inventing or discarding policy settings can achieve better outcomes for productivity and prosperity. Even where policy settings have been effective in the past, there can be a case for change as the economic environment and risks facing Australia have changed significantly over the last decade, and will continue to do so over the next.

**Figure 1 Policy and productivity**

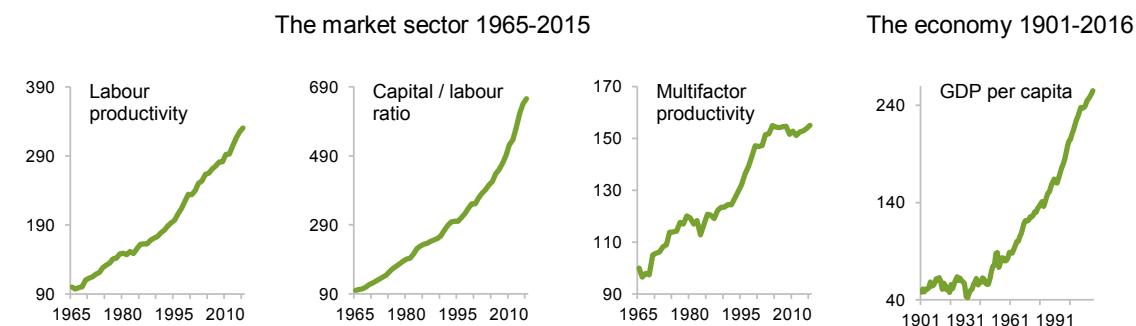


### 3 The ‘nothing era’: what has been happening to productivity?

Over the last 40 years, aggregate labour productivity growth in the market sector (real output per hour) has stayed mainly in the band between 2 and 2.5 per cent per year over the various business cycles (figures 2 and 3). The data give the beguiling sense that not much is wrong with Australian productivity trends. The only marked exceptions to generally stable productivity growth over these decades were a period of stagnation in the mid-1980s and exceptional growth in the mid-1990s. The longer historical story however shows virtually zero growth in GDP per capita in the nearly four decades from federation until the mid-1930s — proof that it is possible to have protracted periods of sluggish growth. History can repeat itself, unless people and policy settings ensure it does not.

Moreover, the ‘good’ labour productivity outcomes of recent years have almost entirely reflected the contribution of more physical capital, rather than any underlying improvement in the capacity to ‘get more out of all inputs’. That capacity — measured in figure 3 by multifactor productivity growth rates (MFP) — languished from 2003-04, creating what has been referred to as the ‘nothing era’.

**Figure 2 The long view: productivity and capital intensity**  
Indexes, 1964-65=100.0



<sup>a</sup> Data relates to year ending June of each year. Labour productivity in the market sector is market sector value-added divided by hours worked.

Sources: ABS 2008 and 2015, *Australian System of National Accounts*, Cat. no. 5204.0; ABS 2014, *Australian Historical Population Statistics*, 2008, Cat. no. 3105; ABS (2015) and Butlin (1985).

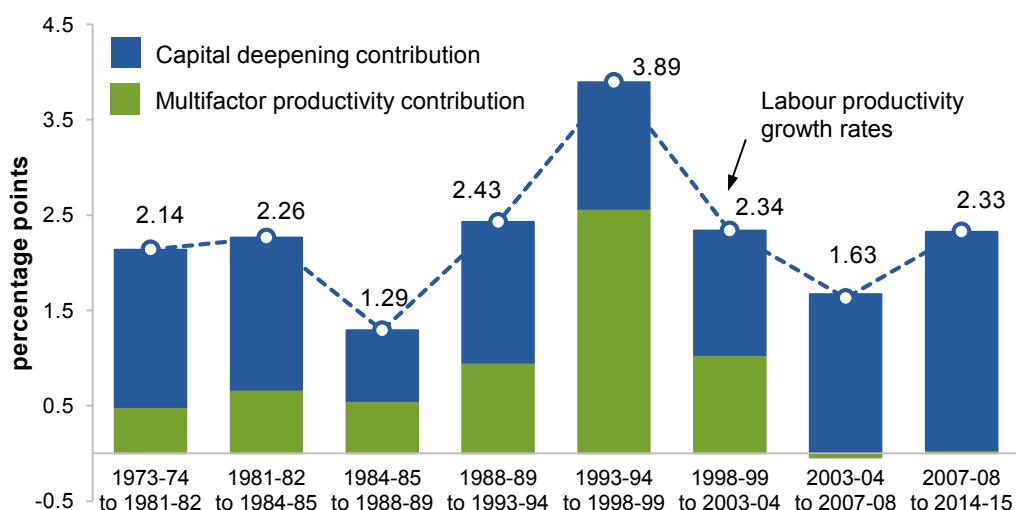
The peculiarities of production in the mining sector partly affect this outcome. It takes time to construct mining facilities before production can begin. Accordingly, during any significant expansion of mining — as occurred in the 2000s — capital rises rapidly without an accompanying increase in output, reducing measured productivity.<sup>3</sup> The production phase then led to strong mining productivity growth in 2014 and 2015. However, these are

<sup>3</sup> Another mining-related contributor is that high prices for resources made it profitable for businesses to open less productive mines (D’Arcy and Gustafsson 2012; Topp et al. 2008).

short-run effects, as are the effects of periodic economic downturns that also result in temporary reductions in MFP. Regardless, the ‘tos and fros’ of mining productivity have not been important enough to fully explain the downward shift in *economywide* MFP growth rates. This is just one aspect of a well-recognised deficiency in measures of MFP — they are residuals that vacuum up any factors that affect real output and that are not accounted for by changes in capital or labour.

**Figure 3 Market sector labour productivity decomposition<sup>a</sup>**

Percentage points contribution, average per annum



<sup>a</sup> Includes 12 sector ANZSIC Divisions A to K and R.

Sources: ABS 2015, *Estimates of Industry Multifactor Productivity, 2014-15*, Cat. no. 5260.0.55.002, December; and Productivity Commission estimates.

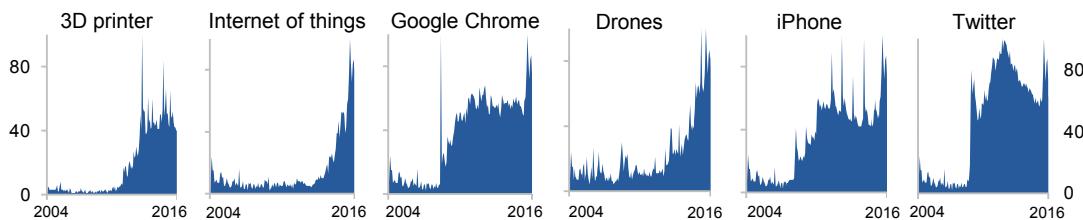
The slowdown in Australia’s capacity to ‘do more with the same’ is puzzling because scientific and technological knowledge advanced rapidly after the early 2000s (figure 4). Consider that in 2003 there was no Cloud, the ‘internet of things’ or iPhone or any smart phone or tablet (with all their portable apps — mapping, email, messaging, and video services). Ubiquitous software like Google Chrome and social media apps did not exist. 3D printing was in its infancy, the Windows Operating System was many digits less than version 10, and music and videos were primarily supplied in physical forms. 4G was several years away. Robotics, gene technologies, material science, machine learning, artificial intelligence, sensor technologies, and drones all progressed strongly in this decade. In the period from 2003 to 2015, the share of businesses using the internet increased from 70 to 95 per cent, and the share with a web presence from around 25 to 50 per cent.<sup>4</sup>

<sup>4</sup> Various issues of ABS, *Summary of IT Use and Innovation in Australian Business*, cat. no. 8166.

---

**Figure 4 Trends in internet searches**

Australia, Google trends, January 2004 to October 2016<sup>a</sup>



<sup>a</sup> The search trends are indexed for each search item separately, with 100 being the peak search effort in the period since January 2004. The value of an index for one search item does not indicate the relative popularity with another search item.

Source: Google Trends from <https://www.google.com.au/trends/>.

---

The gulf between significant technological shifts and sluggish productivity growth is not an Australian peculiarity, but has affected the bulk of advanced economies. While Australia is not a leading producer of such technologies, it could have been expected that they would have allowed much more efficient utilisation of capital and labour (as they *did* in improved logistics for wholesaling and transport), and had a greater impact on the development of new products.

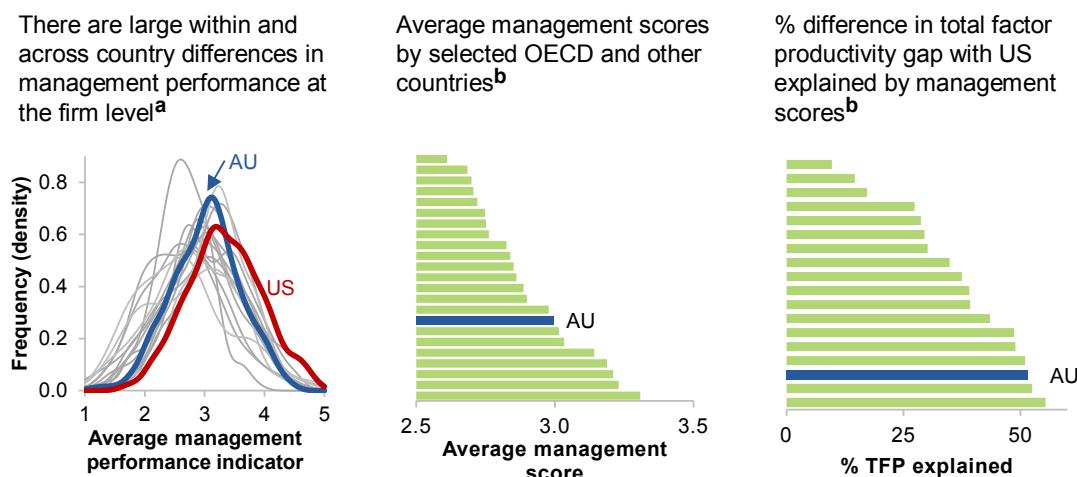
As noted earlier, some of the slowdown could be mismeasurement, but the timing and scale of the effects suggest this is unlikely to be the sole culprit of the recent observed productivity outcomes (Syverson 2016). It may be that the productivity returns from the new technologies will emerge after a lag. Regardless, even if mismeasurement suggested that the slowdown was more apparent than real, the policy issue is always ‘can we do better?’.

Looking at aggregate productivity data can miss an important aspect of productivity — the enormous disparities in performance at the firm level (Syverson 2011). Those disparities are not just the result of natural variations in firms’ capabilities and market variations over time, but also reflect the policy environment.

A growing concern worldwide is whether good ideas, technologies and practices are being adequately diffused across businesses. Most recently, OECD analysis has suggested that there is a growing gap between the growth of multifactor productivity for frontier firms and others, and that this has contributed to the global slowdown (Andrews, Criscuolo and Gal 2015). The OECD has speculated that there could be a failure in the ‘diffusion mechanism’ through which firms learn about frontier practices, and constraints on the pressures that lead to the exit of inefficient firms (such as product market regulations). How much these factors have affected Australian MFP trends is unclear, but the links between diffusion, product regulation and productivity are obvious areas of interest.

There is other compelling evidence that a significant share of Australian businesses have poor management practices, and while this is true for all countries, Australia lags behind the leading countries (figure 5).

**Figure 5 Many firms are well below the frontier**  
Management performance scores around the world



<sup>a</sup> Data mainly relates to 2008. Grey lines relate to various other countries. <sup>b</sup> Pooled data from 2004 to 2014. AU is Australia.

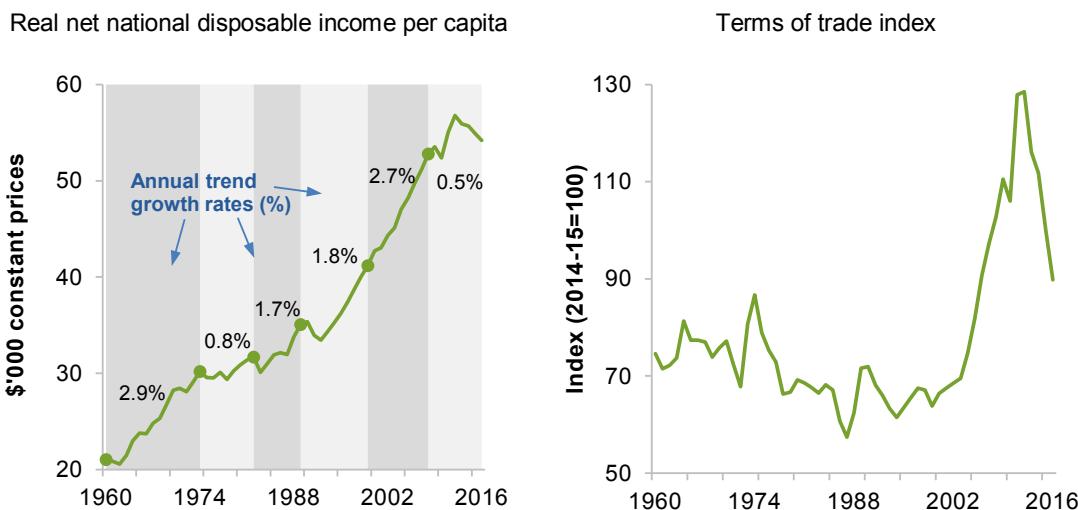
Source: PC calculations based on World Management Survey (<http://worldmanagementsurvey.org/>) and Bloom et al. (2016).

Factors such as competition, ownership, taxation and regulation affect the quality of management by affecting the incentives for better performance and potentially lowering the likelihood of exit by laggards. For example, multinational firms tend to have high quality management and to perform better, while businesses run by families and government businesses tend to perform worse (suggesting that the policies of Australian governments should not favour their growth over other businesses). A significant share of the gap in productivity between Australia and the United States appears to be driven by varying management capabilities (figure 5).

## Implications of productivity for incomes

The single best indicator of economic prosperity is so-called ‘real net national disposable income’ (RNNDI) per capita because it represents the income available for consumption by Australians (figure 6). In the last seven years, average annual growth was below 0.5 per cent per annum. Indeed, there have been four successive reductions in RNNDI per capita from 2012-13 to 2015-16, the only time a sequence of this kind has been experienced in close to the last six decades. This outcome was strongly associated with the precipitate and (over this period) unparalleled fall in Australia’s terms of trade, abetted by weak productivity growth.

**Figure 6      Prosperity in Australia**  
1959-60 to 2015-16



Source: ABS 2016, *Australian System of National Accounts, 2015-16*, Cat. no. 5204.0.

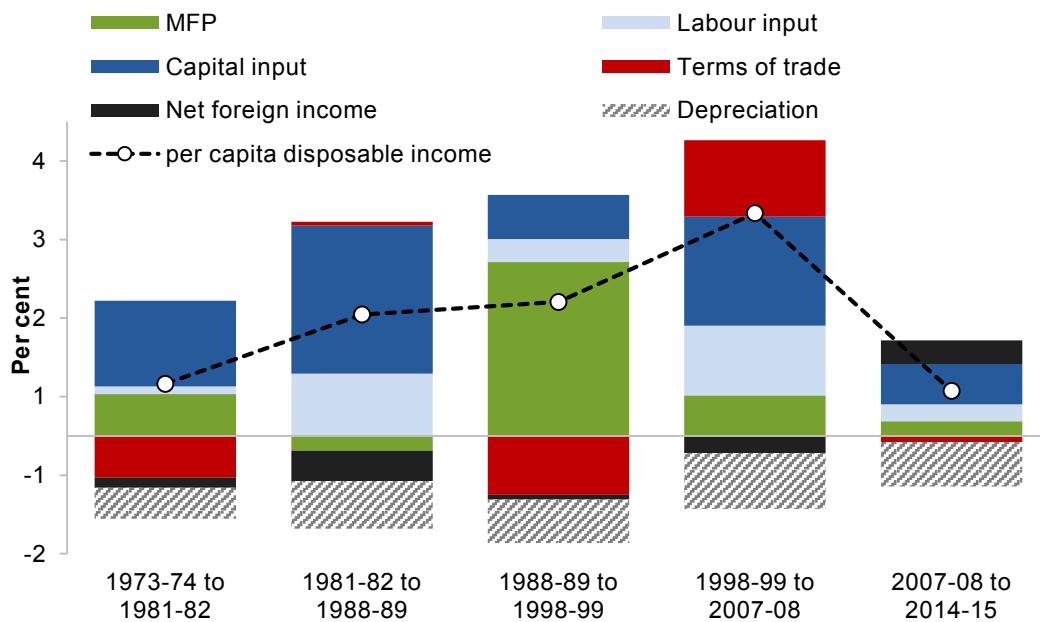
There are six major ways in which Australian real incomes per capita can increase over time, of which multifactor productivity is only one (figure 7). Understanding these factors throws light on the challenges Australians face in the future:

- *Productivity* — Output can increase without any additional inputs (MFP). Given the low growth rate in MFP, this has contributed very little to real income growth in the last decade.
- *Participation* — Labour inputs can vary per capita (for example, through longer working hours per employee, lower unemployment or higher participation rates). As with MFP, this has played a negligible role in recent income growth. And as population ageing shifts more of the population into ages where participation rates are lower, future reductions in labour inputs per capita appear inevitable, with associated adverse income effects.<sup>5</sup>
- *Investment* — Capital intensity can rise (for example, through infrastructure, buildings and equipment, information technologies and robotics). This has been the most consistent factor behind growing incomes per capita, but its flip side, depreciation, has offset its influence on incomes in the last decade. Investment in human capital, though education, training, and learning by doing, can complement capital and contribute to higher productivity.

<sup>5</sup> While not incorporated into this decomposition of real income, labour input could also take into account the development of skills associated with increased education. The results in figure 7 will capture the benefits of such investments as part of MFP.

**Figure 7 Contributions to average annual per capita real net national disposable income growth<sup>a</sup>**

Percentage points contribution, annual average



**a** MFP based on 12 selected market industries (Divisions A to K and R). **b** The contributions of MFP have been scaled from the 12-industry to the whole economy and are therefore different from figure 3.

Sources: Productivity Commission estimates based on ABS 2015, *Australian System of National Accounts, 2014-15*, Cat. no. 5204.0 and ABS 2015, *Estimates of Industry Multifactor Productivity, 2014-15*, Cat. no. 5260.0.55.002, December.

- *Savings* — Net foreign income inflows depend on the past balance between saving and investment and how much Australia relies on foreign borrowing and on the relative returns on these two-way investments. The inflow can increase for any net debt position (for example, if the return on investments held by Australians abroad from dividend and interest income rise relative to the return on foreign investments in Australia). While the inflows have been positive (but modest) in recent years, Australia has relied on financing of investment from overseas, which suggests future negative inflows.
- *Depreciation* — The productive value of older capital reduces over any given period, with the size of this effect depending on the vintage and structure of past capital expenditure. While public infrastructure has long lives and low depreciation rates, many new technologies (particularly information technology investments) have short lives and high depreciation rates. So even with the same rates of investment, the growth in the stock of capital, and hence the services it provides, will be lower.
- *External price shocks* — The buying power of Australian production depends in part on the relative prices of exports to imports (the terms of trade). Growth in the former over the latter translates any given production into a greater capacity to buy imports and higher real incomes (the ‘terms of trade’ effect). Unlike (i) to (v), the terms of trade

---

effects arise from luck — global commodity demand patterns and beneficial endowments cannot be attributed to Australian ingenuity (though taking advantage of them can be). While the terms of trade are still well above the average over the last 4 decades, their collapse has been unprecedented. Its future pathway is unclear, and past forecasts have often proven to be markedly divergent from outcomes (Heath 2015). The Reserve Bank of Australia (2016) forecasts levels to 2018 that are close to current levels, while the National Australia Bank (2016) forecasts continuing significant falls over the same period. A longer-term prediction suggests a continuing decline until at least 2029-30 (Bullen, Kouparitsas and Krolikowski 2014). Any downward trend will place further pressure on the level of Australia's income and place greater emphasis on the imperative to increase productivity in the decades ahead (PC 2016b).

Looking over the very long run, most of the above six factors cannot drive sustained real income growth. For example, labour inputs *per capita* cannot increase indefinitely (given the desirable limits to hours worked).

In contrast, MFP has the quality that it is ultimately unbounded. There is no obvious limit to the acquisition of new knowledge, which underpins new products and services.

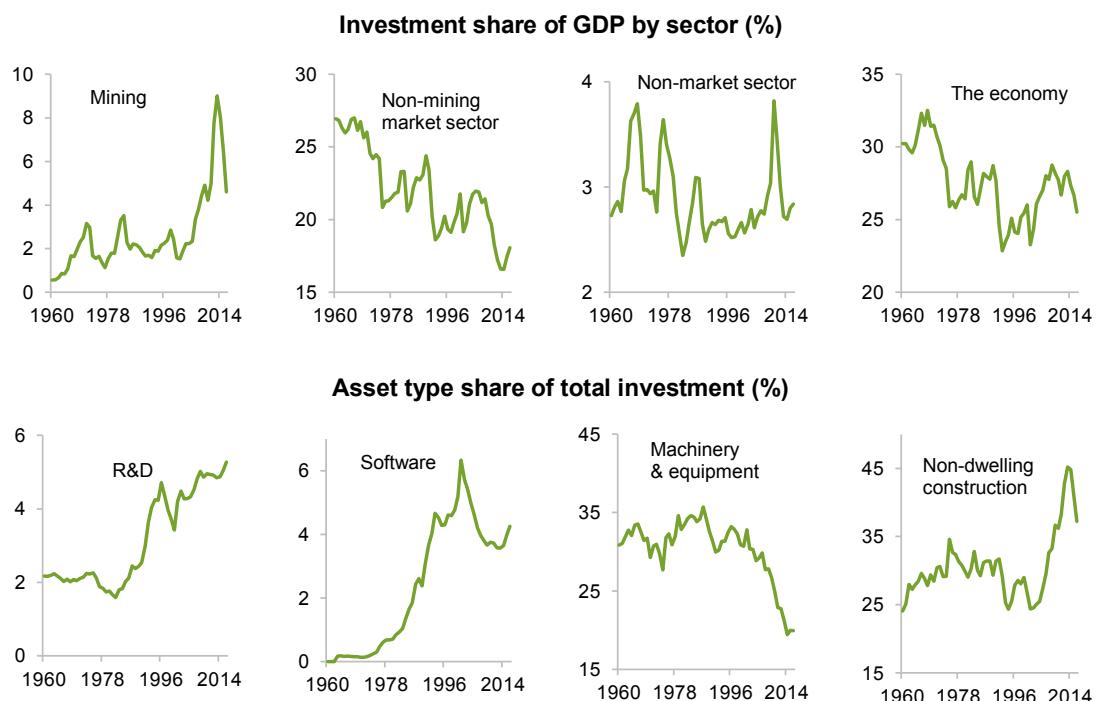
The historical experiences of Australia and most advanced countries also suggests that investment is likely to remain an important contributor to labour productivity growth and wage increases. Furthermore, since technology is often embedded in capital, higher investment rates can complement skills and innovation, and increase productivity. This means that policies influencing investment will be directly relevant to MFP, making a conducive investment environment doubly important.

It may be that part of the weak MFP outcomes lies in recent investment patterns, which have not favoured assets with high levels of embedded technology (figure 8). Mining sector investment rose strongly for much of the 2000s, but that growth hid the weak rates of investment in the non-mining market sector. Similarly, across the whole economy, the shares of investment in machinery and equipment, and in software have fallen since the early 2000s. While the R&D share of investment has risen over the longer term, it has been subdued since 2008. Moreover, profitability in the market sector in the June quarter 2016 was the lowest since the March quarter 2005 — a possible further risk for future business investment.<sup>6</sup>

---

<sup>6</sup> Based on the smoothed value of the gross operating surplus of businesses (unincorporated and incorporated) divided by sales for the market sector (ABS 2016, *Business Indicators, Australia*, June 2016, Cat. no. 5676.0).

**Figure 8** **Digging deeper: investment patterns**  
1959-60 to 2015-16



Source: ABS 2016, *Australian System of National Accounts, 2015-16*, Cat. no. 5204.0.

## What does the past tell us?

The inquiry's terms of reference request the Commission to examine the factors — including policy changes — that may have affected Australia's past productivity performance. There is a reasonable case that, taken as a package, the microeconomic reform agenda of the 1980s and 1990s improved multifactor productivity, though the magnitudes of the effects are vigorously debated (Parham 2002, 2004; PC 1999; Quiggin 2006). Regardless, the published high-level ABS National Accounts data on productivity is not well-suited to disentangling the separate impacts of the vast mix of policies implemented by Australian governments over time (in innovation, workplace relations and regulatory reform, tax policies, trade and competition policy, privatisation and so on). The Commission will consider whether there is other evidence — in Australia or globally — that points to policies likely to promote productivity. It may be that firm or project level data provide more insights, as was the case for considering productivity in Australia's construction industry (PC 2014).

---

## **4      Difficulties of measuring productivity in the non-market sector**

The non-market sector accounted for around 20 per cent of total industry output in 2015-16.<sup>7</sup> Population ageing over the coming decades will lead to significant expansion in health care, aged care and social assistance, and under current policy settings this will not be offset by reductions in the share spent on childcare and education (Australian Government 2015; PC 2013a). Since taxpayers, not the users of the services, are the main source of revenue for much of the non-market sector, those demographic drivers will also have large fiscal impacts. Directing services at their highest value uses and improving productivity can limit those fiscal consequences and ensure better outcomes for growing numbers of people (Australian Government 2007; Gruen 2012). This is also an area readily amenable to policy action because, as purchasers, providers and regulators, governments control most of the levers shaping productivity.

Unfortunately, an obvious starting point for analysis of the prospects for productivity improvement and their possible origins is unavailable for the non-market sector. The government provides much of these sectors' outputs at subsidised prices or free of charge. So output estimates for the non-market sector are usually based on the cost of production (that is, the cost of inputs). By definition, this means measured MFP growth is zero — as output growth is determined directly by growth in inputs (PC 2016b). It also means that the genuine value of output of the non-market sector is higher than its measured value in the national accounts — so that the non-market sector is even more important relative to other industries than the official statistics suggest.

The ABS is developing better statistics for the non-market sector in line with the national accounts framework, but the timeline lies outside that for this inquiry. Nevertheless, some analysis in Australia and overseas has attempted to measure productivity in this sector, which the Commission will draw on (Aizcorbe, Retus and Smith 2008; Atkinson 2005; Diewert 2011; Dunn, Rittmueller and Whitmire 2015; Lee 2008; ONS 2016a, 2016b; Schreyer 2010; Statistics NZ 2010, 2013; United Nations 1993).

There are also important policy insights by diving deeper into some narrower aspects of productivity performance in the non-market sector. From a policy perspective, a major area of interest is the unexplained variations in productivity (or quality) between suppliers, since policies can be directed at closing such gaps. For example, variations between hospitals and over time between operating theatre productivity, after controlling for the type of operation, suggests inadequate diffusion of best practice (a measurement issue being examined by Pares 2015). Similarly rates of unplanned readmission rates following hospital surgery are a major source of hospital costs (and adverse outcomes for people), are

---

<sup>7</sup> This comprised 6.4 per cent for public administration and safety, 5.8 per cent for education and training and 8.1 per cent for health care and social assistance, based on shares of current price total industry output excluding ownership of dwellings (ABS 2016, *Australian System of National Accounts*, table 5, Cat. no. 5204.0).

---

affected by clinical practices and resourcing, and have been increasing (Bolevich and Smith 2015). Some analysis suggests that in the United States as much as 20 to 30 per cent of health spending is wasteful and leads to no improvement in health (Hall 2016). The Australian figure is unknown — but even an approximately similar result leaves an inviting opening for lower taxpayer costs and better outcomes for people.

The feasibility of using measures like this for policy purposes across the many services covered by the non-market sector depends on data availability and adequacy. There are also dangers in using sticks or carrots to encourage service providers to reach targets based on narrow performance measures if by doing so they give up some more valuable outcomes. For instance, it may be more efficient to have higher operating theatre costs if these produce better clinical outcomes.

The Productivity Commission is currently undertaking an inquiry into the evidence base for assessing the performance of the early learning and school education system. In this area too, the draft inquiry reports point to large gaps in relevant measures of school performance (PC 2016a). More broadly, in its role as the secretariat for an ongoing annual review of government service provision, the Productivity Commission reports on the performance of many parts of the non-market sector (SCRGSP 2016) — which will help provide some indications of changing performance.

## **5 A framework for gathering ideas for reform: the issue of priorities**

While the immediate drivers of real incomes largely reflect the choices of people and businesses, governments of all levels do not play a passive role in this story. They control many of the levers that influence those choices, for good or bad (figure 1 above).

Governments are so pervasive in their influence and their policy instruments are so numerous that it is impossible to reassess meticulously the full role of government in encouraging prosperity. Accordingly, a framework is needed to narrow the field of reforms that the Commission should examine in this review.

### **Gathering ideas for policy change**

The Commission is adopting a systematic approach to gathering ideas. The process of developing the ultimate reform proposals best starts wide (harvesting many ideas), followed by progressively narrowing the options based on evidence of importance and practical implementability (figure 9).

In part, this process will draw on policy analysis and lessons from overseas and from different Australian jurisdictions. Australia is far from alone in its concerns about flagging productivity and prosperity — a concern that has crystallised throughout many advanced

---

economies following the global financial crisis and continued sluggish multifactor productivity growth (Baily and Montalbano 2016; HM Treasury 2015; OECD 2016a; Valero and Roland 2015). And numerous past reviews have provided reform ideas (box 1).

Existing business and other stakeholder surveys about government policies can also be useful because they can provide an indicator of priority. However, inevitably the findings from such surveys reflect the interests of stakeholders in maximising the benefits to them from reform, rather than necessarily in obtaining the best outcome for the community as a whole (although the two may sometimes coincide). As specified in its Act, the Commission's overarching purpose is:

... to improve the overall economic performance of the economy through higher productivity in the public and private sectors in order to achieve higher living standards for *all* members of the Australian community. (Productivity Commission Act 1998)

This reinforces the value of ideas from those who have a focus on the broader community interest.

As is usual in its inquiries, the Commission will consider the views from a wide range of informed parties — government agencies, think tanks, peak bodies, citizens, social groups, businesses, and academics — in the areas where they have the most detailed knowledge. Ideas will need to be specific enough to enable investigation by the Commission.

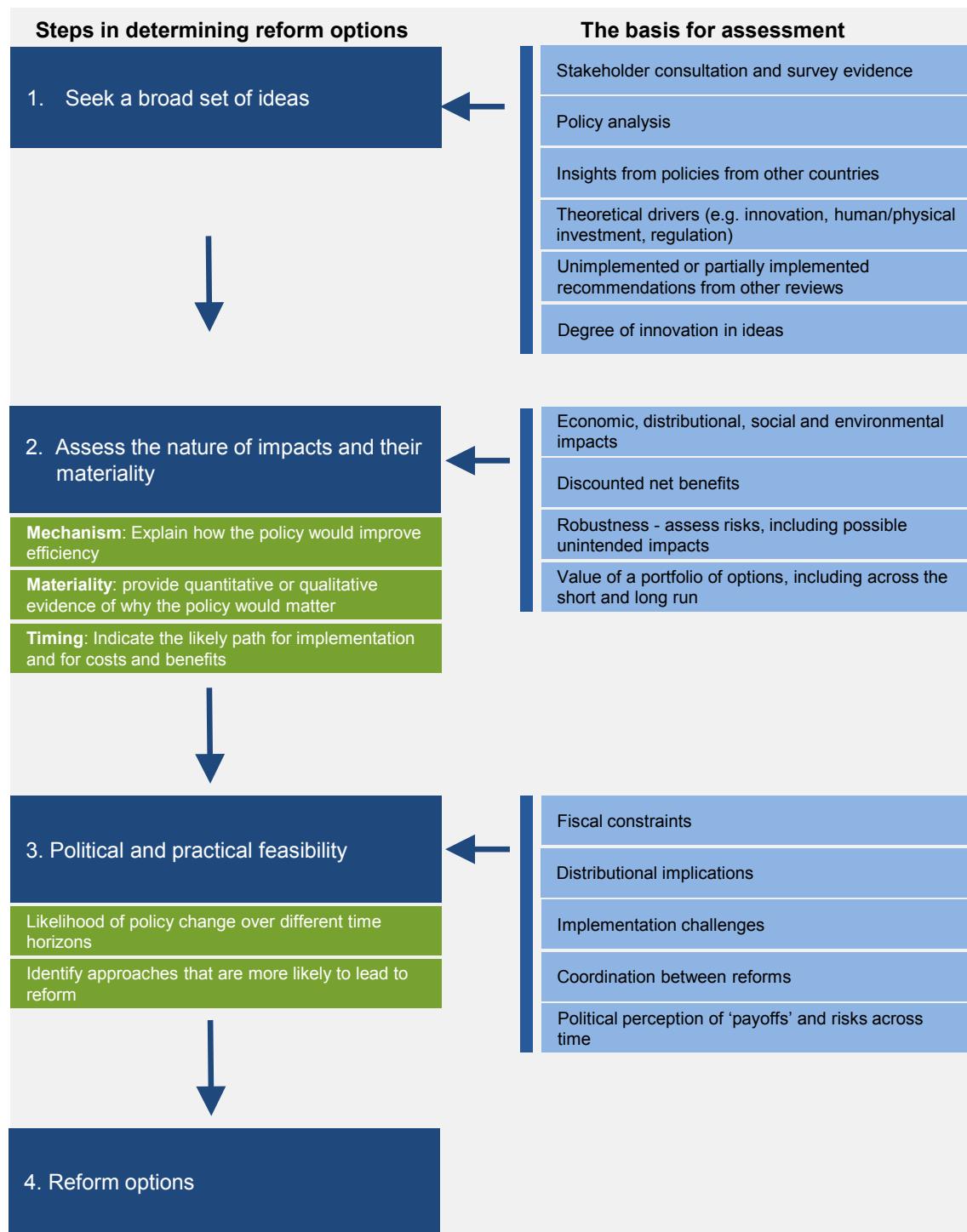
***The Commission is particularly interested in new and novel ideas because there is already a strong awareness of many reform options that parties would like to see implemented. More of the same is not likely to be helpful.***

In addition, this review is not just about identifying particular parts of the economy that warrant reform, but about how reform processes and institutions themselves might be improved, and how messages concerning reform can be better communicated to the community. (For many, ‘reform’ is a word that has lost some of its lustre, and the need to make policy changes may appear low given that joblessness, inflation and interest rates are low, while GDP growth is relatively high.)

In areas identified as warranting reform, the Commission will consider some key questions:

- What are the areas and/or industries of the economy where Australia appears to be furthest away from global best practice, and why is that so?
- Are there any clear deficiencies in the generic drivers of productivity, or in the parts of the economy that affect the efficiency of businesses generally? All things being equal, reforms here are likely to produce the biggest dividends. For example, this might include the efficiency of transport and communications infrastructure, human capital development, the absorptive capacity of businesses, entrepreneurship, innovation policy, the rules and laws set by government (such as those in workplace relations or zoning), and institutions.

**Figure 9 Wheat from the chaff: Determining the policy options**



---

### **Box 1            National treasures: the insights from past reviews**

The terms of reference to this inquiry asks that the Commission should have regard to other current or recent reviews commissioned by Australian governments. There is no shortage of previous reviews that provide insights into pro-productivity policies, including:

- Australia's Future Tax System Review (Henry Tax Review 2009)
- Zoning, Planning and Development Assessments (Productivity Commission 2011)
- Financial System Inquiry (the Murray Inquiry 2014)
- Public Infrastructure 2014 (Productivity Commission 2014)
- Competition Policy Review (the Harper Review 2015)
- Workplace Relations (Productivity Commission 2015)
- Reform of State Taxes in Australia: Rationale and Options (Freebairn, Stewart and Liu (2015))

There are also a number of ongoing reviews with relevance to productivity, including the following Productivity Commission inquiries:

- Data Availability and Use: inquiry investigating ways to improve the availability and use of public and private sector data
- Human services: inquiry into the increased application of competition, contestability and informed user choice to human services
- Marine Fisheries and Aquaculture
- Regulation of Agriculture
- Superannuation

### **Will the reform be effective?**

There should be reasonable grounds for a causal link between any proposed reform and productivity/efficiency. Ideally, this should be based on sound quantitative and qualitative evidence, though ‘in principle’ arguments also have validity.

### **Who cares? Are the reforms important enough to matter?**

If implemented as designed, any reform should be likely to have a significant (positive) effect (or do so as part of a coherent package). This would take into account the impact of the reform on an area of the economy, and the relative importance of that part of the economy now and as it evolves. There are few reforms that would not leave someone ‘worse-off’, at least in the short-run, but even small gains to many will often outweigh even significant costs to a few. And in cases where unjustified hardships might result, those who are negatively affected by a reform can often be identified and assisted.

Policy options should not just be concentrated in one narrow area, but cover different parts of the economy and society. A narrow set of proposals is unlikely to have a significant

---

economywide effect, and in any case, it is untenable that the potential for improvements are isolated to pockets of society and the economy.

In this context, the Commission intends to organise the report around various overarching microeconomic themes to provide a coherent and interlinked suite of reform options. ‘Government services’, ‘cities and regions’ and ‘labour market efficiency’ reform themes could be examples, but there are many other options. One of the attractions of considering government-funded or supplied services, like health, is that they are more likely to be less efficient due to management inertia and lack of competitive pressures, involve a large part of the economy, and matter for the quality of the lives of millions.

The Commission anticipates that it would investigate some of the policy options under these themes in detail, while drawing on already sound evidence for others. In doing this, the Commission wants to avoid giving the Government merely a long list of unconnected reforms drawn from past agendas. (The Commission will not duplicate analysis that has already been completed or is underway.)

## **Risks and uncertainty — do we really know the likely outcomes of reform?**

All policies pose risks for governments and society. Even if a policy has an expectation of a net benefit, there may also be substantial downside risks, which would suggest care in adoption or mitigation of those risks. This suggests trials of some proposals, in which case the design and implementation of those trials becomes a central concern.

It is important to assess, even if only qualitatively, the extent to which any policy initiative to promote productivity incidentally decreases other forms of efficiency (for example, non-priced factors such as costs borne as lower, but hard to measure, quality; time wasted by consumers, lower environmental amenity, and greater work intensity) or has significant distributional and structural adjustment effects. These may alter the appropriate timing, pace and design of pro-productivity reforms, and indeed, in some cases, their desirability.

## **Can the policies be implemented (and when and by whom)?**

History is littered with the bodies of intrinsically worthy, but badly implemented policies. (Smart meter rollouts and novel financing methods for infrastructure are examples.) Other policies have an attractive sheen, but may not be realistically implementable at all — they may be too complex, too informationally challenging, demand too much bureaucratic time, require untenable governance arrangements, use up too much political capital, or impose excessively high transactions costs. Sometimes, the obstacle is an impracticable time horizon. It can be better to advance a timetable and well-prepared method for achieving a long-run policy than to urge immediate action (risking a premature ‘no’ by governments to a policy proposal).

---

So reform options should ideally specify challenges of, and resources required for, implementation. This would include the coordination, resources and expertise required for a reform, whether an initiative requires cooperation across jurisdictions, the scope for trials and later expansion, and an evaluation strategy to assess whether the policy is working effectively.

## **6      Where to from here?**

This inquiry has some unique features compared with most others undertaken by the Commission. It is not a one-off inquiry, but the first of a series of reviews conducted every five years. In some cases, the Commission will foreshadow possible agenda items for later reviews. The inquiry is very broad in nature, and thereby the groups that may wish to give us views are very diverse. The Commission particularly wants new ideas for advancing reform. Submissions will play one role in informing this inquiry, but the Commission will be seeking views in other ways too, including through a web-based survey.

---

## **Attachment: Terms of reference**

### **PERIODIC INQUIRY OF AUSTRALIA'S PRODUCTIVITY PERFORMANCE**

I, Scott Morrison, Treasurer, pursuant to Parts 2 and 3 of the Productivity Commission Act 1998, hereby request that the Productivity Commission (the Commission) undertake an inquiry into Australia's productivity performance and provide recommendations on productivity-enhancing reform. This inquiry will be the first of a regular series, undertaken at five-yearly intervals, to provide an overarching analysis of where Australia stands in terms of its productivity performance.

#### **Background**

Productivity growth is the main long-term driver of growth in Australian incomes and living standards.

Governments have an important influence on productivity growth, including through policies and regulations that affect investment in human and physical capital and the functioning of markets, including with respect to trade, competition and other regulatory constraints and incentives.

Policy settings can support productivity growth by ensuring that the economy is flexible, able to adapt in the face of economic challenges and opportunities, and imposes the least cost in achieving governments' policy objectives.

It is particularly important at present that policy settings facilitate structural change and productive investment in the economy to support its transition from the resources investment boom, and promote its efficiency and competitiveness given population ageing and the evolving global economy.

The Commission will undertake an inquiry of Australia's productivity performance and make recommendations, as necessary to support productivity growth. This task will be undertaken every five years.

#### **Scope of the inquiry**

The Commission is to review Australia's productivity performance and, in the light of its findings, make recommendations to assist governments to make productivity enhancing reforms.

Without limiting related matters on which the Commission may report, its report to the Government should:

1. analyse Australia's productivity performance in both the market and non-market sectors including an assessment of the settings for productive investment in human and physical capital and how they can be improved to lift productivity

- 
2. examine the factors that may have affected productivity growth, including an assessment of the impact of major policy changes, if relevant
  3. prioritise potential policy changes to improve Australian economic performance and the wellbeing of Australians by supporting greater productivity growth.

The Commission should have regard to other current or recent reviews commissioned by Australian governments relating to Australia's productivity performance such as the Harper Competition Policy Review and include comparisons of Australia's productivity performance with other comparable countries.

The Commission should support analysis with modelling where possible and qualitative analysis where data is not available and this is appropriate.

### **Process**

The Commission should consult widely and undertake appropriate public consultation processes, accepting public submissions.

The Commission should consult with Commonwealth, state and territory governments.

The final report should be provided to the Government within 12 months of receipt of these terms of reference.

**Scott Morrison  
Treasurer**

[Received 16 September 2016]

---

## References

- ABS (Australian Bureau of Statistics) 2015, *Estimates of Industry Multifactor Productivity, 2014-15*, Cat. no. 5260.0.55.002, December.
- (Australian Bureau of Statistics) 2016, *5260.0.55.004 - Experimental Estimates of Industry Level KLEMS Multifactor Productivity, 2013-14*, March.
- Aizcorbe, A., Retus, B. and Smith, S. 2008, *Toward a Health Care Satellite Account*, May, Bureau of Economic Analysis, United States.
- Andrews, D., Criscuolo, C. and Gal, P. 2015, *Frontier Firms, Technology Diffusion and Public Policy: Micro Evidence from OECD Countries*, Productivity Working Paper No. 2, November, OECD Publishing, Paris.
- Atkinson, T. 2005, *Atkinson Review: Final Report - Measurement of Government Output and Productivity for the National Accounts*, United Kingdom.
- Australian Government 2007, *Intergenerational Report 2007*, April, Canberra.
- 2015, *2015 Intergenerational Report: Australia in 2055*, March, Canberra.
- Baily, N. and Montalbano, N. 2016, *Why is US Productivity Growth So Slow? Possible Explanations and Policy Responses*, September, Brookings Institute, United States.
- Bloom, N., Sadun, R. and Van Reenen, J. 2016, *Management as a Technology?*, NBER Working Paper, June, United States.
- Bolevich, Z. and Smith, B. 2015, *Unplanned Hospital Readmissions: Where to from here?*, NSW Ministry of Health.
- Bullen, J., Kouparitsas, M. and Krolikowski, M. 2014, *Long-run forecasts of Australia's terms of trade*, Working Paper, May, The Treasury, Canberra.
- Butlin, N.G. 1985, *Australian National Accounts 1788-1983*, 6, Source Papers in Economic History, Australian National University, Canberra, November.
- D'Arcy, P. and Gustafsson, L. 2012, *Australia's Productivity Performance and Real Incomes*, Bulletin, June Quarter 2012, Reserve Bank of Australia.
- Diewert, W.E. 2011, 'Measuring Productivity in the Public Sector: Some Conceptual Problems', *Journal of Productivity Analysis*, vol. 36, no. 2, pp. 177–191.
- Dollman, R., Kaplan, G., La Cava, G. and Stone, T. 2015, *Household Economic Inequality in Australia*, Research Discussion Paper, December, Reserve Bank of Australia, Sydney.
- Dunn, A., Rittmueller, L. and Whitmire, B. 2015, *Introducing the New BEA Health Care Satellite Account*, January, Bureau of Economic Analysis, United States.
- Goot, M. 2010, 'Labor, Government Business Enterprises and Competition Policy', *Labour History*, no. 98, pp. 77–95.
- Greenville, J., Pobke, C. and Rogers, N. 2013, *Trends in the Distribution of Income in Australia*, Staff Working Paper, March, Productivity Commission, Canberra.

- 
- Gruen, D. 2012, ‘The importance of productivity’, presented at Productivity Commission - Australian Bureau of Statistics Productivity Perspectives Conference, Canberra, 20 November.
- Hall, A.E. 2016, ‘Adjusting the Measurement of the Output of the Medical Sector for Quality: A Review of the Literature’, *Medical Care Research and Review*, vol. August.
- Harper, I., Anderson, P., McCluskey, S. and O’Bryan, M. 2015, *Competition Policy Review*, Final Report, March, Australian Government, Canberra.
- Heath, A. 2015, *The Terms of Trade: Outlook and Implications*, Speech, Reserve Bank of Australia, Canberra, 20 November.
- HM Treasury 2015, *Fixing the foundations: creating a more prosperous nation*, July, London.
- Lee, P. 2008, *Measuring non-market output and productivity*, December, Paper prepared for Economic Measurement Group meeting, Office for National Statistics, Sydney.
- Li, J. 2013, *Introduction to Productivity Measurement Framework*, Working Paper 02-13, January, Department of Industry Innovation Science Research and Tertiary Education, Canberra.
- NAB (National Australia Bank) 2016, *The Forward View - Australia*, September, Sydney.
- OECD (Organisation for Economic Cooperation and Development) 2011, *Divided We Stand: Why Inequality Keeps Rising*, December, OECD Publishing, Paris.
- 2015, *In It Together: Why Less Inequality Benefits All*, May, OECD Publishing, Paris.
- 2016a, *Economic Policy Reforms 2016: Going for Growth Interim Report*, OECD Publishing, Paris.
- 2016b, *The Productivity-Inclusiveness Nexus: Preliminary version*, June, OECD Publishing, Paris.
- ONS (Office for National Statistics) 2016a, *Public service productivity estimates: total public service, 2013*, February, United Kingdom.
- (Office for National Statistics) 2016b, *Quarterly public service productivity (experimental statistics): Apr to June 2016*, October, United Kingdom.
- Ostry, J., Berg, A. and Tsangarides, C. 2014, *Redistribution, Inequality and Growth*, IMF Staff Discussion Note, April, SDN/14/02, United States.
- Pares, J. 2015, *A Productivity Index for NSW Operating Theatres*, NSW Agency for Clinical Innovation.
- Parham, D. 2002, ‘Microeconomic reforms and the revival in Australia’s growth in productivity and living standards’, presented at the Conference of Economists, Adelaide, October.
- 2004, ‘Sources of Australia’s Productivity Revival’, *The Economic Record*, vol. 80, no. 249, pp. 239–257.

- 
- PC (Productivity Commission) 1999, *Microeconomic Reforms and Australian Productivity: Exploring the Links*, Commission Research Paper, Canberra.
- 2011a, *Caring for Older Australians*, Report no. 53, Canberra.
- 2011b, *Disability Care and Support*, Report no. 54, Canberra.
- 2013a, *An Ageing Australia: Preparing for the Future*, Commission Research Paper, Canberra.
- 2013b, *PC Productivity Update (2013)*, Canberra.
- 2014, *Public Infrastructure*, Report no. 71, Canberra.
- 2016a, *National Education Evidence Base*, Draft Report, Canberra.
- 2016b, *PC Productivity Update (2016)*, Canberra.
- Quiggin, J. 2006, ‘Stories about Productivity’, *Australian Bulletin of Labor*, vol. 32, no. 1, pp. 18–26.
- RBA (Reserve Bank of Australia) 2016, *Statement on Monetary Policy*, August, Sydney.
- Schreyer, P. 2010, *Towards Measuring the Volume Output of Education and Health Services: A Handbook*, OECD Statistics Working Papers, 2010/02, OECD Publishing, Paris.
- SCRGSP (Steering Committee for the Review of Government Service Provision) 2016, *Report on Government Services 2016*, Productivity Commission, Canberra.
- Statistics NZ 2010, *Measuring government sector productivity in New Zealand: a feasibility study*, March, New Zealand.
- 2013, *Education and health industry productivity 1996–2011*, April, New Zealand.
- Strange, J. 2014, ‘Consumption, consumer credit and the diffusion of consumer durables’, in Carnevali, F. and Strange, J. (eds), *20th Century Britain: Economic, Cultural and Social Change*, Routledge, United Kingdom.
- Syverson, C. 2011, ‘What Determines Productivity?’, *Journal of Economic Literature*, vol. 49, no. 2, pp. 326–365.
- 2016, *Challenges to Mismeasurement Explanations for the US Productivity Slowdown*, NBER Working Paper, February, National Bureau of Economic Research, United States.
- Topp, V., Soames, L., Parham, D. and Bloch, H. 2008, *Productivity in the Mining Industry: Measurement and Interpretation*, Productivity Commission Staff Working Paper, Canberra.
- United Nations 1993, *System of National Accounts*.
- Valero, A. and Roland, I. 2015, *Productivity and Business Policies*, CEP Election Analysis, Centre for Economic Performance LSE, United Kingdom.
- Wilkins, R. 2015, ‘Measuring Income Inequality in Australia’, *Australian Economic Review*, vol. 48, no. 1, pp. 93–102.