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Australia's 'jobs and growth' strategy: pathway to a low productivity economy

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Table of contents

Executive Summary	i
Introduction	1
<i>The Productivity crisis</i>	2
Labour productivity	3
<i>Table 1. Labour Productivity (whole economy) since 1974-75</i>	4
The sources of Australia's real GDP growth	5
<i>Figure 1: Contribution to labour input growth, 2017-18</i>	6
Who knows and who cares?	7
<i>The expenditure side of real GDP growth</i>	7
<i>Is high NOM an integral part of the jobs and growth agenda?</i>	9
<i>Industry subsidy in return for access to the Australian labour market</i>	10
<i>The overseas student industry</i>	10
<i>The horticultural industry</i>	10
<i>Regional urban centres</i>	11
Implications of high temporary migration for the Australian labour market	11
<i>Table 2: Main occupations of temporary migrants</i>	13
The state we are in	14
The Reserve Bank admits its mistake	14
<i>Outcomes in the U.S and Australia compared</i>	15
<i>Table 3 Comparison of US and Australia June 2017 and June 2018</i>	16
<i>Why won't Coalition government advisors acknowledge the role of NOM?</i>	16
The 'way out': further economic reform	18
The prospects for knowledge intensive industries in Australia	19
<i>The knowledge intensive industry record</i>	19
<i>Australian economic policy and the demise of manufacturing</i>	19
<i>The consequences for knowledge intensive industries</i>	22

<i>Table 4 Change in manufacturing jobs by industry, 2006 to 2011 and 2011 to 2016</i>	<i>22</i>
<i>Australia's trade record in knowledge intensive industries</i>	<i>23</i>
<i>The Israel example</i>	<i>24</i>
<i>An Australian exception?</i>	<i>25</i>
<i>Lessons from the Australian experience</i>	<i>25</i>
The long-term Implications for labour productivity	26
<i>Productivity gains in industries serving the domestic market.....</i>	<i>27</i>
It is going to get worse: Australia's low productivity trap	28
Conclusion	29
Notes	31

Australia's 'jobs and growth' strategy; pathway to a low productivity economy

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Executive Summary

Attempts to kick start growth in the Australian economy have so far met with lacklustre results. Wage growth is weak and stimulus measures such as the recent tax cut have barely had an impact. Our main concern is to explore why monetary policy has so far not worked. The central hypothesis is that an important factor has been the rapid growth in Australia's labour supply. As we will see, this is a core component of the Coalition government's 'jobs and growth' strategy.

We also explore the bigger picture of what is driving Australia's so-called miracle economy and its 28 years of unbroken GDP growth. Throughout this paper GDP refers to real growth (adjusted for inflation). It is unbroken partly because the total production of goods and services is being augmented by high population growth. This means that while GDP continues to grow, it does not mean that per capita GDP grows at the same rate.

We argue that Australia is falling into a low productivity trap precisely because of decisions made in recent years which have narrowed our economic base and made us ever more reliant on commodity markets to pay our way.

According to a recent Harvard Kennedy School's Centre for International Development paper Australia is rich, dumb and getting dumber. In our study we look at the productivity of the Australian economy and identify some of the reasons why our approach to economic management has contributed to this result. Indeed, we are now in a situation where we have bet the farm (and the house) on ever increasing population growth and free trade agreements which imply that commodities will remain the growth engines of Australia's export success.

Policy makers are facing a serious dilemma. How is GDP growth to be restored to the three to four per cent annual level of a few years ago? If this is to occur, it will have to involve an increase in consumer expenditure and business investment in a context where wage growth is now relatively low.

The heavy work over the last few years has been taken on by the Reserve Bank of Australia (RBA). It has pursued an aggressive monetary policy involving successive reductions in official interest rates.

This is supposed to work by putting extra funds into consumers' pockets because those with debts will have to pay out less in interest payments.

Much to the frustration of the RBA, this policy has failed. Why?

When addressing the House of Representatives Economics Committee in August 2019, the governor, Phillip Lowe, made a revealing statement.

He admitted that monetary policy was not working and that this was because Australia's labour supply was expanding faster than the RBA had projected. This, he acknowledged,

meant that that employers have not had to compete harder for workers and thus had not had to increase wages.

Lowe said that the cause of this strong labour supply was an upward movement in labour market participation. He admitted that the RBA had not predicted this. Lowe said that the bank had expected lower interest rates to generate increased consumer spending. This would in turn have led to increased competition for labour which would lift wages. But the higher rate of labour-market participation had undermined this expectation.

Lowe's statement is consistent with our hypothesis about the importance of growth in the supply of labour. However, Lowe had nothing to say about the main source of labour force growth, that is high rates of net overseas migration to Australia (NOM). We think he did not mention this because to do so would have challenged the Coalition government's (and the RBA's) commitment to the 'jobs and growth' strategy.

'Jobs and growth' is a shorthand statement of the Coalition government's economic strategy. It refers to the Coalition's commitment to promoting high levels of job growth and continued economic growth. The strategy in part refers to the Coalition's claims to being a good economic manager, via budget thrift, pro-business taxation and regulatory policy and a willingness to promote continued economic reform.

The strategy also includes a firm policy commitment to maintaining a high level of population growth, mainly deriving from NOM. As we show, this commitment is central to the 'jobs and growth' strategy but not openly stated for public consumption.

The Coalition and its advisors (including Treasury and the RBA) know that while this population policy prevails it will put a floor under Australia's aggregate economic growth performance – in the process helping to sustain the narrative of Australia's 28 years of unbroken economic growth.

To this end the Coalition has put in place migration policy settings which ensure NOM remains around the present level of 250,000 a year over the next two years. The NOM component will deliver population growth of around 1.0 per cent population growth a year, and will remain the main source of Australia's current overall annual population growth of 1.6 per cent.

The recent reduction in the permanent program from 190,000 to 160,000 a year is window dressing. This cut is being more than made up by measures that allow temporary migration to continue to expand. The stock of migrants holding temporary entry visas in Australia has expanded from 1.8 million in June 2015 to 2.2 million in June 2019. Such is the effect of this expansion that Australia's current migration program is best described as a low-skill, rather than a high-skill program.

This policy includes a widening range of subsidies to various industries, including the international education industry and the horticultural industry. It also includes migrant visas which prevent the recipients from working and living in metropolitan areas. In each case temporary migrants are allowed extra time in Australia's labour market in return for enrolling in, working in or locating in these industries or locations. This practice is a de facto subsidy to regional areas.

The structure of this report is as follows. We first examine the implications of population growth for Australia's economic growth performance, starting on the production side of the economy.

By 2017-18 and 2018-19, almost all of Australia's increase in output of goods and services was attributable to extra hours worked. The contribution of labour productivity, defined as advances in output per hour worked was negligible (Table 1).

The chief source of extra hours worked was population growth, mainly deriving from NOM. However the rest reflected recent increases in labour market participation (and thus hours worked) amongst older persons and women (Figure 1).

On the expenditure side of the economy most of Australia's growth in GDP was attributable to extra consumers, plus additional public expenditure and export revenue generated by Australia's commodity industries.

At present, Australia's economy is limping along courtesy of the population component of the 'jobs and growth' strategy.

While Lowe did say that an increased supply of labour had depressed wages he did not refer to recent international experience, especially in the U.S. In that country (unlike Australia) growth in the demand for labour is exceeding that of labour supply. The result, as shown in Table 3, is that wage growth and inflation in the U.S. now exceed that of Australia, and the level of unemployment is well below Australia's.

The RBA simply ignores the obvious labour market consequences of high NOM for labour market competition, especially that flowing from the influx of low-skill migrants on temporary visas. These consequences are evident across a wide range of the industries that rely on such labour.

As Table 2 shows, migrants on temporary visas, including New Zealanders, are concentrated in industries which use low-skill workers. Here they create ferocious competition for domestic workers wanting jobs in these industries. This is why there are almost daily reports of employers paying workers below award rates. There is also strong competition for employment in many major professional labour markets.

While this labour supply abundance persists employer do not have to raise wage rates nor do they need to invest in labour saving equipment. If more output is required they can simply run existing equipment harder and/or take on more workers at existing wage rates.

From this perspective the 'jobs and growth' strategy is part of the problem rather than the solution.

The Australian economy is at a stalemate. With NOM a crucial part of the 'jobs and growth' strategy neither the Coalition nor its advisors can contemplate any reduction in immigration in order to make the labour market more competitive.

The likelihood is that the economy will limp along, deriving most of its growth from extra hours worked and propped up by additional government expenditure, more infrastructure investment and a boost to the housing industry via low interest rates.

All of these measures will deliver low gains in labour productivity. They mean that Australia will continue to move down a low productivity pathway.

There is, however, one remaining option. It is an option on which the Coalition, the Labor opposition and most economic policy advisors are as one. This is the initiation of another bout of neoliberal economic reform. The proponents believe that a further, more determined, foray into this territory will deliver new knowledge intensive, internationally competitive and high productivity industries. Is this likely?

All advanced economies are experiencing a slow-down in labour productivity. But almost all (other than Australia) possess skill hubs which feature such high labour productivity industries.

We argue that a new bout of economic reform will not produce such skill hubs in Australia. This is because Australia has only a tiny base of existing manufacturing industries on which new, knowledge intensive industries could be built and/or which might become branches of multinational supply chains.

This situation reflects deliberate Australian government policy during the resources construction boom era between 2003 and 2012. The policy was to achieve fundamental structural adjustment towards internationally competitive industries, which at the time were almost exclusively commodity based industries.

This was achieved, as the drastic contraction of employment in manufacturing industries shown in Table 4 attests.

One result is the massive and growing deficit in Australia's international trade accounts for knowledge intensive manufactured products (or Elaborately Transformed Manufactures as they are termed by the Department of Foreign Affairs and Trade).

This deficit reached \$184.9 billion in 2017-18 by which time it almost exactly matched by a surplus in the international trade in commodities of \$186.7 billion in the same year.

To overcome this handicap the Australian government would have to embark on targeted industry policy such as has been pursued by governments in Israel, Singapore and Norway. This has not been contemplated, partly for ideological reasons and partly because the free trade agreements Australia has signed (particularly with China) preclude any active industry policy.

The conclusion is that while the 'jobs and growth' strategy prevails Australia will be stuck on a low productivity pathway, dependent for its economic growth on continued increases in population.

The strategy is foolish. All it achieves is the addition of an ever larger, relatively unproductive, domestic burden on to Australia's narrow commodity-based international economy.

Introduction

Australia has a problem. During the Hawke/Keating era the Australian economy was opened up to global competition.

In the several decades since this opening up all seemed to be going well. Australian enterprises did find a niche in the global market place but this was primarily in commodity industries.

Despite this narrow base, the overall economy performed strongly through to 2012. This was mainly attributable to the enormous boost to GDP deriving from mineral and energy project construction after the mining boom began in 2003.

By 2012 this growth had earned Australia the 'miracle economy' tag.

When commodity prices fell precipitously through 2011 and 2012 so did mineral construction investment, with the consequence that GDP growth also slumped.

It was panic stations by the time the Coalition government won the 2013 election. How could the economy be revived?

By 2016 the Coalition thought it had found a way. A combination of RBA decisions to lower interest rates, some revival in commodity prices and the beginnings of a housing boom all served to boost economic activity.

Much to the surprise of many observers, including ourselves, since 2016 there has been a remarkable surge in overall job growth in Australia. Between August 2016 and August 2019 there was a net increase in employment of 954,700. This growth represents a massive near three per cent annual growth in employment, many times the level in the UK and the US.

This job growth was accompanied by a parallel growth in the Australian labour force, fuelled in part by strong Net Overseas Migration (NOM) but also by a sharp increase in labour force participation.

Since 2016, the Coalition government has claimed that this employment achievement is the product of its 'jobs and growth' strategy.

We first find this label being used by Malcolm Turnbull during the 2016 Federal election campaign. He stated that: 'Our economic plan is more growth and jobs, fuelled by innovation, productivity, competition, open markets'.¹

Since 2016, 'jobs and growth' has been the Coalition's economic policy mantra. The current Prime Minister, Scott Morrison, has made it his calling card.

It refers to the Coalition's traditional stance of managing debt, prudent expenditure, lower tax and, as indicated in Turnbull's statement, to its commitment to further economic reform.

But, in addition, though not clearly stated for public consumption, it includes continued high NOM.

'Jobs and growth' seemed to be going well into 2018. The massive job growth through 2018 helped the Coalition win the May 2019 federal election. It served as tangible evidence for its claim to be a superior economic manager.

But some economic indicators were suggesting that the Australian economy was not in good shape. Despite the huge growth in employment, growth in wage levels had fallen to around two per cent per annum by 2017, well behind the level of earlier years.

For the Reserve Bank of Australia (RBA) these outcomes were both puzzling and disturbing. Since 2016 the RBA has been implementing a low interest rate policy, in the expectation that this would lead to higher wage rates and to higher inflation.

This has not happened. Inflation by 2018-19 was well below the RBA's target of 2 to 3 per cent, partly because of the low growth in wages just referred to.

This outcome has prompted further reductions in the official cash rate to 0.75 per cent as of October 2019. It has also presented a serious puzzle. How could wage rates be falling when net job growth has been near 300,000 a year since 2016? .

One other disturbing economic outcome is that labour productivity has declined sharply in the past couple of years. This too is a major focus of this paper. We explore the links between 'jobs and growth', the recent decline in productivity and the likely future impact.

The Productivity crisis

The decline in labour productivity has prompted Coalition government alarm. This concern was given full voice in a speech by the Treasurer, Josh Frydenberg, on 26 August 2019. The speech was entitled *Making our own luck – Australia's productivity challenge*.²

Labor productivity refers to annual growth (or decline) in real output per hour worked. It is sometimes restricted to output in market-based industries. In the Treasurer's speech the reference was to the entire economy, including government provided services, notably health and education.

The Treasurer acknowledged that labour productivity had fallen in the past five years to an average growth of 1.1 per cent a year, from 'our long run average of 1.5 per cent a year'.³ He might have mentioned, but did not, that for 2017-18, according to the Productivity Commission (PC) it grew by just 0.2 percentage points⁴ (Table 1), and according to the ABS, for 2018-19 it fell to minus 0.1 percentage points.⁵

These developments, the Treasurer argued, threatened Australians' economic wellbeing. The reason was that, in the absence of a recovery in labour productivity, employers would have little capacity to increase wage levels. He acknowledged that the productivity slow-down was a major contributor to the recent decline in these wage levels and to the lower rate of growth in GDP.

The Treasurer exhorted businesses to increase their level of investment in capital per worker. He acknowledged that this had collapsed in recent years and was the main reason for the recent drop in labour productivity.

We analyse the outcomes identified by the Treasurer by first describing the sources of Australia's growth in GDP. We ask how much of Australia's growth in production has been due to extra workers and how much of Australia's growth in expenditure has been due to extra consumers.

We then explore the implications of the finding that extra producers and extra consumers are the prime drivers of Australia's economy. This relationship is never openly acknowledged by the Coalition or its economic advisors, including the RBA. Nor is it admitted that it is explicit government policy to sustain NOM at the very high levels needed to achieve these economic growth outcomes.

There are two stories to tell. One concerns the current situation. It focusses on the role of labour supply in explaining Australia's recent poor record in wages and inflation. (The RBA wants inflation to be higher because it is considered to be a marker of a healthy economy – including a greater capacity for debt holders to pay off their debt).

The second concerns the Coalition's commitment to further economic reform. This, as noted, is a clearly stated component of its 'jobs and growth', strategy. The public is being reassured that, whatever the present rocky economic situation, all will be well, if the Government is given the space to initiate a renewed bout of economic reform. Such reform, the Government asserts, will generate a more highly productive economy based on internationally competitive knowledge intensive industries. Our analysis in the second part of this study indicates that this outcome is unlikely.

We begin by exploring the recent record of labour productivity and official explanations of the factors driving this record. If labour productivity is no longer driving Australia's economic growth, what is?

Labour productivity

In the early years following the Hawke/Keating reforms, Australia's labour productivity record was good, especially during the late 1990s and early 2000s. By this time, the PC, the RBA, the Treasury and most economists were confident that their economic reforms had launched Australia on a high labour productivity pathway.

When the Treasury published its *2015 Intergenerational Report*, it forecast that labour productivity would continue to grow strongly over the next 40 years at an average annual rate of 1.5 percentage points, much the same as the rate that had prevailed in the previous 40 years.⁶

It has not turned out this way.

In its May 2019 *Productivity Bulletin*, the PC indicates that the annual growth in labour productivity for the whole economy averaged 1.2 percentage points per year between 2011 and 2017-18. However, it fell to 0.9 percentage points for the years 2015-16 and 2016-17, then to 0.2 percentage points for the year 2017-18.⁷

Table 1. Labour Productivity (whole economy) since 1974-75

	Long-term growth rate	Last complete cycle	Period since the last cycle	Latest years		
	1974-75 to 2017-18	2003-04 to 2011-12	2011-12 to 2017-18	2015-16	2016-17	2017-18
Economy						
Labour productivity	1.7	1.1	1.2	0.9	0.9	0.2

Source: Productivity Commission 2019, *PC Productivity Bulletin*, May.

In late 2016 the PC was asked by the Coalition government to inquire into the reasons for Australia’s low rate of productivity gains since the early 2000s. In the *Discussion Paper* the PC issued as a prelude to its inquiry, it made the following startling admission:

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 consequent generation of national wealth and individual opportunity.⁸

First, let’s clarify the meaning of multi-factor productivity. Economists conceptualise labour productivity gains as coming from two sources: a better educated workforce (who on account of their education use existing capital equipment more efficiently), and gains from extra capital equipment per worker (usually referred to as capital deepening). These gains are distinguished from those that stem from multi-factor productivity.

Multi-factor productivity refers to gains from better corporate organisation of the factors of production, such as the famous Japanese ‘just in time’ efficiencies in managing the transfer of inventories of inputs to production lines.

But the major source of improved multi-factor productivity (according to the Treasury and the PC) is extra output per worker resulting not just from extra capital equipment but from the incorporation of more advanced technology in new plant and equipment. BHP and Rio Tinto’s investment in driverless trucks at their Pilbara iron ore mines is an example.

According to the PC, the major reason for the recent stalling of labour productivity is Australia’s poor record of investment in new plant and technology.⁹

That is why the PC and the Treasury (as reflected in the Treasurer’s August 26 2019 speech) place so much importance on cajoling business into increasing investment in plant and equipment. This is because it is the source of both capital deepening and the incorporation of more advanced technology into the workplace.

There is no doubt that the recent decline in capital investment per worker goes a long way to explaining Australia’s recent poor record in labour productivity.

But why are employers reluctant to invest in new capital per worker? After all, ICT innovation has presented multiple opportunities for productivity gains.

The Treasurer accused businesses of giving greater priority to returning capital to shareholders than to investment in the workplace.

An alternative explanation, argued in this paper, is that Australia's 'jobs and growth' strategy is part of the problem. Why invest in labour saving equipment if there is an ample ever-growing supply of labour?

We elaborate on this hypothesis later after first examining the sources of Australia's recent record of GDP growth. If it's not labour productivity, what is it?

The sources of Australia's real GDP growth

GDP can be measured from two perspectives. One is the output or production side of the economy that we are about to consider. The other is the expenditure side (consumption and investment), explored later. By definition, GDP estimates derived from the output and expenditure sides must be the same.

Analysis of the production side begins with the statisticians' estimates of the total value of all goods and services produced in Australia.

In the Treasury's reporting format, GDP growth (measured from the production side) is the product of the three Ps, that is, population, participation and labour productivity.

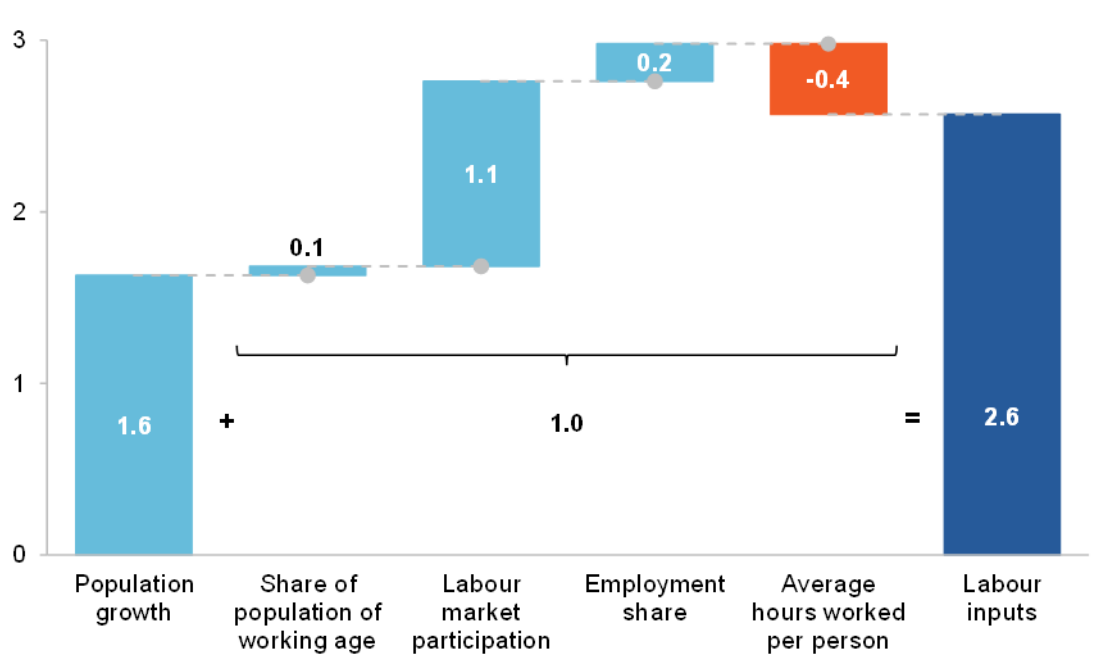
The PC refers to the contribution of the first two Ps (population and participation) as *labour inputs*. If labour inputs are growing strongly then, even if labour productivity is low, GDP will continue to grow. Population refers to the civilian population aged 15 plus. Participation in this context refers to the number of hours, on average, that each member of the civilian population is employed.

The following Chart, drawn from the PCs *2019 Productivity Report* shows the sources of labour inputs for the year 2017-18. They contributed 2.6 percentage points to GDP growth in 2017-18. They dwarfed the contribution made by labour productivity, which was estimated to be just 0.2 percentage points in 2017-18.

The result (according to the PC) was an overall increase in real GDP in 2017-18 of 2.8 percentage points. (The ABS has since revised the growth in real GDP for 2017-18 to 2.9 percentage points).

Figure 1: Contribution to labour input growth, 2017-18

Percentage points



Source: Figure 1 Productivity Commission 2019, PC Productivity Bulletin, May.

Population growth was the main contributor to labour inputs (at 1.6 percentage points).

There were two sources of growth in the civilian population aged 15+. The first and most important was the contribution of NOM. We can't provide a precise estimate of this contribution because the ABS does not publish such estimates. However it is likely to have been about one per cent, given that in 2017-18 NOM comprised around one percentage point of the overall increase in Australia's population of 1.6 per cent. The rest of the 1.6 per cent growth in the civilian population aged 15+ would have come from growth in the resident population aged 15 plus.

The other contributor to 'labour inputs' (the remaining one percentage point) came primarily from increased labour market participation (which includes those employed and unemployed). This has soared in recent years. It had been fairly stable at around the 64.8 per cent level (original figures). It then increased to 65.1 per cent in June 2017, 65.7 per cent in June 2018 and 66.1 per cent June 2019.¹⁰ Most of these participation gains came from women and older persons.

In addition, as the PC's figure indicates, account must be taken of the share of those participating in the workforce who were employed and the hours they worked (since labour input refers to total hours worked). There were small gains in 2017-18 from a drop in the rate of unemployment (of 0.2 percentage points). These gains were offset somewhat by a fall during 2017-18 in the number of hours worked per person employed, of 0.4 percentage points.

The bottom line is that labour inputs were the dominant source of GDP growth in 2017-18, since labour productivity only increased by 0.2 percentage points in that year.

This startling conclusion is rarely acknowledged by Australia's economic policy advisors or by Coalition government leaders. After all, Australia is supposed to be a 'miracle economy' – a product of good economic management. This is hardly consistent with an economy dependent on growth in hours worked.

Who knows and who cares?

Some international observers, including recently, a branch of the US Federal Reserve Bank, have unkindly drawn attention to the situation. Perhaps the branch was fed up with Australian government posturing about 28 years of continuous economic growth.¹¹

However, there is a growing awareness amongst economic commentators of the importance of hours worked in driving Australian real GDP growth. Alan Kohler is prominent among these.

Here are some typical remarks (from June 2019). He asserts that currently, real GDP growth of around two per cent is equivalent to population growth. His concern is that 'debt and immigration have been used to create the illusion of growth and prosperity, in turn because that's easier than growing productivity'.¹² He goes overboard in an October 15 statement that population growth in Australia 'is entirely responsible for the measly growth we've got.'¹³

In reality, population growth is an important contributor. But so too is the share of the civilian population actually working.

What about the Australian government? How conscious is the Coalition government and the Treasury of the importance of labour inputs (particularly NOM) to real GDP? Is growth in NOM an integral part of its 'jobs and growth' strategy agenda?

Before exploring this question we need to examine the other side of the composition of GDP, that is, the consumption and investment expenditure side

The expenditure side of real GDP growth

Not many observers understand the technicalities of assessing the role of labour productivity and labour input in determining the production side of GDP accounting.

They do understand, very clearly, the contribution that population growth makes to the expenditure side of the economy.

The national accounts make this link crystal clear. The latest, for the year 2018-19 show that growth in real household consumption fell to 1.9 per cent. Most of this was attributable to extra consumers.¹⁴

The strongest growth on the expenditure side came from government consumption expenditure and from foreigners. As to the latter, their impetus came from purchases of minerals, whose value increased because of a temporary surge in the price of iron ore during the June Quarter 2019.

From this perspective, the importance of population for growth in GDP is obvious. More consumers (other things being equal) means more consumption expenditure and more investment (in the long term) to provide for their housing and the city building needed to cope with their extra numbers.

Most of Sydney and Melbourne's current population growth of over 100,000 a year is attributable to NOM.

We have documented the contribution of NOM to the growth of household numbers via household projections for Sydney and Melbourne. Using demographic assumptions (for NOM and for birth and death rates) close to those currently prevailing, we found that 64 per cent of household growth in Sydney over the decade to 2022 will be due to NOM and 54 per cent in Melbourne.¹⁵

The housing and property industries and their spokespersons are well aware of this link and never tire of advocating high NOM policies or of expressing alarm at any hint of cuts.

A similar attitude is deeply embedded in the thinking of the Government's advisors, not just within the Treasury, but also within the RBA.

The senior ranks of the RBA, including the Governor Phillip Lowe, are all strong advocates for high NOM. The Bank is vitally interested in keeping GDP growth going.

Phillip Lowe has reminded audiences over the years of how important population growth is in driving consumption and investment expenditure in Australia.

Here is the latest, delivered on Sept 24, 2019. At this time he indicated that interest rates may have to be cut again, because tax cuts and previous interest rates cuts were still not arresting the economy's slide. This was, he said, notwithstanding the dynamism that Australia's high rate of population growth brings to the economy which, he declared, is 'a dynamism that is not easily matched in countries with declining populations.'¹⁶

This is a view that is music to the ears of Australia's peak business association, the Business Council of Australia. Its chief economist, Adam Boyton, like Lowe, thinks that continued high population growth may help in avoiding the trap of zero or negative interest rates such as occurred in Japan. He asserts that Australia's skilled migration adds to gross domestic product growth per person, aids in the adoption of new technology and makes Australia more productive.¹⁷

It would appear to follow that, for the Coalition government and its economic policy advisors, population growth is an important part of their economic policy strategy. NOM seems to be especially important (not just because it is currently the major contributor to the population component of GDP growth) but also because, by adjusting the immigration policy levers, it can be moved up or down. By contrast, resident population growth cannot (except in the very long term as with birth incentives).

But is this acknowledged by the Coalition government and is NOM deliberately managed to serve this function?

Is high NOM an integral part of the jobs and growth agenda?

As indicated, the Coalition government prefers not to broadcast the degree to which Australia's economic growth depends on labour inputs and particularly on NOM.

Nevertheless reliance on NOM is imprinted deeply into the Coalition's economic planning. Its annual budget incorporates population (and NOM) estimates into its forecasts for real GDP growth and taxation revenue. The latter is predicated (among other things) on forecasts of the number of taxpayers and revenue from visa fees.

The importance of this contribution was openly stated in the Coalition's March 2019 Population Plan. The Plan states that migrants contribute more to Government revenue than to expenditure costs. (This is not surprising given that these costs don't include State government expenditure on providing health and other services for migrants.) The Plan states that: 'The 2017-18 permanent migrant intake is estimated to improve the Commonwealth budget by \$4.2 billion across the migrants' lifetimes'.¹⁸

The Prime Minister, Scott Morrison (when serving as Treasurer) publicly voiced his opposition to any cut to the migration program on these revenue grounds. He also argued against proposals from his Cabinet colleagues for migration cuts during the Turnbull era.¹⁹

The Treasury, of course, is fully aware of the importance of sustaining high NOM if its GDP forecasts are to be attained. In the latest 2019-20 budget it projected that NOM would increase from 259,600 in 2018 to 271,000 in 2019 and by a similar amount in 2020.²⁰

You may wonder about these observations, given that since Malcolm Turnbull lost his job as Prime Minister to Scott Morrison, the Coalition government has reduced the permanent entry migration program from 190,000 in 2017-18 to 160,000 for 2019-20.

This drop reflects Morrison's need to appease the concerns of Peter Dutton and his supporters, who made a cut in immigration one of the grounds for Dutton's challenge to Turnbull.

But this concession does not indicate any reduced commitment to maintaining population growth as a major driver of the government's 'jobs and growth' strategy.

The reduction in the permanent entry program is just window dressing. Most of the growth in NOM is attributable to an increasing number of temporary entry arrivals. The stock of these temporaries in Australia increased from 1,764,982 in June 2015 to 2,181,440 in June 2019. Much of this was attributable to overseas students, the stock of whom grew from 374,554 in June 2015 to 553,139 in June 2019.²¹

Overseas students have constituted the largest source of growth of NOM in Australia. They comprised 44 per cent of NOM in 2017-18.²² Migrants on temporary visas now dominate the migrant flow entering the Australian labour market. As a consequence Australia's migration program is now primarily low skilled, rather than high skilled.

This outcome is partly a consequence of the Coalition government's permissive policies on the rules allowing temporary-entry migrants to stay on in Australia. It is, for example, allowing

them to circulate around in Australia, moving from one temporary visa to another. For example, these include permission for former overseas students to stay on as visitors.

These measures (and others described shortly) are not framed as contributions to NOM and to the attainment of the 'Jobs and Growth' agenda. But there is no doubt that they contribute to this outcome (by contributing to the huge and increasing stock of temporary migrants in Australia).

Industry subsidy in return for access to the Australian labour market

In some cases, the measures reflect a deliberate policy to promote certain industries, by using the bait of additional access to the Australian labour market as an attraction to their recruitment of temporary migrants.

They have been, in effect, willing to subsidise industries which benefit from this influx. The subsidy consists of enhancing the scale or profits of the industries in question. It is, however, granted at the expense of those residents who endure the poorer wages and conditions resulting from job competition from the migrants who gain this labour market access. Here are some examples.

The overseas student industry

As we have documented elsewhere, since the early 2010s prospective higher education overseas students have been allowed to take up a higher education visa with minimal checks on whether they have the funds to provide for their living expenses in Australia. As far as those recruited from the relatively low income countries of the Indian subcontinent are concerned, this virtually guarantees that they will look for job opportunities as soon as they begin their studies.

In addition, since November 2011 a new privilege has been granted to all overseas students who complete any higher education degree. They are now allowed to stay on in Australia (on a 485 visa) for at least another two years with full work rights.²³

The number of 485 visas issued annually increased from 22,895 in 2014-15 to 63,994 in 2018-19. By June 2019 there were 91,776 holders of 485 visa holders in Australia, up from 37,717 in June 2016.²⁴

These concessions appear to be the main driver of the recent rapid increases in higher education enrolments from the Indian sub-continent. They are the main source of the overall recent growth in overseas student enrolments.

This outcome amounts to a subsidy to the international education industry, the costs of which are borne by the domestic workers who have to compete with these students or ex-students in the labour market.

The horticultural industry

The Coalition government has opened up other temporary entry programs as well, including the Working Holiday Maker (WHM) program. It has expanded the number of countries eligible for this program and the annual quotas available for applicants from some countries. It has

particularly favoured the horticultural industry. Most recently, it has allowed WHM's prepared to work in agriculture to stay on in Australia for an extra year (with full work rights).

This measure is helping to prop up agricultural interests (mainly horticulture) by providing a tied labour force that, in return for extra access to the Australian labour market, will accept the pay and conditions the industry offers. These are below the level most resident workers are willing to accept. Again this amounts to a subsidy to the industry, the costs of which will be borne by the domestic workers who compete with these extra WHMs when they take up their extra year in the Australian labour market.

Regional urban centres

Some regional urban centres (like Adelaide) want more people because their rate of population (and economic) growth is falling behind that of the eastern metropolises. This is a consequence of a net outflow of existing residents to the east and a limited inflow of overseas migrants.

The Coalition government has responded to the regional plea by (starting in November 2019) devoting a sharply increased share of the permanent skilled program to regional visas which prevent those receiving them from living and working in Sydney, Melbourne and Brisbane. These visas require several years living and working in regional areas on a provisional visa which may allow the recipient to apply for a permanent entry visa at the end of this period.

Again, this amounts to a subsidy to the regional areas in question. They gain the benefits (of demand for housing and the like). The migrants are in effect propping up regional areas where (from the point of view of residents) the attractions are regarded as less than those offered in other Australian locations.

There seems to be no end to the current Coalition government's willingness to use this strategy. In late October 2019 the Coalition announced that it will allow higher education overseas students who complete their studies in regional areas (all places other than Sydney, Melbourne and Brisbane) to stay on via a 485 visa for three years rather than two.²⁵ This constitutes a remarkable subsidy to the regionally located higher education industry. It will attract overseas students whose main priority is time spent in the Australian labour market to enrol in these regional universities.

Implications of high temporary migration for the Australian labour market

We and others have long argued that temporary migrants have worsened the wages and conditions resident workers face when working in low and semi-skilled industries (if indeed they can find such work).²⁶

Domestic workers face ferocious competition from temporary migrants who often have no choice but to accept whatever jobs they can find on whatever terms and conditions employers are prepared to offer. You might think, in the case of overseas students who have completed courses here, that they will be able to gain professional employment relevant to their studies. However this is not often the case. There are limited opportunities for such

work for former students on a temporary visa and who do not have work experience in their field of study. As a result they mostly end up competing for low skill jobs.

We make the above assertions with some confidence because, for the first time, the ABS has made information on the occupations held by migrants in Australia on temporary visas accessible. This can be accessed from the unpublished micro data compiled by the ABS from the 2016 census. This joins census return data with migration data on the visa status of persons in Australia at the time of the 2016 census. The ABS claims that it has this information on the great majority of the temporary migrants in Australia at the time.

The following Table lists the main occupations of temporary migrants in Australia at the time of the 2016 Census. All of these occupations, for each visa category are in unskilled or semi-skilled jobs. This includes the New Zealanders in Australia on the temporary visa available to all New Zealand citizens. This allows all of these citizens to travel to and stay and work in Australia indefinitely should they choose to do so, but only allows limited access to a permanent residence visa.

Table 2 shows that at the time of Census in 2016 these temporary migrants constituted a significant share of all those employed in the occupations listed. For example, this amounted to 19 per cent of all those employed as cleaners and laundry workers and 18 per cent of hospitality workers.

Table 2: Main occupations of temporary migrants

Occupation	Bridging visa	Special Category (New Zealand citizen)	Temporary Work (Skilled)	Working Holiday Maker	Student	Other Temporary visa	Total Temporary visa holders	Total in occupation 2016	% of jobs in occupation held by temporary migrants
Cleaners and Laundry Workers	3,859	11,058	2,147	3,293	26,351	2,186	48,898	253,082	19.3%
Hospitality Workers	2,441	8,226	1,899	8,558	22,430	1,796	45,343	247,971	18.3%
Sales Assistants and Salespersons	2,578	17,820	2,074	2,193	16,195	2,869	43,715	667,682	6.5%
Food Trades Workers	2,970	6,490	10,246	2,892	13,089	1,309	36,999	163,448	22.6%
Food Preparation Assistants	1,479	4,445	1,013	2,900	16,081	998	26,922	150,150	17.9%
Personal Carers and Assistants	1,653	8,928	1,494	361	9,359	1,470	23,269	244,767	9.5%
Construction and Mining Labourers	1,058	13,415	589	1,587	1,837	173	18,652	136,555	13.7%
Storepersons	593	12,182	243	521	2,027	524	16,082	108,209	14.9%
Packers and Product Assemblers	1,167	4,925	758	4,537	2,682	456	14,514	73,984	19.6%
Truck Drivers	540	10,616	351	230	1,216	201	13,158	148,566	8.9%
Business & Systems Analysts, & Programmers	316	2,871	7,611	220	923	1,177	13,117	113,531	11.6%
Farm, Forestry and Garden Workers	873	3,388	567	6,439	1,129	364	12,767	93,308	13.7%
Construction, Distribution and Production Managers	568	8,234	2,753	236	528	275	12,582	220,011	5.7%
Mobile Plant Operators	407	10,863	216	275	415	162	12,339	105,783	11.7%
All other occupations	9,113	69,757	25,805	8,386	22,631	8,805	144,482	—	—
Not applicable	61,379	259,113	53,481	21,140	271,857	24,265	691,236	—	—
Total	90,991	452,331	111,247	63,766	408,750	47,029	1,174,073	—	—

Source: ABS Australian Census and Temporary Entrants 2016 Database – ABS TableBuilder.

Note: Not applicable includes those unemployed or not in the workforce

As noted, since 2016, the number of temporary visa holders has escalated (though not the New Zealanders because of improvements in the New Zealand labour market). So have the competitive pressures on the job markets affected.

This is obvious in the case of the lower skilled labour markets where temporary migrants have to seek employment. In recent years there have been almost daily revelations of wage underpayments in these occupations.

However, the labour market is also slack for most professional workers. There are hardly any professional occupations where there is a national supply shortage. This is less the case for professionals with job ready skills and experience. But for some recent domestic graduates and most recently arrived professional migrants, jobs are scarce. Only a minority from non-English-speaking-countries find professional or managerial level work in the first few years after arrival in Australia.²⁷

The state we are in

By 2018-19 the 'jobs and growth' strategy appeared to have run out of steam. Real GDP had shrunk to levels not seen since the GFC. Year-on-year real GDP grew by just 1.9 per cent in 2018-19. All of this growth was attributable to labour inputs, since labour productivity for 2018-19 was estimated by the ABS for the whole economy to have fallen by 0.1 percentage points. The rate of growth of household consumption continued to decline. It rose by just 1.9 per cent in 2018-19, the lowest annual growth rate since 2012-13.²⁸ As we have seen, almost all of this consumption contribution to real GDP growth derives from growth in the number of consumers.

This has left the Coalition government and its advisors with a serious problem. The heavy work over the last few years has been left to the RBA. It has taken up the challenge via its aggressive reductions in official interest rates.

This action has not worked, leaving the RBA with an embarrassing puzzle as to why it has not worked.

The Reserve Bank admits its mistake

You will find a clear statement of the theory behind the RBA's interest rate strategy in its leader's presentation to the House of Representatives Standing Committee on Economics, on 9 August 2019.²⁹

Monetary policy works, according to Philip Lowe, by firstly helping to hold down the exchange rate, thus giving Australian producers a better chance of coping with foreign competition. It also gives a direct boost to consumption because it means Australian debt holders don't have to pay as much in interest payments as before. This amount, according to the RBA, greatly exceeds the contraction in interest rate payments to Australian bondholders and depositors flowing from the RBA's interest rate cuts.³⁰

The RBA has been expecting that the subsequent increase in consumption would prompt a boost in wages as employers had to take on additional workers to meet the extra demand.

Following questioning from members of the House Committee, the RBA admitted that, despite these favourable circumstances, its monetary policy had not worked, because: 'that increased demand for labour has been met with more labour supply'.

The labour supply turned out to be much more 'flexible' than the RBA had anticipated. While Lowe says this is good news, 'it's proving harder to generate a tighter labour market and so, in turn, it's been hard to generate a material lift in aggregate wages growth'.³¹

Later in his testimony Lowe says with surprising frankness that: 'A lot more people have joined the labour force. We did not predict that'.³²

Where has this surge in labour supply come from? Lowe only mentions the recent increase in labour market participation of older persons and women. There is no reference at all to the role of NOM in enlarging Australia's workforce.

Since this testimony the RBA has routinely repeated this admission that wages growth can't occur unless there is a tighter labour market.

What about the prospective stimulus to business investment that is implied by declining interest rates? The RBA is less forthcoming on this issue. But it seems unlikely that employers will invest in labour saving equipment when they have access to an ample labour supply to choose from. It makes sense in this context to run existing plant and equipment a bit harder or longer, or to employ extra labour.

Outcomes in the U.S and Australia compared

Should the RBA have glanced across the Pacific it would have seen another example of the importance of labour supply in shaping economic outcomes. Such a glance would have revealed that, in the U.S., a recent surge in employment growth has produced the opposite result to that in Australia.

As Table 3 indicates, in the US this surge has been accompanied by a reduction in unemployment, to levels well below that in Australia and an increase in wage rates and inflation. In the business sector, real hourly compensation increased by 1.3 per cent in 2017 and 0.8 per cent in 2019.³³

This upward movement in real hourly wages is of enormous significance in the U.S. It follows years of low wage growth where the worker share of revenue has been falling relative to the employer share.³⁴

What's different between the U.S. and Australian experiences? One difference, shown in Table 3, is that whereas in Australia the surge in job growth has been approximately matched by labour supply, the recent surge in the U.S. has seen job growth expand at a much faster rate than labour supply.

Why has labour force growth lagged in the United States, by comparison with Australia? It is partly because labour force participation seems to have peaked in the U.S. It grew by just 0.1 percentage points in 2017-18 and partly because the contribution of population growth to labour inputs is far lower than is the case for Australia (Table 3). The civilian population aged 15+ grew by 1.6 percentage points in Australia in 2017-18 compared with 1.0 percentage points in the U.S.

The difference in the rate of population growth is largely due to NOM, which in Australia is growing at an annual rate of 0.9 per cent compared with 0.3 per cent in the U.S.

Table 3 Comparison of US and Australia June 2017 and June 2018

	Civilian population growth (age 15+) June 2017-June 2018 (%)	Labour force growth (%)	Labour force participation change	Employment growth (%)	Unemployment rate (%)
U.S.	1.01	1.1	+0.1%	1.5	4.0
Australia	1.65	2.6	+0.4%	2.8	5.4

Sources: Australia: ABS The Labour Force 6202.0 US: Bureau of Labour Statistics Sept 5 2019

We don't want to make too much of this comparison, given that there are many other factors affecting it.

Nevertheless, it does highlight the minimal attention paid in Australia to the importance of labour supply in shaping Australia's current soggy economic conditions.

Why has the Reserve Bank ignored this comparative evidence? It seems likely that to even contemplate the lessons from the U.S. experience would be to imply that the 'jobs and growth' strategy is part of the problem rather than part of the solution.

To be fair, the RBA is not alone in this shortcoming. The same is true of the Treasury and most market economists.

The October statement of the new head of the Treasury, Dr Steven Kennedy, to Senate Estimates on 23 October 2019, illustrates the point.³⁵ He tells the politicians that the good news is that employment is strong, increasing by 300,000 over the past year. However, Kennedy admits that there is a problem. This is that despite 'strong growth in employment outcomes [they are] partly offset by weak wage and non-wage income growth'.³⁶

Like the RBA he acknowledges that this is because 'near-record rates of people are being drawn into employment and the labour force.'³⁷ He specifically refers to those in older age cohorts and women returning to the labour market after having children. There is no mention of the migrant contribution or that a cut in migration might be advisable. Nor is there any reference in his statement to the recent U.S. experience.

Why won't Coalition government advisors acknowledge the role of NOM?

Any such reference seems to be unthinkable given what it would imply should the Australian government contemplate reducing labour force growth (following the United States experience). This is despite the likelihood that it would force employers to compete for workers, in the process prompting higher wages and more attention to labour saving or productivity boosting investment.

These outcomes would require reducing permanent migration. They would also require a reduction in temporary migration and, in particular, a reduction in the opportunities for temporary migrants (such as students) to enter the Australian workforce.

For starters it would mean reform of the overseas student industry to ensure that what education providers were offering was a valuable learning experience and qualification, not access to the Australian labour market. It would require horticulturalists to improve pay and conditions rather than rely on WHMs and other temporaries.

A significant reduction in NOM to, say, the US level of around 0.3 per cent of the existing population per annum, would deprive the big end of town and especially the property market of an assured source of growth in consumer demand.

Policy changes along these lines would soon induce labour shortages, which would in turn prompt greater competition for labour and deliver the RBA's so far unrealised goals of increasing real wages and inflation.

Perhaps the tide is turning. The RBA is at least quite open about the connection between high labour force growth and low wage increases. Though not the role of immigration in this process.

One recent convert not only acknowledges the role of strong labour force growth in dampening wages growth but also the role of immigration in this growth. This is Alan Kohler. In his latest statement criticising the RBA's exclusive focus on monetary policy Kohler makes the following point:

There is another aspect of federal government policy that is weighing on the economy: immigration. Thanks to robust population growth, GDP is growing at the same time as there is flat to negative per capita income and output. The extra population is a factor in reducing wages growth, which in turn weighs on spending and inflation.³⁸

The reference to immigration is highly unusual. Kohler does not go on to recommend a cut to immigration, though it is implied. Perhaps he was thinking that if this occurred Australia's meagre two per cent growth in GDP would be threatened.

None of the commentators make any link between 'jobs and growth' and Australia's recent drastic fall in labour productivity.

But the probable outcome is that should the 'jobs and growth' strategy be sustained, we face a future of low labour productivity growth.

This scenario is never contemplated, because of the widespread belief amongst 'jobs and growth' advocates that Australia has the potential for a high productivity future. All that is needed is another bout of economic reform.

We return to a closer analysis of the labour productivity outlook later in this paper after examining the prospects of such a reform agenda.

The 'way out': further economic reform

The Coalition government along with its economic advisors and most market economists asserts that another bout of economic reform will recharge the economy. This will include lower business taxes, a more competitive labour market and more encouragement to exporters via new Free Trade Agreements.

The Labor Opposition is even more bound to this reform vision and gagged by it, as are Australia's centre/left knowledge elites. The Labor Opposition is the proud heir to the Hawke/Keating legacy of neoliberal economic reform. This legacy has iconic status within Labor's leadership ranks.

As for the knowledge elites, they also believe that Australia's way forward must be via becoming a more internationally competitive knowledge intensive economy.

Furthermore, for those on the centre/left it is simply untenable to even ask the question whether high migration might be part of the current economic problem. This is because high migration is intertwined with their commitment to cultural diversity, internationalism and open borders.

Labor and Australia's knowledge elites are as one with the Coalition government in arguing for more assistance to R & D, innovation and associated skills training. Where they differ from the Coalition is that they think such initiatives should be accompanied by more social reform.

For those interested in a comprehensive statement of this perspective, a good start is the 2018 monograph by Stephen Bell and Michael Keating entitled *Fair Share, Competing Claims and Australia's Economic Future*.³⁹ This is an impressive analysis. It harks back to the strand of reform Paul Keating is best known for. This is the combination of social reform (the extension of Medicare, compulsory superannuation and the like) and the neoliberal reforms opening the economy to more competitive pressures implemented in the late 1980s and early 1990s. Bell and Michael Keating have nothing to say about Australia's increased reliance on population growth for its growth in GDP.

Bell and Keating advocate social reform aimed at diminishing economic inequality and increasing the labour share of value added. They argue that if such reforms are accompanied by a continuing commitment to an open economy, along with greater investment in higher education and R&D, the result will be a flourishing of knowledge intensive industries.

They think, as do other prominent think tanks, including the CSIRO, that if these reforms are implemented Australian based enterprises will prosper, especially by finding niches as part of multinational enterprise supply chains.

According to the CSIRO links with supply chains of this kind are crucial to the adoption of new technology. However, ominously, the CSIRO has to admit that Australia currently ranks 'lowest in global value chains participation of any developed nation.'⁴⁰

Notwithstanding government, opposition and think tank support for continuing commitment to an open economy, together with greater investment in education and R & D, it is not likely to work under current settings. Here's why.

The prospects for knowledge intensive industries in Australia

Australia does not have the foundation for successful internationally competitive knowledge intensive industries in place. Few multinationals will seriously contemplate establishing a base in Australia, or building on an existing enterprise in order to incorporate it into their international supply chain.

This is because, in the case of manufacturing, most of the enterprises existing in the 1980s, when Hawke and Keating initiated their reforms, have since been wiped out. As for ICT software and hardware industries, Australian based enterprises barely even got started.

The knowledge intensive industry record

Employment in manufacturing held up until the start of the mineral construction boom in 2003. It was a legacy of the decades of support for manufacturing since WW2, when high tariffs and local content quotas encouraged both local manufacturers and international enterprises to set up an Australian production base. This support included targeted industry policy, directed at ensuring Australian enterprises could avail themselves of the latest technology. The various industry plans initiated while Senator Button held the industry portfolio in the Hawke/Keating governments are the best known examples.

Much of the manufacturing base by the 1980s was small scale, low technology (as with clothing and footwear) and was inefficient by global standards. But it also included knowledge intensive industries in the telecommunications, pharmaceutical and motor vehicle industries, among others.

Overseas companies brought the latest technology to Australia when they set up here. They had to, because they were not allowed to sell into the Australian market unless they established a production base here. They had to bring the latest technology because they normally had to compete against other multinationals attracted to the Australian market.

During the 1990s and early 2000s, most of these legacy manufacturers survived, despite lower protective tariffs, partly because of the low Australian dollar. Manufacturing exports actually expanded during this era. In some cases, including the motor vehicle design and assembly industries, exports did not peak until the early 2000s.

Australian economic policy and the demise of manufacturing

All this came to an end during the resources construction boom starting in 2003. Australian manufacturers had to cope with a sharp rise in the value of the Australian dollar flowing from the flood of foreign capital brought in to finance the boom. They also had to deal with the rising costs of labour and materials at this time because of competition from international resource companies intent on building their mines in time to capture revenue from the concurrent boom in commodity prices.

Employment in manufacturing (detailed shortly) fell sharply during this period. This decline was exactly what Treasury, the RBA and other economic advisors hoped to see happen (even if they did not acknowledge this preference in the public arena). From their perspective Australia had been presented with a huge potential prize – an opportunity to supply a massive

new China-based market for iron ore and metallurgical coal (amongst other natural resources).

The boom provided an opportunity to achieve what the Hawke/Keating reformers had wanted, that is, for Australia to find a competitive niche in global markets. One, that is, that reflected Australia's comparative advantage (free from tariff or other protective support).

In order to ensure the opportunity was not missed, the advice from Treasury, the PC and most economists, was to facilitate the 'structural adjustment' of the Australian economy. The PC played a crucial role. Its recommendations to government invariably rejected any appeals from Australian manufacturers for support against international competition. It advised that any loss of employment would be compensated by expansion in industries that could compete in the international marketplace. The PC never specified what these new industries might be.

It was advice that was embraced by the Coalition government during the 2000s and by Labor after it won office in 2007.

The highest priority was given to ensuring that the resources boom proceed without being imperilled by any surge in the costs of labour, capital and materials. The concern was that any such surge could compromise Australia's opportunity to capitalise on its newfound comparative advantage.

The permanent head of Treasury (Ken Henry) declared in 2006 that this adjustment must be 'characterised by a sizeable shift in resources from import competing manufacturing to resources and to the sectors of economy complementary with China's development needs'.⁴¹

This was the position of the senior levels of Treasury and all top RBA officials. They made no attempt to slow the rise of the Australian dollar, because they saw this as helping to promote the desired change.

To this end they welcomed high levels of foreign investment in the mineral industry and high dependence on imports of the required plant and equipment during the construction phase. Though the financing mainly came from overseas, it required the purchase of Australian dollars and thus contributed to the rise in the Australian dollar.

All calls from interests representing Australian producers of products (like the fabricated steel needed in construction) were rejected. So were appeals to apply local content provisions, in order to ensure that Australian enterprises got a share of the market for the inputs required during the construction phase. The outcome is best represented by what happened with the huge liquid petroleum gas plants built in the last couple of decades. The design and manufacture of components of these plants was mostly completed offshore, then transported and assembled in Australia.

The contrast with Norway will help make the point. When the Norwegians developed their offshore oil and gas reserves during the 1980s and 1990s, the Norwegian government stipulated that Norwegian enterprises had to be involved as a condition for allowing the foreign oil giants to participate. The government stipulated that Statoil (the wholly owned

Norwegian oil and gas firm) be involved in joint projects. Once Statoil gained the necessary skills and experience, it took over most of the further development of Norway's oil and gas reserves.

One result is that most of the profits from these reserves now flow to the Norwegian government treasury. Another is that Statoil has become an international giant with specialist skills in deep sea oil discovery and development.

Looking back at the end of his long tenure as Governor of the RBA, Glen Stevens stated in August 2016 that the Bank can draw much satisfaction from managing the massive transition represented by the mineral investment boom. He says 'we've had a massive event that's made us as a country richer.... Unless you're an uber-pessimist about prices in the long run, I'd argue we're better for having done the investment, particularly since foreigners helped fund it.' Also, he adds, we managed this event without the invariable consequences in the past, that is, a very disruptive 'period of very high inflation and overheating followed by quite a deep downturn.'⁴²

Australia's economic policy makers have continued to pursue this international comparative advantage strategy. Both Labor and, since 2013, the Coalition, have pursued free trade deals designed to provide greater export access for Australia's mineral and agricultural products. In return, these governments have been willing to negotiate away the remaining tariff barriers to the import of manufactured goods to Australia. The China Free Trade Agreement signed by the Abbott Coalition government in 2015 does not just remove these barriers. In addition, it precludes the Australian government from any industry policy that privileges Australian enterprises. In the agreement with China, any such industry policy must also offer the same incentives to Chinese enterprises.

The consequences for knowledge intensive industries

Employment in manufacturing in Australia fell by 54,846 over the years 2006 to 2011 and by a massive 252,511 over the years 2011 to 2016.

Table 4 Change in manufacturing jobs by industry, 2006 to 2011 and 2011 to 2016

Industry of Employment	Count employed in 2006	Count employed in 2011	Count employed in 2016	Change in employment by manufacturing sector 2006-2011	Change in employment by manufacturing sector 2011-2016	Change in employment by manufacturing sector 2006=2016
Manufacturing, nfd	88,616	91,818	53,749	3,202	-38,069	-34,867
Motor Vehicle and Motor Vehicle Part Manufacturing	73,275	54,294	39,981	-18,980	-14,314	-33,294
Polymer Product Manufacturing	50,834	39,886	29,740	-10,948	-10,147	-21,095
Basic Ferrous Metal Manufacturing	39,439	41,140	23,274	1,701	-17,866	-16,165
Furniture Manufacturing	39,987	31,124	26,024	-8,863	-5,099	-13,962
Other Wood Product Manufacturing	35,455	34,604	22,800	-851	-11,804	-12,655
Clothing and Footwear Manufacturing	23,769	18,254	11,844	-5,516	-6,409	-11,925
Other Fabricated Metal Product Manufacturing	24,179	20,557	13,466	-3,622	-7,090	-10,712
Structural Metal Product Manufacturing	31,575	30,713	21,723	-862	-8,990	-9,852
Printing and Printing Support Services	42,074	34,025	32,271	-8,049	-1,754	-9,803
Electrical Equipment Manufacturing	20,201	18,804	10,445	-1,397	-8,359	-9,756
Specialised Machinery and Equipment Manufacturing	21,057	24,899	11,893	3,842	-13,006	-9,165
Computer and Electronic Equipment Manufacturing	18,077	15,858	9,580	-2,219	-6,279	-8,497
Textile Product Manufacturing	16,920	13,948	8,932	-2,971	-5,017	-7,988
Basic Ferrous Metal Product Manufacturing	10,746	9,570	3,304	-1,177	-6,266	-7,443
Converted Paper Product Manufacturing	18,106	15,624	10,777	-2,483	-4,847	-7,329
Other Transport Equipment Manufacturing	32,222	29,832	25,509	-2,390	-4,323	-6,713
Basic Non-Ferrous Metal Product Manufacturing	12,160	7,729	6,135	-4,431	-1,594	-6,025
Cement, Lime, Plaster and Concrete Product Manufacturing	19,032	18,610	13,009	-423	-5,601	-6,024
Log Sawmilling and Timber Dressing	14,237	10,403	8,630	-3,834	-1,774	-5,607
Machinery and Equipment Manufacturing, nfd	9,988	10,201	4,711	212	-5,490	-5,278
Fruit and Vegetable Processing	13,849	12,325	8,742	-1,524	-3,583	-5,107
All other manufacturing	381,467	398,201	333,370	16,734	-64,831	-48,097
Total	1,037,264	982,418	729,906	-54,846	-252,511	-307,358

Source: ABS Longitudinal Census database 2006-2011-2016 via ABS TableBuilder

In addition to job losses in the manufacture of motor vehicles and motor vehicle parts (14,314 jobs lost from 2011-2016) there were losses in other advanced manufacturing over the same period. These include electrical equipment manufacturing (down 8,359), specialised machinery and equipment manufacturing (down 13,006) and computer and electronic equipment manufacturing (down 6,279).

There have been further falls since, such that by 2019 manufacturing employed just 7 per cent of Australian workers. This level is way below the share in other advanced economies.⁴³

One result is that there has been only a tiny increase in investment in machinery and equipment in non-mining businesses in Australia over the years 2009-10 to 2016-17. This is a huge drop by comparison with the financial years 1999-00 to 2008-09, when such investment increased on average by nearly 10 per cent a year.⁴⁴ Bell and Keating note a similar drastic decline in ICT investment in manufacturing industries over the same years.⁴⁵

The main reason for this outcome is that the manufacturing base in Australia has been so eroded that there is little left that might provide the foundation for further investment in advanced technology.

Once there has been a fire-sale of capital assets with businesses shedding labour and equipment to try and stay solvent, it is very difficult for these businesses to expand even if subsequent depreciation of Australia's currency makes them more price competitive. A key reason for this is that the equipment that was used prior to being scrapped was most likely depreciated, giving a lower hurdle to make an adequate return on the capital invested. However, where capital expenditure to essentially 'start from scratch' again, it requires a much higher return rate hurdle to meet, making it very difficult for capital intensive industries that have been decimated to ever rise again.

Nor is there a base which might serve as a foundation for the knowledge elites' hopes that Australian enterprises could link into multinational enterprises' supply chains.

Australia's record with advanced services, particularly with those stemming from the digital revolution, is much the same as with advanced manufacturing. Australia has been a non-starter in the ICT software and hardware industries and in the creation of new enterprises based on the global IT platforms now available.

Australia's trade record in knowledge intensive industries

Australia's de-industrialisation has resulted in a growing deficit on trade in knowledge intensive goods and services.

Australia is a net importer of such services, including ICT related services.

More significantly, it is a massive importer of advanced manufactured products. The Department of Foreign Affairs and Trade provides an annual rough proxy for trade in such products through its identification of trade in Elaborately Transformed Manufactures (ETMs). These include all manufactured products except lightly processed mineral and agricultural commodities.⁴⁶

Since 2014-15 Australia's exports of ETMs have hardly moved, from \$29.2 billion to just \$31.2 billion in 2017-18.

Over the same three-year period Australia's imports of ETMs have jumped from \$176.8 billion in 2014-15 to \$216.1 billion in 2017-18. The deficit in ETM trade has risen in just three years from \$147 billion to \$184.9 billion. The latter is an enormous figure, equivalent to about ten per cent of total Australian GDP.

The ETM deficit is almost exactly balanced by Australia's net export of primary products, which was \$186.1 billion in 2017-18.

These figures capture the reality of the Australian economy. Its niche in international markets is that of a primary producer. This, as we have seen, is by design.

We have a 'jobs and growth' economy that is delivering continued GDP growth, but without one of the most important sources of productivity growth still evident in other advanced economies, that is, skill hubs of knowledge intensive industries.

One response to these observations will be that they discount the potential of the additional neoliberal reform Australia's Coalition government has promised.

We don't think so. This judgement is based on observations of the experience of other small countries that have managed to develop such knowledge intensive industries. They include Israel, Singapore, Sweden and Denmark, which have succeeded despite being small in size and starting behind the US, Japan and Western Europe.

They have achieved these gains by pursuing a targeted industry policy, which is simply not even contemplated by Australia's economic policy elites. Here are some notes on Israel to illustrate the argument.

The Israel example

Israel indicates what can be done via targeted industry policy. In just a few decades Israel has become a global ICT player. One measure of Israel's achievement is that there are some 280 foreign hi-tech development centres located in Israel. All the giants, including Intel, Microsoft, Cisco and Alphabet (Google) have a product development presence there.⁴⁷

It is true that Israeli enterprises are better at generating valuable start-ups than they are in translating their ideas into the production and distribution phase. Nonetheless, there are some stunning successes, particularly in internet-security software products. In 2014, Israeli companies generated some US \$6 billion of internet-security software exports.⁴⁸ All of this was achieved in a country with just over eight million people.

The Israeli government has long targeted the ICT sector for support. This support comes in various forms, but notably from the Office of the Chief Scientist (OCS) and the Bi-National Industrial Research and Development Foundation (BIRD). The OCS is nothing like its Australian namesake which for years has functioned as a lobby group for university research support and as a public advocate for science. However, the Australian OCS has no funds to invest.

The OCS in Israeli has for decades been searching for good start-up prospects. It is funded to distribute funds directly to the most promising start-ups. BIRD does something similar in regard to promising ventures. It is also tasked to link these ventures to prospective venture capitalists and ICT firms in the US.⁴⁹

Where do the skilled ICT professionals come from? Mainly from targeted training in the university system and in the Israeli Defence Force (IDF). In the case of the IDF, all Israelis are required to provide a number of years of service. The IDF is heavily engaged in developing its own weapons and intelligence networks. To this end it selects recruits for relevant technical training and subsequent R & D work, particularly in electronics. This base has helped attract the foreign development centres noted above. They too have since become an important source of experienced ICT professionals.

As indicated, such intervention cannot be contemplated in Australia.

There has been one exception. This was the Turnbull-led Coalition government's establishment of an innovation agenda in 2016.

An Australian exception?

Turnbull claimed that his agenda would fill the gap left by the end of the resources boom. He asserted that 'Our innovation agenda is going to help create the modern, dynamic, 21st-century economy Australia needs.'⁵⁰

Turnbull's initiative put great emphasis on the promotion of exciting ideas, which he associated with the internet and the opportunities it creates for entrepreneurs to gain access to global markets and for IT start-ups that will develop apps that will facilitate this access. In his words, the package is 'designed to inspire.'⁵¹

Not much has come from the ICT initiatives. Australia does have some vibrant ICT application start-ups, the best known of which is altassian. And there are prospects for more given that such start-ups can utilise the existing digital platforms and computing power of the cloud, with minimal capital investment.

However, Australia starts in this race way behind other countries. It will take the kind of state commitment shown in Israel before any significant impact on global markets is achieved.

Of more significance, Turnbull's Innovation Agenda contained elements of an industry policy. There were additional tax incentives for start-ups and for incubators that can nurture ideas coming from Australia's research institutions. And there was a commitment from the Commonwealth government to provide investment funds for the bioscience sector, which was focussed on turning Australian pharmaceutical product research into marketable drugs.

The plan was for the fund to operate in partnership with private sector venture capitalists. The government created a (modest) \$500 million fund, \$250 million of which is to be provided by the Commonwealth and the rest by the private sector. The latter funds were to be raised by 'competitively selected private sector fund managers' over the years 2016-17 and 2017-18.

In the event, nothing much came of the bioscience initiative. It has been quietly shelved. The financial assistance was too little and too late to overcome Australia's disadvantage in this area. For example, it costs of the order of US \$1.2 billion to complete the process for gaining accreditation in the U.S for any new drug.⁵²

According to Dr Gautam, head of the Pacific operations of Pfizer, of the biotech companies in Australia, 90 per cent have fewer than 10 employees. Furthermore 'of the 787 new drugs approved by the US drug regulator in the past 25 years Australia contributed less than 1 per cent'.⁵³

Lessons from the Australian experience

Knowledge intensive industries across the globe are dominated by giant multinational corporations. They are willing to incorporate promising small country enterprises into their supply chains if they seem profitable.

Australia does not have a base in such enterprises, though it certainly possesses the potential skills to make a mark in international markets, just as the Israelis have. Most of Australia's Group of 8 universities are ranked within the top 100 research universities across the globe. This is a remarkable achievement. But these high rankings are based on scientific publications published in top tier international journals. It is essentially blue sky research, as we have

pointed out elsewhere.⁵⁴ Papers which focus on applied research have little chance of being accepted in these top tier international journals

This is one of the reasons why Australian universities have such a poor record of collaboration with commercial firms. According to the Australian Council of Learned Academies, Australia has the worst record of such collaboration amongst OECD nations.⁵⁵

The Israeli case indicates that such skills have to be mobilised with industry utilisation in mind. It is not enough to leave the industry component to the marketplace. This requires industry policy. Comparative advantage in international markets has to be created. Australia's current hands off strategy will not work.

Consider the case of CSL, Australia's most successful knowledge intensive and internationally competitive industry. It is the major player in the global blood products industry. CSL continues to maintain an Australian base and continues to locate new investment in production and research capacity in Australia.

CSL is an Australian-government made enterprise. By 1994 when it was privatised by the Keating Labor Government, it had received decades of government protection and financial assistance, making it Australia's 'largest pharmaceutical enterprise, a fully integrated manufacture (sic) in serum fractionation, human and veterinary vaccines, antitoxins, antivenoms, insulin, antibiotics and diagnostics with some 1100 employees and 140 research staff.'⁵⁶

It had also received considerable help from the *Factor f* scheme introduced by the federal government in the late 1980s which paid drug companies a premium price if they increased their production, R & D and exports from Australia. The taxpayer subsidy to *Factor f* was gradually pared back at the end of 1990s. The Productivity Commission supported this move.

CSL's value in the marketplace by 1994 was attributable to this highly specific industry policy. Without that basis it could never have achieved its subsequent global success.

The long-term Implications for labour productivity

All advanced economies have experienced a slow-down in the rate of labour productivity growth since the late 1990s. This is partly a consequence of the increased share of service industries in these economies, including health and education which generally achieve low labour productivity gains.

But most (not including Australia) do possess knowledge intensive skill hubs which continue to generate new technology. These include advances in industrial robots and other automated processes based on ICT innovation.

Advanced manufacturing has been the main recipient of this innovation and thus shows the best record of labour productivity growth. As Bell and Keating summarise the literature: 'In most advanced nations, manufacturing continues to be a driver of productivity growth and innovation, accounting for up to 90 per cent of private R&D.'⁵⁷

Investment in automation and other advanced technology has been strong in most advanced economies over the past decade or so. This has sometimes been associated with net falls in

manufacturing employment, as has been the case in the US. But the fall in the US is, in large part, because of increased labour productivity resulting from the investment referred to.⁵⁸ Though employment in manufacturing has fallen, labour productivity in the sector continues to increase strongly.

Not so in Australia. Labour productivity in Australian manufacturing enterprises has plummeted along with falling employment. According to the PC, labour productivity within Australia's manufacturing sector fell from an annual average increase of some 1.3 percentage points over the years 2003-04 to 2011-12 to minus 0.2 percentage points a year between 2011-12 to 2017-18.⁵⁹

When it comes to internationally competitive industries in Australia, there is just one standout as regards labour productivity. This is Australia's commodity industries. They are stars. But the labour employed in these industries is tiny, such that the productivity gains they generate are adding very little to Australia's overall per capita productivity record.

True, there are other potential possibilities for advances in labour productivity, especially investment of new digital technologies in the retail, finance, professional services and other industries servicing the domestic market.

We now turn to exploring the prospects for such productivity gains.

Productivity gains in industries serving the domestic market

More than three out of four persons employed in Australia work in one or other of the service industries, and this proportion is growing strongly.

One response may be that this is good news. This is because with advances in ICT-based technology there is huge potential for productivity gains in these service industries. We refer here to the potential gains from new software packages in accounting, payment systems, graphic design, engineering design and drafting functions as well as in the ordering and supply of consumer goods and the like.

There are legions of commentators who forecast that continued advances, as with artificial intelligence and intelligent machines will accelerate this potential. We also share the view that a fourth industrial revolution is imminent. With the development of ubiquitous connectivity through 5G, satellite, narrowband IoT (internet of things) and other technologies, remote sensing technologies and the reducing cost of sensors there is the potential for a dramatic reshaping of the value chain of many industries.

Given that Australia has a good record as an adapter of new technology, why wouldn't there be a rapid uptake of this potential?

Maybe it will happen. However the record to date does not support such optimism. There were some gains in labour productivity in domestic economy oriented industries during the period 2011-12 to 2017-18. They have been notable in the finance, information and wholesale industries. On the other hand, labour productivity in the areas of education, health care and public administration has hardly moved.

As Table 1 indicates, Labour productivity growth for the whole economy over this period averaged 1.2 per cent per annum. This included the contributions of the manufacturing, mining and agricultural sectors. Manufacturing, as we have seen, contributed very little during this 2011-12 to 2017-18 period.

However, as noted earlier, over the last few years the annual increase in labour productivity for the entire Australian economy has fallen, from 0.9 percentage points in 2016-17, to 0.2 percentage points in 2017-18 and to minus 0.1 percentage points in 2018-19.

The PC's explanation for this slump in labour productivity (like that of the Treasurer, cited earlier) is that it is due to a slow-down in additions of new plant, equipment and intellectual property (software and the like). The PC reports that in some industries the capital stock per worker is falling. This it labels 'capital shallowing' (the opposite of 'capital deepening').⁶⁰

The Treasury has put a similar argument. Meghan Quinn, Treasury Deputy Secretary, has stated that aside from the mining and energy sector, most firms in other sectors have lagged in adopting new digital technologies. This, she claims, was the major reason for the recent drop in labour productivity.⁶¹

Why are business enterprises reluctant to invest in new technology? The Treasurer and some other commentators say that firms are more interested in returning capital to their shareholders than they are in risking capital in new technology. However, as flagged earlier, there is another factor. This is Australia's 'jobs and growth' strategy.

It is going to get worse: Australia's low productivity trap

While the 'jobs and growth' strategy remains in place, it is likely there will be more of the same outcomes that we have described. That is, low labour productivity growth and a sluggish economy. This will certainly not prompt a re-evaluation of the merits of relying on population growth as the core driver of GDP growth. That's because it is the one driver that is delivering sustained, if low, economic growth.

This situation is stimulating frantic calls for more state investment in education and health care, for more infrastructure investment and more stimulus to revive the housing industry.

However, all three of these responses will exacerbate the productivity trap.

More investment in health care and education will mean a further shift towards the non-market service sector of the economy where there is minimal growth in labour productivity.

As for infrastructure investment, this is mainly about filling backlogs in the major cities caused by rapid population growth. Such actions will do little to advance labour productivity, despite the claims of the Treasurer, Josh Frydenberg.⁶² The projects being supported are largely about covering backlogs in transport infrastructure, backlogs that will continue to accumulate while the 'jobs and growth' strategy remains in place.

Much the same outcome is likely should the Australian government manage to revive the housing industry. There will be no labour productivity dividend. Moreover, as Bell and Keating assert, a housing revival will encourage a further bout of debt dependent investment. They

say that 'pouring resources into the housing and construction sector reflects a misallocation of resource compared with potentially higher productivity growth-enhancing sectors.'⁶³

Conclusion

The Coalition government's 'jobs and growth' strategy is firmly in place. Though the public is not informed on the matter, the Government and its economic advisors are aware of the importance of strong population growth (largely deriving from NOM). They know that this is needed to provide the extra producers and consumers if GDP is to keep growing (even if at a low pace) and Australia is to maintain its record of 28 years of unbroken economic growth.

Our analysis confirms this belief. In 2018-19 Australia managed GDP growth of just 1.9 per cent. It did so because of the contribution of these extra producers and consumers.

We have argued that the pursuit of this strategy is contributing to the very problems of low wage growth and low inflation that the RBA and the Coalition government bemoan.

The Reserve Bank has belatedly acknowledged this judgement. It now admits that its monetary policy strategy has not worked because of rapid growth of the labour force.

Phillip Lowe and his colleagues have for years asserted that their successive reductions in interest rates would put more dollars into the pockets of consumers and that this in turn would prompt extra consumption, more competition for labour, higher wage rates and a boost to inflation.

None of these outcomes occurred. As the RBA now admits, the massive boost to Australia's labour supply over the past few years has meant that any increase in consumption due to interest rate reductions has been offset by competition for available jobs generated by the boost in labour supply.

In other words, 'Jobs and growth' is part of the problem, rather than the solution to Australia's recent record of low economic growth, low business investment and low labour productivity.

What was the cause of this surge in labour supply? According to the RBA, it was an increase in labour market participation. As we have shown, this was a factor, but less significant than the boost from NOM. The RBA is not prepared to acknowledge this, presumably because it would draw attention to the deficiencies of the 'jobs and growth' agenda.

The Australian economy is stuck in a quagmire. The Coalition government won't back off from its 'jobs and growth' strategy because it knows how important population growth is in sustaining at least modest growth in GDP.

Even if labour participation stops increasing (as has been the case in the U.S. in the last few years) as long as NOM is left unchanged it will give a huge boost to Australia's labour supply. If, as many consider likely, employment growth subsides a bit, such is the scale of NOM that it will mean that employers will still not have to compete harder for the workers they need.

While the 'jobs and growth' strategy remains in place, Australia is likely to continue to limp down the low productivity pathway it is presently on.

As we have argued, it is unlikely that there will be any compensating high productivity impetus should the Australian government pursue another bout of neoliberal economic reform.

Yes, such reform (of the labour market, reduced red tape and the like) may give a boost to the productivity of industries serving the domestic market.

But there are significant limits. Australia's 'jobs and growth' strategy is delivering a massive expansion in extra population, all of whom will have to be provided with services. This means an expansion in education, health and social care industries, which are generating very little gains in labour productivity but comprise a growing share of total employment.

The implications are dire. Australia's external economy is built on a narrow commodity base.

Thank goodness for these commodity industries. They are the mainstay of Australia's economic health.

But our reliance on these commodities means that our overall economy is at the mercy of world commodity prices and our hollowed out manufacturing sector removes any buffer to provide employment when commodity prices collapse.

More than ever we need a forward thinking industry policy to help to incubate and nurture the new industries of the future. Neo-liberal dogma removes any support for these emerging industries. Instead it preaches the supposed benefits of free trade agreements. But these agreements prohibit industry support and, in so doing, cement our future role as a low productivity nation dependent almost entirely on commodity trade.

In the absence of an industry policy it is foolish to keep loading more and more people onto an ever larger relatively unproductive domestic economy, and an economy which is dependent on a narrow, internationally competitive, commodity-based foundation.

Notes

- ¹ David Crowe, *Venom*, HarperCollins, 2019, p. 56
- ² Josh Frydenberg, 'Making our own luck – Australia's productivity challenge' Treasury, 26 August 2019
- ³ *Ibid.*, p. 3
- ⁴ Productivity Commission, PC Productivity Bulletin, May 2019, Table 1
- ⁵ ABS, 5204.0, *Australian System of National Accounts, 2018-19*, 25/10 2019
- ⁶ IGR 2015, p. 30
- ⁷ Productivity Commission, *op. cit.*, p. 3
- ⁸ Productivity Council, 2016, *Discussion Paper, Increasing Australia's Future Prosperity*, p. 11
- ⁹ *Ibid.*, p. 11
- ¹⁰ ABS, *The Labour Force*, August 2019, 6202.0
- ¹¹ September 28, 2019 <https://www.news.com.au/finance/economy/australian-economy/a-us-federal-reserve-bank-says-australia-has-had-three-recessions/news-story/7647ece386641f8397e0b84ad967d856>
- ¹² Alan Kohler, 'Why monetary policy doesn't work anymore', *The Australian*, July 6, 2019, pp. 2-3
- ¹³ Alan Kohler, 'The end of U.S. hegemony', *The Australian*, October 19, 2019
- ¹⁴ ABS, 5204.0, *Australian System of National Accounts, 2018-19*, 25/10 2019
- ¹⁵ Bob Birrell and Ernest Healy, *Immigration and the Housing Affordability Crisis in Sydney and Melbourne*, The Australian Population Research Institute, July 2018, p. vi
- ¹⁶ Phillip Lowe, *An Economic Update*, Sept 24, 2019,
- ¹⁷ Adam Boyton, 'Migration and monetary policy', *Financial Review*, Sept 19, 2019
- ¹⁸ *Planning for Australia's Future Population*, Australian Government, March 2019, p. 28
- ¹⁹ David Crowe, *op. cit.*
- ²⁰ Treasury, 2018-19 Budget Paper no. 3, Appendix A, p. 92, p. 4
- ²¹ DHA, Temporary entrants vis holders pivot table, June 2019
- ²² Bob Birrell, *Overseas students are driving Australia's Net Overseas Migration tide*, The Australian Population Research Institute Research Report, April 2019, Table 1
- ²³ Bob Birrell, *Overseas students*, *op. cit.*, pp. 7-8
- ²⁴ DHA, *Student and Temporary graduate visa program report*, 30 June 2019
- ²⁵ David Coleman, Media Release, 26 October 2019
- ²⁶ Bob Birrell, *Overseas students*, *op. cit.* Peter Mares, *Not Quite Australian*, Text Publishing, 2017
- ²⁷ Bob Birrell, *Australia's Skilled Migration Program: Scarce Skills Not Required*, TAPRI, March 2018, p. 13
- ²⁸ ABS, 5204.0 *op. cit.*, p. 2
- ²⁹ https://parlinfo.aph.gov.au/parlInfo/download/committees/commrep/eea5d0b8-72e9-4b5e-acf8-52ed46888ced/toc_pdf/Standing%20Committee%20on%20Economics_2019_08_09_7100_Official.pdf;fileType=application%2Fpdf#search=%22committees/commrep/eea5d0b8-72e9-4b5e-acf8-52ed46888ced/0000%22
- ³⁰ *Ibid.*, p. 3
- ³¹ *Ibid.*, p.2
- ³² *Ibid.*, p. 9
- ³³ Bureau of Labor Statistics, Sept 5 2019, Table 1, Business sector: Labor productivity, hourly compensation, unit labour costs, and prices, seasonally adjusted
- ³⁴ David Blanchflower, *Not Working*, Princeton, 2019 provides the background. See Chapter 3, especially Figure 3.1
- ³⁵ Steven Kennedy opening statement – October 2019, Senate Estimates <https://www.treasury.gov.au/speech/opening-statement-october-2019-senate-estimates>
- ³⁶ *Ibid.*, p.3
- ³⁷ *Ibid.*, p. 5
- ³⁸ Alan Kohler, *The Weekend Australian, Business Review*, November 9-10, 2019, p. 38
- ³⁹ Stephen Bell & Michael Keating, *Fair Share, Competing Claims and Australia's Economic Future*, Melbourne University Press, 2018
- ⁴⁰ CSIRO, *Australian National Outlook 2019*, 2019, p. 30
- ⁴¹ Ken Henry, 'A old economy is new again', *The Weekend Australian, Inquirer*, Sept 31-Oct 1 2006
- ⁴² Auscript, record of interview between David Uren and James Glynn with Glenn Stevens, 15 August 2016, p. 5
- ⁴³ Scan Langcake, *Conditions in the Manufacturing Sector*, Reserve Bank. Bulletin, June Quarter 2016, p. 7
- ⁴⁴ Philip Lowe, *The Changing Nature of Investment*, (Address to the Australian Financial Review Business Summit) Reserve Bank of Australia, 7 March, 2018

-
- ⁴⁵ Bell and Keating, op. cit., p. 109
- ⁴⁶ Australian Government, Department of Foreign Affairs and Trade, *Composition of Trade Australia, 2018* and earlier years
- ⁴⁷ *The Economist*, 2015, 'Cyber-boom or cyber-bubble?' 1 Aug 2015
- ⁴⁸ Ibid.
- ⁴⁹ Dan Breznitz, 2007, *Innovation and the state*, Yale, Chapter 2
- ⁵⁰ Launch of the National Innovation and Science Agenda, 19 September 2015, p. 2
- ⁵¹ Ibid., p. 3
- ⁵² Clear State, op. cit., p. 11
- ⁵³ Sarah-Jane Tasker, 'Drug development failing , says Pfizer', *The Australian* Sept 27, 2019
- ⁵⁴ Bob Birrell and Katharine Betts, 'Australia's higher education overseas student industry: in a precarious state', The Australian Population Research Institute, Research Report, November 2018, pp. 11-12
- ⁵⁵ ACOLA, *Securing Australia's Future*, The role of science, research and technology in lifting Australian productivity, Final Report, 2014, p. 16
- ⁵⁶ Australian Academy of Technological Sciences and Engineering, *Technology in Australia, 1788-1988*, p.661
- ⁵⁷ Bell and Keating, op cit., p. 108
- ⁵⁸ For example, see Andrew Liveris, *Make it in America*, Wiley, Updated Edition, 2012, p. 38
- ⁵⁹ Productivity Commission, op cit., p. 11
- ⁶⁰ Ibid., p. 1
- ⁶¹ Meghan Quinn, quoted in John Kehoe, 'Why Austral is falling behind on productivity', *Australian Financial Review*, June 20, 2019 <https://www.afr.com/technology/wages-hurt-by-low-tech-adoption-and-less-job-switching-20190619-p51zbc>
- ⁶² Josh Freudenberg, op. cit., p. 7
- ⁶³ Bell and Keating, op. cit., p.270