



Australian Government
Productivity Commission

PC PRODUCTIVITY INSIGHTS

AUSTRALIA'S LONG TERM PRODUCTIVITY EXPERIENCE

Appendices

- A Reducing barriers to trade
- B National Competition policy
- C Caveats, critiques and alternative explanations
- D Motivations for protectionism
- E Was Australia's income lead the result of mismeasurement?

© Commonwealth of Australia 2020



Except for the Commonwealth Coat of Arms and content supplied by third parties, this copyright work is licensed under a Creative Commons Attribution 3.0 Australia licence. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/3.0/au>. In essence, you are free to copy, communicate and adapt the work, as long as you attribute the work to the Productivity Commission (but not in any way that suggests the Commission endorses you or your use) and abide by the other licence terms.

Use of the Commonwealth Coat of Arms

Terms of use for the Coat of Arms are available from the Department of the Prime Minister and Cabinet's website: <https://www.pmc.gov.au/government/commonwealth-coat-arms>

Third party copyright

Wherever a third party holds copyright in this material, the copyright remains with that party. Their permission may be required to use the material, please contact them directly.

Attribution

This work should be attributed as follows, *Source: Productivity Commission, PC Productivity Insights 2020: Australia's long term productivity experience, Appendices A–E.*

If you have adapted, modified or transformed this work in anyway, please use the following, *Source: based on Productivity Commission, PC Productivity Insights 2020: Australia's long term productivity experience, Appendices A–E.*

An appropriate reference for this publication is:

Productivity Commission 2020, *PC Productivity Insights: Australia's long term productivity experience, Appendices A–E*, Canberra, November.

Publications enquiries

Media, Publications and Web, phone: (03) 9653 2244 or email: mpw@pc.gov.au

The Productivity Commission

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

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

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

Contents

A	Reducing barriers to trade	1
B	National Competition policy	3
C	Caveats, critiques and alternative explanations	5
D	Motivations for protectionism	7
E	Was Australia's income lead the result of mismeasurement?	19
	References	24

A Reducing barriers to trade

One key pillar of Australia's microeconomic reform agenda was opening markets to international competition. After Federation, tariffs, quotas and other import controls were deployed to protect local industry from foreign competition, especially in manufacturing. Often the stated justification for these policies was an 'infant industry' argument: that is, that Australians needed to subsidise manufacturing in order to build scale and sustain long-term economic growth. These policies may have been effective in their goal of growing the manufacturing base (for a time) but ineffective as a source of economic growth. Average working families paid for these industrial policies in higher costs for cars, clothing and footwear, and other (non-manufacturing) exporters paid more for inputs.

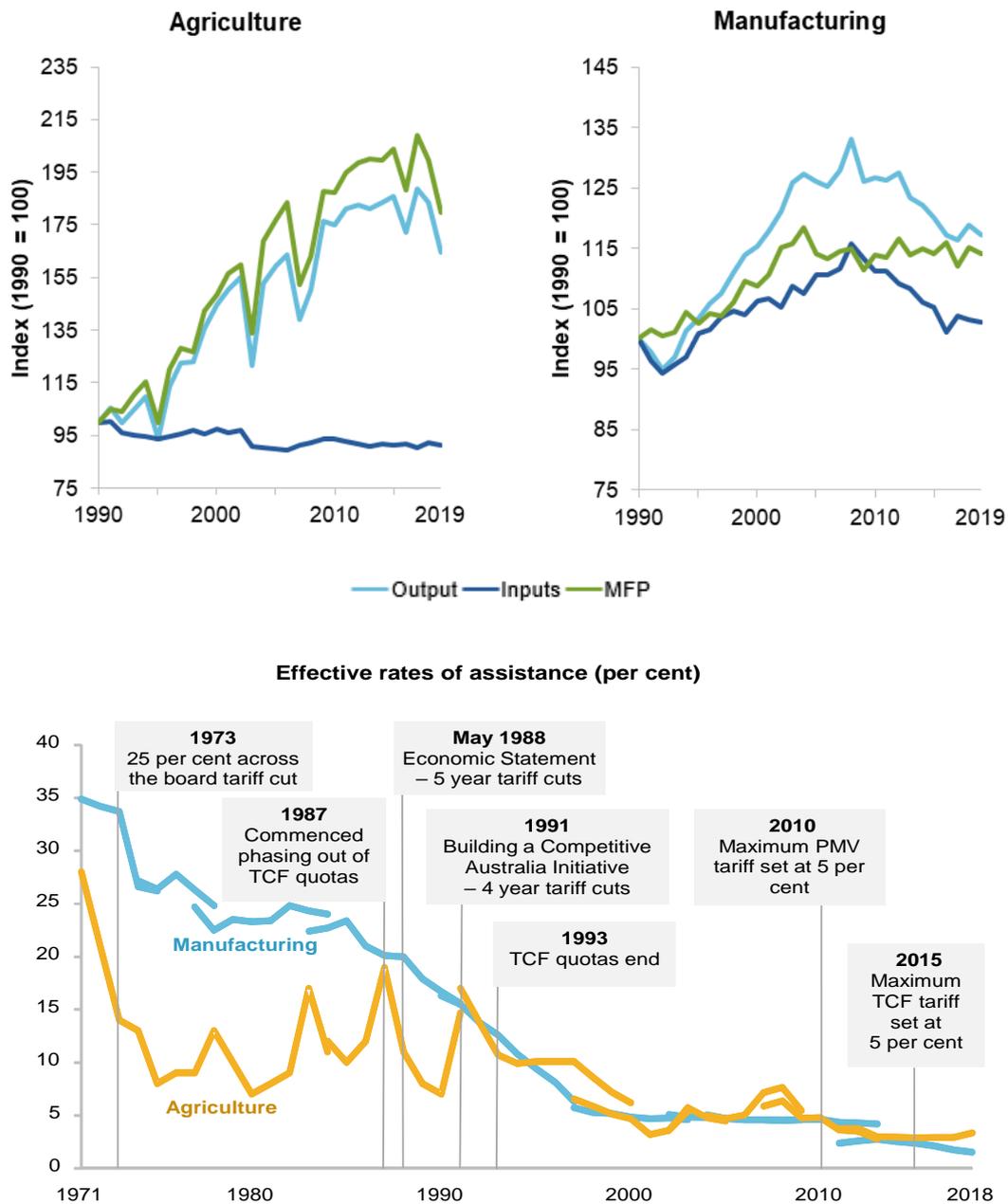
After fierce debate, these barriers were primarily removed in the late-1980s to mid-1990s (with a one-off reduction in the early 1970s).¹ In both agriculture and manufacturing, these tariff reductions were associated with higher productivity growth (figure A.1). Agriculture, in particular, has been a story of economic success. Since 1990, output in this industry has increased by about 65 per cent while combined labour and capital usage has fallen 9 per cent.

In manufacturing, the reforms of the 1980s and 1990s seem to have coincided with an increase in inputs, outputs and productivity of the sector. However, after a period, inputs fell, productivity flat-lined and output fell. Over the past decade, the predominant effect has been a redistribution of labour and capital out of this sector and into other parts of the economy. The same pattern has been evident in other advanced economies, reflecting the rising scale of manufacturing in China and other emerging economies. Indeed, the declines in the Australian manufacturing sector have been similar to those experienced in the US or Germany during this period (Langcake 2016).

¹ The removal of these trade barriers got off to a false start in 1973 with a once-off 25 per cent across-the-board cut to tariff rates, which were rapidly offset by industry assistance and not matched by similar further cuts for nearly 15 years. The momentum towards openness really began in 1988 with a series of phased reductions in tariffs in most sectors that was so comprehensive that by 1996, almost all tariffs had fallen to 5 per cent or less (Banks 2005, pp. 4).

Figure A.1 Agricultural and manufacturing productivity both grew as tariffs fell

Agriculture and Manufacturing MFP^a, inputs^b and output^c (top panels) and effective rates of assistance^d (bottom panel)



a MFP = multifactor productivity. **b** Inputs are a combined index of labour and capital services. **c** Output is gross value-added. **d** Effective rates of assistance refers to the percentage change in returns per unit of output to an activity's value-adding factors due to the assistance structure.

Sources: ABS (*Estimates of Industry Multifactor Productivity, 2018-19*, Cat. No. 6260.0.55.002, tables 1-19); PC (2019, p. 35). Sources: ABS (*Estimates of Industry Multifactor Productivity, 2018-19*, Cat. No. 6260.0.55.002, tables 1-19); PC (2019, p. 35).

B National Competition policy

A second pillar of microeconomic reform was the suite of policies that came under the banner of ‘National Competition Policy’ (NCP). A major part of this policy set was the reformation of state-owned enterprises. As recently as the 1980s electricity, gas and water were provided by state government entities, with little commercial discipline and unclear governance structures. The Australian Government held a monopoly over telephone services (Telecom Australia), as well as running one of the country’s largest financial corporations (Commonwealth Bank of Australia).

Following liberalisation of trade and capital markets, as well as other competition enhancing reforms in the 1980s and early 1990s, policymakers expanded the scope and application of competition policy to enhance productivity growth (PC 2005, pp. 1–2). The 1991 Prime Ministerial statement, *Building a Competitive Australia*, echoes this feeling:

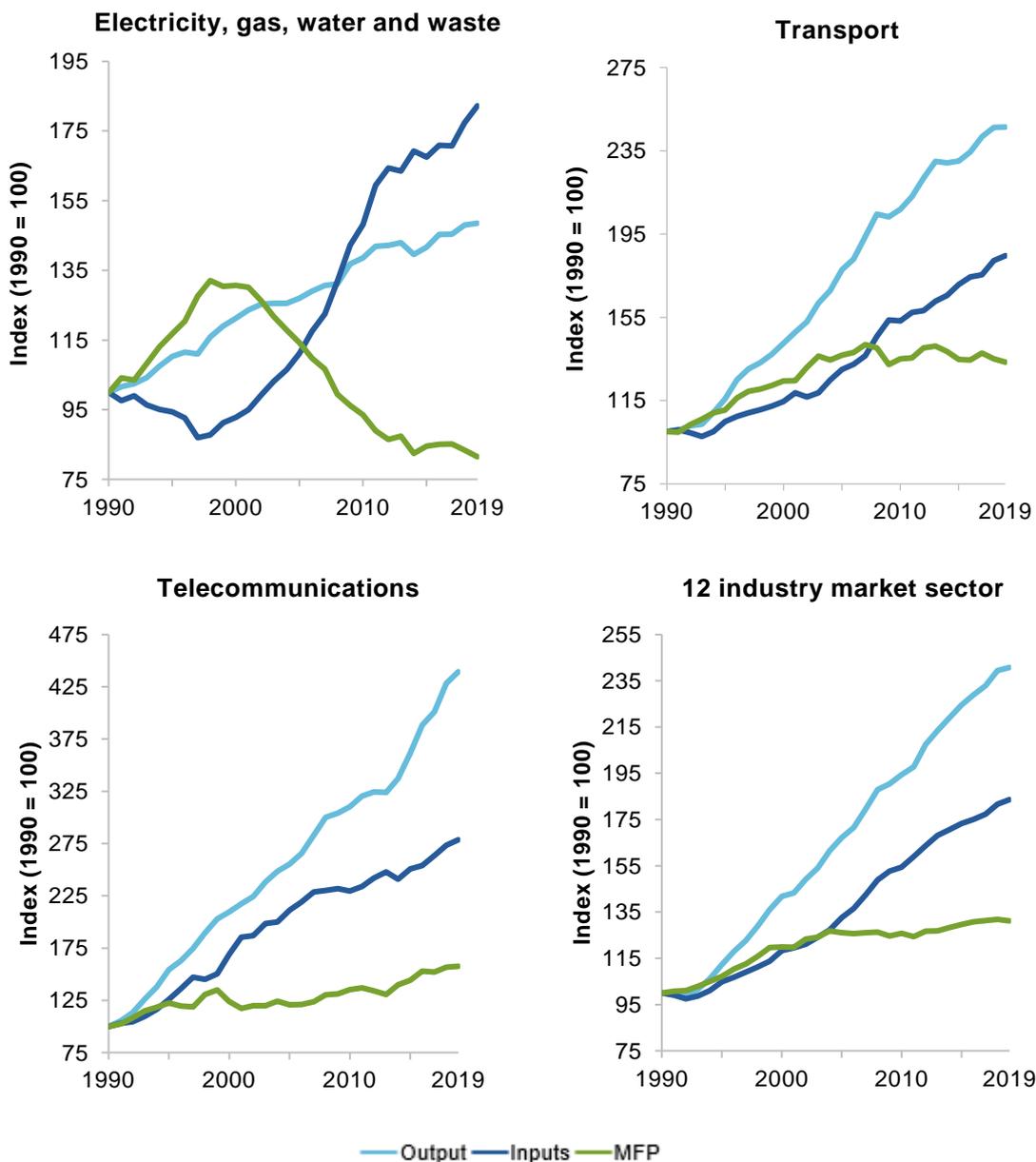
The benefits for the consumer of expanding the scope of the Trade Practices Act could be immense: potentially lower professional fees, cheaper road and rail fares, cheaper electricity. (Hawke 1991, p. 1766)

This led to the establishment of the independent *Committee of inquiry into a National Competition Policy for Australia* (the Hilmer inquiry) (Hilmer 1993), which established the principles and the policy blueprint for NCP. These recommendations were adopted by the Council of Australia Governments in 1995 as part of a six year reform program, later extended to 2005 (PC 2005, p. 2).

The overriding principle of NCP is that competition is beneficial, and governments should only erect barriers to competition if the benefits of doing so outweigh the costs and these benefits can only be achieved by restricting competition. Whilst this may seem uncontroversial, at the time government businesses and unincorporated enterprises were not subject to competition regulation and there were numerous examples of anti-competitive behaviour without clear benefit to the public. Following NCP, there was significant corporatisation, some privatisation and a general opening-up to competition of government monopolies (as well as removal of barriers to entry in a number of private markets).

Early reviews of NCP found the benefits of the reform were both positive and substantial — for example, the Commission (PC 2005, p. 51) undertook modelling that suggested NCP had increased real GDP by about 2.5 per cent (mainly from productivity improvements in the telecommunications and electricity sectors). That said, for electricity, gas and water services it appears all of the early productivity gains, realised primarily through reductions in labour inputs in the 1990s, have since been reversed (figure B.1). The causes of this are discussed below.

Figure B.1 Corporatisation, competition and deregulation produced sharp improvements in productivity (though in electricity, gas and water, these proved transitory)
 Output^a, inputs^b and MFP^c for utilities^d, transport^e, telecommunications^f and 12 industry market sector



a Output is gross value-added. **b** Combined index of labour and capital services. **c** Multi-factor productivity. **d** Electricity, gas, water and waste services. **e** Transport, postal and warehousing. **f** Information, media and telecommunications. **g** All market sectors except Rental, hiring and real estate services; Professional, scientific and technical services; Administrative and support services.

Source: ABS (*Estimates of Industry Multifactor Productivity, 2018-19*, Cat. No. 6260.0.55.002, tables 1–19).

C Caveats, critiques and alternative explanations

A number of commentators have cast doubt on, or downplayed, the role that microeconomic policy reform played in this economic turnaround, especially the high rate of multifactor productivity growth in the late 1990s. One such criticism is based on the observation that it is difficult, statistically, to identify any structural change in Australia's annual productivity growth during the 1990s (Hancock 2005). Others have pointed out that the measured productivity gains could be illusory by virtue of unmeasured increases in hours worked (Quiggin 1998, 2006). It has also been noted that certain reforms, especially of utilities, delivered only temporary productivity improvements (Quiggin 2001). Each of these points has some validity. Nonetheless, as will be discussed below, none of them refute the view that microeconomic policy reform has played some role in raising Australia's relative productivity growth over the past 30 years.

It is true that, by itself, the MFP surge in the late 1990s does not, establish the causal effect of the policy reforms noted above (Hancock 2005). However, there is additional domestic and international evidence pointing to the beneficial role that microeconomic policy reform, especially reforms liberalising international trade and NCP, has had on productivity. Domestically, following the productivity surge of the late 1990s, the Commission undertook a series of case studies in industries that were affected by microeconomic policy reform and found beneficial effects on productivity (PC 1999, p. XXIV). There is also international evidence about the role of microeconomic reform in raising productivity that suggest a causal connection. This evidence includes studies on:

- deregulation — reducing both labour and product market regulation is associated with faster MFP growth (Kent and Simon 2007, pp. 18–19)
- trade openness — trade enhances productivity growth through three² main channels:
 - increased competition leads to resource allocation away from unproductive firms and towards productive ones (Melitz and Trefler 2012)
 - increased market size for exporting firms raises the returns on both developing and adopting new innovations (Acemoglu and Linn 2004)
 - increased economic integration creates more opportunities for knowledge flows, leading to faster diffusion of innovation (Crespi, Criscuolo and Haskel 2008).

² There is also a (non-productivity related) consumer welfare gain accruing from the greater variety of goods that is possible with international trade (Melitz and Trefler 2012).

-
- corporatisation — moving government businesses from a broad public welfare mandate to a for-profit firm objective leads to improvements in productivity³ (Aivazian, Ge and Qiu 2005; Megginson and Netter 2001).

For some industries, the productivity gains of the 1990s appear to have been lost, with productivity falling below their 1990 levels. As noted above, the electricity, gas, water and waste services industry had strong initial productivity gains but then lost these by about 2010. And some features of the utilities sector reforms, especially in electricity (Quiggin 2001), were criticised even before these productivity gains were lost. However, this apparent failure in the utilities industry does not completely discount the role microeconomic reform played in Australia's post-1990 economic revival.

Firstly, similar reversals were not observed for other industries affected by microeconomic reform, indicating that the failures were likely specific to the problems of implementation for this sector. Secondly, although Australia's recent productivity performance has not matched the gains of the 1990s, we have performed at least as well as most other OECD countries (PC 2020). Thirdly, it is an open question as to what caused input growth (especially capital) to outpace output growth in the electricity industry. While the Commission (2013) has previously noted that the high levels of capital expenditure by some network operators was 'not easily justified', and may indicate flaws in 'incentive regulation' (which sits at the heart of the reforms in this sector), other factors were also blamed. For example, state ownership of network distributors, overly rigid reliability standards (both hangovers from the old regulatory regime) were also implicated in the increased cost of electricity (ACCC 2018).

³ There is disagreement about whether such corporatisation needs to be accompanied by privatization in order to be successful. One review of the literature (Megginson and Netter 2001) argued that either it is necessary or at least superior to have privatization accompany corporatisation, while other studies have found that corporatisation is a helpful intermediary step even if the end goal is full privatization (Aivazian, Ge and Qiu 2005).

D Motivations for protectionism

Summary

Australian protectionism was thought to encourage industrialisation which in turn was thought to drive numerous beneficial social and economic outcomes. Chief among these were:

- creating a highly productive sector that would otherwise not exist ('infant industry' arguments)
- redistribute incomes away from landowners towards workers through higher real wages
- attracting migrants and foreign capital
- diversifying the economy away from its reliance on primary product exports (whose prices were more volatile than manufactured goods) and limit dependence on foreign imports that could be cut off in times of war
- reducing the outflows of foreign currency exchange reserves, which would help maintain the balance of payments (a priority under a fixed exchange rate).

In addition to these, there were also a host of special interests that benefited from protectionism, though that will not be the focus of this appendix.

In view of the suite of policy options available to governments now, none of the above arguments establishes a first-best-case for tariff protection. However, in view of the limited scope and size of government when protectionism was initially implemented, there was some justification for tariff protection. In particular, the redistributive and balance of payments concerns would have been difficult to solve given the policy constraints of the time (though in the former case, the effects of protectionism are difficult to determine).

An overview of Australian protectionism

Australia's history of protectionism is long and complex, so this discussion can only capture some of the highlights. It is useful to discuss this history in four stages: pre-Federation, early Federation to World War One (WWI), the interwar period, the post-World War Two (WWII) period and the current era beginning in the 1980s (the latter of these already discussed in appendix A).

It is not possible to accurately quantify the level of protectionism throughout Australia's history. The preferred method of doing so would be to use effective rates of assistance (ERA) but Commission estimates of ERA only go back to the early 1970s (PC 2019). That said,

there is evidence that Australia was relatively open in the Nineteenth Century⁴ with a small increase in protectionism from Federation to WWI (figure D.1). This was followed by large increases in tariff protectionism in the interwar period and then post-WWII, an initial transition away from tariffs and towards import licensing that was later reversed. Finally, Australia has been reducing its barriers to foreign trade since the 1980s and now has very low levels of effective assistance.

Pre-Federation, tariff levels were typically low and mainly concerned with revenue collection rather than protecting local industry. The exception to this was Victoria which set higher average tariffs with the aim of protecting and nurturing the local manufacturing industry (Lloyd 2017). Due in part to compromises made at Federation, the early Australian Government implemented tariffs that were closer to those prevailing in Victoria than in the relatively free-trade orientated New South Wales, with the result that country-wide tariffs increased (Pincus 2009).

However, the great acceleration of tariff protection occurred during the interwar period. Of the many consequences of WWI, two augmented the case to protect infant industries, during the interwar period. First, despite an exodus of 64 700 workers, the war provided the manufacturing sector with a significant boost and the sector faced rapid contraction if the reinstatement of pre-war competition from overseas occurred (Ville and Withers 2014, pp. 339). Second, some of these manufacturing industries included steel manufacturers and motor-body building, and therefore protecting manufacturing industries was linked to national defence. In response, the Australian government significantly increased the number and intensity of tariffs after the war.

In 1921 the Greene Tariff was introduced, in part to protect infant industries after the war. Average amounts of duties payable doubled from the Lyne tariff (1908) and the range of dutiable imports increased significantly. At the same time the Tariff Board was established, acting as a conduit through which industries and special interest groups could lobby their case to increase tariffs. Out of 180 cases that were brought before the Tariff Board between 1923 and 1930, Hall (1958) identified that one hundred of these resulted in a recommendation of an increase, 61 to keep the tariff unchanged and only 19 to reduce it (Wilson 2014).

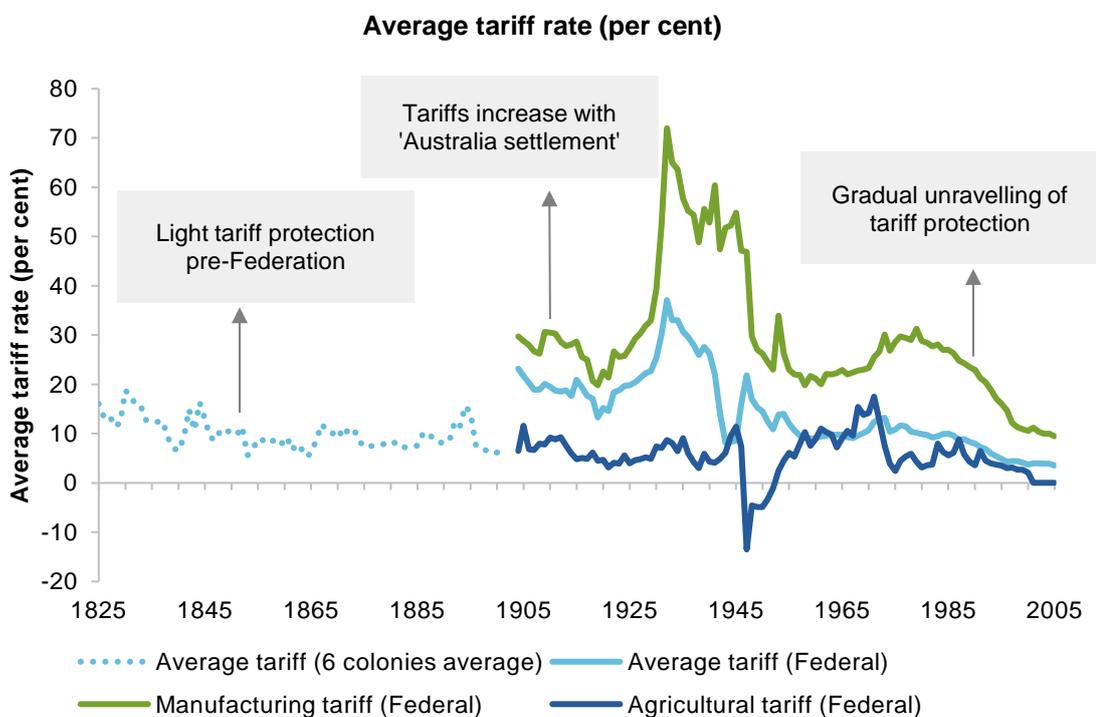
During the Great Depression, Australia, along with most advanced economies, greatly increased its tariff protection (figure D.1) with the stated goal of boosting wages and employment in the manufacturing sector (Wilson 2014). While today most economists would argue for subsidies over tariffs to reduce the distortionary effects on domestic consumption (Corden 1996), at the time the government preferred to raise tariffs. This is likely because the former resulted in an increase in government revenue while the latter resulted in an increase in government debt.⁵

⁴ Anderson and Garnaut (1987, p. 14) show that, compared to similar sized economies in 1870, Australia had a relatively high ratio of exports and imports to GDP.

⁵ Government debt climbed significantly following WWI, and then in 1929 international capital markets collapsed as Australia's cost of serving debt increased, significantly reducing the government's ability to spend during the Depression years (McLean 2013).

Figure D.1 **Australia's history shows significant protectionism from Federation until very recently**

Average tariffs in the six colonies pre Federation^a, post Federation^b and in manufacturing^c and agriculture^d from 1825 to 2005



^a Average duty paid on all imports (both those subject to duties and those not). ^b Average duty (customs plus primage, net) – all clearances adjusted for method of valuation. ^c Average tariff for manufacturing is the average duty paid on dutiable imports. ^d Average tariff for agriculture here is proxied by the average rate of assistance. This is calculated by the average difference between domestic and world prices for all covered agricultural commodities.

Source: Butlin, Dixon and Lloyd (2015, pp. 578–580); Lloyd (2008, 2017).

Following WWII, it appears tariff rates fell (figure D.1) but this is not indicative of a fall in the overall level of protectionism. During the 1950s, when import licensing became more important as an instrument of protectionism (a legacy of the non-convertibility of the sterling following WWII), there is evidence that overall protectionism increased before falling to pre-WWII levels in the 1960s (Anderson and Garnaut 1987). Moreover, following the phasing out of import licences in the early 1960s, there appeared to be no further reductions in protectionism until the trade liberalisation that began in the 1970s and greatly accelerated in the 1980s (appendix A).

Redistribution and welfare

Individuals emigrate with the hope of finding a future better than the present. As a nation of convicts and immigrants, Australia was founded on an egalitarian attitude that sought to

overcome class inequalities. So, it is unsurprising that income inequality became a concern of the early Federal Government. And they had some reason for concern. By 1921 the top 1 per cent of income earners held a higher proportion of income (11.63 per cent) than at any other point in that century (4.61 per cent in 1981 and 9.18 per cent in 2003) (Atkinson and Leigh 2007). However, the limited size and scope of governments at the time (and the Australian Government specifically) left policymakers with fewer options (and revenue) to address income inequality.

At the time of Federation, the Federal Government's primary source of revenue was tariffs rather than income tax and therefore redistributive options such as welfare payments were mostly unavailable.⁶ Additionally, the consensus of economists of the early Twentieth century was that the cost of protectionism was born by export industries, namely by owners of fixed assets and in particular farm owners. At the time it was thought that tariffs were reducing inequality by acting as a transfer of income from primary producers to workers in the urban sector (Anderson 2020). Economists have since proposed a model of trade more appropriate to the Australian context which casts doubt on the efficacy of this transfer (box 1.1).

Empirically, the limited evidence does also not support either protectionism or trade liberalisation as having a very significant effect on the distribution of earnings in the Australian context. Modelling and empirical analysis undertaken close to the event of trade liberalisation (as well as broader microeconomic reform) find that this had minimal effect on the structural changes in employment at the time or the distribution of earnings (relative to other factors) (de Laine, Lee and Woodbridge 1997; Murtough, Pearson and Wreford 1998).

Recent modelling by the Commission (2017, pp. 41) on the effects of a hypothetical increase in global protection (similar to the 1930s) showed that while incomes fell for all income deciles, they fell to far lesser degree for those in the lowest ends of the income distribution. Although this modelling would appear to be *prima facie* evidence for protectionism lessening income inequality, the absolute incomes of the bottom deciles still fell. Therefore, despite having a larger *share* of total income, the lower income deciles' ability to purchase goods and services fell.

There is some evidence on the effect of protection on the *level* of income for the period when these policies were first greatly expanded (Clemens and Williamson 2004), but there is little on the distributional effects. Looking at the overall movements in the distribution of income in Australia, there appears to have significant levelling of incomes between 1820 and 1870, so at the latter end of this period there was a relatively equitable distribution of income (Panza and Williamson 2017, 2019). There was then an apparent rise in inequality occurring sometime before 1918, although at this time Australia still had a lower proportion of income going to those in the top 1 per cent than in the United Kingdom or the United States (Atkinson and Leigh 2010, pp. 40). Thereafter, Australia experienced marked decline in inequality but given this occurred in most developed nations, it is difficult to determine the effect of local policy.

⁶ There were some welfare payments available, in 1908 Andrew Fisher introduced a national aged pension under the *Invalid and Old-Aged Pensions Act 1908*. A national invalid disability pension was started in 1910 and a national maternity allowance was introduced in 1912 (ABS 1988).

Box D.1 **Theory on the redistributive effects of tariff protection**

The 'specific factors model', popularised by Jones (1971) and Samuelson (1971) is most suitable for understanding the effects of tariffs in the Australian context, as is argued by Anderson (2020). The specific factors model is a simple variant of the Heckscher Ohlin Model that accounts for the immobility of primary factors such as land (e.g. agricultural land is a factor that specific to, or rather is only useful in, the agricultural sector). In this model, a tariff will incentivise the import competing sector to increase their production in response to the increase in price. As a result, labour will move from the export sector (in Australia's case, agriculture) to the import-competing sector (in Australia's case, manufacturing). All else equal, owners of land used for agriculture will be worse-off after the tariff and owners of manufacturing plants better off. While the transfer of wealth from landowners to the producers of manufacturing is unambiguous, the effect on workers is unclear.

In response to the higher price (due to the tariff), the import-competing sector will expand production by attracting new workers through an increase in nominal wages. In response, the export sector will also increase nominal wages to remain competitive in the labour market. At face value this may seem like a direct transfer of wealth to labourers, (the conclusion from the Stolper Samuelson (1941) model) however, the specific factors model differs from Stolper Samuelson (1941) in its interpretation of the real wage impact. Namely, that in the latter real wages unambiguously go up after the tariff whereas in the former real wages may go up or down depending on the degree to which tariffs increase the price of manufactured goods and how often workers consume them. All else equal, according to the specific factors model whether workers are better or worse off after the tariff depends on their consumption bundle, the more manufactured goods they consume the more likely their real wages will fall after a tariff.

Ultimately, tariffs will redistribute wealth, but assessing general equilibrium effects depends on many factors, including the model used. An early review of tariffs by the Brigiden Committee in 1929 concluded that they would result in a transfer of income from landowners to the labour force but later work from Dixon et al (1982) disagreed, finding that transfers would impact high and low skilled workers differently and perhaps even negatively (Australia. Committee on Economic Effects of the Tariff 1929).

The question of whether workers, in all industries, consumed enough manufactured goods to negate their income gains from protectionism is beyond the scope of this paper. But even if one accepts the argument that the redistributive effect was primarily from capital owners in primary production towards workers in all industries, it is unclear that it will always be redistributing from the top end of the income distribution towards the lower end. The fortunes of primary production were highly volatile and dependent on both international prices and domestic weather conditions. In times of prosperity, such as the terms of trade boom in the 1950s, the redistributive effects would have likely been equitable but during less favourable periods, for example the drought in 1895 to 1903, the effect would have less equitable.

In acknowledgement of this complicating factor, protectionism was sometimes also extended to agriculture (McLean 2013). But this resulted in a shell game where one tariff redistributes from farmers and miners to manufacturers while another tariff redistributes from manufacturers and miners back to farmers. And these tariffs were often maintained even after the agricultural sector had recovered, diminishing the effect of the manufacturing tariffs.

In summary, the theoretical redistributive effects of protectionism are complex and depend on the level, and targets of protection as well as the consumption preferences of workers. And the limited empirical evidence does not show a very significant effect in the Australian context. Ultimately, if tariff protection did have its intended effects on income distribution (taking from

land owning primary producers and giving to workers) it was likely still a second-best policy option compared to the policy options available today. It is only in the circumstances of the early Twentieth Century, with its more limited and constrained governments, that protectionism could be a plausible strategy for redistribution (though its actual effects are unclear).

Building a nation: protectionism and extensive growth

Early Australian policy makers were concerned with ‘nation building’ — attracting migrants and foreign direct investment (FDI) to rapidly grow the population and build up infrastructure. As discussed in the main document, this was partially a strategy of national defence. The familiar post-war slogan ‘populate or perish’ sums up the logic. By becoming a larger, more formidable country, Australia stood a better chance at surviving in an increasingly hostile international environment.

While a raft of policies could variously be described as nation building, this section only focuses on the protectionism that was thought to promote migration and FDI.

Intensive vs extensive growth and other constraints

Policymakers in early Australia, as now, faced trade-offs between intensive (productivity-driven) growth and extensive (input-driven) growth. There are numerous modern examples of this trade-off: massively increasing Australia’s intake of low-skilled migrants would increase total GDP but may lower average productivity or even GDP per capita. Likewise, a large increase in FDI due to some regulatory change would increase the capital stock but not necessarily result in capital being used more efficiently.

In the late Nineteen and early Twentieth Century, a trade-off existed between extensive and intensive growth. Namely, the desire to increase population growth to the maximum extent but to also maintain real wages. This was a key constraint that formed the basis of discussions about migration (McLean 2013, p. 156). High wages also came to be a principal method of attracting migrants.

Policymakers also had self-imposed constraints on migration. As Dyster and Meredith explains:

The first legislative initiative of the newly formed Commonwealth in 1901 was to codify Australia’s immigration laws. ...

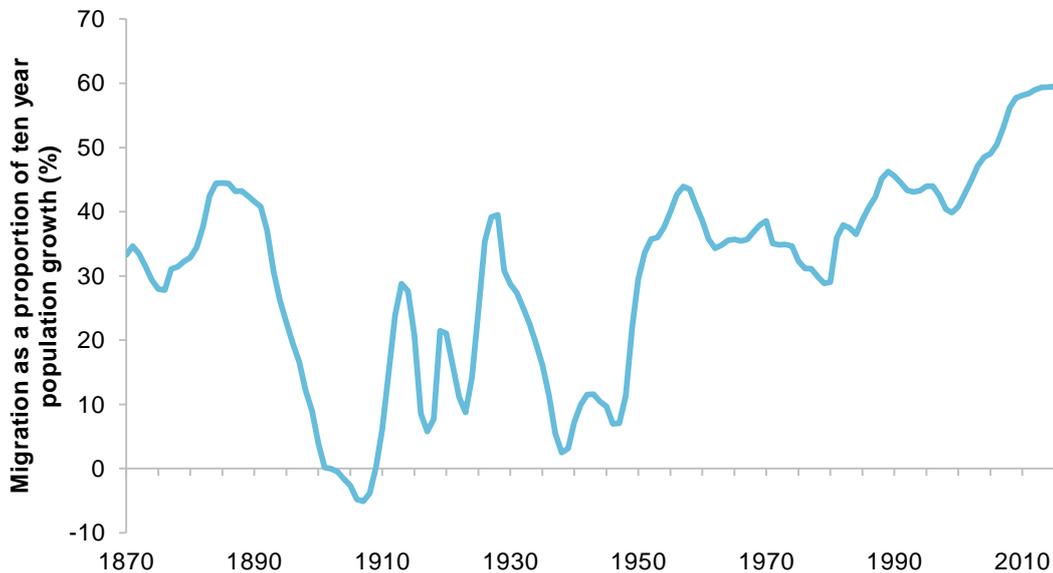
The objective of the policy was to maximise immigration from Britain and Ireland, but to restrict or prohibit immigration from elsewhere. With only minor modifications, this remained the basis of Australia’s immigration policy until 1973. (2012, p. 16)

By restricting migrants to those of European descent, policymakers greatly restricted the potential flow of new migrants. Given this constraint, it is unsurprising that policymakers came to believe that high wage employment and other incentives were necessary to attract migrants.

Tariffs to attract migrants

Australia has always been dependent on migration for much of its population growth. But during various parts of the early Twentieth Century (especially after Federation and the Great Depression), migration fell to historically low levels (figure D.2). Governments tried a variety of policies to raise migration including subsidising passage over from Europe and subsidies for setting up farms and infrastructure (McLean 2013, p. 154). But as the migration situation worsened, governments increasingly turned to protectionism to promote migration.

Figure D.2 **Migration fell significantly for much of the early Twentieth Century**
Migrants as a proportion of ten-year total population growth^a from 1870 to 2015



^a So for 1870, the figure represents the total number of migrants from 1861–70 divided by the total population change over the same period.

Source: ABS (*Historical population statistics 2016*, Cat. no. 3105.0.65.001).

In the late Nineteenth Century, Victoria adopted relatively heavy tariffs on manufactured goods to increase wages and employment in the manufacturing industry. The logic was that for the manufacturing industry to expand to meet domestic demand, they would drive up employment and wages in this sector. At Federation, the Victorian policy was adopted as a compromise and this protectionism greatly expanded through the 1920s and 1930s (in part as a strategy to tackle unemployment) (Pincus 2009). Clearly this approach rests on the assumption that potential migrants are primarily seeking manufacturing employment, and that they do not consume protected manufactured goods to a large enough degree to offset the benefits of higher wages.

In part to ensure wages did not fall as migrants came, and to attract new migrants, industrial courts began increasing basic wages in the 1920s (Wilson 2014). As discussed in the main

document, this was accompanied by rapid growth in average real earnings that far outstripped GDP per capita.

Attracting foreign investment

Protectionism was implemented under the belief that tariffs would attract foreign capital into import substituting industries. And several old surveys of Australian subsidiaries of multinational manufacturing firms showed that avoiding tariffs was indeed a motivation for investing in Australia (Corden 1996). However, the effect of tariffs on total foreign investment is quite complex. While import competing industries receiving protectionism would see higher profitability and increased foreign investment, there would likely be fall in profitability in export-orientated sectors (in Australia's case, primary production). This would likely decrease the level of foreign investment in this sector with an ambiguous net effect on total foreign investment. The overall effect will only be to raise total foreign investment if the industry receiving protectionism is relatively capital intensive and the export oriented industries are relatively labour intensive (Corden 1996).

That said, if tariffs raise migration (above), then this would raise the profitability of further investment in numerous industries (by increasing demand for their products) and so potentially attract greater foreign investment (Dyster and Meredith 2012, p. 217).

Did protectionism help build Australia?

There is little evidence on the effect of Australian protectionism on the real wages of workers (especially in its early days, above) or the effect of higher real wages on migration. However, the fact that migrants comprised more than two-thirds of the net increase in the manufacturing workforce in the 1950s (Dyster and Meredith 2012, p. 216) indicates that they may have indeed had a preference for these industries, somewhat vindicating protectionism as a means of boosting migration. Ultimately, whatever the effect of protectionism on the level of migration, it was likely a second-best policy compared to directly subsidising migration. Such a policy would have given financial incentive to migrants without the distortions on consumption and productivity (Corden 1996).

The infant industry argument

Government protection of domestic industries from foreign competition is often justified on the grounds of building an 'infant industry'. That is, that a new industry (usually in manufacturing) can only be viable if it is able to sell at a price comparable to international competitors. But because some industries benefit from significant economies of scale, an 'infant' industry would be unable to compete with international competitors if it has not built up sufficient scale. So, by implementing temporary protectionism (usually through tariffs) now, it is argued, these infant industries can build up scale and then soon be able to compete

with imports without the need for protection. Moreover, it is argued that without government protections, many industries that would otherwise eventually become competitive would never come into existence due to the high fixed costs of building up scale (Corden 1996).

Economists recognise there are circumstances where, in principle, protection of infant industries may be justified (Corden 1996). First, private capital markets are not willing to support large initial investment. Second, if the public and private sector have large differences in how they evaluate the likely returns to an infant industry. Third, private risk aversion may be larger than public risk aversion, reducing the likelihood of the private sector supporting an infant industry.⁷ Finally, assistance may be justified if there are significant externalities, for example, if new ideas and innovations seep out of the infant industry into the wider economy.

Even where assistance to infant industries is justified in principle, tariffs themselves are very rarely the first-best solution (Corden 1996). Increasing the price of manufactured goods will effectively lower the relative price of all other goods, causing individuals to consume less manufactured goods and more non-manufactured goods. This will result in a movement away from competitive equilibrium in all markets of the economy not just the manufacturing sector leading to significant economic inefficiency. An equivalent subsidy to the manufacturing sector would avoid the economy-wide distortion while providing the same support as a tariff. While introducing their own market inefficiencies, other alternatives such as fixing capital market inefficiencies, export subsidies and import quotas are generally seen as preferable to tariffs (Melitz 2005).

Empirically, there is evidence supporting infant industry arguments in some cases. However, the *timing* of Australia's actual protectionism seems to correspond to the portions of history where protectionism is found to have a negative relationship with economic growth. For example, Australian protectionism (though this is difficult to measure) appears to have been highest during the interwar period and during the 'Golden age' after WWII. However, multi-country panel evidence shows tariffs correlate positively with economic growth (controlling for numerous other factors and including fixed effects) only from the Nineteenth Century up to WWI. That is, they only correlate with growth during the period that Australia had relatively low levels of protection. During the interwar period, there appears to be no correlation between growth and tariff protection, and post-WWII this correlation becomes negative⁸ (Clemens and Williamson 2004).

⁷ These first three arguments are essentially the same: that capital markets may be inefficient for some reason or another with respect to high fixed cost investment industries.

⁸ The reason the correlation between tariffs and growth changes direction is difficult to assess. Clemens and Williamson (2004) argue that the reason is that post-WWII, most countries (excluding Australia) began lowering tariffs in the GAAT, eventually leading to the lowest levels of tariffs in a century and half. And that in such an environment, low tariffs were more likely to promote growth than when protectionism was the norm. So overall, the empirical evidence appears to show that Australia maintained its protectionism right at the point when the returns to doing so were becoming negative.

Diversification — was protectionism a valid risk management strategy?

Government protection of certain industries is often justified as ‘diversifying’ the economy to insulate it from outside shocks. That is, by shifting the economy away from a concentrated production schedule toward a diverse one, the economy will be less vulnerable to outside influences as it is more self-sustaining. According to this logic, the more self-reliant the Australian economy is the less it is exposed to negative external shocks such as reductions in the terms of trade or, relevant to the current period, trade shutdowns due to COVID-19. However, diversification will also insulate Australia against positive shocks such as a terms of trade boom, not allowing us to take complete advantage of the prosperity they offer.

In evaluating the reasonableness of protectionism for diversification, one must establish who faces the economic risks inherent in having a narrow range of exports. If the risk the government is concerned with is borne by workers or capital owners, it is unclear why more direct measures such as taxation or welfare would not have been better alternatives to tariffs. Granted, in the early Federation, both of these instruments were poorly developed, but given Australia’s early adoption of welfare measures such as the Aged Pension that did not emerge until later in the history of other countries, it is certainly conceivable that some policy could have been developed to limit the detrimental effects of commodity price swings on workers and capital owners.

Governments might instead be concerned about the volatility of their own revenue stream due to commodity price fluctuations. Then protection might be justified, if government’s ability to borrow in times of low commodity prices was limited (due to liquidity constraints) and governments myopically failed to save the windfalls accruing during periods of high commodity prices for the periods of low commodity prices. Though even in this case, creating some kind of sovereign wealth fund would be preferable to tariff protection (Corden 1996).

Governments also face an inherent trade-off between the level of income and its volatility when using protectionism. This is because diversification is a movement of resources away from large sectors (they may be small on aggregate but large relative to other countries percentage of production) to small sectors, reducing productivity for at least two reasons. First, comparative advantage is what allows a sector to be large. Without intervention, resources naturally flow into these sectors because they are efficient. Therefore, moving resources from these high productivity (large) sectors to low productivity sectors (small) will lead to a reduction in aggregate productivity as we move resources away from a relatively efficient to a relatively inefficient sector. Second, by allocating resources away from large sectors, Australia does not take full advantage of economies of scale reducing our aggregate productivity (Corden 1996).

Empirically, prior to the 1970s, it appears that volatile terms of trade are associated with lower long-run negative growth in Latin America, Africa and Asia but not in the English-speaking world. Some authors argue that Australia’s tariffs prevented deindustrialisation during terms of trade shocks (Bhattacharyya and Williamson 2011); but many countries in

the developing world adopted some form of protectionism and import substitution. Most likely this result confirms the findings of the ‘resource curse’ literature (Ploeg 2011), which finds that countries dependent on natural resource exports have often suffered, particularly if resource discoveries did not take place in a strong institutional environment.

In summary, protectionism was likely not the first best government policy to manage the economic risks stemming from volatile commodity prices. Some combination of taxation, welfare and sovereign wealth funds would have allowed governments to reduce their economic exposure to commodity price risk without requiring them to trade-off the level of income against its volatility.

Balance of payments

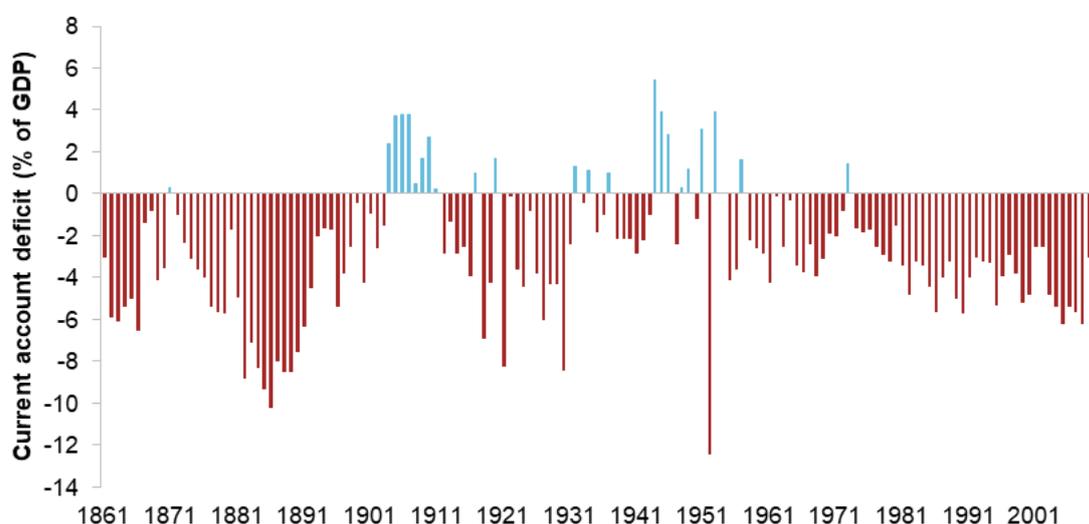
For most of Australia’s history, the demand for capital (to build infrastructure and accumulate private capital) has exceeded the small pool of domestic savings. Given this, Australians had the choice between severely curtailing present consumption to fund investment or borrowing from abroad. They have typically chosen the latter, leading to persistent current account deficits (CAD, figure D.3). Under flexible exchange rates, which have been in place since 1983, fluctuations in the CAD would typically be accommodated by fluctuations in the exchange rate with minimal disruption to the economy.

However, under fixed exchange rates (which was the case, with some interpretations from 1910 to 1983) or monetary union (de-facto use of British currency⁹ was the norm prior to 1910) sudden CAD fluctuations can be destabilising (Dyster and Meredith 2012, pp. 127–128). During periods of economic growth, CADs can build as foreign lenders supply capital to local entrepreneurs, leading to higher incomes and higher imports (reducing the net trade balance by an amount that maintains zero balance of payments). However, if foreign lenders lose confidence in the ability of domestic borrowers to make repayments, as occurred in the 1890 depression, this can lead to a sudden shortage of foreign capital. This lowers investment and incomes, leading to an improvement in net exports (often induced by a recession).

⁹ Various foreign currencies and even barter were used in pre-Federation Australia but foreign borrowing almost exclusively was denominated in the British Pound (Dyster and Meredith 2012).

Figure D.3 Current account deficits have been a persistent feature of Australian economic history

Current account^a (% of GDP, annual) from 1861 to 2010



^a The current account deficit is the sum of the net trade balance (exports minus imports) and net primary income (income on investment received from foreigners minus income from investment paid to foreigners).

Source: Butlin et al (2015).

This cycle of CAD deficits followed by crises was a justification for tariff protection. By limiting the demand for foreign imports, it was thought, Australia could reduce its CAD deficit before a crisis of confidence occurred. This was clearly a goal of the Australian Government, and indeed most foreign governments, during the Great Depression when concern grew about the drying up of global capital markets (Dyster and Meredith 2012, pp. 127–128).

Neither restricting imports or capital controls is first best policy for preventing balance of payment crises even under a fixed exchange rate regime. Instead, a devaluation of the currency can increase net exports by an amount that would offset the fall in foreign exchange reserves resulting from sudden capital outflows (Corden 1996). Governments could also have restricted the type of foreign financing that could occur (emphasises long-term rather than short-term debt or equity rather debt or even limiting the recourse of foreign lenders) or, given that governments themselves were often the borrowers, default on or restructure their obligations if payment became difficult. However, mainly due to the strong cultural and political ties between Australia and its chief financier, Great Britain, none of these options were used in the 1890 depression and devaluation was only very reluctantly used during the Great Depression (McLean 2013).

It is beyond the scope of this paper to determine how well protectionism worked in practice (not just in theory) in addressing the issue of balance of payment crises and whether the benefits of doing so outweighed the costs of reduced competition. That said, if one takes the policy constraints on exchange rates and capital controls as given, it is difficult to see what better alternatives existed to deal with balance of payment crises than protectionism. Though, these protectionist measures became unnecessary once the currency was floated in 1983.

E Was Australia's income lead the result of mismeasurement?

Summary

Official Australian GDP statistics by the ABS begin in 1959-60, with some earlier estimates from its predecessor, the Bureau of the Census, for the years 1939-40 to 1958-59, leaving the period up to about 1940 as lacking official estimates of output. The most widely accepted estimates between 1788 to 1860, and 1861 to 1938-39 come from Noel Butlin (Butlin 1962; Butlin and Sinclair 1984). Comparisons of GDP levels between countries are made using purchasing price parity (PPP) conversion estimates constructed by Bolt et al. (2018). Together, these estimates have formed the basis of comparisons in the main document.

However, these statistics are not without their detractors. Haig (2001) criticises Butlin's estimates on the grounds that the GDP deflators used are based on non-representative price data, leading to overestimation of real output in the late Nineteenth Century. Accepting Haig's alternative estimates somewhat reduces the lead Australia had in relative GDP per capita, as well as reducing the size of the subsequent fall. Other estimates try to look beyond the national accounts approach and tend to focus on 'social indicators' instead.

The different criticisms and alternative estimates each have different interpretations on the size of the income gap with the US in the late Nineteenth and early Twentieth Centuries. Because Haig's estimates only affect real GDP (not nominal estimates), it does not affect the level comparisons of income in the two countries. However, if one does accept Haig's estimates of real output while retaining nominal estimates of Butlin and the same PPP converters from Bolt, then the causes of Australia's decline change slightly. It becomes less of a story of declining productivity and more about unfavourable price effects (perhaps due to terms of trade movements).

Other criticisms tend to focus on estimates of other social and economic indicators, to assess the reasonableness of the large boom in the late Nineteenth Century and the economic stagnation that occurred between 1890 and the Second World War. On the boom, Panza and Williamson's (2018) alternative estimates of PPP adjusted GDP per capita would slightly diminish Australia's income lead in the late Nineteenth Century, and imply it would have come about suddenly in the 1860s and 1870s. Likewise numerous authors have shown various 'social indicators' that raise either questions about whether Australian incomes were truly stagnant as Butlin initially estimated or raise doubts the link between average incomes and living standards in this period.

It is beyond the scope of this paper to evaluate the reasonableness of other estimates, except to note that Butlin's and Bolt's figures are still widely accepted. Though, various alternative estimates raise questions about the timing and size of Australia's rise and fall in relative income, none of them fundamentally question that a rise and fall (albeit perhaps smaller) did occur.

In some respects, the divergence of views on economic statistics made before the establishment of the ABS is understandable. Estimation of Australia's relative production and income during this time period suffers from numerous issues: the need to impute¹⁰ the value of final production that is consumed by producers, patchy coverage of statistical surveys, an absence of meaningful market prices in the convict colonies and the absence of comprehensive price data more generally. That said, relative to other countries, Australia's economic statistics before the establishment of the ABS are unusually good. As Noel Butlin wrote in his seminal work:

Few, if any, countries in the world can claim to possess official statistics comparable to those of Australia during the years 1861-1939. (Butlin 1962, p. xv)

In part, the continued debate on the precise level of Australian living standards before WWII reflects the wealth of different sources that can be compared and contrasted.

Haig's alternative GDP estimates

Haig presents several critiques of the methodology Butlin used to obtain his GDP estimates and provides alternative estimates (figure E.1). Haig's main issues with the estimates of Butlin are:

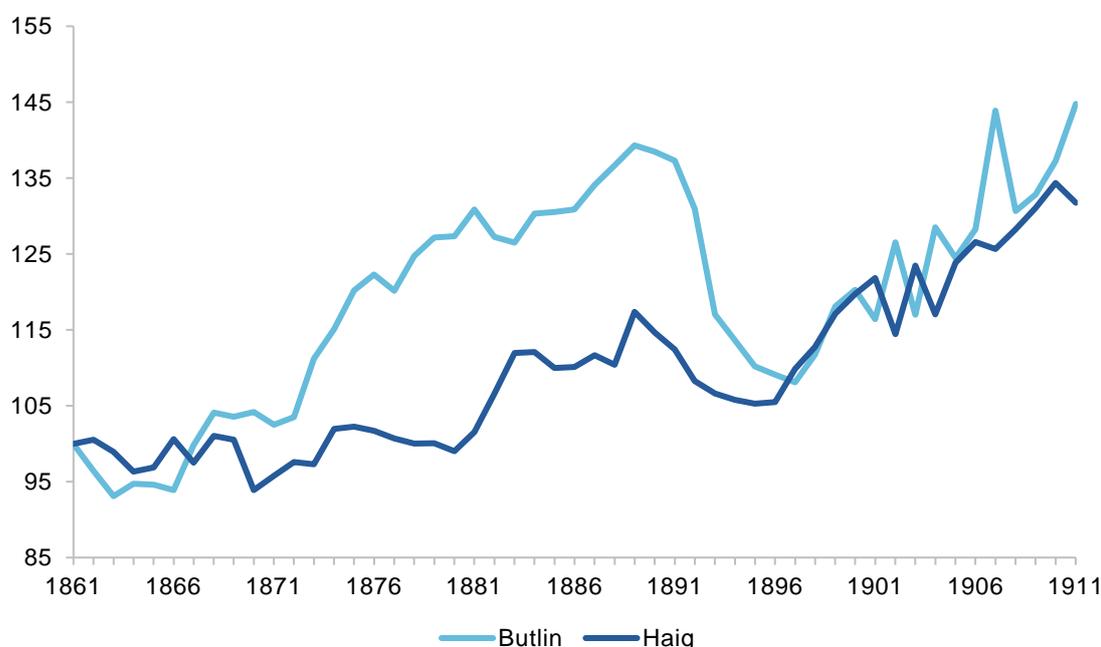
- 'the inadequacy of price data needed for deflation'
- lack of a framework for compiling the figures potentially leading to double counting or missing certain economic activity.

As an alternative, Haig uses direct measures of physical output (or proxies thereof) to avoid the issue of deflating current price measures of output.

While the two numbers are broadly similar over a wide period of time, they paint very different pictures for shorter intervals. For example, Butlin shows more rapid income growth between 1870 and 1890. Consequently, Butlin's estimates portray the period of 1890 to 1911 as being one of zero income growth, on average, while Haig's estimates show growth that was broadly similar to what came before (figure E.1). Similarly, Haig also finds that GDP per capita growth between 1911-12 and 1938-39 is significantly faster than Butlin (the latter found real incomes were basically flat over this period).

¹⁰ This is an issue in modern economic statistics, but was far more common in the early colonial economy when producers would often have to construct their own buildings (Butlin 1962).

Figure E.1 Haig and Butlin's Australian GDP estimates show similar long term trends but very different levels at particular points
 GDP per capita^a indices (1861 = 100) estimated by Butlin and Haig



^a The estimates of real GDP come from Butlin et al. (2015) and Haig (2001) separately while the population estimates come from Butlin et al. (2015).

Sources: Butlin et al. (2015); Haig (2001).

Relative incomes in the Nineteen Century

In a recent paper, Panza and Williamson (2018) attempt to construct alternative estimates of PPP converters using bundles of goods in Australia, the UK and the US respectively. The results are shown in table E.1. The main differences these results have from Bolt et al. (2018) are that Australian GDP per capita starts from a higher base and only begins catching up to US levels in the 1860s, much later than in Bolt et al's. (2018) estimates. And Panza and Williamson's (2018) estimates show a smaller peak in relative income in 1870.

Overall, even accepting these alternative estimates for this period would not change any of the Commission's conclusions.

Table E.1 Broadly similar stories of Australia’s rise, though with different timing

Ratio of GDP per capita in Australia compared to the United States (US = 100)

<i>Decade</i>	<i>Bolt et al</i>	<i>Panza & Williamson</i>
	US = 100	US = 100
1820s	35.5	43.9
1830s	51.2	58.0
1840s	74.6	44.3
1850s	107.8	43.4
1860s	105.4	74.7
1870s	128.9	119.9

Sources: Bolt et al. (2018); Panza & Williamson (2018).

How stagnant were incomes in the early Twentieth Century?

Various studies¹¹ have looked at a suite of ‘social indicators’ that test the reasonableness of Butlin’s finding of stagnant incomes from 1890 to WWII. These tend to show that Australian living standards continued to improve even while incomes were apparently flat. McLean and Pincus illustrate some of the apparent discrepancies:

An Australian born in 1940 faced an expectation of life of 65 years; one born in 1890 faced only 50 years. At the outbreak of the Second World War the average working week for urban Australians was 45 hours; in 1890 it had been 52 to 54 hours. ...

In the late 1930s there was a telephone for every ten Australians, a motor vehicle for every eight, and a radio for every six; in 1890 the telephone had only just been introduced, horseless carriages were highly experimental, and radio lay in the realm of science fiction. (1983, p. 192)

A selection of other social indicators are presented in table E.2. These, as well as some others, together cast doubt on how stagnant Australian living standards were during this period.

That said, there are explanations that would be consistent with stagnant GDP per capita and these observed improvements in other measures of living standards. First, some of them, such as infant mortality or life expectancy, are clearly more driven by hygiene and medical improvements than income. Second, it is possible that while GDP per capita was stagnant, household consumption was not due to borrowing or drawing down on savings. Haig and Anderssen’s (2007) estimates of consumption do not lend much support to this possibility, but as with Butlin’s estimates of GDP, these estimates of aggregate consumption for such a long time ago are not above scrutiny. Thirdly, one would have to look at the improvement

¹¹ This discussion draws heavily from McLean (McLean 2013, pp. 173–175)

of similar indicators in countries that appeared to have better growth in GDP per capita over the same period to make strong conclusions about whether Butlin's estimates might be inaccurate. Put differently, it could be that with greater growth in GDP per capita, these indicators could have improved at even faster pace. Fourthly, the falling working hours of the typical worker is a part of the *cause* of stagnant incomes over this period, indicating a trade-off between consumption and leisure. Finally, the distribution of incomes is known to have improved from 1914 onwards, and this may explain why the living standards of most could improve while average incomes effectively stagnated.

On the whole, what these social indicators may show is that even a country with relatively stagnant incomes can improve its living standards given the right social and institutional arrangements.

Table E.2 Social indicators cast some doubt on the likelihood of stagnant incomes

Infant mortality, housing statistics and educational attendance between 1891 and 1947

	1891	1911	1933	1947
Infant mortality (per thousand)	115.3	68.5	39.5	28.5
Housing				
Rooms per dwelling	5.05	5.04	4.94	4.82
Inmates per dwelling	5.12	4.78	4.26	3.96
Rooms per inmate	1.09	1.15	1.28	1.35
Education (% attendance)				
Age 5-14	62.2	67.7	79.5	88.9
Age 15-19	NA	7.6	11.4	11.3
Age 20-24	0.43	0.75	1.7	4.9

Source: McLean (2013, p. 174).

References

- ABS, A. 1988, *History of Pensions and Other Benefits in Australia*, Year Book Australia.
- ACCC, A. 2018, *Restoring electricity affordability & Australia's competitive advantage*, Text, Australian Competition and Consumer Commission, <https://www.accc.gov.au/publications/restoring-electricity-affordability-australias-competitive-advantage> (accessed 9 November 2020).
- Acemoglu, D. and Linn, J. 2004, 'Market Size in Innovation: Theory and Evidence from the Pharmaceutical Industry', *The Quarterly Journal of Economics*, vol. 119, no. 3, pp. 1049–1090.
- Aivazian, V., Ge, Y. and Qiu, J. 2005, 'Can corporatization improve the performance of state-owned enterprises even without privatization?', *Journal of Corporate Finance*, vol. 11, no. 5, pp. 791–808.
- Anderson, K. 2020, *Trade Protectionism in Australia: Its Growth and Dismantling*, SSRN Scholarly Paper, 1 May, ID 3603992, Social Science Research Network, Rochester, NY, <https://papers.ssrn.com/abstract=3603992> (accessed 1 October 2020).
- and Garnaut, R. 1987, *Australian protectionism: extent, causes and effects*, Sydney.
- Atkinson, A.B. and Leigh, A. 2010, 'The Distribution of Top Incomes in Five Anglo-Saxon Countries over the Twentieth Century', *IZA DP No. 4937*, p. 54.
- Atkinson, T. and Leigh, A. 2007, 'The Distribution of Top Incomes in Australia', *The Economic Record*, vol. 83, no. 262, pp. 247–261.
- Australia. Committee on Economic Effects of the Tariff 1929, *The Australian tariff: an economic enquiry*, 2nd ed., Melbourne University Press economic series; no. 6, University Press in association with Macmillan, Melbourne.
- Banks, G. 2005, *Structural Reform Australian-Style: Lessons for Others?*, Productivity Commission Chairman's Speech, Canberra.
- Bhattacharyya, S. and Williamson, J. 2011, 'Commodity price shocks and the Australian economy since Federation', *Australian Economic History Review*, vol. 51, no. 2, pp. 150–177.
- Bolt, J., Inklaar, R., de Jong, H. and van Zanden, J.L. 2018, *Rebasing 'Maddison': new income comparisons and the shape of long-run economic development*, Maddison Project Working paper 10.
- Butlin, M., Dixon, R. and Lloyd, P. 2015, 'Statistical Appendix: selected data series, 1800-2010', *The Cambridge economic history of Australia*, Cambridge University Press, Sydney.
- Butlin, N.G. 1962, *Australian domestic product, investment and foreign borrowing 1861-1938/39*, Cambridge University Press, Cambridge.
- and Sinclair, W.A. 1984, *Australian gross domestic product 1788 to 1860: estimates, sources and methods*, Source Papers in Australian Economic History, 2, Australian National University.
- Clemens, M.A. and Williamson, J.G. 2004, 'Why Did the Tariff-Growth Correlation Change after 1950?', Springer, *Journal of Economic Growth*, vol. 9, no. 1, pp. 5–46.

-
- Corden, M. 1996, *Trade policy and economic welfare*, 2nd edn, Oxford England : Clarendon Press ; New York : Oxford University Press.
- Crespi, G., Criscuolo, C. and Haskel, J. 2008, 'Productivity, Exporting and the Learning-by-Exporting Hypothesis: Direct Evidence from UK Firms', *The Canadian Journal of Economics*, vol. 41, no. 2, pp. 619–638.
- Dixon, P., Sutton, J., Vincent, D.P. and Parmenter, B.R. 1982, *ORANI: A Multisectoral Model of the Australian Economy*, <https://www.copsmodels.com/oranibook.htm> (accessed 20 October 2020).
- Dyster, B. and Meredith, D. 2012, *Australia in the Global Economy: Continuity and Change*, Cambridge University Press.
- Haig, B. 2001, 'New Estimates of Australian GDP: 1861–1948/49', *Australian Economic History Review*, vol. 41, no. 1, pp. 1–34.
- and Andersson, J. 2007, 'Australian Consumption Expenditure and Real Income: 1900 to 2003–2004', *The Economic Record*, vol. 83, no. 263, pp. 416–431.
- Hall, G.J. 1958, 'The Australian Tariff Board - 1922-1956', Melbourne.
- Hancock, K. 2005, 'Productivity Growth in Australia 1964-65 to 2003-04', *Australian Bulletin of Labour*, vol. 31, no. 1, pp. 28–32.
- Hawke, R. 1991, *Ministerial Statement*, House Hansard, 12 March, p. 1761.
- Hilmer, F. (Independent Committee of Inquiry into Competition Policy in Australia) 1993, *National Competition Policy: Report by the Independent Committee of Inquiry into Competition Policy in Australia*, Canberra.
- Jones, W.R. 1971, 'A Three Factor Model in Theory, Trade, and History', North-Holland, *Trade, Balance of Payments and Growth*, pp. 3–21.
- Kent, C. and Simon, J. 2007, *Productivity growth: the effect of market regulations*, Research Discussion Paper, Reserve Bank of Australia, Sydney.
- de Laine, C., Lee, K. and Woodbridge, G. 1997, *Microeconomic Reform and Structural Change in Employment*, Industry Commission Staff Research Paper, Canberra.
- Langcake, S. 2016, 'Conditions in the Manufacturing Sector', *RBA Bulletin*, Reserve Bank of Australia, Sydney.
- Lloyd, P. 2008, '100 Year of Tariff Protection in Australia', *Australian Economic History Review*, vol. 48, no. 2, pp. 99–145.
- 2017, 'The First 100 Years of Tariffs in Australia: the Colonies', *Australian Economic History Review*, vol. 57, no. 3, pp. 316–344.
- McLean, I. 2013, *Why Australia Prospered: The Shifting Sources of Economic growth*, The Princeton Economic History of the Western World, Princeton University Press, New Jersey.
- and Pincus, J. 1983, 'Did Australian Living Standards Stagnate between 1890 and 1940?', *Journal of Economic History*, vol. 43, no. 1, pp. 193–202.
- Meggison, W.L. and Netter, J.M. 2001, 'From State to Market: A Survey of Empirical Studies on Privatization', *Journal of Economic Literature*, vol. 39, no. 2, pp. 321–389.
- Melitz, Marc.J. and Trefler, D. 2012, 'Gains from Trade when Firms Matter', *Journal of Economic Perspectives*, vol. 26, no. 2, pp. 91–118.

-
- Melitz, M.J. 2005, 'When and how should infant industries be protected?', *Journal of International Economics*, vol. 66, no. 1, pp. 177–196.
- Murtough, G., Pearson, K. and Wreford, P. 1998, *Trade Liberalisation and Earnings Distribution in Australia*, Industry Commission Staff Research Paper, Canberra.
- Panza, L. and Williamson, J. 2017, *Australian squatters, convicts, and capitalists: dividing up a fast-growing frontier pie 1821-1871*, 23416, NBER Working Paper Series, National Bureau of Economic Research.
- and — 2018, 'Living costs and living standards: Australian development 1820-1870', *European Review of Economic History*, vol. 24, no. 1, pp. 80–97.
- and — 2019, *Always egalitarian? Australian earnings inequality c1870*, Discussion Paper, Centre for economic history, the Australian National University.
- PC (Productivity Commission) 1999, *Microeconomic Reforms and Australian Productivity: Exploring the Links*, Commission Research Paper, Canberra.
- 2005, *Review of National Competition Policy Reforms*, Report no. 33, Canberra.
- 2013, *Electricity Network Regulatory Frameworks*, Report no. 62, Canberra.
- 2017, *Rising Protectionism: Challenges, threats and opportunities for Australia*, Commission Research Paper, Canberra.
- 2019, *Trade and Assistance Review 2017-18*, Annual Report Series.
- 2020, *PC Productivity Insights*, Canberra.
- Pincus, J. 2009, 'Reflection on Microeconomic Policy Frameworks in Australia, and a Suggestion about Fairness', *Australian Economic Review*, vol. 42, no. 2, pp. 121–130.
- Ploeg, F. van der 2011, 'Natural Resources: Curse or Blessing?', *Journal of Economic Literature*, vol. 49, no. 2, pp. 366–420.
- Quiggin, J. 1998, 'Micro gains from micro reform', *Economic Analysis & Policy*, vol. 28, no. 1.
- 2001, 'Market-Orientated Reform in the Australian Electricity Industry', *The Economic and Labour Relations Review*, vol. 12, no. 1, pp. 126–150.
- 2006, 'Stories about Productivity', *Australian Bulletin of Labour*, vol. 32, no. 1, pp. 18–26.
- Samuelson, P.A. 1971, 'Ohlin Was Right', [Scandinavian Journal of Economics, Wiley], *The Swedish Journal of Economics*, vol. 73, no. 4, pp. 365–384.
- Stolper, W.F. and Samuelson, P.A. 1941, 'Protection and Real Wages', [Oxford University Press, Review of Economic Studies, Ltd.], *The Review of Economic Studies*, vol. 9, no. 1, pp. 58–73.
- Ville, S. and Withers, G. (eds) 2014, *The Cambridge Economic History of Australia*, Cambridge University Press, Cambridge, <https://www.cambridge.org/core/books/cambridge-economic-history-of-australia/AB02CA796ABD4EA33658B7105AA51ECD> (accessed 11 November 2020).
- Wilson, J. 2014, 'Government and the evolution of public policy', *Cambridge Economic History of Australia*.