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Trade protectionism in Australia: its growth and dismantling

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Kym Anderson[*]

Abstract

Protection from import competition was a defining feature of the birth of the Australian federation in 1901. For the next 70 years, the extent of protection grew, and broadened from mainly tariffs to also involving import licencing after World War II. There was a one-off 25% across-the-board cut in tariffs in 1973 and some dismantling of agricultural subsidies, but that was followed by the re-imposition of import quotas for the most-protected manufactured goods. Then a new reformist government began, in the mid-1980s, a long process of dismantling all protection as part of an overall economic reform program that also involved de-regulation, privatization and moving to a flexible exchange rate. The rewards included three decades of faster economic growth and an unprecedented rise in Australians' living standards. This paper provides a history of economic thought on the pros and cons of protectionism for the small, distant, natural resource-rich Australian economy and a survey of the literature on the extent, effects and political economy reasons behind the growth of Australian protection and its eventual dismantling.

Keywords: import restrictions; tariffs; sectoral assistance; price-distorting policies; political economy of trade policy

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1. Introduction

For most of the 20th century, Australia was the world's most protected advanced economy apart from New Zealand. Like its neighbour, it took until the mid-1980s before sustained policy reform and opening up took hold – such that both countries now are among the world's most open. By contrast, the election of Donald Trump as President of the United States at the end of 2016 marks the beginning of a new era of import tariff protectionism, retaliation and managed trade in key advanced and emerging economies (Evenett and Fritz 2019; Fajgelbaum et al. 2019; WTO 2019).

The long history of Australia's protectionism up to the early 1980s has been summarized in several studies including Lloyd (1978; 2017), Anderson and Garnaut (1987), Rattigan (1986) and Capland and Galligan (1992).[1] This paper seeks (a) to reveal the degree to which Australia has since opened its economy, and (b) to survey subsequent publications over the most recent 35 years that have gradually improved our understanding of the extent and effects of Australia's protection to manufacturers and farmers, and the reasons behind it. The paper concludes by discussing prospects for Australia's economy remaining open in the current era of trade interventions by its largest trading partners.

The paper begins by explaining why this issue is important for economic welfare and the distribution of income and wealth in Australia. It then summarizes how Australia's trade and protection patterns have evolved since Federation in 1901. The arguments for and against protecting manufacturers from import competition, and providing compensation for farmers, are outlined. The extent of Australian protectionism is then mapped out, followed by a summary of estimates of the economic effects of Australian protectionism and its reform. Attempts to understand the political economy forces driving Australia's trade-related policies and their reform are reviewed. Before concluding, the paper looks at the influence of international trade negotiations, and asks how much have economists contributed to Australia's trade liberalization.

2. Why protectionist policies mattered in Australia

When the Australian Federation formed, trade policy was a major point of difference between the British colonies that were to become states within the new federation. It turned out that the protectionists only marginally dominated the free traders, yet before World War I Australia had adopted a firm protectionist stance. For seven decades thereafter, tariffs on imports of manufactures continued to rise. The average tariff on imports of non-food manufactures almost doubled in the decade to 1920, and doubled again by 1932. It dropped only a little in the latter 1930s, and then rose again after World War II. Protection rates were further increased in the 1940s and 1950s with the adoption of quantitative import restrictions. As well, there was a ban on exports of iron ore from the late 1930s to the early 1960s. Unlike most other industrial countries, Australia did not take part in the multilateral tariff reductions negotiated under the General Agreement on Tariffs and Trade (GATT) during the 1950s and 1960s (Snape 1984). Hence by 1970 Australia was rivalled only by New Zealand in having the highest manufacturing tariffs among the advanced industrial countries (Anderson 1987).

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[1] See also https://en.wikipedia.org/wiki/History_of_tariffs_in_Australia

That seven decades of import-substituting industrialization (along with numerous other government interventions such as labour market regulations) cost Australia dearly in terms of its average comparative standard of living. In 1900, Australia was arguably the highest-income country in the world on a per capita basis (McLean 2013). But by 1950 its rank had slipped to third; by 1970 it was seventh; and by the late 1980s Australia was not even in the top 25, before climbing back into the top 20 by 2015 (Table 1).[2] Protectionism may have contributed to extensive growth (i.e., GDP) by attracting more immigrants and foreign capital, but many have argued that it, along with domestic market regulations, depressed productivity and hence intensive growth (GDP per capita).

[Insert Table 1 about here]

Australia's comparatively poor economic growth performance for most of the twentieth century contrasts with that of the final decade, when Australia out-performed all other advanced economies other than Ireland and Norway in terms of GDP per capita growth (World Bank 2000, Tables 1, 3 and 11). This was a period of especially rapid productivity growth (Parham et al. 1999; Dowrick 2001), in contrast to Britain where much of its catch-up had been due to growth in employment and hours worked per worker (Card and Freeman 2004). Australia continued to out-perform most other high-income economies during the first two decades of the present century even though reform enthusiasm waned. It avoided a recession even during the global financial crisis that began in 2007-08 (World Bank 2018).

The difference between the economy's recent and earlier relative performances arguably is due very substantially to the country's economic policy reforms of the past four decades, including trade policies.[3] In the 1990s alone, both the mean and the standard deviation of Australia's import tariffs on goods halved. A continuation of the reform process brought the nation's average MFN applied tariff down to 1.2% for agricultural goods and 2.7% for non-farm products by 2016. That was lower than almost any other country (Table 2), in contrast to 1970 when Australia's manufacturing tariffs (along with New Zealand's) were the highest among advanced industrial countries (Anderson and Garnaut 1997, Table 2.1).

[Insert Table 2 about here]

The belated opening of the Australian economy to the rest of the world and floating of its currency in the mid-1980s, coupled with many domestic economic reforms from that time, not only arrested the decline in Australia's per capita income ranking. It also helped Australia to weather the Asian financial crisis of 1997-98 and the global financial crisis of 2007-08, and to capitalize on the China-led boom in demand for commodities in the decade to 2014. These events have had a remarkable influence on the pattern of Australia's production and trade.

3. Australia's evolving production and trade pattern

The natural resource-rich, lightly populated Australian economy (see relative factor endowments in Table 3) has had persistently high export shares and comparative advantage in primary products (Table 4). Its main trading partners are thus natural resource-poor, heavily populated countries. Initially the key one was the United Kingdom, assisted by

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[2] Australia was highly ranked (6th) in terms of total wealth per capita in 2014 though (Lange, Wodon and Carey 2018), up from 15th in 2000 (World Bank 2006). The rise this century is mainly because of Australia's relative abundance of mineral resources that were much higher priced in 2014 than in 2000.

[3] Forsyth (1992, 2000). Earlier literature surveys of Australian economic policies and their effects can be found in Corden (1968) for writings up to the mid-1960s and, for the next decade, in Gruen (1978a,b; 1983) and especially Lloyd (1978), Edwards and Watson (1978), and Smith (1983).

Commonwealth trade preferences; but that rapidly switched to East Asia once the UK joined the protective European Economic Community (now European Union) in 1973 and Japan and its newly industrializing neighbours grew dramatically (Table 5).

[Insert Tables 3, 4 and 5 about here]

Given Australia's extreme resource endowments, the most appropriate theory of comparative advantage to explain its trade pattern is a blend of the two core trade models developed in the 20th century: the Heckscher-Ohlin-Samuelson model which assumes all factors of production are mobile between sectors, and the Ricardo-Viner model which assumes some factors are sector-specific. Such a blend is provided by Krueger (1977) and explored further by Deardorff (1984) and then Leamer (1987). Leamer relates it to paths of economic development. That theory of changing comparative advantages has been used very successfully to explain the evolving pattern of exports of Australia and its Asian trading partners (Anderson and Garnaut 1980; Anderson and Smith 1981; Anderson 1995). It can also be used to explain shocks to that evolutionary pattern, as with mining booms. Gregory (1976) was the first to focus on the mining boom issue from an Australian perspective following the 1973-74 hikes in international energy prices. His analysis was refined by Snape (1977) and Corden (1984). The mining boom in the first decade of the 21st century led to further refinements to that theory (e.g., Freebairn 2015).

The evolving pattern of a country's production and trade specialization also depends on policy choices and their changes over time, and on international terms of trade shocks. In Australia's case, its long history of industrial protectionism, together with its ban on iron ore exports until the early 1960s, ensured a smaller share of Australia's GDP was traded than would be normal for an economy of its size. It also ensured a bigger manufacturing sector than would have emerged under free trade, which was possible in Australia's full-employment setting only at the expense of other sectors. The manufacturing sector's share of GDP by 1960 was the same as the OECD average (29%), even though Australia has always been lightly populated and so has a weak comparative advantage in manufactures. The removal of the ban on iron ore exports in the early 1960s, the lowering of costs of shipping coal, iron ore and other minerals, and the tariff reforms of the 1970s and 1980s corrected that though: since 1960, manufacturing's share of GDP fell much more rapidly for Australia than for the average industrial country: to 15% compared with the high-income country average of 22% in 1990, and to less than 7% compared with 15% for high-income countries in 2016 (Figure 1). Thus Australia's sectoral structure, for the first time in a century, is now more like what theory suggests it should be for a small, affluent, natural resource-rich open economy (Anderson and Ponnusamy 2019).

[Insert Figure 1 about here]

The excessive size of Australia's manufacturing sector as of 1960 was particularly at the expense of the natural resource-based sectors in which Australia had its strongest comparative advantage. We have known since Lerner (1936) that in a two-sector setting, an import tax can have the same effect as an export tax, but how it affects the sector producing nontradables depends heavily on the elasticities of substitution in production and consumption as between tradables and nontradables. Sjaastad and Clements (1982) suggest that in Australia nontradables were relatively close substitutes for importables, and so their production would have been encouraged by protection of import-competing industries, further drawing mobile factors of production away from export industries.

It was not only natural resource-based exportables that Australia's protectionism discouraged, however. Also discouraged were export industries *within* the manufacturing sector, as well as services exports. Together those two sectors contributed only one-twelfth of Australia's exports of all goods and services in the early 1950s. Even by 1980 their

contribution was barely above one-quarter, but by 2000 it had risen to 44%, or 22% each, thus each surpassing the 21% share for agriculture for the first time.[4]

With this opening of the economy, and especially the decline of even the most protective tariffs (on textiles, clothing, footwear and motor vehicles and parts) to no more than 5% and the elimination of quotas on their imports,[5] Australia's trade with East Asia has boomed. Not only has it been a huge boost to primary product exports, but also to imports of manufactures from emerging Asian economies. The latter accounted for barely 10% of imports in the 1950s and less than 20% in the late 1960s, but by the early 1990s their share had reached 40% -- and it is close to 60% now (Table 5). By any standards this is a remarkable transformation from the situation that prevailed in the early 1980s.

4. **Arguments for and against protecting manufacturers from import competition**

Trade policies in Australia's colonies under British rule were mostly just to raise revenue. That was done by placing import tariffs on alcohol and luxuries (Lloyd 2017). Once Britain granted the colonies self-government in the latter 1850s, however, domestic political influences played a far larger role. An initial concern at the time was employment for the much-enlarged workforce that had swelled because of immigrants being attracted by the discovery of gold in the early 1850s. Many of those workers were underemployed once the most-productive gold reserves were depleted; but an enduring concern was income and wealth inequality. From the 1860s New South Wales relied more on revenue from land sales and income taxes to redistribute, whereas Victoria became strongly protectionist of local producers and used import tariffs as a way of raising wages at the expense of landowners. Federation in 1901 brought those views into conflict, but within a decade Australia had become protectionist, and by 1920 even the Country Party (representing rural interests, now called the National Party) supported protection. That consensus allowed protectionism to be maintained and even strengthened over the next half century.

Giblin (1936) gives a sense of how that consensus was perceived by economists in the mid-1930s. Its author was a co- author of the seminal Brigden et al. (1929) report to the government of the day on the economics of Australian tariffs. The consensus at that time – even among mainstream economists – was that tariffs were required to increase employment and, when there is full employment, to attract more immigrants to boost Australia's population. Tariffs also had the perceived virtue of reducing income and wealth inequality by depressing farmland values and redistributing incomes from primary producers towards the urban sector. Giblin did not believe in the infant industry argument for protection (claiming protected 'infants' don't mature). Also, he recognized that the policy was costly to the national economy, and that most of that cost was born by export industries and in particular by its owners of fixed assets, namely, farm landholders other than those able to produce the protected items of milk, sugar, tobacco and dried vine fruits.

The current national and global popular backlash against globalization is not unprecedented: it was alive and well in the 1930s, as was the view – held again today by US President Donald Trump – that bilateral trade imbalances are 'unfair'. It is a reminder also

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[4] The mining investment boom over the first dozen years of this century reduced the shares of all other sectors in Australia's exports, such that by 2013 those shares for manufacturing, agriculture and services were 12%, 13% and 17%, respectively, before they began to recover as the AUD real exchange rate depreciated (World Bank 2018).

[5] The effective rates of assistance to textiles, clothing, footwear, and to motor vehicles and parts, both peaked at more than 140% in the mid-1980s before quotas on their imports were removed (Productivity Commission 2003, Figure 4.3).

that having a competently staffed government advisory body (Australia's Tariff Board, founded in 1921) does not mean the government will adopt its recommendations, or even consult it on politically sensitive issues. On the contrary, Giblin reports that economists were "startled and bewildered" at the decisions to hike tariffs on textiles and manufactured motor vehicles without seeking advice and to increase protection for tobacco growing in direct contradiction to the Board's findings, without any reason being offered. By this action Giblin believed the Government had exposed the whole tariff structure to the vagaries of future political expediency and the log-rolling of interested parties.

The Australian debate about who gains or loses from protection, which was enlivened for economists by the publication of the Brigden Committee report in 1929, led to a sharper focus on the issue in America (Karl Anderson 1938, 1939; Marion Samuelson 1939). An important development during that period was the seminal theoretical publication by Stolper and Samuelson (1941) for a small economy: by assuming there were two sectors producing tradables and just two factors of production that were intersectorally mobile, they were able to conclude that a tariff on imports would raise the real income of the owner of the factor used relatively intensely in the import-competing sector and lower the real income of the owner of the other factor. In the Australian setting that suggested labourers would gain at the expense of capitalists (which in their model included owners of farmland).[6]

No allowance was made in the Stolper-Samuelson model for the facts that labourers are heterogeneous and that workers can raise their skills over time (Lloyd 1978). Perhaps even more importantly, the reality that natural resources such as farmland and mineral deposits are specific to the primary sectors was not taken into account. A Ricardo-Viner model popularised by Jones (1971) was thus more appropriate for Australia, given the importance of primary production. That model still involves just two tradable sectors but each is assumed to have one factor of production that is specific to its sector, in addition to a perfectly mobile factor (labour). With those assumptions the Jones model would predict for Australia that a tariff on imports would raise the real income of the owners of the factor that is specific to the import-competing manufacturing sector, and lower the real income of the owners of the farmland or mineral deposits that are specific to the primary export sector. Moreover, he shows that the real incomes of wage earners could go up or down in this model, with the latter more likely the larger the share of manufactures in their consumption bundle (since the consumer price of manufactured goods is raised by the tariff).

That set of conclusions is dramatically different from the perception many people had based on the Stolper-Samuelson model and the earlier debate in Australia. If labour were in fact not to be gaining from tariffs, and that instead the gains were being captured only by industrial capitalists (many of them foreigners, since the tariff encouraged foreign direct investment in Australia), then any residual credibility in the traditional income re-distributional argument for tariffs collapses.

The other main arguments for tariffs that were put forward in the past, such as for balance of payments reasons or a more-balanced (i.e. more industrialized) economy, were never first-best arguments for tariff protection, and are now irrelevant. So too is – and always was – the optimal tariff argument. Even if an optimal tax on Australian wool exports had some chance of being above zero when wool accounted for the majority of Australia's export earnings and Australia held a major share of the world's exports of wool, import protection would have been a very poor substitute to a wool export tax. This is so for at least three reasons, and notwithstanding the Symmetry Theorem of Lerner (1936). First, the cost of collecting trade tax revenue would have been far higher on myriad imported items than on

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[6] Interest in this literature stemming from Marion Samuelson's honours thesis was rekindled by Manger (1981a, b) in exchanges with Marion's husband Paul (Samuelson 1981a, b). See also Reitsma (1958).

one export item. Second, tariffs on various imports are more likely to invite retaliation by other countries than a single wool export tax. And third, the unequal lobbying pressure from vested interests for tariff protection would never have led to a uniform tariff on all imports.

The first and last points in the preceding paragraph are the stepping-off points for Corden (1958). This classic article has two key findings: that quantitative import restrictions (which were rife in Australia at the time) are less efficient at dealing with balance of payment problems than are real exchange rate adjustments and so should be replaced by tariffs; and that tariffs themselves are less efficient the more dispersed are their rates across products, and so should be set at a uniform rate. Corden also advocated a uniform export subsidy in place of the widely varying rates that applied at the time for a subset of rural (but not manufactured) products. And he pointed to the inefficiency of using tariffs to support infant industries or to re-distribute income – arguments he later refined in his subsequent book on *Trade Policy and Economic Welfare* (Corden 1974).

5.   **Arguments for and against tariff compensation for farmers**

In the late 1960s an argument for moving to a uniform tariff and a uniform export subsidy at the same rate in lieu of devaluing the currency to the same extent was made by Corden (1958), on the assumption the latter was politically impossible at the time. The theoretical basis for this is provided by Lerner's (1936) Symmetry Theorem: in a small economy producing two final tradable products, an import tax has the same effect as an export tax – hence an export subsidy can fully offset the effects of an import tariff if set at the same rate, in the absence of intermediate inputs.

This same insight was the basis of a famously unpublished paper by Gruen (1968). By then tariffs had largely replaced import quotas in Australia; but the average tariff rate was still high, and analysts continued to assume it was too politically difficult to phase out tariffs. In that environment, Gruen asked whether *some* level of assistance to farmers might raise rather than lower national economic welfare. This was an explicit application of the theory of the second best, as popularized by Lipsey and Lancaster (1956). Gruen insisted that the allocation of national resources would be improved by a reduction in the level of protection of both secondary and primary industries, but, should that be politically impractical, that a uniform tariff and uniform export subsidy at the same rate for agricultural (and other) exporting industries is a second-best alternative.

The standard arguments made through to the 1960s for agricultural support programs in Australia ("all-round protection") were increasingly being attacked by economists – see the survey by Edwards and Watson (1978) and the update by Edwards (1992). The new Whitlam Labor Government (November 1972 to November 1975) therefore commissioned a study by four economists. Their report (Harris et al. 1974) gave prominence to Gruen's second-best argument for some rural subsidies as compensation to lightly assisted farmers to offset the resource-pull effects of tariffs on manufactures. That prompted a series of articles in a professional journal by Harris (1975, 1979) and Warr (1978, 1979). They progressively refined the analysis such that, by the end of the 1970s, most agricultural and other economists advocated the first-best option of lowering tariffs in preference to tariff-compensating subsidies to farmers and other exporters.

6.   **Measuring the extent of Australian protectionism**

Coincident with that analytical debate on the pros and cons of tariff compensation, a new agency that was established by the Whitlam Government in 1973 set about bringing more transparency to trade and industry policy debates. Initially named the Industries Assistance Commission, it subsequently was renamed the Industry Commission and then the Productivity Commission. One early and crucial aspect of its empirical work involved estimating each year the nominal and effective rates of government assistance (NRAs and ERAs)[7] to the various industries not only in manufacturing but also in agriculture (and eventually mining). These built on the partial equilibrium concepts of nominal and effective rates of import protection that were promoted by Corden (1971), and first generated officially for Australia by the Vernon Committee report (Vernon et al. 1965).

The Productivity Commission (2018) summarizes the almost-50 years of official estimates of ERAs for the key sectors, and provides some industry detail for the current decade. For the first half of that period the average ERA for manufacturers fell steadily, from 35% to 5%, and it has continued to fall although more slowly since then. The Whitlam Labor Government was harsher on farmers and ignored the call for tariff compensation, such that agriculture's ERA fell markedly from 28% in 1970 to around 10% by 1990 (although fluctuating because of year-to-year movements in international food and fibre prices).

The mining sector has been mostly taxed rather than supported by the government. The lifting of the export ban on iron ore in the early 1960s allowed the inevitable minerals and energy raw materials trade with Japan to get under way. But it was some time before more-efficient instruments such as resource rent taxes (as advocated by Garnaut and Clunies Ross 1975, 1983 and scrutinized by Emerson and Lloyd 1983) were applied. There have been some further reforms since then, and the Productivity Commission's estimates of mining's ERA have been close to zero during the current decade (Productivity Commission 2018, Table 2).

Service sector interventions also have begun to be dismantled, initially by the Hawke Labor Government following its election in 1983. Markets for banking, post and telecommunications, ports, higher education, health, and rail, air, and to some extent sea transport have been opened up; there has been progressive out-sourcing of many government services; and substantial reforms to competition policy and practice, including the corporatization and de-monopolization of numerous government enterprises, were well advanced by the turn of the century – see Forsyth (1992, 2000) and myriad Productivity Commission reports at www.pc.gov.au.

To get a sense of the extent of the bias against primary production in Australia prior to 1970 when the Productivity Commission estimates begin, Anderson, Lloyd and MacLaren (2007) provide NRAs back to 1946. They do not estimate ERAs, but rather follow a World Bank methodology used in inter-country comparisons and based on Lerner's Symmetry Theorem which focuses on distortions to *relative* product prices. Following Anderson et al. (2008), Anderson, Lloyd and MacLaren (2007) report a production-weighted average NRA for non-agricultural tradables and compare it with the NRA for agricultural tradables via the calculation of a percentage Relative Rate of Assistance (RRA). The latter is defined as

$$RRA = 100*[(100+NRAag^t)/(100+NRAnonag^t)-1]$$

where $NRAag^t$ and $NRAnonag^t$ are the percentage NRAs for the tradables parts of the agricultural and non-agricultural sectors, respectively. Since the NRA cannot be less than -100% if producers are to earn anything, neither can the RRA. And if both of those sectors are

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[7] The NRA can be thought of as the percentage increase in the price of an industry's product due to, for example, an import tariff on a like product. The ERA takes account also of the distortions to the prices of that industry's inputs, and so can be thought of as the percentage increase to value added in the industry thanks to those government interventions in its product and input markets.

equally assisted, the RRA is zero. Lloyd and MacLaren (2015) extend that same analysis back to 1903-04.

For present purposes, Figure 2 updates those RRA calculations to 2016-17, and expands the agricultural sector to include mining. The RRAs in that figure thus provide an estimate of the extent to which relative prices of tradables in Australia have been distorted by government policies against primary production to favour manufacturing. They suggest that in the 1930s, for example, it was as if Australia's primary production was taxed about 30% relative to what would have prevailed under free trade – far higher than the 'guesstimate' of less than 10% by Giblin (1936). But those estimates also make clear that during the current century the average NRA for each of the main tradable sectors is now very close to zero, which also means the past inter-sectoral policy bias has nearly disappeared.

[Insert Figure 2 about here]

Lloyd (2017) covers Australia's colonial period prior to Federation in 1901. The first tariffs introduced in New South Wales were duties on alcoholic beverages, and then taxes on tobacco were added. Other colonies similarly started their taxation of imported goods with those two groups of goods, which accounted for more than half total customs revenue until well after 1850. In the second half of the 19th century, the range of goods subject to customs duty increased in all colonies except New South Wales. Even so, by 1900 'narcotics and stimulants' still accounted for 48% of total customs revenue. That is, colonial tariffs were mostly taxes to raise revenue, in contrast to the industry protection motive post-Federation. Even so, tariffs became increasingly protectionist, and less uniform across industries within each sector, as the economy diversified its production of both farm and factory goods. That trend continued well into the 20th century.

7. Economic effects of Australian protectionism and its dismantling

The availability of estimates of the extent of price distortions resulting from Australia's protection policies opened the way to model their effects on production, consumption, trade and economic welfare, especially as economy-wide, computable general equilibrium (CGE) models developed. The first national CGE models began appearing in the early 1970s, in Australia's case thanks to Evans (1972). That was followed by the ORANI model (Dixon et al. 1982). That model has been used by governments routinely – and very effectively – for policy analysis in Australia perhaps more so than such models in any other country.

Powell and Snape (1993) review the first two decades of economy-wide CGE policy modelling in Australia. The development and applications of the ORANI model under the Impact Project, which was largely funded by the successors to the Tariff Board (the Industries Assistance Commission/Industry Commission), included extensive training of economists on how to use them and how to communicate their results to policy makers and the public. It was unlike any previous Australian venture in policy analysis in that it welded academics and public servants into an interagency research team that cut across the usual civil service silos and controls. More than that, the modellers developed a capacity (using the Project's newly developed GEMPACK software)[8] to routinely enhance the ORANI model with greater details for any particular industry under enquiry. This involved two-way communication between the modelling team and business practitioners, which convinced IAC/IC commissioners that such formal modelling has real-world relevance. By exposing not only which groups might be hurt by a policy reform but also which ones could gain and by

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[8] Pearson (1988, 1991); Harrison and Pearson (1996).

how much, a more comprehensive economy-wide perspective was obtained that made it easier to 'sell' policy reform proposals. For example, leaders in the farm sector realized that ORANI could be used to estimate the extent of the damage done to farmers by protecting manufacturing. In a study commissioned by Australia's National Farmers' Federation (NFF), manufacturing protection in the early 1980s was estimated by Parmenter (1986) to reduce real farm incomes by 17%. The NFF used this estimate very effectively to press for a continuing commitment to tariff reductions.

Dixon (2008) updates by 15 years the survey by Powell and Snape (1993) on the use of CGE modelling in Australian trade policy making. He argues that such policy modelling flourished because Australia had an appropriate important initial issue to focus on (i.e., import protectionism), the right institutions for ensuring a sophisticated policy dialogue, and the right type of model to provide credible empirical estimates. Also, Australian modellers expanded the dimensions of model results to include estimates of outcomes not just by industry/product but also by region, occupation, household and electorate; and to analyse changes not only in policy but also in such things as producer technologies, factor endowments (including mining booms), international terms of trade, and consumer preferences. Disaggregating results by region and occupation within Australia has been important in two respects: first, it makes it easier to identify which household groups might lose from a structural or policy change, thereby allowing fine-tuning of any social safety nets in advance; and second, by identifying more precisely which groups are likely to gain, the government can point to and seek support from the beneficiaries of policy reform. By then making the models dynamic, CGE modellers were able to suggest how adjustments to shocks trace out over time,[9] and by entering the forecasting arena, they can provide insights into prospects for different industries, occupations and regions, thereby aiding investment decision-making.

Dixon and Rimmer (2016) provide a further update on CGE modelling which, as it took root in policy analysis in Australia in the 1970s, was also spreading in the rest of the world. Now thousands of economists from more than 150 countries are undertaking CGE modelling to elucidate policy questions in not only trade and taxation but also the natural environment, labour markets, immigration, income distribution, technology, resources, micro-economic reform and macro-economic stabilization. Dixon and Rimmer (2016) stress that CGE modelling achieved broad-based acceptance and application in Australia not only because there was a favourable policy and institutional environment in the 1970s when the IMPACT Project was set up. Also important, via the ORANI and MONASH models, was the effort made to provide pertinent details and to ensure users with limited training in mathematics and computing could interpret the results. That enhanced the approach's credibility and flexibility, and meant adequate funding continued for decades. Those same attributes are responsible for the development from the national ORANI model to the global SALTER model, which in turn helped seed, along with the WALRAS model at the OECD (Burniaux et al. 1990) and the GEMPACK software generated by the IMPACT Project, the hugely popular global CGE model known as GTAP (Hertel 1997; Corong et al. 2017).

Banks and Nankivell (2010) summarize some of the many benefits Australia has reaped from opening up its economy. They acknowledge that trade liberalization has been only one element of the policy transformation, but stress that trade reform played a pivotal role. Apart from offering consumers lower-priced goods and a wider variety of products, reductions in tariffs lowered costs of myriad services households and firms purchase, such as those services (e.g., retailing) that rely heavily on motor vehicles. The depreciation of the real exchange rate that accompanied the opening up has made virtually all industries that had

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[9] The dynamic MONASH model is a 113-industry dynamic successor to ORANI (Dixon and Rimmer 2002).

received less-than-average assistance more profitable. In addition to these re-allocative effects, all industries became more dynamic, not least because lobbying for special assistance was made far less worthwhile than before the reforms and so entrepreneurial effort was directed at raising productivity to boost their competitiveness internationally. Banks and Nankivell (2010) also make the point that, by announcing the reforms in advance and phasing them in simultaneously over several years for many industries during the 1980s and 1990s, businesses had time to adjust – and had less scope to argue for exemption. Adjustments by firms and workers in the most-protected industries (textiles and clothing, milk processing, passenger motor vehicles) were eased by adjustment assistance programs as well, further reducing the prospect of successful lobbying for exemptions.

Australia has long had a reputation of being a relatively egalitarian economy. Income inequality declined greatly between the interwar period and the early 1980s, before rising substantially over the past three decades. Some have suggested that this change in trend was due to market opening. However, it is a change observed in most high-income countries, very few of which have undertaken economic policy reforms as much as Australia; and with that development there has been little change in Australia's relative egalitarianism, according to the World Inequality Database (2018). This suggests other forces such as technological changes, particularly in information and robotics, also are playing a role in the rise in income and wealth inequality in high-income countries since the early 1980s. Regardless of the cause, fiscal measures are available that are far more efficient than trade measures for dealing with re-distributional concerns – and Australia has been shown to be relatively effective in its targeting of those measures (Grenville et al. 2013). CGE analyses have helped illuminate who could be the losers from reforms. Even so, scope remains to fine-tune such analyses, especially at the household level net of all taxes and transfers (see, e.g., Antràs et al. 2017).

There is a caution in Banks and Nankivell (2010) concerning the risk that openness leads to pest and disease importation. That risk may be non-trivial for Australia's island economy that is free of many exotic pests and diseases that could lower its international competitiveness in agricultural production. Nonetheless, economic analysis is warranted to evaluate the trade-offs involved, for example between higher costs of production for farmers should a damaging infestation occur due to openness on the one hand, and lower consumer prices on the other hand. James and Anderson (1998) make this point by illustrating the case of Australia's ban on imports of bananas.[10] Its simple empirical analysis suggests that, even if an industry-specific disease was imported that wiped out domestic banana production permanently, the gains to consumers of bananas could be more than the loss to producers (whose land, machinery and labour time presumably would be used to grow an alternative crop). Mainstreaming economy-wide analysis into all quarantine enquiries would lead unilaterally to less extreme barriers to imports of agricultural goods, which in turn would make Australia's calls for greater openness to farm trade during multilateral, regional and bilateral trade negotiations more effective.

Anderson (2017) provides a long-term (two centuries') perspective on the international competitiveness of Australia's key tradable sectors in the wake of not only trade-related policy trends but also sporadic mineral discoveries and fluctuations in the country's international terms of trade. It points not only to the probable negative effect that Australia's manufacturing protection had on its primary production for more than a century, but also notes that the rates of decline in the share of GDP from both manufacturing and agriculture have been similar to the declines in other high-income countries since 1970. This suggests neither the trade policy reforms nor the recent massive mining booms in Australia

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[10] Another example of such analysis, concerning Australia's quarantine restrictions on pigmeat importation, is Beghin and Melatos (2012).

unduly altered the normal path of broad sectoral transformation associated with long-run economic growth.[11]

8. Political economy of Australia's trade-related policies and their reform

Why Australia was so protectionist for so long, and why it eventually decided to reform unilaterally from the 1970s, has been the focus of speculation if not hard empirical analysis. From the mid-1970s there has been some attention given to explaining the inter-industry structure of sectoral assistance though, helped by the official publication of annual effective rates of industry assistance in the key tradable sectors (Anderson 1978; 1980). They draw on the economic theory of regulatory politics that assumes there is a political market for industry protection policies in which the government supplies and vested interest demand (Peltzman 1976). The extent of any group's demand depends on the expected benefits from a boost to their industry's assistance net of the costs of getting together to become informed and act collectively by lobbying the government and by putting their case to the community. Free-rider problems of collective action mean only the most affected and concentrated groups tend to lobby (Olsen 1965). Counter-lobbying is typically much weaker or even absent, because those adversely affected are often large diverse groups (such as consumers or taxpayers) who would be made worse off by only a small amount each. The political cost to the government of supplying assistance to a particular industry is therefore smaller the smaller is the industry's share of the overall economy. Standard specific-factor trade theory (Jones 1971; 1975) also suggests the gain to the producer lobbying group will be larger, the more labour-intensive is the industry and the smaller its value-added share of its output. The incentive for such groups to lobby for protection also is greater if the industry is under pressure to decline, for then the benefits of protection are less likely to attract new entrants to the industry and so are shared only with those contributing to the cost of lobbying.

Econometric results in Anderson (1980) for manufacturing in the 1970s confirm that (a) it is the labour-intensive, low-wage industries with low value-added shares of output that were most highly assisted, (b) industries with fewer firms tended to be assisted more, (c) exporting and nontradable manufacturing industries tended to be assisted less than import-competing ones, and (d) declining industry groups enjoyed above-average assistance. Evidence presented in Anderson (1978) for Australia's rural sectors in the late 1960s/early 1970s suggest their inter-industry pattern of ERAs also conforms to those patterns.

That same economic theory of regulatory politics is used brilliantly by Sieper (1980) to help explain why particular policy instruments were used to assist specific Australian rural industries during the first three-quarters of the 20th century. Since many farm industries had the potential to be internationally competitive at free-market prices, import protection played much less of a role in assisting farmers than manufacturers. More-common instruments of support were subsidies to production or exports and so-called home consumption price schemes, whereby the domestic consumer price was raised by reducing locally available supplies through subsidizing exports and preventing imports (Parmenter et al.1981; Mauldon 2020).

Why did Australia decide to liberalize its trade unilaterally from the 1970s? One reason was increasing disenchantment with and better understand of the net economic costs of interventionist policies and regulations, including trade policies. The efforts of academics such as Max Corden, and of the Tariff Board and its successor institutions (the Industries

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[11] The positive impact that mining booms can have on national economic growth is still an under-researched area. According to Bjørnland and Thorsrud (2016), the magnitude may be far greater than previous analysts have suggested. Much more emphasis has been given to the negative impact commodity booms can have on growth in countries with weak institutions, coined the 'resource curse' by Auty (1993; 2001).

Assistance Commission/Industry Commission/Productivity Commission),[12] were crucial inputs into the process of gradually changing the climate of opinion of economics/business journalists towards one of advocating trade liberalization. Their insights were drawn on to particularly good effect by the maverick farmer and Federal Politician C.R. (Bert) Kelly via his weekly column syndicated to rural newspapers and the national financial newspaper on why primary producers were being effectively taxed by tariffs on manufactured products (Kelly 1978).

The 25% across-the-board tariff cut in 1973 started the tariff reform process following an initially confidential report to the new Whitlam Labor Government by six economic advisors on possible ways to expand imports as a means of reducing inflationary pressures (Rattigan et al. 1973). But as Garnaut (1994) and Leigh (2002) make clear, the economic reform process – which involved far more than just trade liberalization – is mostly due to initiatives of the Hawke-Keating Labor government, which came to power in March 1983.[13] This was one of the clearest examples in Australian economic history of a 'critical juncture' (to use the terminology of Acemoglu and Robinson 2012).

Australia in early 1983 had just seen its largest fall in employment and rise in unemployment since the Great Depression. The Hawke-Keating reform program was vindicated by a subsequent employment rise that was stronger than in any other seven-year period in the 20th century (helped by a compact with the labour union movement that initially delivered lower real wages). The trade-liberalizing part of the reforms was facilitated by the political and intellectual leadership of the day agreeing to the need for a more open, less regulated economy, the rise in organized countervailing lobbying from both farmer and mining export interests (and stronger representations in Canberra from the mineral-rich states of Western Australia and Queensland), and the desire to build what would inevitably become (see Table 5) closer and more cooperative relations with East Asian neighbours. The gradualist reforms were greatly assisted by Prime Minister Hawke's extensive public discussions and consultations with key industry and labour groups, complemented by government publications (including Garnaut 1989) on the benefits of reform and of growth in our trade with emerging East Asian economies.

With reforms also under way during the 1980s in the UK under Prime Minister Margaret Thatcher and in the US under President Ronald Reagan, Australia's conservative parties eventually gave up their populist and negative opposition and instead argued for even more reform (e.g., of labour markets), and for smaller government. Radical reform of the labour market is still to be undertaken in Australia (and in New Zealand), and is probably now the main constraint on productivity growth in the economy.

Corden (1996) reiterates many of the above points about why unilateral trade liberalization was implemented and sustained. He also stresses the importance of floating the Australian dollar early in the Hawke government, so the exchange rate could devalue as the tariffs were gradually reduced and remaining import quotas removed. And he points out that, even though the Productivity Commission and its predecessors depended for many decades on the existence of an elaborate tariff system, the agency has not been subject to 'regulatory capture' by the protectionists. On the contrary, it has been a consistent and persistent proponent of neoclassical economics, with an emphasis on maximising national efficiency. It remains influential today through its public inquiries and published reports on an ever-wider range of microeconomic policy issues.

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[12] That transparency agency had an increasingly influential role within the government and in the wider community from the late 1960s (Glezer 1982, Warhurst 1982, Rattigan 1986). See Productivity Commission (2003) for the Commission's own assessment of its contributions.
[13] Similarly focused leaders delivered similarly dramatic economic policy reforms in New Zealand in the 1980s. See, for example, Duncan et al. (1991), Rayner and Lattimore (1991), Bollard (1994) and Goldfinch (2000).

Corden (1996) also makes the point that while Australia swopped most quantitative import restrictions for tariffs around 1960, New Zealand and many developing countries retained their import quota systems, most until the mid-1980s[14] – before they too embraced unilateral trade liberalization, even if under pressure from international financial institutions (Little et al. 1993). In that sense the nature and timing of Australia's reform was certainly not unique. Just as for emerging economies, Australia was influenced by the global move to flexible exchange rates, and by the spectacular economic success of earlier liberalizations by East Asia's newly industrializing, outward-oriented economies – in contrast to the evident failure of an import-substitution strategy in Latin America and (to a much lesser extent) Australasia. The economic literacy of technocrats, journalists and analysts in policy think-tanks also gradually rose from the 1970s, so they reinforced each other as they interacted with better-trained academics and with politicians and the public in Australia, as in developing countries. That is, societies in general have become more inclined to tolerate the disruptions associated with policy reforms that evidently make good economic sense.

More specifically, the former Chairman of the Productivity Commission makes clear that the reform period was one of evidence-based policy making (Banks 2010). That transparency agency continues to champion the need for it. It is a message that is even more important today when social media can so easily spread 'fake news' and political parties engage in populist focus-group policy making as they respond to the pressure of 24/7 news coverage. Banks (2010) stresses the need for empirical policy analysis to have a sound methodology and draw on pertinent high-quality data, and to undertake unrushed, independent, transparent analysis not only to allow replication but also to expose assumptions and get feedback on preliminary results. It also calls for such analyses to be 'frank and fearless' in drawing out policy implications.

9.   The influence of international trade negotiations

One other influence on Australia's move to a more open economy was a change within the multilateral trade negotiating environment of the General Agreement on Tariffs and Trade (GATT). Prior to the 1980s, Australia was not very engaged in trade agreements with other countries except Britain, and even the British connection diminished following the UK's accession (with Ireland and Denmark) to the European Economic Community in 1973. Australia was disappointed that earlier multilateral trade negotiations under the GATT failed to address the growth and spread of agricultural protectionism that was pointed to decades earlier in a report the GATT itself commissioned (Haberler 1958).[15]

Agricultural protectionism reached the point in the early 1980s of generating surpluses of farm products that Europe could dispose of only with the help of export subsidies, which triggered the United States and Canada to respond in kind. The consequent export subsidy 'war' drove real international food prices down to record lows. Australia, being among the countries most hurt by this (Anderson and Tyers 1986), decided to respond by becoming a much more active member of GATT and by forming, in 1986, the Cairns Group of non-subsidizing agricultural exporting countries. That Group's key aim was to keep agriculture high on the agenda of the just-launched Uruguay Round of GATT trade negotiations. It achieved that singular aim (Higgott and Cooper 1990), and that ultimately led to the GATT's first Agreement on Agriculture, which was signed in 1994, and to non-trivial

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[14] As did Australia for just two sub-sectors of its manufacturing sector until the 1990s: motor vehicles and parts, and textiles clothing and footwear.

[15] See Arndt (1965), Snape (1984), and Anderson (1999). This and many other aspects of the history of Australia's trade policy are detailed in Crawford (1968) and Snape, Gropp and Luttrell (1998). A political scientist's perspective on Australia's engagement with the GATT/WTO is available in Capling (2001).

reductions in agricultural protection in the European Union, Japan and elsewhere (Anderson 2009).[16]

10. How much did economists contribute to the reform?

Cynics say that economists are unpersuasive because we have known about benefits of laissez faire and in particular the gains from trade for more than two centuries and yet trade restrictions have persisted in Australia as elsewhere. Economics advocates, on the other hand, will point to and claim some credit for the remarkable extent of trade and domestic market reforms that have occurred in recent decades. How much credit for this change can be claimed by economists? There is no way of answering this precisely, but a few points are worth making.

First, revealing the fact that Australia and New Zealand had the most protected manufacturers among high-income countries until the 1980s – and noting that they were the slowest-growing high-income economies in the post-war period – was helpful in bringing down their protection levels during the subsequent two decades.

Second, revealing the vast across-industry differences within sectors of effective assistance rates, which were much bigger than the differences in nominal rates, helped governments to resist domestic pressures to maintain or raise protection for the most assisted groups.

Third, clarification of the theory and empirical estimates of the consumer and net national welfare costs of protection have made it easier for advocates of reform to gain headlines than when relying on only abstract arguments about the gains from trade.

Fourth, estimates of the cost of protection to less-assisted export industries (and to exporters abroad) have helped build coalitions for trade liberalization.

Fifth, revealing the extent of effective assistance to agriculture relative to manufacturing in key high-income countries, and of the industrial sector relative to primary sectors in many developing countries (as in Australia), helped to alter the domestic political economy forces in both sets of countries. The large increase in the farmer/manufacturer assistance gap in high-income countries between the end of the GATT's Tokyo Round and the start of its Uruguay Round of multilateral trade negotiations also helped to ensure agricultural protectionism was placed and remained high on the agenda of the Uruguay Round and its creation, the WTO.

However, the policy ideas and analyses contributed by economists were only a small subset of the influences on governments to reform Australia's trade and industry policies over the past four decades. Australian liberalization in many ways has just followed (with a delay) the market reforms of other countries (Garnaut 1994; Corden 1996). But, given the relatively entrenched protectionist sentiment, economists probably had to work harder in Australia than abroad to alter the climate of opinion in a liberal direction.

The influence of academic economists on Australian economic policies has gradually become more indirect rather than direct. In earlier decades there were very few economists working full time in government, so dependence on academics for policy advice was quite common (as in the Brigden and Vernon Committee reports, for example). Since the 1960s, however, there has been a boom in employment opportunities for economists in federal government agencies. As a result, much of the required policy analysis in recent decades has been done in such agencies as the Productivity Commission and the Australia Bureau of Agricultural and Resource Economics, or in economic consulting companies staffed by former senior public servants.

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[16] The Cairns Group has been less influential since the end of the GATT's Uruguay Round of trade negotiations, however.

One final point. With the greater engagement of Australia in the multilateral trading system from the 1980s, Australian economists (not to mention trade officials) became considerably more active in contributing to the analysis of systemic issues of concern to their country. One early example is in the design of modalities for services trade negotiations (Sampson and Snape 1985; Snape 1998). Others are in thinking about how the GATT/WTO should deal with subsidies (Snape 1991), and with the growth in environment/trade interactions and regional/preferential trading arrangements (Anderson and Blackhurst 1992, 1993). They have contributed also to the building of global CGE models for trade policy analysis (Dixon 2008; Dixon and Rimmer 2016; Hertel 1997), to the measurement of distortions in services trade and investment (Findlay and Warren 2001; Dee, Hanslow and Phamduc 2000) and in agriculture (Anderson 2009), and to empirical estimation of the effects of global trade liberalization in agriculture (Tyers and Anderson 1992; Anderson and Martin 2006). An especially important contribution to the place of regional arrangements in the multilateral trading system has been APEC, the Asia Pacific Economic Cooperation forum (Drysdale and Garnaut 1989; Garnaut 1996). A creation launched by the Hawke government in 1989, APEC differs from other regional trade arrangements in two key respects. First, it advocates GATT/WTO-consistent open regionalism as distinct from adopting a preferential tariff structure that discriminates against non-members. Second, it provides a useful testing ground for new issues that the global trading system is likely to have to grapple with in the WTO in due course. In both respects APEC provides more of a stepping stone to freer global trade than so-called free trade areas or customs unions.

11. Conclusion

Clearly Australian trade and industry assistance policy settings are in a different place now compared with the early 1980s, notwithstanding a pause in major economic reforms since the turn of the century. Many (especially developing) countries also have opened their economies over the past 35 years, but no other advanced industrial country apart from New Zealand has liberalized its trade as much as Australia in that period. The challenge ahead is to remain open, and to not substitute subsidies and other forms of assistance in place of trade measures. That is easier, the more other countries remain open and unsubsidized. Unfortunately, governments in numerous high-income countries are coming under pressure from anti-globalization groups and populist political leaders to raise rather than further reduce trade barriers. That has already manifest itself in tariff 'wars' breaking out and of the WTO's Dispute Settlement Appellate Body becoming impotent. Countering those forces via regional and bilateral preferential trade agreements remains an option, but the best a single small country can do is to continue its own unilateral trade-related policy reforms, resist the pressure to revert to protectionism, and continue to advocate for the strengthening of the global trading system – as in the theme chapter for the latest annual report of the Productivity Commission (2019).

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Table 1: Ranking of countries by gross national income per capita, PPP, current international dollars, 1950 to 2015

1950	1970	1990	2000	2015
United States	United States	Kuwait	Kuwait	Macao
Canada	Sweden	Brunei Daruss.	Brunei Daruss.	Brunei Daruss.
AUSTRALIA	Canada	Luxembourg	Luxembourg	Singapore
	Switzerland	Saudi Arabia	Singapore	Kuwait
	Denmark	Switzerland	Switzerland	UAE
	Germany, FR	Bermuda	United States	Luxembourg
	AUSTRALIA	Macao	Norway	Switzerland
		United States	Bahrain	Norway
		Oman	Saudi Arabia	Hong Kong
		Singapore	Oman	United States
		Iceland	Netherlands	Saudi Arabia
		Sweden	Macao	Ireland
		Germany	Sweden	Denmark
		Japan	Austria	Austria
		Austria	Belgium	Netherlands
		Canada	Iceland	Germany
		Bahrain	Canada	Sweden
		Belgium	Denmark	Iceland
		Netherlands	Japan	Belgium
		Italy	Hong Kong	AUSTRALIA
		Norway	Germany	
		Finland	Italy	
		Denmark	France	
		France	Finland	
		United Kingdom	Ireland	
		Hong Kong	United Kingdom	
		AUSTRALIA	AUSTRALIA	

Source: Anderson and Garnaut (1987) for 1950 and 1970, and World Bank (2018)

Table 2: Simple average most-favoured-nation (MFN) applied tariffs on agricultural and non-agricultural products, 2016 (%)

	Australia	New Zealand	United States	European Union	Japan	China
Agriculture	1.2	1.4	5.2	11.1	13.1	15.5
Non-agric.	2.7	2.2	3.2	4.2	2.5	9.0
All products	2.5	2.0	3.5	5.2	4.0	9.9

Source: WTO, ITC and UNCTAD (2017)

Table 3: Value of agricultural land, mineral resources, produced capital and total wealth and imcome, per capita, Australia and other countries relative to the world, 2014

	Agric. land	Mineral resources	Produced capital[a]	Total wealth[c]	Total income[b]
Australia	202	1584	500	621	571
Canada	137	384	626	603	466
United States	117	119	640	583	503
Europe+Central Asia	97	138	228	218	241
Japan	25	1	355	339	350
Other East Asia	138	55	50	54	59
South Asia	60	12	9	11	14
Sub-Saharan Africa	78	39	11	15	17
Latin America+Carib.	139	122	73	82	91
Middle East+N Africa	83	2287	19	94	108
World	**100**	**100**	**100**	**100**	**100**

[a] Produced capital refers to all forms of non-natural (including human) capital.

[b] Total wealth is calculated by summing up estimates of each component of wealth: agricultural land, mineral resources, forests, protected areas, non-natural produced (including human) capital, and net foreign assets.

[c] GDP, based on 2014 US dollars at market exchange rates.

Source: Lange, Wodon and Carey (2018, Appendix B)

Table 4: Sectoral shares of exports and 'revealed' comparative advantage index,[a] Australia, 1950 to 2016 (%)

Share (%):	Agriculture	Mining	Manufacturing	Services
1950	86	6	3	5
1970	44	28	12	16
1990	26	41	19	19
2016	15	48	14	23
RCA[a]:				
1970	2.2	2.4	0.2	0.9
1990	2.3	4.3	0.3	1.0
2016	2.0	4.8	0.2	1.0

[a] The index of 'revealed' comparative advantage (RCA) is defined by Balassa (1965) as the sectoral share of Australia's exports divided by that sector's share of the rest of the world's exports.

Source: Updated from Anderson (1995) using data accessed at www.dfat.gov.au on 31 July 2017

Table 5: Trade propensity, and direction and index of intensity[a] of Australia's merchandise trade, 1951 to 2016

(a) Trade propensity ((%)

	1951-55	1968-72	1990-92	2014-16[b]
Exports+imports of goods and service as a % of GDP	na	26	34	42

(b) Direction of trade (%)

		1951-55	1968-72	1990-92	2014-16[a]
UK	X	36	11	4	1.9
	M	45	21	6	2.6
Other Europe	X	27	11	12	3.5
	M	15	19	20	15
North America	X	10	16	12	7
	M	15	27	26	14
East Asia+NZ	X	18	43	61	82
	M	10	22	42	59
Other	X	9	19	11	3
	M	15	11	6	9
TOTAL	X	100	100	100	100
	M	100	100	100	100

(c) Index of intensity of trade[a]

		1951-55	1968-72	1990-92	2014-16[b]
UK	X	3.3	1.7	0.7	0.5
	M	5.0	4.1	1.2	1.0
Other Europe	X	0.8	0.2	0.3	0.1
	M	0.5	0.4	0.5	0.4
North America	X	0.5	0.9	0.6	0.4
	M	0.6	1.6	1.5	1.0
East Asia+NZ	X	1.5	3.0	2.7	2.3
	M	1.1	1.8	1.7	1.9
Other	X	0.4	1.3	1.0	0.4
	M	0.6	0.6	0.6	0.6
TOTAL	X	1.0	1.0	1.0	1.0
	M	1.0	1.0	1.0	1.0

[b] Index of export (import) trade intensity is the share of a region in Australia's exports (imports) divided by that region's share in world minus Australia's imports (exports).

[c] Rows for the final column refer to UK, EU27, All Americas, All Asia+New Zealand, and All other countries.

Source: Updated from Anderson (1995) using data accessed at www.dfat.gov.au on 31 July 2017 and (for trade propensity) from World Bank (2018)

Figure 1: Share of manufacturing in GDP, Australia and all high-income countries, 1990 to 2016 (%)
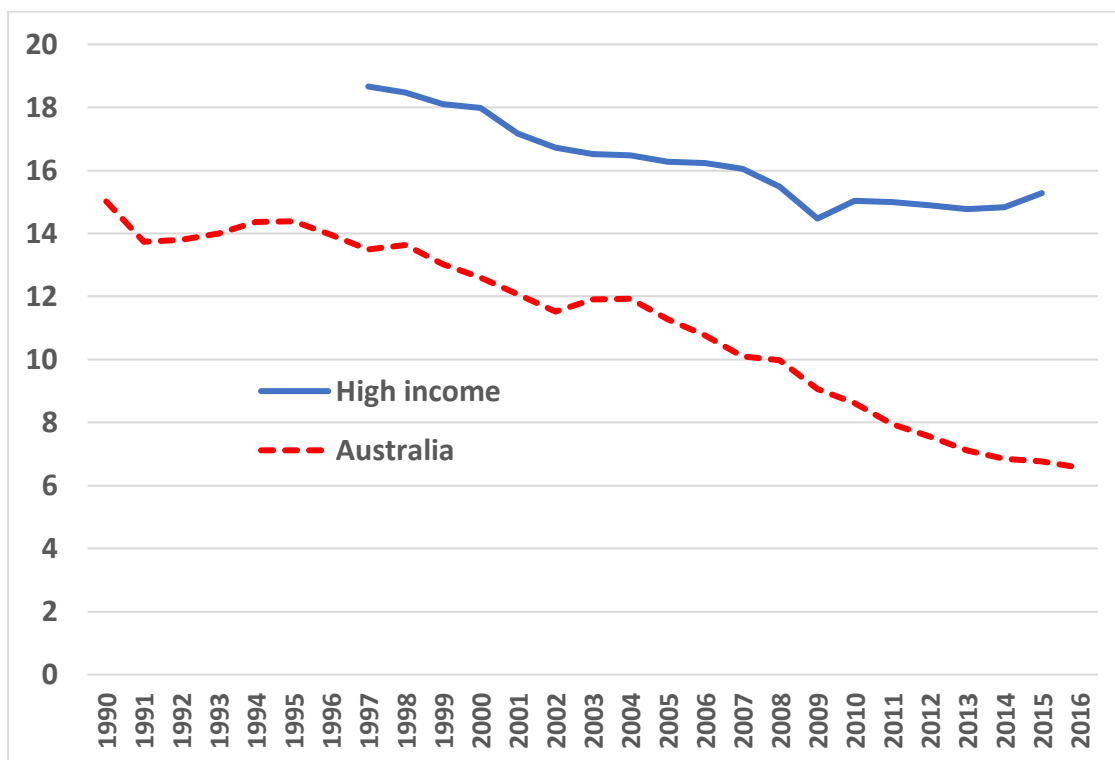
Source: Compiled by the author from World Bank (2018)

Figure 2: Nominal rates of government assistance (NRA) to manufacturing and primary production and relative rate of assistance (RRA) to primary sectors, Australia, 1904 to 2017 (%, years ending 30 June)
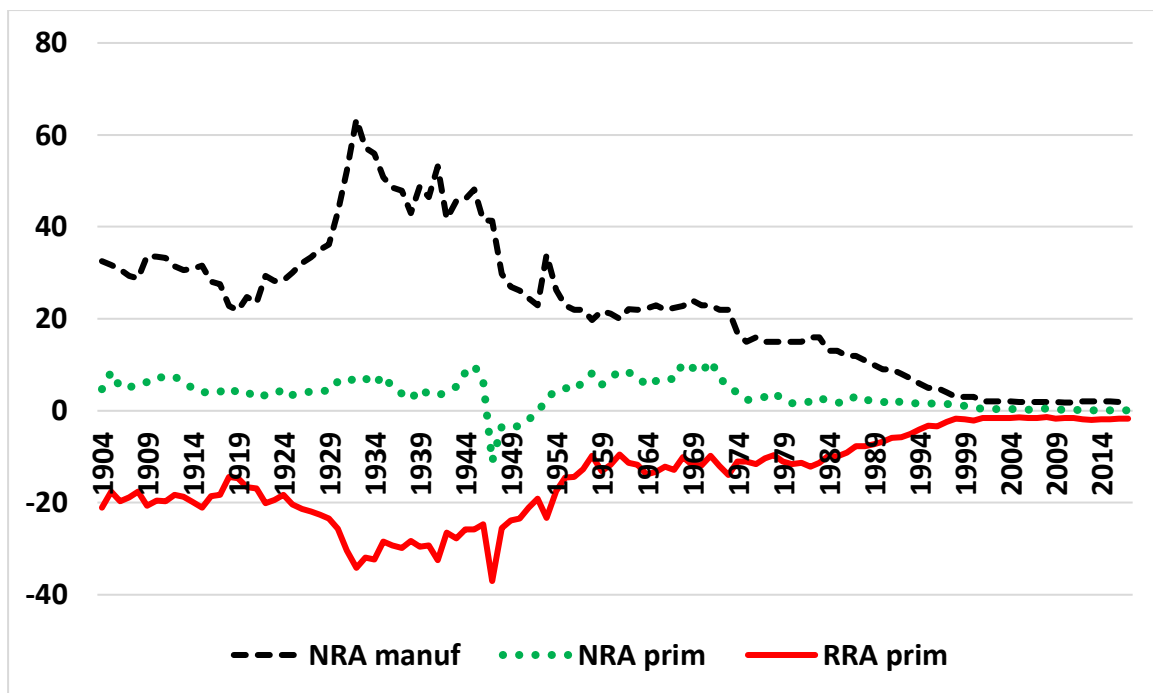
Sources: Compiled by the author based on data in Anderson, Lloyd and MacLaren (2007), Lloyd and MacLaren (2015) and updated from Productivity Commission (2018)