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# Relative assistance to Australian agriculture and manufacturing since Federation\*

Peter Lloyd and Donald MacLaren<sup>†</sup>

This paper quantifies the levels of assistance received by producers of the major agricultural crops and animal products in Australia since Federation and compares this with the level of assistance provided to manufacturing producers. First, we construct a series of the production-weighted average nominal rate of assistance for the whole sector. Then, we compute a measure of the level of assistance received by the Agriculture sector relative to that received by the Manufacturing sector, the Relative Rate of Assistance. Our results show that, from the time of Federation until the 1990s, the economy-wide pattern of industry assistance discriminated persistently and heavily against the Agriculture sector. The policy of ‘protection all round’ pursued by the Country/National Party did not prevent this discrimination. In particular, producers of exportables, such as wool and wheat, were heavily discriminated against. Both the intersectoral bias and the differences in assistance among agricultural producers lowered the incomes of the Agriculture sector and the national income.

**Key words:** assistance to agricultural commodities, discrimination, nominal rate of assistance, relative rate of assistance.

## 1. Introduction

The general level of assistance which has gone to farmers and other agricultural producers has been a major political issue in Australia since the beginning of Federation. From the 1920s, Australian farmers sought increased assistance to offset the high levels of assistance given to manufacturers of import-competing products from the Australian Tariff. In this paper, we put together a series for the average level of nominal assistance for the whole sector from the time of Federation and then compare this with the level of assistance provided to the Manufacturing sector.

In Section 2, we present a series of the average levels of assistance to the Agriculture Sector for the period from 1903–1904 to 2010–2011. This is the entire period since Federation, a period of 110 years. In Section 3, these rates of assistance for the Agriculture sector are then compared with measures for the Manufacturing sector to provide the relative rates of assistance. Anderson *et al.* (2007) constructed a series of the ‘relative rate of assistance’ (RRA),

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that is, the average rate of nominal rate of assistance received each year by agricultural producers relative to the average received by other sector producers, for the period 1946–1947 to 2004–2005. We apply this measure to the longer period from 1903–1904 to 2010–2011 and also compare effective rates of assistance for the period from 1970–1971 to 2010–2011 for which data are available for both the Agriculture and Manufacturing sectors. Section 4 reviews the arguments about sectoral bias that have been advanced by farmers and agricultural economists and the political economy of increased assistance to the sector in the form of ‘overall protection’ and ‘tariff compensation’. There is a brief conclusion in Section 5.

## 2. Assistance to the Agriculture sector

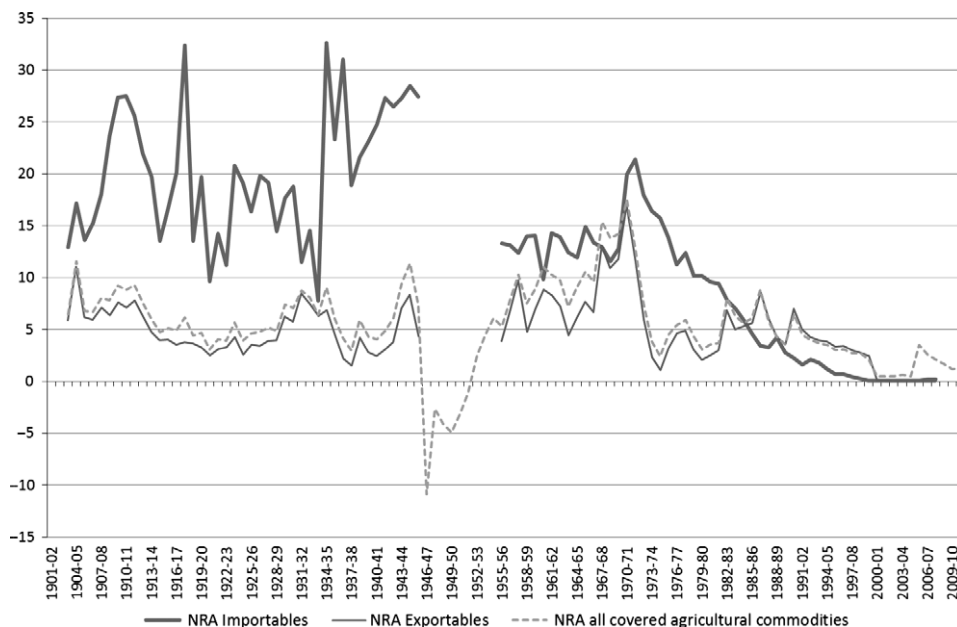
Series of the nominal rate of assistance to producers of the major agricultural crops and animal products are now available for the entire period of Australian economic history since federation. Anderson *et al.* (2007) constructed a series of the nominal rate of assistance to producers of the major agricultural crops and animal products for each year in the period 1946–1947 to 2004–2005. Their list of agricultural crops and products covered 16 exportable commodities, 9 importables and 2 nontradables. The World Bank (2013) has carried these series forward to 2010–2011. Lloyd and MacLaren (2014) have carried the series backwards to 1903–1904. Their list of agricultural crops and products covered in the pre-World War II period comprises 20 commodities: 14 of these are exportables, and 6 are importables. Their method of calculation is the same as that in Anderson *et al.* (2007) with some adjustments in the coverage of commodities and measures because of differences between the structure of trade in agricultural products and assistance in the pre-World War II and post-War periods. Details of the method of construction of these series are provided in Anderson *et al.* (2007), and Lloyd and MacLaren (2014).

Linking these series gives us a consistent series for 110 years. For each commodity, the nominal rate of assistance is defined in the conventional way as the percentage deviation of the (average) price received by Australian producers from the world price at the Australian border.

Table S1 reports the series for the production-weighted average level of assistance to the groups of exportables, importables and to all covered agricultural products since federation. In terms of commodity coverage, it covers all major agricultural products. In terms of the measures covered, it covers all of the major Commonwealth measures except those involving quantitative restriction on trade in the last century, notably the tobacco content plan, the colouring of butter substitutes and the sugar import ban. This produces an understatement of the average assistance to the Agriculture sector. However, the weight attached to commodities assisted by quantitative measures is much smaller than that for wool, wheat, beef and lamb so that the extent of the understatement is small.

The annual weights in the long-term series are current period weights (as in Anderson *et al.* 2007) for the years from 1925–26. For the years from 1903–1904 to 1924–1925, the weights are the average values for the first three years of the period from 1925–26, the earliest years for which current period weights are available for all covered commodities.

Figure 1 graphs the average nominal level of assistance to the exportables group, the importables group and to the Agriculture sector as a whole for the 110-year period.<sup>1</sup> The series is fairly constant throughout the period up to the end of World War II. There is a sharp negative spike at the beginning of the post-World War II period. In the 1960s and 1970s, the average levels of assistance rose to the peak levels for the 110 years. New measures were introduced, including more home consumption price schemes (for discussions of these regulatory arrangements, see Sieper 1982; Mauldon 1990). By the end of the 1970s, assistance averaged 17 per cent for all covered commodities. A feature of agricultural assistance at that time was that it applied to export industries – notably wheat, dairy products, sugar and dried vine fruits – almost as much as to the import-competing commodities (Anderson *et al.*



**Figure 1** Nominal rates of assistance to Agriculture, Australia, 1903–1904 to 2010–2011. Source: Authors' calculations. The graph of the earlier period, 1903–1904 to 1945–1946, appears in Lloyd and MacLaren (2014, figure 2).

<sup>1</sup> We have adjusted upward the nominal rate of assistance to the Agriculture sector for the three years 1946–1947, 1947–1948 and 1948–1949 by adding in the relief assistance paid in these years to the dairy industry and wheat growers. This assistance was substantial but it was omitted from the series in Anderson *et al.* (2007).

2007). This was very different from the pre-World War II pattern where most exportable agricultural commodities received zero or very low levels of assistance (Lloyd and MacLaren 2014). After 1970, the levels of assistance declined in an irregular path as agricultural assistance programs were reformed.

The sharp negative spike at the beginning of the post-World War II period is due to the negative rates for the exported products wheat, barley, rice and sugar in the years 1946–1947 to 1951–1952 (see the Bureau of Agricultural Economics figures reported in Lloyd (1973, table 10.3) and also Harris (1964, tables II and III)). In these years, under commodity-specific home price and price stabilization schemes, the payouts to producers of these products were less than the prevailing export prices (Little 1962; Longworth 1967).

### 3. Relative rates of assistance

Historically, the main debate concerning protection of Australian producers has been over the protection of import-competing manufacturers and its effect on farmers, especially those competing in exposed export markets. The two main mechanisms by which assistance to the Manufacturing Sector affects Agriculture sector producers are the increases in farm input prices due to tariffs and the induced change in the Australian exchange rate which lowers the prices received by exporters in Australian currency. Consequently, these rates of assistance for the Agriculture sector need to be compared with those for the Manufacturing sector to provide the relative rates of assistance.

Anderson *et al.* (2007) used an index of the RRA that was used in the World Bank study of agricultural incentives of which their Australian country study was part (Anderson 2009). It is an index that compares the average nominal rate for two sectors, the outputs of which are tradable. Suppose the sectors are Agriculture and NonAgriculture and let the measured average nominal rates of assistance to these two sectors, expressed as percentages, be  $NRA_{ag}^t$  and  $NRA_{nonag}^t$ , respectively, in period  $t$ . With assistance, the relative price of the outputs of the two sectors is now  $(1 + NRA_{ag}^t)/(1 + NRA_{nonag}^t)$ . The RRA is defined as:

$$RRA = \left[ \frac{(1 + NRA_{ag}^t/100)}{(1 + NRA_{nonag}^t/100)} - 1 \right] 100 \quad (1)$$

This measures the distortion of the relative price of the outputs of these sectors away from the free trade ratio (of unity) that results from the assistance regime. If RRA is negative, it indicates the extent to which the assistance regime has an anti-agricultural bias, and conversely, if RRA is positive, it measures the bias in favour of the sector. For example, if  $NRA_{ag}^t$

and  $NRA_{nonag}^t$  are 10 and 20 per cent, respectively,  $RRA$  is  $-8.3$  per cent ( $=[(1.1/1.2) - 1]100$ ).

We calculate the rate of assistance for the Agriculture sector relative to the import-competing Manufacturing sector.<sup>2</sup> In the numerator of the  $RRA$  is the series of the average nominal rate of assistance for agriculture reported in Table S1.

In the denominator, for the period from 1968 to 1969, we use the series of the average nominal rate of assistance to the Manufacturing sector, which has been compiled by the Tariff Board and its successor statutory bodies. The statutory body series covers a wide range of measures, including nontariff measures. For the pre-1968/1969 subperiod, we first take the series from Lloyd (2008) of the average tariff rate on dutiable imports only. Like the series for agricultural commodities, this series covers final goods which were produced in Australia. It does not include nontariff measures, although it does include antidumping and countervailing and Primage duties. To this series, we add the assistance to manufacturers which came from the two measures, bounties and export bounties (Tables S3 and S4 reports the assistance to the Manufacturing sector from bounties and from export bounties separately). For the Manufacturing sector, assistance from bounties and from export bounties is a much smaller part of the total assistance than for the Agriculture sector, even though the total amounts paid out to manufacturers for both bounties and export bounties are greater than the amounts paid to the Agriculture sector. In fact, production and export bounties combined made a much smaller contribution to overall assistance than tariff measures in all years for this sector. The largest contribution was in 1926–1927 and 1927–1928 when export bounties (on wine) peaked, adding 4 percentage points to the average nominal rate of assistance for the Manufacturing sector.

These additions extend the statutory authorities' series for the nominal rate of assistance to the manufacturing sector backwards from 1968/1969 to the time of Federation. This procedure gives us a coverage of products and measures in the numerator and denominator which are the same for the Agriculture and Manufacturing sectors over a 110-year period.

Table S2 reports the (average) nominal rate of assistance to the sector from tariffs, bounties and export bounties combined for the 110 years. Figure 2 graphs the series for assistance to the Agriculture and the Manufacturing series, and the series for the  $RRA$  for the 110 years.

This graph of the  $RRA$  shows clearly that the basic result of the Australian regime of assistance to industries has been to discriminate persistently against agricultural producers. This holds for every year in both the period up to the end of World War II and the post-World War II period. The bias is particularly strong against producers of exportables and

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<sup>2</sup> In Anderson *et al.* (2007), the Non-Agriculture tradables sector is taken to be all tradables other than Agriculture; that is, Forestry and Fishing, and Mining as well as Manufacturing.



**Figure 2** Nominal rates of assistance (per cent) to Agriculture and Manufacturing, Australia, 1903–1904 to 2010–2011. Source: Authors' calculations for 1903–1904 to 1967–1968; Anderson *et al.* (2007) for 1968–1969 to 2004–2005; and the World Bank (2013) for 2005–2006 to 2010–2011.

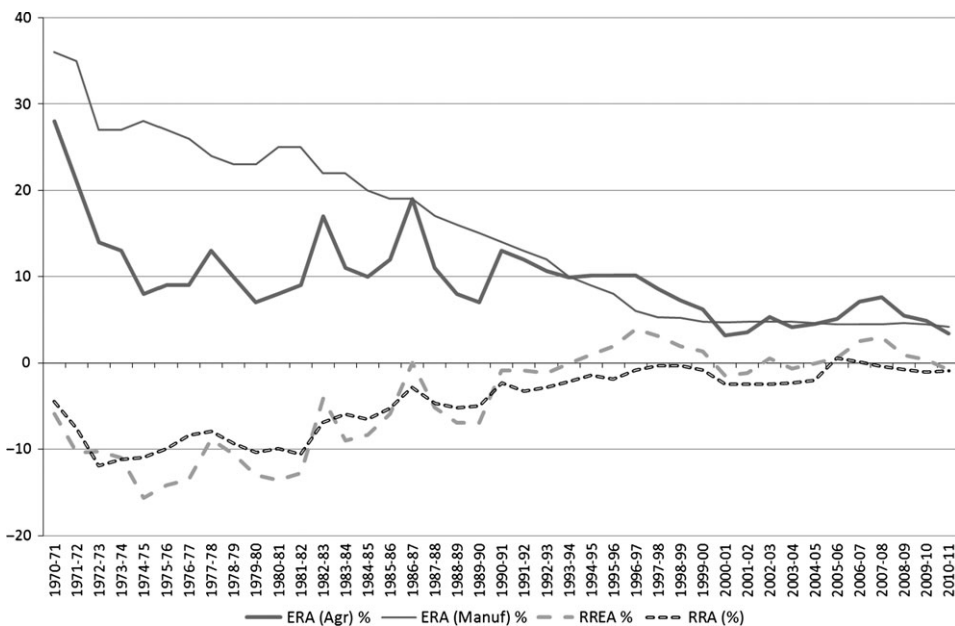
most particularly producers of wool, beef, mutton and lamb, wheat and oats who received no or very low levels of assistance throughout the 110-year period. The only agricultural producers to receive levels of assistance as high as the average for the manufacturing sector for most of the 110 years were producers of butter and cheese, dried vine fruits and bananas.

There is some variation in the extent of discrimination over the years. It increased markedly during the years of the Great Depression when tariff rate hikes were not matched by a corresponding increase in assistance to producers of agricultural commodities. Discrimination again increased in the immediate post-World War II years, declined in the 1950s and the 1960s as assistance to manufacturers fell a little and some assistance to agricultural producers was increased, and increased again in the 1970s as assistance to manufacturers again increased.

In future research, these estimates might be extended in a number of ways. The list of measures covered could be increased: for example, by adding quantitative restrictions on trade and production, and eliminating the nonprotective component of excisable commodities. The list of covered products could also be increased. Effective rates of assistance could replace nominal rates for commodities. However, our investigations showed that none of these extensions could be made for the entire period.

We did extend the calculations in this section by using effective rates of assistance in place of nominal rates. Trade theory shows that it is the effective rates of assistance rather than the nominal rates which affect producers' choices of outputs and resource allocation in the economy. In Australia, the statutory authorities have compiled series of average effective rates for the Manufacturing sector starting in 1968–1969 and for the Agriculture sector starting in 1970–1971. These give us series for the two sectors from 1970–1971 to 2010–2011, a period of 41 years. Figure 3 graphs these series of the average effective rates for the two sectors. Using effective rates in place of the nominal rates of the two sectors for each year, we have recomputed the series of relative rates of assistance, now called the Relative Rate of Effective Assistance (RREA). This Figure also reproduces for comparison the RRA series used above. The RRA and the RREA track each other closely. The RREA series fluctuates more, partly because variations in assistance to agricultural inputs change the effective rates along with changes in nominal rates of assistance for outputs. The RRA and RREA series tell the same story of discrimination against the Agriculture sector except for brief periods during the 1990s and the late 2000s.

Consequently, we are confident that the 110-year series of the RRA, the only one available for the whole period, accurately depicts the outcome of government assistance programs to the two sectors. Any further revisions are



**Figure 3** Effective rates of assistance (per cent) to Agriculture and Manufacturing, Australia, 1970–1971 to 2010–2011. Source: For Agriculture, Anderson *et al.* (2007) for 1970–1971 to 2004–2005; the World Bank (2013) for 2005–2006 to 2010–2011; for Manufacturing, the Productivity Commission (various).



unlikely to change our conclusion of persistent discrimination against the Agriculture sector.<sup>3</sup>

#### 4. Analysis of assistance to agriculture relative to manufacturing

In the decades of the 1910s and 1920s, assistance was offered to producers of a small but increasing number of agricultural products. Observing higher tariffs for manufacturers under a system that came to be centred on the Tariff Board from 1921 and the protection of wages by the Arbitration Board, farmers argued that they too deserved income protection (Shann 1948, chapter 24 describes the evolution of rural protectionism). A pro-agricultural assistance policy was pushed in Parliament by the Country Party which had joined the Federal coalition in 1922. Its leader, Earle Page, who was Deputy Prime Minister to Prime Minister Bruce for the period 1923–1929, coined the phrase ‘protection all round’ (Graham 1966, pp. 229–231). In practice, the Country Party argued mainly for a reduction in the very high tariff rates imposed by the Scullin Labor Government in 1931–1932 to their levels in the 1920s and a reduction of all tariffs on goods not manufactured commercially in Australia, especially machinery and tools of trade (Graziers’ Association 1933; Page 1934). At this stage, rural protectionism was based on the equity principle of a little of something for everyone.

The Report of the Brigden Committee (1929) took on an economy-wide view of the issues. It reviewed assistance to agricultural producers as well as the tariff assistance to import-competing manufacturers. It regarded tariff assistance as a tax on exporters whose prices are fixed on world markets and who were almost entirely agricultural producers at that time. ‘We may say, therefore, that the cost of tariff protection, falling ultimately on the export primary industries, falls chiefly on the owners of land, as such.’ (Report of the Brigden Committee 1929, p. 90). Today, we express this insight in terms of the Lerner Symmetry Theorem. The Brigden Committee calculated that the protection of manufactures had directly increased the costs of exporters by 9 per cent, but they had received offsetting assistance to a little over only 1 per cent. The Committee considered a compensating subsidy on exports but regarded the tax resources required as severely limited. These intersectoral effects were again considered in the *Report of the Royal Commission on the Wheat, Flour and Bread Industries* (1934–1935; Giblin 1934). By the end of the decade of the 1930s, the assistance

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<sup>3</sup> The omission of quantitative measures is a serious omission for a handful of agricultural commodities, but it is a more serious omission for the whole Manufacturing sector for the period of comprehensive import licensing from 1939 to 1962. During this period, import licensing was the binding constraint on imports of most manufactures and later the major manufacturing industries of Passenger Motor Vehicles and of Clothing Textile and Footwear which continued to receive most of their protection from quotas into the 1980s (Productivity Commission 2003, Appendix E gives a brief history of assistance to these two industries). On the other hand, correcting for the non-protective content of tariffs on excisables would reduce the measure of discrimination.

to wheat, which had been recommended by the Royal Commission, was being justified by the doctrine of 'protection all round'.

This policy stance resurfaced during the vigorous debate on tariff policy during the late 1960s and 1970s, the time of the Tariff Review conducted by the Tariff Board. In an unpublished but much-cited paper, Gruen (1968) restated the argument formally in terms of the Theory of the Second Best. For the first time, the analysis was cast in terms of general equilibrium theory. This view led to a sharp debate about the desirability of a policy of 'tariff compensation' for agricultural producers. Some agricultural economists supported increased assistance to agricultural producers on second-best grounds (Harris 1975), but other economists regarded this policy as undesirable or unworkable (especially Lloyd 1975 and Warr 1978; for other references, see Edwards and Watson 1975, pp. 203–208; Lloyd 1978, pp. 265–268). The important *Green Paper on Rural Policy* proposed tariff compensation assistance to rural export producers (Report of the Working Group on Rural Policy (the Green Paper) 1974, pp. 41–45).

The policy debate about the level of assistance to agricultural producers relative to that received by import-competing manufacturers quietened after tariff rates on manufactures began to fall from the mid-1980s. It eventually ceased when the view that assistance levels in both the Agricultural and Manufacturing sectors of the economy should be reduced became accepted by Australian Governments.

The Australian industry assistance regime can also be examined from a political economy point of view. From the 1920s, the interests of farmers and other producers of other land-based products were represented in the Australian polity by the Country Party (renamed the National Party in 1982). As noted above, the Country Party at that time pressed for a reduction in tariff rates. Later, the policy of 'protection all round' led to home price consumption schemes, subsidies and other interventions in markets for agricultural products.

In the post-World War II period, John McEwen became leader of the Country Party and Deputy Prime Minister in 1958 in the Menzies Coalition (Liberal/Country Parties) Government. He was Minister for Commerce and for Trade for an uninterrupted period of 21 years. Unlike his predecessors in the pre-World War II period, he strongly defended assistance to import-competing manufacturers. Indeed, 'By the late 1950s McEwen was the indisputable champion of the traditional Australian view that high protection of local industry was a principal tool of economic and social policy' (Lloyd 2000). He fought fiercely with economists and senior public servants who sought to lower tariff protection, notably with Sir Leslie Melville, who resigned as Chairman of the Tariff Board after two years because of disagreements with Minister McEwen, and with his successor Alf Rattigan. Rattigan was the Chairman of the Tariff Board and later the Industries Assistance Commission at the time when the Tariff Board initiated the Tariff Review in the 1970s. McEwen sought to offset tariff assistance to import-competing producers by

increased assistance to agricultural producers through more schemes to stabilize export markets, home price consumption schemes and support for a weaker Australian dollar in the era of pegged exchange rates.

Country/National Party leadership in rural assistance earned it considerable support in rural electorates. However, our series show that the average level of assistance to the sector remained below 10 per cent in the pre-World War II period (Table S1). While the average level of assistance to agricultural producers did in fact increase in the 1950s and 1960s, it continued to fall persistently below the average level of assistance to the Manufacturing sector (Figure 2). Producers of most individual major agricultural commodities also received less assistance than the Manufacturing sector, the exceptions being butter and cheese, dried vine fruits and bananas.

'Protection all round' failed to protect the real incomes of agricultural producers. Results in Section 3 show that agricultural producers received less Commonwealth government assistance from each of the three measures – bounties, export bounties and tariffs. But the difference in the average nominal rates of assistance between the Agriculture and Manufacturing sectors is almost entirely due to tariff assistance to import-competing manufacturers. Rural producers would have had higher real incomes if the Country Party had followed a policy of tariff reduction, as it had initially in the pre-world War II period, rather than 'protection all round'.

Protection all round meant in fact compensating assistance to some producers. Dairy farmers and irrigators, the heartland supporters of the Country Party, did receive levels of assistance comparable to that given to manufacturers. From an economic point of view, differences in the rates of assistance among producers of different crops and animal products distorted the allocation of resources within the Agriculture sector. This was a source of deadweight loss to the Australian economy additional to those caused by the change in the intersectoral relative prices.

## 5. Conclusion

From the time of Federation, the economy-wide pattern of industry assistance discriminated persistently and heavily in favour of the Manufacturing Sector. This pattern of assistance was established soon after federation and continued until almost the end of the last century.

This discrimination severely depressed the relative prices of agricultural products as a group and the real incomes of agricultural producers compared with what they would have been under a free trade regime for both sectors. This intersectoral pattern of assistance lowered the aggregate Australian national income. They also produced differences in the rates of assistance among producers of different crops and products which in turn also distorted the allocation of resources in the Australian economy and further lowered national income. The discrimination was most severe for the exportable agricultural commodities.

Efforts by the Country/National Party and Coalition governments to offset the effects of assistance to import-competing industries by providing assistance to specific agricultural producers failed to protect agricultural producers as a group.

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### Supporting Information

Additional Supporting Information may be found in the online version of this article:

**Table S1.** Average nominal rates of assistance to Australian Agriculture, 1903–1904 to 2010–2011 (per cent).

**Table S2.** Average nominal rates of assistance to Manufacturing, Australia, 1903–1904 to 2010–2011.

**Table S3.** Production bounties on manufactures (£).

**Table S4.** Export bounties on manufactures (£).