

WAS THE FIRST WORLD WAR DISTURBING OR REINFORCING OF AUSTRALIA'S
ECONOMIC MODEL?

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DISCUSSION PAPER NO. 2015-04

MARCH 2015

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Abstract

The paper argues there is little evidence that the First World War quickened the currents of development of the Australian economy of twentieth century. It instead suggests the War was reinforcing of the Deakinite model of economic management that already been established in Australia by the outbreak of War. It did so by enlarging the tenet of 'protection plus preference' that had been inscribed in the pre-War policy consensus; by strengthening the revenue and legal authority of the central state basic to the Deakinite framework of economic governance; and by assimilating rural interests into the terms of that framework.

Key Words: World War One, imperial preference, Australian settlement, agrarianism

¹ The Research School of Economics, The Australian National University. The author is indebted to the comments of Martin Shanahan, Jonathan Pincus, John Tang and Laura Panza.

JEL Codes: N1, N4, N7

In popular opinion wars are a motor of history: they accelerate social and economic trends, or catalyse those still only latent.² An older opinion, however, holds that, as acts of destruction, wars can only retard or delay economic progress.³ Both views evidently share a historicist position, inasmuch as the changes at issue are seen as inevitable, if variously postponed or hastened. If such historicism is deemed insupportable, there exists a alternative conception on the impact of war that does not necessitate adherence to any historical imperative, but instead seeks to locate the effect of war on the pattern, structure or 'model' of a society. The most common expression of this outlook is that wars – especially defeats in war - are disturbing, disruptive, possibly revolutionising. There exists, however, an alternative articulation of this conception: that wars – especially victories – can be validating, stabilising and reinforcing.⁴ In sympathy with this last position, the present paper rejects an historicist interpretation of the First World War as a hastening agent in Australian history, and contends it was stabilising of Australia's 'model'. Specifically, the paper argues that there is little evidence that the First World War significantly spurred Australian economic development; it had at most a modest effect on the two century-long structural changes in the Australian economy that the War occurred in the midst of - the expansion of manufacturing, and the decline of trade ties to United Kingdom - and appears to have actually disrupted the momentum of aggregate growth. It suggests instead that

² 'War is often a phenomenal catalyst for industry' Wright, *Special*, p10. The author goes on to contend that each of three major wars for Australia – the Boer War, and the two World Wars – were key events in the history of the Holden company.

³ For example, Richard Cobden's 'What Next-and Next?' *Collected Essays*.

⁴ Olson's *The Rise and Decline of Nations* is well-known attempt to theorise the contrasting effects of defeat and victory.

most palpable consequence of the War lay in Australia's model of state-economy relations. The War, it argues, was reinforcing the previously established Deakinite model of economic governance; by enlarging the tenet of 'protection plus preference' that had been inscribed in the pre-War policy consensus, by strengthening both the revenue and legal authority of the central state basic to the Deakinite framework, and by assimilating rural interests into the terms of the 'Australian Settlement'.

The paper begins by underlining the buoyant state of Australia's economy in the years just prior to the War, and its apparently settled political economy. It then reviews the range of shocks the War communicated to this seemingly propitious scene. It investigates the possibility that these shocks constituted a hastening factor for trends at a sectoral or aggregate level. It deploys the narrative of events, quantitative measurements, formal statistical inference, and the exploration of counter-factuals by simple theorising to argue against that conjecture. It then makes the case that that the War consolidated the pre-war regimen in policy.

The Pre-War Economic and Policy Equilibrium

The test of war came quickly to the young Commonwealth of Australia. But it could not meet the trial fortified with resurgent economic prospects, and a situation of relative political equilibrium. The years prior to the outbreak of War had seen the closing of previously unsettled disputes and the sorting out an implicit understanding between conflicting urban interests. This policy consensus which is inescapably tied to name of Alfred Deakin, currently goes by the tag of the 'Australian Settlement'.

The creation of the Commonwealth had helped secure this political equilibrium by allowing the predominant impulses of the colonies to be applied more decisively. The Immigration Restriction Act had been quickly passed in 1901 to establish 'White Australia'. Only slightly more time was required to realise the seemingly complementary policy of establishing a tariff wall enclosing all six states by the Customs Tariff Act of 1902. Despite the imperial bond being integral to the Constitution maker's vision of federation, and Deakin's own personal commitment to imperial preference, the Act of 1902 gave no concessions to imports from the 'Mother Country'. 'Preference' for British goods was not introduced until 1908, and preference to other parts of the Empire remained limited to South Africa⁵. This conflicted position doubtless reflects the very strength of the economic relation with Britain; Britain was the source of 51 percent of Australia's imports in the 5 years to 1914, and that same strength made it both imperative and ticklish to give British goods an easier path through the tariff wall.⁶ For all of Britain's predominance, Germany was Australia's third largest source of her imports (9 percent in the five years to 1913), following the United States of America (USA). Further, in the years before the war Germany was steadily expanding its relative importance as a destination of Australia's exports.

⁵ Sullivan 'Revealing a Preference', and Mills *Taxation in Australia*, 210-16.

⁶ Vamplew *Historical Statistics*, p 196.

Table 1: Destination of Australian exports⁷

Per cent of total, five year moving average

Year	UK	Germany	USA	Japan
1909	49.6	8.5	3.7	0.9
1910	50	9	3.6	0.9
1911	49.8	9.5	3.2	0.9
1912	49.2	9.9	3.0	1.1
1913	48.1	10	3.0	1.3

The evident integration of the Australian economy with the two great manufacturing economies of Europe reflected fact that Australia remained characterisable as a primary producer: with that sector accounting for 30 percent of national income, and 42.5 percent of her population inhabiting 'rural' areas⁸. But manufacturing was growing faster than other sectors of the economy.

⁶ Source: Vamplew 193.

⁸ Unless otherwise stated, all national account aggregates in this paper are drawn from Butlin *Australian Domestic Product*, as reported in Vamplew. The apportionment between rural and urban areas is drawn from 3105.0.65.001 *Australian Historical Population Statistics*, 2014

Table 2: Measures of Australian Manufacturing⁹

	Output at constant Prices, 1910/11 =100	Manufacturing value added, per cent of GDP, five year moving average	Employment in metals, 000, Five year moving average
1907/08	85.6	11.1	54.8
1908/09	87.1	11.3	57.8
1909/10	90.4	11.7	61.7
1910/11	100.0	11.9	66.1
1911/12	108.2	12.3	70.9
1912/13	110.8	12.8	76
1913/14	115.8	13.2	80.3

It was in the surging manufacturing sector – rather than the older maritime or pastoral industries – that the Commonwealth *Conciliation and Arbitration Act* of 1904 first made itself felt in the ‘Harvester judgement’ of 1907, that articulated the New Protection’s intertwining of tariffs and tribunal determined wage rates, and planted the concept of a wage that met ‘the normal needs ... of a human being living in a civilized community’(Henry Higgins)¹⁰.

Other members of society were also presumably entitled to the normal needs of a human being, and old age pensions began to be paid by the Commonwealth Government from 1909 and a maternity allowance from 1912. Given the number of projects the Commonwealth was additionally occupying itself with – a naval fleet from 1911, a

⁸ Sources. Output at constant prices, Haig 2001; manufacturing value added, Vample p133; employment in metals, Vamplew p 290.

¹⁰ *Ex parte H.V. McKay* (1907) 2 CAR 1.

transcontinental railway from 1912, and a 'seat of government' from 1913- it is not perhaps surprising in the years before the war government spending as a share of total spending was rising noticeably.

Table 3: Spending of Australian Governments ¹¹

(Excluding government business operating expenses)

Per cent of GDP

1908/09	13.9
1909/10	14.0
1910/11	14.6
1911/12	15.7
1912/13	16.6
1913/14	17.1

The tax base by which this spending was supported was narrow. Customs duties raised three quarters of the Commonwealth government's tax revenue, and 58 percent of total Commonwealth and state revenue¹². Section 90 of the Constitution effectively proscribed the states consumption taxes, and the only direct taxation of the Commonwealth was a land tax introduced in 1910. Overall the Commonwealth's tax revenue amounted to about four per cent of GDP, hardly the tax base to wage a major war.¹³

But a potent instrument of implicit taxation had just been forged. The private banks' notes had been taxed out of circulation in 1910 and replaced by a government note issue. These

¹⁰ Source: Barnard, Alan, *Some Government Financial Data, 1850 to 1982*, Source Papers in Economic History no.13 (Canberra : Australian National University 1986) 22,25; Vamplew, 133.

¹² Vamplew 282, 5 years to 1914.

¹³ Barnard and Vamplew; for the five years ending 1913/14.

‘Fishers Flimsies’ were buttressed by the pledge of the new inaugurated Commonwealth Bank to exchange them for gold. While this last institution was not yet anything close to a central bank in function, its commitment to the integrity of the new currency was a necessary, if not sufficient, condition for the ability of Australian governments to tap international capital markets .

Coincident with the Bank’s foundation capital inflow had begun to recover from its long quarter century decline in wake of 1890s depression as, outside of mining and agriculture, investment was booming in pre-war Australia. Shipbuilding was resurgent, and residential construction reached a historic peak in 1914. The recovery in capital inflow was matched by a strong recovery in immigration.

Table 4: Capital Inflow and Net Immigration ¹⁴

Five year moving average

	Capital inflow, per cent of national income	Net immigration, per cent of population
1888	10.8	1.43
1893	6.2	0.39
1898	3.8	0.11
1903	2.2	-0.11
1908	-2.9	0
1913	0.2	1.22

These inflows in capital and labour were accompanied more moderately by recovery in births. Since reaching a trough of 98,843 in 1903 annual births had increased every year to reach 137, 983 in 1914; an historic record, and one that remained unbroken until 1943.

13 Source: Butlin Butlin N.G., *Australian National Accounts 1788-1983*, Source Papers in Economic History no. 4, (Canberra : Australian National University 1985) 25; Vamplew 6, 133.

To summarise the strands above ; Australia in 1914 was palpably in the midst an economic boom. Real GDP in the three years ending 1913/1914 was, according to available estimates, 52 percent higher than 10 years earlier.¹⁵ And a political equilibrium had been reached, characterised by ‘a remarkable congruence of policy amongst the chief participants’.¹⁶

The track of the storm.

The shocks of the Great War broke over Australian shores at different times. Perhaps the most immediate economic impact of the outbreak of the war was a speculative surge in food prices that pitted urban against rural interests.

Table 5 : Indexes of Prices and Wages¹⁷

1914 = 100

	Wheat, wholesale	Dairy, Sydney, Wholesale	Meat Sydney, wholesale	Bread, Sydney retail	Butter, Sydney retail	Basic wage	Average earnings in manufacturing
1915	217	119	156	123	119	102	100
1916	115	122	174	114	121	107	104
1917	123	127	180	114	131	114	110
1918	123	132	157	114	133	119	113

The discontent arising from the decline in real wages induced a range of price control measures by the Fisher Labor government and allied state governments¹⁸, that in turn

¹⁵GDP is measured by Butlin *Australian Domestic Product*. Haig’s ‘New Estimates’ concur qualitatively: they estimate real GDP to have increased each year between 1905 and 1911, and to have increased increase 9.4 percent between 1913-14 and 1911-12. A comparison of trienniums using Haigs ‘New Estimates’ is obstructed by the shift in the series from annual to financial years, and from 1891 to 1938-9 prices.

¹⁶ Eddy ‘Nationalism and Nation Building from Federation’ p 138.

¹⁶ Source: prices, Vamplew 216, 222; wages, G. Withers, T. Endres and L. Perry *Australian Historical Statistics: Labour Statistics*, Source Papers in Economic History no. 7. (Canberra: Australian National University 1985), 50,58

galled rural producers. NSW fixed price of butter at a level that was distinctly below export prices and allegedly 'disastrous to the rural interest'¹⁹. An embargo on the export of sugar together with an imposition of a price of 18s kept prices below world level during the War.

The second most tangible impact of the war was the disruption of imports through the disturbance to shipping and the extinction of trade with enemy powers. 'With the cessation of imports' with war, BHP 'suddenly found it could not produce enough'²⁰, and steel production rose from 13,000 tonnes in 1913 to 144,000 tonnes by 1918. The severing of trade relations with Germany also palpably fostered import replacement in some other industries. Before 1914 Bayer AG supplied all Australia's aspirin, and controlled the relevant patents. But an economical means of synthesising salycic acid was developed by George and Alfred Nicholas, and clever marketing established Aspro in the face of British substitutes.²¹ At the outbreak of the war the refining of base metals mined in Australia was largely in the hand of German businesses. The consequent intense official campaign to establish Australian control has been told in detail²². A concrete upshot of the campaign was the establishment in 1916 of Electrolytic Zinc Company, that began to refine commercial quantities of zinc by the early 1920s.

There had been no German dominance in the car industry to make local substitution a necessity. Fully imported Model Ts had dominated the Australian car market from 1911-1917, in spite the 35 percent duty on car bodies of the 1912 tariff. Nevertheless, 'numerous small workshops ... had emerged to provide replacement parts while suppliers from North

¹⁸ In mid-1915 the one non-Labor government in the federation was Victoria's Peacock government.

¹⁹Page, *Truant Surgeon* p 40.

²⁰ Hughes *The Australian iron and steel industry* p 72.

²¹R. Grenville Smith and Alexander Barrie, *Aspro*.

²² Peter Yule 'Providence'; Haig-Muir 'The Economy'.

America and Europe were interrupted during the war' and 'a local capacity to produce tyres that had developed'²³. But it was a hastily contrived embargo in August 1917 on the import of 'luxury' teems – including motor vehicles- that marked 'the real birth of an Australian motor body builders industry'²⁴. This stimulus might be epitomised by Holden producing its first motor car body in 1917.

The disruption to imports was accompanied by a corresponding disruption to exports. But this was perhaps more than compensated by high export prices, and the willingness of Great Britain to guarantee both the quantity of raw materials it purchased from Australia, and the price it paid. Thus in 1916 Hughes as Prime Minister succeeded in committing the British Government to purchase the whole clip at historically high prices. Here lay the origins Central Wool Committee which from 1916/17 to 1919/20 'had complete control of the wool industry'.²⁵ It was soon joined by the Australian Wheat Board 1915/16 -1920/21, that also secured contracts from Britain that were sometimes on highly favourable terms.²⁶

The most enduring consequence of the war – its expense – waited upon mobilization but was already substantial by 1915/16. The *Official Year Books* no 14, 15, and 16 report cost of 'Expeditionary and Australian Forces in the Great War of 1914 -1918', and Table 6 expresses this relative to Australia's GDP. This measure, however, excludes many expenses that might be deemed part of the 'technology' of modern war, such as the medical care of invalid veterans. A more inclusive measure of 'War and Defence' spending of Alan Barnard includes

²³ Conlon an Perkins, *Wheels*, p32-3.

²⁴ Conlon and Perkins.

²⁵ Scott. See also Tsokhas *Markets, Money and Empire*.

²⁶ In 1916, in a 'gruelling' cabinet room contest at 10 Downing St, Hughes established the Commonwealth shipping line to secure Australian exports of wheat and meat. Fitzhardinge, *Digger*159.

care of veterans and war pensions', repatriation, along with the cost of home military forces.

Table 6: Measures of Australian War Costs²⁷

Per cent of GDP

	E&AF	Barnard	Fiscal	Social
1914/15	3.5	5.1	4.1	4.0
1915/16	8.9	10.3	9.9	9.6
1916/17	10.3	12.6	13	12.0
1917/18	10.4	12.8	13.6	12.0
1918/19	10.1	13.7	15.8	12.8
1919/20	3.5	9.2	12.3	5.7
1920/21	0.3	5.4	9.6	1.5
1921/22	0	3.4	6.2	1.0
1922/23	0	2.1	6.1	0.9
Total	47.1	74.6	90.6	59.5

Barnard's measure of war expenditure does not amount to a 'fiscal' cost of war, as it omits interest of war debt, the 'War Gratuity' of twenty seven million pounds paid to veterans at the Armistice, and arguably the bulk of War Homes and Soldier Settlement of post-War period. This last deserves special attention. Between 1918/19 and 1922/23 about £55m (a sum amounting to eight percent of annual national income) was outlayed on War Homes and Soldier Settlement. Both schemes were in the form of loans, and so were only a truly fiscal cost to the extent of their administration costs, concessional rates of interest, and bad

26 Sources: 'Expeditionary and Australian Forces' from *Official Year Book of the Commonwealth of Australia*. 'Barnard' = 'War and Defence' in *Government Financial Data*. 'Fiscal' = 'Expeditionary and Australian Forces' plus all interest and debt charges plus Soldier Settlement, War Homes, War Gratuity, War Pensions, Repatriation, Trading Vessels and Miscellaneous of the *Year Book*. 'Social' excludes Soldier Settlement and War Homes, and interest and debt charges to Commonwealth War Loans. The war cost that Millar reports in *Australia's Defence* amounts to 'Expeditionary and Australian Forces' plus Soldier Settlement, War Homes and Miscellaneous. This aggregate does not have much use in the present context.

loans. But all three items were sizeable²⁸, and repayments were decades in the future. We consequently measure the total fiscal cost of the (pessimistic) assumption that all of War Homes and Soldier Settlement was financed by tax payers.

The fiscal cost of the war reported in Table 6 obviously needs to be distinguished from its social cost; the loss of income, to society as a whole, arising from devoting resources to prosecute the war. Any measure of social costs will, for example, allow for the fact that the interest on war debt owed to a society's citizens is a simply redistribution of income within society as a whole, and does not constitute a social cost. But the social cost of some other government outlays is more problematic. On its face, the *War Service Homes Act* of 1918 – that funded veterans' home purchases - was simply a transfer of capital (and income) from the tax payer to the home owner. But in so far as 'many' Homes ended up 'costing far more than their actual worth'²⁹ they were a waste of capital and loss of income to society as a whole. The same ambiguity affects Soldier Settlement. Our calculation of social cost will deem both Soldier Settlements and War Homes as transfers rather than social cost. This is a certainly generous treatment; the sorry tale of Soldier Settlement is well-known. The upshot is that the social cost reported in Table 6 is best treated as a conservative minimum. Reinforcing the conservative character is the fact that the fiscal cost of the war will generate a social loss through the tax burden's deadweight loss. The size of deadweight loss is an intricate matter, and regrettably no estimates for its size in Australia at this period of history exist. What is suggestive is estimate for deadweight loss of tariffs in the United States of 46 cents per dollar of revenue for 1867–1913³⁰. Given the importance of tariff revenue the

²⁸ Pike, *Report on Losses*.

²⁹ Joint Committee of Public Accounts, *Third Progress Report*, 8.

³⁰ Irwin, *Trade Restrictiveness and Deadweight Losses from US Tariffs*'.

consideration of deadweight loss further underlines that the social cost of Table 6 is a minimum.

The Economic Consequences of the War

The War unmistakably knocked Australia off the rapid path of ascent it had been enjoying in 1914. By the one set of estimates that can make the comparison, real GDP in 1911/12-1913/14 was fifty two percent greater than ten years previous; while in the triennium 1921/22 -1923/24 real GDP was only ten percent greater than ten years previous.³¹

How the War did this is much less evident than it did. Clearly the over 60,000 AIF deaths (equivalent to about three percent of employment in 1914) and the around 150,000 injured constituted a definite destruction of 'human capital'.³² And the War surely induced a retardation of the growth of physical capital. Estimates of net investment do not exist, but gross investment was about forty percent lower during the War than in preceding years.

Table 7: Private Gross Capital Formation³³

Five year moving sum, 1911 prices, m pounds

	Total	Excluding dwellings
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³¹The comparison uses the estimates of *Australian Domestic Product*. Haig's 'New Estimates' puts real GDP in the triennium 1921/22 -1923/24 as 18.8 percent higher than 10 years before.

³² The toll of the post-War Influenza could be added. 11,552 persons are recorded as dying of influenza in 1919, compared to 168 in 1917 (*Year Book* 132).

³³ Source: Vamplew 134.

1909/10	91	57
1913/14	117	70
1917/18	74	39
1921/22	109	74
1925/26	153	87

More hypothetically, one might try to put a number on the retardation of capital accumulation by the following consideration. Consider the consumption of capital by Australian households in an effort to maintain consumption in the face of the cost the war. Let the total social cost be equivalent to sixty percent of annual income, as Table 6 indicates. Thus if consumption was reduced by an amount equal to one tenth of that shock, then capital would have been consumed by amount equal to fifty four percent of GDP. This conclusion can be given additional meaning with the help of an estimate of the size of net saving. Regrettably estimates of net saving do not exist for Australia. But suppose that in the post-War period Australia saved in net terms that the same proportion of GDP that both the UK and the US is estimated to have done in 1929; six percent.³⁴ The arithmetical result of dividing fifty four by six may be interpreted as meaning the consumed capital would have been made up in nine years – a rather benign way of looking at the matter; or, with equal warrant, as the path of capital accumulation (and ‘development’) being held back by nine years. Obviously different assumptions would yield different conclusions; this is a speculative exercise, designed to draw attention to one possible contributor the deaccelertion in economic growth.

³⁴ See Feinstein *National Income*, T4 and T40. Christensen ‘U.S. income, saving and wealth, 1929-1969’, Table 5 and 13.

But surely, it might be retorted, the War industrialising in effect?³⁵ Did it not incite import replacement in steel, pharmaceuticals and motor vehicles? In this vein Colin Forster many years ago advanced the case that the war had a 'profound influence' on the 'pace and nature of industrial development' in Australia³⁶ (p211). And popular texts have pressed this claim with ardour.³⁷ But for all the apparent stimulus to manufacturing, the best estimates put real manufacturing output in 1918/19 as 6 percent lower than in 1913/14³⁸. Manufacturing's share of total GDP was in the five years to 1918/19 barely different from 1913/14; and the same for 1924/25.

³⁵ Putting popularisations to one side, Hardach's *First World War* lists the 'industrialisation of non-Europe' one of the five leading economic effects of the War. Later economic historians (Broadberry's *The Economics of World War I* and Feinstein's *World Economy*) have hesitated to share this affirmation. A recent study of the Australian manufacturing sector judges 'World War One had a mixed impact on industrialisation' (Hutchison 'Manufacturing').

³⁶Foster, 'Australian Manufacturing' p, 211.

³⁷ Consider the *Macquarie Book of Events*: 'in the 10 years to 1920 ... employment in the [manufacturing] sector rose dramatically to 358,000'. The Year Book reports employment in manufacturing at 368, 300 in 1920, an undramatic 22.8 percent increase over 1910. Rather more dramatically Year Books also report that manufacturing employment in 1913 was 58.9 percent higher than in 1903. The *Macquarie Book* adds 'Military spending during World War and a lack of competitive outputs helped double textile output between 1913 and the end of the decade'. Haig's 'New Estimates' have textile output 65 percent greater in 1919/1920 vs 1913 at 1910 prices. Textile output constituted about 3 percent of total manufacturing output.

³⁸ Haig 2001, Table A2.

Table 8: Measures of Manufacturing in the War and Aftermath³⁹

five year moving average

	Value added, per cent of total GDP	Employment in metals and chemicals, 000
1913/14	13.2	80.3
1918/19	13.4	81.1
1923/24	13.4	103.8
1928/29	14.2	129.9

Obviously, a stability in the aggregate of manufacturing activity is consistent with there taking place some internal transformation of manufacturing from an 'old manufacturing' (say, food and furniture) to some 'new manufacturing' (chemicals and metals), as Foster had argued. But was there such an internal change? The car industry that emerged from the war was fragmented and still dominated by coach makers; no motor vehicle engines were produced in the inter-war period despite a tariff on engines that had by 1925 reached sixty percent. Neither producers nor policy makers seemed aware of the possibility of the car as serving a mass market. Despite Australia's high income, great distances (even in urban areas) and mobile population, the adoption of the car in the post-War period was sluggish: there were only fifteen cars per 1000 persons in New South Wales in 1921. It might be argued that the war preserved Australia's Edwardian car industry into the 1920s. In a similar vein, it might be said the burst in steel production during the War was a false start, that wilted in the post-War restoration of trade as 'Australian producers reeled before prices they could not meet ... [and] joined the clamour for protection'⁴⁰. Underlining this is the fact is that total employment in manufacturing metals and chemicals actually stalled during

38 Source: Vamplew 290

⁴⁰ Hughes, 86.

the war (Table 8). Further pointing to the lack of any sectoral shifts within manufacturing is the absence of an unusual volatility in the sectoral make up of employment manufacturing during the War, which would be suggestive of a movement from the ‘old’ to the ‘new’.

Table 9: Average annual absolute change in the eight sectoral shares of manufacturing employment⁴¹

per cent , 4 years ending

	Median change	Mean change
1913/14	0.16	0.34
1914/15	0.23	0.36
1915/16	0.27	0.34
1916/17	0.26	0.41
1918/19	0.26	0.44
1919/20	0.28	0.39
1920/21	0.29	0.53
1921/22	0.37	0.58
1922/23	0.41	0.62
1923/24	0.46	0.61
1924/25	0.30	0.58

Table 9 suggests the volatility in the sectoral composition of manufacturing peaked four or five years after the conclusion of the War.

If the War had little effect on manufacturing, did the War hasten the re-orientation of Australia from UK and Europe and towards the Asia Pacific? Certainly, Japan’s industrialisation during the War⁴² substantially increased her significance as a destination of Australian exports.

§Source: Vamplew. The eight sectoral shares are chemicals, metals, textiles, leather, food, wood, non-metal mining and other. An anomalous entry for textile employment in 1918 is ignored.

⁴² See Brown ‘The Impact of the First World War on Japan’.

Table 10: Destination of Australian exports⁴³

Per cent of total, five year moving average

	UK	Germany	USA	Japan
1913	48.1	10.0	3.0	1.3
1923/24	48.3	2.2	6.5	6.2
1928/29	39.3	6.4	5.7	8.0

But the Table 10 also reports the UK's relative importance in the post-War years was almost the same as in the pre-War. On the other hand adjusting for income – as 'propensities to import' do – does reveal a degree of fade in the links UK and German to Australia.

Table 11: Australia's Export Destinations Propensity to Import From Australia⁴⁴

five year moving average

	UK	Germany	USA	Japan
1913	1.5	0.28	0.03	0.21
1923/24	1.35	Na	0.04	0.51
1928/29	1.36	0.25	0.04	0.70

And there was also a decline in the relative importance of Britain as a source of Australian imports, as certain technological trends pressing down on Britain's share of Australia's imports. Britain could contribute nothing to Australia's burgeoning petroleum imports, and its car manufacturers did not produce the cars Australians wished to buy.

42 Source: Vamplew 196

43 Source: Vamplew 196; Mitchell 1992, 1998 and 1993.

Table 12: Source of Australian imports⁴⁵

Per cent of total, five year moving average

	UK	Germany	USA	Japan
1913	51.4	9.2	13.4	1.3
1923/24	47.1	0.3	21.7	3.2
1928/29	42.9	2.5	24.2	3.0

Nevertheless, an econometric appraisal of import data does not reject the hypothesis of no structural shift away from imports from Britain after 1919, or any shift in imports from outside Britain.

Table 13: Australian Imports from UK 1900/01-1938/39

Price of Sterling in Australian Pounds	GDP Australia	Dummy 1919-1939	Constant	R2	DW
-1.64	0.75	0.07	0.59	0.79	0.94
(-4.92)	(5.42)	(0.14)	(0.67)		

t-statistics in parentheses

Table 14: Australian Imports from outside UK 1900//01-1938/39

Price of \$US in Australian Pounds	GDP Australia	Dummy 1919-1939	Constant	R2	DW
-2.94	1.115	0.07	-2.58	0.93	1.64
(-3.59)	(10.2)	(0.6)	(-3.8)		

44 Source: Vamplew 196

What the coefficients on 'Australia's GDP' do suggest is that Australia's demand for non-British goods (for example, petroleum and motor cars) was more income elastic than her demand for British goods (for example, clothing). We are left with the thought that it was rising Australian incomes in the early decades of the 20th c that was re-orientating Australia's trade relations. The point to be made here is that the War was not responsible for this increase in incomes; indeed, the paper has argued that it slowed that increase. There seems little in the First World War to have hastened the secular decline in Australia's trade link with the UK.

The Political Economic Consequences of the War

If the War was only doubtfully weakening of the trade tie with Britain, it indisputably did father the attempt by policy makers to strengthen that tie. For it was the diffuse but compelling claims of honour bequeathed by the War that lay behind the establishment of 'imperial preference' in the post-war world.⁴⁶ Before 1914 imperial preference had been 'long urged by the colonies, long held at arm's length by Britain'.⁴⁷ The transition from 'British Preference' - something awarded by the Dominions to Britain - to a truly reciprocal Imperial Preference might be dated from 26 April 1917 when an Imperial War Cabinet resolved that 'each part of the Empire ... shall give specially favourable treatment and facilities to the produces and manufactures of other parts of the empire'⁴⁸. The subsequent

⁴⁶Britain's overseas Empire contributed two million men to the struggle; about a million men recruited from the Dominions and another million from India. Of these 202,000 died. Australia contributed 416,000 soldiers and sailors, of which about 331,000 were sent overseas. See *Statistics of the Military Effort of the British Empire*.

⁴⁷ La Nauze, *Deakin*, volume 2, 494.

⁴⁸ Quoted in Hancock, *Survey*.

journey to the agreements of the Imperial Economic Conference of 1932 was twisted, but the swell in 'preference feeling' in the wake of the war also had more immediate consequences. The UK budget of 1919 instituted the first British preference to Empire goods, and that was fitfully extended over the next decade to encompass not only 'semi-luxuries' but also sugar⁴⁹. For Australia's part, the 'Greene tariff' of 1920/21 significantly increased preferential concession to British imports, from an 'average' of about 5 per cent to 12 per cent⁵⁰, constituting a concession valued by the *Year Book* at £8.75 m, or over one percent of national income.⁵¹

The strengthening of imperial preference only added the challenge it presented the Commonwealth 'fisc'. The Table 15 indicates the total fiscal cost over the years 1914/15 to 1922/23 was equivalent to ninety percent of annual national income.⁵² By 1917/18 public debt outstanding was 123 per cent of GDP, a record exceeding (if only slightly) the levels of government indebtedness reached in the 1890s. And by 1928/9 it was 127 percent of GDP (Vamplew 256). It is perhaps not surprising that this fiscal challenge ultimately resulted in a fiscal strengthening of the Commonwealth. A security for Commonwealth debts was provided by a wholly unexpected revenue; a peace time federal income tax. Since 1895 there had been income taxes in some Australian states, but the Constitution makers had

⁴⁹By 1930, when world prices had fallen below 10 pounds per ton, the British tariff concession to Australian sugar was 6 pounds 8d per ton. *Parliament of the Commonwealth of Australia* (1931), 88.

⁵⁰ Mills, *Taxation in Australia*, 223.

⁵¹1922 *Year Book of the Commonwealth of Australia* no 15, 501. 'On the basis of imports during 1913, the preferential provisions of the tariff of 1908-11 covered 65 percent of the imports of merchandise of UK origin, the margin of preference being 5.08 pc ... the Tariff of 1919/21 has extended the application of the preferential Tariff rates to 90 per cent of imports from the UK, and, at the same time, has increased the margin of preference to 12.22 per cent': 1924 *Year Book of the Commonwealth of Australia*, 260.

⁵² This excludes about £14m pounds of the War Gratuity paid after 1922/23.

never envisaged a Commonwealth peace time income tax⁵³, and its first income tax was imposed by the Income Tax Assessment Act of 1915⁵⁴. Few citizens were liable: 1916 there were only 410,847 assessments in an economy with something over two million employees. Even after its extensions in 1916 and 1918 the tax imposed a claim of only 3.8 per cent of an income equal to 200 percent of average earnings. And the rate was reduced in the 1920s. For all that, the ‘emergency’ measure of income tax established as a permanent fixture of Commonwealth finances.

Table 15: Commonwealth Revenues⁵⁵

Per cent of GDP, 5 year moving average

	Customs	Income	Wealth	Entertainment
1913/14	3.9	0.0	0.3	0.0
1918/19	3.4	1.3	0.5	0.0
1923/24	4.5	2.2	0.5	0.1
1928/29	5.1	1.3	0.5	0.1

It would not be surprising if the introduction of an income tax produced an upward shift in the tax-take, and so it seems to have been. Between 1881 and 1939 tax revenue of all governments as a proportion national income drifted up, from about 5 per cent to about 15 percent, and causal inspection of the series the rate of drift upwards accelerated in the 20th c. There is formal evidence that the acceleration in the drift was closely subsequent to the establishment of a federal income tax. An exercise in explaining the variation in the tax/GDP ratio over 1900/01-1938/39 by means of a uniform time trend in conjunction with a second

⁵³ On this point see Fisher and Manus, *The Long and Winding Road*.

⁵⁴ A tax on undistributed company profits was simultaneously introduced with personal income tax. A Commonwealth tax on estate duties had been introduced in 1914 as ‘a war time foray into new tax territory’ ; Smith, *Taxing Popularity* p45 .

⁵⁵ Source: Barnard 45.

time trend beginning mid-sample concludes that commencing the second trend in 1915/16 yields a higher R^2 than any other commencement year. The non-stationarity of the data makes doubtful tests of significance in such an exercise, but repeating the exercise with differenced data yields a very similar conclusion. Table 16 reports the results of twenty regressions of the change in the tax share on a constant term in conjunction with a binary shift dummy that begins to assume a value of one at some point mid-sample.

Table 16: Annual Change in Tax share of GDP, 1900/01-1938/39⁵⁶

Year of shift dummy	Dummy Coefficient	Dummy t statistic	Constant Term	R^2
1904/05	0.097	0.52	0.148	0.005
1905/06	0.189	1.02	0.095	0.02
1906/07	0.232	1.28	0.076	0.03
1907/08	0.256	1.42	0.067	0.03
1908/09	0.230	1.27	0.086	0.03
1909/10	0.272	1.51	0.067	0.04
1910/11	0.301	1.69	0.057	0.05
1911/12	0.269	1.5	0.078	0.04
1912/13	0.242	1.34	0.095	0.03
1913/14	0.277	1.54	0.084	0.04
1914/15	0.319	1.77	0.071	0.05
1915/16	0.279	1.53	0.09	0.04
1916/17	0.244	1.33	0.112	0.03
1917/18	0.350	1.92	0.075	0.06
1918/19	0.346	1.88	0.083	0.06
1919/20	0.277	1.46	0.113	0.04
1920/21	0.183	0.95	0.148	0.03
1921/22	0.146	0.74	0.1633	0.01
1922/23	0.135	0.67	0.168	0.01
1923/24	0.175	0.86	0.160	0.01
1924/25	0.20	0.96	0.157	0.02

55 The DW statistic in these regressions ranges from 1.66 to 1.67.

The year 1917/18 evidently best captures the acceleration in the tax ratio. And the point estimate implies that acceleration was not small: it implies the tax ratio began to rise in 1917/18 at a rate of 0.35 percent per annum, compared to a uniform trend of 0.075 percent per annum.

The new fiscal strength of the Commonwealth also had a significant centralising aspect in that it underwrote the Commonwealth's assumption of authority over the States' loan raising. The Financial Agreement 1927 can be interpreted as the States being granted a constitutional claim to Commonwealth revenue in exchange for ceding to the Loan Council their powers to borrow.

In the light of this strengthening of the fisc of the central state one might be led to ask if the First World War occasioned in Australia a qualitative enhancement in state prerogatives, of the kind that some have maintained occurred in other countries?⁵⁷ Certainly, Australian governments enlarged their domain of activity during the war. But the various state timber yards, fisheries, cattle stations, butcher shops and bakeries established by Labor governments in the war were minor, and very much an articulation of pre-War policy.⁵⁸ The Commonwealth Government Line of Steamers was seen by some as a state socialism; but was also seen by others as intended by Hughes to be *seen* as socialism by a restive caucus. It was in any case a frantic war-time make-do that wilted in the peace. The establishment of 'six o'clock closing' in NSW and Victoria from July 1916 could be viewed as a marriage of convenience between temperance sympathisers and publicans, rather than an expression of

⁵⁷ For example, Rockoff 'Until its Over'.

⁵⁸Wilkinson *State Regulation*. The State Electricity Commission of Victoria was not minor, but its origins lie in the years before the war. It was in 1912 that it was resolved the exploitation of brown coal would not be done by private enterprise. As for the war itself, it 'delayed development of plans for electricity from brown coal'; Edwards *Brown Coal*, p18.

an all-organising state. Government expenditure as a proportion of GDP began to trend up more quickly in the 20th century, but formal econometric scrutiny of the data suggests the upward shift took place around 1910 rather than the War years.

Perhaps what the war expanded was not so much the extent of state activity but rather its capabilities; the machinery of state, and the experience in using it. Such a contention recalls Oliver MacDonagh argument that the nineteenth century administrative revolution' in British government was facilitated by the Napoleonic Wars producing a 'great body of officer veterans'⁵⁹. In the same vein, the First World War has been seen as a training ground for New Dealers, notably including Bernard Baruch, the chairman of the US War Industries Board.⁶⁰

With his background in banking, and a distinguished corporate career ahead of him, Walter Massy Greene – Hughes' trusted lieutenant, acting Prime Minister in his absence, and second in cabinet ranking - had something of a Bernard Baruch. In 1918 Greene was entrusted by Hughes with the most important innovation in state capability after income tax; price controls. Initially applied very partially by the States, in 1916 the High Court upheld Commonwealth's power to fix prices itself through the War Precautions Act, and the price of milk, meat, boots, bread, sugar and (critics held) everything 'from knitting needles to HMAS Australia'⁶¹ came under the minister's purview.

⁵⁹ MacDonagh, *Early Victorian Government*.

⁶⁰ Schivelbusch, *Three New Deals*.

⁶¹ See Lloyd, 'Massy-Greene'.

The Agrarian Harvest

Most price controls were abandoned in 1919, but they left a lasting impact in their agitation of rural interests. Perhaps here lies the most important economic effect of the War: by inducing policies that offended rural interests the War occasioned a resetting of the framework of policy formation. The Deakinite political economy of the pre-war had been, at the Commonwealth level, essentially an urban transaction.⁶² The 'Harvester Judgement' amounted, of course, to a tax on the purchase of agricultural implements. The War revealed to rural producers so many more policy devices that could powerfully harm – or benefit – them, and rural producers demanded political representatives on their own account.

The spur for this demand was a proliferation of marketing boards and 'pools', that, in order to make price ordinances effective, ordained a sole purchaser of the primary product, (the Commonwealth or a state government) which would pay a common price to all producers in a given season regardless of the variation in sale prices that took place. These included a Meat Board, 1915-20; a Dairy Produce Pool 1917-20; the Central Wool Committee, 1916/17 to 1919/20, and most important of all the Australian Wheat Board 1915/16 -1920/21. The most comprehensive history of the Country Party's origins notes that it was 'their acquaintance with the working of the growers pool radically altered the outlook of the most important farming group, the wheat growers'⁶³. This acquaintance begat Wheat Pool Vigilance Committees, and the (successful) demand that wheat growers be significantly

⁶²At the State level rural interests had long been rewarded with subsidised infrastructure. But the Bounties Act was the sole gesture of the Commonwealth to rural producers. A bounty on export of combed wool in the five years from 1909/10 to 1913/14 paid out 56, 000 pounds, considerably less than one tenth of one percent of the value of wool exports over this period.

⁶³ Graham *the Australian Country Parties*, 38.

represented in the pool. 'The wartime pools gave the final stimulus to the formation of country parties'⁶⁴, as Wheat Pool Vigilance Committee brought forth the Victorian Farmers' Union (VFU). At the same time in New South Wales Earl Page was concluding that the regulated butter price 'made plain beyond all doubt that rural areas must attain a voice in government of their own'.⁶⁵

The first 'country' member of the federal parliament was elected 14 December 1918. The general election of December 1919 returned to the federal parliament seven parliamentarians from the Victorian Farmers Union and Farmers and Settlers Union, winning four Nationalist seats and depriving Hughes of a majority. The new political economy was even more starkly evinced in the 1922 general election by the defeat of Massy Greene in his ultra-safe rural seat of Richmond, by a swing of a 24 percent to the Country Party candidate. Across the nation the Country Party won 12.6 percent of votes cast, and entered into government with five of the eleven ministries, and Earle Page as Treasurer.

Yet the accession of the Country Party to the cabinet room did not provide counterweight to the pre-existing 'principle' of protection. 'Although one could have expected the [Country] Party to take on an anti-protectionist stance ... this group did at no time interfere with the established policy of protection... their main effects was in the direction of the extension of the principle of protection to primary products'⁶⁶. The two ardent free-traders of the new party (Percy Stewart and Harry Gregory) were exiled to the backbench, while from 1923 rural producers were given *ex officio* representation on the Tariff Board, joining the representatives of manufacturers and importers.

⁶⁴Graham 103, 105.

⁶⁵ Page, 41.

⁶⁶Reitsma, *Trade Protection*, 21.

What the advent of the Country Party did do was to reinforce and extend the protection of agriculture, and in doing so reconcile, in part, the rural sector to Deakinite protectionism. The story of sugar illustrates how the advent of a distinct rural interest as one the piles of the edifice of economic governance extended and strengthened that edifice.

The Sweet Taste of Excess

Before 1914 sugar had epitomised the concatenation of White Australia, 'Harvester' and the New Protection. In the wake of Federation the elimination of 'Kanaka' labour had been promoted by the imposition in 1902 of excise was that would be rebateable only by sugar produced by white labour (Excise Tariff 1902). The subsequent Sugar Bounty Act of 1906 empowered the Minister to void the rebate if wages did not meet that generally paid 'white labour in that industry'. In 1912 the government of Andrew Fisher determined that the clause mandated a wage of 1 pound 16 shillings 'with keep'. In 1913, with the Kanakas removed and the abolition of the cocktail of rebate and excise imminent, the Queensland Sugar Growers Employees Act legislated a wage of 1 pound 16 shillings plus keep, pending an Queensland Industrial Court award. In that award of June 1914 the Court re-affirmed with some strengthening the wage of 1912, and refused millers' application for a wage reduction on the grounds that such a move would risk diminishing the existing tariff on sugar 6 shillings per tonne. In the opinion of majority report of the 1931 Royal Commission on sugar this award was a 'natural expression' of the Harvester Judgement.⁶⁷

With the outbreak of war the rise in the world price of sugar prices moved the Fisher government in July 1915 to fix a price- initially at £18 per ton, and then £21 - while prohibiting the export (or import) of sugar without authorisation. In May 1916 Hughes as

⁶⁷ Parliament of the Commonwealth of Australia, *Reports of the Sugar Inquiry Committee*.

Prime Minister proposed that all of the UK's demand for sugar be satisfied - in both peacetime and war - by Britain's colonies and dominions, with a fixed price and fixed quantity allocated each source.⁶⁸ This scheme of Empire autarky was not to be, but it did encourage Britain's repudiation of the 1902 Brussels Convention for free-trade in sugar, and so opened a path for the preferential treatment of Empire sugar in the post-war. In the meantime, industrial strife and prices below world levels created a grievance amongst Queensland growers and a royal commission, that reported shortly after the near defeat of the Nationalist government in the 1919 elections. Ignoring the commission's recommendation of a £1 per ton price rise, Hughes determined the price would rise to an 'unnecessarily high' £30 6s.⁶⁹

The Bruce-Page government – the first government with the Country Party at the cabinet table - did not decontrol price of sugar. Having indulged the sentiments United Cane Growers Association at pre-election 1922 'war council'⁷⁰, the Country Party successfully kept the domestic price pegged at 27 pounds per ton despite slumping world prices, which had by 1930 sunk to £9/0/10. With profit in sugar now both ample and largely riskless, its production now exceeded domestic demand, with 38 per cent of the 1929 harvest exported, almost entirely to Britain under an imperial preference tariff. In that year Britain imported more sugar from Australia than she did from the West Indies and Mauritius combined, and her imports of Australian sugar marginally exceeded in value her imports of Australian wheat. In the space fifteen years sugar had mutated from a show piece of White Australia and New Protection to a one of 'country' and Imperial Preference.

⁶⁸ Geerligs and Geerlligs, *Cane Sugar Production*, p20.

⁶⁹ Brigden, *The Story of Sugar*.

⁷⁰ Ellis, *History of the Australian Country Party* p 80.

There were other agricultural industries that had regulatory systems born of wartime expedience which had a considerable after-life in the peace under the protection of the Country Party. In Victoria the Victorian Farmers Union MPs in 1921 toppled the Lawson Government on account of its attempt to abolish compulsory wheat pool. The upshot was legislation instituting a wheat pool which 'while ostensibly voluntary, was in practice compulsory'⁷¹. In Queensland a compulsory wheat pool that was to endure for 70 years was instituted in 1920 at the Country Party's lobbying in the wake of its vigorous performance at the 1919 election⁷² Compulsion was discontinued in Western Australia, in New South Wales and South Australia but a voluntary board carried their functions in three states, most lastingly in the West. In the spirit of the wartime boards were the 1927 Marketing of Primary Products Act in New South Wales and the 1926 Primary Producers' Organisation and Marketing Act of Queensland, that conferred 'virtually unlimited power over pricing to particular industry groups' (Campbell 1973). At the Federal level the Dairy Fruits Exports Control Act 1924 placed the 'fixation of home-consumption prices in the hands of the Australian Dried Fruits Association'⁷³, and Dairy Product Exports Control Act 1924 was to the same end.

Such legislation bespeaks the impact of the most successful political novelty bequeathed by the War. It was in the aftermath of War that 'country parties' were established in the six states and nationally, and won parliamentary seats in all seven parliaments. In was in the inter-War period that the largest state had a former country party M.P. and minister as one of its Premiers and Treasurers (Thomas Bavin), and the most industrialised state was to have a Country Party Premier for a decade (Albert Dunstan). It was in this period that 'one- vote,

⁷¹ Garden, *Lawson*.

⁷² Conroy *Cecil*, and Marriot and Maclean *Going Against the Grain*, 21-29.

⁷³ Wood 'Control of Primary Products'.

one value' was abandoned for a rural gerrymander, practised by Labour as well as non-Labour parties. This 'bipartisan' character of this gerrymander underlines the urban parties concern to tap this new vein of political energy, which they did with some success; the claim of the Country Party was several times repudiated by specific rural interests. The Country Party itself experienced seriously splits; and was sometimes at war with other non-Labour parties, and sometimes seemingly effacing its identity by merging with them . For all the turmoil 'the bush' one way or another had arrived, and would stay. But, crucially, it came not to bring down the walls but to bring itself into the reckoning.

Conclusion

The First World War occurred roughly mid-way two century-long structural changes in the Australian economy; the growth of its manufacturing sector, and the decline of its trade ties to UK. The paper has argued that War had, at best, only very modest effect in accelerating these purely economic trends. Instead, the War's significance lay in extending, articulating and securing the Deakinite framework of economic governance established in the twelve years before 1914. A system of imperial preference – a key part of the Deakinite program – went from merely an aspiration of the Dominions before the War to an imperial reality after it. Secondly, the capabilities of the central state – another key Deakinite program- was enlarged. Finally, a sectoral interest that had not explicitly figured in the terms of the pre-War equilibrium – primary producers - was brought into policy transaction with the effect stabilising the older program.

REFERENCES

- Barnard, Alan 1986, *Some Government Financial Data, 1850 to 1982*, Source Papers in Economic History no.13. Canberra: Australian National University.
- Brigden, J.B. 1932 *The Story of Sugar*, Government Printer, Brisbane: The Queensland Bureau of Industry.
- Brigden, J.B., D.B. Copland, and L.F. Giblin 1929, *The Australian tariff: an economic enquiry*, Melbourne : Melbourne University Press.
- Broadberry, Stephen and Harrison 2008, *The Economics of World War I*, Cambridge University Press,
- Brown, Kenneth D. 2000, 'The Impact of the First World War on Japan' *The First World War and the International Economy*, edited by Chris Wrigley, Cheltenham: Edward Elgar.
- Butlin, N.G. (1962), *Australian Domestic Product, Investment and Foreign Borrowing 1861-1938/39* (Cambridge: Cambridge University Press).
- Campbell, Keith 1973 'The State Marketing Board- Relic or Prototype?' *Australian Journal of Agricultural and Resource Economics* 17(3).
- Christensen, Lurits R. and Dale W. Jorgenso 1973 *Review of Income and Wealth* Volume 19, Issue 4, pages 329–362.
- Cobden, Richard 1903, 'What Next-and Next?' *Collected Essays, 1835-1862* , London: T. Fisher Unwin.
- Conlon, Robert and John Perkins 2001 *Wheels and Deals: the Automotive Industry in Twentieth Century Australia*, Aldershot : Ashgate.
- Conroy, Denise K 1988, 'Roberts, James Henry Cecil (1877–1961)' *Australian Dictionary of Biography*, National Centre of Biography, Australian National University.
- Eddy, John 1988, 'Nationalism and Nation Building from Federation to Gallipoli' *The Rise of Colonial Nationalism: Australia, New Zealand, Canada and South Africa First Assert their Nationalities, 1880-1914* edited by John Eddy and Deryck Schreuder, Sydney : Allen & Unwin.
- Edwards, Cecil 1969 *Brown power : a jubilee history of the State Electricity Commission of Victoria*, Melbourne : State Electricity Commission of Victoria

Ellis, Ulrich 1963, *A History of the Australian Country Party*, Melbourne : Melbourne University Press.

Feinstein, C. H. 1972, *National income, expenditure and output of the United Kingdom, 1855-1965* , Cambridge University Press.

Feinstein, Charles H. Peter Temin and Gianni Toniolo, 2008 *The World Economy Between the World Wars*, Oxford: Oxford University Press.

Fisher, Rodney and Jacqueline McManus 2002, *The Long and Winding Road: a Century of Centralisation in Australian tax*, ATAX discussion paper ; no. 8, Sydney: University of New South Wales.

Fitzhardinge, L.F. 1979, *The Little Digger, 1914-1952*, Sydney: Angus and Robertson.

Foster, Colin 1953 'Australian Manufacturing and the War of 1914-1918' *Economic Record* 29(3).

Garden, Donald S. 1988, 'Lawson, Sir Harry Sutherland Wightman (1875–1952)' *Australian Dictionary of Biography*, National Centre of Biography, Australian National University.

Geerligs, H.C. Prinsen and R.J. Prinsen Gerligs 1938, *Cane Sugar Production 1912-1937*, Norman Rodger: London.

Graham B.D. 1966, *The Formation of the Australian Country Parties*, Australian National University Press.

Haig, Bryan 2001, 'New Estimates of Australian GDP: 1861-1948/49' *Australian Economic History Review*, 41: 1-34.

Haig-Muir , Marnie 1995, 'The Economy at war' *Australia's War, 1914-18* edited by Joan Beaumont St. Leonards, N.S.W. : Allen & Unwin.

Hancock, W.K. 1937-1942, *Survey of British Commonwealth Affairs* London : Oxford University Press.

Hardach, Gerd 1977 *The First World War, 1914-1918*, translated from the German by Peter and Betty Ross, London : Allen Lane.

Htchison, Diane 2014, 'Manufacturing', *The Cambridge Economic History of Australia*, edited by Simon Ville and Glenn Withers, Cambridge University Press.

Irwin, Douglas 2010, 'Trade Restrictiveness and Deadweight Losses from US Tariffs' *American Economic Journal: Economic Policy* 111–133

HMSO 1922 *Statistics of the Military Effort of the British Empire during the Great War, 1914-1920* London.

Hughes, Helen 1964, *The Australian Iron and Steel Industry, 1848-1962*, Melbourne: Melbourne University Press.

Hutchison, Diane 2014, 'Manufacturing' in *The Cambridge Economic History of Australia*, Simon Ville and Glen Withers eds, Cambridge University Press.

Joint Committee of Public Accounts 1921, *Third Progress Report from, the Joint Committee of Public Accounts on the War Service Homes Commission (Western Australia)*.

La Nauze, J.A. 1962, *Alfred Deakin*, Melbourne: Melbourne University Press.

Lloyd, 'Massey-Greene, Sir Walter (1874–1952)' 1986, *Australian Dictionary of Biography*, National Centre of Biography, Australian National University.

MacDonagh, Oliver 1977, *Early Victorian Government, 1830-1870*, London : Weidenfeld and Nicolson.

Marriott, R.S. and Gus McLean 1991, *Going with the grain : a history of Queensland's State Wheat Board* , Qld. : The Board

Millar T B. 1965, *Australia's Defence*, Melbourne : New York : Melbourne University Press ; Cambridge University Press.

Mills, Stephen 1925, *Taxation in Australia*, London: Macmillan.

Mitchell B.R. 2003 *International Historical Statistics: Africa, Asia & Oceania, 1750-2000*, Basingstoke, England : Palgrave Macmillan.

Olson, Mancur 1982, *The Rise and Decline of Nations: Economic Growth, Stagflation, and Social Rigidities* New Haven: Yale University Press.

Page, Earle 1963, *Truant Surgeon : the Inside Story of Forty Years of Australian Political Life*, edited by Ann Mozley, Sydney : Angus and Robertson.

Parliament of the Commonwealth of Australia, 1931 *Reports of the Sugar Inquiry Committee*, Canberra, A.C.T.: Govt. Printer.

Pike, George Herbert 1929, *Report on Losses due to Soldier Settlement*, Canberra : Govt. Printer.

Reitsma A.J. 1960, *Trade Protection in Australia*, Brisbane: University of Queensland Press.

Rockoff, Hugh 2005, 'Until its Over, Over There: The US Economy in World War' in *The Economics of World War I*, Stephen Broadberry and Mark Harrison, Cambridge University Press.

Scott, Ernest, 1937, *Official History of Australia in the War of 1914-1918*, XI, 'Australia during the war', Sydney : Angus & Robertson.

Smith R. Grenville and Alexander Barrie 1976, *Aspro: how a Family Business Grew Up*, Melbourne : Nicholas International.

Sullivan, Emmett 2001, 'Revealing a Preference: Imperial preference and the Australian tariff, 1901–14', *Journal of Imperial and Commonwealth History*, vol. 29, no. 1.

Tsokhas, Kosmas 1990, *Markets, Money and Empire: the Political Economy of the Australian Wool Industry*, Carlton, Vic. : Melbourne University Press.

Vamplew, Wray 1987, *Australians, Historical Statistics*, Broadway, N.S.W., Australia : Fairfax, Syme & Weldon Associates.

Wilkinson H.L. 1917, *State Regulation of Prices in Australia : a Treatise on Price Fixing and State Socialism* Melbourne : Melville & Mullen.

Wood, GL 1935, 'Control of Primary Products in Australia', *Commodity Control in the Pacific Area: A Symposium on Recent Experience*, edited by William Lancelot Holland, Stanford University Press.

Wright, John M 2008, *Special: the Untold Story of Australia's Holden*, Crows Nest, N.S.W. : Allen & Unwin.

Yule, Peter 2014, 'Providence has indeed been good to us': The Collins House Group in the First World War', Asia Pacific Economic and Business History Conference 2014.

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