

ALWAYS EGALITARIAN? AUSTRALIAN EARNINGS INEQUALITY C1870

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Abstract

Trends in Australian inequality across the twentieth century are now well documented and they closely replicate trends in every other advanced economy: from WW1 to the 1970s, inequality fell steeply everywhere, and from the 1970s to the present, it rose just as steeply. Despite following a similar trajectory, Australia remained more egalitarian throughout. Why has it been exceptional and what are its origins? Previous work has found no evidence documenting any rise in Australian income and earnings inequality from 1820 to 1870. But what was the *level* of inequality around 1870? Was it more or less egalitarian than other New World countries and Europe then? Using an array of primary and secondary sources we construct social tables for Victoria and New South Wales (about 75 percent of Australia's 1870 GDP) to estimate the Australian earnings distribution. We find that Australia was far more equal than in the United States, the United Kingdom and the rest of Europe during the same period. We speculate on the causes and whether the same estimates can be constructed for 1901 or 1911, thus documenting earnings distribution trends during Australia's poor growth decades of the late nineteenth and early twentieth century.

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1. Inequality Levels and Trends: Australia versus the Rest

Thanks to the impressive work of Anthony Atkinson, Thomas Piketty and many other economists, trends in earnings, income and wealth inequality across the twentieth century are now well established (Atkinson 2008; Atkinson and Bourgingnon 2015; Atkinson and Piketty 2007, 2010; Atkinson, Piketty and Saez 2011; Bengtsson and Waldenstrom 2018; Piketty 2005, 2014). All countries in the OECD experienced a great levelling from World War 1 to the 1970s and all experienced a big rise from the 1970s to the present. The timing of the inequality-trend turning point is also very similar across countries. While some underwent more dramatic changes than others, all countries for which we have the data exhibit the same trends. Figure 1 illustrates the evolution of the top 1% income shares for the US, the UK and Australia between 1913 and 2006. With very few exceptions, all advanced economies exhibited much the same decadal trend-related turning-points. This commonality suggests that twentieth century inequality trends were being driven by the same exogenous forces: from Great Depression to post-war prosperity; from two World Wars to relative world peace; from de-globalization to re-globalization; from anti-immigration to pro-immigration; from baby bust to baby boom; from liberal to conservative tax policies; from regulated to deregulated domestic financial markets; and from a closed to an integrated world capital market. All of these big shocks were shared, and all of them had a predictable impact on inequality.

The Australian experience followed a very similar path, with income inequality declining over the first three-quarters of the twentieth century to then increase thereafter: using tax data Atkinson and Leigh show that the share of the top 1% fell from around 11% in 1921 to under 5% by 1980 and rose again to around 9% in the early 2000s (Atkinson and Leigh 2007b Table 7.1, pp. 315-6; Atkinson and Leigh 2007a, Figure 1, p. 253).¹ Earlier studies portray an analogous story of inequality decline, despite using different measures: for example, Butlin (1983) finds a fall in the skilled to unskilled wage ratio between 1901 and 1968. McLean and Richardson (1986) report a considerable leveling in the distribution of per capita family income between 1933 and 1979.

¹ See also Saunders (1993) on the decline and rise of inequality with the 1970s as turning point.

Despite the similarities between global inequality trends, it is important to stress that Australia remained much more egalitarian throughout. Table 1 reports top 1 percent shares for twentieth century Australia, the United States and the United Kingdom. Across the 1920s, when inequality was at a peak, the Australian share was only 62 percent of the average of the US and UK. Following the great leveling, and having reached an inequality trough in the 1970s, Australia again recorded lower figures than the average of the US and the UK, 66 percent. And after the steep rise to the inequality peak in the 2000s, once again Australia recorded much lower figures, only 61 percent of the US and UK average. It is also notable how stable the ratio of Australia to the other two stayed across the twentieth century, while exhibiting the same inequality trends. Why were Australian inequality levels so modest across the twentieth century – at least relatively -- and what are their nineteenth century origins? This paper asks whether this egalitarianism is rooted in its colonial history well before the Federation (1901), when a set of policies to reduce perceived inequalities were implemented (McLean and Richardson 1986, p.67).

To our knowledge, we are the first to provide an estimate of Australian inequality in the nineteenth century.² True, our previous work found plenty of evidence documenting a fall in earnings and income inequality from 1820 to 1870, a period of exceptional growth in GDP and living standards (Panza and Williamson forthcoming 2018a). But what was the *level* of inequality around 1870 and how did it compare with the rest of the world? Was it always more egalitarian than other New World countries and Europe?

We overcome the constraints imposed by the lack of income and wealth data before the 1933 census, by constructing an 1870 social table of earnings. Specifically, we build from scratch labor earnings social tables for Victoria, New South Wales and South Australia (using only urban males for the latter), which covered about 87 percent of Australian GDP, in order to estimate its earnings distribution. To this purpose we use the colonial censuses to document the occupational structure of the labor force (that is, employment by occupation, gender and location); and two key primary sources for their average earnings by category: the *Sessional Papers* for working class occupations, and the *Blue Books* for white collar jobs, since it lists the annual earnings of public employees by occupation.

² See Maddock and Olekalns (1984) for a review of the available studies on income inequality in Australia between 1914 and 1980.

We find that Australia was exceptional in 1870: the distribution of earnings was far more equal than in the United States at that time (Lindert and Williamson 2016), and even more so for the United Kingdom in 1867 (Baxter 1868) and the rest of Europe. We speculate on the causes and whether the same estimates can be constructed for 1901 or 1911, thus documenting earnings distribution trends during Australia's poor growth decades of the late nineteenth and early twentieth century.

2. On Building Australian Social Tables

2.1 What's a Social Table?

Social tables were first used to document national income and its distribution across social classes more than three centuries ago by the English political arithmeticians William Petty and Gregory King, writing in the seventeenth century. They were followed in the eighteenth and nineteenth centuries by Patrick Colquhoun, Dudley Baxter and others (for a summary see Lindert and Williamson 1982). Their idea was to rank income earners by various occupations or social classes from the richest to the poorest with their estimated number of income earners and their estimated average incomes. Social tables are especially useful in evaluating pre-industrial societies where classes were clearly delineated, and the differences in mean incomes between them were clear without any fuzzy edges between classes. As such, the social table is a matrix, sometimes with separate columns by gender and location. Most recent uses dealing with inequality are: Milanovic, Lindert and Williamson (2011) using a large sample of 29 countries from Rome 14 to India 1948 (recently updated in Milanovic 2018); Lindert and Williamson (2016) for the United States during years 1774, 1850, 1860, and 1870; and Burnard, Panza, and Williamson (2018) for 1774 Jamaica.

In the absence of modern survey data or even tax data to construct Atkinson's top shares, we think social tables offer the best way to estimate earnings distributions. While relying on social tables to estimate Australian earnings inequality around 1870 has its weaknesses (see section 2.3), it is important to bear in mind that the same weaknesses are shared by our comparators, a US social table for 1870 (Lindert and Williamson 2016: Chapter 6) and a United Kingdom social table for 1867 (Baxter 1868). While all the above mentioned studies report income distributions (the US and UK document both earnings and income), we are only able (thus far) to estimate annual earnings distributions for the Australian colonies. This is because

we have not found data on average property income by occupation. Do earnings distributions always understate income inequality? Apparently not: indeed, Lindert and Williamson (2016: Chapter 6) show that for 1870 United States earnings inequality was slightly higher than income inequality. But the observation year of 1870 is probably unique for both settlers economies – compared with Europe –since their wealth and property income was still dominated by small owner-operated farms and family firms, implying less income inequality than earnings inequality.

2.2 Constructing Social Tables for c1870 Australia

All six of Australia's colonies (New South Wales, Queensland, South Australia, Tasmania, Victoria, Western Australia) published employment censuses for a date around 1870, but only two report roughly the same occupational earnings detail – New South Wales and Victoria – where aggregation between them is possible. South Australia also has some earnings data, but, they are limited mostly to urban males. As was true for all British colonies, the six Australian colonies published what were called *Blue Books* which, among other details, report the annual incomes of all public employees by department, occupation and gender (e.g. clerks, matrons, domestics, porters, police, judges, surgeons, surveyors, engineers, urban common labor, gardeners, stable keepers, cooks, some artisans, teachers, laundresses, etc.). However, the occupational earnings detail around 1870 is only adequate for the same three colonies – New South Wales, South Australia, and Victoria. According to available GDP estimates (Sinclair 2009), New South Wales and Victoria accounted for 75 percent of Australia's 1870 GDP (87 percent with the addition of South Australia), thus providing validity to the representativeness of our sample.

The social tables for New South Wales and Victoria are reported in the Appendix. As indicated above, while white collar earnings are taken from the *Blue Books*, some urban unskilled, some artisans, most skilled in the building trades, and all farm labor earnings are missing from the *Blue Books*; these are derived from other sources, mainly Coghlan (1918: v. ii) and the *Sessional Papers* from the House of Commons (1868-1873).

2.3 Potential Weaknesses as Australian Earnings Inequality Measures

The colonial *Blue Books* report annual earnings for public sector employees, not private. In effect, therefore, we assume that public and private sector labor markets were competitive, and that there was no selectivity regarding employee quality. This seems reasonable to us given the relatively small size of the government sector at that time, implying that private sector labor market conditions drove public sector occupational earnings, not the other way around. In addition, public employees typically had annual work contracts, while the same was true of private sector white collar workers, farm labor and domestics. However, the same was not true of skilled, semi-skilled and unskilled manual workers: in the private sector, manual labor was hired by the day or week while all white collar workers and most other public employees were usually paid by the year.³ Thus, we assume that the security of annual contracts were offset by higher daily and weekly wages in the more volatile private sector (with high unemployment risk). In any case, the same assumptions are made for the construction of the 1870 social table for the United States and the 1867 social table for United Kingdom with which comparisons will be made.

In addition, while we can take account of earnings variation within some occupations – e.g. clerks and police by grade, domestics by gender – we cannot do so for most unskilled and semi-skilled occupations, and even some artisanal occupations, except when their earnings are reported separately. Thus, each occupation cell in our social tables reports average earnings, calculated from all employees listed in that occupation, and that weighted average is then multiplied by the numbers so employed economy-wide as reported in the censuses. In short, while the social tables certainly measure the variance of earnings *between* occupations, schooling and skills, they do not include all the variance *within* occupation. However, we are not convinced that this is a serious shortcoming of the social tables. After all, most of the earnings variance within occupations is driven by age, health and luck. To the extent that the occupation-specific distributions of age, health and luck vary little across time and location, the social tables should be effective in gauging differences in earnings inequality across time and location.

³ While the *Blue Books* report annual earnings by occupation, the other sources typically report only daily or weekly wages that must be converted to annual earnings by days worked per year assumptions. For the latter, we use Panza and Williamson (2018b), which also tells us how in-kind income is added to the earnings estimates for farm labor and domestics.

3. Australian Earnings Distributions c1870

Table 2 converts our social table for “Australia” -- merging those for Victoria (Table A1) and New South Wales (Table A2) – into a size distribution which yields various inequality summary statistics: top 10 percent earnings share, top 1 percent earnings share, the ratio of the top 10 percent share to the bottom 10 percent share, and the gini coefficient.⁴ In the discussion that follows, we will rely on the top 1 percent share as our inequality indicator, but note that these four inequality statistics are highly correlated. The subsequent discussion would hardly be changed if we used any of the remaining three inequality indicators. Table 3 reports the same statistics for the United States in 1870 (using Lindert and Williamson 2016), and the United Kingdom in 1867 (using Baxter 1868). We should stress here, however, that some limitations to Baxter’s social table (see Appendix 5, Table A5) suggests that our UK earnings inequality figures are probably biased upwards. Still, income inequality was higher in the United Kingdom than the United States at that time (Figure 1; Lindert and Williamson 2016: Figure 5-3, p. 119): Indeed, the top 5 percent received an amazing 46 percent of total income in 1867 England and Wales (Lindert and Williamson 1982: p. 96), so there is reason to expect a similar earnings inequality gap between the two.

Before considering what Table 2 tells us about Australian earnings inequality across space, note that the data for South Australia are only adequate to estimate urban males earnings inequality (see Appendix 4). Having said so, our estimates show that older, slightly richer (per capita GDP 2.3 percent higher: Sinclair 2009), a bit more industrial (manufacturing value added 9 percent of GDP versus 5.5 percent: Sinclair 2009) and much more urbanized⁵ New South Wales recorded higher inequality than Victoria (top 1 percent share 7.37 versus 4.17 percent), but still lower than the United States. While the South Australian data are not available to speak to colony-wide issues, we can see clearly that urban inequality was lower there than in New South Wales (top 1 percent share 6.9 percent in New South Wales and 4.6 percent in South Australia). Table 2 also repeats what is almost always found for every country and time: namely,

⁴ In addition, Appendix Table A4b reports the “Australian” size distribution by decile.

⁵ The urban employment share of total employment in New South Wales was double that of Victoria. But note that this figure relates to employees not to the working population. Recall that our earnings social tables document employees and omit self-employed workers on family farms and in family firms.

rural inequality was far less than urban inequality in both New South Wales and Victoria but more so in New South Wales (top 1 percent share 7.63 percent versus 5.04 percent) than in Victoria (4.33 versus 3.66 percent).

Next, consider the role of gender. Not surprisingly, women were paid considerably less than men, even when doing the same work: in towns, female common labor received only 55 percent of their male co-worker's pay in both colonies (Tables A1 and A2). But female labor participation in paid work was so low that their inclusion in the distribution calculations raises the inequality statistics very little. For "Australia" as a whole, the top 1 percent received 5.48 percent when females are excluded, but 5.83 percent when they are included. To repeat, the difference is modest simply because female participation in the paid labor market was modest.

Finally, consider the central question that motivates this paper: Was Australia in 1870 a relatively egalitarian place compared with the United States, the United Kingdom and the Continent? In this working paper, the comparison will be limited to the United States and the United Kingdom. The comparison with the United States reported in Table 3 is unambiguous: Australia was a far more egalitarian place in 1870. The top 1 percent share was 5.8 in Australia, 9.7 percent in the United States and 16.8 percent in the United Kingdom. Thus, earnings inequality was only 60 percent of the US, 35 percent of the UK (but an upward bias for UK inequality contributing to a downward bias to the relative Australia estimate), and about 50 percent of the average of the two. This is a remarkable finding: given that the same figure was 62 percent in the 1920s and 61 percent in the 2000s. It appears that Australia's relative egalitarianism has persisted for about two centuries, although that leadership eroded a bit between the 1870s and the 1920s. Until the Australian experience with earnings inequality over that half century is documented, we do not know whether the erosion in the Australian leadership was due to rising inequality there or a fall in the UK, the US or both. Available evidence on income inequality trends suggests that it was likely to be a combination of the two: in fact, Figure 1 points to a fall in British income inequality between 1870 and 1920; and available estimates on income distributions in Australia report a gini coefficient of 0.473 for 1915 and of 0.498 for 1933 (McLean and Richardson, p.71). While both of these are certainly higher than our 0.426 estimates for 1870, but ours is for earnings not income.

4. Agenda Ahead

As a convict society in the 1820s, 1830s and 1840s, Australia was an unequal place, but by 1870 it had become a relatively egalitarian society compared with the United States, the United Kingdom, and continental Europe. It was pushed to that egalitarian status we think mostly by “emancipation” of those convicts, extraordinary fast growth of the land-labor ratio (raising wages and lowering rents), and very modest rates of industrialization. But what happened over the half century between the 1870s and the 1920s? While it was at an inequality peak in the 1920s, Australia was still a relatively egalitarian place at that time and it remained so over the century that followed. While it may have exhibited the same distribution trends across the twentieth century, and while those common trends were probably driven by common forces, Australia always remained a much less unequal place than, for example, the United States and the United Kingdom.

What remains to be done? We need an Australian earnings social table for 1901, 1911 or even the 1921. That is, did Australian earnings inequality rise over the half century from 1870 to the 1920s while remaining relatively egalitarian? And if it did, why so? Was the predicted inequality rise modest because economic growth was slow in the late nineteenth and early twentieth century (McLean 2013: Figure 2.1, p. 12; Greasley and Madsen 2016), and especially by slow rates of industrialization compared with the competition?

We do not have the tax data to compute Atkinson-like top shares before 1921 and we have not yet found the data to expand our social tables to include property incomes by occupation thus to document income inequality 1870-1920. However, we can construct social tables for earnings as we have done here for 1870. Working class and white collar annual earnings are even better documented for the 1890s and early twentieth century than for 1870. Our main sources for white collar and working class earnings for 1890 and 1910 are: *Blue Books* for Victoria (1891), New South Wales (1891) and other c1890 colonial *Blue Books*; House of Commons, *Sessional Papers: Statistical Tables* (1890-1900); the *Official Yearbooks of the Commonwealth of Australia* (1908 and 1912); Coghlan (1904); and the *Statistical Account of Australia and New Zealand* (Vol. 11, 1911). Finally, labor force distribution across occupations are available in the 1911 Census for all colonies for 1891 and 1911.

We will postpone the construction of our 1920 social table until 1890 and 1910 are completed. And resources permitting, we are still hopeful that we will find property income by occupation so as to expand all of our earnings social tables to income social tables.

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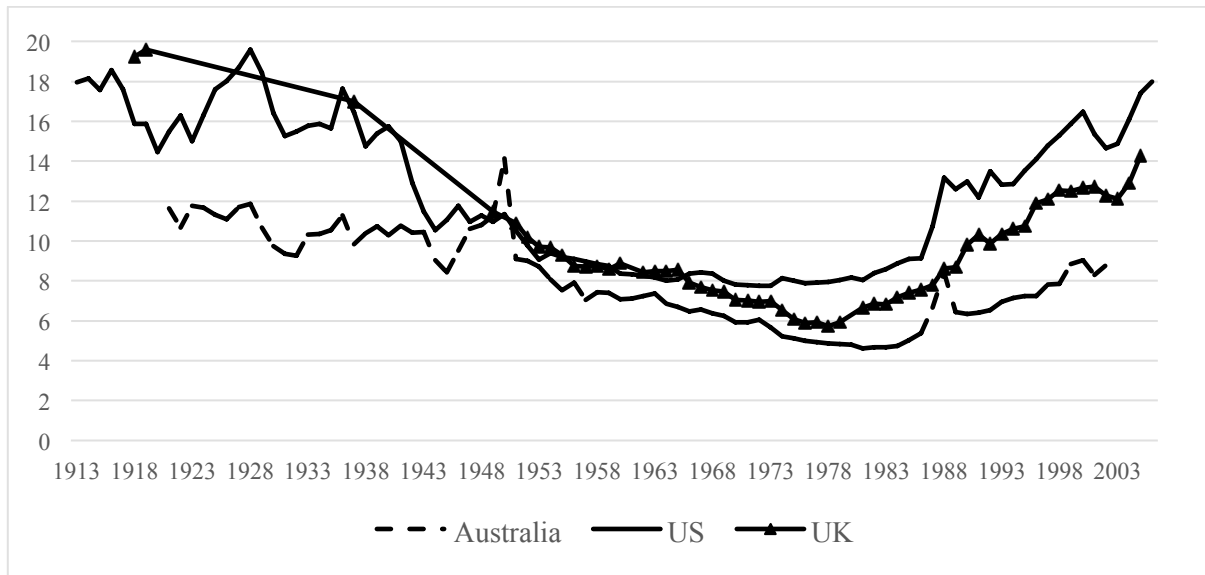
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Figure 1: Top 1% income shares in Australia, UK and US, 1913-2006



Source: Atkinson and Piketty (2007).

Table 1. Income Shares of Top 1%, 1920s-2000s, Australia, Great Britain and the US.

	<i>Australia</i>	<i>United Kingdom</i>	<i>United States</i>	<i>Average (UK & US)</i>	<i>Australia/Average</i>
1920s	11.37	19.59	16.98	18.29	0.62
1970s	5.35	8.37	7.9	8.14	0.66
2000s	8.71	12.67	15.69	14.18	0.61

Sources: Australia, the UK and US are from Atkinson and Piketty (2007: Tables 4.1, 5A.1, 7.1).

Table 2. Comparative Earnings Inequality 1870/71 across Australian Colonies**A. Using both Male and Female**

	<i>Total</i>	<i>Urban</i>	<i>Rural</i>
New South Wales			
Top 10% vs bottom 10%	31.45	31.36	19.01
Top 10% share (%)	34.40	39.00	22.27
Top 1% share (%)	7.37	7.63	5.04
Top 10% mean income (£)	813.79	827.02	466.43
Gini coefficient	0.399	0.480	0.273
Victoria			
Top 10% vs bottom 10%	16.15	16.07	15.72
Top 10% share (%)	27.46	29.38	21.64
Top 1% share (%)	4.17	4.33	3.66
Top 10% mean income (£)	689.38	685.47	623.58
Gini coefficient	0.353	0.377	0.271
Australia (VIC + NSW)			
Top 10% vs bottom 10%	26.90	26.17	23.57
Top 10% share (%)	33.53	33.05	30.89
Top 1% share (%)	5.83	5.54	5.81
Top 10% mean income (£)	706.14	703.36	621.37
Gini coefficient	0.426	0.438	0.369

B. Using only male labor force

	<i>Total</i>	<i>Urban</i>	<i>Rural</i>
New South Wales			
Top 10% vs bottom 10%	22.16	24.27	9.80
Top 10% share (%)	32.72	36.22	21.27
Top 1% share (%)	6.75	6.90	4.99
Top 10% mean income (£)	813.79	907.49	323.38
Gini coefficient	0.377	0.455	0.274
Victoria			
Top 10% vs bottom 10%	11.73	10.18	11.79
Top 10% share (%)	27.35	28.89	21.47
Top 1% share (%)	4.18	4.22	3.61
Top 10% mean income (£)	689.38	685.47	623.58
Gini coefficient	0.343	0.367	0.263
South Australia			
Top 10% vs bottom 10%		13.42	
Top 10% share (%)		27.26	
Top 1% share (%)		4.57	
Top 10% mean income (£)		624.26	
Gini coefficient		0.361	
Australia (VIC + NSW)			
Top 10% vs bottom 10%	16.60	17.49	15.65
Top 10% share (%)	32.12	31.27	30.09
Top 1% share (%)	5.48	5.15	5.64
Top 10% mean income (£)	742.98	774.50	651.14
Gini coefficient	0.411	0.409	0.356

Sources: Appendices 1, 2, and 3.

Table 3. Earnings inequality 1870/71: the USA and the UK

	Top 10% share (%)	Top 1% share (%)	Gini coefficient
United States	44.5	9.7	0.546
United Kingdom	47.5	16.8	0.625

Sources: The US figures are from Lindert and Williamson (2016, Table 6.5, p.156). The UK figures are derived from Baxter (1868, Appendix 5).

Appendix 1: Victoria c1870

Appendix Table A1 reports our social table for earnings in Victoria around 1870. To fit in the table cells reported here, the occupations listed in the table are selective, but the complete list can be found at the end of Appendix 4. The employment figures are from the *Census of Victoria, 1871: General Report and Appendices* (John Ferres, Government Printer, Melbourne, 1871-1874). All white collar and some working class and artisan earnings data are taken from the *Blue Book of the colony of Victoria for the year 1867* (John Ferres, Government Printer, Melbourne, 1868). Urban working class and farm earnings (e, g. farm labor, building trade workers, blacksmiths, cooks, grooms, stable keepers, gardeners, female domestics, housemaids, nursemaids, laundresses, common labor, and seamen) are all constructed from Timothy A. Coghlan, *Labour and Industry in Australia*, v. II, chap. 2 (Melbourne: Oxford University Press, 1918) and the House of Commons, *Sessional Papers: Statistical Tables relating to the Colonial and other Possessions of the United Kingdom*, Parts XIV-XV (1868- 1875). We also constructed and include estimates of in-kind income for farm labor, seamen and domestics as well as converting daily and weekly wages in to annual earnings as explained in Panza and Williamson (2018b). Teacher salaries are from *Parliamentary Paper (Victoria. Parliament)*, no. 66: Education Act .1872.—Regulations (Melbourne : Robt. S. Brain, Government Printer, 1889). All earnings in Table A1 are in Australian an pounds.

Table A1. Earnings Social Table for Victoria c 1870

Occupation	Gender	Urban employees	Rural employees	Urban earnings	Rural earnings
Butchers, Bakers	F	70	63	26	26
Butchers, Bakers	M	1,495	461	102.86	102.86
Fishmongers, Fruiterers	F	322	12	26	26
Fishmongers, Fruiterers	M	2,862	699	102.86	102.86
Hawkers, peddlers	F	587	43	41.42	36.04
Hawkers, peddlers	M	3,181	1,131	218	190
Hotel, lodging operator	F	385	101	26	26
Hotel, lodging operator	M	1,304	706	102.86	102.86
barber and hairdresser	M	2,488	325	49.72	39.6
Blacksmith, farrier, locksmith	M	614	205	192	144
Dressmaker, seamstress	F	3,815	419	75.33	55.75
Goldsmith, jeweler, clock maker	M	276	30	186.25	137.83
Printer, compositor, lithographer	M	633	46	150.67	120
Skilled with leather	M	864	218	150.67	120
Skilled with stone	M	691	168	150.67	120

Skilled with metal	M	3,451	655	49.72	39.6
Skilled worker casual	M	8,148	3,267	56.93	45.77
Wheelwright, coachmaker	M	770	247	177.5	154
Common labor	F	2,369	263	27.5	27.5
Common labor	M			58.67	58.67
		19,346	12,725		
Domestic	F	10,891	5127	28	20.16
Domestic	M	3,901	2,810	66	48
Farm laborer	F	65	1455	65.71	65.71
Farm laborer	M	4,038	36,565	71.2	71.2
Miners	M	7,596	24,881	177.8	177.8
Seaman, boatman	M	1,431	418	120	100.31
Stevedore, lumper, stoker	M	200		100.31	
Accountant, Banker, Merchant	M	1,543	179	407.27	200
Architects, Surveyors	F	69	177	150	144.99
Assistants	M	65	6	70	70
Authors, editors, reporters	M	547		505.15	
Civil engineers	M	1,998	415	582	582
Clergy	M	400	104	237.88	160
Dispensing Chemists, Dentists	M	225	22	270	270
Harbour pilot, master, keeper	M	245	70	250	175
High government officials	M	8		1,050	
Judges, lawyers, solicitors	M	273	37	1,472.22	950
Law clerks	M	257	22	403.13	260.13
Physicians, surgeons	M	252	72	270	270
Police, jailers	M	706	132	225	225
Private sector clerks	F	527	103	49.86	43.38
Private sector clerks	M	3,651	590	262.45	228.33
Teachers, common school	M	2,400	1,463	223.71	223.71

Appendix 2: New South Wales c1870

Appendix Table A2 reports our social table for earnings in New South Wales around 1870. To fit in the cells here in the paper, the occupations listed in the table are selective, but the complete list can be found at the end of Appendix 3. The employment figures are from the *New South Wales Census of 1871, Consisting of Report, Summary Tables, and Appendix, and Detailed Tables* (Sydney: Thomas Richards, Government Printer. 1873). All white collar and some working class and artisan earnings data are taken from the *New South Wales Blue Book for the year 1867* (Sydney: Government Printer, 1868). Urban working class and farm earnings (e, g. farm labor, building trade workers, blacksmiths, cooks, grooms, stable keepers, gardeners, female domestics, housemaids, nursemaids, laundresses, common labor, and seamen) are all constructed from Timothy A. Coghlan, *Labour and Industry in Australia*, v. II (Melbourne: Oxford University Press, 1918) and House of Commons, *Sessional Papers: Statistical Tables relating to the Colonial and other Possessions of the United Kingdom*, Parts XIV-XV (1868-1875). We constructed estimates of in-kind income for farm labor and domestics as well as converting daily and weekly wages in to annual earnings as explained in Panza and Williamson (2018b). We were not able to find common school teacher salaries for New South Wales, so we assumed that Victorian earnings applied. All earnings figures in Table A2 are in Australian pounds.

Table A2. Earnings Social Table for New South Wales c1870

Occupation	Gender	Urban employees	Rural employees	Urban earnings	Rural earnings
Butchers, Bakers	F	70	63	26	26
Butchers, Bakers	M	1,495	461	102.86	102.86
Fishmongers, Fruiterers	F	322	12	26	26
Fishmongers, Fruiterers	M	2,862	699	102.86	102.86
Hawkers, peddlers	F	587	43	41.42	36.04
Hawkers, peddlers	M	3,,181	1,131	218	19
Hotel, lodging operator	F	385	101	26	26
Hotel, lodging operator	M	304	706	102.86	102.86
barber and hairdresser	M	2,488	325	49.72	39.6
Blacksmith, farrier, locksmith	M	614	205	192	144
Dressmaker, seamstress	F	3,815	419	75.33	55.75
Goldsmith, jeweler, watch maker	M	276	30	186.25	137.83
Printer, compositor, lithographer	M	633	46	150	120
Skilled with leather	M	864	218	151	120

Skilled with stone	M	4,142	823	100.19	79.8
Skilled worker casual	M	8,148	3,267	56.93	45.77
Wheelwright, coachmaker	M	770	247	177.50	154
Common labor	F	2,369	263	27.50	27.50
Common labor	M	12,551	15,092	56.10	56.1
Domestic	F	10,891	5,127	28.00	20.16
Domestic	M	3,901	2,810	66.00	48
Farm laborer	F	65	1,455	65.71	65.71
Farm laborer	M	4,038	36,565	71.20	71.20
Miners	M	1,836	14,530	150.00	150
Seaman, boatman	M	1,431	418	120.00	100.31
Stevedore, lumper, stoker	M	200		100.31	
Accountant, Banker, Merchant	M	1,543	179	407.27	200
Architect, Surveyor	M	69	177	150	144.99
Assistants	M	65	6	70	70
Authors, editors, reporters	M	547		505.15	
Civil engineers	M	1,998	415	582	582
Clergy	M	400	104	237.88	160
Dispensing Chemists, Dentists	M	225	22	270	270
Harbour pilot, master, keeper	M	245	70	250	175
High government officials	M	8		1,050	
Judges, lawyers, solicitors	M	273	37	1,472.22	950
Law clerks	M	257	22	403.13	260.13
Physicians, surgeons	M	252	72	270.00	270
Police, jailers	M	706	132	225.00	225
Private sector clerks	F	527	103	49.86	43.38
Private sector clerks	M	3,651	590	262.45	228.33
Teachers, common school	F	1,342	499	75.00	65
Teachers, common school	M	3,114	772	525.74	150.9

Appendix 3. South Australia c1870

Appendix Table A3 only reports employment and earnings of urban males since our sources do not document enough female and rural occupational earnings to include inequality statistics for anything other than urban males. Most earnings data come from the *Blue Book of South Australia for the year 1867* (Government Printer, Adelaide, 1868) with the exception of the following occupations which are derived from the *Sessional Papers: Statistical Tables relating to the Colonial and other Possessions of the United Kingdom*, Parts XIV-XV (1868- 1875): butcher; locksmith; tailor; cabinet maker; skilled with leather; mason, bricklayer; wheelwright; domestic, stevedore; carriage maker; engineer; and lithographer. In addition, barber and hairdresser earnings are from Frederick Sinnett, *An account of the colony of south Australia* (Adelaide, Government Printer, 1863), and teacher earnings are from Kay Whitehead, “Women's life-work: teachers in South Australia, 1836-1906,” Phd thesis, June 1996, Department of Education and Women's Studies. University of Adelaide. The employment data come from the *1876 South Australian Census*.

Table A3. Earnings Social Table for South Australia c 1870

Occupation	Urban employment	Urban Earnings
Accountants, Bankers, Merchants	351	250
Architects, Surveyors, Scientific persons	257	408.95
Artist, actor, musician	113	225
Assistants clerks	44	76.25
Authors, editors, reporters	37	300
Barber, hair dresser	30	52
Blacksmith, farrier, locksmith	630	125
Butchers, Bakers, Brewers	1,073	70
Civil engineers	15	187.5
Clergy	103	300
Commissioner, agent	274	300
Common labor	5,217	45.71
Dispensing Chemists, Dentists	99	124.78
Domestic	407	48
Dressmaker, seamstress, tailoress	234	125
Farm laborer	1,145	40.33
Fishmongers, Fruiterers	1,144	115
Goldsmith, jeweler, watch maker	142	313.75
Government clerks	305	165.35

Hawkers, peddlers, pawnbroker	358	127.5
High government officials	55	749.55
Hotel & lodging operator	20	150
Judges, lawyers, barristers	75	540.91
Law clerks	70	224.23
Machine and tool maker	313	135
Midwife, nurse	12	93.53
Miners	284	90
Overseer	35	310
Pharmacists, dentist	16	71.18
Physicians, surgeons	59	450
Police, jailers	133	324.63
Printer, compositor, lithographer	350	313.75
Private sector clerks	938	277.67
Professor	3	971.88
Seaman, boatman	454	120
Skilled with leather (boot, shoe, and saddle maker; tanner)	970	116.81
Skilled with stone (mason, bricklayer) and metal	2,485	143.33
Skilled with textiles and wood	1,515	122.5
Stevedore, wharf labor	22	92.5
Teachers, common school	162	120
Tobacconist	34	150
Wheelwright, coachmaker	535	130

Appendix 4: Australia c1870

The Australian earnings social table (Table A4a) simply merges those for Victoria (Table A1) and New South Wales (Table A2). South Australia is excluded since both rural and female occupational earnings data are inadequate for that colony. All earnings data are in Australian pounds.

In the text tables, the gini coefficients derived from Tables A1-A5 use the following algorithm:

$$1 - 2 * \frac{\sum_{i=1}^{i=N} W_i * (\sum_{j=1}^{j=i} W_j * X_j - W_i * X_i / 2)}{\sum_{i=1}^{i=N} W_i * X_i * \sum_{i=1}^{i=N} W_i}$$

where the W are weights based on employment figures and the X are annual earnings (ordered in ascending order).

Following Table A4a, we also report the complete list of occupations which are abbreviated in Tables A1, A2 and A3. Finally, the size distribution underlying Table A4a are reported as decile shares in Table A4b.

Table A4a. Earnings Social Table for Australia c 1870

Occupation	Gender	Employment		Earnings	
		Urban	Rural	Urban	Rural
Accountants, Auctioneers, Bankers, Brokers, Merchants	M	2,836	642	457.72	396.92
Architects, Artists, Authors, Editors, Civil Engineers, Surveyors, Scientific persons	F	69	177	150	145
Architects, Artists, Authors, Editors, Civil Engineers, Surveyors, Scientific persons	M	2,386	780	365.99	362.49
Artist, actor, musician	M	740	222	225	210
Assistants clerks	M	96	12	111.98	129.69
Authors, editors, reporters	M	637	24	500.54	472.5
Barber, hair dresser	M	2,958	375	67.09	55.53
Blacksmith, farrier, locksmith	M	2,854	1,975	140.2	99.30
Butchers, Bakers, Brewers, Confectioners, Dairymen, Malsters, Millers	F	70	63	26	26
Butchers, Bakers, Brewers, Confectioners, Dairymen, Malsters, Millers	M	6,599	2,857	187.34	194.46

Civil engineers	M	2,130	469	567.1	554.32
Clergy	M	908	391	324.8	331.21
Commissioner, agent	M	475	90	537	537
Common labor	F	2,,369	263	27.5	27.5
Common labor	M	31897	27,817	58.25	32.14
Dealers, agents, contractors	M	3,988	1,378	525.5	386.32
Dispensing Chemists, Dentists	M	225	22	270	270
Domestic	F	10,891	5127	28	20.16
Domestic	M	21,969	12,991	67.63	63.66
Dressmaker, seamstress, tailoress	F	10,001	1,815	67.39	48.78
Farm labourer	F	65	1,455	65.71	65.71
Farm labourer	M	6,905	55,661	41.64	77.87
Farm overseer	M	89	975	244.79	244.79
Fishmongers, Fruiterers, Milkmen, Provision Dealers, Restaurant Keepers	M	3,687	1,567	127.3	163.36
Goldsmith, jeweller, watch and clock maker, engraver	M	1,246	134	272.62	240.08
Government clerks	M	982	414	294.95	286.55
Hawkers, peddlers, dealers, agents, contractors, wine seller, grocer, pawnbroker, shopkeeper	F	1,317	115	40.63	38.52
Hawkers, peddlers, dealers, agents, contractors, wine seller, grocer, pawnbroker, shopkeeper	M	8,780	4,307	208.69	199.88
High government officials	M	332	189	825.7	596
Hotel, lodging operator	F	442	162	37.29	58.97
Hotel, lodging operator	M	4,113	2,246	158.17	158.39
Judges, lawyers, barristers, solicitors	M	848	169	970.84	748.24
Law clerks	M	682	59	395.89	328.75
Machine and tool maker, gunsmith, millwright	M	1,228	167	168	125.5
Midwife	F	88	42	36	36
Miners	M	88	42	36	36
Pharmacists, dispensing chemists, assayer, dentist	M	480	95	200	189.39
Physicians, surgeons	M	768	273	357.23	348.67
Police, jailers	M	1,703	538	165.74	148.61
Printer, compositor, lithographer, bookbinder, messengers, weighers, sorters	M	3,064	476	211.66	202.81
Private sector clerks	M	6,867	1,032	277.67	253.26

Professors, schoolmasters, teachers of music	M	10	3	971.88	820.16
Seaman, boatman	M	2,607	1,605	115.49	107.47
Skilled with textiles, paint, tailor, wood	M	17,479	1,372	129.5	96.73
Skilled with leather (boot, shoe, and saddle maker, tanner)	M	6,165	1,900	129.46	97.09
Skilled with stone (mason, bricklayer) and metal	M	7,773	1,836	104.14	85.69
Stevedore, lumper, stoker, wharf labor	M	417	81	90.33	
Teachers, common school	M	3,114	2,235	292.96	198.56

Table A4b: Australian earnings distribution by decile (NSW+VIC)

Decile	Total (%)	Urban (%)	Rural (%)
1st	2.84	2.25	3.04
2nd	3.82	3.89	3.53
3rd	4.42	4.11	4.98
4th	5.46	4.63	7.31
5th	5.94	4.88	8.55
6th	6.12	8.32	8.55
7th	9.04	9.22	8.55
8th	11.51	12.41	8.88
9th	17.32	17.25	15.74
top	33.53	33.05	30.89

Appendix 5: The United Kingdom 1867

The social table for the United Kingdom 1867 comes from R. Dudley Baxter, *National Income: The United Kingdom* (London: Macmillan, 1868), Appendix IV and V. There are three limitations to Baxter's 1867 social table, in rising order of seriousness. First, he does not break down the three manual classes -- skilled, semi-skilled and unskilled -- in to occupations, gender, or urban/rural (although the occupations within these three groups are listed). Second, the top income groups are not identified by occupation, but we eliminate them since these high-income recipients were unlikely to have been employed. Third, his three white collar "middle class" groups do not identify occupation or distinguish between labor earnings and property income. We assume that these "middle class" incomes were overwhelmingly labor income, not property income. To the extent that this was not true, our estimates of UK earnings inequality are upward biased. However, the text offers a defense of their use in comparisons with the US and Australia. All income figures in Table A5 are in pounds sterling.

Table A5. A Social Table for Earnings in the UK 1868

	Total Recipients	Total Income	Average Income
Middle incomes 300-1000	178,300	87,723,000	492.00
Small incomes 100-300	1,026,400	110,950,000	108.10
Lower incomes < 100	1,497,000	81,320,000	54.32
Manual, High Skilled	1,345,000	66,353,000	49.33
Manual, Lower Skilled	5,087,000	160,652,000	31.58
Agriculture and Unskilled	4,529,000	97,640,000	21.56
Total	13,662,700	604,638,000	44.25