THE UNAVAILING ORIGIN OF AUSTRALIAN PROTECTIONISM? VICTORIA'S MCCULLOCH TARIFF OF 1866

BY

BRIAN D. VARIAN

(NEWCASTLE UNIVERSITY)

The unavailing origin of Australian protectionism? Victoria's McCulloch Tariff of 1866

Brian D. Varian
Newcastle University

Abstract

Economic historians have identified Victoria's McCulloch Tariff of 1866 as the genesis of Australian protection of manufacturing—a trade-policy regime that was to persist until the late-twentieth century. The McCulloch Tariff imposed 10 per cent duties on a range of manufactured imports; this range was further extended by the closely following Customs Act of 1867. Victoria's pathbreaking protectionist legislation of 1866–7 has, until now, escaped any direct cliometric assessment of its consequences. This paper relies on what little industry-specific data are available for Victoria in this period: annual data on the number of manufactories in operation in the years preceding and following the policy change. Following a difference-in-differences approach, this study finds no statistically significant association between the imposition of the 10 per cent duties and the number of manufactories. This finding is irrespective of changes in the regression sample, definition of an untreated industry, and estimation method used. The McCulloch Tariff is better remembered for the trajectory on which it placed Victorian economic policy.

Keywords: Australia, manufacturing, protectionism, tariffs, trade policy, Victoria

JEL codes: F13, N67, N77

Correspondence: b.varian@newcastle.ac.uk

Introduction

Among developed countries in the postwar era, Australia was late in abandoning its policy of industrial protection, a process which did not commence in earnest until the 1980s (Lloyd 2006, pp. 302–4; Lloyd 2008, pp. 122–30; Pomfret 2015, pp. 400–1). While Australia was relatively late in shifting away from its protectionist trade-policy regime, the beginning of this regime came notably early. Indeed, the genesis of Australian protection of manufacturing pre-dated (while having been considerably augmented by) federation in 1901.[1] The canon of Australian economic history is unambiguous: the origin of Australian protectionism can be traced to Victoria's McCulloch Tariff of 1866. According to Coghlan (1918, p. 1148), 'From the date of the passage of the McCulloch tariff, the principle of protection became firmly established…'. In his famous essay, 'Colonial Socialism in Australia, 1860–1900', Butlin (1959, p. 42) noted that '…tariff policy aimed at protection dates from the Victorian schedules of 1866'. Studies focusing on, specifically, colonial-era Australian tariffs have variously described the McCulloch Tariff as 'a milestone for protection in Australian history' (Lloyd 2017, p. 324), incorporating 'very definite protective elements' (Patterson 1968, p. 16), its passage marking 'a significant landmark in the history of tariff protection in Australia' (Siriwardana 1985, p. 356).

The consequences of the McCulloch Tariff, despite being a watershed in Victorian (indeed, Australian) trade policy, have not been directly examined by economic historians, with the arguable exception of Haig (1989). There have been numerous studies of the effects of Australian tariffs during the colonial era, and most of these have focused on protectionism in Victoria. However, studies of Victorian protectionism have mainly concerned the period from

---

[1] The average tariff of the newly formed Australian Commonwealth exceeded, by approximately 3 percentage points, a weighted average of the average tariffs that the six pre-federation colonies imposed on the basket of goods imported mainly from outside Australia (Lloyd 2015, p. 160). As well, the first federal tariff of 1901 was shortly followed by the protectionist Lyne Tariff of 1908 (Lloyd 2008, p. 122).

the 1870s to federation (Sinclair 1955, 1971; Haig 1989; Siriwardana 1991). These later decades represented fertile ground for scholarly exploration, as Victoria progressively heighted its tariffs throughout the late nineteenth century, with significant protectionist legislation having been passed in 1871, 1873, 1877, 1879, 1889, 1892, and 1893 (Siriwardana 1991, p. 47). That these studies did not extend the scope of their analysis back to the landmark McCulloch Tariff was likely due, not to a lack of interest in its consequences, but rather to a lack of available data. Only in 1868 did the *Statistics of the Colony of Victoria* (henceforth *SCV*) begin to report industry-specific data on the number of hands employed; the values of land, buildings, and machinery and plant; and the amount and type of power in use (Victoria, *Statistics of the Colony of Victoria*, various years).[2]

Nevertheless, the *SCV* did report annual, industry-specific data on the number of manufactories in operation, both before and after the McCulloch Tariff of 1866. In this paper, these data are used in a difference-in-differences analysis that exploits the fact that only certain industries received protective treatment under the McCulloch Tariff, which imposed 10 per cent duties on certain manufactured imports, and under the shortly following Customs Act of 1867, which extended the reach of these protective duties to some additional imports (Victoria, Customs Act of 1866, 29 Vic. 393; Victoria, Customs Act of 1867, 31 Vic. 306). Admittedly, the fact that the available data are limited to just the number of manufactories operating within each industry is very far from ideal—even for a paper in economic history. This paper represents an attempt at making the most of what little is available.

Still, the existence of data on the number of manufactories does permit a theory-based evaluation of the effect of the McCulloch Tariff. According to classical tariff theory, which assumes undifferentiated goods and constant returns to scale, a tariff raises the price of imports

---

[2] Reliable data on aggregate employment in Victorian factories start in 1862 (Butlin 1962, p. 159). For a very small number of manufacturing industries, such as brewing, employment figures are reported in the *SCV* for several years prior to 1868.

against which domestic producers compete.[3] In doing so, it potentially enables the entry to higher-cost firms which would have been uncompetitive against imports at the world price. From new trade theory, which assumes differentiated goods and increasing returns to scale, it would also be predicted that the imposition of a tariff would increase the entry of firms into the domestic market. New trade theory, usually exposited in terms of the effects of trade liberalisation (as opposed to the effects of an increase in tariffs), identifies increased competition against foreign producers as causing the exit of weaker domestic firms, with the consequence that the productivity level of the industry increases through the reallocation of market shares to the remaining, lower-cost firms (Melitz and Ottaviano 2008; Caliendo et al. 2023, p. 845). The aim of this paper is to answer the question: were the 10 per cent duties imposed by Victoria in 1866–7 sufficient to induce the entry of firms—manufactories must proxy for firms in the analysis—into those industries receiving the protection?

It is not an aim of this paper to recount the forces that conspired to produce a protectionist policy in Victoria in the 1860s; readers can readily find these details elsewhere (Turner 1904, pp. 115–33; Coghlan 1918, pp. 1136–48; Shann 1930, pp. 264–8; Patterson 1968, pp. 12–21; Jackson 1977, pp. 165–6). Still, it is worth briefly mentioning that the most common interpretation among economic historians is that the McCulloch Tariff was mainly intended to assuage Victoria's unemployment problem, which was acute during the aftermath of the 1850s gold rush.[4] At the same time, fiscal considerations were not unimportant (Patterson 1968, p. 21).

---

[3] On the import side, it may be argued that Victoria had essentially no market power and, therefore, the domestic price of an imported good would have increased by the full amount of the tariff. According to the Federico and Tena (2016) dataset, Australia as a whole took 2.4% of world imports at current prices in 1863, with Victoria accounting for some lesser proportion than that.

[4] An alternative interpretation was put forward by Thompson (1970, pp. 89–91), who noted that the Victorian *censuses* reveal a faster rate of labour absorption into manufacturing in the late 1850s than in the 1860s, by which time gold-mining was in decline. Thus, the growth of Victorian manufacturing should not be attributed to a surfeit of former miners. Moreover, as was argued, Victorian protection emerged because '…a large and increasing proportion of the population had vested interests to protect…' (Thompson 1970, p. 90).

In a global context, Victoria went against the grain (and, it may be quipped, its grain farmers)[5] by shifting to a protectionist trade-policy regime when it did. According to Foreman-Peck (1995, p. 43), 'Judging by tariff policies, the twenty-five years after 1850 may be described as the era of increasing free trade'. The 1860s was a decade when liberal trade policies proliferated throughout the world—but not in Victoria. This paper sets out to evaluate the effectiveness of a trade policy that was something of an outlier in its own time and, it may be suggested, simultaneously a precursor to the protectionist backlash of the late nineteenth century.

Pre-federation Australian tariffs

Among those studies to evaluate the consequences and correlates of pre-federation tariffs, a couple of studies were of a scope that extended to all of Australia, despite the fact that Australia did not exist as a political entity before 1901. Estimating a time-series regression and controlling for various potential determinants of economic growth, Athukorala and Chand (2007, p. 24) found a statistically significant and negative correlation between the tariff level and GDP for a composite 'Australia' from 1870–1900.[6] Varian (2022) relied upon panel data for the seven (tariff-autonomous) Australasian colonies, including New Zealand, from 1866–1900. From a convergence model, which controls for the initial level of GDP per capita in each of the colonies, he found that there was no statistically significant correlation between GDP per capita and tariffs. Moreover, there was no significant correlation between GDP per capita

---

[5] In the standard model of trade, a tariff increases the price of a protected good relative to the non-protected good, causing an increase in the relative supply of the former. Siriwardana (1991) used a computable general equilibrium (CGE) model to estimate the effects of a counterfactual 25% increase in Victoria's 1880 tariff levels; these effects, with respect to manufacturing, are discussed later in this paper. As for wheat, such a counterfactual tariff increase would have reduced wheat exports by 12.1% and output by 3.6% (Siriwardana 1991, p. 58).

[6] According to the authors, the pre-federation data were 'aggregated across the states' (Athukorala and Chand 2007, p. 14).

and *manufacturing* tariffs.[7] From these studies, it would be difficult to argue that colonial-era Australian tariffs were growth-enhancing.

As for tariffs in individual colonies, Richards (1975, p. 130) contended that South Australian industrialisation, to say nothing of growth (in GDP), was partly attributable to a modestly protective tariff act passed in 1870. In succeeding years, the expansion of manufacturing occurred at both the extensive and intensive margins of firms in South Australia. More recently, colonial Queensland's tariffs have received attention. On the eve of federation, tariffs in Queensland were considerably higher, on average, and more restrictive than tariffs in Victoria, despite the strength of Victoria's reputation as *the* protectionist colony (Lloyd 2017, p. 342; Varian and Grayson 2024, p. 85).[8] Varian (2024) analysed the effect of the formation of the Commonwealth customs union on Queensland's manufacturing sector, focusing on intra-industry growth in various economic measures. The formation of the customs union altered the tariff level for each of Queensland's industries, due to both the removal of tariffs on intercolonial (now interstate) trade and, with respect to imports from overseas, the replacement of Queensland's independent tariff schedule by the Commonwealth's common tariff schedule. Exploiting the differential changes in tariff levels across Queensland's industries using a difference-in-differences approach, Varian (2024, p. 23) found that the intensity of trade liberalisation was negatively and statistically significantly associated with intra-industry employment growth. However, there was not a significant association between the intensity of trade liberalisation and intra-industry growth in the number of factories. With respect to the

---

[7] Each annual, colony-specific series of the manufacturing tariff was proxied by an unweighted average of the *ad valorem* equivalent tariffs on four representative manufactured commodities, viz. brushware, candles, saddlery, and woollen cloth, that could be consistently identified across all six colonies and across the years from 1866–1900 (Varian 2022, p. 54).

[8] In 1900, Queensland surpassed Victoria with respect to both its average tariff on major goods imported from other countries and its average tariff on major goods imported from other colonies (Lloyd 2015, p. 159). In that same year, the trade restrictiveness index for Queensland exceeded that of Victoria, irrespective of the elasticities used in its estimation, and irrespective of the inclusion or exclusion of (highly dutiable) alcohol and tobacco commodities (Varian and Grayson 2024, p. 85).

present paper, these findings serve as an initial caution against inferring an employment effect from any potential number-of-factories effect of the McCulloch Tariff.

In the literature on pre-federation Australian tariffs, Victoria is the colony that has garnered the most attention from economic historians, who have often contrasted its protectionist policy against the essentially free-trade policy of New South Wales.[9] With regard to aggregate manufacturing in Victoria from 1860–90, Sinclair (1955, p. 100) pointed to the occurrence of 'upward irregularities' in employment following the main protectionist acts. His argument in favour of the consequentiality of late-nineteenth-century Victorian protectionism did not rest upon sector-aggregate data alone. Sinclair (1955) divided manufacturing industries into those that were moderately protected (20 industries) and those that were heavily protected (20 industries), based upon the tariff levels corresponding to these industries during Victoria's protectionist apex from 1889–93.[10] Several observations followed. First, with respect to the period from 1860–90, heavily protected industries tended to exhibit greater employment growth following protectionist legislation than did moderately protected industries.[11] Second, in 1889, in 18 out of the 20 heavily protected industries, average employment per factory was greater in Victoria than in New South Wales, whereas this was true in only 8 out of the 20 moderately protected industries. Third, heavily protected industries accounted for 55 per cent of manufacturing employment in Victoria, while these same industries accounted for just 46 per cent of manufacturing employment in New South Wales. In short, Sinclair (1955) argued

---

[9] Although, New South Wales departed from this policy with the Dibb-See Tariff of 1892, which imposed *ad valorem* duties of 10% and even 15% on some manufactures; it was repealed in 1895 (Patterson 1968, pp. 144 and 151).

[10] In the categorisation of industries done by Sinclair (1955, p. 101, fn. 4), heavily protected industries were those receiving tariffs between 25% and 45% from 1889–93. Moderately protected industries received lower tariffs. There was also a category for non-protected industries.

[11] Given what has already been stated in the present paper about the lack of industry-specific employment data prior to 1868, one may question how such an observation could possibly be made. It would seem that Sinclair (1955, p. 104) assumed employment in industries moved proportionally with the number of manufactories: 'Employment in manufactories is not recorded by the Victorian Government Statist before 1868, although a rough estimate can be made, based on the number of manufactories recorded'.

that Victorian protection of manufacturing did what protection usually does, i.e. raise employment in those industries targeted by the policy. Later, Sinclair (1971) expanded upon this general argument, detailing how demographic changes unique to Victoria counteracted, at times, the output effects of the colony's tariff policy.[12]

Among those cliometric studies of Victorian protectionism is Siriwardana's (1991) counterfactual analysis, estimated from a computable general equilibrium (CGE) model. In the counterfactual analysis, it was assumed that all industry-specific tariffs, including for the primary sector, were increased by 25 per cent above their levels in 1880. Such a counterfactual assumption is hardly implausible, as Victorian tariffs were, in fact, increased not inconsiderably in the years after 1880. Unsurprisingly, the Victorian economy would have suffered on the whole as a result of such a tariff increase, with the greatest reductions in output and employment occurring in the export sector.[13] Import-competing manufacturing would have gained from the tariff increase, with output rising by 0.13 per cent and employment by 0.22 per cent (Siriwardana 1991, p. 59, fn. 28). Although, within the import-competing sector, the effect would have been heterogenous across industries. The greatest increases in employment would have been in beer (7.79 per cent); tobacco, cigar, and snuff (3.78 per cent); and woollen mills (1.13 per cent) (Siriwardana 1991, p. 63). Meanwhile, certain import-competing industries would have undergone employment decreases.[14]

The only attempt at quantifying the impact of the McCulloch Tariff of 1866, alongside the impacts of other tariff acts, on Victorian manufacturing employment was undertaken by

---

[12] Sinclair (1971) continued in the vein of drawing comparisons and contrasts between Victoria and New South Wales. However, Sinclair (1976, p. 121, fn. 9) questioned the value of this approach: '…the correct methodology to be used in analysing the effects of the tariff is not a simple comparison of Victoria and New South Wales, as has been common in the past, but consideration of what would have happened without the tariff'.

[13] Aggregate real gross colonial product and employment would have fallen by 0.7% and 1.3%, respectively (Siriwardana 1991, p. 56).

[14] Because some import-competing industries were not protected, an across-the-board 25% increase in the 1880 tariff levels would obviously not have resulted in any counterfactual increase in the tariff level for these non-protected industries.

Haig (1989). For the interval from 1861–1911, he estimated time-series regressions including dummy variables for each of the principal pieces of protectionist legislation in Victoria and, after 1900, Australia. Control variables included the ratio of import prices to wages; employment in rural and building industries; and the population. It was estimated that the McCulloch Tariff increased manufacturing employment by approximately 10 per cent but that this effect was largely counteracted by a decline in import prices relative to wages (Haig 1989, pp. 12 and 16). However, this finding should be approached with circumspection, as the underlying econometrics give cause for concern.[15]

The cliometric literature on Victorian protectionism concerns not only its effects but also the pattern of its extension to different industries. Using panel data from 1875, 1880, and 1890, Wilson and Shanahan (2012) examined associations between the tariff level and various characteristics. One of their main findings was a statistically significant and negative association between an industry's tariff level and the proportion of its horsepower obtained from steam, which was interpreted as signifying a positive-externality-generating industry. The implication is that Victoria's protectionist trade policy was not devised in such a way as to improve the colony's welfare. The authors speculated that, rather, the maximisation of employment (and minimisation of social unrest) may have been the dominant rationale behind the cross-industry pattern of Victorian tariffs post-1870 (Wilson and Shanahan 2012, pp. 140–1). Prior to the 1870s, unemployment in the wake of the Victorian gold rush contributed to the passage of the McCulloch Tariff. But was this legislation to any avail?

---

[15] To give an example, the null hypothesis of a unit root cannot be rejected at any conventional level when an ADF test is performed on the Victorian manufacturing employment series, which is first-order integrated.

Analysis

Annual, industry-specific data for the number of manufactories are compiled from the *SCV* for

1863–5 and for 1868–1870—the three full years preceding the McCulloch Tariff of April 1866

and the three full years following the Customs Act of July 1867, which extended the 10 per

cent duties to additional manufactured imports.[16] The year 1863 is selected as the starting point

because, in the preceding year, legislation revised certain specific duties and extended specific

duties to commodities that had previously been non-dutiable (Patterson 1968, p. 17). The year

1870 is selected as the ending point because, in the following year, there was a further upward

ratcheting of protective tariffs (Patterson 1968, p. 50). Thus, from 1863–70, the only revisions

of Victoria's tariff schedule were enacted in 1866 and 1867.[17]

The number of industries, for which the number of manufactories is reported in the

SCV, ranges from 44 in 1863 to 73 in 1870. Within each annual volume of the *SCV*, only those

industries with one or more manufactories in operation during the corresponding year are

enumerated. It is therefore assumed that, if an industry is omitted in a given year, then there

were no manufactories in operation within that industry in that year. A concern would be that

the introduction or removal of enumerated industries in the *SCV* may arise from the

disaggregation or aggregation of industries across time. However, this possibility seems a

remote one, for a couple of reasons. First, when, from one year to the next, an industry goes

from being unenumerated to enumerated, there is typically only a single manufactory

reported.[18] Taking the basket industry as an example, it was enumerated in 1863 (with 3

---

[16] In addition to the 10% duties on a range of manufactures, the McCulloch Tariff also imposed 'package duties' of 4s. and 5s. per cubic foot on a smaller range of manufactures, but these specific duties were calculated to have been less than 10% in *ad valorem* equivalent terms (Patterson 1968, pp. 20–21). The Customs Act of 1867 converted all of these package duties into 10% duties (Patterson 1968, p. 49).

[17] Legislation in 1869 clarified some minor issues of interpretation regarding rugs, woollen blankets, cottons, linens, and woollens in the piece (Victoria, Customs Act of 1869, 33 Vic. 346).

[18] Of those 30 instances when an industry goes from being unenumerated to enumerated *between consecutive years*, there was just a single manufactory recorded in 23 instances, two manufactories recorded in 4 instances, and more than two manufactories recorded in 3 instances.

manufactories operating), unenumerated in 1864 (with 0 manufactories assumed to be operating), and then enumerated once again in 1865 (with just 1 manufactory operating). Second, those industries that are, in certain years, unenumerated are themselves sufficiently distinct in nature such that there do not appear *enumerated* industries within which the *unenumerated* industry would have likely (and temporarily) been subsumed. Altogether, across the six years considered, viz. 1863–5 and 1868–70, there were 90 industries that had at least one manufactory operating in at least one year, making for a dataset of 540 industry-year observations.[19]

Each of the 90 industries is assigned to one of six categories according to how it is treated within the Customs Act of 1867, which extended to several additional commodities the reach of the McCulloch Tariff's protective 10 per cent duties. The six categories (and the number of industries with each), which are discussed shortly, are protected (33), non-protected (19), specific-duty (12), non-tradable (6), intra-industry heterogenous tariff (8), and ambiguous (12). The industries within each category are reported in the Data Appendix. The assignment of industries to categories is complicated by the fact that, whereas the *SCV* reports the number of manufactories per industry, the tariff legislation pertains to commodities. In assigning industries to categories, recourse was made not only to the text of the Customs Act of 1867 but also to Victoria's trade statistics for 1868, which are included in the *SCV*. The trade statistics report, often at a finer level of commodity disaggregation than in the legislation, the duties applicable to commodities.

---

[19] In order to achieve consistent industries across time, it was necessary to re-aggregate a small number of industries which, in only certain years, were reported on a more disaggregated basis than in other years. The following four industries in the dataset resulted from such a re-aggregation: brick yards and potteries; fellmongeries and wool-washing establishments; gingerbeer, aerated waters, liquer, cordial, vinegar, ink, and blacking manufactories; and patent slips and floating docks.

Protected industries are those that produced goods corresponding to imports subject to an *ad valorem* duty of 10 per cent. Although not nearly as high as the *ad valorem* duties that Victoria would impose in later decades, it was the application of these 10 per cent duties to, specifically, imports that competed with domestic industries that imbued the McCulloch Tariff with a protectionist character (Patterson 1968, p. 21). Non-protected industries are those industries that produced goods corresponding to imports that were either non-dutiable and/or subject to a lower *ad valorem* duty of 5 per cent. The 5 per cent duties did not feature in the McCulloch Tariff but were introduced in the Customs Act of 1867 (Patterson 1968, p. 49). These duties applied to residual commodities, i.e. those commodities that did not appear on the free list and for which no duty was otherwise stated. The 5 per cent duties were conceived as fiscal rather than protective, prompted by a reduction in income from the colony's land sales (Coghlan 1918, p. 1150).[20]

When Victoria became an independent colony in 1851, it inherited the tariff schedule of New South Wales (Lloyd 2017, p. 323). Until 1866, the tariff schedule was comprised entirely of specific duties, i.e. applied as a monetary amount per unit of imports, which existed primarily for fiscal purposes (Patterson 1968, p. 10).[21] Those industries that produced goods competing against imports subject to a specific duty (or duties) are categorised as such. A small number of industries, such as water works, produced goods that were non-tradable and are categorised accordingly.

Some of the industries enumerated in the *SCV* encompass multiple commodities enumerated in the tariff legislation (and in Victoria's trade statistics), and these commodities were not always subject to the same duty. The intra-industry heterogenous tariff category

---

[20] It is worth observing that New South Wales enacted 5% duties on manufactured imports under the very short-lived Jennings Tariff of 1886, but these duties were not at all regarded as protective (Patterson 1968, p. 103).

[21] The fiscal motivation is supported by the fact that there were also some excise duties on corresponding commodities (Patterson 1968, p. 17).

includes those industries for which the constituent commodities would, if considered on their own, be assigned to more than one of the previously mentioned categories, viz. dutiable, non-dutiable, and specific-duty. An illustrative industry in the intra-industry heterogenous tariff category is the rope and twine industry. Cordage was dutiable at 10 per cent, while twine was dutiable at 5 per cent (Victoria, *Statistics of the Colony of Victoria*, 1869). For those relatively few industries assigned to the intra-industry heterogenous tariff category, a commodity-level justification is provided in the Data Appendix. It is important to emphasise that a small number of industries, such as chemical works, consisted of some commodities that were non-dutiable *and* some commodities that were dutiable at 5 per cent—but no commodities that were dutiable at 10 per cent or liable to a specific duty. These industries are assigned to the non-protected category, rather than to the intra-industry heterogenous tariff category. Finally, there are several industries, such as the fire proof safe and door industry, for which the appropriate category simply cannot be ascertained from the Customs Act of 1867 or from Victoria's trade statistics. These industries are assigned to an ambiguous category. Although reported in the Data Appendix for the sake of completeness, those 20 industries in the intra-industry heterogenous tariff (8) and ambiguous (12) categories are excluded from the sample in the ensuing analysis, because the protective treatment of these industries was (or may have been) partial.

Proceeding to the econometric analysis, there is a sample of 70 industries, hence 420 industry-year observations. Descriptive statistics for the 70-industry sample are provided in Table 1. The econometric approach is a traditional difference-in-differences regression, which can be written as:

$$Y_{i,t} = \beta(TREATED_i)(POST_t) + \gamma_i + \delta_t + \varepsilon_{i,t} \tag{1}$$

In Equation 1, *Y* represents the number of manufactories. The binary variable *TREATED* takes a value of 1 for those industries that received protective treatment, specifically those industries

assigned to the protected category, i.e. subject to an *ad valorem* duty of 10 per cent, and a value of 0 for other industries. It is interacted with another binary variable, *POST*, which takes a value of 1 for those years following the McCulloch Tariff of 1866 and the Customs Act of 1867, specifically the years 1868–70, and a value of 0 for the years 1863–5. Of interest is β, the difference-in-differences coefficient. Also included are industry (γ) and year (δ) fixed effects. The error term is represented by ε. The subscripts i and t stand for, respectively, the year (i.e. 1863–5, 1868–70) and the industry, of which there are 70.

[Table 1 here]

While the industries in the protected category always serve as the treated group, the composition of the untreated group is altered across the several estimations of the regression equation. Untreated sample A consists of the non-protected, specific-duty, and non-tradable categories. Untreated sample B consists of the non-protected and specific-duty categories. Untreated sample C consists of just the non-protected industries. The exclusion of the specific-duty category from untreated sample C is motivated by the fact that, with respect to several industries, the McCulloch Tariff imposed a few specific duties that had not previously existed.[22] Therefore, untreated sample C offers the cleanest distinguishment between those tradable-goods industries that did and did not receive protective treatment, and greatest weight should be placed upon these regression results.

As already discussed, a value of 0 is assumed for some industry-year observations. The number of manufactories is 0 for 135 (32 per cent) of the 420 industry-year observations. Given the presence of these zeros in the sample, the Poisson Pseudo-Maximum Likelihood (PPML) estimator is used (Santos Silva and Tenreyro 2006). Additionally, the regression equation is

---

[22] The McCulloch Tariff imposed, for the first time, specific duties on imports in the following industries: bread and biscuit manufactories; meat-curing establishments; pickles, sauces, jams, &c., manufactures; salt works; soap, candle, and tallow-rendering works; and starch and maizena manufactories (Victoria, Customs Act of 1862, 25 Vic. 144; Victoria, Customs Act of 1866, 29 Vic. 393). Also, the McCulloch Tariff reduced the duty on sugar from 6s. to 3s. per cwt.

estimated using OLS, in which case the dependent variable is the arcsinh(Y). These results are presented in Table 2. As expected, the difference-in-differences coefficient takes a positive sign in all regression estimates, but it is never statistically significant at any conventional level. It cannot be claimed that Victoria's entrée to protectionism in 1866–7 increased the number of manufactories. As a robustness check, those industries that did not exist in Victoria during any year from 1863–5 are dropped from the sample. These industries are denoted by an asterisk in the Data Appendix. In other words, only those industries that operated in Victoria prior to the McCulloch Tariff are retained within the sample. Table 3 presents results for these regression estimates in a format analogous to the results in Table 2. Still, none of the coefficients are statistically significant at any conventional level.

[Tables 2 and 3 here]

Given the emphasis on employment within the literature on colonial-era Australian tariffs, it would have been desirable to explore whether the McCulloch Tariff and the Customs Act of 1867 had an effect on employment. The foregoing analysis has been limited to a consideration of the number of manufactories, owing to the lack of industry-specific employment data prior to 1868. Nonetheless, from the 1868–70 sub-sample of the dataset, it is possible to estimate the elasticity of employment to the number of firms, using the following regression equation:

$$\ln(Y_{i,t}) = \beta\ln(X_{i,t}) + \gamma_i + \delta_t + \varepsilon_{i,t} \tag{2}$$

In Equation 2, Y now represents the number of persons employed, while X represents the number of manufactories. All other symbols and subscripts retain their meaning from Equation 1. The sub-sample for this regression is drawn from industries across all six industry categories reported in the Data Appendix. An industry is included in the sub-sample if the number of its manufactories and, therefore, employees took a non-zero value in at least two out of the three years from 1868–70. In other words, singletons are excluded from the sub-sample, which

consists of 205 industry-year observations. Table 4 presents the results of the regression, which reveals that employment was nearly unit-elastic to the number of manufactories. The years following the Customs Act of 1867 were hardly stagnant ones insofar as Victorian manufacturing was concerned. Aggregate manufacturing employment increased moderately from 1868–9, but then declined rather precipitously from 1869–70 (Haig 1989, p. 1). The close correspondence between industry-specific employment and the number of manufactories in the late 1860s renders the null results from the previous difference-in-differences regressions as suggestive of what might be found for employment, if only such data were available for earlier years.

[Table 4 here]

This paper finds null results. It cannot be concluded that Victoria's (and Australia's) entrée to protectionism was of consequence, at least with respect to the number of manufactories. The results of this paper beckon some discussion as to why the McCulloch Tariff of 1866 and the Customs Act of 1867 *might* have been inadequate to positively affect the number of manufactories and, likely also, employment in those industries that were targeted. Several economic historians, while acknowledging the novelty of Victoria's protectionist policy, have also noted the modest level of the 10 per cent duties (Patterson 1968, p. 21; Linge 1979, p. 245). This maximum *ad valorem* duty of 10 per cent may appear almost trivial in comparison to the *ad valorem* duties of 40 per cent or greater that came to be applied to such imports as furniture, leatherware, and woollen piece goods under the Customs Act of 1893 (Patterson 1968, p. 147). If there was a threshold level of protection for the displacement of imports and the expansion of domestic production, then the 10 per cent duties may have fallen beneath this threshold.

A broader view of economic history would lend some credibility to this possibility. A close analogue to Victoria's protectionist policy of 1866–7 can be found in Britain's

protectionist policy of 1932. Prior to 1932, Britain maintained an essentially free-trade policy, with only a small number of manufacturing industries receiving protective import duties (Varian 2019). Then, in March 1932, the Import Duties Act imposed a baseline 'general tariff' of 10 per cent on nearly all manufactured imports. Thus, both Victoria in 1866 and Britain in 1932 underwent protectionist breaks in their policies, embodied by the introduction of duties on manufactured imports set at, initially, a level of 10 per cent.[23] However, in Britain, during the months and years after the passage of the Import Duties Act, the tariff level was raised above 10 per cent for selected manufactured imports.[24] Taking a difference-in-differences approach, Lloyd and Solomou (2020, p. 55) found that early 1930s British protectionism was statistically significantly output-enhancing for those industries that received protection *above* the 10 per cent level, but not for those industries that received protection *at* the 10 per cent level.[25] In Victoria, as in Britain, the 10 per cent duties may simply have been insufficient to affect change. If the British case is instructive, then attention should be directed to Victoria's Customs Act of 1871 as the potential beginning of consequential protectionist policy in Australia.[26]

If the McCulloch Tariff and Customs Act of 1867 were unavailing, then there ought to be some explanation, other than trade policy, for Victorian industrialisation during the decade prior to the Customs Act of 1871. Indeed, manufacturing expanded not only absolutely, but also relative to other sectors. As indicated in Figure 1, the manufacturing share of employment

---

[23] The analogy can only be pushed so far. Victoria was a relatively small economy pursuing the protection of infant industry, while on the gold standard, amid the calmness of the late-nineteenth century; Britain, in contrast, was a relatively large economy pursuing the protection of mature industry, in the immediate aftermath of the sterling devaluation, amid the tumult of the Great Depression.

[24] These further tariff increases throughout the early 1930s were recommended by the Import Duties Advisory Committee, which was established by the Import Duties Act of 1932.

[25] However, with respect to employment, the (positive) difference-in-differences coefficient was statistically insignificant both for those industries receiving protection above the 10% level and for those industries receiving protection at the 10% level.

[26] Under this legislation, duties on some manufactures reached 20% *ad valorem* (Patterson 1968, p. 50). In his history of economic development in Australia, Sinclair (1976, p. 94) places emphasis on the Customs Act of 1871, while not explicitly mentioning the McCulloch Tariff of 1866 at all.

increased from 10.9 per cent in 1861 to 15.1 per cent in 1870 (Haig 1989, pp. 1–2). Meanwhile, between the same years, the manufacturing share of GDP increased from 2.6 per cent to 6.6 per cent (Sinclair 2008). To what might this industrialisation be attributed?

[Figure 1 here]

It is first worth noting that, in the 1860s, intercolonial trade of *Australian-produced* manufactures was paltry.[27] There was hardly any scope for Victorian industrialisation to displace imports of manufactures produced in the other 'large' colony, New South Wales.[28] Interestingly, the meagre trade in *domestically-produced* manufactures between Victoria and New South Wales is mildly suggestive that Victoria's manufacturing was, taken as a whole, no less competitive, intercolonially, than was the manufacturing of New South Wales. In 1863, the export of domestically produced manufactures from Victoria to New South Wales amounted to 14s. per head of manufacturing labour in *Victoria*, while the export of domestically produced manufactures from New South Wales to Victoria amounted to 8s. 6d. per head of manufacturing labour in *New South Wales* (Victoria, *Statistics of the Colony of Victoria*, 1864; New South Wales, *Statistical Register of New South Wales*, 1864; Haig 1989, pp. 1 and 3).[29]

---

[27] Here, Australian-produced manufactures are to be distinguished from overseas-produced manufactured trans-shipped via an Australian colony and consumed in some other Australian colony.

[28] This division between (economically) 'large' colonies, viz. New South Wales and Victoria, and 'small' colonies, viz. Queensland, South Australia, Tasmania, and Western Australia, has been borrowed from Lloyd (2017).

[29] Both the *SCV* and the *Statistical Register of New South Wales* reported, at the commodity level, bilateral exports of commodities produced within the colony. The author has classified all of the export commodities as either manufactures or non-manufactures. For 1863, 193 (out of 289) export commodities enumerated in the *SCV* were classified as manufactures, while 169 (out of 259) export commodities enumerated in the *Statistical Register of New South Wales* were classified as manufactures. Although, for many of these commodities, the value of *colony-produced* exports was £0, because the only exports were of goods produced outside of the colony and transiting via it. Even for those commodities for which the value of colony-produced exports exceeded £0, the value of *bilateral* colony-produced exports to either New South Wales or Victoria may still have been £0.

The value of manufactures produced in Victoria and exported to New South Wales in 1863 is calculated to have been £26,235. The value of manufactures produced in New South Wales and exported to Victoria is calculated to have been £9,457. The per-head figures stated in the text are obtained using the 1863 manufacturing employment data reported in Haig (1989, pp. 1 and 3).

As Victoria's manufactured imports were overwhelmingly supplied by Britain, Anglo-Australian comparisons have the potential to be illuminating. Broadberry and Irwin (2007) constructed decennial estimates of comparative Australia/UK sectoral labour productivity, taking New South Wales and Victoria as an approximation of Australia for the pre-1891 period. They estimated that Australia/UK comparative labour productivity in the manufacturing and utilities sector increased tremendously during the 1860s, from 88.0 in 1861 to 149.7 in 1871 (Broadberry and Irwin 2007, p. 268). Although the Australian data pertain to both New South Wales and Victoria, it would be inconceivable, given the magnitude of the comparative increase, that Victoria *per se* did not realise a very great increase in comparative labour productivity vis-à-vis the UK, especially since manufacturing employment was considerably higher in Victoria than in New South Wales throughout the decade (Haig 1989). Whether and to what extent this comparative labour productivity growth may be ascribed to capital deepening, the realisation of external economies of scale, 'learning by doing', or some other cause is uncertain and rather beyond the scope of the present paper.

With respect to the competitiveness of Victorian manufacturing in its domestic market, the evidence suggests that the increase in Australia/UK comparative labour productivity was not offset by an increase in Australia/UK relative nominal wages. The limited occupational wage data for Victoria in the 1860s nevertheless permits a comparison between the wages of Victorian bricklayers and British builders. For Victorian bricklayers, the *SCV* reported a wage range for each year. In 1861, the daily wage ranged from 10s. to 12s. (with a mid-point of 11s.). In 1871, the daily wage ranged from 8s. to 10s. (with a mid-point of 9s.). This apparent nominal

---

The per-head figures stated in the text are based upon flour being classified as a non-manufacture, which biases the comparison against the argument of the greater competitiveness of Victorian manufactures in the intercolonial market. Treating flour as a manufacture, the export of manufactures produced in New South Wales to Victoria, per head of manufacturing labour in *New South Wales*, would be essentially unchanged. However, the export of manufactures produced in Victoria to New South Wales, per head of manufacturing labour in *Victoria*, would rise from 14s. to £3 2s. 1½d.

wage decrease contrasts with the direction in which the wages of builders were moving in Britain at the time; from 1861–71, the index of builders' wages rose by 12 per cent (Mitchell and Deane 1962, p. 350). If anything, movements in relative wages seem to have reinforced the improvement in comparative labour productivity, in its effect on the competitiveness of Victorian manufactures.

It is not the purpose of this paper to provide a comprehensive explanation for Victorian industrialisation in the 1860s. Still, it is worth calling attention to the existence of a plausible, non-trade-policy explanation for this phenomenon, i.e. comparative productivity growth—an explanation not inconsistent with the historical data. Victorian industrialisation need not have arisen as a consequence of the McCulloch Tariff, pathbreaking though it was.

Conclusion

Systematically-collected, industry-specific annual data prior and posterior to Victoria's McCulloch Tariff of 1866 are limited to the number of manufactories. This paucity of data should not, however, preclude an analysis thereof, even if the interpretability of the findings must be considerably limited and qualified. Such analysis was undertaken in this very paper. Both classical and new trade theory predict that an increase in tariffs would result in an increase in the number of firms. Exploiting the cross-industry variation in the extension of protective duties under the McCulloch Tariff of 1866 and the shortly following Customs Act of 1867, this paper did not find any statistically significant association between protective treatment and the number of manufactories operating within each industry. These null results were impervious to the use of different industry samples and different estimation methods. Given that industry-specific employment was nearly unit-elastic to the number of manufactories—this elasticity was estimated from the industry-specific employment data reported only from 1868 onwards—it is doubtful that a statistically significant relationship between protective treatment and

industry-specific employment would have been found, even if industry-specific employment data were available for the years preceding the McCulloch Tariff. It simply cannot be concluded, with any conventional degree of confidence, that Victoria's original bout of protectionism from 1866–7 was of any avail.

The shared origin of Victorian and Australian protectionism was, by widespread academic agreement, the McCulloch Tariff of 1866. It was, in hindsight, an epochal piece of legislation—one that ushered in a trade-policy regime that would persist in Australia until the late twentieth century. Viewed in such a longer-term perspective, this study of the McCulloch Tariff may cautiously occasion the following generalisation: the turning point in a policy regime need not coincide with (statistically significant) evidence of the consequentiality of that policy regime. Major turning points oftentimes correspond to policies that are, in their reach or magnitude, rather minor. The 10 per cent duties enacted in Victoria in 1866–7 were, arguably, minor, especially when compared to the duties that followed. Perhaps the principal effect of Victoria's McCulloch Tariff was the subsequent protectionist legislation to which it gave momentum.

References

Athukorala, P. and Chand, S., 'Tariff-growth nexus in the Australian economy, 1870–2002: is there a paradox?', Australian National University Working Papers in Trade and Development no. 2007/08 (2007).

Broadberry, S. and Irwin, D. A., 'Lost exceptionalism? Comparative income and productivity in Australia and the UK, 1861–1948', *Economic Record*, 83 (2007), pp. 262–74.

Butlin, N. G., 'Colonial socialism in Australia, 1860–1900', In *The state and economic growth*, H. G. J. Aitken, ed. (New York: Social Science Research Council, 1959), pp. 26–78.

Butlin, N. G., *Australian domestic product, investment and foreign borrowing, 1861–1938/39* (Cambridge: Cambridge University Press, 1962).

Caliendo, L., Feenstra, R. C., Romalis, J., and Taylor, A. M., 'Tariff reductions, heterogeneous firms, and welfare: theory and evidence for 1990–2010', *IMF Economic Review*, 71 (2023), pp. 817–51.

Coghlan, T. A., *Labour and industry in Australia*, vol. II (London: Oxford University Press, 1918).

Federico, G. and Tena-Junguito, A., 'World trade, 1800–1938: a new dataset', European Historical Economics Society Working Paper no. 93 (2016).

Foreman-Peck, J., *A history of the world economy: international economic relations since 1850*, 2nd ed. (New York: Harvester Wheatsheaf, 1995).

Haig, B. D., 'Manufacturing employment and tariffs in Victoria and New South Wales: 1861 to 1911', Australian National University Centre for Economic Policy Research Discussion Paper no. 207 (1989).

Jackson, R. V., *Australian economic development in the nineteenth century* (Canberra: Australia National University Press, 1977).

Linge, G. J. R., *Industrial awakening: a geography of Australian manufacturing, 1788 to 1890* (Canberra: Australian National University Press, 1979).

Lloyd, P., 'Fifty years of trade policy reform in Australia', *Economic Papers*, 25 (2006), pp. 301–313.

Lloyd, P., '100 years of tariff protection in Australia', *Australian Economic History Review*, 48 (2008), pp. 99–145.

Lloyd, P., 'Customs union and fiscal union in Australia at federation', *Economic Record*, 91 (2015), pp. 155–71.

Lloyd, P., 'The first 100 years of tariffs in Australia: the colonies', *Australian Economic History Review*, 57 (2017), pp. 316–44.

Lloyd, S. P. and Solomou, S., 'The impact of the 1932 general tariff: a difference-in-differences approach', *Cliometrica*, 14 (2020), pp. 41–60.

Mitchell, B. R. and Deane, P., *Abstract of British historical statistics* (Cambridge: Cambridge University Press, 1962).

Melitz, M. J. and Ottaviano, G. I. P., 'Market size, trade, and productivity', *Review of Economic Studies*, 75 (2008), pp. 295–316.

New South Wales, *Statistical register of New South Wales* (Sydney: Thomas Richards, 1864).

Patterson, G. D., *The tariff in the Australian colonies, 1856–1900* (Melbourne: F. W. Cheshire, 1968).

Pomfret, R., 'Reorientation of trade, investment and migration', In *Cambridge Economic History of Australia*, S. Ville and G. Withers, eds. (Cambridge: Cambridge University Press, 2015), pp. 397–418.

Richards, E. S., 'The genesis of secondary industry in the South Australian economy to 1876', *Australian Economic History Review*, 15 (1975), pp. 107–35.

Santos Silva, J. M. C. and Tenreyro, S., 'The log of gravity', *Review of Economics and Statistics*, 88 (2006), pp. 641–58.

Shann, E., *An economic history of Australia* (Cambridge: Cambridge University Press, 1930).

Sinclair, W. A., 'The tariff and manufacturing employment in Victoria, 1860–1900', *Economic Record*, 31 (1955), pp. 100–4.

Sinclair, W. A., 'The tariff and economic growth in pre-federation Victoria', *Economic Record*, 47 (1971), pp. 77–93.

Sinclair, W. A., *The process of economic development in Australia* (Melbourne: Longman Cheshire, 1976).

Sinclair, W. A., 'Annual estimates of gross domestic product: Australian colonies/states, 1861–1976/77', Database, Monash University (2009).

Siriwardana, M., 'A multisectoral general equilibrium model of tariff protection in the colony of Victoria in 1880', La Trobe University, unpublished PhD dissertation (1985).

Siriwardana, A. M., 'The impact of tariff protection in the colony of Victoria in the late nineteenth century: a general equilibrium analysis', *Australian Economic History Review*, 31 (1991), pp. 45–65.

Thompson, A., 'The enigma of Australian manufacturing, 1851–1901', *Australian Economic Papers*, 9 (1970), pp. 76–92.

Turner, H. G., *A history of the colony of Victoria from its discovery to its absorption into the Commonwealth of Australia in two volumes*, vol. 2, *A.D. 1854–1900* (London: Longmans, Green, and Co., 1904).

Varian, B. D., 'The growth of manufacturing protection in 1920s Britain', *Scottish Journal of Political Economy*, 66 (2019), pp. 703–11.

Varian, B. D., 'Revisiting the tariff-growth correlation: the Australasian colonies, 1866–1900', *Australian Economic History Review*, 62 (2022), pp. 47–65.

Varian, B. D., 'Market integration and a lower-productivity economy: the case of Australian federation and Queensland's manufacturing sector, 1897–1906', Australian National University Centre for Economic History Discussion Paper No. 2024-06 (2024).

Varian, B. D. and Grayson, L. H., 'Economic aspects of Australian federation: trade restrictiveness and welfare effects in the colonies and the Commonwealth, 1900–3', *Economic Record*, 100 (2024), pp. 74–100.

Victoria, *Statistics of the colony of Victoria* (Melbourne: John Ferres, various years).

Wilson, J. K. and Shanahan, M. P., 'Did good institutions produce good tariffs? Evidence from tariff protection in colonial Victoria', *Australian Economic History Review*, 52 (2012), pp. 128–47.

Table 1. Descriptive statistics for 70-industry sample

Year	Minimum	Maximum	Median	Mean	Total
1863	0	153	0	7.00	490
1864	0	113	1	6.11	428
1865	0	151	1	7.34	514
1868	0	225	2	11.16	781
1869	0	293	2	12.86	900
1870	0	301	2	13.13	919

Source: SCV (various years).

Notes: The 70-industry sample consists of protected, non-protected, specific-duty, and non-tradable industries. See the Data Appendix for the industries within each category. See also the text.

Table 2. Number of manufactories, including industries non-existent from 1863–5

	PPML			OLS		
	Untreated sample A	Untreated sample B	Untreated sample C	Untreated sample A	Untreated sample B	Untreated sample C
Post x Treated	0.17 (0.12)	0.17 (0.12)	0.09 (0.19)	0.25 (0.22)	0.28 (0.23)	0.42 (0.27)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	420	384	312	420	384	312
Pseudo-R^2	0.89	0.90	0.90			
R^2				0.88	0.89	0.88
Treated industries	33	33	33	33	33	33
Untreated industries	37	31	19	37	31	19

Notes: The dependent variable is the number of manufactories. Post is a binary variable taking a value of 0 for the years from 1863–5 and 1 for the years from 1868–70. Treated industries are those in the protected category. Untreated sample A consists of non-tradable, specific-duty, and non-protected industries. Untreated sample B consists of specific-duty and non-protected industries. Untreated sample C consists of only non-protected industries. See the Data Appendix for the industries within each category. Columns 1–3 are estimated using the Poisson Pseudo-Maximum Likelihood (PPML) estimator. In these regressions, the dependent variable is in levels. Columns 3–6 are estimated using ordinary least squares (OLS). In these regressions, the dependent variable is transformed using the inverse hyperbolic sine function. Robust standard errors have been clustered by industry and are reported in parentheses.

Table 3. Number of manufactories, excluding industries non-existent from 1863–5

|	PPML			OLS		
	Untreated sample A	Untreated sample B	Untreated sample C	Untreated sample A	Untreated sample B	Untreated sample C
Post x Treated	0.12 (0.11)	0.13 (0.12)	0.09 (0.19)	-0.00 (0.26)	0.05 (0.27)	0.28 (0.29)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	312	276	210	312	276	210
Pseudo-R^2	0.90	0.90	0.91			
R^2				0.90	0.90	0.90
Treated industries	20	20	20	20	20	20
Untreated industries	32	26	15	32	26	15

Notes: The dependent variable is the number of manufactories. Post is a binary variable taking a value of 0 for the years from 1863–5 and 1 for the years from 1868–70. Treated industries are those in the protected category. Untreated sample A consists of non-tradable, specific-duty, and non-protected industries. Untreated sample B consists of specific-duty and non-protected industries. Untreated sample C consists of only non-protected industries. See the Data Appendix for the industries within each category. Columns 1–3 are estimated using the Poisson Pseudo-Maximum Likelihood (PPML) estimator. In these regressions, the dependent variable is in levels. Columns 3–6 are estimated using ordinary least squares (OLS). In these regressions, the dependent variable is transformed using the inverse hyperbolic sine function. Robust standard errors have been clustered by industry and are reported in parentheses.

Table 4. Manufacturing employment, 1868–70

Manufactories	1.05*** (0.25)
Industry FE	Yes
Year FE	Yes
Observations	205
R^2	0.98

Notes: The dependent variable is manufacturing employment. Both the dependent and explanatory variables are in natural logarithms. The regression is estimated using ordinary least squares (OLS). *** indicates statistical significance at the 1% level. Robust standard errors have been clustered by industry and are reported in parentheses.

Figure 1.   Share of manufacturing, 1861–70
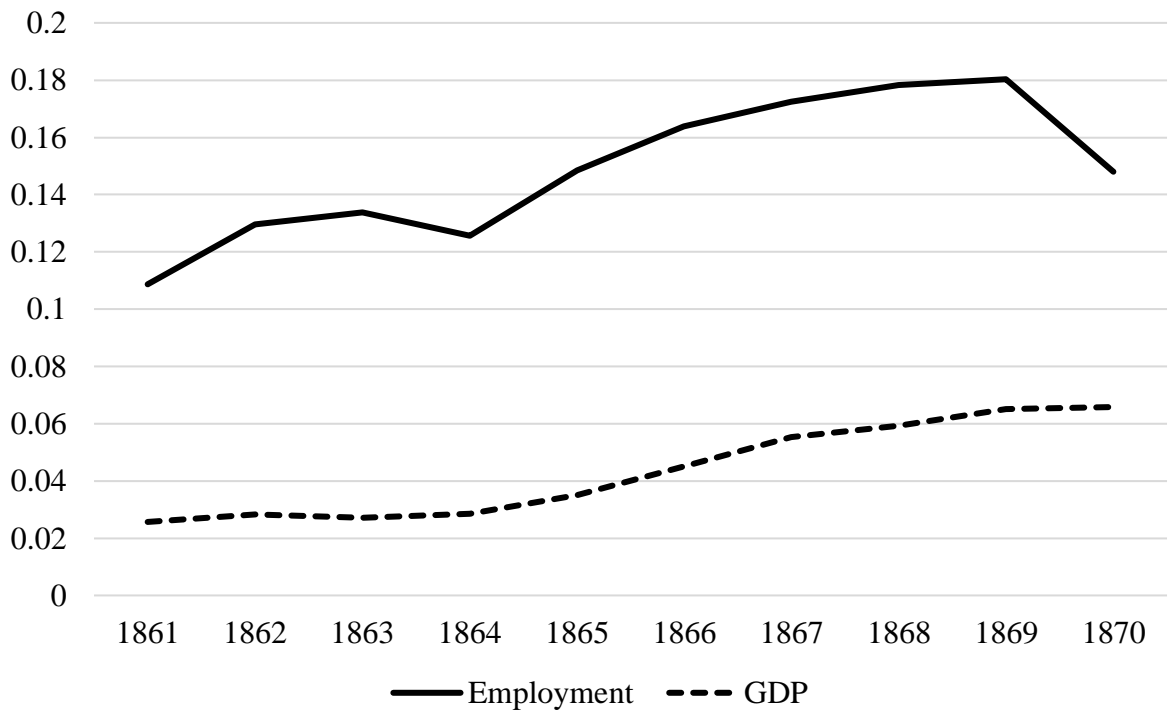
Sources: Employment: Haig (1989, pp. 1–2); GDP: Sinclair (2008).

For each of the industries listed below, the *Statistics of the Colony of Victoria* (*SCV*) report at least one manufactory operating in at least one of the following years: 1863, 1864, 1865, 1868, 1869, and 1870. Each of the industries is assigned to one of the six categories below based upon its treatment in the Customs Act of 1867 (31 Vic. 306). In categorizing the industries, reference was also made to the data on customs duties reported in Victoria's import statistics for 1868, which are included in the *SCV*. See the main text for further discussion of the six categories of industries. In the list below, * denotes an industry that did not have any manufactories operating in even a single year from 1863–5. For each industry in the category of intra-industry heterogenous tariff industries, the principal constituent commodities and their corresponding import duties are stated.

Protected (10 per cent ad valorem *duty) industries*
Agricultural implement manufactories
Artificial stone manufactory*
Basket makers
Bedding and curled hair works
Billiard-table manufactories
Blue manufactories
Boot manufactories*
Brick yards and potteries
Broom manufactories*
Brush manufactories
Cabinet works (steam)*
Clothing manufactories
Coach and wagon factories*
Fancy box manufactories*
Fuse manufactories*
Glass manufactories*
Glass works*
Hat and cap manufactories
Lead works
Lime kilns
Looking-glass manufactories*
Machinists, engineers, &c.
Marble works*
Myall pipe manufactories*
Organ builders
Pianoforte manufactories
Railway carriage works
Sail makers
Ship and boat builders
Stone sawing and breaking machines
Surgical instrument makers
Tanneries, &c.
Whip manufactories*

Non-protected (free or 5 per cent ad valorem *duty) industries*
Bag and sack manufactories

Bark grinders
Boiling-down establishments
Bone and chemical manure manufactories
Chemical works
Coal-boring works
Confectionary manufactories*
Cutlery*
Dye-works
Fellmongeries and wool-washing establishments
Flock manufactories
Metal refiners
Oyster culture
Paper manufactories*
Printing presses
Sewing machine manufactories
Tar-distilling and asphalte works
Washing powder manufactories*
Wire works and wire-cloth weavers

Specific-duty industries
Bread and biscuit manufactories
Breweries, &c.
Distilleries
Malt houses
Meat-curing establishments
Pickles, sauces, jams, &c. manufactories
Rice mills*
Salt works
Soap, candle, and tallow-rendering works
Starch and maizena manufactories
Sugar refineries
Tobacco and cigar manufactories

Non-tradable industries
Cooperages
Gasometers
Ice manufactories
Packing-case manufactories
Patent slips and floating docks
Water works

Intra-industry heterogenous tariff industries
Coffee, chocolate, and spice mills: chocolate (2d. per lb.); coffee (2d. per lb.); spices (10%)
Gingerbeer, aerated waters, liquer, cordial, vinegar, ink, and blacking manufactories: aerated waters (ambiguous duty); blacking (3d. per gallon); cordial (10s. per gallon); gingerbeer (ambiguous duty); ink (free); liquer (10s. per gallon); vinegar (6d. per gallon)
Glue, oil, and size manufactories: glue (10%); oil (3d. per gallon); size (ambiguous duty)
Moulding, framing, turning, and saw mills: moulding (10%); timber (5% or free depending upon commodity); turnery (10%)

Paint and varnish manufactories*: paint (5%); varnish (2s. per gallon)
Rope and twine manufactories: cordage (10%); twine (5%)
Tin-smelting works*: tin (free); tin, sheet (free); tinfoil (5%); tinware (10%)
Woollen and cloth manufactories*: woollens (free); woollen blankets (10%)

Ambiguous industries
Account-book, paper-bag, &c., manufactories
Antimony smelting works*
Brass, iron, and copper founders
Die-sinking, medal, and button manufactories
Earth-closet manufactories*
Essential oil manufactories
Filter manufactories*
Fireproof safe and door manufactories*
Glass gas-reflector manufactories
Iron and tin works*
Parchment and skin manufactories*
Type founders