The Economics of Edwardian Imperial Preference: What can New Zealand Reveal?*

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Abstract

In the Edwardian era, the British Dominions adopted policies of imperial preference, amid a period of rising imports from the United States and industrial Continental Europe. Hitherto, there has been no econometric assessment of whether these policies produced an intra-Empire trade diversion, as intended. This paper focuses on New Zealand's initial policy of imperial preference, codified in the Preferential and Reciprocal Trade Act of 1903. New Zealand's policy was unique insofar as it extended preference to only certain commodities. Using a commodity panel regression, this paper exploits the cross-commodity variation in the extension of preference, but finds no statistically significant effect of preference on either the Empire share or, specifically, the British share of New Zealand's imports. This finding is corroborated by an alternative empirical approach involving propensity-score matching.

Keywords: imperial preference, tariffs, trade, empire, Britain, New Zealand

JEL Codes: F13, N73, N77

I. Introduction

In the span of a decade, Canada (1897), the South African Customs Union (1903), New Zealand (1903), and Australia (1907) all adopted policies which extended some measure of preference, in their tariff legislation, to imports from Britain.[1] These Edwardian policies of imperial preference prefigured the more extensive system of preferential trade that emerged in the British Empire during the interwar era. Until the Import Duties Act of 1932, Britain's adherence to a policy of (mostly) free trade left hardly any scope for reciprocating the preferences which the Dominions extended to Britain's exports.[2] When, during the Great Depression, Britain ultimately did abandon its longstanding policy of free trade, reciprocal preferential trade agreements—the "Ottawa agreements"—were swiftly concluded between Britain and each of its Dominions. Whether (and to what extent) the Ottawa agreements of 1932 produced an intra-empire trade diversion has been the subject of recent research (e.g. Jacks 2014; de Bromhead et al. 2017).

Comparatively less attention has been given to assessing the effect of the preferential trade policies that were adopted by the Dominions before the First World War.[3] Focusing on the case of New Zealand, this paper considers whether Edwardian imperial preference diverted trade toward the Empire. New Zealand's policy of imperial preference, first codified in the Preferential and Reciprocal Trade Act of 1903, was unique among the Dominions' policies insofar as it applied preference to only selected commodities and not to others.[4] Window glass, for example, would

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[1] The policies of imperial preference initially adopted by the South African Customs Union and New Zealand extended preference to the entire British Empire, not just Britain.

[2] Britain began to depart from its longstanding policy of free trade during the First World War, with the McKenna Duties on mainly motorcars, and further during the 1920s, with various legislation imposing duties on assorted manufactured imports. Some of the legislation even provided for a reduction in the duty on imports from the British Empire. However, as the dutiable share of Britain's imports was quite small, and as Britain imported barely any manufactured commodities from the Empire, the scope for reciprocating the preferences that the Dominions extended to Britain's exports was negligible. For a discussion of the minor imperial preferences in Britain's tariff system before the Import Duties Act of 1932, see McGuire (1939, pp. 258-61).

[3] Throughout this paper, the term Dominion is anachronistic when applied to New Zealand, which was not officially proclaimed a Dominion until 1907. Yet, the error of the anachronistic use is outweighed by the convenience of the term for referring to Australia, Canada, New Zealand, and South Africa, which were all higher-income, settler colonies with responsible self-government.

[4] As New Zealand's policy of imperial preference went unreciprocated by Britain before the First World War, the use of the word 'Reciprocal' in the title of the Act requires a brief explanation. The reciprocal character of the Act derives from its granting authority to the Governor of New Zealand to enter into agreements with other British possessions (and foreign countries) "to reduce or abolish the duty on any article or articles the produce or manufacture of such country to an extent that the estimated revenue so remitted shall equal as nearly as possible the estimated revenue remitted by that country: Provided that no

have been subject to a lower duty if it had been imported from Britain than if it had been imported from Belgium. Yet, bottle glass would have been subject to a uniform duty regardless of its origin. New Zealand's Preferential and Reciprocal Trade Act offers cross-commodity variation in the application of preference; the variation is not only unique, but also econometrically useful.

In contrast, the other Dominions offered preference to all commodities. Canada, which emerged in the 1890s as a battleground market between American and British manufactured exports, was at the vanguard of the movement for imperial preference.[5] In 1897, it offered preference in the form a one-eighth reduction of the duties on imports from Britain. This reduction was soon increased to one-quarter in 1898 and one-third in 1900 (Knowles 1930, p. 382). Without cross-commodity variation it would be difficult to disentangle the effect, or lack of effect, of Canada's policy of imperial preference from the annual fluctuations in the competitiveness of British exports; in the late nineteenth century, Britain's export prices were pro-cyclical (Ford 1963, p. 332). This paper represents the first commodity-level econometric study of Edwardian imperial preference. In this respect, it departs from Mitchener and Weidenmier (2008) and Magee and Thompson (2010), whose analyses of pre-WWI intra-empire trade diversion relied upon aggregate bilateral trade flows.

The following section of this paper surveys the literature on imperial preference and trade diversion during both the pre-WWI and interwar eras. The literature for the interwar era is especially worth considering, since it includes a couple of studies relying on trade data disaggregated to the commodity and sector levels. The next section chronicles the rise of non-Empire imports and then addresses the historical development of imperial preference in New Zealand, as well as the structure of the policy that New Zealand instituted in 1903. In the next section, a commodity panel regression is estimated for the Empire share and British share of New Zealand's imports from 1899-1906, with the margin of preference serving as the explanatory variable of interest. This paper finds that New Zealand's Preferential and Reciprocal Trade Act did not produce any statistically significant intra-Empire trade diversion. An alternative empirical approach of propensity-score matching lends further support to this finding. The papers goes on to suggest that the lack of intra-Empire trade diversion was due to the insufficient margins of

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such agreement shall have effect until ratified by Parliament" (Preferential and Reciprocal Trade Act, 1903, no. 78, 3 Edw. VII).

[5] For a discussion of British and American competition in the Canadian market in the 1890s, see Saul (1960, pp. 169-87).

preference created by the Act. The final section assesses whether the main finding of this paper can be generalized for the Dominions. Other implications of this finding are then addressed.

II. Literature

Before 1914

Russell (1947, p. 17) argued that imperial preference was instrumental in raising the value of the UK's exports to the Dominions in the years preceding the First World War. With reference to New Zealand specifically, Russell attributed the rise in bilateral British exports from £6.9 million (1903) to £10.8 million (1913) to imperial preference. However, it would be naïve to conclude the efficacy of imperial preference from just the rise in the *value* of bilateral exports. Like the other Dominions, New Zealand's population was growing rapidly. Moreover, during the same interval, the average price of New Zealand's imports rose by 40% (calculated from Easton and Wilson 1984, pp. 36-7). Both of these trends would be expected to raise the value of New Zealand's imports from Britain, irrespective of the adoption of imperial preference.[6] On a per capita basis, the *volume* of New Zealand's bilateral imports from Britain was probably not any higher in 1913 than in 1903.[7]

Saul (1960, p. 217) doubted that Edwardian imperial preference raised the empire share of the Dominions' imports, though he did identify Canada as a likely exception.[8] He observed that, because the Canadian policy of imperial preference involved lowering the duties on imports from Britain, British manufacturers were better able to compete against domestic Canadian manufacturers (as well as against foreign manufacturers) in the Canadian market. In this respect, Canada's preferential policy was distinct from New Zealand's policy, which raised the duties on imports from outside the Empire (for selected commodities) and, consequently, conferred no advantage on Empire imports vis-à-vis domestic production. After 1897, the British share of

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[6] Additionally, the value of New Zealand's imports from Britain could have risen on account of increasing import intensity. However, New Zealand's import-GNP ratio changed little between 1903 (24%) and 1913 (25%), as calculated using the data reported in Rankin (1992). In this respect, New Zealand was consistent with the world pattern of constant "trade openness" from 1870-1913, recently documented by Federico and Tena-Junguito (2017).

[7] Based upon Russell's (f.o.b.) values of bilateral British exports to New Zealand and the annual population of New Zealand reported in Rankin (1992, pp. 58-9), the per capita volume of the bilateral trade declined by 14% from 1903-13, if the value of trade is deflated by Easton and Wilson's (1984, pp. 36-7) index of New Zealand import prices, or increased by 3%, if the value is deflated by Imlah's (1958, p. 98) index of British export prices.

[8] Platt (1993, p. 107) took a similar view on the efficacy of imperial preference in Canada.

Canadian imports did increase for textiles, with British imports mainly displacing domestic Canadian production, rather than displacing imports from other countries (Saul 1960, pp. 182-3). Overall, however, the British share of Canadian imports declined in the years following the adoption of imperial preference, although the severity of the decline may well have been mitigated by imperial preference.

Australia was the last of the Dominions to implement imperial preference. Australia's policy of imperial preference, introduced as part of the protectionist Lyne Tariff of 1907, included an entirely separate preferential tariff schedule for imports from Britain.[9] However, the policy proved futile. According to Sullivan (2001, p. 52), the margins of preference were too little and the British share of Australian imports was already so high that the Lyne Tariff produced no discernable intra-Empire trade diversion. Still, Irwin (2006, p. 323), in passing, observed from a gravity model of Australian trade that the imperial preference enacted as part of the Lyne Tariff appeared "to have the slight effecting of halting the decline in intra-Commonwealth trade that was evident up to this point".

Magee and Thompson (2010) followed a systematic approach in assessing the effect of pre-WWI preferential trade policies in the British Empire. Their evidence took the form of purposely-calculated quinquennial measures of "revealed advantage" for each Dominion. Revealed advantage is calculated as the share of per capita income in a Dominion allocated toward the purchase of British goods, normalized for the share of per capita income in industrial northwestern Europe allocated toward the purchase of British goods. Magee and Thompson (2010, p. 128) pointed out that the revealed advantages of the Dominions were no higher in the early twentieth-century, following the institution of imperial preference, than in the late nineteenth-century. As they argued, imperial preference *per se* did not raise the British share of the Dominions' imports.[10] Rather, their general argument was that the overall high levels of intra-Empire trade were sustained by common consumption patterns and interpersonal networks.

Curiously, Magee and Thompson's argument does not quite hold for New Zealand, a fact which went unaddressed in their discussion. The revealed advantage measure for New Zealand is

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[9] As Sullivan (2001, p. 50) noted, the Lyne Tariff actually raised the average tariff on British imports, but raised the average tariff on foreign imports even more, thus creating a margin of preference.

[10] It should be observed that their approach does not permit the identification of whether policies of imperial preference offset or retarded an otherwise decline in Britain's revealed advantage in Dominion markets.

higher in any one of the twentieth-century quinquennia (1900-4, 1905-9, and 1910-3) than in any one of the nineteenth-century quinquennia (Magee and Thompson 2010, p. 123). The revealed advantage for New Zealand averaged 3.9 from 1870-99 and 4.8 from 1900-13. This difference suggests a strengthening of Britain's advantage in New Zealand, precisely when New Zealand legislated imperial preference.[11] It is also consistent with the heightened consumer preference for British goods in Edwardian New Zealand described by Platt (1993, pp. 112-13). Was this Edwardian improvement in Britain's revealed advantage in New Zealand determined by trade policy?

The argument of Magee and Thompson, i.e. that imperial preference did not produce an intra-British-Empire trade diversion, runs contrary to the finding of Mitchener and Weidenmier (2008) that policies of imperial preference, including *non-British* imperial preference, were a statistically significant determinant of bilateral trade flows. Using a gravity model of trade, Mitchener and Weidenmier (2008, p. 1826) estimated that a policy of imperial preference increased intra-empire bilateral trade between 26% and 168%, depending upon the specification.

Interwar era

Cross-sectional gravity models were estimated by Eichengreen and Irwin (1995) for the years 1928 and 1935. These cross-sectional regressions incorporated a dummy variable for (bidirectional) bilateral trade flows between countries which were both members of the British Empire. In 1928, bilateral trade among the countries of the British Empire was substantially higher than would have been predicted from just the conventional gravity variables, including distance and the product of the trading partners' GDPs. This finding could be attributed to commercial networks and consumption patterns in the British Empire, but possibly also to the preferential policies of the Dominions. The coefficient of the dummy variable for intra-British-Empire bilateral trade increases between the 1928 and 1935 cross-sectional regressions, and the difference between the magnitudes of the coefficients is statistically significant. Eichengreen and Irwin (1995, pp. 15-16) inferred from the higher coefficient a trade-diverting effect of the Ottawa agreements.

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[11] The strengthening of Britain's revealed advantage in New Zealand should not be conflated with a strengthening of Britain's competitiveness in this market, since the increase in the revealed advantage could have arisen from a decline in the normalization factor: the share of per capita income in industrial northwestern Europe allocated toward the purchase of British goods.

Using panel data on Britain's imports disaggregated by both commodity and country of origin, de Bromhead et al. (2017, p. 32) found that the system of preferential tariffs and quotas adopted by Britain in 1932 explains well more than half of the increase in the empire share of Britain's imports between 1930 (27%) and 1935 (39%). They ascribed to trade policy a dominant role in the orientation of Britain's *imports* toward the Empire in the interwar era. Their finding invites the question: did the pre-WWI policies of imperial preference orient Britain's *exports* toward the Empire? According to Schlote (1952, p. 166-7), the empire share of Britain's exports increased from 32% in 1900 to 37% in 1913.[12] In view of de Bromhead et al.'s conclusive and explanative results for the interwar era, it would be reasonable to expect that trade policy contributed to the rising empire share of Edwardian Britain's exports. Such a proposition is considered for the case of New Zealand.

Focusing on the country-specific case of New Zealand rightly leads to the question of whether the findings of this paper can be generalized for the system of imperial preference which arose among the several Dominions before the First World War. In this respect, the literature for the interwar era provides a cautionary analogue. Whereas de Bromhead et al. found that the Ottawa agreements explained the majority of the increase in the empire share of Britain's imports, Jacks (2014) found little evidence that the agreements raised the share of the eight Ottawa signatory countries in either Canada's exports or imports. In the four quarters following the enactment of the Ottawa agreements in the final quarter of 1932, the growth in the value of Canada's trade with signatory countries was not significantly different from the growth in the value of Canada's trade with non-signatory countries (Jacks 2014, pp. 27-8). At the sector level, there is scattered evidence of an Ottawa effect, such as in Canadian imports of 'iron and its products', presumably from Britain. Nonetheless, at the aggregate level, Jacks doubts that the Ottawa agreements had an appreciable effect on the empire share of Canada's trade, which largely consisted of its bilateral trade with the United States. The case of Canada illustrates that even a watershed in trade policy, such as the Ottawa agreements, might do little to countervail the effects of gravity—distance and economic mass—on the country composition of trade.

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[12] The Empire share of Britain's exports had been stagnant in preceding decades: 34% (1880) and 33% (1890).

III. The Movement toward Imperial Preference in New Zealand

Increasing non-Empire imports

Both before and after the Preferential and Reciprocal Trade Act of 1903, the vast majority of New Zealand's imports were from the Empire, especially Britain. In 1902, the Empire accounted for 83% of New Zealand's imports, while Britain alone accounted for 60%. Indeed, the British share of New Zealand's imports was quite high, even among the Dominions.[13] Nevertheless, foreign industrial countries began to make incursions into the New Zealand market in the 1890s, such that these countries supplied a substantial share of New Zealand's imports by the beginning of the twentieth century. Figure 1 illustrates the shares of the United States, Germany, and Belgium in New Zealand's imports. On the eve of imperial preference in 1902, these countries accounted for more than four-fifths of the 17% of imports from outside the Empire.

Among the foreign industrial countries, the United States held the greatest share of New Zealand's imports. From 1890-1902, the share of the United States doubled from 5.7% to 11.6%, although the majority of the increase occurred after 1896. The rising share of the United States in the New Zealand's imports closely accords with the "surge" of American manufactured exports in the late 1890s, which was explained by Irwin (2003). In the late 1890s, the American price of iron ore declined relative to the British price of iron, resulting in the United States attaining international competitiveness in iron, steel, and manufactures thereof (Irwin 2003, p. 369). New Zealand's trade statistics confirm that imports from the United States were concentrated in these commodities. While the American share of total imports was 11.2% from 1900-2, during the same interval its share was 38% for iron and steel fencing wire and 45% for iron nails. Moreover, the United States was a leading supplier to New Zealand of those manufactured commodities suited to an agrarian, settler society. From 1900-2, 42% of imported ploughs and harrows and 95% of imported axes and hatchets were sourced from the United States. Commodities such as these enjoyed a much larger domestic market in the United States than in more urbanized Britain, and production mostly occurred in the former country. It should also be observed that, for various agricultural implements and machinery, Canada was a non-negligible "third place" supplier, following the United States and Britain.

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[13] For a discussion of some of the reasons for the high share of Britain in New Zealand's imports, see Varian (2017, p. 241).

Figure 1. *Non-Empire share of New Zealand's imports, 1890-1902*
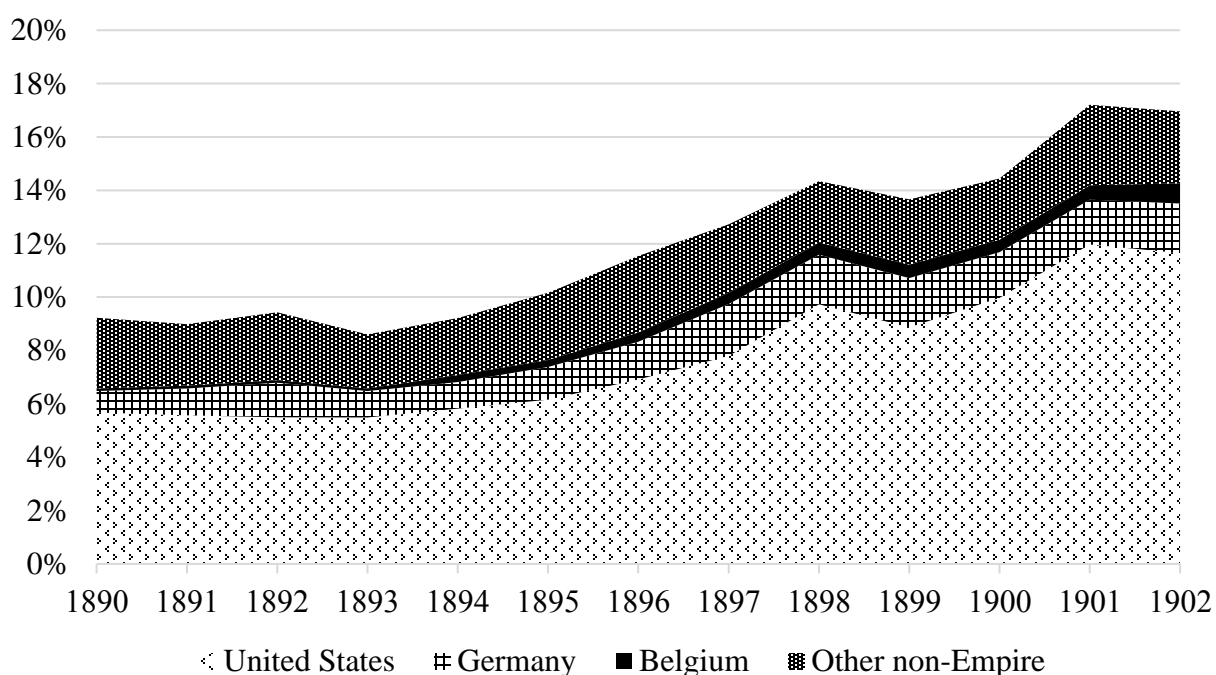
Industrialization in Continental Europe bore repercussions for the country composition of New Zealand's imports. Although the share of industrial Europe in imports was much smaller than that of the United States, it was steadily rising throughout the 1890s. From 1890-1902, Germany's share increased from 0.8% to 1.9%, and Belgium's share from 0.1% to 0.8%. Imports from these countries encompassed commodities from relatively labor-intensive manufacturing industries in which late-Victorian Britain was comparatively disadvantaged (Varian 2016). For example, New Zealand imported from Belgium large quantities of window glass, a relatively labor-intensive manufactured commodity. From 1900-2, an impressive 62% of pianos were imported from Germany.[14] Altogether, the Heckscher-Ohlinian manufacturing comparative advantages of (labor-economizing) Britain and (labor-utilizing) industrial Europe were borne out in the New Zealand market.

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[14] Incidentally, the surprisingly high share of pianos in New Zealand's total imports (0.8%) underscores the affluence of Edwardian New Zealand, which, in 1899, overtook Britain as the country with the highest GDP per capita in the world (Maddison 2003).

The rise in imports from Germany, in particular, alarmed some of New Zealand's lawmakers to a degree disproportionate to the 2% of imports coming from this industrial parvenu. During the parliamentary debate over what would become the Preferential and Reciprocal Trade Act, John McLachlan, the representative from Ashburton, boldly stated, "I owe the German no debt of gratitude, and why should I allow him to come here, or his products either. When I go into a shop to buy anything, if they offer me a German article I will not deal there" (Parliamentary Debates, 1903, vol. 127, p. 784). An Anglo-German commercial rivalry in the decades before the First World War has been long-established in the historical literature (Hoffman 1933). In New Zealand, this rivalry, exaggerated in the minds of certain lawmakers, contributed to a policy intended to raise the share of imports from Britain and—it may be similarly emphasized—reduce the share of imports from Germany.

The Preferential and Reciprocal Trade Act of 1903

There were some minor precursors to New Zealand's policy of imperial preference. First, in distinguishing between Australian wine and non-Australian wine, New Zealand's tariff schedule exhibited a small preference for the Empire in the years before 1903; the duty was 5s per gallon of Australian wine and 6s per gallon of non-Australian wine. Second, New Zealand did actually negotiate a bilateral preferential trade agreement with the pre-Federation colony of South Australia. Under the Customs Duties Reciprocity Act of 1895, New Zealand admitted duty-free South Australian dried fruits, olive oil, and salt (Customs Duties Reciprocity Act, 1895, no. 74, 59 Vict.). South Australian wine was admitted at a much reduced duty of 2s 6d per gallon. In exchange, South Australia removed the duty on imports of barley, hops, oats, and horses from New Zealand. This somewhat obscure piece of legislation pertained to only a trifling amount of New Zealand's total trade. In 1896, following the implementation of the act, the share of South Australia in New Zealand's imports was still just 0.4%. The Customs Duties Reciprocity Act is more noteworthy for its provision authorizing the Colonial Treasurer of New Zealand to negotiate similar agreements with other Australian colonies. In this respect, the act was an overture toward intra-Australasian, if not intra-Empire, preference. However, New Zealand made no further advance in this direction until the Preferential and Reciprocal Trade Act of 1903.

While the declining empire share of New Zealand's imports served as the longer-term context for the passage of the Act, a more immediate impetus came from the 1902 Colonial

Conference among Britain and the Dominions. With an aim of strengthening the commercial bonds of the British Empire, the conference passed a resolution calling for the adoption of preferential trade policies (Zebel 1967, pp. 142-3). The resulting system would entail some measure of reciprocal preferential access between the British and Dominion markets. Of course, a prerequisite for Britain extending preference to imports from the Dominions was an abandonment of free trade, an increasingly likely prospect in early Edwardian Britain. After the conference, Joseph Chamberlain, the Colonial Secretary of Britain and chair of the conference, went on to campaign for tariff reform, consisting of both protective duties and imperial preferences. Meanwhile, Prime Minister Richard Seddon, New Zealand's representative at the conference and also an ardent imperialist, returned to New Zealand with the objective of implementing imperial preference.

The Preferential and Reciprocal Trade Act was passed on 24 November 1903 and went into immediate effect (Preferential and Reciprocal Trade Act, 1903, no. 78, 3 Edw. VII). Preference took the form of additional duties on 37 commodities (corresponding to 44 commodities in New Zealand's trade statistics) imported from outside the Empire. Of the 44 commodities covered by the Act, 11 non-dutiable commodities were subject to a 20% *ad valorem* duty if originating from outside the Empire. 32 dutiable commodities were subject to an *additional* duty equal to half of the pre-existing duty if originating from outside the Empire. For example, prior to the passage of the Act, the duty on imported boots and shoes was 22.5% *ad valorem* irrespective of origin. After passage of the Act, boots and shoes imported from the Empire were still dutiable at 22.5% *ad valorem*, but boots and shoes imported from outside the Empire were dutiable at 33.75% *ad valorem* (22.5% + 11.25% additional duty). A single commodity, cement, was subject to an additional duty equal to the preexisting duty. The commodities covered by the Act are listed in Table 1. While the Act took effect on 24 November 1903, non-Empire imports covered by the Act would be exempted from the additional duties until 31 March 1904, if it could be "proved to the satisfaction of the Collector" that the goods were ordered before 16 November 1903. For this reason, 1903 and 1904 are transition years in New Zealand's adoption of imperial preference.[15]

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[15] There were further exemptions, of lesser importance, which extended until 1906. These exemptions applied to printing paper purchased by newspapers; and rails and tramways for projects already planned (Preferential and Reciprocal Trade Act, 1903, no. 78, 3 Edw. VII).

Table 1. *Commodities covered by the Preferential and Reciprocal Trade Act of 1903*

Additional duty on non-Empire imports equal to the Empire duty
    Cement+

Additional duty on non-Empire imports equal to ½ of the Empire duty
    Arms, Ammunition, and Explosives: Firearms*
    Basket- and Wicker-ware+
    Bicycles and Tricycles*
    Bicycles and Tricycles: Materials for*†
    Boots and shoes+
    Candles+
    Carriages, etc.: Carriages
    Carriages, etc.: Carts, Drays, and Wagons
    Carriages, etc.: Perambulators and Go-carts
    Carriages, etc.: Materials for
    China, Porcelain, and Parianware
    Clocks
    Cordage+
    Drugs, Chemicals, and Druggists' Wares: Cream of Tartar+
    Earthenware+
    Fancy Goods
    Fish: Potted and Preserved+
    Furniture and Upholstry
    Glass: Plate, Other Kinds+
    Glass: Window+
    Glassware+
    Hardware, Holloware, and Ironmongery*+
    Hops+
    Instruments, Musical: Pianofortes
    Iron and Steel: Pipes and Fittings*
    Lamps, Lanterns, and Lampwick+
    Leather Manufactures: Boot and Shoe Vamps, Uppers, and Laces+
    Nails: Iron*+
    Paper: Hangings+
    Paper: Wrapping+
    Plate and Platedware*+
    Pumps*+

Duty of 20% ad valorem *on non-Empire imports (Empire imports admitted free)*
    Bicycles and tricycles, materials for*†
    Boots and Shoes: Gumboots+
    Canvas+
    Cordage: Iron and Steel*+
    Instruments, Other Kinds: Surgical and Dental
    Iron and Steel: Angle*+
    Iron and Steel: Bar, Rod, and Bolt*+
    Iron and Steel: Rails*+
    Iron and Steel: Sheet and Plate*+

Machinery and Machines: Engines, Gas*
Paper: Printing+

It is noteworthy that New Zealand did not follow the Canadian model of granting preference by means of tariff reductions, which would have advantaged British manufacturers at the expense of domestic manufacturers. At the dawn of the twentieth century, New Zealand's manufacturing sector enjoyed a moderate degree of protection, which had been increased under the Customs and Excise Duties Act of 1895. While protection in New Zealand hardly produced an industrial economy, there can be little doubt that it gave at least some assistance to the growth of manufacturing, especially light manufacturing, in the closing years of the nineteenth century (Hawke 1985, p. 51). From 1891 to 1901, the number of employees in manufactories and works increased by more than three-fifths (calculated from Simkin 1951, p. 63).[16] During the parliamentary debate over New Zealand's policy of imperial preference, the Canadian model of tariff reductions was widely criticized as potentially injurious to New Zealand's fledgling manufacturing sector.[17] Thus, in 1903, New Zealand enacted a fundamentally protectionist piece of legislation involving only tariff increases. With regard to New Zealand's policy of imperial preference, Condliffe (1930, p. 424) observed that "imperial preference has sometimes been used as a stalking-horse for local protection". Still, the protection did differentiate between Empire and non-Empire imports, potentially leading to an intra-Empire trade diversion.

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[16] Yet, the non-Maori population increased by only 24% during the decade (calculated from Rankin 1992, p. 58)

[17] The necessity of not harming domestic manufacturing was a recurrent theme in the debate over imperial preference. This position is best summarized in the words of Harry Bedford, the parliamentary representative from Dunedin City, "All we say is that British manufactures shall be favoured as against foreign manufactures; but we do not say that in our market the present inequality as between British and colonial industries shall in any way be mitigated. We will sacrifice the foreigner—and rightly—but we will not sacrifice ourselves in any way" (Parliamentary Debates, 1903, vol. 127, p. 737).

Table 2. *Highest value commodities covered by Preferential and Reciprocal Trade Act, 1902*

Commodity	Value of imports (£)	Share in total imports (per cent)	Non-Empire share of commodity (per cent)
Hardware, Holloware, and Ironmongery	277,721	2.5	United States: 16.7 Germany: 3.6 Other Non-Empire: 0.3 *Total: 20.7*
Boots and Shoes	191,264	1.7	United States: 42.4 Other Non-Empire: 0.9 *Total: 43.3*
Fancy Goods	145,720	1.3	Germany: 11.9 United States: 6.0 Japan: 4.8 Other Non-Empire: 0.7 *Total: 23.3*
Iron and Steel: Bar, Bolt, and Rod	118,032	1.1	Belgium: 3.6 France: 1.7 Other Non-Empire: 1.0 *Total: 6.3*
Iron and Steel: Pipes and Fittings	112,291	1.0	United States: 13.9 Belgium: 1.3 *Total: 15.3*
Paper: Printing	108,439	1.0	United States: 42.0 Germany: 1.3 Other Non-Empire: 0.9 *Total: 44.2*
Instruments, Musical: Pianofortes	84,841	0.8	Germany: 60.1 United States: 1.1 *Total: 61.1*

Source: Calculated from *Statistics of the colony of New Zealand*, 1902.

The scope of New Zealand's initial policy of imperial preference should not be exaggerated. In 1902, the last full year preceding the Act, the 44 covered commodities accounted for only one-fifth of New Zealand's imports by value. The value of the 44 commodities imported from outside the Empire accounted for just over 5% of the total value of New Zealand's imports (or 28% of the value of the covered commodities). The Act did cover several of the larger commodities in the composition of New Zealand's imports; Table 2 provides descriptive statistics

for the seven largest commodities. Nevertheless, the potential for an aggregate diversion of New Zealand's imports toward the Empire was quite limited, at least until 1907. In that year, preference was extended to the majority of manufactured imports, causing New Zealand's policy of imperial preference to resemble closely the policies of the other Dominions. The next section of this paper, however, makes use of the differential application of imperial preference across commodities under New Zealand's initial policy of imperial preference, which was in effect from 1903-7.

IV. Empirical Analysis

Commodity panel regression

The main approach of this paper for estimating whether and, if so, to what extent the Preferential and Reciprocal Trade Act of 1903 diverted trade is a commodity panel regression for 1899-1906. The regression equation can be expressed as:

$$\Delta\left(\frac{M_{c,t,empire}}{M_{c,t,empire}+M_{c,t,foreign}}\right) = \alpha + \beta\Delta\left[\left(\tau_{c,t,foreign} - \tau_{c,t,empire}\right)\left(E_{c,t}\right)\right] + \gamma_t + \varepsilon_{c,t} \qquad (1)$$

in which *M* represents the value of imports, τ the *ad valorem* equivalent tariff, and *E* the share of non-empire imports liable to additional "preferential duties".[18] The subscript *c* stands for the commodity, *t* for the year, *empire* for all areas of the British Empire (including Britain), and *foreign* for all areas outside of the British Empire.

Thus, the dependent variable is the (differenced) empire share of New Zealand's imports. The explanatory variable is the (differenced) absolute margin of preference: the difference between the *ad valorem* duty on imports from outside the Empire and the duty on imports from within the Empire. Accordingly, the absolute margin of preference takes a value of 0 for all commodities from 1899-1902. From 1903-1906, this variable takes a non-zero value for only those 44 commodities covered by the Act. While it would be desirable to estimate an alternative specification of the model with the relative margin of preference ($\tau_{c,t,foreign}/\tau_{c,t,empire} - 1$) as the explanatory variable, such a specification is precluded by the 11 commodities which were imported free from the Empire, but were dutiable from outside the Empire.

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[18] The *Statistics of the Colony of New Zealand* somewhat misleadingly refer to the additional duties imposed under the Preferential and Reciprocal Trade Act as "preferential duties". Only by the absence of "preferential duties" is preference conferred.

Since the Preferential and Reciprocal Trade Act went into effect in November 1903, only a small fraction of the non-empire imports of the 44 covered commodities were liable to additional duties in 1903. And since an exemption to the additional duties was granted through March 1904 for commodities ordered before 16 November 1903, a substantial value of non-empire imports of covered commodities were not liable to additional duties in 1904. Because the implementation of the additional duties occurred over the course of two fiscal years, the absolute margin of preference is weighted by E, the share of non-empire imports of the (covered) commodity which were liable to additional duties in the given year.

Year effects, represented by γ_t, capture annual changes in the empire share of imports common across commodities, whether covered by the Act or not. Such year-on-year changes in the empire share of imports might result from a change in the average price of empire imports relative to non-empire imports. Given the dominant share of Britain within New Zealand's imports from the Empire (and in total), it would be reasonable to suspect that the empire share of New Zealand's imports fluctuated according to the British business cycle, with the empire share rising during periods when economic activity (and prices) were depressed in Britain.

Data for the panel regression are obtained from the *Statistics of the Colony of New Zealand*, for the period from 1899-1906. The panel is ended in 1906, on account of the Preferential and Reciprocal Trade Act being superseded by the Tariff Act of 1907. From 1899-1906, a total of 675 imported commodities are specified in New Zealand's trade statistics. For the foregoing analysis, the number of commodities is reduced to 540. Since the trade statistics tended to become progressively disaggregated (e.g. carriages are disaggregated into carriages and automobiles), it is necessary to re-aggregate the commodities to their 1899 classifications so that there are consistent commodity classifications across the eight years. Several very narrowly defined commodities, for which the imported value was zero in at least one year, are dropped from the sample. Also excluded are gold, silver, and copper specie, as well as the single "commodity" of parcels post. For each commodity, the trade statistics differentiate between general imports and direct government purchases. The value of direct government purchases accounted for a small share of total imports, but sometimes accounted for a large share of the imports of individual commodities, especially capital goods likely used in the construction of public railways.[19] The value of direct government

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[19] For the unique history of government intervention in the New Zealand economy, see Le Rossignol and Stewart (1910).

Table 3. *Empire and British shares of New Zealand's imports, 1899-1906*

	Empire share of New Zealand's imports		British share of New Zealand's imports	
	(1)	(2)	(3)	(4)
Absolute margin of preference	32.28	30.09	25.71	22.40
	(28.73)	(30.49)	(28.19)	(29.50)
Absolute margin of preference, one-year lag		8.41		12.66
		(31.14)		(30.13)
1900-1	-0.31		-2.86**	
	(1.16)		(1.13)	
1901-2	-0.76	-0.45	-1.66	1.20
	(1.16)	(1.18)	(1.13)	(1.14)
1902-3	-0.40	-0.09	-1.70	1.16
	(1.16)	(1.18)	(1.13)	(1.14)
1903-4	0.51	0.84	-0.96	1.92
	(1.17)	(1.20)	(1.15)	(1.16)
1904-5	0.46	0.73	-0.15	2.65**
	(1.16)	(1.20)	(1.14)	(1.16)
1905-6	2.49**	2.78**	-1.20	1.62
	(1.16)	(1.19)	(1.13)	(1.15)
Constant	-0.52	-0.84	0.90	-1.97**
	(0.82)	(0.84)	(0.80)	(0.81)
Observations	3,780	3,240	3,780	3,240

Notes: The dependent variables and the absolute margin of preference are differenced. Standard errors are noted in parentheses. The reference year is 1899-1900. All coefficients and standard errors have been scaled by a factor of 100. ** indicates statistical significance at the 5% level.

purchases is excluded from the data in the analysis because New Zealand's central and municipal governments, as well as its harbor boards, extended an institutional preference to British goods, which were sometimes more expensive than their foreign equivalents (Platt, 1993, p. 103). As this paper is concerned with a trade-diverting effect of the Preferential and Reciprocal Trade Act, direct government purchases, which were exempt from tariffs anyway, are excluded from the analysis. Altogether, the sample covers at least 95% of New Zealand's total imports, including both direct government purchases and parcels post (but excluding specie), in every year except 1901 (92%) and 1904 (91%), when the total value of New Zealand's imports included abnormally large values of railway plant imported by the government.

The results of the estimation of Equation 1 are reported in Table 3. None of the specifications include commodity fixed effects, since Hausman tests for each specification indicate that random effects are a more efficient estimation. Column 1 presents the results of the baseline specification. While the coefficient of the absolute margin of preference is expectedly positive, it is statistically insignificant. Column 2 includes a lagged variable for the absolute margin of

preference, intended to capture any delayed effect of the Act, which might result from importing firms slowly switching suppliers, perhaps not until 1905. Nevertheless, the inclusion of the lagged variable fails to evidence any relationship between the margin of preference and the empire share of New Zealand's imports. Columns 3 and 4, which replicate columns 1 and 2 for the distinctly British share of imports, yield similar findings. Additionally, estimating Equation 1 without differencing the dependent variable and the absolute margin of preference alters neither the sign nor the statistical significance of the coefficient of the absolute margin of preference in any of the four specifications.

The literature on trade during the first era of globalization gives cause to examine whether the Preferential and Reciprocal Trade Act produced an intra-Empire trade diversion in certain categories of covered commodities, even if no trade diversion is evident for the 44 covered commodities as a whole. Irwin (2003) argued that a decline in the American price of iron ore relative to the British price of iron ore resulted in a phenomenal growth in American exports of iron, steel, and manufactures thereof, such as machinery, in the late 1890s. For these commodities, competition between Britain and the United States in third markets was especially intense moving into the Edwardian era. As Allen (1979, p. 913) observed, American and British steel prices were quite close in the opening years of the twentieth century. The question arises: did the additional duties of 1903 cause New Zealand to source a greater share of its iron and steel imports from Britain, or from the British Empire? In this regard, the difference between Britain and the British Empire is not entirely meaningless, as New Zealand did import iron and steel agricultural implements from Canada.

In a recent study, Huberman et al. (2017) focused on Belgian exports from 1870-1910. One of the findings from their gravity model was that variable trade costs, proxied by distance, were a negative and statistically significant determinant of the value of Belgium's bilateral exports. Moreover, the (absolute) elasticity of bilateral exports to variable trade costs was inversely related to the degree of product differentiation. In their analysis, they divided Belgium's export commodities into four categories, ranging from least differentiated (Category 1) to most differentiated (Category 4). The elasticity of exports to variable trade costs was nearly three times as large for Category 1 as for Category 4 (Huberman et al. 2017, p. 56). For the most differentiated commodities, such as transport equipment and machines, a fall in variable trade costs resulted in comparatively little increase in the value of bilateral exports. In imposing additional duties, the

Preferential and Reciprocal Trade Act raised bilateral *variable* trade costs—tariffs were a determinant of bilateral trade costs (Jacks et al. 2010; Varian 2018)—between New Zealand and non-Empire trade partners. Given the findings of Huberman et al., it would follow that the resulting decline in the value of New Zealand's bilateral imports from non-Empire trade partners (and, mechanically, the rise in its share of imports from the Empire) was most acute for the less differentiated commodities. Perhaps the Preferential and Reciprocal Trade Act produced an intra-Empire trade diversion for the less differentiated among the 44 commodities it covered?

Of the 44 covered commodities, 15 have been identified as consisting mainly or entirely of iron or steel; these commodities are designated in Table 1. Relying on the categorization of Belgian export commodities by degree of differentiation reported in the appendix of Huberman et al. (2017, pp. 72-8), 29 of the 44 covered commodities have been identified as in Categories 1-3, *not* "capital intensive highly differentiated goods" (Category 4); these commodities are designated in Table 1. While a few of the covered commodities are not reported in the appendix to Huberman et al., it is sufficiently obvious whether or not these commodities are highly differentiated. Equation 1 is modified so that the absolute margin of preference is interacted with a dummy variable taking a value of 1 for iron and steel commodities (*Iron/Steel*):

$$\Delta\left(\frac{M_{c,t,empire}}{M_{c,t,empire}+M_{c,t,foreign}}\right) = \alpha + \beta\Delta\left[\left(\tau_{c,t,foreign} - \tau_{c,t,empire}\right)\left(E_{c,t}\right)(X)\right] + \gamma_t + \varepsilon_{c,t}, \ X =$$

1 *if Iron/Steel* \hfill (2)

or, alternately, taking a value of 1 for *not* highly differentiated commodities (*LessDifferentiated*), specifically those commodities in Categories 1-3 in the appendix of Huberman et al.:

$$\Delta\left(\frac{M_{c,t,empire}}{M_{c,t,empire}+M_{c,t,foreign}}\right) = \alpha + \beta\Delta\left[\left(\tau_{c,t,foreign} - \tau_{c,t,empire}\right)\left(E_{c,t}\right)(X)\right] + \gamma_t + \varepsilon_{c,t}, \ X =$$

1 *if LessDifferentiated* \hfill (3)

The results of the estimation of the regression equations are reported in Table 4, which indicates that the Preferential and Reciprocal Trade Act produced an intra-Empire trade diversion neither for iron and steel nor for relatively undifferentiated commodities, both categories of commodities

Table 4. *Iron/steel and less differentiated imports, 1899-1906*

	Empire share of New Zealand's imports		British share of New Zealand's imports	
	(1)	(2)	(3)	(4)
Absolute margin of preference x (iron/steel)	41.88 (42.60)		39.05 (41.80)	
Absolute margin of preference x (less differentiated)		26.98 (34.85)		21.66 (34.19)
Constant	-0.53 (0.82)	-0.53 (0.82)	0.90 (0.80)	0.90 (0.80)
Observations	3,780	3,780	3,780	3,780

Notes: The dependent variables and the absolute margin of preference are differenced. Year effects are included in the regression but not reported in the table. Standard errors are noted in parentheses. All coefficients and standard errors have been scaled by a factor of 100.

marked by a particular intensity of competition in the Edwardian era. Once again, this finding is unaltered whether the Empire share or the British share is considered.

Propensity-score matching

In the parliamentary debate over New Zealand's initial policy of imperial preference, there were objections to the selective extension of preference to just certain commodities, with one representative observing that "The articles named in the schedule seem to have been selected in a most haphazard manner and without due consideration" (Parliamentary Debates, 1903, vol. 127, p. 786). There were some attempts to modify the schedule of covered commodities; motions for candles; glass: window; iron nails; paper: hangings; and paper: printing to be stricken from the schedule were unsuccessful. However, iron-wire netting and carriage shafts, spokes, and felloes were, in fact, removed from the proposed schedule.

It is not entirely evident from parliamentary records how the schedule of covered commodities was devised, although the conspicuous absence of agricultural machinery—much of it was imported from the United States—from the schedule led to the accusation that the proposed bill was "the farmers' friend" (Parliamentary Debates, 1903, vol. 127, p. 892). Nevertheless, many of the commodities ultimately covered by the Preferential and Reciprocal Trade Act of 1903 were characterized by comparatively high non-Empire shares of imports. In this respect, the imported commodities covered by the Act afforded considerable scope for an intra-Empire trade diversion. Due to this fact, the lack of any statistically significant relationship between the change in the

Table 5. *Propensity-score matching: average effect of preference on treated, 1902-4/5*

	Empire share of New Zealand's imports		British share of New Zealand's imports	
	1902-4	1902-5	1902-4	1902-5
ATET	-0.02	1.46	-2.48	-4.08
	(4.43)	(4.66)	(2.56)	(3.46)
Treated	44	44	44	44
Observations	540	540	540	540

Notes: Standard errors are noted in parentheses. ATET and standard errors have been scaled by a factor of 100.

absolute margin of preference and the change in the Empire share of imports, discerned in the previous section, stands as even more compelling evidence against the efficacy of the Act.

Still, the extension of preference (treatment) was almost certainly not random. Propensity-score matching represents an alternative empirical approach that attempts to control for possible selection bias in the application of treatment. Propensity scores (for inclusion in the schedule of commodities covered by the Preferential and Reciprocal Trade Act) are estimated using a logit regression:

$$Prob\left(\tau_{c,1904,foreign} > \tau_{c,1904,empire}\right) = \alpha + \beta\left(\frac{M_{c,1902,empire}}{M_{c,1902,empire}+M_{c,1902,foreign}}\right) + \delta(X) + \varepsilon_c, \; X =$$

$$1 \; if \; M_{c,1902} > 10{,}000 \tag{4}$$

The observable, explanatory variables are the Empire share (or British share) of the imported commodity in 1902 and a binary variable for whether the value of the commodity exceeded £10,000 in 1902, as minor commodities tended not to be covered by the Act. Treated and non-treated commodities are matched based upon their propensity scores. An average treatment effect on the treated (ATET) is estimated, with the effect measured as the change in the Empire share (British share) of the imported commodity from 1902-4 or, alternately, from 1902-5. As Table 5 reports, none of the ATETs are statistically significant at any level. One of the drawbacks of this approach is that preference is a binary treatment rather than a continuous variable, i.e. the absolute *margin* of preference. Nonetheless, the alternative empirical approach of propensity-score matching corroborates the earlier finding that the Preferential and Reciprocal Trade Act did not raise the Empire share of imports.

Insufficient margins of preference

The finding of this paper invites the question of why the Act did not achieve its intended effect. A likely explanation for its ineffectiveness is that the margins of preference were insufficient to induce consumers to switch (back) from non-Empire to Empire imports. To assess whether the margins of preference were too small, this paper considers the contribution of the margin of preference to the foreign-British relative import price of the less differentiated commodities covered by the Act. The focus on the less differentiated commodities is motivated by their assumed higher elasticity of substitution between foreign and British imports, consistent with Huberman et al. (2017). Assuming, moreover, that the elasticity of substitution is especially high around the post-tariff relative import price of 1, the (in)sufficiency of the margins of preference might be broadly gauged from whether these margins raised the foreign-British relative import price above unity.

Table 6 lists the commodities that meet the following two criteria. First, bilateral unit values are reported in New Zealand's trade statistics. Second, the commodities are relatively undifferentiated, being explicitly listed in Categories 1-2 in the appendix of Huberman et al. (2017, pp. 72-8); here, the definition of 'relatively undifferentiated' is even more restrictive than the definition applied in the earlier analysis, which included Categories 1-3. For each of the seven commodities in the table, the foreign-British relative import price is calculated using the average price of bilateral imports from the foreign, i.e. non-Empire, country supplying the greatest quantity of the commodity. The post-tariff relative import price is calculated for the interval from 1903-4, both without and with the margin of preference conferred by the *additional* preferential duties.

For all but one commodity (boots and shoes) included in Table 6, the relative import price was less than 1 without the margins of preference.[20] For none of the commodities did the margins of preference raise the relative import price above 1. In short, foreign imports of these relatively undifferentiated commodities remained cheaper than corresponding British imports even under the margins of preference created by the Preferential and Reciprocal Trade Act. That New Zealand imported these commodities from Britain at all may be attributed to the fixed costs associated with

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[20] Despite its categorization in the appendix of Huberman et al. (2017), the commodity of boots and shoes embraced considerable differentiation, with British boots and shoes suited to urban wearers and American boots and shoes suited to rural wearers. The differences between the British and American varieties received considerable attention in the parliamentary debate over imperial preference. Also, see Church (1968, p. 251).

Table 6. *British-foreign relative prices of least differentiated commodities, 1900-2*

Commodity	Foreign country	Relative price, 1903-4, (British price = 100)	
		Without preferential tariff	*With preferential tariff*
Boots and Shoes	United States	242	264
Boots and Shoes: Gumboots	United States	45	54
Glass: Window	Belgium	80	86
Iron and Steel: Bar, Rod, and Bolt	Belgium	76	91
Nails: Iron	United States	86	93
Paper: Printing	United States	59	71
Paper: Wrapping	Germany	90	99

Source: Calculated from *Statistics of the colony of New Zealand*, 1902.

switching between British and foreign suppliers, particularly American suppliers, which became increasingly competitive from the 1890s onward (Wright 1990, pp. 652-3; Irwin 2003). Those firms and consumers that already incurred the costs of switching from British to foreign suppliers would not have been induced by the Act to switch back.

V. Conclusion

The Preferential and Reciprocal Trade Act of 1903 followed a decade-long rise in the share of New Zealand's imports coming from the ascendant industrial countries of Belgium, Germany, and the United States. While the Act sought to raise the Empire share and, in particular, the British share of New Zealand's imports of those commodities it covered, it was ineffective in doing so. This finding is supported by both a commodity panel regression and a propensity-score matching estimation of the effect of imperial preference. Moreover, this finding holds for even those categories of commodities for which imperial preference would have been most expected to produce a trade diversion: iron, steel, and manufactures thereof, marked by closely aligned British and American prices in the early years of the twentieth century; and relatively undifferentiated commodities, for which demand was more price elastic. In sum, New Zealand's initial policy of imperial preference did not cause an intra-Empire trade diversion, as intended.

How useful is the case of New Zealand for judging the effectiveness of Edwardian imperial preference in the Dominions, more generally? The answer is: quite useful. Most of the commodities covered by the Preferential and Reciprocal Trade Act were subject to an *additional* duty equal to half of the pre-existing duty if originating from outside the Empire. Therefore, imports of these commodities from within the Empire paid a duty 1/3 less than the non-Empire duty. By 1900, the Canadian policy of imperial preference offered a 1/3 reduction in the duty on imports from Britain. Thus, most of the British goods covered by New Zealand's initial policy of imperial preference received the same *relative* margin of preference in both Canada and New Zealand. This relative margin of preference was slightly more generous than the 1/4 reduction in the duty on all Empire imports enacted in the South African Customs Union in 1903 (Knowles, 1936, p. 302). Of course, caution should be exercised in extrapolating the findings of any case study. Simply because the relative margins of preference were equal between Canada and New Zealand does not imply that the ineffectiveness of New Zealand's policy of imperial preference must also have been true of Canada's policy. As Jacks (2014) has argued for the interwar era, the imperial preferences concluded at Ottawa in 1932 did not divert Canada's exports toward the Empire. Yet, de Bromhead et al. (2017) found that the Ottawa agreements did divert Britain's imports toward the Empire, and substantially so. With respect to the efficacy of imperial preference, individual Dominions could well have deviated from the more general pattern in the Edwardian era, just as in the interwar era.

All in all, this paper shifts the weight of the evidence against the efficacy of Edwardian policies of imperial preference, as well as offering conclusive evidence for one of Britain's four main Dominion markets: New Zealand. The finding of this paper is consistent with that of Magee and Thompson (2010, p. 128), who, on the basis of measures of revealed advantage, discounted the role of Edwardian policies of imperial preference in shaping demand for British goods. Indeed, the economic history literature has often regarded the Empire as a "soft market" for British exports, a sort of market in which Britain faced weak competition from other industrial countries.[21] To be clear, this paper has not argued against the Edwardian British Empire as a soft market. Rather, *if* the British Empire can rightly be called a soft market, then the evidence suggests that its softness was not due to trade policy.

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[21] For a noteworthy contribution to this debate that also summarises it well, see Thompson and Magee (2003).

Finally, this paper might be interpreted as accentuating the path-breaking nature of the Ottawa agreements of 1932, which did divert trade—Britain's imports (but possibly also exports)—toward the Empire (de Bromhead et al. 2017). The paper reinforces the narrative that intra-Empire trade in the Edwardian era depended largely upon common consumption patterns, distribution channels, and the many other non-policy manifestations of empire, in contrast with intra-Empire trade in the interwar era, when policy came to figure prominently.

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