

NBER WORKING PAPER SERIES

DEFYING GRAVITY:
THE 1932 IMPERIAL ECONOMIC CONFERENCE AND THE REORIENTATION OF CANADIAN TRADE

David S. Jacks

Working Paper 17242
<http://www.nber.org/papers/w17242>

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
July 2011

This paper was written while the author was a visitor at UCLA, and he thanks the Department of Economics for its hospitality. He also thanks Jen Baggs, Krishna Pendakur, Leah Platt Boustan, and Almos Tassonyi for advice and appreciates the comments from seminars at Caltech, the LSE, Toronto, Waterloo, and Western Ontario as well as from the 2011 All-UC Group/Caltech/Huntington Conference, the 2011 Canadian Network in Economic History meetings, the 2011 NBER DAE Summer Institute, and the 2011 Rocky Mountain Empirical Trade meetings. Finally, the author gratefully acknowledges the Social Science and Humanities Research Council of Canada for research support. The views expressed herein are those of the author and do not necessarily reflect the views of the National Bureau of Economic Research.

NBER working papers are circulated for discussion and comment purposes. They have not been peer-reviewed or been subject to the review by the NBER Board of Directors that accompanies official NBER publications.

© 2011 by David S. Jacks. All rights reserved. Short sections of text, not to exceed two paragraphs, may be quoted without explicit permission provided that full credit, including © notice, is given to the source.

Defying Gravity: The 1932 Imperial Economic Conference and the Reorientation of Canadian Trade

David S. Jacks

NBER Working Paper No. 17242

July 2011

JEL No. F1,N7

ABSTRACT

In the wake of the Great Depression, the Canadian government embarked on a stunning reversal in its commercial policy. A key element of its response was the promotion of intra-imperial trade at the Imperial Economic Conference of 1932. This paper addresses whether or not Canadian trade was able to defy gravity and divert trade flows towards other signatories at Ottawa. The results strongly suggest that the conference was a failure from the Canadian perspective. Potential sources of this failure include unreasonable expectations about the likely reductions in trade costs and a neglect of key considerations related to certainty and credibility.

David S. Jacks

Department of Economics

Simon Fraser University

8888 University Drive

Burnaby, BC V5A 1S6

CANADA

and NBER

dsjacks@gmail.com

I. Introduction

The recent collapse in international trade in the wake of the Global Financial Crisis has led to fundamental reconsiderations of the structure and sustainability of the global economy. Although the sources of this trade bust are still debated, changes in the composition of output and trade, the role of inventories, and issues related to trade credit and the spread of cross-border supply chains are all clearly implicated (cf. Alessandria *et al.*, 2010; Bems *et al.*, 2010; Chor and Manova, 2010; Eaton *et al.*, 2010; Levchenko *et al.*, 2010). What has been less contentious is the appropriate response of policymakers with respect to commercial policy. This, of course, comes in marked contrast to the experience of the interwar period.

In this paper, the Canadian experience with the international economy of the interwar period is explored. In particular, the implications of the Canadian policy response in the wake of the Great Depression and the erection of trade barriers, most notably in the form of Smoot-Hawley in the United States, are considered. Apart from home-grown tariff legislation, a key element of the Canadian response was the promotion of intra-imperial trade at the Imperial Economic Conference of 1932. This represented a stunning volte-face in Canadian commercial policy which had previously emphasized maintaining continued access to US goods and markets. Contemporaries and subsequent commentators were oftentimes convinced of the folly of the exercise: in the Lords sitting, Lord Arnold asked, “Is it surprising, having regard to the fact that [they] are contiguous for over two thousand miles, that the trade of the United States with Canada has been growing much more than our trade, although we have got preference and the United States have not? The point which I am submitting... is this, that this Ottawa policy is working against natural conditions” (1932, p. 828). Thus, drawing on an analogy from the international trade literature, the primary question which this paper seeks to address is whether or not Canadian trade was able to defy gravity—that is, defy the attractive force for Canadian exports and imports exerted by the economic mass and close proximity of the US—and divert trade flows towards other signatories at Ottawa in 1932.

The choice of Canada as the observational unit is motivated by a number of reasons. First is the sheer size of the Canadian-US border trade and its long-running preeminence. By 1927, Canada had surpassed the United Kingdom as the United State’s largest trading partner (Jacks *et al.*, 2011), a position it holds into the present day and which represents the largest bilateral

trading relationship over the past 80 years.¹ What is more, this single border represented roughly 5% of all world trade in the interwar period. At the same time, the Canadian response to the combined pressures of the Great Depression in general and Smoot-Hawley in particular was to embark on its most pronounced reversal in commercial policy to date. Documenting the evolution of this key trading relationship is, thus, important not only for our understanding of history, but also of the context of commercial policy and performance in the present.

Second, Canada provides insight into the critical dilemma facing small- and medium-sized economies which are dominated by a few (generally large and proximate) trading partners. Historically, we can place areas like Australasia, the Low and Nordic Countries, and Latin America in this category; in the contemporary setting, this may become more binding for the Four East Asian Tigers, Japan, and (again) Australasia with the rise of China as a dominant player in international trade. The particularly Canadian experience explored here serves to highlight the tension between the benefits of integration which are often hard to identify and the more readily felt costs which are borne in the face of significant reversals in a dominant trading partner's commercial policy and economic fortunes. The topic of diversifying trade partners uncannily emerges any time progress along these lines is reversed. Unfortunately, little of the debate surrounding this decades-long issue has addressed the feasibility, as opposed to the desirability, of such a re-orientation of trade flows. This paper represents a step forward in this direction and implicitly questions the logic of bilateral or multilateral trade agreements encompassing widely geographically dispersed nations.

Finally and more generally, the experience of commercial policy in the interwar period has proven to be one of the few decisive lessons learned from economic history. A consensus seems to have emerged within the economics profession, across the political spectrum, and more haltingly—but more surprisingly—throughout the electorate. This consensus holds that while broad-based protectionism may perhaps bolster the domestic macroeconomy in its direct effects, indirectly it almost certainly will raise the counter-protectionist ire of other nations and, thus,

¹ This blanket statement has a few notable exceptions when the United Kingdom-United States bilateral trading relationship reasserted itself. These came in 1933 when Canadian-US commercial and diplomatic relations were close to their nadir and the war years of 1940 through 1944 when the US engaged in an unprecedented and, thus, unrepresentative export trade with the UK. Putting things in further perspective, the volume of Canadian-US trade still held a commanding 17% lead on the next runner-up, namely China and the US, at the time of writing.

little is to be won. Additionally, the experience of the interwar with respect to unilateral changes in commercial policy initiated the pronounced move towards multilateralism in the post-World War II period (Baldwin, 2009; Snyder, 1940). Therefore, a further consideration of the policy disaster of the interwar may contribute to a wider appreciation of this consensus view.

Section II below sets the scene leading up to the fateful events surrounding the period from 1929 to 1932. It reveals that the Canadian economy was highly exposed to changes in commercial and economic conditions in the United States and, thus, woefully unprepared for the Great Depression. This fact might help explain why the Canadian economy had not regained the economic ground lost during the depression even as late as 1939. Sections III and IV represent the main contribution of the paper. Canadian trade statistics are particularly rich for this period and relatively unexploited. The results strongly suggest that the Imperial Economic Conference of 1932 was a failure in that the cause of Canadian trade with the rest of the Empire seems to have been furthered little in its wake. The final sections seek to identify the sources of this failure as well as placing the results in a broader context. They demonstrate that either implicitly or explicitly the goals of the conference carried with them unreasonable expectations about the scale of the attendant reductions in bilateral trade costs and, thus, the scale of effects on bilateral trade flows. Furthermore, the discussion at Ottawa neglected key considerations with respect to certainty over the likely course of Canadian commercial policy and credibility in maintaining any set of provisions emerging from the conference itself.

II. Canadian Trade: Policy and Performance, 1921-1939

Riding the tide of a mounting immigration, investment, and trade boom in the early 1920s, the Canadian economy experienced significant gains in this period, with real GDP per capita rising 50.9% in the years from 1921 to 1929 (Maddison, 2004; Safarian, 1970). This growth was also mirrored in the trade statistics: Canadian real exports and imports grew by 30.3% and 20.8%, respectively (Jacks *et al.*, 2011). Underlying this growth was the development of new resource exports such as newsprint and non-ferrous minerals to the United States as well as a durable consumer goods sector, especially for automobiles, which serviced both the market of Canada and the British Empire (Pomfret, 2000). However, forces were mounting even from the beginning of the decade which would draw this effervescence, especially in the external sector, to an end.

Of particular note in this respect was the rise of protectionist sentiment within the United States beginning with the tariff bill of 1922. In response to the deteriorating conditions in world agricultural markets following World War I, the Fordney-McCumber tariff soon found room to incorporate wider calls for industrial protection. The result was a slight decline in the percentage of Canadian goods which entered the United States duty-free from 66 to 64% but a more moderate increase in both the equivalent ad valorem rates for dutiable imports and total imports from 27 to 39% and from 9 to 14%, respectively (Hart, 2002). Although relatively innocuous in terms of its effects on international trade in general and Canada-US trade in particular, Fordney-McCumber did act as an ominous warning of things to come: namely the all-too-easy willingness on the part of the United States to sacrifice foreign access to the domestic market in the face of slack business conditions at home.

The aforementioned conditions in world agricultural markets were also to have a more direct impact on the Canadian economy during this period. Canada's privileged geographic position and imperial ties had allowed for unprecedented access for its agricultural goods in European markets during World War I. But for every boom, there is almost invariably a bust, and Canada was no exception in these circumstances: the share of agriculture in Canadian exports was in secular decline from 1919 all the way up to 1939 (a pattern documented later in the paper). In terms of its wider external relations, the Canadian economy was also heavily reliant on a handful of markets and a handful of goods. Even in the face of efforts to promote trade diversification, at no time were more than 33% of all exports shipped to destinations other than the United Kingdom or the United States (Hart, 2002). What is more, the Canadian economy of the 1920s "was greatly dependent on two export demands—for American newspapers and European bread" (Marcus, 1954, p. 32) with fully 32% of all exports accounted for by wheat and flour alone and an additional 15% accounted for by newsprint and wood pulp alone (Safarian, 1952).² Of course, anything which threatened either demand, whether it be deteriorating incomes or protectionist commercial policy, could potentially have serious implications for the Canadian macroeconomy.

² Naturally, these two features of Canadian trade are one of the predominant themes of Canadian economic history from the time of Confederation to the present day. In 2010, 73% of Canadian exports were shipped to the United States (the United Kingdom absorbed a scant 4%) while 44% of Canadian exports were accounted for by the energy, forestry, and metal goods categories.

The combination of these dampening forces was already being signaled in Canadian trade statistics from the middle of the decade. Figures 1a and 1b, respectively, depict real monthly exports and imports for the period from January 1925 to December 1939. In order to extract broader patterns from the highly seasonal nature of these series, they have also been plotted with their 12-month moving average. In 1925, exports clearly outstripped imports. However, comparing the evolution of the two series, it is clear that whereas exports had effectively peaked by then imports continued to climb throughout the late 1920s. In combination, we can see that this scissors-like movement was to have strong implications for the Canadian trade balance as depicted in Figure 2. From a monthly excess of exports over imports of \$275 million in December 1925, the monthly balance of trade had declined to \$90 million in December of 1928. Nor was this absolute decline unmatched relative to GDP: the ratio of the balance-of-trade to GDP fell from +7.94% in 1925 to +2.07% in 1928, representing a significant drag to the Canadian economy in the years leading up to 1929.

1929, of course, was to inaugurate a series of even more unfortunate developments for the Canadian macroeconomy. The simultaneous peak in the economic activity of the United States as well as drafting of the Smoot-Hawley tariff bill in the summer of 1929 constituted a serious threat to the two sources of Canadian success in external—and particularly American—markets: buoyant incomes and open commercial access. Little wonder then that the second and third quarter of 1929 represented the absolute peaks for the 12-month moving averages of Canadian exports and imports, respectively. What is less widely appreciated is the fact that the Canadian economy had already started its long decline into the Great Depression well before this point with GDP having peaked sometime in 1928 (Maddison, 2004; Marcus, 1954).

Thus, any glimmer of hope which remained for Canada steadily diminished throughout the remainder of 1929 and the beginning of 1930 as the session and accompanying log-rolling process surrounding Smoot-Hawley was taken to unprecedented lengths (Taussig, 1930a). As Kindleberger (1989, p. 170) writes, “Democrats joined Republicans in their support for tariffs for all who sought them; and both Republicans and Democrats were ultimately pushed from the committee room as lobbyists took over the task of setting the rates.” With its revision of tariffs on over 20,000 line-items, the aim of the legislation was remarkably clear in its focus as well as remarkably myopic to its likely consequences: in response to official Canadian protest and not-so-veiled threats of retaliation, the House Ways and Means Committee replied that “they were

not so concerned with American exports, but only with the prevention of imports” (quoted in Kottman, 1975, pp. 615-616). As time progressed, much of the force of Smoot-Hawley—in combination with rapidly declining commodity prices—was to clearly fall on Canada, given its overwhelming reliance upon the US export market and the heavy-handed treatment to which the border trade in agricultural goods was subjected (Irwin, 2011; Taussig, 1930b). Thus, for Canada, Smoot-Hawley was to play a deciding role in not only short-run electoral politics as described below but also a longer-run change in its commercial policy objectives from maintaining continued access to US goods and markets to finding a substitute for the US altogether (Conybeare, 1985; Kottman, 1975).

The Canadian response to Smoot-Hawley was more than just immediate: in anticipation of the bill’s final passage in June 1930, Prime Minister Mackenzie King announced changes to the Canadian tariff schedule a full month beforehand. The main innovations were comprised of reductions in tariffs on 270 goods sourced from within the British Empire and the introduction of countervailing duties on 16 goods imported from the United States, corresponding to roughly 30% of US exports to Canada (McDonald *et al.*, 1997). While this response was swift, it seemingly lacked conviction with Hart for one (2002, p. 106) calling the effort more “symbolic than substantive” and reflective of a Canadian strategy which emphasized increased discrimination in the face of increased protectionism. Such moderation on the part of the Liberal administration, however, was not rewarded in the so-called “Canada First” election of late July 1930 (“The Imperial Economic Conference”, 1934).

King’s chief adversary in this election was Richard B. Bennett. From the very beginning, addressing the affront of Smoot-Hawley and identifying the appropriate response were the key issues of the campaign. Bennett, in particular, was very clear about his intentions: “he pledged [not only] a future in which Canadians would no longer be ‘hewers of wood and drawers of water’” but also one in which higher tariffs would be used “‘to blast a way into markets that have been closed’” (Rooth, 2010, p. 8). The message was well-received with the Conservatives presiding over a land-slide victory. Locating the sources of this win is relatively straightforward, seeing as how Smoot-Hawley had strongly antagonized wide sections of the Canadian electorate by increasing tariffs on the chief exports of almost every province (Hart, 2002). Indeed, McDonald *et al.* (1997) find that those ridings most affected by Smoot-Hawley swung decidedly Conservative.

The election of Bennett produced two outcomes with respect to Canadian commercial policy. Given the clear mandate in favor of protectionism, the administration proceeded to supplement the tariffs of May 1930 the following September. Agricultural implements, electrical equipment, meats, and textiles among other goods were now subject to an emergency tariff; an upper-bound estimate of the effects of these new tariffs suggests that they potentially reduced US exports to Canada by 21% (Irwin, 2011). These changes were also significant in that by upwardly revising tariffs across the board they almost fully reversed the preferences for British goods embodied in the tariff legislation of May (MacKay, 1932). Clearly, protectionism against all and not discrimination against the United States was to be the new order of the day. Further measures were forthcoming in June 1931 which saw rises in Empire, general, and intermediate rates as well as the imposition of higher anti-dumping rates (Kindleberger, 1989).

Bennett also made good on his promise to call yet another Imperial Economic Conference in order to more fully decouple the Canadian economy from that of the United States. The conference of 1930 had yielded little in the way of substantive results. Much of this reflected the conflict between the Dominions' desire to more fully penetrate the UK market in the guise of imperial preferences and the British government's long-suffering commitment to free trade. At the conference's conclusion, Bennett issued an invitation to reconvene the next year in Ottawa. Accordingly, expectations were not very high. Had the proposed conference proceeded as planned it is not obvious that the fundamental divergence of views in the Dominions and Westminster could have been reconciled (Drummond, 1972). However, the conference was delayed until 1932, a delay which witnessed not only the rise of the National coalition government in the UK in October 1931 but also the British abandonment of the gold standard and the cause of free trade (Capie, 1983; Rooth, 2010).

By the time that it was formally convened in July 1932, both Canadian and world trade in general were in free-fall as attested to by Figures 1a and 1b. Canadian real exports and imports were down 48.6% and 61.2%, respectively, from July 1929. At the bilateral level, trade with the United States looked even worse: real exports to the US were down 67.3% while real imports were down by 65.4%. Bilateral trade with the United Kingdom represented a more moderate case with equivalent figures for exports and imports being a "mere" 48.3% and 13.4%. What is more, these declines while far from uniform across commodity groups were broad-based. The average rate of decline in exports across nine commodity classifications (detailed below) was 49.3% with

a minimum of 27.6% for miscellaneous commodities and a maximum of 67.8% for non-ferrous metal products; likewise, the average rate of decline in imports was 57.7% with a minimum of 22.6% for chemical products and a maximum of 79.1% for iron products. When matched against the cumulative declines in GDP from 1929 to 1932, these declines in exports and imports were little short of breathtaking: GDP declined 24.1% in Canada, 5.1% in the United Kingdom, 27.0% in the United States, and perhaps 10.4% globally (Maddison, 2004). Conclusively locating the sources of this trade bust has remained elusive (cf. Estevadeordal *et al.*, 2003; Madsen, 2001). But clearly, this suggests a strong role for rising trade costs (Jacks *et al.*, 2011; Hynes *et al.*, 2011), especially in the form of the heightened protectionism detailed above.

Dominion success at Ottawa was critical in light of the passage of the UK's Import Duties Act of February 1932 (Glickman, 1947). This allowed for a direct duty of 10% ad-valorem which was to be levied on a very broad range of goods imported from non-Empire sources and which was subject to increase by a newly-formed Tariff Advisory Commission. Effective November 15, 1932, trade with the non-dependent Empire would also be subject to this legislation, barring that no new agreements were reached in Ottawa (Drummond, 1972). Standing in the way of this success were a few key items of contention which might be summarized as "meat, wheat, and the Soviets". The first two items reflected the intransigency of Australia and Canada in securing preferential access to the UK market for their two respective main exports through higher tariffs (Pomfret, 2000). The last item was a particularly Canadian effort to block Soviet access to the UK market in the face of real or imagined dumping activity which threatened Canadian competitiveness in the key markets for wheat and wood products (Kindleberger, 1989). Lining up against these interests, the British negotiators pushed for their preference to lower barriers within the Empire rather than raise barriers outside of it.

Relenting somewhat on this point, the UK managed to negotiate 7 agreements on a strictly bilateral basis with Australia, Canada, India, Newfoundland, New Zealand, South Africa, and Southern Rhodesia as well as grant substantial tariff concessions to a number of non-self-governing colonies (Lattimer, 1934). In addition, Canada managed to negotiate or re-negotiate 5 agreements with Australia, the Irish Free State, New Zealand, South Africa, and Southern Rhodesia while further agreements with India and Newfoundland were concluded shortly thereafter (Hart, 2002). The principal outcomes from the perspective of the UK were that it guaranteed continued application of the Import Duties Act on non-imperial goods while the

Empire was granted continued exemption, the UK would impose new or revised tariffs on a wide range of agricultural products, the UK would apply significant quantitative restrictions on the import of animal products from foreign countries, that signatories were granted MFN status in any future negotiations with non-Imperial parties, and that all the aforementioned stipulations would continue for five years but were subject to change at the discretion of the signatories given a mere six months' notice (Glickman, 1947).

In return for this lengthy list of concessions, the Dominions ceded considerably less ground. Canada, in particular, made vague promises about abolishing its surcharge on British imports and its imposition of arbitrary customs valuations, both of which were imposed following the UK's abandonment of the gold standard (Eichengreen and Irwin, 2010). More substantively, it pledged no changes for those goods already enjoying preferential treatment and an improvement in the terms of preference for over 200 British goods. Compared to the relatively scant 900 line-items in its tariff code, this easily represented the most important concession to the UK. Canada affected similar changes—or at least, maintenance—of rates of preferential treatment in its agreements with the rest of the British Empire.

With such potentially far-reaching changes in commercial policy, especially with respect to the UK market, the cause of Imperial trade seemed poised for a turn for the better. Indeed, even a very casual glance at Figures 1a and 1b reveals a significant reversal in Canadian trade volumes almost immediately following the enactment of the provisions of the Ottawa Conference in November 15, 1932. Thus, a very historically uninformed opinion might ascribe a primary role for the Ottawa Conference in reviving the fortunes of Canadian trade in this period. Of course, a number of conflating factors arose in the meantime such as the global recovery in GDP from 1933 and the perhaps-related abandonment of the gold standard by the US in the same year. Further ambiguity was introduced by Canada's relatively quick "retreat from protectionism" and its subsequent ratification of reciprocal trade agreements with the United States in 1935 and 1938 (O'Brien and McDonald, 2009). So, the question remains: did the Imperial Economic Conference actually serve to boost the growth of imperial trade over and beyond that of non-imperial nations? And even if successful in this regard, did it matter, citing the overwhelming importance of the US market? If not, what were the sources of its failure? The following sections seek to directly address these questions with a consideration of the data used throughout being the first point of order.

III. Data

The primary source used in this study is the Dominion Bureau of Statistics' *Monthly Report of the Trade of Canada* from January 1925 to December 1927 and *Quarterly Report of the Trade of Canada* from January 1928 to December 1939. Publication of these series began in 1894 and continues—albeit under a different name—to this day. Obviously, this tremendous data collection over so many years simply reflects the importance of the external sector to the Canadian economy as well as official recognition of this fact from early on.

That being said, the coverage of the bilateral trade data is uniquely wide across the commodity and country spectrum for this era. The dataset encompasses nine broad commodity classifications: Agricultural and Vegetable Products; Animals and Animal Products; Fibres, Textiles, and Textile Products; Wood, Wood Products, and Paper; Iron and Its Products; Non-Ferrous Metals and Their Products; Non-Metallic Minerals and Their Products; Chemicals and Allied Products; and Miscellaneous Commodities.³ Figures for total bilateral exports and imports are separately reported which correspond with the sum across the nine commodity classifications. In 1925, the dataset records Canadian exports and imports with 99 trading partners; this figure rises to 119 nations by 1939. Figures 3 and 4 graphically summarize the geographic spread of the sample, making it clear that the dataset spans the near universe of possible trading partners. All told, the sources allow for 179,154 unique monthly observations on Canadian exports and imports from January 1925 to December 1939, of which this paper only exploits *a relatively small percentage*⁴ due to the identification strategy detailed below and the

³ Appendix I details the principal goods contained in each commodity classification.

⁴ The final dataset contains 205,090 monthly observations on Canadian exports and imports which include both totals across commodity classifications as well as totals across geographic units such as the British Empire. In the majority of cases, the data collection process was straightforward (if mind-numbing). However, the beginning of the fiscal year in April 1936 marked a significant departure from former reporting standards. At this time, the Dominion Bureau of Statistics continued to publish monthly bilateral figures for aggregate exports and imports but stopped publishing the equivalent monthly bilateral figures for the nine commodity classifications, substituting quarterly figures instead. In order to maintain comparability with the data for earlier periods, this quarterly data was transformed into monthly data by calculating the product of the monthly bilateral figures for aggregate exports and imports and the quarterly shares of each commodity classification in aggregate exports and imports on a country-by-country basis. Thus, Canadian exports of agricultural and vegetable products to the United Kingdom in April 1936 was estimated as

decision to aggregate the raw data up to the *quarterly* level. Lacking monthly or quarterly data on export and import prices disaggregated across commodities, all bilateral trade data have been deflated by the Statistics Canada monthly wholesale consumer price index reported in the Global Financial Database and the summed up across quarters.⁵

To gain a broader perspective on the composition of Canadian trade and its changes over time, Figures 5a and 5b consider Canadian export and import shares by region on an annual basis from 1925 to 1939. In Figure 5a, the clearest pattern for Canadian exports is the continuing jockeying of position between the United Kingdom and the United States. A slight lead on the part of the United Kingdom in 1925 is whittled away until 1930 when the share of the United States crests. Another reversal in the United Kingdom's favor occurs in 1932 which, in turn, is reversed in 1936. As to other regions, there is a clear decline in the European share dating from 1928 or 1932 at the latest, a clear (but less visible) increase in the share of the rest of the British Empire from 1933, and no clear trend in the shares of Asia or Latin America. In Figure 5b, the dominance of the United States as a source of Canadian imports is without question as its share stood on average 3.5 times greater than that of the United Kingdom, its closest competitor. At the same time, it demonstrates a fair degree of variation as the series for the United Kingdom and the

$$(1) \widehat{Exports}_{April,1936}^{UK,Ag\&Veg} = Exports_{April,1936}^{UK} * \frac{Exports_{Q1\ 1936}^{UK,Ag\&Veg}}{Exports_{Q1\ 1936}^{UK}}$$

In order to gauge the appropriateness of this approach, two simple diagnostics were employed. First, the estimated figures by commodity and country were summed up across countries and were then compared to monthly aggregate figures for exports and imports for the nine commodity categories which were reported from April 1936 to December 1939. In this case, the correlations between the reported and constructed series were 0.9972 and 0.9996 for exports and imports, respectively. Second, the same methodology of transforming quarterly into monthly trade data was followed for the fiscal year, 1935-1936, the last fiscal year for which monthly bilateral trade flows by commodity were actually reported. The estimated figures were then compared to the recorded values for this year. In this case, the correlations between the reported and constructed series were 0.9990 and 0.9998 for exports and imports, respectively. These results, thus, leave little doubt that the approach proposed above is appropriate.

⁵ The Dominion Bureau of Statistics (1949) does report price indices for exports and imports in aggregate and across eight commodity classifications (Agricultural and Vegetable Products and Animals and Animal Products are combined together in this instance) for the years from 1926 to 1939. Substituting the annual, but disaggregate price indices for the monthly, but aggregated ones does not materially affect the results presented here. Tables 4a and 4b later demonstrate this fact by replicating the main tables of the paper.

United States reach their respective trough and peak in 1929 and their respective peak and trough in 1933. Indeed, the symmetry between the two is nothing short of remarkable. As to other regions, the same pattern as for exports emerges again: a declining share for Europe, a (much more visible) rise for the rest of the British Empire, and a lack of trend for Asia and Latin America. Underlying all of these series is a decided lack of a sharp discontinuity in 1932, suggesting that any potential effects of the Ottawa conference were decidedly muted.

Likewise, Figures 6a and 6b consider Canadian export and import shares by commodity on an annual basis from 1925 to 1939. In Figure 6a, there are clear patterns in export shares with respect to the aforementioned secular decline in agricultural goods and the maintenance of the animal products, iron products, and paper and wood categories. However, the most striking pattern is the dramatic climb of non-ferrous metal products, a climb which through fits and starts saw a clear inflection point in 1932, arriving in 1939 as a close second to the agricultural sector in its share of Canadian exports (0.2340 versus 0.2327). Less clear was the near doubling of the contributions arising from the chemical products, fibres and textiles, miscellaneous, and non-metallic mineral product categories, yet these sectors combined still accounted for a little less than 10% of Canadian exports in 1939. With respect to import shares, Figure 6b first demonstrates the greater balance of import versus export shares across commodity categories: at no point does a single category exceed 27% of Canadian imports. Like the export shares, there are secular declines in the agricultural and fibre and textile categories while iron products reaches a successive peak and trough in 1929 and 1932, likely reflecting the retreat of American imports documented in Figure 5b above. We see the obverse pattern of trough and peak in 1929 and 1932 for the chemicals, miscellaneous, and non-metallic mineral product categories.

Considering developments in intra-industry trade, Figure 7 depicts the Grubel-Lloyd index by commodity category. This is simply calculated as

$$(2) \text{GLI}_i = 1 - \frac{|\text{Exports}_i - \text{Imports}_i|}{\text{Exports}_i + \text{Imports}_i} * 100$$

and is interpreted as the fraction of total trade in a given commodity classification, i , which is accounted for by intra-industry trade (times 100). Here, apart from the dramatic decline in the index for non-ferrous metal products and the rise in the index for fibre and textiles, few striking patterns emerge, suggesting that more dramatic changes in the structure of Canadian industry and, thus, intra-industry trade awaited the post-World War II period.

Finally, Figures 8a and 8b depict changes in the extensive margin of Canadian bilateral trade over time by considering the share of commodity-country observations for which the source records a value of zero. Although for a few series in Figure 8a there is a slight rise in the number of zero observations around 1929, the clearest pattern is the downward trend in the various series. This is a pattern mirrored, albeit less forcefully, in Figure 8b for Canadian imports. Cumulatively, these two figures suggest that the effects of the Ottawa Conference—and indeed all similar commercial policy innovations—are most likely to be found in changes in the intensive margin of bilateral trade during this period.

IV. Empirics

Again, the primary questions motivating this study are the following. Did the Ottawa Conference actually serve to boost the growth of imperial trade over and beyond that of non-imperial nations? And even if successful in this regard, did it matter, citing the overwhelming importance of the US market? If not, what were the sources of its failure?

The most straightforward way to proceed is to note that bilateral trade flows are typically described by an equation like the following:

$$(3) x_{ijt} = G_t M_i^{ex} M_j^{im} \phi_{ijt}.$$

The first term represents exports from country i to country j at time t while the second term is a common time-specific factor determining trade. The third and fourth terms are indices of the attributes of exporter i and importer j , respectively, which are potentially time-varying. The final term represents factors which directly affect bilateral trade intensity. Thus, bilateral trade is a function of factors common to all countries, factors within particular countries such as size and productivity, and factors specific to country-pairs. It is these last country-pair specific factors which will be of particular interest here as they are thought to capture the bilateral trade costs facing countries. Trade costs are all the costs of transaction and transport associated with the exchange of goods across national borders. Broadly defined, they include obvious barriers such as tariffs and transport costs but also many other barriers that are more difficult to observe such as the costs of overcoming language barriers and exchange rate risk. For our purposes, we wish to determine the degree to which the Ottawa Conference served to first lower bilateral trade costs between its signatories and then raise bilateral trade flows in the same *over and beyond that of non-signatories*.

As a first step, a seemingly appropriate identification strategy is to make use of a simple difference-in-differences specification, such that year-on-year observations on bilateral trade *in two quarters* are pooled:

$$(4) \ln(x_{ijt}) = \beta_i + \beta_j + \beta_1 * T + \beta_2 * T * Ottawa_{ij} + \varepsilon_{ijt}.$$

Here, T is an indicator for time which is common to all country-pairs and $Ottawa$ is an indicator for whether a particular Canadian trading partner was a signatory at the Ottawa Conference.⁶ Note that this specification necessarily assumes that any annual changes in other bilateral trade cost elements (e.g., maritime freight rates) are uncorrelated with $Ottawa$. Likewise, it assumes there is no change in the attributes of exporter i and importer j . This last assumption is the stronger of the two, and in later sections, we address this issue head-on by exploring a much more exacting specification.

Another issue which arises is the appropriate means for estimating gravity equations such as (4). It has long been noticed that this particular specification presents a problem in the presence of bilateral trade observations which are zero. The most common solutions have been either to employ a Tobit estimator or transform the dependent variable into $\ln(1 + x_{ijt})$ and run OLS (otherwise known as scaled OLS). Recently, Santos Silva and Tenreyro (2006) have argued that in the presence of heteroskedasticity such estimators are biased and inconsistent. Instead, they argue for the estimating (4) in its multiplicative form by use of a Poisson pseudo-maximum-likelihood (PPML) estimator. They demonstrate that in simulations the PPML estimator performs markedly better than either the scaled OLS or Tobit estimator as well as argue that their estimation technique does a superior job of handling zero observations. These claims have also been corroborated for data from the interwar period (Ritschl and Wolf, 2011), suggesting that the use of the PPML estimator on bilateral trade *levels* (as opposed to logs) is a suitable way forward.⁷

Finally, this paper fully exploits the multiple dimensions of the dataset by distinguishing between Canadian bilateral exports and imports, by exploring systematic differences across commodity classifications and aggregates, and by considering year-on-year changes in trade

⁶ Thus, Australia, India, the Irish Free State, New Zealand, Newfoundland, South Africa, Southern Rhodesia, and the United Kingdom would be assigned a value of one for $Ottawa$.

⁷ Appendix II replicates the main regressions of the paper variously using the PPML, scaled OLS, and Tobit estimators. The results there are strongly supportive of the PPML estimator.

volumes for given quarters corresponding to the announcement of the Ottawa Conference on November 23, 1931 (Q4 1931), the announcement of its results on August 15, 1932 (Q3 1932), and the enactment of its provisions on November 15, 1932 (Q4 1932). The rationale for using different starting points is that firms, in anticipation of the results at Ottawa, may have entered new markets in an attempt to gain market share in the future. Tables 1a and 1b report the coefficients for T and its interaction with *Ottawa*. In this framework, the coefficient on T is interpreted as the growth rate shared in common by all countries. The coefficient on $T * Ottawa$ is then the differential growth in Canadian bilateral exports or imports with signatories of the Ottawa Conference which is observed at the end of the period.

Thus, the cell in the upper-left hand corner of Table 1a reports the results of estimating equation (4) for Canadian exports of Agricultural and Vegetable Products, pooling the observations for the fourth quarters of 1931 and 1932 and, thus, representing the export trade with 117 countries. Likewise, the cell in the lower-right hand corner of Table 1a reports the results of estimating equation (4) for total Canadian exports, pooling the observations for the fourth quarters of 1932 and 1933 and, thus, representing the export trade with 118 countries.⁸ In the latter case, the respective coefficient values of 0.1864 and 0.0105 for T and $T * Ottawa$ suggest that in the fourth quarter of 1933 Canadian exports to all other countries of the world grew on average by 20.5% from the fourth quarter of 1932 while Canadian exports to signatories at Ottawa grew on average by 21.8% for the same period. However, while the indicator variable for T is highly statistically significant, the interacted term proves to be grossly statistically insignificant.

A few conclusions from Table 1a are clearly forthcoming. First, the data demonstrates a wide range of potential effects arising from the Ottawa conference across commodities. For instance, the Animals and Animal Products category registers a 24.3% increase in Canadian exports to signatories in the period from the fourth quarter of 1931 while the Chemicals and Allied Products category registers a 38.8% decline in the same period. Large differences such as these arise for almost period, perhaps naturally reflecting the differential size and impact of the concessions agreed to at Ottawa. Second, even for all this heterogeneity across commodities, the

⁸ The discrepancy in the country count arises from the fact that Canadian bilateral trade with Afghanistan only began to be reported in April 1932.

results for each product category tell a consistent story when considered as a whole. Thus, the positive coefficients on the interaction between T and *Ottawa* in the second column for Animals and Animal Products, Miscellaneous Commodities, Non-Ferrous Metal Products, Non-Metallic Mineral Products, and Paper and Wood are consistent with the large and statistically significant coefficient estimated for Total Merchandise Exports from Q4 1931 to Q4 1932. Finally and most importantly, even for all this consistency within years, the results for total exports suggest that a potential differential growth effect for the announcement of the Ottawa conference (+41.6% in between Q4 1931 and 1932) quickly petered out for the period between Q4 1932 and 1933 when the differential growth effect stood at a meager (and statistically insignificant) +1.1%.

With respect to Canadian imports, Table 1b corroborates the results above. Estimates of the $T * Ottawa$ interaction widely vary across commodities, but tell a consistent story within periods. Furthermore, they point to the steady decline in any potential differential growth effect of the Ottawa conference from the time of its announcement (+40.1%), from the announcement of its results (+22.9%), and from the enactment of its provisions (+3.2%). Cumulatively, these results suggests that the Ottawa Conference was somewhat of a failure in that the cause of Canadian trade with the rest of the Empire seems to have been furthered little in its wake. Identifying the sources of this failure as well as placing the results in a broader context is the objects of the final sections. In what immediately follows, the results presented in Tables 1a and 1b are subjected to a number of robustness exercises.

Robustness: Incorporating Different Time Horizons

A potential objection concerning the preferred specification is that it only incorporates changes in bilateral trade flows for one particular interval length, namely one year, from the beginning of the policy innovation. Lacking any formal model or historical precedent, the choice of a 4 quarter lag may seem arbitrary. To this end, the relevant comparison over time was extended to include changes over 1, 2, 3, 5, 6, 7, 8, 9, 10, 11, and 12 quarters. The results for exports and imports are reported in Table 2a and 2b, respectively. Table 2a demonstrates a high degree of correspondence with Table 1a: a potentially strong effect from the announcement of the conference as seen in the second column gives way to a decided lack of results dating from the announcement or enactments of its provisions (indeed, the only statistically significant results in the fourth and sixth columns would suggest a negative effect of the Ottawa conference on

Canadian exports to the other signatories). As to Table 2b, the results are decidedly more mixed. Again, the strong, positive effects of the conference on Canadian imports from the signatories dating from the time of its announcement emerges whereas there is decidedly less potential impact dating from the announcement of its results. However, the clearest divergence between Tables 1b and 2b emerges from the sixth column in which the positive, but statistically insignificant effect on Canadian imports dating from the enactment of the conference's provisions turns decidedly negative and statistically significant at all intervals greater than six quarters out (i.e. after Q2 1934). If anything, these results cast further doubt on the efficacy of the Ottawa Conference in promoting intra-imperial trade.

Robustness: Incorporating the Greater British Empire

Naturally, the working definition of Empire used throughout has been a fairly narrow one: it includes only the signatories of bilateral trade agreements with Canada at or around the time of the Ottawa Conference, a fairly slim seven dominions and non-dependent colonies plus the United Kingdom. Perhaps a broader and more historically accurate definition of the British Empire would change the results. This could be so for a number of reasons. First, the Ottawa Conference entailed numerous provisions which affected the dependent colonies of the British Empire. At the same time, it almost certainly heightened awareness of the ongoing "Buy Empire" campaign (Rooth, 1993). Broadening the definition of the British Empire used increases the number of countries under consideration from 8 to 35, or roughly one-third of the sample. The results of this exercise are reported in Table 3. Again, the patterns initially established in Tables 1a and 1b hold: a potentially strong effect for both exports and imports from the announcement of the conference (+40.4% and +32.1%, respectively) gives way to decidedly mixed results dating from the announcement of its provisions (-15.3% and +17.7%, respectively), and quantitatively small as well statistically insignificant effects from the enactment of its provisions (-0.1% and +2.6%, respectively).

Robustness: Incorporating Different Price Indices

As mentioned previously, all bilateral trade data have been deflated by the Statistics Canada monthly wholesale consumer price index reported in the Global Financial Database.

Although unlikely given the amount of variation in the nominal bilateral trade series themselves, the common trend in this series could potentially impart a bias to the estimates. The Dominion Bureau of Statistics (1949) reports annual price indices for exports and imports in aggregate and across eight commodity classifications (Agricultural and Vegetable Products and Animals and Animal Products are combined together in this instance) for the years from 1926 to 1939. Thus, in Tables 4a and 4b we substitute the annual, *but disaggregate* price indices for the monthly, *but aggregate* price index used in our preferred specification. Again, this exercise does not materially affect the results: apart from some minor and expected changes in the value of coefficients, the same patterns of sign and significance emerge.

Robustness: Incorporating Multilateral Resistance

In recent years, one of the strongest conclusions to have emerged from the extensive literature on the gravity equation is that precise inference relies upon a proper treatment of so-called multilateral resistance (Anderson and van Wincoop, 2003). The best way to think of this is as an unobserved average trade barrier effect which may potentially bias any estimates of the effects of changes in bilateral trade costs. That is, there may have been either countervailing or reinforcing changes in the bilateral trade costs separating other countries *from one another* which accompanied any potential reduction in Canadian bilateral trade costs attendant upon the Ottawa Conference, e.g., the rise in German quantitative restrictions on American goods in 1932.

With respect to the terms of equation (3), the solution is straightforward in that the exporter and importer effects are now time-varying:

$$(5) x_{ijt} = G_t M_{it}^{ex} M_{jt}^{im} \phi_{ijt}.$$

With respect to the data at hand, however, this is problematic in that we only observe Canadian bilateral trade and, thus, every observation would exactly correspond with the time-varying exporter or importer fixed effects. One way forward is to combine the Canadian trade data with equivalent data from the US. The necessary data is drawn from the Bureau of the Census's *Monthly Summary of Foreign Commerce of the United States* which reports monthly US bilateral exports and imports and which is first translated into Canadian dollars using the monthly bilateral exchange rate, then deflated using the Canadian monthly consumer price index, and finally aggregated to the quarterly level. These figures are then joined with the relevant Canadian trade data, allowing for 95 precise country matches.

In this case, we must augment the benchmark difference-in-differences specification to allow for any differential growth in Canadian versus US trade with signatories at the Ottawa conference. The resulting difference-in-difference-in-differences (DDD) specification pools observations on Canadian and US bilateral trade in two periods:

$$(4) \ln(x_{ijt}) = \beta_{it} + \beta_{jt} + \beta_1 * Ottawa_{ij} + \beta_2 * Canada_{ij} + \beta_3 * Ottawa_{ij} * Canada_{ij} + \beta_4 * T + \beta_5 * Ottawa_{ij} * T + \beta_6 * Canada_{ij} * T + \beta_7 * Ottawa_{ij} * Canada_{ij} * T + \varepsilon_{ijt}.$$

Here, *Ottawa* is an indicator for whether a particular bilateral pair includes a signatory at the Ottawa Conference, *Canada* is an indicator for whether a particular bilateral pair includes Canada, and *T* is an indicator for time which is common to all country-pairs. The coefficient of interest in this case will be the seventh beta which indicates *the degree to which Canada's bilateral trade with signatories at Ottawa changed at a differential rate than that of US bilateral trade with the same at the end of the period*. Again, the PPML estimator is used throughout.

It should also be re-emphasized that this particular specification controls for *all country-specific, but time-variant unobserved variables* in particular GDP and the level of the nominal exchange rate. As such, this is by far the most exacting specification available to test for any effects of the Ottawa Conference on Canadian bilateral trade flows. The results are reported in Table 5 below. The coefficients associated with *Ottawa * Canada * T* repeat a familiar pattern: positive and strongly statistically significant for the period from the announcement of the conference while no clear results are forthcoming for the periods corresponding to the announcement and enactment of its provisions. Thus, the degree to which the Ottawa Conference altered the pattern of Canadian exports and imports in any meaningful sense remains very much in doubt.

V. Putting the Ottawa Conference in Perspective

Although this paper represents one of the most rigorous assessments of the Ottawa Conference, it is far from the first to have considered its likely effects. Apart from the more narrative-based, contemporary accounts (cf. Lattimer, 1934; MacKay, 1932; Potter, 1932), one of the first attempts at a true quantitative assessment came from Macdougall and Hutt (1954). They are generally of the opinion that the system of preferences introduced at Ottawa and articulated in the intervening twenty years did serve to promote intra-imperial trade. However,

they also recognize that any potential identification is confounded by other developments. And in the intervening fifty-plus years, there still seems to be little consensus on the issue.

On one side of the debate, Kindleberger (p. 178, 1989) resolutely claims that the conference was “no great success” in that it engendered “endless discussion” and “dissatisfaction on all parts” but little in way of tangible results. This view is corroborated in contemporary accounts which highlight problems related to adjusting and interpreting the conference’s many clauses (Toynbee, 1935). However, the empirical basis of Kindleberger’s claims remains unclear. Others such as Glickman (1947), Marcus (1954), and Safarian (1970) have just as resolutely claimed beneficial effects on a similarly thin body of data. A slightly more nuanced and data-informed view arose with Capie (1983) who argues for a noted rise in intra-Empire trade which predated 1932 and which could be detected in the aggregate data from as early as the 1870s. At the same time, he allows for the possibility that the Ottawa Conference served to reinforce this trend. This view was first corroborated by Kitson and Solomou (1991) who found that the rate of increase of the share of the Empire in British trade seemed to have increased in the 1930s. Even stronger evidence emerged from Eichengreen and Irwin (1995) in a consideration of bilateral trade flows for 34 countries taken from 1928, 1935, and 1938. They find an increase in the value of the coefficient for trade within the British Commonwealth in a standard gravity framework from 1928 to 1935. Furthermore, the difference is found to be statistically significant. Given the wide span of years separating these dates, it is not at all obvious whether this was a consequence of the Ottawa Conference itself or the entrenchment of deep commercial, financial, and monetary linkages within the Empire in the face of a disintegrating world economy, a point which Eichengreen and Irwin carefully acknowledge and which Ritschl and Wolf (2011) confirm.

Part of the confusion with respect to the effects of the Ottawa Conference is perhaps derived from the more fundamental confusion of what its purposes really were. From the perspective of the British, it has been argued that the negotiations and generous concessions, while geared towards the short-term goal of trade creation, also had an eye towards the long-run goal of substituting the British Empire for global markets (Boyce, 2010). From the perspective of Canada and the other Dominions, gaining enhanced access to the UK market was clearly one of their more immediate objectives. But whether this reflected a desire to somehow replace the UK for the US as the primary destination for Canadian exports or more modestly to return Canadian

exports to their pre-1930 levels is unclear (O'Brien and McDonald, 2009). Regardless of what their long-run aspirations were, however, all signatories hoped that the concessions agreed to in Ottawa would significantly lower trade costs among them.

In this respect, it is possible to gauge whether expectations of significant trade cost declines were even reasonable. Jacks *et al.* (2011) use the following gravity equation which is consistent with a large number of leading theories of international trade,

$$(10) x_{ij}x_{ji} = x_{ii}x_{jj} \left(\frac{t_{ij}t_{ji}}{t_{ii}t_{jj}} \right)^{1-\sigma},$$

and where the product of bilateral exports is a function of two terms. The first term is the product of domestic trade, that is, how much a country in effect trades with itself. The second term is the product of two trade cost ratios which represent the extent to which bilateral trade costs exceed domestic trade costs. Finally, σ is the elasticity of substitution between domestic and foreign goods. By calculating the logarithm of this expression and taking its first difference, it becomes possible to decompose the growth in bilateral trade into four components: the contribution of output growth, the contribution of changes in income similarity, the contribution of changes in trade costs, and the contribution of changes in multilateral factors.

Thus, *assuming all else constant*, the relationship between bilateral exports and bilateral trade costs is given by

$$(11) \Delta \ln(x_{ij}x_{ji}) = 2(1 - \sigma)\Delta \ln(1 + \tau_{ij}).$$

This implies that, given conditions in August 1932 and a value of 8 for sigma, trade costs would have needed to decline by a sizeable 9.5% to return Canada-UK bilateral trade to its August 1929 level.⁹ Likewise, trade costs would have needed to decline by an astounding 38.7% in order for Canada-UK bilateral trade to reach the August 1929 level of Canada-US bilateral trade. To put these figures in perspective, bilateral trade costs between Canada and the UK fell by 13.0% *for the entire period* from 1870 to 1913, a time of rapidly declining communication and

⁹ Canadian real exports to the UK stood at \$185,293,223 while Canadian real imports from the UK stood at \$152,224,105 in August 1929. Canadian real exports to the UK stood at \$185,090,732 while Canadian real imports from the UK stood at \$79,123,309 in August 1932. Canadian real exports to the US stood at \$411,059,720 while Canadian real imports from the US stood at \$632,077,286 in August 1929. Finally, the Canadian-UK bilateral trade cost in 1932 was equal to 0.9208. All that remains is to calculate for the hypothetical value for the bilateral trade cost in equation (10).

transportation costs and significant change in the institutions surrounding world trade (Jacks *et al.*, 2010). Clearly, such declines represent overly ambitious, if not audacious, expectations on the downward trajectory of trade costs following the Ottawa Conference.

VI. Conclusion

This paper has explored the effects of the Imperial Economic Conference of 1932, particularly in the context of subsequent Canadian bilateral export and import performance. The results have not been particularly kind to the traditional literature which has held that the conference promoted the cause of imperial trade, at least from the Canadian perspective. Across commodities, across exports and imports, across different time horizons, across alternative transformations of the data, and across different specifications, we identify few economically and statistically significant effects of the conference in the extensive bilateral trade data at hand. Indeed, the data suggest that any hopes of recovering the ground lost from 1929 were wedded with unrealistic expectations as to the efficacy and limits of commercial policy.

The paper has also highlighted the asymmetric nature of the forces shaping North American economic history, as seen in the trading relation between Canada and the United States. Although the former is dominated by the latter, especially with respect to commercial policy, the experience of the years from 1929 to 1932 demonstrated the utter folly of either country attempting to “defy gravity” and sever the links of capital and trade which had served to not only deepen the division of labor between them but also enhance their joint material well-being. In this sense, the paper has implicitly invoked the perennial dilemma of small-to-medium sized economies in tying their fortunes to a dominant trade partner and suffering at their whim or going it alone and thereby foregoing potential productivity and welfare gains. Likewise, the paper has served as a reminder that there seems to have been at least some lessons learned from economic history, particularly in the context of commercial policy. And nowhere can this be seen more clearly than in the recent experience surrounding the second great trade bust of the past century: at no time did the Canadian commitment to free trade seriously waver in the past few years.

At the same time, the paper opens a number of issues. One of the most glaring of which is that we still lack a complete quantitative assessment of the forces which were responsible for the collapse of world trade from 1929 to 1933 and which provided the backdrop to the developments

at Ottawa. Pet theories abound, but even eighty years on, not enough work has been done in systematically relating changes in the various policy, transaction, and transport frictions as well as global output in driving the trade bust. Apart from antiquarian interests, this episode is important in that it represents one of the few *documented* and generalized trade collapses in world history. What is more, the mechanisms seemingly at work in the case of Canadian bilateral trade in this period suggest there may be some here-to-fore unexplored forces to be considered.

First is the role of certainty over the likely course of commercial policy in the decision set of exporters and importers alike. Leo Amery was almost certainly correct in his prognosis that “unless the manufacturers and farmers of the Empire have some definite assurance they cannot embark on any policy of development...who is going to build a railway or develop a port on the assurance of an export trade, the conditions of which may be destroyed before the building is finished?” (1932, p. 687). Given the present-day evidence on the necessary role of beachhead activity by exporting firms and the existence of substantial fixed costs to trading activity (Bernard et al., 2007), such concerns are likely to have been a critical element holding back the re-orientation of Canadian trade in this period. This is especially true in light of the fact that informational barriers to trade have almost certainly fallen over time.

Second, and relatedly, is the role of credibility in maintaining any set of provisions linked to commercial policy. In this respect, the question becomes whether or not the Canadian commitment to re-orienting its trade away from the United States and towards the rest of the British Empire was credible. Of course, developments over the past eighty years suggest not. However, even contemporary accounts seemed doubtful on this front (“Afterthoughts on the Conference”, 1932; “An Ottawa Impression”, 1932). This situation was not improved when from as early as January 1933 Canadian Prime Minister Bennett opened the door to trade negotiations with the United States, remarking before the Toronto Board of Trade that “geographically, we are part of the North American continent...and it gives me no joy to remind you also that financially it is in the same position” (quoted in O’Brien and McDonald, 2009, p. 352). Clearly, from the perspective of firms engaged in international trade, the official Canadian position of defying the inexorable pull exerted by the combined economic mass and proximity of the US was untenable. The subsequent re-orientation towards the US in its commercial policy was, therefore, likely expected.

Finally, a thread of analysis which is prominent in accounts from the 1930s but which has been successively played down through time is the role of endogenous changes in consumer taste. It is standard in much of the literature to assume that some degree of home bias in international trade exists. It is also standard to assume that this bias is constant. The experience of the interwar period suggests that unobserved changes in home (or in this case, imperial) bias brought about by the radical changes in commercial policy may have significantly altered the orientation of world trade in this period. Frieden (2006) and Irwin (2011) both present some compelling examples of the worldwide consumer response to US goods in the wake of Smoot-Hawley. Generalizing this response and framing it within the context of standard models of consumer demand as well as incorporating the aforementioned elements of certainty and credibility remain promising ways forward for assessing the forces driving the collapse and re-orientation of trade, both in the past and present.

References

- “Afterthoughts on the Conference.” *The Economist*. September 24, 1932.
- Alessandria, George, Joseph P. Kaboski, Virgiliu Midrigan. “The Great Trade Collapse of 2008-09: An Inventory Adjustment?” *NBER Working Paper 16059*, 2010.
- “An Ottawa Impression.” *The Economist*. September 3, 1932.
- Amery, Leo S. “The Imperial Economic Conference.” *International Affairs* 11, no. 5 (1932): 678-699.
- Anderson, James E. and Eric van Wincoop. “Gravity with Gravitas: A Solution to the Border Puzzle.” *American Economic Review* 93, no. 1 (2003): 170-192.
- Baldwin, Robert. “U.S. Trade Policy since 1934: An Uneven Path toward Greater Trade Liberalization.” *NBER Working Paper 15397*, 2009.
- Bems, Rudolfs, Robert C. Johnson, Kei-Mu Yi. “The Role of Vertical Linkages in the Propagation of the Global Downturn of 2008.” Dartmouth College, 2010.
- Bernard, Andrew B., J. Bradford Jensen, Stephen J. Redding, and Peter K. Schott. “Firms in International Trade.” *Journal of Economic Perspectives* 21, no. 3 (2007): 105-130.
- Boyce, Robert. “The Significance of 1931 for British Imperial and International History.” *Histoire@Politique* 11, no. 2 (2010).
- Bureau of the Census. *Monthly Summary of Foreign Commerce of the United States*. Washington: Government Printing Office, various years.
- Capie, Forrest. *Depression and Protectionism: Britain between the Wars*. London: George Allen and Unwin Limited, 1983.
- Chor, Davin and Kalina Manova. “Off the Cliff and Back? Credit Conditions and International Trade during the Global Financial Crisis.” *NBER Working Paper 16174*, 2010.
- “Commonwealth: Imperial Conference.” *Time*. July 25, 1932.
- Conybeare, John. “Trade Wars: A Comparative Study of Anglo-Hanse, Franco-Italian, and Hawley-Smoot Conflicts.” *World Politics* 38, no. 1 (1985): 147-172.
- Dominion Bureau of Statistics. “Export and Import Price Indexes 1926-1948.” *D.B.S. Reference Papers no. 5*, 1949.
- Dominion Bureau of Statistics. *Monthly Report of the Trade of Canada*. Ottawa: F.A. Acland, various years.
- Dominion Bureau of Statistics. *Quarterly Report of the Trade of Canada*. Ottawa: F.A. Acland, various years.
- Drummond, Ian M. *British Economic Policy and the Empire, 1919-1939*. London: George Allen and Unwin Limited, 1972.
- Eaton, Jonathan, Sam Kortum, Brent Neiman, and John Romalis. “Trade and the Global Recession.” *NBER Working Paper 16666*, 2010.
- Eichengreen, Barry and Douglas A. Irwin. “Trade Blocs, Currency Blocs and the Reorientation of World Trade in the 1930s.” *Journal of International Economics* 38, no. 1 (1995): 1-24.
- Eichengreen, Barry and Douglas A. Irwin. “The Slide to Protectionism in the Great Depression: Who Succumbed and Why?” *Journal of Economic History* 70, no. 4 (2010): 871-897.
- Estevadeordal, Antoni, Brian Frantz, and Alan M. Taylor. “The Rise and Fall of World Trade, 1870–1939.” *Quarterly Journal of Economics* 118, no. 2 (2003): 359-407.
- Frieden, Jeffrey. *Global Capitalism: Its Fall and Rise in the Twentieth Century*. New York: W.W. Norton, 2006.
- Glickman, David L. “The British Imperial Preference System.” *Quarterly Journal of Economics* 61, no. 3 (1947): 439-470.

- Hart, Michael. *A Trading Nation: Canadian Trade Policy from Colonialism to Globalization*. Vancouver: University of British Columbia Press, 2002.
- Head, Keith, Thierry Mayer, and John Ries. "The Erosion of Colonial Trade Linkages after Independence." *Journal of International Economics* 81, no. 1 (2010): 1-14.
- Hynes, William, David S. Jacks, and Kevin H. O'Rourke. "Commodity Market Disintegration in the Interwar Period." Forthcoming in *European Review of Economic History*, 2011.
- Irwin, Douglas A. *Peddling Protectionism: Smoot-Hawley and the Great Depression*. Princeton: Princeton University Press, 2011.
- Jacks, David S., Christopher M. Meissner, and Dennis Novy. "Trade Costs in the First Wave of Globalization." *Explorations in Economic History* 47, no. 2 (2010): 127-141.
- Jacks, David S., Christopher M. Meissner, and Dennis Novy. "Trade Booms, Trade Busts, and Trade Costs." *Journal of International Economics* (2011).
- Kindleberger, Charles P. "Commercial Policy between the Wars." In *The Industrial Economies: The Development of Economic and Social Policies*. Edited by Peter Mathias and Sidney Pollard. Cambridge: Cambridge University Press, 1989.
- Kitson, Michael and Solomos Solomou. "Trade Policy and the Regionalization of Imports in Interwar Britain." *Bulletin of Economic Research* 43, no. 2 (1991): 151-168.
- Kottman, Richard N. "Herbert Hoover and the Smoot-Hawley Tariff: Canada, A Case Study." *Journal of American History* 62, no. 3 (1975): 609-635.
- Lattimer, John E. "The Ottawa Trade Agreements." *Journal of Farm Economics* 16, no. 4 (1934): 565-581.
- Levchenko, Andrei A., Logan T. Lewis, and Linda L. Tesar. "The Collapse of International Trade during the 2008-2009 Crisis: In Search of the Smoking Gun." *NBER Working Paper 16006*, 2010.
- Macdougall, Donald and Rosemary Hutt. "Imperial Preference: A Quantitative Analysis." *Economic Journal* 64, no. 254 (1954): 233-257.
- MacKay, Robert A. "Imperial Economics at Ottawa." *Pacific Affairs* 5, no. 10 (1932): 873-885.
- Maddison, Angus. *The World Economy: Historical Statistics*. Paris: OECD, 2004.
- Madsen, Jakob B. "Trade Barriers and the Collapse of World Trade during the Great Depression." *Southern Economic Journal* 67, no. 4 (2001): 848-868.
- Marcus, Edward. *Canada and the International Business Cycle, 1927-1939*. New York: Bookman Associates, 1954.
- McDonald, Judith A., Anthony Patrick O'Brien, and Colleen M. Callahan. "Trade Wars: Canada's Reaction to the Smoot-Hawley Tariff." *Journal of Economic History* 57, no. 4 (1997): 802-826.
- O'Brien, Anthony Patrick and Judith A. McDonald. "Retreat from Protectionism: R.B. Bennett and the Movement to Freer Trade in Canada, 1930-1935." *Journal of Policy History* 21, no. 4 (2009): 331-365.
- Pomfret, Richard. "Trade Policy in Canada and Australia in the Twentieth Century." *Australian Economic History Review* 40, no. 2 (2000): 114-126.
- Potter, Pitman B. "The British Imperial Economic Conference." *American Journal of International Law* 26, no. 4 (1932): 811-813.
- Ritschl, Albrecht O. and Nikolaus Wolf. "Endogeneity of Currency Areas and Trade Blocs: Evidence from a Natural Experiment." *Kyklos* 64, no. 2 (2011): 291-312.
- Rooth, Tim. *British Protectionism and the International Economy: Overseas Commercial Policy in the 1930s*. Cambridge: Cambridge University Press, 1993.

- Rooth, Tim. "Retreating from Globalisation: The British Empire/Commonwealth Experience between the Wars." University of Portsmouth (2010).
- Safarian, A. Edward. "Trade and the Level of Economic Activity in Canada in the 1930's." *Canadian Journal of Economics* 18, no. 3 (1952): 336-344.
- Safarian, A. Edward. *The Canadian Economy in the Great Depression*. Toronto: McClelland and Stewart Limited, 1970.
- Santos Silva, J.M.C. and Silvana Tenreyro. "The Log of Gravity." *Review of Economics and Statistics* 88, no. 4 (2006): 641-658.
- Snyder, Richard C. "Commercial Policy as Reflected in Treaties from 1931 to 1939." *American Economic Review* 30, no. 4 (1940): 787-802.
- Taussig, Frank W. "The Tariff, 1929-30." *Quarterly Journal of Economics* 44, no. 2 (1930a): 175-204.
- Taussig, Frank W. "The Tariff Act of 1930." *Quarterly Journal of Economics* 45, no. 1 (1930b): 1-21.
- "The Imperial Economic Conference with Particular Reference to the United-Kingdom-Canada Agreement." *International Affairs* 13, no. 2 (1934): 245-252.
- Toynbee, Arnold J. *Survey of International Affairs 1934*. London: Humphrey Milford, 1935.

Appendix I

This appendix simply enumerates the principal goods in each of the commodity classifications introduced in section III. Although non-exhaustive, the list of goods in each sub-heading represents the majority of the value of trade therein. Note that in this instance the Agricultural and Vegetable Products and Animals and Animal Products categories are lumped together.

	<u>Exports</u>	<u>Imports</u>
Agricultural and other primary products	Apples; barley; oats; rye; wheat; oatmeal; wheat flour; fresh beef and veal; dress or undressed poultry; bacon and hams; cattle for improvement of stock; dairy cattle over 700 pounds; cattle over 700 pounds; cheese; condensed milk; evaporated milk; dried eggs; frozen eggs; eggs in shell; fresh cod fillets; fresh halibut; fresh lobster; fresh salmon; fresh whitefish; dried cod; canned sea herring; canned lobster; canned salmon; malt; maple sugar; whiskey; bright flue cured tobacco; undressed beaver skins; undressed black and silver fox; undressed mink; undressed muskrat; cattle hides and skins; sole leather; upper leather; linseed and flaxseed oil; alfalfa clover seed; hay.	Bananas; grapefruit; oranges, mandarines, etc.; dates; figs; prunes; raisings; dessicated coconut; green peanuts; shelled almonds; shelled walnuts; other shelled nuts; cabbage; carrots; onions; potatoes, other than seed; tomatoes; Indian corn; uncleaned rice; molasses; raw sugar for refining; cocoa beans, not roasted; butter; whale oil; edible gelatin; green coffee; black tea of Ceylon; black tea of India; whiskey; bright flue-cured tobacco; unstemmed cigar leaf; essential oil; palm oil; crude peanut oil; tallow; undressed muskrat fur; undressed Persian lamb fur; undressed rabbit fur; other undressed fur; raw calf skins and kips; raw cattle hides; raw sheep skins; hops; spirits of turpentine.
Fibres and textiles	Cotton fabric; raw wool; rayon and its products; bags and waste; binder twine; other textiles.	Raw cotton; cotton fabrics, bleached or dyed; unbleached cotton fabrics; wool in the grease; washed or second wool; worsted tops; yarns or warps for manufacture; worsted and serges; art-silk acetate yarn (singles); art-silk staple fibre; synthetic fabric; unbleached jute fabric; sisal, istle, and tampico fabric; rags and waste for manufactures; waste for wiping rags; oilcloth and floor linoleum.
Lumber, pulp, and paper	Douglas fir logs; telegraph poles; birch planks and boards; cedar planks and boards; Douglas fir; hemlock; pine; spruce; Douglas fir square timber; red cedar shingles; plywood; poplar pulpwood; other peeled pulpwood; other unpeeled pulpwood; sulphate woodpulp; bleached sulphite dissolving pulp; bleached sulphite paper pulp; unbleached sulphite strong pulp; unbleached sulphite news pulp; mechanical woodpulp; newsprint paper.	Oak; furniture; unbleached sulphite woodpulp; newspapers and periodicals; book and other paper.
Iron and steel and their manufactures	Ferro-manganese; ferro-silicon; steel and iron billets; ingots; and blooms; scrap; railway rails; locomotive and cars; agricultural implements; motor vehicles and parts; machinery and parts.	Iron ore; wrought scrap; hot rolled bars and billets; sheets 060 "and less thick"; sheets coated with tin; skelp; angle beams, 35 pounds and over; machinery and equipment; agricultural equipment; motor vehicles and parts; hardware and other manufactures.
Non-ferrous metals and their manufactures	Aluminum bars; ingots; and blooms; aluminum rods; sheets; and circles; fine copper; copper ingots; bars; and billets; copper rods; strips; and sheets; lead in pigs; nickel in matte; nickel in oxide; fine nickel; platinum in ore concentrates; silver in ore concentrates; silver bullion; zinc spelter; other manufactures (including clocks; watches; print and electrical equipment).	Bauxite ore; tin in blocks, pigs, and bars; manganese oxide.
Non-metallic minerals and their manufactures	Asbestos milled fibres; asbestos waste and refuse; bituminous coal; crude artificial abrasives;	Ground China clay; bricks and tiles; China tableware; anthracite coal, domestic sizes; anthracite smaller size; bituminous coal; coke; glass; crude petroleum for refining; gasoline, lighter than 8236 s.g.; natural casinghead gasoline; lubricating oils, 25 cents and over; Portland cement; silica sand; sulphur and brimstone.
Chemicals and fertilizers	Ammonium sulphate; phosphate fertilizer; other manufactured fertilizer; paints and paint materials; soda and sodium compounds; other miscellaneous chemicals.	Aniline dyes, 1 pound and over; quebracho extract; phosphate rock; crude muriate of potash; super-phosphate; acids, drugs, and pharmaceuticals; paints and paint material; sodium compounds; compounds of tetraethyl lead; ethylene glycol.
Miscellaneous	Crude rubber; rubber boots and shoes; tire casings; electrical energy; settlers' effects; donations and gifts; other.	Rubber; tire casings; vegetable and mineral wax; house furnishings; apparel.

TABLE A.1
PRINCIPAL GOODS ACROSS COMMODITY CLASSIFICATIONS
Source: Dominion Bureau of Statistics, 1949.

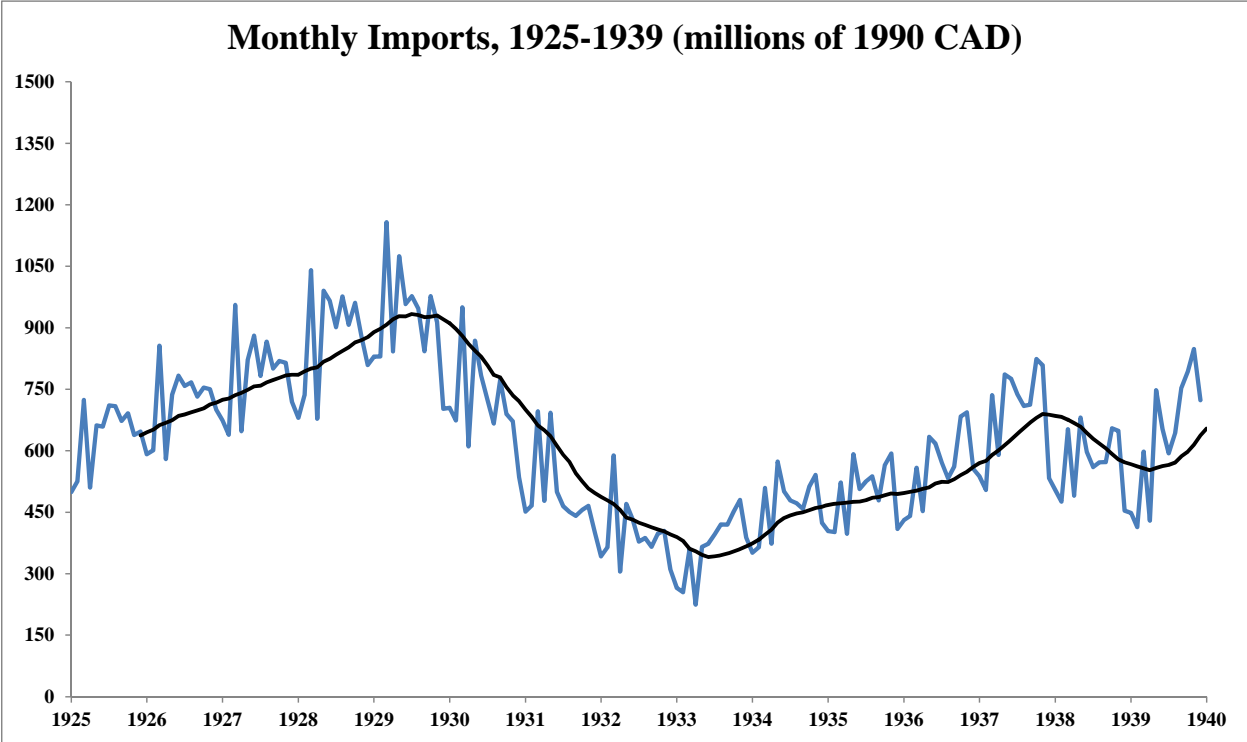
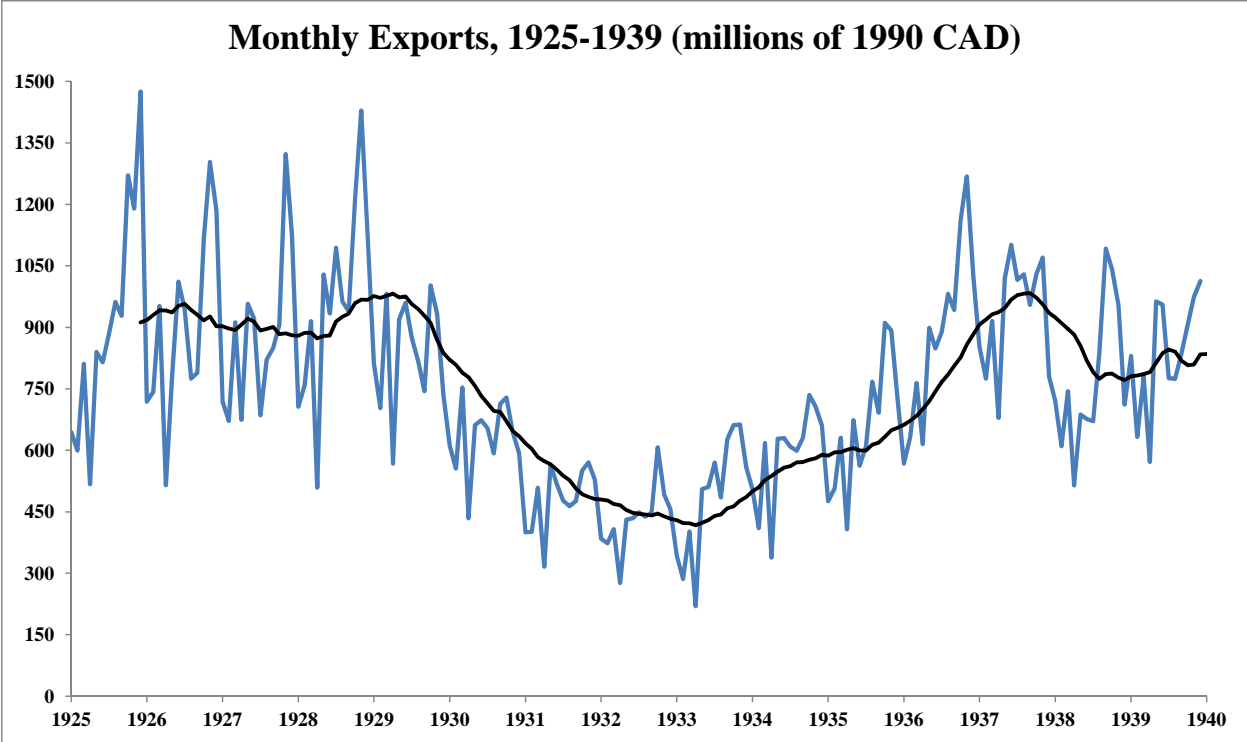
Appendix II

This appendix explores the appropriateness of the PPML estimator. It simply replicates the results for the last rows of Tables 1a and 1b in its first and fourth rows as well as reports the results of equivalent regressions using the scaled OLS and Tobit estimators. A quick review of the table reveals that although the results are broadly consistent with respect to the sign and size of the coefficients, the PPML estimator delivers more precise results, thus, leading it to be chosen as the preferred estimator for the purposes of the paper.

<i>CANADIAN EXPORTS & IMPORTS</i>						
	From announcement of conference, Q4 1931		From announcement of results, Q3 1932		From enactment of provisions, Q4 1932	
	<u>Time fixed effect</u>	<u>Ottawa-time interaction</u>	<u>Time fixed effect</u>	<u>Ottawa-time interaction</u>	<u>Time fixed effect</u>	<u>Ottawa-time interaction</u>
Total Merchandise Exports, one year out, PPML	-0.2160	0.3479	0.3095	-0.1751	0.1864	<i>0.0105</i>
standard error	0.12	0.12	0.09	0.09	0.10	<i>0.11</i>
p-value	0.06	0.01	0.00	0.06	0.07	<i>0.92</i>
Total Merchandise Exports, one year out, Scaled OLS	<i>-0.2343</i>	<i>0.1779</i>	<i>-0.1871</i>	<i>0.3021</i>	<i>0.0692</i>	<i>0.2467</i>
standard error	<i>0.38</i>	<i>0.46</i>	<i>0.41</i>	<i>0.45</i>	<i>0.39</i>	<i>0.44</i>
p-value	<i>0.54</i>	<i>0.70</i>	<i>0.65</i>	<i>0.50</i>	<i>0.86</i>	<i>0.57</i>
Total Merchandise Exports, one year out, Tobit	<i>0.0015</i>	<i>-0.0579</i>	<i>0.1050</i>	<i>0.0100</i>	<i>0.1464</i>	<i>0.1694</i>
standard error	<i>0.13</i>	<i>0.23</i>	<i>0.15</i>	<i>0.19</i>	<i>0.13</i>	<i>0.19</i>
p-value	<i>0.99</i>	<i>0.80</i>	<i>0.48</i>	<i>0.96</i>	<i>0.28</i>	<i>0.38</i>
Total Merchandise Imports, one year out, PPML	-0.2604	0.3371	<i>0.0324</i>	0.2058	0.1605	<i>0.0312</i>
standard error	0.02	0.03	<i>0.03</i>	0.06	0.03	<i>0.05</i>
p-value	0.00	0.00	<i>0.20</i>	0.00	0.00	<i>0.49</i>
Total Merchandise Imports, one year out, Scaled OLS	<i>-0.3068</i>	<i>0.4053</i>	<i>0.2861</i>	<i>-0.1045</i>	<i>0.4837</i>	<i>-0.1118</i>
standard error	<i>0.46</i>	<i>0.56</i>	<i>0.49</i>	<i>0.68</i>	<i>0.55</i>	<i>0.71</i>
p-value	<i>0.51</i>	<i>0.47</i>	<i>0.56</i>	<i>0.88</i>	<i>0.38</i>	<i>0.87</i>
Total Merchandise Imports, one year out, Tobit	<i>-0.1972</i>	<i>0.2957</i>	<i>-0.1262</i>	<i>0.3078</i>	<i>0.1658</i>	<i>0.2061</i>
standard error	<i>0.17</i>	<i>0.28</i>	<i>0.16</i>	<i>0.37</i>	<i>0.13</i>	<i>0.34</i>
p-value	<i>0.25</i>	<i>0.29</i>	<i>0.43</i>	<i>0.41</i>	<i>0.20</i>	<i>0.55</i>
		<i>n=234</i>		<i>n=236</i>		<i>n=236</i>

Note: Standard errors clustered on countries.

TABLE A.2
CANADIAN EXPORTS & IMPORTS IN RESPONSE TO OTTAWA,
ALTERNATIVE ESTIMATORS



FIGURES 1a & 1b
CANADIAN REAL EXPORTS & IMPORTS

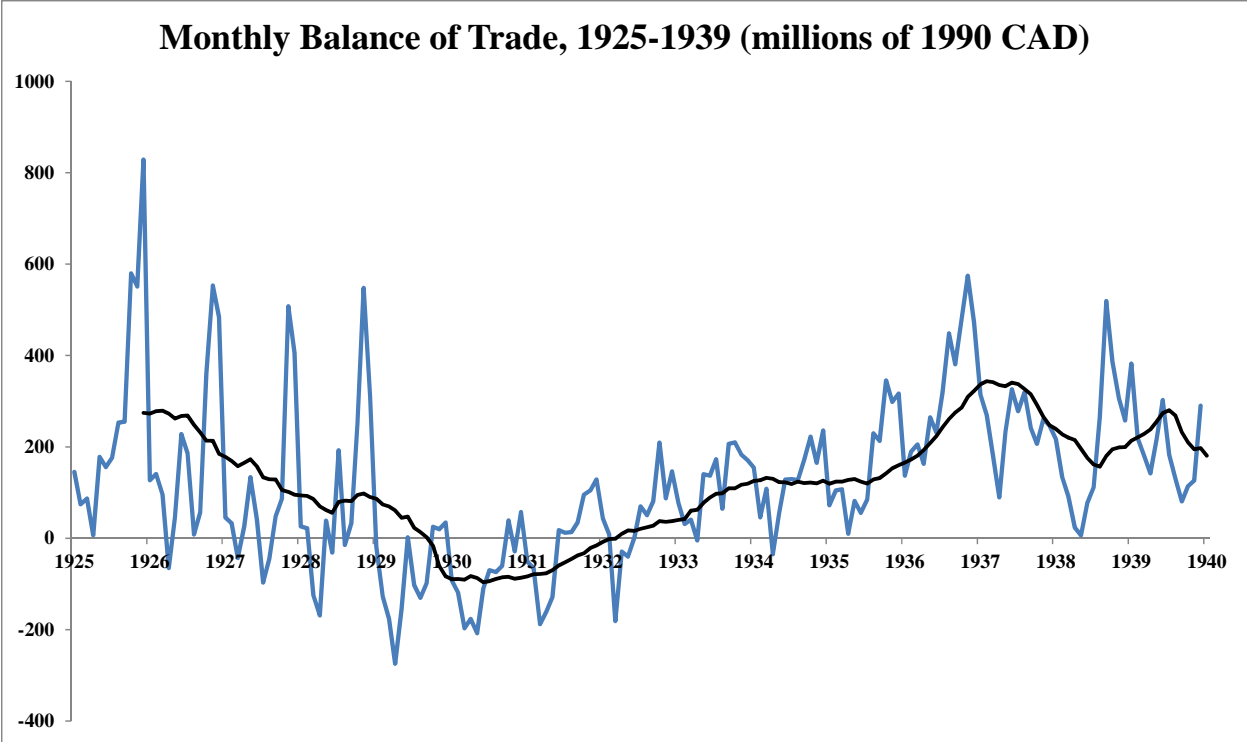


FIGURE 2
CANADIAN BALANCE OF TRADE IN REAL TERMS

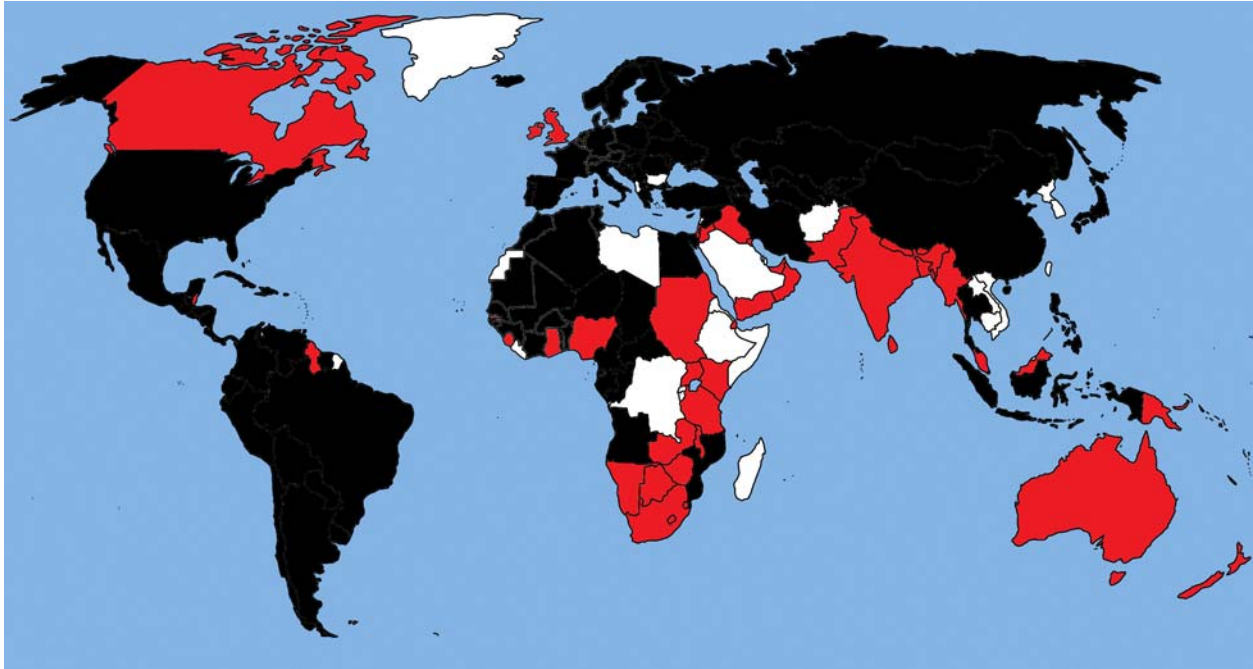


FIGURE 3
CANADIAN TRADE PARTNERS, 1925

Note: nations in white = no recorded trade; nations in black = recorded trade with Canada; nations in red = recorded trade with Canada and member of the British Empire.

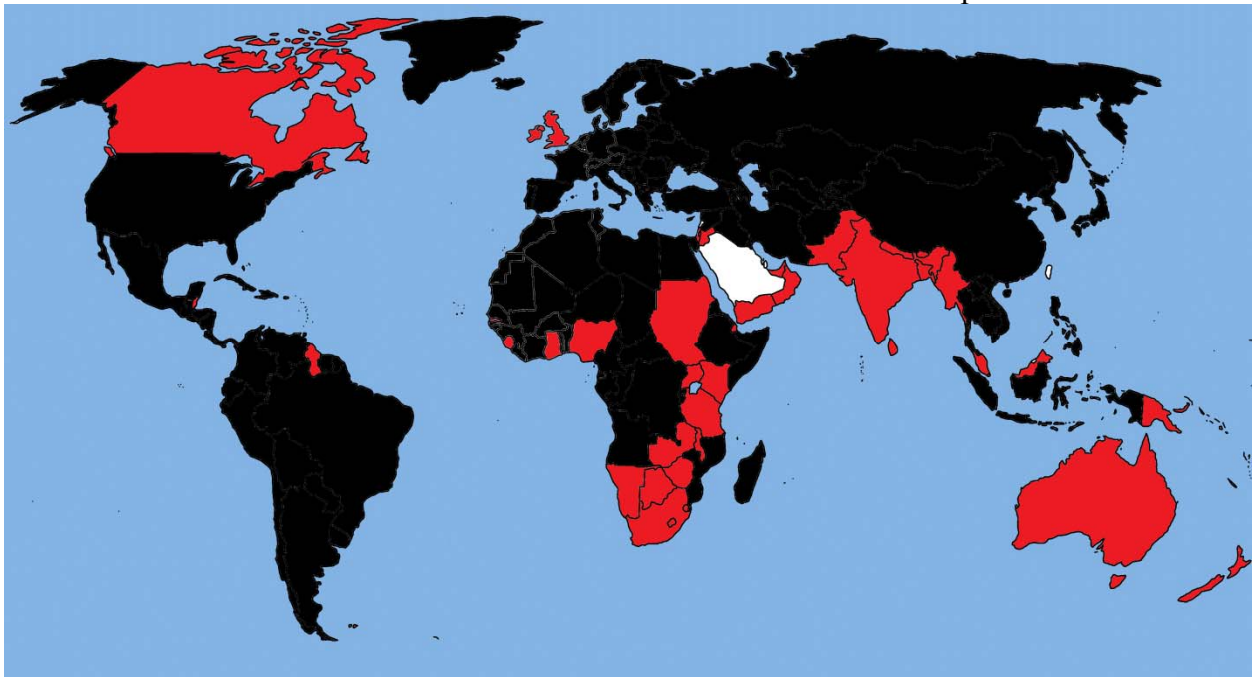
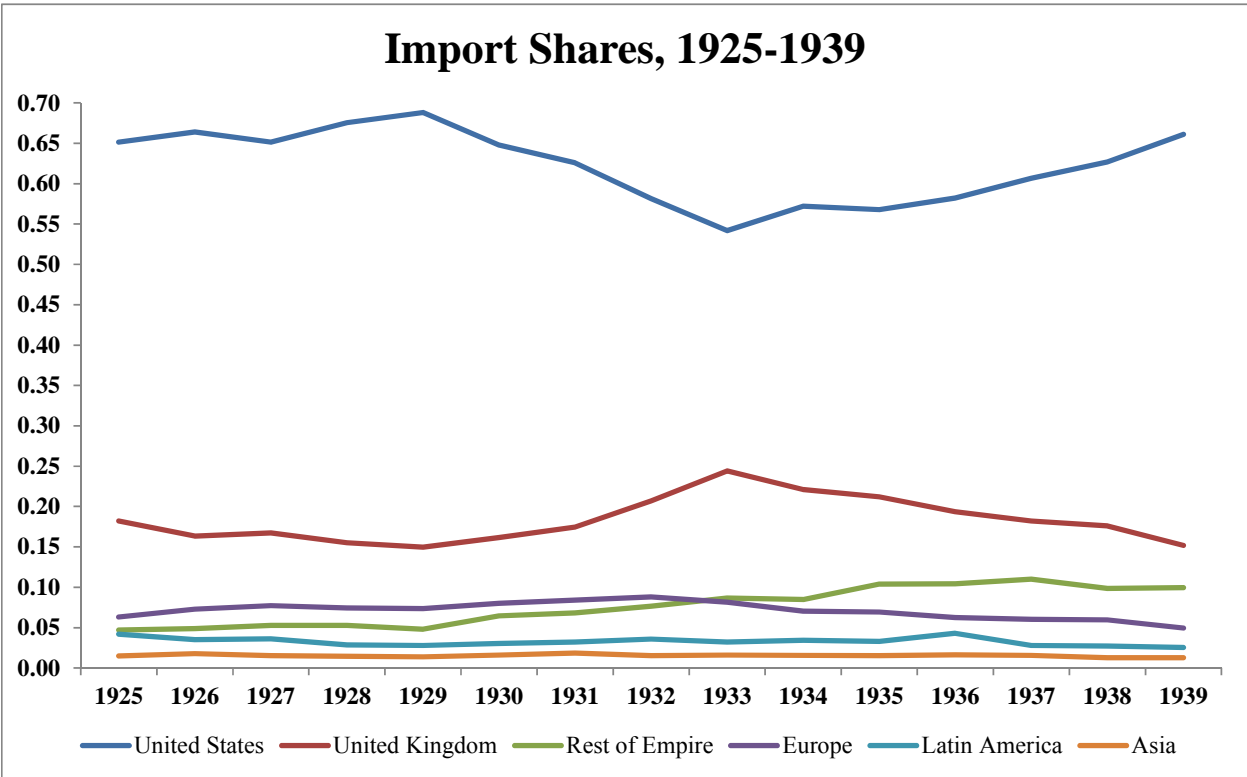
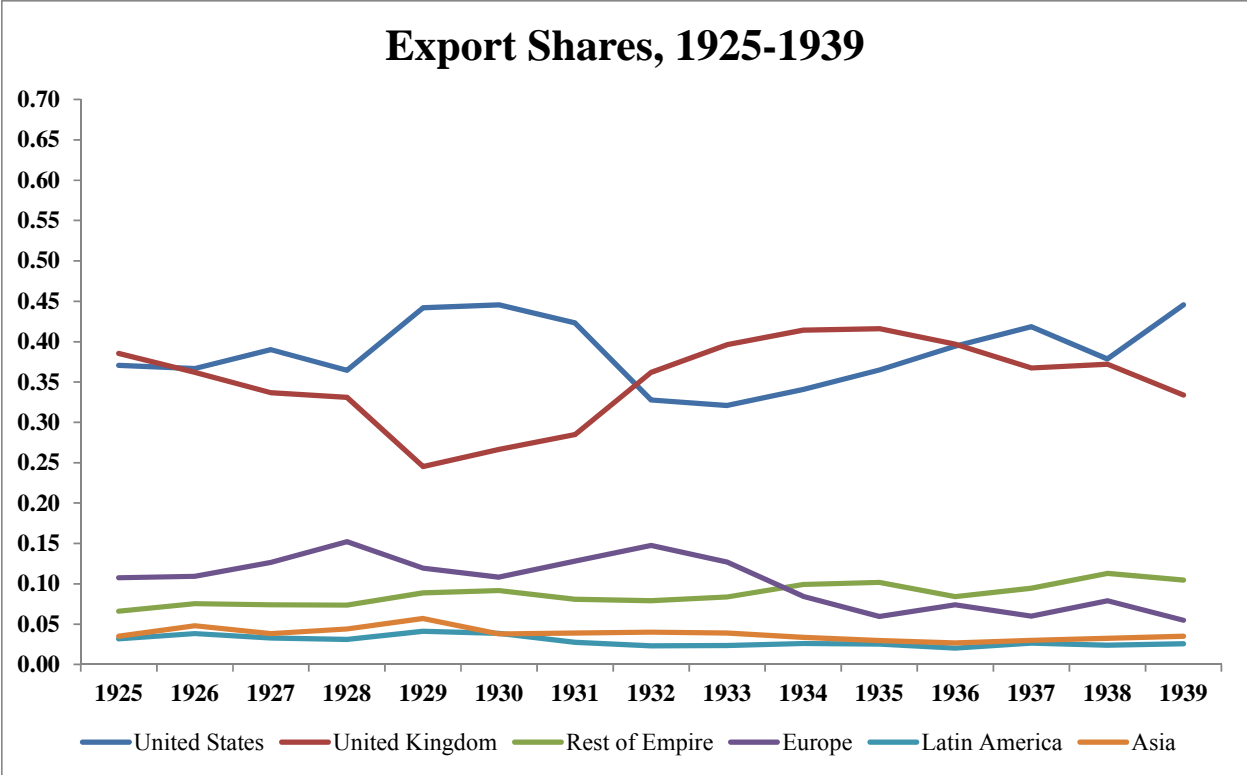
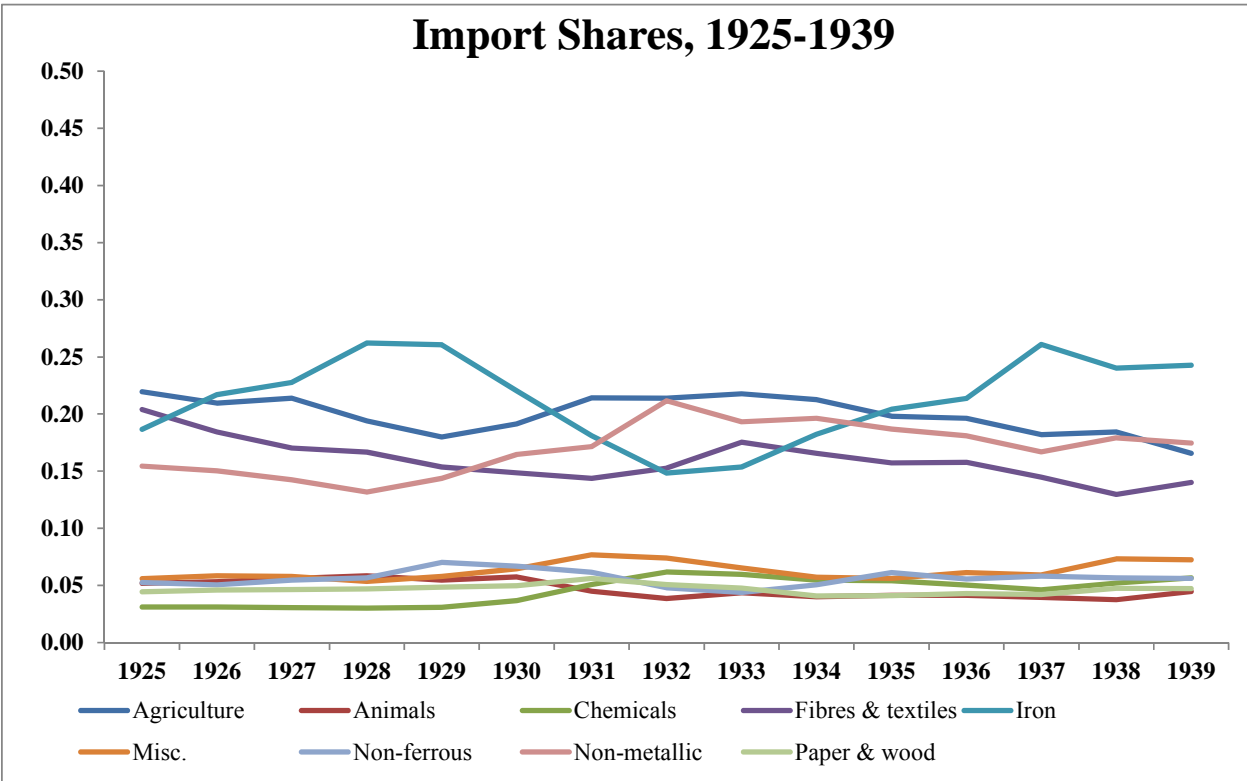
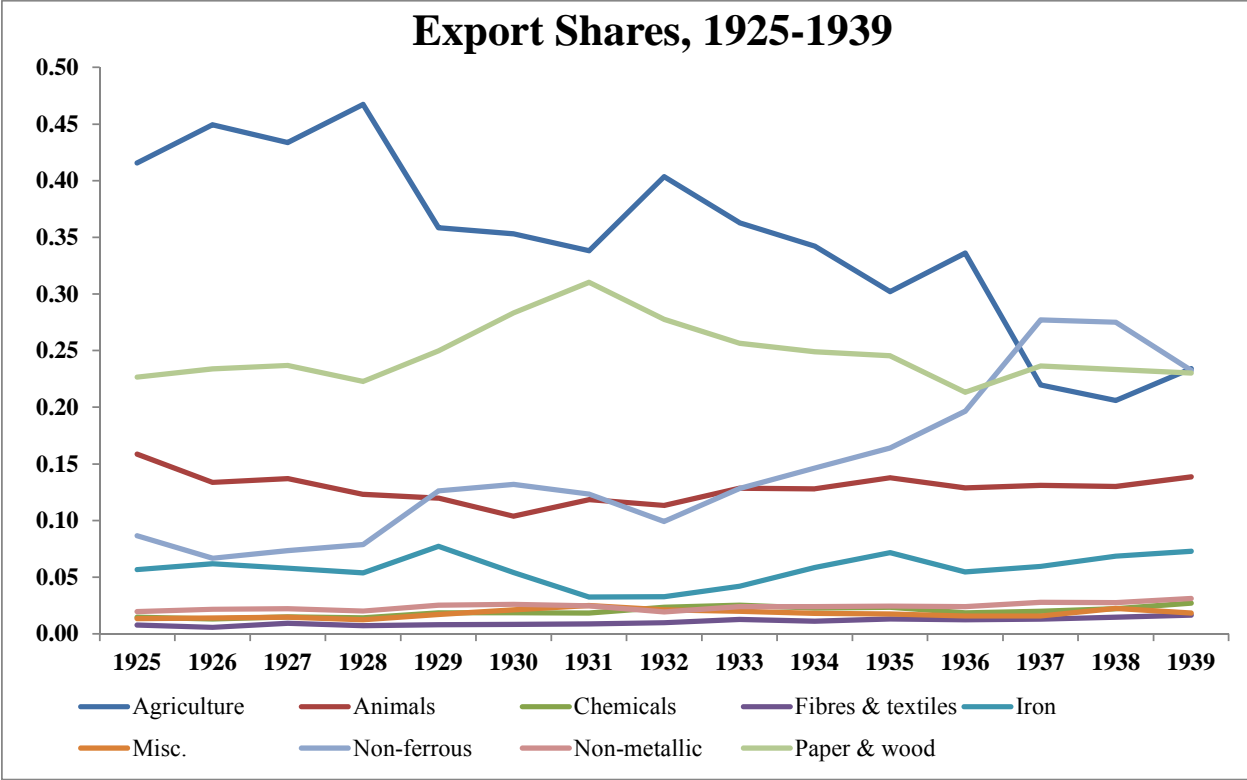


FIGURE 4
CANADIAN TRADE PARTNERS, 1939

Note: nations in white = no recorded trade; nations in black = recorded trade with Canada; nations in red = recorded trade with Canada and member of the British Empire.



FIGURES 5a & 5b
CANADIAN EXPORT & IMPORT SHARES BY REGION



FIGURES 6a & 6b
CANADIAN EXPORT & IMPORT SHARES BY COMMODITY

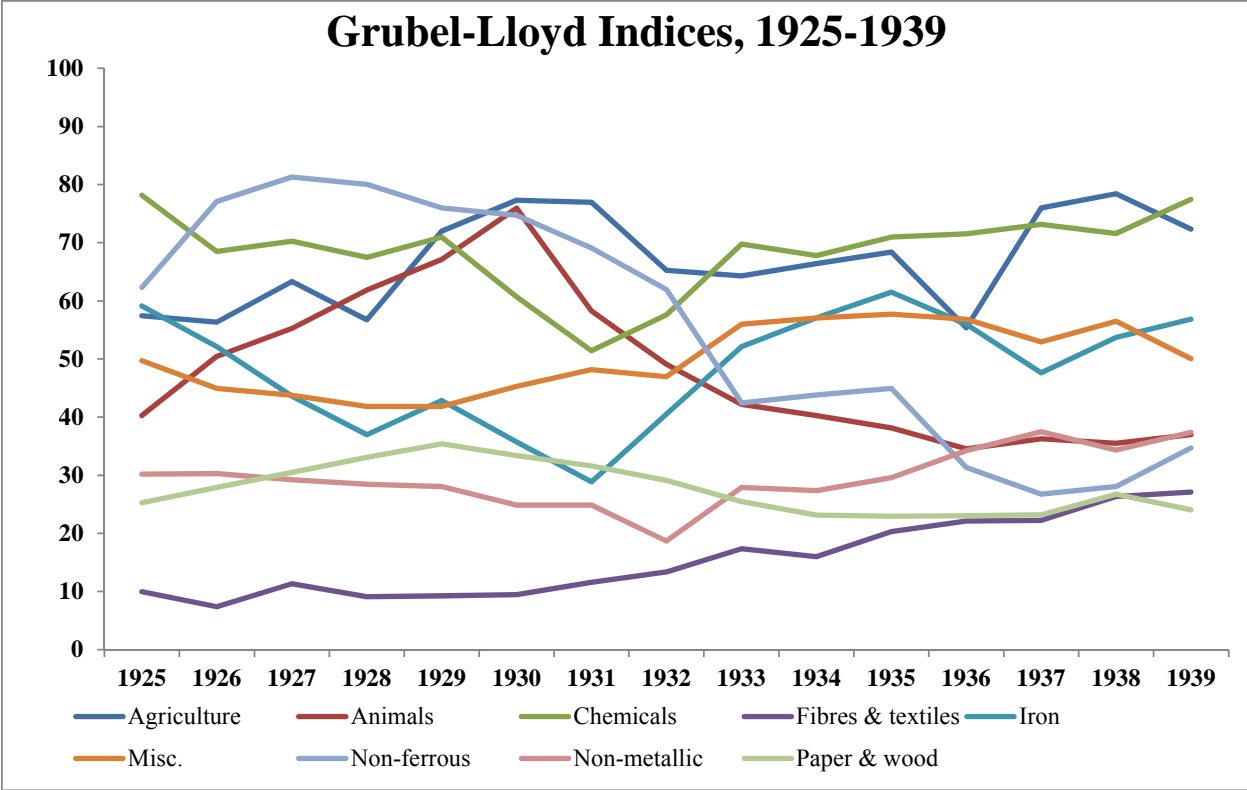
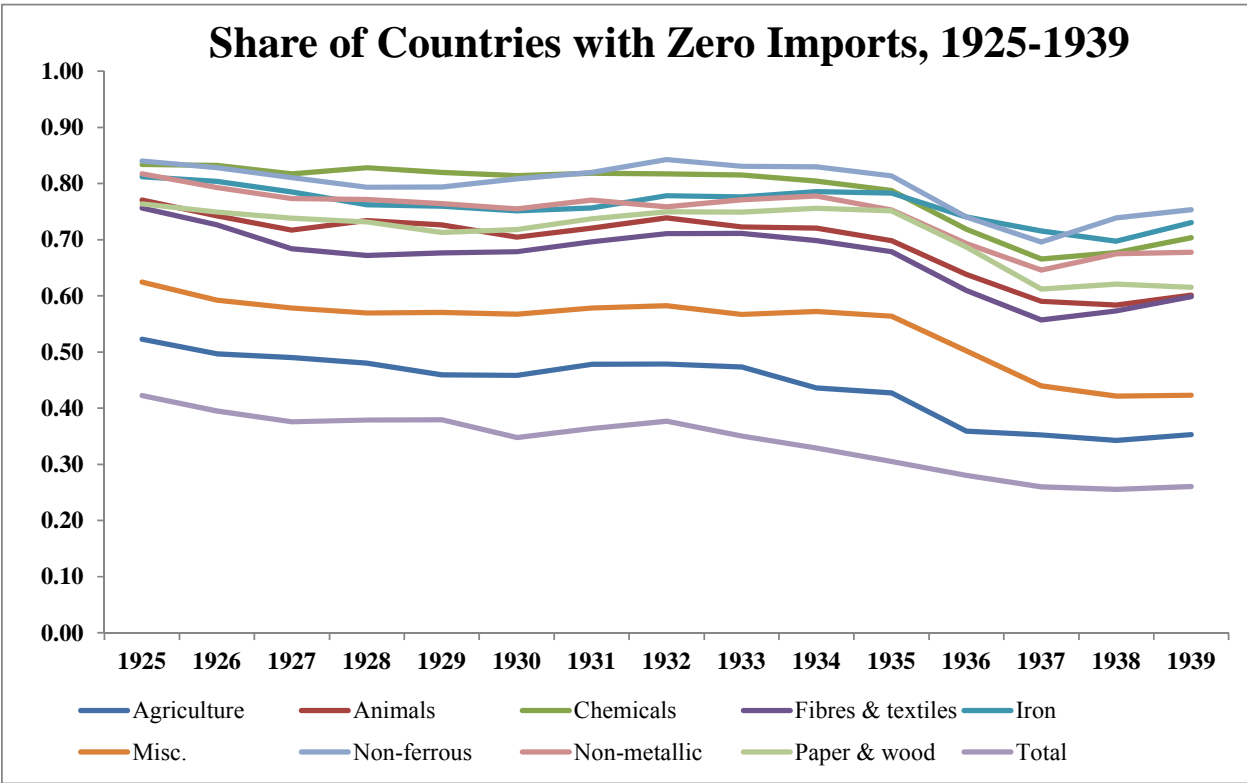
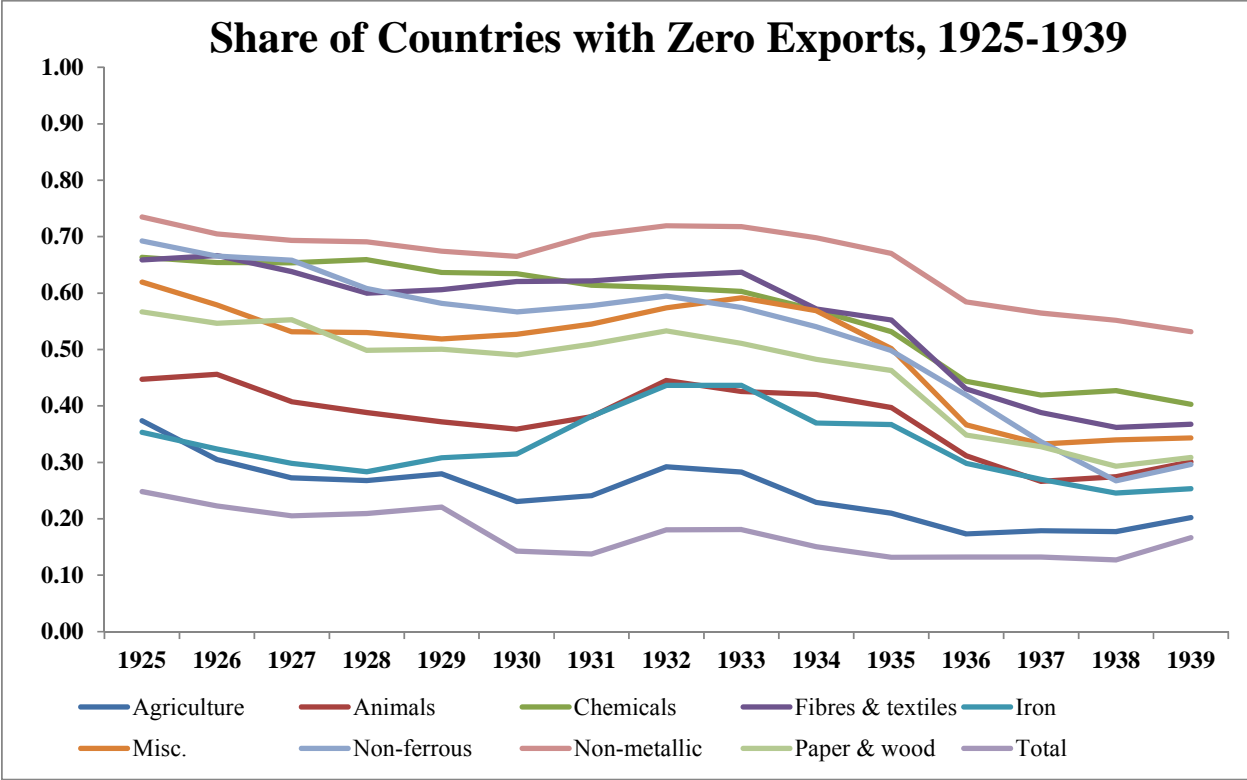


FIGURE 7
CANADIAN INTRA-INDUSTRY TRADE BY COMMODITY



FIGURES 8a & 8b
CANADIAN EXPORTS & IMPORTS ON THE EXTENSIVE MARGIN

CANADIAN EXPORTS						
	From announcement of conference, Q4 1931		From announcement of results, Q3 1932		From enactment of provisions, Q4 1932	
	Time fixed effect	Ottawa-time interaction	Time fixed effect	Ottawa-time interaction	Time fixed effect	Ottawa-time interaction
Agricultural and Vegetable Products, one year out	-0.0059	0.2361	0.1350	-0.2040	-0.0014	-0.0164
standard error	0.15	0.16	0.19	0.19	0.23	0.23
p-value	0.97	0.14	0.47	0.28	0.99	0.94
Animals and Animal Products, one year out	-0.4184	0.2181	0.3383	-0.1928	0.2919	0.2604
standard error	0.11	0.11	0.06	0.06	0.05	0.06
p-value	0.00	0.05	0.00	0.00	0.00	0.00
Chemicals and Allied Products, one year out	0.3846	-0.4906	0.5211	-0.4305	0.1796	-0.0305
standard error	0.14	0.15	0.12	0.14	0.05	0.07
p-value	0.01	0.00	0.00	0.00	0.00	0.66
Fibres, Textiles and Products, one year out	-0.3415	0.3917	1.2556	-0.9473	0.9610	-0.4586
standard error	0.36	0.43	0.25	0.28	0.40	0.42
p-value	0.34	0.36	0.00	0.00	0.02	0.27
Iron and Its Products, one year out	0.5672	-0.0435	0.1558	0.1200	0.3286	0.0475
standard error	0.37	0.41	0.32	0.46	0.32	0.41
p-value	0.12	0.92	0.63	0.79	0.31	0.91
Miscellaneous Commodities, one year out	-0.3369	0.2384	0.1920	-0.2725	0.4222	-0.9292
standard error	0.03	0.05	0.06	0.07	0.04	0.21
p-value	0.00	0.00	0.00	0.00	0.00	0.00
Non-Ferrous Metal Products, one year out	-0.5319	0.5879	0.6341	0.2131	0.5961	0.0803
standard error	0.29	0.29	0.12	0.18	0.16	0.16
p-value	0.06	0.04	0.00	0.25	0.00	0.63
Non-Metallic Mineral Products, one year out	-0.4440	0.8367	0.5961	-0.0543	0.7765	-0.7087
standard error	0.11	0.28	0.06	0.16	0.15	0.18
p-value	0.00	0.00	0.00	0.74	0.00	0.00
Paper and Wood, one year out	-0.2969	0.1682	0.2988	-0.0555	0.1091	0.4584
standard error	0.03	0.05	0.02	0.08	0.04	0.08
p-value	0.00	0.00	0.00	0.48	0.01	0.00
Total Merchandise Exports, one year out	-0.2160	0.3479	0.3095	-0.1751	0.1864	0.0105
standard error	0.12	0.12	0.09	0.09	0.10	0.11
p-value	0.06	0.01	0.00	0.06	0.07	0.92
		<i>n=234</i>		<i>n=236</i>		<i>n=236</i>

Note: Standard errors clustered on countries.

CANADIAN IMPORTS						
	From announcement of conference, Q4 1931		From announcement of results, Q3 1932		From enactment of provisions, Q4 1932	
	Time fixed effect	Ottawa-time interaction	Time fixed effect	Ottawa-time interaction	Time fixed effect	Ottawa-time interaction
Agricultural and Vegetable Products, one year out	-0.3280	0.3100	0.1190	-0.0877	0.1854	-0.1664
standard error	0.07	0.11	0.07	0.24	0.06	0.10
p-value	0.00	0.00	0.08	0.71	0.00	0.08
Animals and Animal Products, one year out	-0.2026	0.3573	0.2229	0.5564	0.2194	0.1560
standard error	0.10	0.18	0.11	0.20	0.12	0.26
p-value	0.04	0.05	0.03	0.01	0.06	0.55
Chemicals and Allied Products, one year out	-0.1064	0.4918	-0.0172	0.5115	0.0276	0.0377
standard error	0.04	0.05	0.05	0.10	0.10	0.10
p-value	0.01	0.00	0.75	0.00	0.77	0.70
Fibres, Textiles and Products, one year out	-0.1440	0.2389	0.2338	0.2060	0.3096	0.1038
standard error	0.12	0.12	0.05	0.07	0.04	0.05
p-value	0.23	0.05	0.00	0.00	0.00	0.04
Iron and Its Products, one year out	-0.3534	0.3672	0.1527	0.3661	0.1904	0.2050
standard error	0.03	0.06	0.02	0.03	0.01	0.02
p-value	0.00	0.00	0.00	0.00	0.00	0.00
Miscellaneous Commodities, one year out	-0.2362	0.0966	-0.1827	0.1599	-0.0127	0.0198
standard error	0.01	0.04	0.03	0.03	0.03	0.05
p-value	0.00	0.02	0.00	0.00	0.70	0.69
Non-Ferrous Metal Products, one year out	-0.6378	0.9080	0.1917	-0.2851	0.3789	-0.6783
standard error	0.11	0.11	0.15	0.15	0.08	0.08
p-value	0.00	0.00	0.20	0.06	0.00	0.00
Non-Metallic Mineral Products, one year out	-0.1513	0.5078	-0.1265	0.0350	0.1092	0.0774
standard error	0.02	0.03	0.04	0.04	0.05	0.05
p-value	0.00	0.00	0.00	0.34	0.03	0.12
Paper and Wood, one year out	-0.3497	0.4356	-0.0210	0.0370	0.0417	-0.0279
standard error	0.01	0.01	0.02	0.02	0.01	0.03
p-value	0.00	0.00	0.24	0.05	0.00	0.33
Total Merchandise Imports, one year out	-0.2604	0.3371	0.0324	0.2058	0.1605	0.0312
standard error	0.02	0.03	0.03	0.06	0.03	0.05
p-value	0.00	0.00	0.20	0.00	0.00	0.49
		<i>n=234</i>		<i>n=236</i>		<i>n=236</i>

Note: Standard errors clustered on countries.

TABLES 1a & 1b
CANADIAN EXPORTS & IMPORTS IN RESPONSE TO OTTAWA,
FULL SAMPLE

CANADIAN EXPORTS						
	From announcement of conference, Q4 1931		From announcement of results, Q3 1932		From enactment of provisions, Q4 1932	
	Time fixed effect	Ottawa-time interaction	Time fixed effect	Ottawa-time interaction	Time fixed effect	Ottawa-time interaction
Total Merchandise Exports, 1 quarter out	-0.2234	-0.3592	0.1362	0.0336	-0.3382	-0.1577
standard error	0.05	0.06	0.08	0.09	0.10	0.10
p-value	0.00	0.00	0.10	0.69	0.00	0.13
Total Merchandise Exports, 2 quarters out	-0.2702	-0.2804	-0.2020	-0.1241	-0.1346	-0.2084
standard error	0.04	0.05	0.10	0.10	0.12	0.12
p-value	0.00	0.00	0.04	0.21	0.25	0.10
Total Merchandise Exports, 3 quarters out	-0.3522	0.3143	0.0016	-0.1747	0.1732	-0.2088
standard error	0.09	0.10	0.07	0.07	0.14	0.14
p-value	0.00	0.00	0.98	0.02	0.21	0.14
Total Merchandise Exports, 5 quarters out	-0.5542	0.1902	0.3226	0.0441	0.0446	-0.1237
standard error	0.06	0.07	0.06	0.06	0.21	0.23
p-value	0.00	0.01	0.00	0.44	0.83	0.59
Total Merchandise Exports, 6 quarters out	-0.3506	0.1396	0.1808	-0.0900	-0.0079	0.0681
standard error	0.04	0.06	0.16	0.17	0.16	0.17
p-value	0.00	0.02	0.27	0.61	0.96	0.69
Total Merchandise Exports, 7 quarters out	-0.0427	0.1392	0.1283	0.1017	0.1314	0.0731
standard error	0.05	0.05	0.10	0.11	0.19	0.21
p-value	0.35	0.01	0.21	0.36	0.49	0.73
Total Merchandise Exports, 2 years out	-0.0296	0.3584	0.2676	0.1067	0.2878	0.0280
standard error	0.06	0.06	0.14	0.16	0.23	0.23
p-value	0.60	0.00	0.06	0.49	0.21	0.90
Total Merchandise Exports, 9 quarters out	-0.1714	0.2243	0.4241	0.0616	0.0647	-0.0594
standard error	0.11	0.12	0.18	0.18	0.23	0.25
p-value	0.10	0.06	0.02	0.74	0.78	0.82
Total Merchandise Exports, 10 quarters out	-0.2239	0.4160	0.2009	-0.0257	0.1253	-0.1522
standard error	0.06	0.08	0.19	0.20	0.24	0.26
p-value	0.00	0.00	0.29	0.90	0.61	0.56
Total Merchandise Exports, 11 quarters out	-0.0846	0.4210	0.2615	-0.1185	0.2532	0.0591
standard error	0.08	0.10	0.19	0.21	0.29	0.30
p-value	0.32	0.00	0.18	0.57	0.38	0.84
Total Merchandise Exports, 3 years out	0.0719	0.3759	0.8940	0.0927	0.3836	0.2022
standard error	0.12	0.12	0.23	0.24	0.25	0.26
p-value	0.54	0.00	0.09	0.70	0.13	0.43
		<i>n=234</i>		<i>n=236</i>		<i>n=236</i>

Note: Standard errors clustered on countries.

CANADIAN IMPORTS						
	From announcement of conference, Q4 1931		From announcement of results, Q3 1932		From enactment of provisions, Q4 1932	
	Time fixed effect	Ottawa-time interaction	Time fixed effect	Ottawa-time interaction	Time fixed effect	Ottawa-time interaction
Total Merchandise Imports, 1 quarter out	-0.0107	-0.0377	-0.0794	0.2269	-0.1775	-0.1533
standard error	0.05	0.11	0.02	0.05	0.04	0.06
p-value	0.82	0.73	0.00	0.00	0.00	0.01
Total Merchandise Imports, 2 quarters out	-0.0494	-0.1849	-0.2569	0.0737	-0.1054	-0.1376
standard error	0.02	0.11	0.05	0.08	0.03	0.13
p-value	0.03	0.09	0.00	0.35	0.00	0.30
Total Merchandise Imports, 3 quarters out	-0.1810	0.1102	-0.1848	0.0894	0.1118	-0.0212
standard error	0.03	0.05	0.02	0.11	0.03	0.07
p-value	0.00	0.04	0.00	0.42	0.00	0.75
Total Merchandise Imports, 5 quarters out	-0.4379	0.1839	0.0811	0.2581	0.1395	-0.1543
standard error	0.05	0.06	0.03	0.04	0.06	0.11
p-value	0.00	0.00	0.01	0.00	0.01	0.15
Total Merchandise Imports, 6 quarters out	-0.3658	0.1996	0.0601	0.0727	0.3311	-0.2495
standard error	0.03	0.12	0.06	0.11	0.03	0.09
p-value	0.00	0.10	0.35	0.50	0.00	0.01
Total Merchandise Imports, 7 quarters out	-0.1486	0.3160	0.2517	-0.0226	0.2796	-0.1561
standard error	0.02	0.05	0.03	0.09	0.03	0.07
p-value	0.00	0.00	0.00	0.79	0.00	0.03
Total Merchandise Imports, 2 years out	-0.0999	0.3683	0.2002	0.0708	0.3267	-0.1573
standard error	0.02	0.04	0.03	0.05	0.03	0.06
p-value	0.00	0.00	0.00	0.12	0.00	0.01
Total Merchandise Imports, 9 quarters out	-0.1209	0.1829	0.2474	0.0697	0.2718	-0.3624
standard error	0.07	0.11	0.03	0.06	0.06	0.10
p-value	0.10	0.11	0.00	0.23	0.00	0.00
Total Merchandise Imports, 10 quarters out	0.0707	0.0876	0.1924	-0.1355	0.3494	-0.1929
standard error	0.04	0.09	0.07	0.10	0.03	0.06
p-value	0.08	0.34	0.01	0.16	0.00	0.00
Total Merchandise Imports, 11 quarters out	0.0192	0.1810	0.2700	0.0340	0.3590	-0.1158
standard error	0.03	0.07	0.03	0.06	0.04	0.06
p-value	0.58	0.01	0.00	0.54	0.00	0.05
Total Merchandise Imports, 3 years out	0.0664	0.1799	0.2796	0.1111	0.3978	-0.1990
standard error	0.03	0.05	0.03	0.05	0.05	0.07
p-value	0.01	0.00	0.00	0.02	0.00	0.01
		<i>n=234</i>		<i>n=236</i>		<i>n=236</i>

Note: Standard errors clustered on countries.

TABLES 2a & 2b
CANADIAN EXPORTS & IMPORTS IN RESPONSE TO OTTAWA,
INCORPORATING DIFFERENT TIME HORIZONS

CANADIAN EXPORTS AND IMPORTS		
	From announcement of conference, Q4 1931	
	<u>Time fixed effect</u>	<u>Ottawa-time interaction</u>
Total Merchandise Exports, one year out	-0.2219	0.3392
standard error	0.12	0.13
p-value	0.06	0.01
Total Merchandise Imports, one year out	-0.2552	0.2781
standard error	0.02	0.05
p-value	0.00	0.00
	<i>n=234</i>	
	From announcement of results, Q3 1932	
	<u>Time fixed effect</u>	<u>Ottawa-time interaction</u>
Total Merchandise Exports, one year out	0.3104	-0.1665
standard error	0.09	0.10
p-value	0.00	0.09
Total Merchandise Imports, one year out	0.0366	0.1628
standard error	0.03	0.08
p-value	0.20	0.03
	<i>n=236</i>	
	From enactment of provisions, Q4 1932	
	<u>Time fixed effect</u>	<u>Ottawa-time interaction</u>
Total Merchandise Exports, one year out	0.1923	<i>-0.0016</i>
standard error	0.11	<i>0.11</i>
p-value	0.07	<i>0.99</i>
Total Merchandise Imports, one year out	0.1613	<i>0.0256</i>
standard error	0.03	<i>0.05</i>
p-value	0.00	<i>0.59</i>
	<i>n=236</i>	
Note: Standard errors clustered on countries.		

TABLE 3
CANADIAN EXPORTS & IMPORTS IN RESPONSE TO OTTAWA,
INCORPORATING THE GREATER BRITISH EMPIRE

CANADIAN EXPORTS						
	From announcement of conference, Q4 1931		From announcement of results, Q3 1932		From enactment of provisions, Q4 1932	
	<u>Time fixed effect</u>	<u>Ottawa-time interaction</u>	<u>Time fixed effect</u>	<u>Ottawa-time interaction</u>	<u>Time fixed effect</u>	<u>Ottawa-time interaction</u>
Agricultural and Vegetable Products, one year out	0.0002	0.2361	0.0298	-0.2059	-0.1011	-0.0164
standard error	0.15	0.16	0.19	0.19	0.23	0.23
p-value	0.99	0.14	0.87	0.28	0.66	0.94
Animals and Animal Products, one year out	-0.4123	0.2181	0.2315	-0.1917	0.1922	0.2604
standard error	0.11	0.11	0.06	0.06	0.05	0.06
p-value	0.00	0.05	0.00	0.00	0.00	0.00
Chemicals and Allied Products, one year out	0.3735	-0.4906	0.5223	-0.4334	0.1863	-0.0305
standard error	0.14	0.15	0.12	0.14	0.05	0.07
p-value	0.01	0.00	0.00	0.00	0.00	0.66
Fibres, Textiles and Products, one year out	-0.3046	0.3917	1.2140	-0.9468	0.9197	-0.4586
standard error	0.36	0.43	0.25	0.28	0.40	0.42
p-value	0.40	0.36	0.00	0.00	0.02	0.27
Iron and Its Products, one year out	0.4794	-0.0435	0.1653	0.1218	0.3459	0.0475
standard error	0.37	0.41	0.32	0.46	0.32	0.41
p-value	0.19	0.92	0.61	0.79	0.28	0.91
Miscellaneous Commodities, one year out	-0.3650	0.2384	0.1941	-0.2743	0.4301	-0.9292
standard error	0.03	0.05	0.06	0.07	0.04	0.21
p-value	0.00	0.00	0.00	0.00	0.00	0.00
Non-Ferrous Metal Products, one year out	-0.4940	0.5879	0.5096	0.2103	0.4581	0.0803
standard error	0.29	0.29	0.12	0.18	0.16	0.16
p-value	0.08	0.04	0.00	0.25	0.01	0.63
Non-Metallic Mineral Products, one year out	-0.6239	0.8367	0.7225	-0.0585	0.9085	-0.7087
standard error	0.11	0.28	0.06	0.16	0.15	0.18
p-value	0.00	0.00	0.00	0.72	0.00	0.00
Paper and Wood, one year out	-0.2366	0.1682	0.4361	-0.0553	0.2525	0.4584
standard error	0.03	0.05	0.02	0.08	0.04	0.08
p-value	0.00	0.00	0.00	0.48	0.00	0.00
Total Merchandise Exports, one year out	-0.2014	0.3479	0.2913	-0.1762	0.1742	0.0105
standard error	0.12	0.12	0.09	0.09	0.10	0.11
p-value	0.08	0.01	0.00	0.05	0.09	0.92
		<i>n=234</i>		<i>n=236</i>		<i>n=236</i>

Note: Standard errors clustered on countries.

CANADIAN IMPORTS						
	From announcement of conference, Q4 1931		From announcement of results, Q3 1932		From enactment of provisions, Q4 1932	
	<u>Time fixed effect</u>	<u>Ottawa-time interaction</u>	<u>Time fixed effect</u>	<u>Ottawa-time interaction</u>	<u>Time fixed effect</u>	<u>Ottawa-time interaction</u>
Agricultural and Vegetable Products, one year out	-0.3111	0.3100	0.1411	-0.0845	0.2147	-0.1664
standard error	0.07	0.11	0.07	0.23	0.06	0.10
p-value	0.00	0.00	0.04	0.72	0.00	0.08
Animals and Animal Products, one year out	-0.1857	0.3573	0.2463	0.5572	0.2487	0.1560
standard error	0.10	0.18	0.11	0.20	0.12	0.26
p-value	0.06	0.05	0.02	0.01	0.03	0.55
Chemicals and Allied Products, one year out	-0.1627	0.4918	-0.0183	0.5102	0.0328	0.0377
standard error	0.04	0.04	0.05	0.05	0.10	0.10
p-value	0.00	0.00	0.74	0.00	0.73	0.69
Fibres, Textiles and Products, one year out	-0.1586	0.2389	0.1214	0.2072	0.2037	0.1038
standard error	0.12	0.12	0.05	0.07	0.04	0.05
p-value	0.19	0.05	0.01	0.00	0.00	0.04
Iron and Its Products, one year out	-0.4670	0.3672	0.1909	0.3672	0.2353	0.2050
standard error	0.03	0.06	0.02	0.03	0.01	0.02
p-value	0.00	0.00	0.00	0.00	0.00	0.00
Miscellaneous Commodities, one year out	-0.2247	0.0966	-0.1860	0.1607	-0.0096	0.0198
standard error	0.01	0.04	0.03	0.03	0.03	0.05
p-value	0.00	0.02	0.00	0.00	0.77	0.69
Non-Ferrous Metal Products, one year out	-0.5790	0.9080	0.0322	-0.2849	0.2242	-0.6783
standard error	0.11	0.11	0.15	0.15	0.08	0.08
p-value	0.00	0.00	0.83	0.06	0.00	0.00
Non-Metallic Mineral Products, one year out	-0.2879	0.5078	-0.0084	0.0340	0.2328	0.0774
standard error	0.02	0.03	0.04	0.04	0.05	0.05
p-value	0.00	0.00	0.82	0.36	0.00	0.12
Paper and Wood, one year out	-0.3927	0.4356	-0.0235	0.0370	0.0454	-0.0279
standard error	0.01	0.01	0.02	0.02	0.01	0.03
p-value	0.00	0.00	0.19	0.05	0.00	0.33
Total Merchandise Imports, one year out	-0.3100	0.3371	0.0426	0.2067	0.1770	0.0312
standard error	0.02	0.03	0.03	0.06	0.03	0.05
p-value	0.00	0.00	0.10	0.00	0.00	0.49
		<i>n=234</i>		<i>n=236</i>		<i>n=236</i>

Note: Standard errors clustered on countries.

TABLES 4a & 4b
CANADIAN EXPORTS & IMPORTS IN RESPONSE TO OTTAWA,
INCORPORATING DIFFERENT PRICE INDICES

CANADIAN EXPORTS AND IMPORTS								
From announcement of conference, Q4 1931								
	<u>Ottawa fixed effect</u>	<u>Canada fixed effect</u>	<u>Ottawa-Canada interaction</u>	<u>Time fixed effect</u>	<u>Ottawa-time interaction</u>	<u>Canada-time interaction</u>	<u>Canada-Ottawa-time interaction</u>	
Total Merchandise Exports, one year out	5.8411	-2.3549	1.2804	-0.0467	<i>0.0104</i>	<i>0.2576</i>		0.3577
standard error	0.02	0.19	0.20	0.02	<i>0.04</i>	<i>0.17</i>		0.19
p-value	0.00	0.00	0.00	0.01	<i>0.80</i>	<i>0.12</i>		0.06
Total Merchandise Imports, one year out	8.3700	-2.8837	2.2401	2.7460	-3.3540	<i>0.0582</i>		0.5003
standard error	0.10	0.19	0.35	0.01	0.05	<i>0.10</i>		0.10
p-value	0.00	0.00	0.00	0.00	0.00	<i>0.55</i>		0.00
<i>n=380</i>								
From announcement of results, Q3 1932								
	<u>Ottawa fixed effect</u>	<u>Canada fixed effect</u>	<u>Ottawa-Canada interaction</u>	<u>Time fixed effect</u>	<u>Ottawa-time interaction</u>	<u>Canada-time interaction</u>	<u>Canada-Ottawa-time interaction</u>	
Total Merchandise Exports, one year out	9.1750	-2.1718	1.4764	-0.8403	0.5480	<i>-0.1967</i>		<i>0.4221</i>
standard error	0.05	0.22	0.26	0.01	0.02	<i>0.20</i>		<i>0.50</i>
p-value	0.00	0.00	0.00	0.00	0.00	<i>0.33</i>		<i>0.40</i>
Total Merchandise Imports, one year out	8.2748	-2.7120	2.2817	2.5235	-3.6351	<i>-0.2450</i>		<i>0.6479</i>
standard error	0.15	0.22	0.45	0.01	0.03	<i>0.20</i>		<i>0.43</i>
p-value	0.00	0.00	0.00	0.00	0.00	<i>0.22</i>		<i>0.13</i>
<i>n=380</i>								
From enactment of provisions, Q4 1932								
	<u>Ottawa fixed effect</u>	<u>Canada fixed effect</u>	<u>Ottawa-Canada interaction</u>	<u>Time fixed effect</u>	<u>Ottawa-time interaction</u>	<u>Canada-time interaction</u>	<u>Canada-Ottawa-time interaction</u>	
Total Merchandise Exports, one year out	5.8515	-2.0973	1.6381	-0.9897	1.2265	-0.2016		<i>0.1051</i>
standard error	0.05	0.21	0.24	0.01	0.02	0.11		<i>0.11</i>
p-value	0.00	0.00	0.00	0.00	0.00	0.06		<i>0.34</i>
Total Merchandise Imports, one year out	2.4634	-2.8254	2.7404	-1.1180	1.7789	0.1459		-0.5036
standard error	0.15	0.19	0.36	0.01	0.03	0.08		0.12
p-value	0.00	0.00	0.00	0.00	0.00	0.07		0.00
<i>n=380</i>								

Note: Standard errors clustered on countries.

TABLE 5
CANADIAN EXPORTS IN RESPONSE TO OTTAWA,
INCORPORATING MULTILATERAL RESISTANCE