WHEAT, RAILWAYS AND CYCLES: THE 1840S REASSESSED

by

Donald G. Paterson
and
Ronald A. Shearer
Department of Economics
The University of British Columbia

July 2001

Discussion Paper No.: 01-17

DEPARTMENT OF ECONOMICS
THE UNIVERSITY OF BRITISH COLUMBIA
VANCOUVER, CANADA V6T 1Z1

http://www.econ.ubc.ca

Wheat, Railways and Cycles: The 1840s Reassessed

Donald G. Paterson & Ronald A. Shearer

Department of Economics

The University of British Columbia

July 2001

Abstract: This study re-examines the macroeconomic behaviour of Canada in the decade of the 1840s. It challenges the view that the Canadian market for wheat was independent of the British market by showing a close coherence of British and Montreal prices. Second, it shows the relationship of domestic prosperity to the British capital market and the British railway mania of the late 1840s. The depression of the late 1840s in Canada was no mere re-adjustment after the repeal of the protective Corn Laws but a lengthy depression of substantial magnitude.

Keywords: Canada, Montreal, Britain, wheat, railways, prices, stock mania, depression.

JEL Codes N11, N71, E30

Wheat, Railways and Cycles: The 1840s Reassessed

Donald G. Paterson & Ronald A. Shearer[1]
Department of Economics
The University of British Columbia

The decade of the 1840s has been little studied in the economic history of Canada. This is unfortunate. From various perspectives that decade was of great importance to the development of the Canadian economy. The separate British colonies of Upper and Lower Canada were united into one, the Province of Canada. The beginnings of responsible government paved the way for a shift in control over the major tools of economic policy from Britain to Canada. The suspension of the corn laws induced a shift in Canada's international trade from an overwhelming trans-Atlantic pattern to a dominant north-south emphasis and precipitated a dramatic change in direction for Canadian commercial policy. From a macroeconomic perspective it was a period of remarkable instability in Canada, reflecting both the international transmission and domestic magnification of commercial disturbances abroad.

Recently two important propositions have been advanced about the economy of Canada in the 1840s; we believe both to be incorrect.[2] One by McInnis is that the price of wheat in Montreal in the 1840s was determined in the Canadian market and not the in principal world market for grains, Britain (McInnis 1992, pp. 26-36). The other by Norrie and Owram is that the depression of the late 1840s was not a severe commercial depression but a short term transition, a result of a pessimistic psychology induced by the repeal of the corn laws (Norrie and Owram 1991, p.213). Taken together these propositions propose a view of Canada in the 1840s as less open to the forces of the international markets than the evidence suggests.[3] The purpose of this paper is to challenge these propositions and in the process to reassess the macroeconomic history of Canada in the 1840s.

I. MCINNIS ON THE PRICE OF WHEAT

McInnis' broader purpose was to demonstrate that the staple theorists' emphasis on the role of wheat as an export staple regulating the development of in the Upper Canadian economy before 1850 was much exaggerated. We have no quarrel with this broad conclusion. However, McInnis also concludes that while Upper Canadian farmers produced a surplus of wheat, "*The market for Upper Canada's wheat was in Lower Canada*," not in Britain (McInnis 1992, p. 37 (italics in original)). He suggests that the effect of extensive shipments of Upper Canada wheat and flour to Lower Canada was to undermine wheat production in Lower

---

[1] We wish to thank the research assistants who have worked with us over the years and our colleagues of the Economic History workshop at the University of British Columbia. Financial aid from the SSHRCC and UBC Small Grants funded much of this work.

[2] Canada here refers to the Province of Canada as it was styled from 1841 to 1867. It corresponds roughly to present-day Ontario and Quebec.

[3] The Norrie-Owram view arises out of almost exclusive emphasis on the effects of the repeal of the corn laws. A similar conclusion is apparent in older literature such as (Easterbrook and Aitken 1958, pp. 290-91). However, a contrary view can also be found in the historical literature. For example, (Creighton, pp. 358-377).

Canada accentuating the Lower Canadian "agricultural crisis." This was possible, he argues, because the Montreal market for wheat and flour was effectively insulated from the British market by transport costs. As a result, the Canadian prices of wheat and flour were determined by Canadian supply and demand and not by the prices of wheat and flour in the British market. It is this conclusion that we challenge in this paper.

McInnis attempts to demonstrate that the Montreal market was effectively insulated by a calculation showing that it was generally not profitable to ship wheat from Montreal to Britain before the 1850s. From a measure of the price of wheat in Britain, he deducts the British customs tariff on Canadian wheat and the estimated costs of transatlantic shipments to obtain an estimate of the implicit "British offer price This is the maximum price that profit-seeking merchants should have been willing to pay in Montreal for wheat for transportation to and sale in London or Liverpool. The implicit offer price is compared with Ouellet's estimates of the market price of wheat in Montreal (Ouellet, Hamelin et al. 1982). In principle, if Montreal was a normal source of grain for the British market, the two prices should be approximately equal. If we observe that the two prices are not equal, and particularly if the Montreal market price was consistently above the British offer price, market forces did not effectively link the two markets (McInnis 1992, p. 31). Merchants could not have purchased wheat at the Montreal market prices and profitably sold the wheat in Britain. McInnis' evidence is that "In only 15 of the 34 years up to 1850 were the (British and Montreal) markets effectively linked ..." (and only 3 years during the decade of the 1840s) (McInnis 1992, p.). The implication is that before 1850 the Montreal market was normally regulated by Canadian supply and demand not by international arbitrage.

II. INTERNAL AND EXTERNAL FLOWS OF WHEAT AND FLOUR.

That there may be a problem with the McInnis analysis is suggested by the available data on the internal and international flows of wheat and flour. Consider first the export data.

A. Exports

The trade statistics of this period are imperfect. The data for shipments from Montreal and Quebec, where there were customs houses that closely monitored the ports, are probably reasonably accurate. However, there are serious problems with the recording of exports across the US border. The Americans had a high tariff on wheat and flour and, until the 1846 drawback legislation took effect in 1847, it applied equally to imports for consumption in the United States and imports for re-export.[4] As a result, only in exceptional circumstances was it profitable to send wheat and flour to the US through legitimate channels (Burn 1928).[5]

---

[4] The 1846 drawback legislation permitted the shipment of Canadian wheat and flour to Boston and New York, in bond. When the products were re-exported from the US the American duties paid to import the goods were refunded except for a small administrative fee. The previous year similar legislation had been enacted providing for the drawback of duties on goods imported to the United States and re-exported to Canada (US 1845; US 1846).

[5] In the 1850 and 1851 reports on Trade and Navigation (for 1849 and 1850, respectively) it was noted that the detailed figures on commodity exports included only reported exports; "... to the Exports from Inland Ports we may safely add 20 per cent " to allow for unreported exports (Canada 1850; Canada 1851). We do not know the basis for this estimate or whether the same magnitude of adjustment should be applied to earlier years. The 20% was added to total exports not to the detailed commodity figures. The vast bulk of reported exports from inland ports were agricultural products, primarily wheat and flour, and we do not know if any of

Smuggling is a different matter; this form of export undoubtedly occurred but its magnitude cannot be measured. Figure 1 displays reported exports of wheat and flour from Canada from 1832 through 1860, plotted on a logarithmic scale to highlight the rate of growth.[6] The figures for 1832-1848 are for Montreal and Quebec only but until 1847 they are probably a close approximation to total *legitimate* Canadian exports. Following the US drawback legislation of 1846, however, substantial exports began to flow to Britain through the United States. As a result, because the data are only for Montreal and Quebec, total legitimate exports of wheat and flour in 1847 and 1848 are probably understated.[7]

McInnis' suggestion that the transition in the importance of wheat as a Canadian export occurred in the 1850s is not supported by the statistics. As is evident in Figure 1, reported exports of wheat and flour grew rapidly during the 1840s. Indeed, while total exports of wheat and flour were generally larger in the 1850s than in the 1840s in the peak year of 1847 exports exceeded those in three years of the 1850s. What is more significant, however, is that despite considerable year-to-year instability, following the initial large surge in the early 1840s, the average rate of growth of wheat and flour exports appears to have been the same during the 1840s as through the mid-1850s, after which there was a considerable relapse. The evidence is that the Canadian breadstuffs industry was increasing rapidly through the 1840s and was linked to external markets.

---

these exports found their way to Britain. Presumably the wheat and flour export figures should be adjusted also but by how much or in which years we do not know. Hence, we do not know if an allowance for unreported exports would alter the perceived growth rates of Figure 5-1.

[6] The data are from Hind, daily newspapers and the Trade and Navigation Reports. Henry Youle Hind was a peripatetic scholar in mid-nineteenth century Canada (DCB 1966). His *Eighty Years' Progress of British North America* is a fascinating compendium of information about Canada, including annual trade data from 1838 to 1861 (Hind 1863). Unfortunately, Hind did not cite his sources but Innis and Lower regarded the figures as sufficiently authoritative to include them in their compilation of *Select Documents in Canadian Economic History* (Innis 1933,1937, p. 266). The government of the Province of Canada did not regularly publish statistics on imports and exports until the Trade and Navigation series began in 1850 (with data for 1849) (Bishop 1963). However, frequent reports on exports from Montreal and Quebec appeared in newspapers and occasional ones as Sessional Papers in response to questions in the legislature (Canada 1841; Canada 1846). Hind's figures conform closely to the newspaper and government reports in the 1840s. For this reason, we assume that the figures through 1848 are for Montreal and Quebec. For subsequent years, the figures appear to have been drawn from the Trade and Navigation Reports and are for all of Canada, including shipments to and through the United States. In Figure 5-1 we have extended the Montreal and Quebec series based on data in the Trade and Navigation reports.

The amount of flour that could be obtained from a bushel of wheat depended on certain characteristics of the wheat and these in turn depended on the type of wheat and the growing conditions which varied from place to place and from year to year. In estimating wheat equivalents Hind assumed that on average a barrel of flour was equal to five bushels of wheat. This was the assumption used in compiling Canadian export statistics. The British import tariff applied the same duty to a barrel of flour as to 38.5 gallons of wheat which implied that a barrel of flour equaled 4.8125 bushels of wheat. In preparing Figure 5-1 we adopted the nineteenth century Canadian convention of 5:1.

[7] For example, In 1849 and 1850 the Quebec and Montreal figures understate total exports of wheat and flour by about 14%. As a partially offsetting factor, the drawback legislation may have reduced smuggling to some extent. It should also be noted that not all exports of wheat and flour from Montreal and Quebec went to Britain. Canada had a relatively reliable market for flour in the Atlantic provinces that accounted for a dominant portion of exports in the 1830s but a small portion in the 1840s. There was also a small but unstable market in the British West Indies. However, the very large jump in exports in the early 1840s was in shipments to Britain.

Figure 1
Exports of Wheat and Flour, 1832-1860
Annual, (Wheat Equivalent)

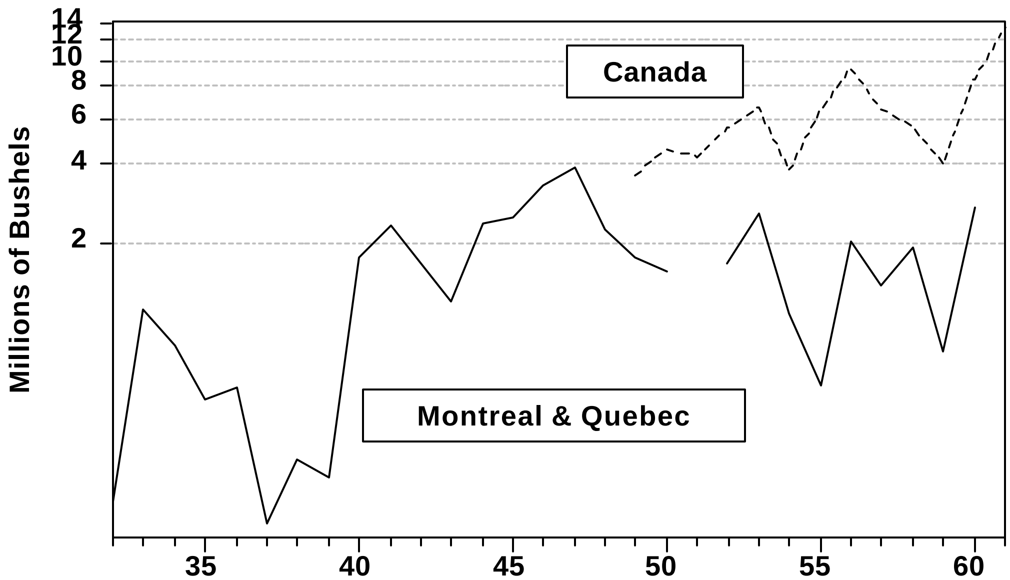
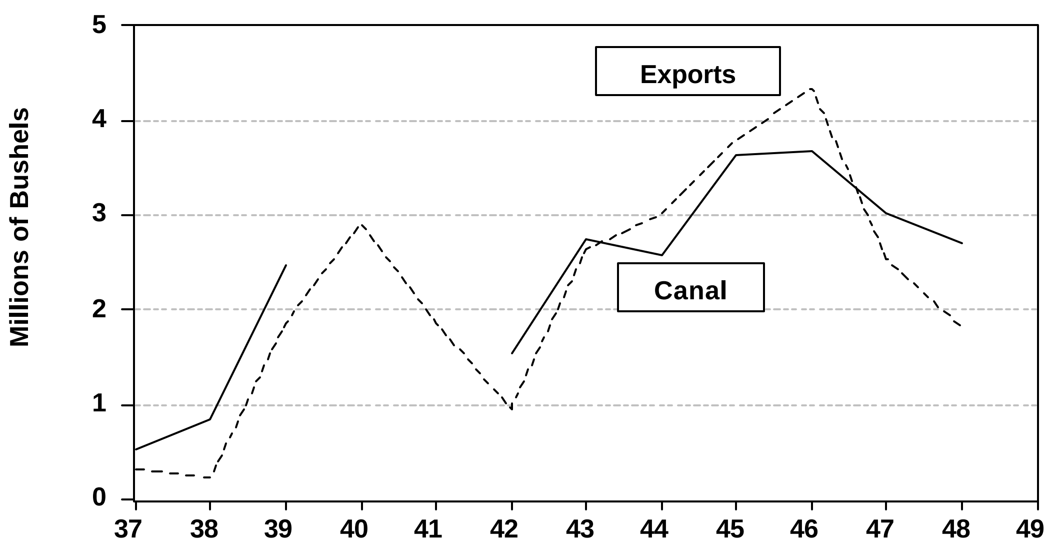


Figure 2
Exports and Receipts by the Lachine Canal:
Wheat and Flour, Annual, 1837-1849 (Wheat Equivalent)



What about McInnis' assertion that the major market for Upper Canadian wheat was in Lower Canada? Figure 2 provides another perspective on exports during the 1840s. It shows reported receipts of wheat and flour at Montreal by the Lachine canal and reported Canadian exports of wheat and flour from 1837-1849. There is an unfortunate (and unexplained) gap in the canal data for 1841 and 1842. Leaving these years aside, reported exports and reported receipts by the canal were of the same general order of magnitude throughout the 1840s and the two sets of data track each other closely.

Like the export data, the figures on shipments by the canals are imperfect. They were compiled by the Collector of Tolls at Montreal and, apart from the years 1847-1849, included only shipments on which tolls had been paid. Shipments that took the risk of running the rapids toll free rather than the safer route through the canals were not included. The magnitude of the missing flour and wheat shipments is not known except for two years. The Collector reported that in the case of wheat none went through the rapids in 1847 and about 16% of total shipments in 1848; in the case of flour about 8% in 1847 and 1.5% in 1848 (Andrews 1851, p. 289). Allowing for toll-free shipments, receipts of wheat and flour by the river were undoubtedly larger than exports.[8] Clearly Lower Canada absorbed some of the Upper Canadian production of wheat and flour. However, even if the toll-free shipments were much larger in earlier years than in 1847 and 1848 when the canal system was less developed, there was a very substantial British presence in the Montreal market for wheat and flour.

The data on trade flows suggest that the British and Montreal markets were linked throughout the 1840s. What, then, about McInnis' demonstration that the implicit British offer price for wheat was generally too low for shipments to Britain to be profitable?

III. MCINNIS ON THE INDEPENDENCE OF BREADSTUFFS PRICES IN MONTREAL

Conceptually, McInnis' procedure for analyzing the links between the British and Montreal markets for breadstuffs is very attractive. A measure of the margin of profit (or loss) on the shipment of wheat from Montreal to Britain promises a much more powerful assessment of the linkage between markets than is possible by a simple comparison of price movements. However, the information requirements of this approach are very demanding. It requires a reliable measure of the price received in Britain for Canadian grain, accurate measures of freight and associated costs for shipments from Montreal to Britain, the relevant price in Montreal and an appropriate allowance for the risks involved in such transactions.[9] Unfortunately, in its empirical implementation McInnis' analysis does not meet these requirements. Indeed, we are skeptical that such a calculation can in fact be made in retrospect given the limitations of the available data.

There are at least four difficulties with McInnis' calculation.

---

[8] McInnis used a different set of data on shipments through the canal, that provided by McCallum in his well-known study of agriculture in Ontario and Quebec (McCallum 1980). The McCallum series shows much larger shipments on the St. Lawrence canal than does the series reported in Figure 2. We conclude that the McCallum series is defective for reasons set out in Appendix 1. In any case, even if the McCallum series is accepted exports to Britain averaged about 63% of canal shipments through the 1840s. This is still a very substantial link to the British market.

[9] Wheat and flour were sent from Montreal to Britain by sailing ships, involving a long and risky voyage. Aside from the inherent (but insurable) risks of a North Atlantic voyage (which included spoilage of the cargo through water damage) was the possibility of a serious adverse change in the prices of wheat and flour while the ship was en route. We do not know who bore this risk. Moreover, we have found no evidence of a forward market in Canadian breadstuffs.

A. Annual vs. More Frequent Observations.

First, because, as we shall show, the price and cost components frequently changed substantially during the year, the calculation is sensitive to the time interval employed. McInnis' analysis uses annual averages for British and Canadian prices and for freight rates. These averages mute, if they do not obscure, important price fluctuations in both markets. Indeed, it is the use of annual data that leads McInnis to the erroneous conclusion that during the 1847 British grain crisis "… there was only a very modest upswing of the Montreal price" (McInnis 1992, p. 33). As we will show below (see below, p. 9) more frequent quotations reveal the relationship between prices in the two markets with greater clarity and they demonstrate that the Monteal market reacted very sharply to the 1847 jump in prices in Britain. In our analysis we use monthly observations.

B. British Price of Wheat.

Second, McInnis uses the London Gazette price of wheat as the British price in his calculation. The Gazette price is a very useful and widely used index of the state of the British market for wheat – but it was not the price at which Canadian wheat was sold in Britain. Calculated weekly as part of the administration of the corn laws, it was an average across all grades of British grown wheat sold in all local markets in Britain.[10] While invaluable for describing the trends in the British market; it is not the appropriate base for the calculation of the profitability of sales of Canadian wheat in the United Kingdom. For that we require the British price of Canadian wheat.

C. Canadian Price of Wheat.

The third problem relates to the Canadian price of wheat. Apart from retail stores, wheat and flour were traded in two types markets in Montreal in the 1840s. Farmers' markets – St. Anns Market, New Market, and Bonsecours Market -- were large market halls managed by the city that provided stalls for local farmers, butchers and fish merchants. These markets provided local produce for local consumption and transactions were effected and prices established in the traditional pre-Revolutionary French units, minots of wheat and quintals of flour. Price quotations were published in Montreal newspapers ("corrected by the clerk of the market"), with occasional gaps, year round. Ouellet refers to the Farmers markets as semi-wholesale ("demi-gros") because they were patronized by local shopkeepers as well as individuals (Hamelin 1966, pp. 36-37; Ouellet, Hamelin et al. 1982, pp. 89-90). Presumably, they also provided grain to some local millers. The prices reported for these markets appear to be the basis for the series of annual wheat and flour prices in urban centres of Lower Canada that were compiled by Ouellet and employed by McInnis in his study.

But there was also a commercial wholesale market, a small network of commodity brokers.[11] Transactions in this market tended to involve large quantities and were reported in British units, wheat in

---

[10] The 1842 revision of the corn law listed 290 local markets from which transactions information was to be compiled and reported as the basis for calculating each week's average price (UK 1842). However, the prices in the large markets had an appropriately heavier weight in the weekly averages than did the prices in small markets. The average was calculated by summing the value of transactions in all markets and dividing by the quantity that changed hands. Revisions were frequent as more data became available from outlying markets.

[11] It is difficult to know how many brokers engaged in trade in flour and wheat were in Montreal at this time. The "Classified Business Directory" in the 1845/46 *Montreal Directory* lists two "Produce and Bill Brokers",

Winchester bushels of 60 lbs. and flour in 196 lb. barrels. Much of the produce was not of local origin. Some of the transactions were for local absorption -- wheat for grist mills and distillers and flour for bakers. However, during the shipping season trading included large-scale transactions in grain and flour for shipment to external markets. In principle, for the study of arbitrage linkages between Montreal and Britain it is prices in the wholesale market that are of direct interest.[12] McInnis did not have such data.

D. Freight Rates to Britain.

Our fourth concern about McInnis' calculation relates to freight rates from Montreal to Britain. Again, McInnis used an annual average, noting in passing that "… transatlantic freights were beyond the control of people in Canada" (McInnis 1992, p. 29).[13] The implication is that freight rates to Britain were predetermined, exogenous to developments in Montreal. Data with more frequent observations, such as the monthly series in Figure 3, tell a different story.

With the probable exception of 1841 and 1847, few ships were sent to Montreal in ballast specifically to obtain wheat or flour.[14] In almost all cases, the ships would arrive with cargo to be unloaded, some for Montreal, some for conveyance upstream. Once ships were in the Montreal harbour, the freight rate for the return trip was a matter for negotiation with the outcome depending on the balance between available shipping capacity and available cargo. The shipping market was competitive. Wheat and flour were not the only possible

---

Macdougall & Glass and Thomas M. Taylor (Mackay 1845, p.271). They were probably the dominant firms throughout the 1840s. Excerpts from the Macdougall & Glass circular were printed frequently in the *Montreal Gazette* and excerpts from the Taylor circular in the *Montreal Transcript*. However, it was the policy of the *Directory* to only list in the Business Directory those firms that were subscribers. There may have been other brokers who were not subscribers. The 1847 Directory did not impose the same listing standard (in the preface to the 1848 Directory the editor recited the standard for listing and noted that "an exception may have previously occurred") (Mackay 1848, p. iv). It lists seven "General Brokers" (Mackay 1847). When the Board of Brokers was organized in 1848 it had eight members. None but Macdougall & Gl;ass and Taylor were listed in the alphabetical section of the 1845/46 *Directory;* all were listed in the alphabetical section of the 1848 directory as "general brokers" (Mackay 1849), p. 357]. Apparently the brokerage business had expanded but it is not clear that all "general brokers" were involved in the international breadstuffs business.

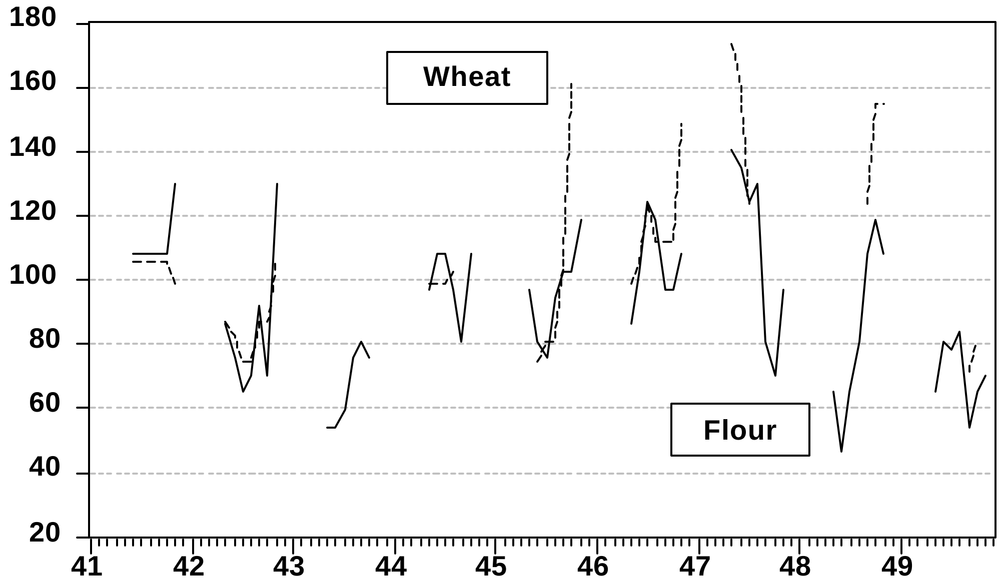
[12] Of course, prices in the two types of markets would not have been determined independently. They followed broadly similar paths over time but the correlation is weak suggesting limited trading between the markets. Deficiencies in the data render precise statements about the relative behaviour of the two sets of markets problematic but prices in the farmers markets appear to have been less flexible and less prone to extreme fluctuations than those in the wholesale market. It is possible that the small scale of the transactions in the farmers markets rendered them partially immune from seizure by speculators during the frenzied speculative episodes. However, the relative independence of prices in the two markets must have been rooted in significant differences in the characteristics of the products traded.

[13] McInnis reports that he obtained transatlantic freight charges for most years and interpolated for the missing years based on reported freight rates for timber. He does not display the series that he used. (McInnis 1992, p. 31)

[14] In the decade of the 1840s 6% of the ships from sea (and 7% of the tonnage) entering the Port of Montreal were in ballast. However, the percentage was inflated significantly by three years in which prices of grain were high in Britain at the beginning of the shipping season. Thus, in 1841 13%, in 1846 7% and in 1847 20% of ships were in ballast, presumably seeking wheat and flour. If these three years are excluded, the average for the 1840s was less than 2.5% (and 2.8% of tonnage) (MG 1855). Some of the vessels in ballast were new ships from the Quebec shipyards. By contrast, a large number of the ships entering Quebec harbour were in

return cargoes, of course. Ashes accounted for a significant portion of the Britain bound shipping capacity and there was frequently other minor cargo.[15] Moreover, excess shipping capacity at Montreal might induce the shipping agent to send a vessel to Quebec for a cargo of timber; rarely did ships return to Britain in ballast.

Figure 3.
Freight Rates from Montreal to Liverpool for Wheat and Flour, Monthly,1841-1849 (Index 1844=100)



Whenever there was an excess of cargo to be shipped freight rates tended to rise. Whenever there was an excess of shipping capacity, freight rates tended to fall. At times, divergent expectations about prices of wheat and flour on the part of merchants and shipping agents paralyzed the shipping market. At the beginning of the shipping season there were few ships in the harbour (occasionally there were newly built ships from Quebec shipyards looking for cargo to carry on their first trip to Liverpool where the ships would be sold). Commodity dealers with wheat or flour to ship to Britain, perhaps from storage, perhaps newly arrived from the upper St. Lawrence River, tended to drive up freight rates. Subsequently, as more ships arrived from sea, the rates usually fell. Near the end of the season shipping agents did not want to run the risks of early winter navigation of the St. Lawrence River and bay or having their vessels tied up in Montreal over the winter. While frequently the flight of vessels from Montreal drove freight rate sharply down, at other times the urgent pressure

---

ballast, in search of a cargo of timber. Timber was very bulky and the annual shipment to Britain required much more shipping capacity than did the Quebec-bound cargo.

[15] A range of other products were regularly carried from Montreal. Besides wheat, flour and ashes the list often included peas, oatmeal, pork, beef, butter, lard, staves and deals. At times there was somewhat unusual cargo. For example, in the relatively slack season of 1848, it was reported:

> *No vessels open: several have, during the season, been filled with Railway Sleepers from this port (Witness 1848).*

of merchants to get their products to Britain drove the freight rates sharply upward. As is evident in Figure 3, the seasonal pattern in freight rates was far from regular.

In his calculation of British offer prices for wheat in Montreal, McInnis took freights rates as predetermined. While the demand for and supply of shipping on a worldwide basis would have set the rates for cargoes from Liverpool to Montreal, our analysis suggests that for the homeward voyage conditions in Montreal harbour were also a powerful consideration. Freight rates were not an exogenous factor that determined whether Canadian grain would be exported to Britain. Rather, the Montreal prices of wheat and flour and the freight rates were jointly determined by information about prices in Britain and the balance of potential cargo and the capacity of shipping available to transport it.

E. Conclusion.

The available evidence suggests that a substantial portion of the surplus wheat from Upper Canada was sent to Britain during the 1840s. The freight rate data show that when the British demand for Canadian breadstuffs was strong, freight rates rose sharply reflecting the shortage of shipping capacity. When the demand was low, freight rates fell accordingly. Thus, rather than an exogenous factor determining the profitability of wheat and flour shipments to Britain, freight rates adjusted as part of the market process that made exports feasible. McInnis' conclusion that the Montreal market for breadstuffs was usually isolated from the British market cannot possibly be correct. What can we say more directly about the determination of prices in Montreal?

IV. BREADSTUFF PRICES AND THE CANADIAN MACROECONOMY OF THE 1840s

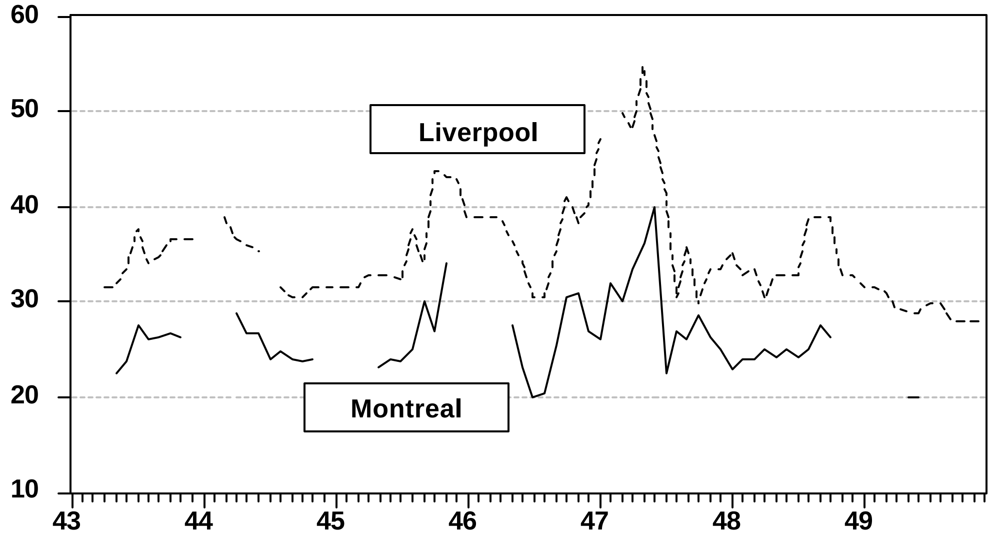
Although the implications of price fluctuations in the early part of the decade merit careful consideration, in this paper we focus on the events of the years 1844-1849. In those years, turmoil in British breadstuffs markets was transmitted to Canada sending Canadian agriculture and the Canadian macroeconomy on a wild roller coaster ride. This was the result of the coincidence of two disastrous events: the Irish potato blight and famine and the failures of British and northern European grain crops. While it is the immediate consequences for Canada of the grain crop failures that are our focus it was, of course, the Irish famine and the resulting mass emigration that were of deeper long term importance.

The prices of Canadian flour in Montreal and Liverpool are plotted on Figure 4. We have chosen to display the price of flour rather than the price of wheat which was used by McInnis in part because observations on the price of flour are more abundant and in part because flour was much more important as an export.[16] McInnis agrees that he would have preferred "to develop the argument more logically in terms of the flour market … than the wheat market" but he lacked suitable data (McInnis 1992, p. 31). For reference a chart of wheat prices in Montreal and Liverpool is included as Appendix 3. While there are far fewer observations, the story told is the same as for flour.

---

[16] In the years for which we have data 12% of the breadstuffs exports were wheat and 88% flour (wheat equivalent).

Figure 4
Prices of Canadian Flour in Montreal and Liverpool
Monthly, 1843-1849 (Shillings Currency)



A. The First British Grain Crisis

The grain crisis of the mid-1840s occurred in two stages. As the 1845 shipping season opened, the circulars of British grain merchants published in the Montreal Gazette were optimistic about the British crop and predicted that "with moderately fair weather" prices would be stable or falling (Brice 1845; Kingsford 1845a).[17] By July, however, the weather was becoming problematic (Kingsford 1845c). Prices began to rise. From mid-June to mid-August, the Gazette price of wheat jumped by 18% and the price of Norfolk flour by 13.5%. There was then a brief interlude of better weather and by late August and early September the Times was modestly optimistic about the harvest (Times 1845a). Although labour shortages were restricting deliveries of the local crop to market and reports of the failure of the potato crop were confirmed, a substantial amount of foreign wheat was arriving (Times 1845b). Prices, while high, stabilized. The false optimism of late September soon ended as reports of "extremely wet and boisterous weather" forced a revision of the forecasts of the northern crop (MarkLane 1845a). The magnitude of the subsequent price rise and the dating of the peak depends on the series considered. The price of Kent and Suffolk wheat reached a peak on November that was 50% higher than

---

[17] Predictions of the British market for Canadian grain, however, were contradictory. Some reports suggested a poor market because of losses on imported grain over the previous three years and the protective effects of the corn laws (Kingsford 1845a). Others suggested a favourable market because of strong British demand, a probable deficiency in Irish exports, and the discriminatory protection of the corn laws (Brice 1845; MG 1845b). During a period of early nervousness about the weather, it was noted that preliminary indications were for short continental crops, so that

> *… in the event of any calamity occurring to the crop in this country, or good grounds for its being anticipated, the north of Europe is not in a position to send us very considerable supplies; importers and speculators would consequently soon direct their attention to the South, to Canada, and the United States, and a considerable advance in prices would result (Kingsford 1845b)*

in January 1845; over the same period to its peak in December the increase in the Gazette price was closer to 30%. As we see in Figure 4, flour prices rose in tandem.

The collapse of prices was not as precipitous. As is evident in Figure 4, the price of flour fell significantly in the first quarter of the year, but then paused before the final plunge. By mid-1846 the Gazette price of wheat was back to the level of early 1845 and some individual price series were below those levels (including the price of Canadian wheat, both at Mark Lane and in Liverpool). The underlying domestic supply problem had not been solved – and indeed was exacerbated by the decline in domestic stocks of grain. It seems likely, therefore, that it was the impending revision of the corn laws and the associated expectation of a flood of breadstuffs from the United States and out of bonded warehouses that precipitated sharp price decline.

B. The Revision of the Corn Laws.

In historical context the jump in the prices of wheat and flour in 1845 was not exceptional; peak prices were well below those achieved in the relatively recent past. However, in the context of the Irish potato famine, the high price of breadstuffs had profound political consequences, precipitating a drastic revision in the corn laws. In late 1845 the likelihood of reform had destroyed the upward momentum of grain prices although the intention of the British government was not revealed until early December (Times 1845c). As the legislation was introduced in mid-January and worked its way through Parliament to Royal Assent on June 26, 1846, grain and flour prices fell. [18] For Canada, the 1 shilling-per-quarter duty attracted by wheat sent to Britain was not to be affected by the reform. However, the very substantial discriminatory treatment vis à vis foreign grain was to disappear and with it the export-inducing subsidy effect of the preferential colonial trading system. Needless to say, the proposed reform elicited considerable anxiety in Canada. [19] However, that anxiety was soon swamped by the amazing jump in wheat and flour prices in the second grain crisis.

C. The Second British Grain Crisis.

Because it induced the 1846 modification of the corn laws, in the long run the first grain crisis was more important than the second. However, considered simply as a price fluctuation, the first crisis paled beside the second.

The 1846 potato harvest throughout northern Europe was little better than that of 1845. Famine continued in Ireland and the demand for alternative foodstuffs by potato consuming regions in the British Isles and on the continent intensified. As in the previous year, until the true fate of the potato crop was recognized,

---

[18] The immediate chilling effect of the information about government policy was noted in the Times two days later:

> *In Mark-lane to-day the first effect of the anticipated repeal of the Corn Laws was the almost entire suspension of business ... and though no positive alteration was quoted in prices the tendency was decidedly towards a decline (Times 1845d).*

[19] The Montreal Board of Trade prepared an interesting analysis of the effects of the virtual elimination of the preferential duty on Canadian wheat given the other elements of Imperial policy still in place, particularly differential duties on imports of product to Canada, which favoured British producers, and the Navigation Acts, which restricted the free market in shipping (Board 1846). While, realistically, the Board did not call for a reversal of the reforms, In “fairness”. it called for the elimination of these policies as well as elimination of the Canadian duty on imports of American wheat for consumption in Canada.

favourable weather fostered expectations of a bountiful harvest and combined with the release of grain from bonded warehouses when the corn laws were revised put strong downward pressure on prices of wheat and flour. Thus, according to the *Times*,

> *About the middle of July, before the potato murrain had manifested itself in its full force, such exaggerated notions of the probable productiveness of the harvest were entertained, that the price of wheat became depreciated to an unnaturally low point, so low, indeed, as to render the English markets the cheapest in Europe (Times 1846a).*

It was soon recognized that "... the abundance talked of ... (was) ... imaginary"; prices began to increase rapidly (Times 1846a). By mid-October the Gazette price exceeded its peak of late 1845, and was continuing to rise.

The actual size of the 1846 grain harvest is uncertain. [20] Early reports were reasonably optimistic, at least for the southern parts of England (Times 1846b). However, it seems likely that the final outcome was less than average. In any case, the normal supply from Ireland was not forthcoming and the carry-over of old wheat from the previous harvest was small. The pressure on prices was intense, not only from home markets but also from the continent (Times 1846c; Times 1846d; Times 1846e; Times 1846f). Indeed, because of high prices on the continent, despite the domestic crisis, Britain found itself an exporter of wheat (MarkLane 1847a; MarkLane 1847b).[21] Large imports of wheat and flour from North America did not stop the continuing rise of prices. By mid-January, 1847, the Gazette price was over 70 shillings quarter, a price, which, if sustained, would have triggered duties that exceeded those that would have been imposed by the old corn law. [22] It seems likely that this was an anomaly, included in the law without any serious thought that prices ever could be this high. In any case, in late January, 1847, the collection of duties under the corn law was suspended until September and in July the suspension was extended to March 1848 (UK 1847a; UK 1847c). At the same time, the restrictions on shipments of grain to Britain in foreign ships under the Navigation Acts were suspended until September (UK 1847b). Prices, however, continued to rise. The Gazette price reached a peak in excess of a hundred shillings a quarter for wheat in May 1847 before evidence of a reasonable harvest and continued heavy importations of grain brought prices tumbling down.

One of the consequences of the revision of the corn laws was a drastic change in the position of Canadian wheat and flour in British market. The first phase had reduced the margin of protection in the discriminatory import tariff of the corn laws of 1842 and 1843. In the second phase Canadian wheat farmers lost even this residual amount of protection. Indeed, apart from the brief interlude from March 1848 to February

[20] Unfortunately, official estimates of agricultural production are not available for these years. Although there are some estimates for earlier periods, reasonably reliable statistical series begin several years later (Mitchell 1988, pp. 180-185).

[21] There was at least one reported instance of a ship arriving at a British port with grain from across the Atlantic being sent on to Belgium without unloading (Times 1847a).

[22] The price that determined the duty to be imposed was an average of Gazette prices for 6 weeks.

1849 when a small margin of protection was restored, Canadian grain and foreign grain subsequently entered the United Kingdom on the same terms.[23]

D. The Montreal Reaction .

Undoubtedly there were local pressures that had at least a marginal effect on the prices of wheat and flour in Montreal's wholesale market. However, it is evident that, at least during the shipping season, the ceiling on wheat and flour prices in Montreal was normally set by what merchants would pay to ship to the United Kingdom based on their expectations of British prices and the then prevailing costs of shipment. The Montreal data are very imperfect, particularly for wheat prices, but it is apparent in Figure 4 that Montreal prices of flour followed closely those in London with a short lag reflecting the time taken to transmit market information from London to Montreal. This was true both when prices were high and when prices were low.

The Montreal reaction to the 1844-1847 turmoil is instructive. The mid-to-late July pessimism of British grain merchants that foreshadowed the first crisis was alluded to in Montreal papers in mid-August (MG 1845c).[24] A blunt statement on August 20 that "Serious fears of a failure of the harvest now begin to be felt" precipitated a jump in the price of flour of almost 10% in one day (MG 1845d).[25] In the market for wheat, the response was less dramatic but nonetheless evident. Prices stiffened as word of the tightening of British markets reached Montreal, the price of a barrel of fine flour rising from 25 shillings in August to 30 shillings in September. As the shipping season was closing in November the price of flour jumped to 34 shillings. The price of wheat moved in concert. The late 1845 spurt appears to have been a local speculative bubble, in the season when Montreal was in slow communication with England, but physically isolated. Prices rose substantially relative to London. In the early months of 1846 the excess receded, but it was not until the opening of shipping was imminent in the spring that Canadian prices came back into line with the falling prices in England. Some Canadian speculators must have incurred heavy losses as a result of their winter's activities.

The Montreal reaction to the 1846 breadstuffs crisis was similar to that in 1845. Each successive report of substantial price increases in Britain brought a predictable response in Montreal. At times the market was thrown into disarray by British news. Thus, on September 7, 1846 it was reported:

---

23 However, Canadian grain still had the minor disability imposed by the Navigation Acts which came back into force in October 1847. Grain had to be transported to Britain in British ships. We do not know how much, if any, this added to freight costs.

24 Two weeks earlier, Kingsford and Lay were reporting that "to the common observer" the crop "still presents a good appearance generally, excepting in many parts of Ireland." They expected the harvest to be good but late. (Kingsford 1845c).

25

> *Up to Tuesday morning a limited business was done at 25s 6d for "fine" and 26s 1 2/2d for "extra fine" -- when owing to the accounts brought by the Hibernia ... the market suddenly advanced to 28s to 28s 1/12d for the best brands of "fine," 28s 6 for "extra fine," and 28s 9d for "superfine," at which latter rate "extra fine" was afterwards placed in quantity. Mixed and second rate brands of "fine" bringing at the same time 27s 3d to 27s 10 1/2d according to quality. The transactions of the week, at the foregoing rates, embrace fully 40,000 barrels, including, however, several lots at sea, sold and transferred per Bill of Lading, at 28s 4d per barrel (MacDougall 1845a).*

> *The mail per Britannia reached here yesterday morning. Prices of Grain and Flour have advanced in the English markets. Nothing has transpired here since the receipt of the mail, so that no quotations can be given (Taylor 1846a).*

Uncertainty at times made the market hesitant just before news was expected. For example, a broker reported on September 26 that "... before the arrival of the Mail, there was less disposition to buy ..." and prices fell slightly (Taylor 1846b). Confirmation of further escalation of British prices, however, invariably brought parallel prices increases in Montreal. Thus, in the September 7 episode referred to above, "On receipt of the Mail, an advance of about 3s (in the price of fine flour) was established," about 13.5% (Taylor 1846c).

As the British market approached its remarkable peak in mid-1847, upon receipt of word of continuing price increases "... the market became excited and an active business was done ..." at higher prices (Taylor 1847a). However, word of "... a panic in the corn trade" and that "corn is now nearly unsaleable ..." produced paralysis in Montreal (Orr 1847a). "The Market has been almost inactive since the receipt of the Mail per Britannia, on Monday last." (a week previously) (Taylor 1847b). As British prices collapsed, Montreal prices followed, with the usual short lag.

The unexpected and remarkable magnitude of the increase in British prices was a clear windfall to Canadian grain farmers and merchants. We have no way of determining what portion of the gain accrued to which participants in the market. However, it was asserted that

> *... several parts of the country are quite bare of food, the farmers having been tempted by the high prices to sell more than prudence warranted (Witness 1847).*

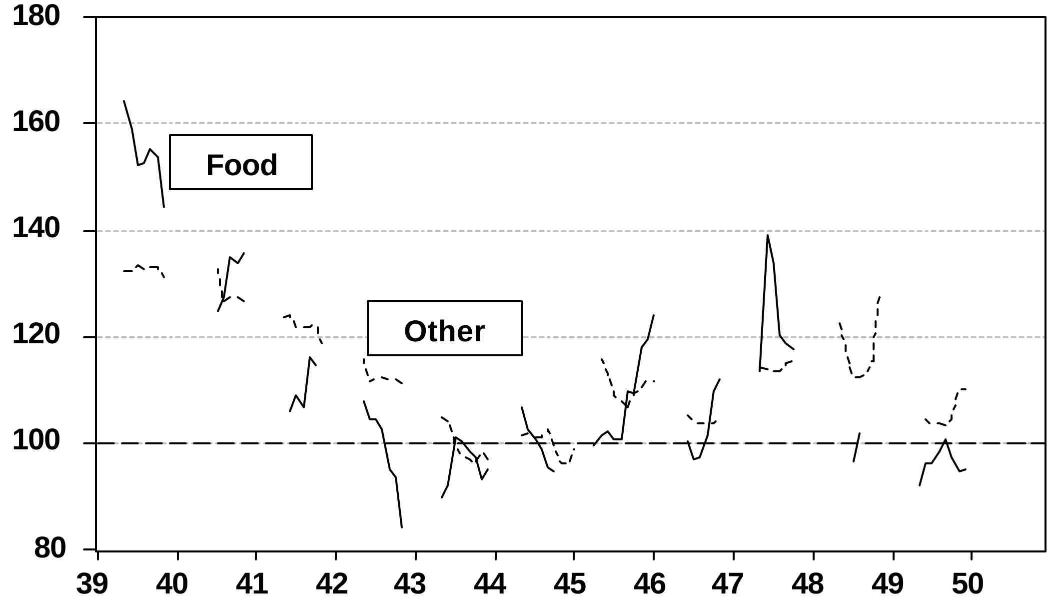
The effect on production is far less certain. The financial windfall may have encouraged and facilitated the clearing and breaking of more land and, because the high prices extended through the spring planting period, may have induced increased planting. However, whatever the effect, it must have been short run. Not only did prices collapse in mid 1847, they remained discouragingly low for several years.

V. THE GENERAL PRICE LEVEL

We have estimated a wholesale price index for Montreal in the 1840s.[26] It is presented in Figure 5 decomposed into two components, food and "other." The food component is dominated by flour and beef, both export items. The "other" component is primarily imported manufactured goods. Not surprisingly, the food index mimics the wild fluctuations of the breadstuffs markets that we have just considered. The fluctuations of the "other" index show the same time pattern but are considerably muted. Although we have not yet made a formal estimate of the terms of trade for Canada in this period, it is evident that they must have changed significantly, improving and adding to Canadian real income during the upswings in the breadstuffs market and becoming less favourable and reducing Canadian real income during depressions.

[26] The estimation of the wholesale price index is discussed in a paper to be presented to the World Congress of Cliometrics in Montreal in July, 2000 (Paterson and Shearer 2000). The index plotted on Figure 5 is discontinuous because Montreal wholesale prices were only reported during the shipping season, May – November.

Figure 5
Wholesale Prices in Canada, 1839-1850:
Food and Other. 1844=100



The behaviour of prices is one of the reasons why we believe that the depression of 1847-49 was severe. However, it is not the only reason.

VI. THE RAILWAY MANIA

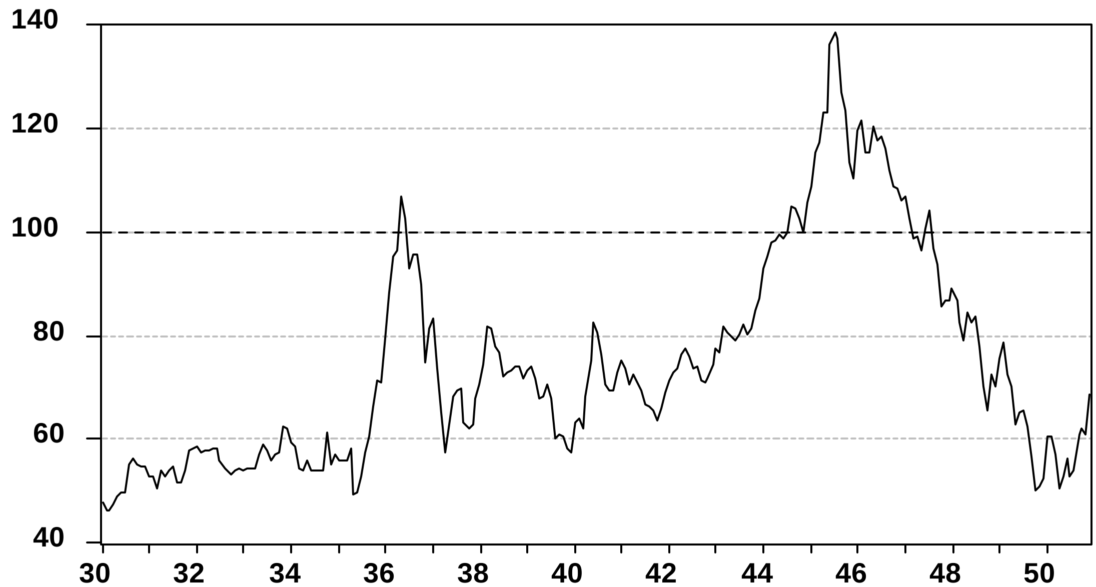
One of the notable features of the mid-1840s was the British railway mania. A burst of intense speculation in railway shares was accompanied by the frantic creation and flotation of new railway companies that in turn induced a more prolonged but also intense wave of capital expenditures. The mania elicited proposals for Canadian railways to be funded in Britain, the building of which would have induced a major investment boom, fundamentally altered the transportation and communication network and accelerated the pace of economic development in the colony. In the event, the proposals were unsuccessful and the potential boom was aborted. The combination of the corn crisis and the intense wave of capital expenditures provoked balance of payments and monetary crises in Britain. Although British capital expenditures provided some support for Canadian timber production, the monetary crisis ushered in a mild depression in Britain that, coupled with low grain prices, translated into a severe depression in Canada – an early example of Canada being on the receiving end of the international transmission of monetary and macroeconomic difficulties. It is for these reasons that the British railway mania and its aftermath merit our attention

A. The Mania.

Following early private experiments with iron rails and steam engines to carry coal from the mine head to water, the promotion of public interurban freight and passenger railways began in Britain in the mid-1820s but serious railway construction did not begin until about 1830. It increased through the 1830s, with a major surge in the second half of the decade and a sharp decline in the depression of the early 1840s. By 1844 some 104 companies operated 2235 miles of track. Most companies had short, local lines, designed to haul goods but by the early 1840s the formation of large railway networks had begun, in part through construction and in part through amalgamations.

The shares of railway companies were actively traded on the London stock exchange and on several new provincial exchanges. As is illustrated in Figure 6, railway share prices fluctuated widely.[27] A major speculative upsurge in the mid-1830s was followed by an equally sharp collapse, the recovery from which was slow and halting, reflecting the low profits of railways in the depressed British economy of the late 1830s and early 1840s. By 1843, however, share prices were again showing some buoyancy when another very powerful wave of speculation captivated the market. It reached a climax in mid-1845. Over two years the share price index increased by over 70%, an average appreciation rate of 27% per annum.[28] This was the stock exchange component of the railway mania. In the aftermath of the speculative bubble prices of railway share receded to levels not seen since the early 1830s.

Figure 6
Gayer Index of Railway Share Prices, 1830-1850
1844=100



[27] The index of railway share prices is from Gayer with the base set at 1844=100 (Gayer 1953, p. 375). It includes shares of 10 companies (but only 7 through the whole period 1844-1850) weighted by the number of shares outstanding. Thus, the index has changing weights; in effect it is an index of the total capitalization of the included railways with capital valued at the market price of shares.

[28] The 1835-36 upsurge was shorter but much more intense. Thus, the Gayer index increased 117% in 12 months, an average rate increase of 78% per annum. From the beginning of 1830 through 1843 the average rate of increase was about 4.4% per annum.

The speculative bubble was not confined to outstanding shares in existing companies.[29] Existing companies sought funding for planned extensions to their lines and hundreds of new companies, domestic, colonial and foreign, were introduced to the market. All issued scrip, preliminary certificates for new shares that would be issued if their proposals went forward. The scrip was actively traded in an undocumented market that paralleled the share market but reached its peak somewhat later. It was the prospect of funding their projects in the booming market for railway scrip that attracted Canadian railways promoters to London.

B. The Canadian Mania Projects.

When the British railway mania was underway, Canada was not devoid of plans for railways. Although the region was very sparsely settled in the 1830s, railways were projected reaching almost every corner of the two provinces. Many did not advance beyond the proposal stage. However, some obtained legislative charters, establishing them as limited liability corporations with authority to bridge streams, enter private land for surveys and expropriate land for railway rights of way, subject to arbitration on the value of land taken from private holders. In the cases of three Upper Canadian projects there were promises of government loans and one ambitious inter-colonial project received an Imperial grant for preliminary surveys. Some proposals were for short, local lines, but at least three involved what for the times were relatively long lines. We have no evidence that the promoters of Canadian railway projects of the 1830s' approached the British market for funding but perhaps that was not an option. By the time that the plausible major Canadian proposals were developed with at least the appearance of substantial local financial support (including the government subsidy) the London market had collapsed. During the political and economic turmoil of the mid-1830s all of the major projects were suspended. Only two short lines were constructed with local funding: the Champlain and St. Lawrence south from Montreal to Lake Champlain and the Erie and Ontario around Niagara Falls.

Nonetheless, some of the planning eventually yielded fruit. Three of the projects proposed in the 1830s were dusted off and presented to the London market as mania projects in the 1840s. A fourth short line was constructed in the 1840s with local funding.

Canada had its own mini railway mania in the 1840s. Unlike the British mania, however, it did not involve wild speculation in Canadian railway shares and Canadian railway scrip. Canada had no equivalent of the 1844 British Companies Act to facilitate the creation of scrip-issuing joint stock companies.[30] All

---

[29] For example, in commenting on one day's trading, the London Times reported:

> *All descriptions of scrip* (preliminary certificates of subscriptions to shares in new companies) *have been extensively dealt in, and many of the new projects command as large a premium for the "coming out" as those already in the market. (Times 1845e).*

[30] The Companies Act provided an administrative procedure for the creation of officially recognized joint-stock companies (without limited liability, however). New railway companies could be organized under this act and providing certain requirements were met they could issue script to potential shareholders. Before share could be issued and capital raised and the railway built, however, the company also had to obtain a parliamentary charter. Deadlines were established for the submission of detailed plans to the Board of Trade (November 1845) and for a 10% deposit with the Court of Chancery (February 1846) With some 1200 new companies these deadlines created a serious administrative bottleneck and a financial crunch that jointly precipitated the deflation of the speculative bubble.

corporations had to be created by an act of the provincial legislature (or of the Imperial government). Apart from shares in chartered banks, there were few Canadian securities available in the domestic market and there was only one railway share, that of the Champlain and St. Lawrence Railway . Judging from the frequent gaps in price quotations the volume of trading on the unorganized exchange was very limited.[31] However, 1845-1847 saw a rash of proposals for new railways, many petitions for bills and the passage of almost as many railway acts.

Some of the proposals were intended to be part of the grand railway network in the province, others were essentially local lines designed to link communities to major railways, to waterways or to each other, and some were designed to connect to American Railways. The funding was usually intended to be local although there were hints of approaches to American capitalists as well. Perhaps most intriguing -- particularly in light of recent controversies about government funding -- was F. C. Capreol's proposal for a railway from Toronto to Lake Simcoe and Lake Huron to be funded by a lottery (TSHR 1849).[32] It is also worth noting that several companies were registered in Britain in 1845 to build railways in Canada.[33] However, we have found no information other than their names in the list of provisionally registered companies. Aside from the revival of the 1830s proposal for a railway from Quebec City to the Atlantic provinces, which with a proposed capitalization of $12 million and authority to borrow an additional $4 million must have been recognized at that time as an idle dream, there were three major projects: a northern line from Toronto to Lake Huron, a western line from Niagara Falls to Windsor and an eastern line from Montreal to the Atlantic Ocean. All three were presented to the

---

[31] In 1842 a list of prices of stocks included 8 banks, 1 insurance company, 1 gas light company and 1 railroad (MG 1842). By 1848 the list had expanded only slightly to 8 banks, 7 mining companies, 3 railroads, 2 telegraph companies and 2 insurance companies (MG 1848e). That other securities were traded without their prices being quoted in the brokers' circular is possible, of course. No information is provided on volume except frequent notations that the prices quoted were "nominal," indicating no trades occurred.

[32] Tickets to the lottery were $20 each (half and quarter tickets were also sold) and the prizes were shares in the railroad. There were to be 15,951 prizes, the top two being $100,000 in shares and the smallest 7500 being $20 in shares. The venture was a failure perhaps partly because there were strong objections to the lottery on moral grounds. Thus,

> *The importance of the project to the Province, and to Toronto particularly, seems to have made the signers forget that the end cannot justify the means. Lotteries are not only in principle objectionable, but in practice they produce innumerable evils, turning attention from the pursuits of industry to the delusions of gambling, with all its pernicious consequences (Globe 1848a).*

[33] Three companies were registered whose objectives were railways from Quebec to the Atlantic provinces: Halifax and Quebec Railway and Land Company ("Railway from Halifax to Quebec, £2,000,000); Saint John and Quebec Railway Company ("railway from Saint John, New Brunswick, to Quebec, Canada, capital not stated); Nova Scotia and New Brunswick Transit and colonization Company, ("railway from Halifax to a point on the south bank of the St. Lawrence, opposite Quebec, and from Fredericton, N. B., to the same point; also to buy and sell land in the provinces of Nova Scotia and New Brunswick," £1,000,000). In addition there were the Metropolitan and Great Western Junction Railways of Canada Company ("railway from Toronto to the Great Western Railway in Canada," capital not stated) and the Hamilton, Toronto and Georgian Bay Railway Company ("railway from Hamilton, via Toronto, to the Georgian Bay, with branch to Lake Simcoe," capital not stated) (UK 1846a). The promoters were not noted in the report.

London capital market during the mania. Despite the financing frenzy, none were funded.[34] One short line, the Lachine and Montreal around the Lachine rapids, was completed with local funding.

We will not explore the reasons for the failure of the approaches to the London market. Suffice it to note that of the three only one made a plausible start on construction during the 1840s. That was the St. Lawrence and Atlantic designed to connect with an American line, the Atlantic and St. Lawrence, to provide a continuous railway from Montreal to the Atlantic port of Portland, Maine. Until the provincial government enacted a guarantee of interest and principal on the debenture issues of major railways the St. Lawrence and Atlantic struggled for funding and construction was slow and sporadic.[35] At the time that tenders were called for the first section of the railway, 30 miles from the St. Lawrence to St. Hyacinthe, it was reported that subscriptions had been entered for almost 7600 of the 12000 shares, of which 5364 were reported as "available." The balance were frozen in England. The par value of the subscribed shares was in excess of $1,000,000 but when the directors called for installments between January and September 1847 only a fraction of what was called for was paid-in. Construction began in 1847, with the contractors taking shares in the company in partial payment for their work, and by late December 1848 the line was open to St. Hyacinthe. However, the 30 miles of track were poorly constructed and had to be repeatedly repaired, revenues from operating it did not cover expenses and the company was virtually bankrupt. Progress stalled until a government guarantee of interest on debentures elicited loans from three of the major potential beneficiaries, the City of Montreal, the St. Sulpice Seminary (a major land owner in Montreal) and the British American Land Company, permitted some additional work. However, it was not until the government guaranteed the principal as well as the interest on the company's debentures in 1851 that sufficient funds became available to complete the line to the international border. When the Grand Trunk acquired the company in 1853 large parts of the line had to be rebuilt. Canada's 1840s railway boom was a mere whimper.

C. The Legacy of the British Railway Mania

In Britain, the bursting of the speculative bubble in railway shares and scrip was far from the end of the story. As an immediate legacy, some 250 companies had parliamentary authorization to spend up to £133 million on construction of new railway lines over the next two or three years.[36] A boom in railway construction

---

[34] The Great Western appeared to have been funded but after the collapse of the market the funding was withdrawn.

[35] We have analyzed the funding of the St. Lawrence and Atlantic Railway in an unpublished paper (Paterson and Shearer 1989).

[36] A second legacy was a much larger number of companies with preliminary or complete registration but no parliamentary charter that were holding both deposits of and further claims on subscribers. Many had no incentive to wind up as directors hoped to make deals that would enhance their financial position. They were financial albatrosses around the necks of the unhappy subscribers. The subscribers' deposits were tied up in the companies, without prospects, and because expenses were paid out of the deposits, the subscribers saw their funds being dissipated to no purpose as expenses mounted. What the *Economist* called "the winding up movement" developed, not only among scripholders in defunct companies but also among shareholders of companies that held parliamentary charters but whose future was uncertain (Economist 1846b). Initially, the movement had little success because disillusioned scrip holders had no effective way to force a company to call a meeting and to wind up. The government acted quickly and decisively to diffuse the situation with the

followed (Figure 7). At this point the two themes of the economic drama of the 1840s -- the corn crisis and the railway mania -- come together in a violent denouement as the Bank of England moved from the wings to centre stage and Britain was propelled into a monetary crisis.

Figure 7
Indexes of Railway Share Prices and Railway Construction
1830-1850 (1844=100)

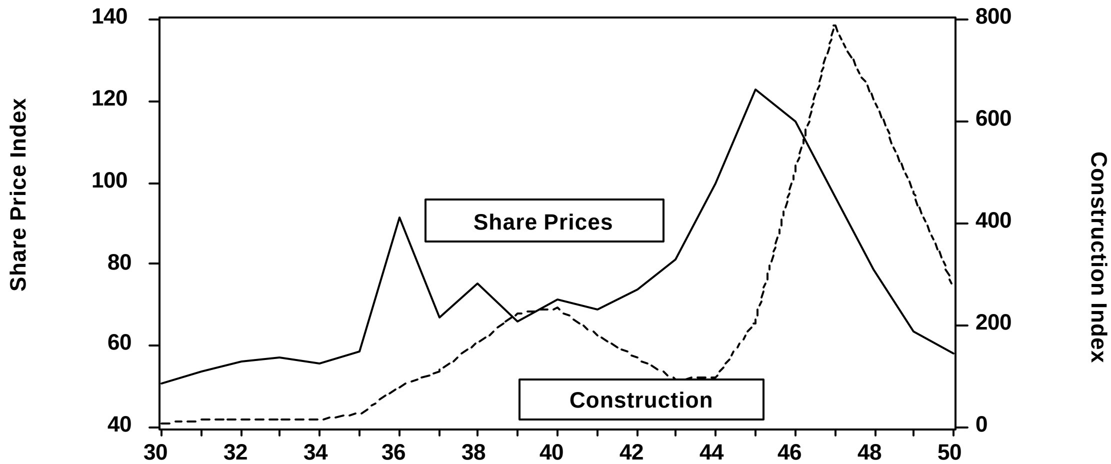
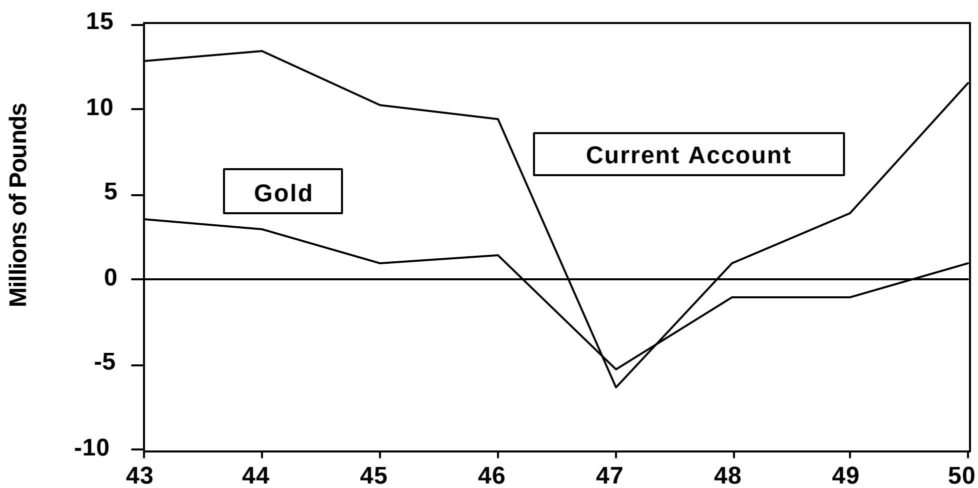


Figure 8
Current Account of the British Balance of International Payments
and Bank of England Gold Reserves, 1843-1850



Dissolution Act (UK 1846b). It provided a method by which a minority of disaffected scrip holders in a railway company that had not obtained a Parliamentary charter could force the winding up of the company. The winding up movement infected Canadian railway proposals. Indeed, the principle that under certain circumstances a minority of scripholders could force the winding-up of a railway company that did not have a British parliamentary charter haunted the efforts of one of the major Canadian mania projects to obtain financing in Britain.

The immediate reasons for the monetary crisis are not difficult to find. The combination of the second grain crisis and the railway construction boom created demands for imported goods that precipitated a serious deterioration of the current account of the British balance of international payments (Figure 8).[37] We have less evidence about the capital account. However, during the mania there had been substantial sales of shares in foreign railways in the British capital market and as these railways were built -- mostly on the continent of Europe -- calls for capital from British subscribers to the railway shares added to the requirements for foreign payments.[38] Heavy requirements for foreign payments meant an excess supply of sterling bills in the foreign exchange markets and strong downward pressure on the external price of the pound.[39] On November 3 the Times noted that a decline in the value of the pound in foreign exchange markets that began at the end of October "... is beginning to attract notice." (Economist 1846a; Times 1846f). As is illustrated in Figure 9, the very substantial decline in the external value of the pound was particularly pronounced in New York.[40] It became profitable to purchase gold from the Bank of England and to ship it abroad.

The drain of gold and silver from the Bank of England in 1847, as shown on Figure 8, was dramatic. Initially, in September and October 1846, there was an internal drain from the Bank of England's vaults to the interior that would eventually reverse itself.[41] However, a serious international drain began in mid-November. Earlier, some small amounts of silver had gone to Hamburg and Rotterdam but on November 14 the Times announced "The first purchase of gold for export since October, 1840" (Times 1846h; Times 1846i); Economist, 1846e #115]. From that point the drain accelerated, some going to Europe but the vast bulk to New York.

---

[37] While the basis of the estimation is not obvious, Hunt's Mercantile Magazine concluded that half of the grain and flour imported from the US to Britain in 1847

> *may be set down to the effect of the Irish famine .... A large portion of the remaining importation of food was to supply the extra demand which railroad expenditure excited, as well as for bread, as the long list of luxuries (Hunt's 1848a).*

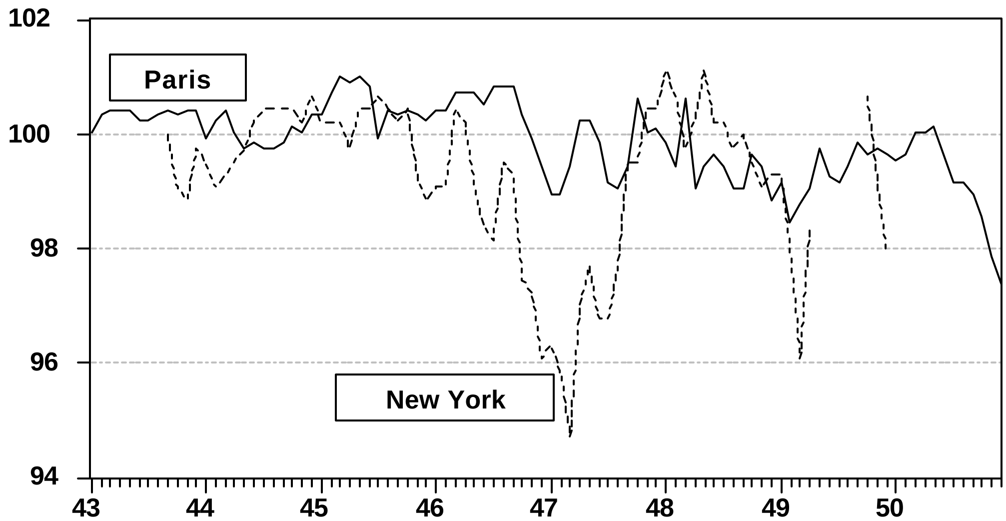
[38] We do not have data on borrowing by foreign railways in the London market. However, data compiled by Morgan suggest that £5.8 million was called by foreign railways in 1847, 14% of the total railway calls in that year (Morgan 1940). Interest in and involvement with foreign issues was sufficient to support a journal, the Railway Herald, that specialized in the analysis of foreign railways and trading in foreign issues in London. It began publication July 1845 when the mania was reaching its zenith and ceased in October 1847, after the monetary crisis.

[39] Foreign exchange transactions involving Britain, whether receipts or payments, were normally conducted in Sterling bills of exchange rather than in foreign currencies.

[40] Among the three centres, the depreciation of the pound was least vis a vis the French franc. France also suffered from crop failures and food shortages and consequently also had heavy imports of grain. In New York the franc depreciated in parallel with the pound, although not quite as deeply, and from January 1846 to January 1847 the Bank of France lost over two thirds of its specie reserve (Hunt's 1848b).

[41] The drain was accompanied by an increase in Bank of England note circulation. The Economist speculated that this was a result of the prohibition of increases in the note circulation of the country banks under the Bank Charter Act of 1844. To meet seasonal demands for currency they had to draw both notes and bullion from the Bank of England (Economist 1846c; Economist 1846d).

Figure 9
The External Value of a Pound Sterling
Monthly, 1843-1850 (Index 1844=100)



Following the Bank Charter Act of 1844 the note issue of the Bank of England was supposed to be regulated directly by the Bank's gains or losses of gold and silver. The Bank was simply to play an agency role; it was not to exert central banking powers to manage the supply of currency in circulation. By contrast, the Bank's banking operations -- investing, lending and discounting bills -- were to be competitive, governed by normal private banking considerations with profitability as the guide. Although the Bank could lend and discount at any interest rate, depending on its perception of the quality of the paper and competitive conditions, it also posted a Bank Rate that was to be the minimum discount rate for bills. Given the dominant size of the Bank of England, the Bank Rate could not help but be a rate of special significance in the market.

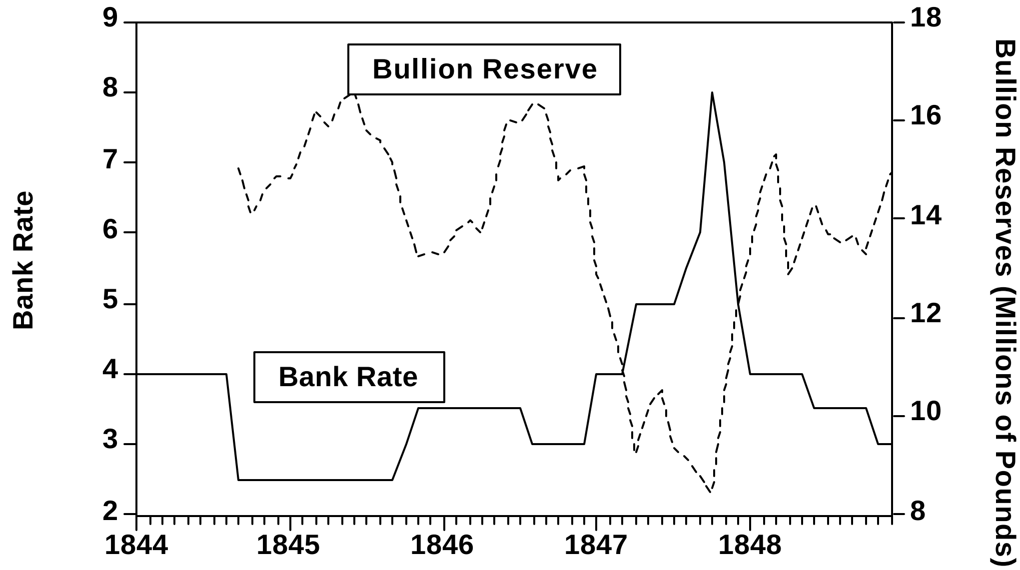
Like any commercial banker, in its banking operations the Bank of England was always subject to the overriding constraint that its "banking reserve" -- gold and silver legal tender money -- was sufficient to meet all immediate demands of depositors and note holders. The state of the banking reserve became a decisive factor in setting the Bank Rate. On Figure 10 we compare the Bank Rate with the Bank's excess bullion reserves.[42] In late 1845 a dip in excess reserves was accompanied by a rise in the Bank Rate to 3.5%.[43] Some months later, when the banking reserve was restored to its earlier level, the Bank Rate was reduced to

[42] By "excess" we mean surplus to the legal requirements for bullion reserves again notes in circulation outside the Bank. "Bullion" means gold and silver either in bars or coin. It was customary to refer to Bank of England notes held in the "banking department" as the banking reserve. These notes were not in circulation and hence not yet a liability of the Bank. They had an exact counterpart in billion held in the Bank's vaults (nominally in the accounting device called the "issue department"). Together with some coin and bullion against which notes had not been issued (held in the banking department), these notes, then, represented excess bullion reserves.

[43] This occurred in two stages; to 3% on October 16 and 3.5% on November 6.

3% (August 27, 1846). It is the subsequent balance of payments induced plunge of the bank reserves that is of particular interest to us.

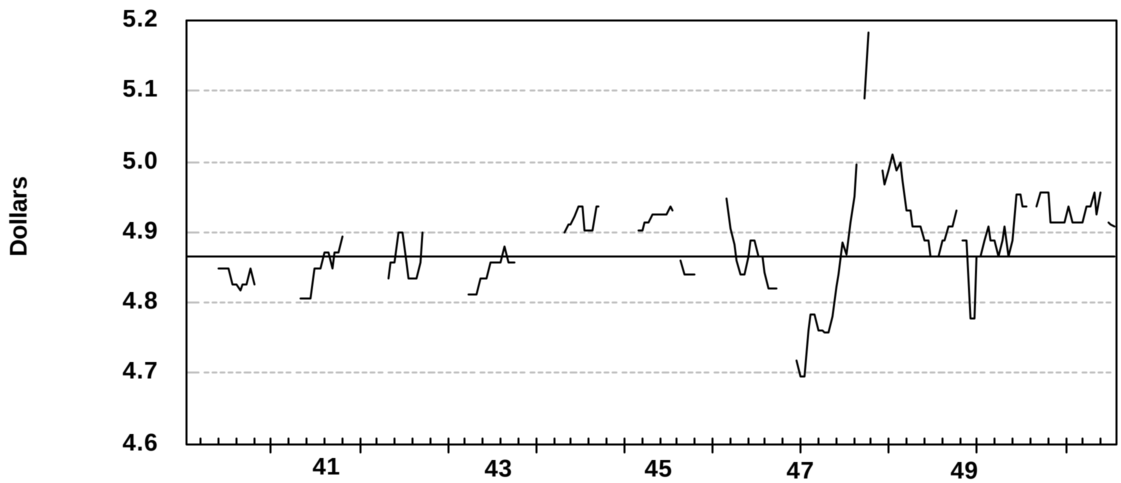
Figure 10
The Bank Rate and the Bank of England's Bullion Reserves
Monthly, 1843-1848



The loss of gold from the reserves of the Bank of England was so precipitous as to constitute a true crisis. The Bank reacted in the only way it could, dramatically increasing the Bank Rate to an unprecedented level and curtailing credit. The foreign exchange markets responded. The pound quickly recovered and the gold drain was stemmed. However, much damage was done to the mercantile economy. A compilation, possibly incomplete, by Evans listed 218 British merchants that failed in the five months from August through December 1846 (Evans 1848, pp. 68-108). Initially, the failures were concentrated among merchants in the grain trade who were caught with inventories and purchase contracts negotiated at the peak of the market when prices tumbled. As weeks passed, however, high interest rates spread the devastation through a broad range of trades and industries. Railway share prices fell to levels not seen since the 1830s. However, despite the intensity of the commercial crisis, the subsequent depression in Britain was reported to be relatively mild. The economy was partially supported by the ongoing, but diminishing, railway construction boom.

D. Canada and the Monetary Crisis

Figure 11
The Price of a Pound Sterling in Montreal
(Spot Equivalent), Half Monthly, 1840-1850

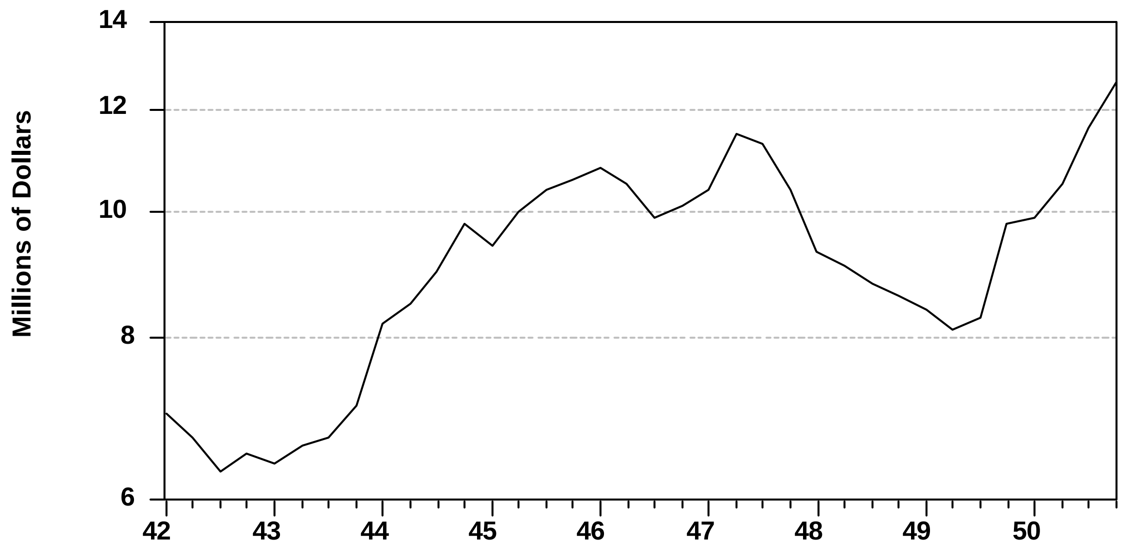


While of trivial importance relative to New York and Paris, the Montreal market for pounds sterling reacted in a similar way -- but with a lag -- to the surplus of sterling during the boom in breadstuffs prices and then to the shortage of sterling following the monetary crisis Figure 11.[44] Thus, in early 1847 the price of sterling fell well below par and in late 1847 and early 1848 it rose sharply, almost reaching $5.20 per pound ($4.866 was par). This, of course was a passing phenomenon with few lasting consequences.

Much more significant was the behaviour of the banking system. The collapse of the breadstuffs market, the bout of monetary tightness and the failure of many mercantile houses in Britain induced Canadian banks to restrict credit severely. Our estimates of the supply of Canadian money from 1842-1850 are shown on Figure 12 (plotted on a logarithmic scale to emphasize rates of change). On the one hand, the money supply reflects the credit policies of the banks. On the other hand, in the absence of data on gross domestic product, it is the most comprehensive business cycle indicator that we have available. Three things should be noted about Figure 12. The first is the magnitude of the recovery from the deep depression of the early 1840s and, despite its ragged character, the intensity of the boom of the mid-1840s. The second it the precipitous decline in the money supply beginning in early 1847. The third is the depth and persistence of the recession. Although the trough was not as deep as in 1843, the population and the economy had expanded greatly in the intervening years.

[44] In Montreal sterling bills of exchange were normally for 60 days sight. Allowing 15 days for the trip to the coast and across the Atlantic by mail steamer, perhaps 75 days would elapse before maturity. In Figure 11 we have adjusted the reported price of sterling bills, using the Bank Rate, to the implicit equivalent spot rate.

Figure 12
The Supply of Canadian Money (Nominal), Quarterly, 1842-1850



All of the banks suffered losses in the 1847-49 period. For one, the City Bank, the depression in business activity almost brought it to its knees. After an exuberant annual meeting in June 1847 when the president was awarded $1,600 for his services, in 1848 the President submitted his report

> *… in the course of which he declined receiving any remuneration for his past year's services. After which considerable discussion arose, and many questions … put touching the affairs of the Bank …. (City 1848)*

The normal dividend having been withheld, we can imagine the nature of the questions. Early in 1849 a special meeting was called to consider the future of the bank (Witness 1849). Among the options were closing the bank and merging it with another bank (City 1848; City 1849). In the event, it was decided to seek permission for a 25% reduction in the par value of its shares so that its capital would not appear to be impaired and the institution could continue (City 1850). The government agreed, an early Canadian example of the application of the "too big to fail" doctrine. The failure of a significant bank that would have seriously aggravated an already serious depression was avoided.

Less fortunate was the Montreal Provident and Savings Bank. In July 1848 it was reported that

> *Since the 1st of January last, the ordinary drain on the bank, in consequence of the severe depression of the times, and the number of depositors leaving Montreal, has reduced the aggregate deposits … from £215,000 to £171,000 (QG 1848).*

A prolonged run elicited desperate appeals for calm from the directors, but by mid July the institution had closed (MG 1848a; Pilot 1848a; MG 1848b).

It was not just deposit-taking institutions that experienced severe financial distress. The government was also strongly affected. Revenues, particularly from customs duties, fell sharply and it was impossible to float new Canada bonds on the London market at anything near conventional terms. Similarly, conventional borrowing in Canada was essentially impossible. At the same time, the government was committed to a heavy program of expenditures on public works and immigrant relief. Canada had long resisted the temptation to have government issued paper money. However, to meet the deficit, the government took the unconventional and highly controversial step of issuing a new series of small debentures that had monetary attributes. Payable one year after issuance with interest at 6%, they were in relatively small denominations ($10 and $20), were receivable, at par, at any time in payments to the government, and were "… beautifully engraved ... in appearance like the notes of the chartered Banks (MG 1848c). In circulation from mid-1848 to mid 1850, at their peak the outstanding circulation amounted to about $600,000 --

VII. THE DEPRESSION OF THE LATE 1840s.

How bad was the Canadian depression of 1847-49? Contemporary Canadian observers thought that it was very severe. Thus, in the annual report of the Canada Company for 1848 it was noted that

> *Nearly eighteen months of unprecedented distress had prevailed within the province during which the system of all classes, from the largest merchant to the humblest labourer, had been paralyzed. The failure of the timber trade for some years past, the losses of the merchants at Montreal and Quebec, and the commercial panic in Europe, in 1847, had all seriously affected the monetary affairs of the province. The import of goods from England in 1845 and 1846 was unusually large, being forced into the country by the free credit given by merchants in England. These circumstances all occasioned an excessive pressure throughout the province for the payment of debts, and that at a time when the bankers restricted their issues and not only refused their discounts, but urged imperatively the payment of their advances in all quarters. Thus the bankers pressed upon the wholesale merchants and they upon the middlemen and Storekeepers, who in their turn pressed equally upon their immediate debtors in all parts of the country. At the same time, owing to the fiscal laws of the United States, all goods imported from them had to be paid for in specie, and thus the circulating medium of the province had been still further cramped and limited. Another important circumstance render the collection of money by the company difficult was the failure of the spring wheat crop in 1848. This crop, upon which the small farmers of limited means and recently settled in the province, had greatly depended and which had been extensively sown in all parts , but particularly in the Huron tract, proved a complete failure last year. (CanCo 1849).*

More simply,

> *Jamais les affaires n'ont été aussie stagnantes que cette année, et particulièment depuis la clôture de la navigation, tout est arrêté comme aux temps des épidémies qui ont décimé notre population (Minerve 1849).*[45]

---

[45] Another newspaper editor referred to the period as one

> *… when our commerce is nearly suspended .... when the scarcity of money embarrasses all but those in the receipt of salaries, and compels to the most stringent economy ... (StCath 1848).*

In its annual report for 1847 the Bank of British North America blamed "… losses to a greater extent than was expected …" on ",,, the unparalleled commercial calamities of the last autumn" following on the decline in prices of agricultural goods and "the extreme scarcity of money which was experienced for a considerable period by the commercial classes in this country …(and) … throughout the North American colonies (BBNA 1848)

The next annual report referred to 1848 as "Another year of considerable depression in the trade of British North America" which forced the bank to pursue a cautious lending policy (BBNA 1849).

Noting the serious commercial distress in Britain where "Many of the Bankers, Merchants, Manufacturers and Capitalists have fallen and been crushed beneath the pressures of the times," in his 1848 report the President of the Bank of Montreal blamed the poor performance of the Bank over the previous year on the fact that

> *… the commercial community of this province, dependent as it in a great measure is upon the Mother Country for the facilities necessary in carrying on the trade of the Colony, have largely participated in the*

This interpretation of Canada's economic situation in the late 1840s has been discounted by some economic historians. Thus, Norrie and Owram dismiss the depression as mild and unimportant.

> *The panic of these years (1846 through 1850) was, to a large degree, a reflection of human psychology rather than economic collapse. .... In fact, the years from 1846 to 1850 were ones of commercial readjustment rather than of any fundamental depression in the Canadian economy. .... The commercial crisis was short lived .... (Norrie and Owram 1991, pp. 212-213).*[46]

Our view is somewhere in between. Contemporary witnesses, as they faced the brunt of economic distress in their daily lives, probably exaggerated the seriousness of difficult economic times. Certainly, as Norrie and Owram suggest, compared to a depression like that of the 1930s, the depression of the late 1840s was short-lived. However, Norrie and Owram dismiss the depression far too facilely. It was not simply a "reflection of human psychology" -- a "commercial readjustment" to the suspension of the corn laws.[47] The suspension of the corn laws was the touchstone of political unrest in Canada, the forerunner of profound changes in the Canadian constitution and economic policy. However, of deeper importance, conditioning the political environment, was a serious commercial depression rooted in the collapse of important international markets.

VIII. CONCLUSION:

In this paper we have challenged two recent propositions about the Canadian economy in the 1840s: McInnis' conclusion that the Montreal market for wheat and flour was normally isolated from that of Britain and that as a result Canadian wheat and flour prices were determined in Canada by Canadian supply and demand; and Norrie and Owram's observation that the commercial depression at the end of the 1840s was mild. Our conclusion, based on new statistical evidence that we have developed as part of our on-going study of the Canadian macroeconomy in the middle of the nineteenth century, is that both proposition are incorrect and that they give a misleading view of its external economic relations. The Montreal price of wheat was determined

---

> *general calamity…. The proximate causes of these failures would appear to have been the unexpected, but great and very sudden, decline in the prices of agricultural productions, and an equally great depression in the value of Timber, and Colonial built ships (BM 1848).*

The following year the President hoped that the shareholders would find the results satisfactory

> *… when it is remembers how great the Commercial depression throughout the Province has been since last we met (BM 1849).*

It was not until 1850 that he could report "… evident signs of returning confidence" (BM 1850).

[46] In reaching this conclusion Norrie and Owram focus on the withdrawal of the British mercantilist umbrella over Canada as the cause of Canada's commercial crisis. They correctly note that Canadian "... businessmen and politicians ... consistently overestimated the importance of, and therefore the effect of the absence of, the imperial system to Canadian development (p. 212). The repeal of the corn laws was but one, and probably a relatively small, part of the commercial forces battering Canada. It is also worth noting that Norrie and Owram have a distinctly long term focus in their analysis; a concern with growth and development in which the importance of less than catastrophic business depressions (like that of the 1930s, for example) are inherently of little importance. They also suggest that the depression was both occupationally and regionally specific, affecting most the articulate and very vocal merchant community of Montreal. The effects appear to have been much more widespread

throughout the decade in volatile external markets and, given that prices of imported goods showed substantially less volatility, this had a powerful effect on Canada's terms of trade. [48]

Canada was also tied to the world economy through the capital market. Despite the amazing boom in the London market for railway securities Canada's large railway projects of the 1840s were still-born. A Canadian railway construction boom that might have been did not occur. However, the other consequence of the British railway mania and grain crisis, the monetary and commercial crisis of 1847, pushed Canada even deeper into depression. The supply of Canadian money, the most comprehensive available cyclical indicator, contracted for 9 consecutive quarters from the end of 1846 and did not recover to its late 1846 level until the first quarter of 1850. The price level displayed similar behaviour. The Canadian depression of the late 1840s was neither mild not merely "psychological".

APPENDIX 1: ALTERNATIVE ESTIMATES OF SHIPMENTS OF BREADSTUFFS ON THE ST. LAWRENCE CANALS.

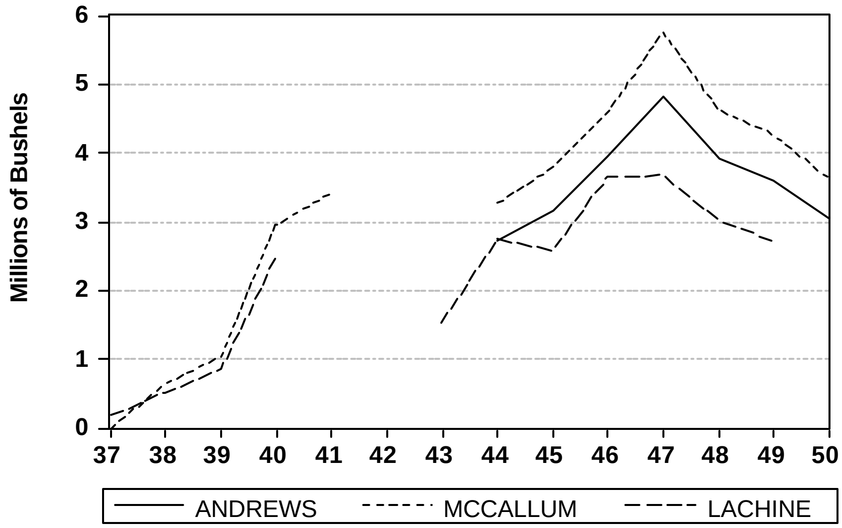
Figure A1-1 shows three series of shipments of wheat and flour (wheat equivalent) downward on the St. Lawrence canals. The Lachine series is derived from contemporary reports published in Montreal newspapers and is the same series as that shown in Figure 2. The Andrews series is from the remarkable reports of the American consul at St. John, New Brunswick, to the American Congress (Andrews 1851; Andrews 1853). The McCalum series is from his book, *Unequal Beginnings (McCallum 1980)*. McCalum reports that for 1844 on his series is from Andrews. Unfortunately, we have been unable to duplicate the McCalum series so we have reported the two series separately. The Andrews series stands between our series and that of McCalum. The probable explanation is that the Andrews series is not pure. The data for wheat include barley and the data for flour include oatmeal. The volumes of barley and oatmeal were not insignificant. This may explain the discrepancy between the Andrews and the Lachine series.

---

[47] Perhaps the most balanced appraisal of the economic significance of the suspension of the corn laws was in (Burn 1928).

[48] Forest products were the other major export. That prices of forest products showed substantially less volatility has not been demonstrated here.

Figure A1-1
Three Measures of Canal Shipments of Wheat and Flour
1837-1850 (Wheat Equivalent)



APPENDIX 2: BREADSTUFF PRICES IN THE FARMERS' MARKETS AND IN THE WHOLESALE MARKET

The data in Figures A-2-1 and A-2-2 show wheat and flour prices in the farmers market that were generally lower than those in the wholesale market. However, this may be misleading.[49] The wholesale market price of wheat plotted on Figure A-II-1 is for "Upper Canada Best White," the most valued of wheats grown in Canada, and the wholesale price of flour in Figure A-2-2 is for "Fine," the basic commercial grade. In both cases, these are the prices that were most consistently quoted in the wholesale price lists. Unfortunately, the price lists for the local farmers markets do not indicate the types of wheat and flour to which the prices referred. The wheat was probably one of the varieties of red wheat grown in the vicinity of Montreal (which may have changed from season to season) and the flour may have been made by small grist mills on the farm rather than by established millers.[50] Both white and red wheats were broad categories each comprehending several

---

[49] Ouellet et al asserted that in general prices were higher in the local farmers markets than in the wholesale market. They do not provide evidence, however. (Ouellet, Hamelin et al. 1982, p. 90).

[50] The price tables for the wholesale market provide scattered quotations for Lower Canada red wheat. These prices are fairly consistently higher than those quoted in the Montreal farmers markets but the observations are so few that strong conclusions are not possible. However, the wholesale price of red wheat follows a similar pattern to that of white wheat (Figure 2) and the relationship between prices of red wheat on the wholesale market and the farmers markets is similar to that described in the text. The price of red wheat is the farmers markets was less flexible and less inclined to extreme fluctuations than the price in the wholesale market.

Price tables for Toronto markets in 1842, published in the British American Cultivator, show prices of "farmer's" flour significantly below the price for "miller's" flour. An 1843 story on Montreal markets distinguished varieties that were planted at various times in various locations in Upper and Lower Canada. Each variety had different characteristics including planting season (winter or spring), suitability to different soils, time to maturity and resistance to diseases such as rusts and to infestation by the Hessian fly.[51] They also differed in flour making properties and in the acceptance of the flour in different markets.[52] Because we do not know what varieties correspond to the prices quoted at various times (and in various domestic and British markets) we cannot use the data to make strong statements about price differentials between wheats or between markets. Indeed, from the data at hand, about the only conclusion that can be drawn about relative prices of wheats is that the price of "Upper Canada Best White" wheat was generally (but not always) above the price for "Lower Canada Red" (and, of course, also above the price for "Upper Canada Mixed")[53]

---

between "fine" and "coarse" flour, the price of the latter being in the range of those in the price lists for the Farmers markets at that time. (BAC 1842; BAC 1843a)

[51] Jones classic history of agriculture in Upper Canada had a discussion of experimentation with different wheats (Jones 1946, pp. 99-105). We have not found a comparable analysis for Lower Canada.

[52] For example, with reference to Lower Canada:

> *A considerable breadth of ground has this year, I understand, been sown with wheat, but principally of the Black Sea description. The flour made from this variety is not so merchantable in England, and though it is in favour with the bakers here, as being a very strong flour, it does not answer well for export, being liable to cake and spoil. (Rusticus 1848).*

The export statistics do not indicate the composition of wheat exports. However, prices for both Canadian white and Canadian red were frequently quoted in the Liverpool market. Clearly, both categories of wheat must have been marketable in Britain.

[53] The observations are for red and mixed wheat are too few to make useable series. In general, prices of red wheat were below those for white wheat by between 1/4 and 1s per bushel, but at times the prices were equal (and rarely, the price of red was above that for white). Prices of mixed wheat were generally in between. Similar relationships between white and red wheat (British or offshore) held in the Liverpool and London markets.

Figure A2-2
Prices of Flour in Montreal:
Wholesale Market and Farmers Markets
1843-1849 (Index 1844=100)

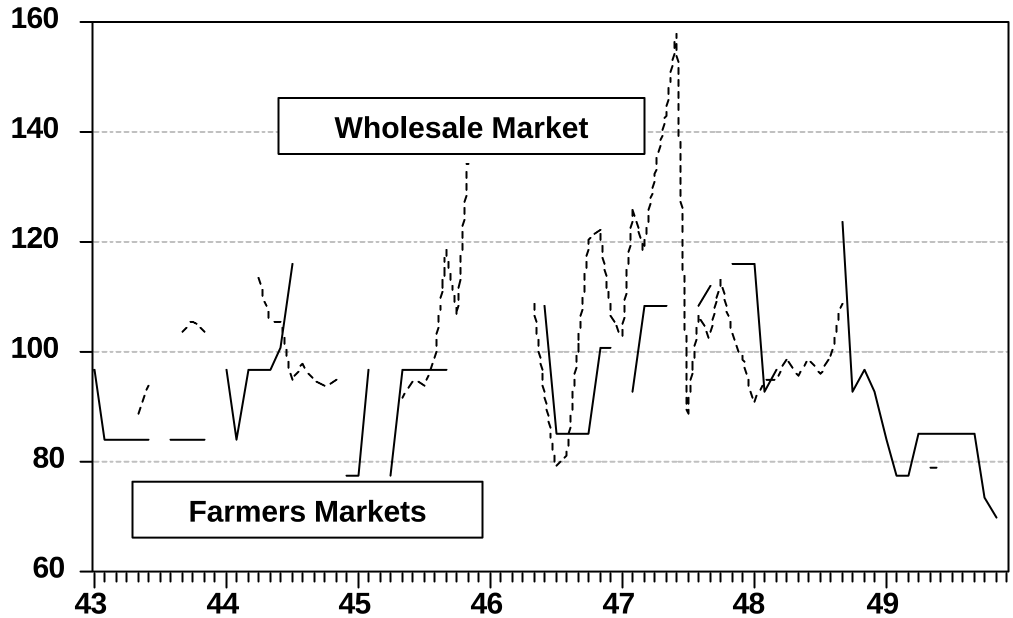
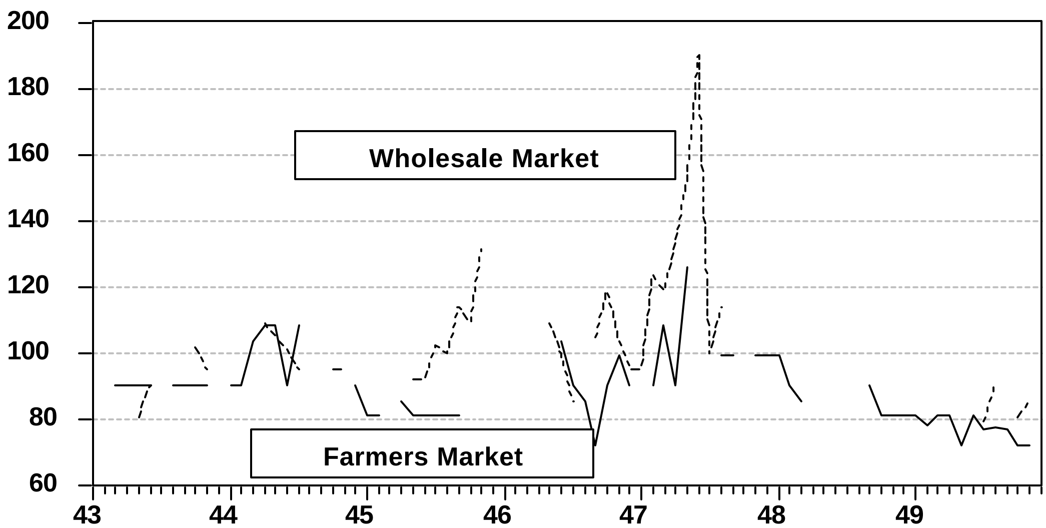
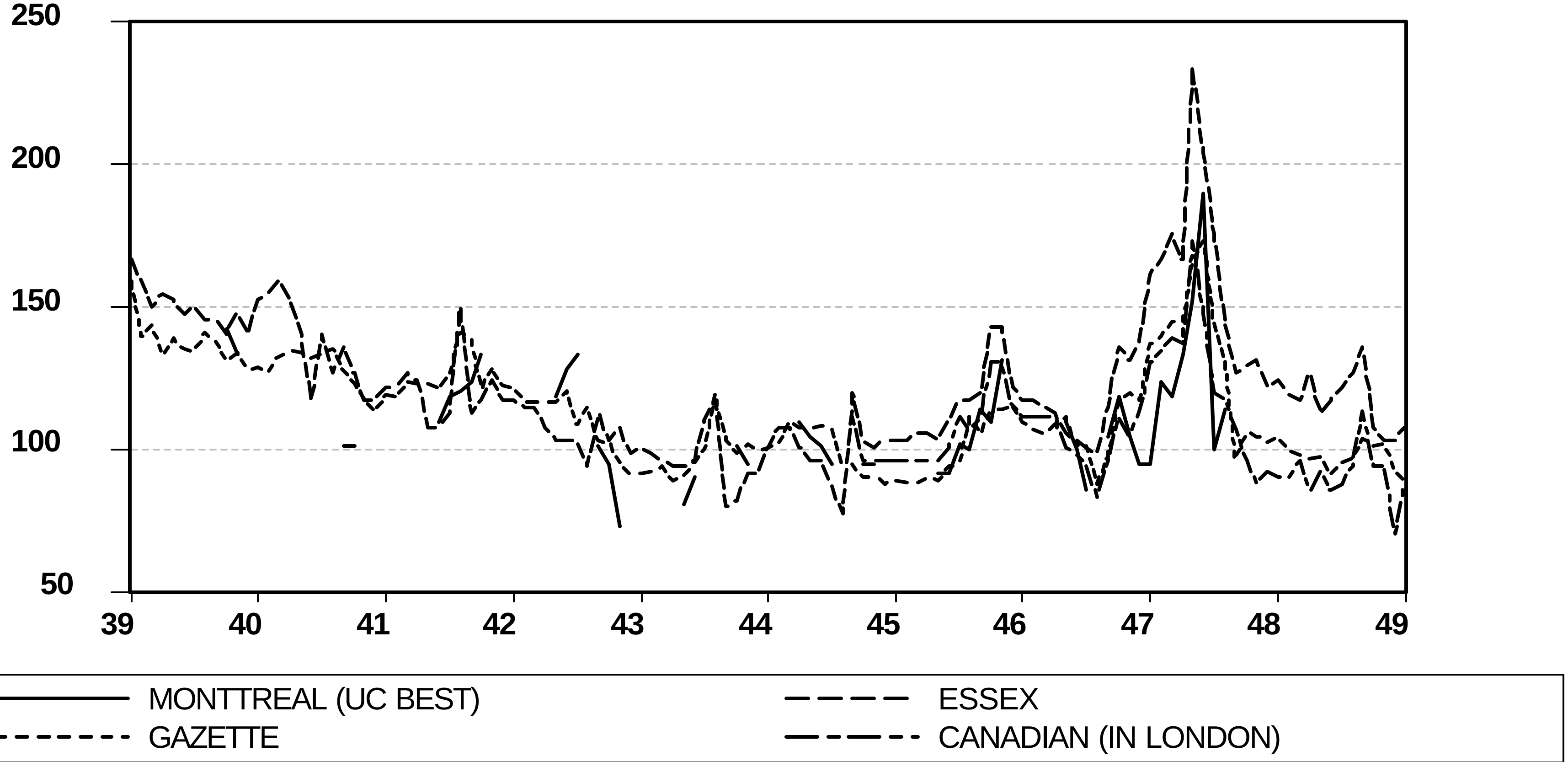


Figure A2-1
Prices of Wheat in Montreal:
Wholeslae Market and Farmers Markets
1843-1849 (Index 1844=100)



APPENDIX 3: WHEAT PRICES IN MONTREAL AND BRITAIN

Figure A3-1
Wheat Prices in Montreal and Britain, 1839-1849
Index 1844=100



References

Andrews, I. D. (1851). Information on the Trade and Commerce of the British American Colonies with the United States and Other Countries Since 1829. Washington, Senate Executive Document 23. 31st Congress, 2nd Session (Serial # 590).
Andrews, I. D. (1853). Report on the Trade, Commerce and Resources of the British North American Colonies and upon the Trade of the Great Lakes and Rivers. Washington, Senate Executive Document 112. 32nd Congress, 1st Session (Serial # 622, 623, 651, 652).
BAC (1842). "Toronto Markets." The British American Cultivator.
BAC (1843a). "Montreal Markets." The British American Cultivator(March): 36.
BBNA(1848). Bank of British North America. Quebec Morning Chronicle. Quebec. July 4, 1848.
BBNA(1849). Bank of British North America. Quebec Morning Chronicle. Quebec. June 27, 1849.
Bishop, O. B. (1963). Publications of the Government of the Province of Canada, 1841-1867. Ottawa, National Library of Canada.
BM(1848). Bank of Montreal. Pilot. Montreal. June 8, 1848.
BM(1849). Bank of Montreal. Quebec Gazette. Quebec. June 14, 1849.
BM(1850). Bank of Montreal. Quebec Morning Chronicle. Quebec. June 7, 1850.
Board(1846). Board of Trade. Pilot. Montreal. August 18, 1846.
Brice(1845). Joseph Brice & Co. *Montreal Gazette*. Montreal. May 9, 1845.
Burn, D. L. (1928). "Canada and the Repeal of the Corn Laws." The Cambridge Historical Journal **2**(No. 3): 252-272.
Canada (1841). Schedule of Imports and Exports in the Province of Lower Canada in the years 1837, 1838, 1839, and 1840. A. Q. Journals of the Legislative Assembly .
Canada (1846). Schedule of Certain Statements respecting the Imports and Exports of the Province of Canada. A. G. Journals of the Legislative Assembly .
Canada (1850). "Trade and Navigation." Journals of the Legislative Assembly of the Province of Canada, Appendix A.
Canada (1851). "Tables of the Trade and Navigation of the Province of Canada for the Year 1850." Journals of the Legislative Assembly of the Province of Canada, Appendix A.
CanCo(1849). Canada Company. British Colonist. Toronto. May 1, 1849.
City(1848). City Bank. Pilot. Montreal. June 8, 1847.
City(1849). City Bank. Pilot. Montreal. March 14, 1849.
City(1850). City Bank. Quebec Gazette. Quebec. June 7, 1850.
Creighton (1937). The Commercial Empire of the St. Lawrence, 1750-1850. Toronto, Ryerson Press.
DCB (1966). Dictionary of Canadian Biography. Toronto, University of Toronto Press.
Easterbrook, W. T. and H. G. J. Aitken (1958). Canadian Economic History. Toronto, Macmillan.
Economist (1846a). Bankers' Gazette. The Economist.
Economist (1846b). Bankers' Gazette. The Economist.
Economist (1846c). Railway Business. The Economist.
Economist (1846d). Bankers' Gazette. The Economist.
Evans, D. M. (1848). The Commercial Crisis, 1847-1848 ., London: Letts, Son and Steer.
Gayer, A. D., W.W. Rostow and A. J. Schwartz (1953). The Growth and Fluctuation of the British Economy, 1790-1850. Oxford, The Clarendon Press.
Globe(1848a). The Lottery Rail Road. Globe. Toronto. December 30, 1848.
Hamelin, J. a. F. O. (1966). Le mouvement des prix agricoles dans la province de Québec: 1760- 1851. France et Canada Francais du XVI au XX Siècle. C. a. E. L. Galarneau. Québec, Les Presses do L'Université Laval. **7:** 83-127.
Hind, H. Y. (1863). Eighty Years' Progress of British North America. Toronto, L. Stebbins.
Hunt's (1848a). "Commercial Chronicle and Review." Hunt's Merchants' Magazine.(February): 194.
Hunt's (1848b). "Commercial Chronicle and Review." Hunt's Merchants' Magazine.(November): 194.
Innis, H. A. a. A. R. M. L. (1933,1937). Select Documents in Canadian Economic History , 1783-1885. Philadelphia, Porcupine Press.
Jones, R. L. (1946). History of Agriculture in Ontario. Toronto, Universityof Toronto Press.
Kingsford(1845a). Market Report of Kingsford and Lay. *Montreal Gazette*. Montreal. May 22, 1845.
Kingsford(1845b). Market Report of Kingsford and Lay (May 19, 1845). *Montreal Gazette*. Montreal. June 5, 1845.

Kingsford(1845c). Messrs. Kingsford & Lay's Circular. Montreal Gazette. Montreal. August 4, 1845.
Kingsford(1845c). Messrs. Kingsford & Lay's Circular (London, 17th July, 1845). *Montreal Gazette*. Montreal. August 4, 1845.
MacDougall(1845a). Commercial (MacDougall & Glass). Montreal Gazette. Montreal. August 23, 1845.
Mackay, R. W. (1845). The Montreal Directory for 1845/46. Montreal, Lovell & Gibson.
Mackay, R. W. (1847). The Montreal Directory for 1847. Montreal, Lovell & Gibson.
Mackay, R. W. (1848). The Montreal Directory for 1848. Montreal, Lovell & Gibson.
Mackay, R. W. (1849). The Montreal Directory for 1849. Montreal, Lovell & Gibson.
MarkLane(1845a). The Corn Trade (From the *Mark Lane Express*) September 23, 1845. *Times*. London.
MarkLane(1847a). The Corn Trade (From the *Mark Lane Express*) January 11, 1847. *Times*. London.
MarkLane(1847b). The Corn Trade (From the *Mark Lane Express*) March 8, 1847. *Times*. London.
McCallum, J. (1980). Unequal Beginnings: Agriculture and Economic Development in Quebec and Ontario until 1870. Toronto, University of Toronto Press.
McInnis, R. M. (1992). Perspectives on Ontario Agriculture. Gananoque, Ontario, Langdale Press.
MG(1842). Wholesale Prices Current. Montreal Gazette. Montreal. July 4, 1842.
MG(1845b). Commercial. Montreal Gazette. Montreal. June 5. 1845.
MG(1845c). Liverpool Corn Market. Montreal Gazette. Montreal. August 16, 1845.
MG(1845d). Commercial Summary. Montreal Gazette. Montreal. August 20, 1845.
MG(1848a). Montreal Provident and Savings Bank. Monteal Gazette. Montreal. July 3, 1848.
MG(1848b). "We learn with great regret ....". Monteal Gazette. Montreal. July 15, 1848.
MG(1848c). "We find in the Pilot of Saturday ....". Monteal Gazette. Montreal. July 17, 1848.
MG(1848e). Momtreal Brokers' Circular. Montreal Gazette. Montreal. July 10, 1848.
MG(1855). Port of Montreal. Montreal Gazette. Montreal. November 12, 1855.
Minerve(1849). Bulletin Commercial. La Minerve. Montreal. February 19.
Mitchell, B. R. (1988). British Historical Statistics. Cambridge, Cambridge University Press.
Morgan, E. V. (1940). "Railway Investment, Bank of England Policy and Interest Rates, 1844-8." Economic History **4**(February): 329-340.
Norrie, K. and D. Owram (1991). A History of the Canadian Economy. Toronto, Harcourt, Brace, Jovanovich, canada.
Orr, T. C.(1847a). Prices Current (July 3, 1847). Montreal Witness. Montreal. July 26, 1847.
Ouellet, F., J. Hamelin, et al. (1982). "Les prix agricoles dans l es villes et les campagnes du Québec: d'avant 1850" aperçu quantitatifs." Histoire Sociale -- Social history **15**(May): 83-127.
Paterson, D. G. and R. A. Shearer (1989). "Tugging on the Bootstraps: Funding the First International Railway." unpublished: The University of British Columbia.
Paterson, D. G. and R. A. Shearer (2000). "Price Levels in Canada and the North Atlantic Economy of the Mid-19th Century: A New Canadian Wholesale PRice Index." unpublished: The University of British Columbia.
Pilot(1848a). Montreal Provident and Savings Bank. Pilot. Montreal. July 4, 1848.
QG(1848). Montreal Provident and Savings Bank. Quebec Gazette. Quebec. July 4, 1848.
Rusticus (1848). "To the Editor." Agricultural Journal and Transactions of the Lower Canada Agricultural Society **1**(July): 198-99.
StCath(1848). "In time like the present ..." (editorial). St. Catherines Journal. St. Catherines. April 6, 1848.
Taylor, T. M.(1846a). Produce Prices Current (Sept. 7, 1846). Montreal Witness. Montreal. September 7, 1846.
Taylor, T. M.(1846b). Produce Prices Current (Sept. 26, 1846). Montreal Witness. Montreal. September 28, 1846.
Taylor, T. M.(1846c). Produce Prices Current (Sept. 12, 1846). Montreal Witness. Montreal. September 14, 1846.
Taylor, T. M.(1847a). Produce Prices Current (June 12, 1847). Montreal Witness. Montreal. June 14, 1847.
Taylor, T. M.(1847b). Produce Prices Current (July 26, 1847). Montreal Witness. Montreal. July 26, 1847.
Times(1845a). Corn Exchange (Sept. 1). *Times*. London. September 2, 1845.
Times(1845b). Corn Exchange (Sept. 15). *Times*. London. September 16, 1845.
Times(1845c). "The decision of the cabinet ....". *Times*. London. December 4, 1845.
Times(1845d). Money Market and City Intelligence. *Times*. London. December 6, 1845.
Times(1845e). Money Market and City Intelligence. *Times*. London. September 2, 1845.

Times(1846a). The Corn Trade. *Times*. London. October 20, 1846.
Times(1846b). The Corn Trade. *Times*. London. September 1, 1846.
Times(1846c). The Corn Trade. *Times*. London. October 27, 1846.
Times(1846d). The Corn Trade. *Times*. London. November 24, 1846.
Times(1846e). The Corn Trade. *Times*. London. December 1, 1846.
Times(1846f). The Corn Trade. *Times*. London. December 8, 1846.
Times(1846f). Money Market and City Intelligence. London Times. London. November 3, 1846.
Times(1846h). Money Market and City Intelligence. London Times. London. November 13, 1846.
Times(1846i). Money Market and City Intelligence. London Times. London. November 14, 1846.
Times(1847a). Exportation of Grain. *Times*. London. March 30, 1847.
TSHR(1849). Toronto, Simcoe, and Huron Railroad Union Company (adv.). British Colonist. Toronto. December 31, 1849.
UK (1842). An Act to Amend the Laws for the Importation of Corn. The Statutes of the United Kingdom of Great Britain and Ireland. London, Her Majesty's Printers. **1842 (5 & 6 Victoria)**.
UK (1846a). Joint Stock Companies. British Parliamentary Papers. London.
UK (1846b). An Act to Facilitate the Dissolution of Certain Railway Companies. The Statutes of the United Kingdom of Great Britain and Ireland. London, Her Majestry's Printers. **1846**.
UK (1847a). An Act to Suspend ... the Duties on the Importation of Corn (January 26, 1847). The Statutes of the United Kingdom of GreatBritain and Ireland. London, Her Majesty's Printers. **1847 (10 & 11 Victoria):** 1.
UK (1847b). An Act to allow... the Importation of Corn from any Country in Foreign Shiops(January 26, 1847). The Statutes of the United Kingdom of GreatBritain and Ireland. London, Her Majesty's Printers. **1847 (10 & 11 Victoria):** 2.
UK (1847c). An Act to suspend... the Duties on the Importation of Corn ... and certtain other similar Articles (July 9, 1847). The Statutes of the United Kingdom of Great Britain and Ireland. London, Her Majesty's Printers. **1847 (10 & 11 Victoria):** 64.
US (1845). An Act allowing drawback upon foreign merchandise exported ... to the British North American provinces .... Public Statutes at Large of the United States of America , Vol V. Boston, Charles C. Little and James Brown. **1846:** 70.
US (1846). An Act for the Allowance of Drawback on foreign merchandise imported ... from the British North American Provinces, and exported to foreign Countries . Public Laws of the United States of America , 1845-46. Boston, Charles C. Little and James Brown. **1846:** 102.
Witness(1847). Scarcity in Canada. Montreal Witness. Montreal. June 14, 1847.
Witness(1848). Commercial Summary. Montreal Witness. Montreal. August 21.
Witness(1849). Commercial Summary. Witness. Montreal. January 22, 1849.