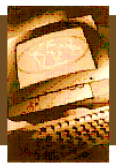
Business and Economic History
On-Line
Vol. 4
2006

Going against the Grain: Why Did Wheat Marketing in the United States and Canada Evolve So Differently?

Joseph Santos

By the turn of the twentieth century, commodity futures exchanges were an integral part of large-scale commercial grain marketing in North America. However, during the First World War, the U.S. and Canadian governments suspended grain futures trading and assumed complete control of the North American grain trade in order to supply wheat to the Allies at fixed prices. The episode marked a shift toward comprehensive agricultural policies in both countries. By the Second World War, the countries marketed wheat very differently. The United States relied primarily on private commodity futures exchanges; Canada relied on the Canadian Wheat Board, which ultimately required producers to deliver wheat to the Board, eliminating wheat futures trading. I argue that the First World War and changes in the U.S. and Canadian world grain market positions shaped each country's interwar agricultural policies and fashioned, by the Second World War, very different wheat-marketing schemes. Interwar policies reflected the changing domestic and foreign consumption shares of each country's wheat production, as well as wheat production's importance to each country's economy. I focus on five interwar policy events and demonstrate how these events likely shaped U.S. and Canadian grain marketing by the Second World War.

North American grain marketing began on a commercial scale in the United States, spurred by the growth of canals, grain elevators, railroads, and grain exchanges, all of which ushered in commercial agriculture. Grain exchanges, spawned from boards of trade along Lakes Erie, Michigan, and St. Clair, established a system of staple grades, standards, and inspections that rendered grain fungible and made possible organized trading in spot and forward markets.

By the 1870s, the Chicago Board of Trade (CBT) was North America's premier organized grain futures exchange. As futures trading on the

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URL: http://www.thebhc.org/publications/BEHonline/2006/santos.pdf.

nascent CBT thickened, Canadian wheat production moved to the western prairie province of Manitoba and, ultimately, to Saskatchewan, Alberta, and British Columbia. Winnipeg became the leading trading post for eastbound Canadian grain, as well as the first banking and financial center of the newly formed Canadian West. By 1897, the Winnipeg Grain and Produce Exchange (later, the Winnipeg Grain Exchange [WGE]) was Canada's leading organized grain futures exchange.

By the turn of the twentieth century, commodity futures exchanges were an integral part of large-scale commercial grain marketing in North America. However, during the First World War, the U.S. and Canadian governments suspended grain futures trading and assumed complete control of the North American grain trade in order to supply wheat to the Allies at fixed prices. The episode marked a shift toward comprehensive agricultural policies in both countries. By the Second World War, the United States and Canada marketed wheat very differently.

During the interwar period, U.S. wheat price support programs essentially taxed the domestic use of wheat and distributed the revenues to producers in lieu of remunerative market prices; the programs relied for the most part on private commodity futures exchanges to market the nation's wheat. Meanwhile, Canadian wheat price support programs operated through the Canadian Wheat Board (CWB), which by 1935 stood ready to purchase wheat from producers at a set price; the CWB obviated futures trading whenever market prices fell below the Board's price. Ultimately, Canada required producers to deliver their wheat to the Board and, hence, eliminated wheat futures trading entirely. This fundamental difference between U.S. and Canadian grain marketing remains in place today.

In this paper, I argue that the First World War and changes in the U.S. and Canadian positions in the world grain market shaped each country's interwar agricultural policies and fashioned, by the Second World War, these very different wheat-marketing schemes. In particular, I propose that U.S. and Canadian policies between the First and Second world wars reflected the changing domestic and foreign consumption shares of each country's wheat production, as well as the relative importance of wheat production to each country's economy. I focus on five interwar policy events to demonstrate the shaping of U.S. and Canadian grain marketing by the Second World War: the 1919 wheat price support programs; the U.S. two-price plan debates and the pool movements (both in the 1920s); the U.S. Agricultural Adjustment Acts in the 1930s; and the Canadian Wheat Board Act in 1935.

Nineteenth-Century North American Wheat Production and Consumption

In the early nineteenth century, farmers throughout the east north-central United States (modern-day Illinois, Indiana, Michigan, Ohio, and Wisconsin) produced the majority of American wheat. Ohio farmers were

the first in the region to practice large-scale commercial agriculture, and by 1840, the state exported significant quantities of grain. Nonetheless, whereas agricultural goods, including wheat, comprised more than 75 percent of U.S. exports in the antebellum period, growth in domestic consumption largely fueled the U.S. grain trade, which far outpaced the growth in foreign consumption.[1] Sizable overseas markets opened occasionally to U.S. grain; but overall, "the foreign trade in grain was not a major factor, during the antebellum years, in the economies of either the United States or the East North Central States."[2]

Meanwhile, farmers throughout Quebec and Ontario produced the vast majority of Canadian wheat. The region's harvests could not consistently satisfy domestic consumption, because the scale of wheat production was relatively limited and, as such, particularly vulnerable to midges, rust, drought, and blight. Nonetheless, the United Kingdom and Western Europe frequently absorbed Canadian wheat (or flour equivalent), which U.S. wheat imports effectively released.[3] However, international tariffs, political instabilities, and wars frequently interrupted Canada's access to foreign markets before the late nineteenth century. Hence, its wheat exports remained a relatively small share of production until the late nineteenth century, when production shifted permanently to the extremely arable western provinces: Manitoba and, later, Saskatchewan, Alberta, and British Columbia. As settlers from the older provinces as well as from abroad populated the region and sowed wheat, Canada's wheat production soon consistently outpaced its domestic consumption.[4]

During the late nineteenth century, wheat production in the United States and Canada grew an average of 2.7 percent and 3.4 percent per year, respectively. Foreign consumption absorbed, on net, a greater share of wheat production in the United States. Between 1870 and 1900, the net export share of U.S. wheat production (or flour equivalent) averaged 26 percent; the comparable figure for Canada was 9 percent. Nonetheless, Canada's gross export share of wheat production was significant. For example, in the 1870s, when Canada's net wheat exports were mostly negative, its gross export share of wheat production averaged 25 percent; the comparable figure for the United States was 24 percent.[5] Therefore, despite Canada's relatively small net wheat exports at this time, its wheat economy was nonetheless relatively dependent on foreign consumers. In any case, after the First World War, the two countries' positions in the world wheat market changed significantly, and Canada's dependency on foreign wheat consumers grew much larger.

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[1] John G. Clark, *The Grain Trade in the Old Northwest* (Urbana, Ill., 1966), 172.
[2] Ibid., 196.
[3] Ibid., 191; Duncan A. MacGibbon, *Canadian Grain Trade* (Toronto, 1932), 10.
[4] MacGibbon, *Canadian Grain Trade*, 41.
[5] *Yearbook of Agriculture* (Washington, D.C., 1935), 349; *Historical Statistics of Canada* (Toronto, 1983), Series M249 and M301-5.

The Rise of Futures Trading in North America

North American grain marketing began on a commercial scale in the United States. It was spurred by the Illinois-Michigan Canal (completed in 1848) and a series of concomitant innovations, including grain elevators, railroads, grain exchanges, and forward contracts. The canal allowed farmers in the hinterlands along the Illinois River to ship grain to Lake Michigan merchants, who collected and transported it to Chicago, Milwaukee, and Racine. Elevators and the railroad facilitated high-volume grain storage and shipment, respectively. Meanwhile, commodity exchanges, spawned from boards of trade along Lakes Erie, Michigan, and St. Clair, established a system of staple grades, standards, and inspections that rendered grain fungible and made possible organized trading in spot and forward markets.

The most prominent of these exchanges was the Chicago Board of Trade, a grain and provisions exchange established in 1848 by a State of Illinois corporate charter.[6] In 1859, the CBT became a state-chartered private association. The Illinois legislature sanctioned it to establish exchange rules as it saw proper, to arbitrate and settle disputes with authority as "if it were a judgment rendered in the Circuit Court," and to inspect, weigh, and certify grain and grain trades.[7] Beginning in May 1865, the CBT transformed actively traded forward contracts into futures contracts. It restricted trade in time contracts to exchange members, standardized contract specifications, required traders to deposit margins, and formally specified contract settlement, including payments and deliveries, and grievance procedures.[8] By the 1870s, the CBT was North America's premier organized grain and provisions futures exchange.[9]

As futures trading on the nascent CBT thickened, Canadian wheat production moved to the western prairie province of Manitoba and, ultimately, to Saskatchewan, Alberta, and British Columbia. Winnipeg became the leading trading post for eastbound Canadian grain, as well as the first banking and financial center of the newly formed Canadian West.[10] In December 1887, Winnipeg Board of Trade (WBT; established in 1873) membership began the Winnipeg Grain and Produce Exchange

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[6] Julius B. Baer and Olin G. Saxon, *Commodity Exchanges and Futures Trading: Principles and Operating Methods* (New York, 1949), 10; Alfred D. Chandler, Jr., *The Visible Hand* (Cambridge, Mass., 1977), 211.

[7] Jonathan Lurie, *The Chicago Board of Trade, 1859-1905* (Urbana, Ill., 1979), 27.

[8] Thomas A. Hieronymus, *Economics of Futures Trading for Commercial and Personal Profit* (New York, 1977), 76.

[9] Baer and Saxon, *Commodity Exchanges and Futures Trading*, 87; Chandler, *The Visible Hand*, 212; Morton Rothstein, "The International Market for Agricultural Commodities, 1850-1873," in *Economic Change in the Civil War Era*, ed. David T. Gilchrist and W. David Lewis (Wilmington, Del., 1966), 62-71.

[10] MacGibbon, *Canadian Grain Trade*, 280.

(WGE), housed in a room adjacent to the WBT and incorporated four years later by an act of the Province of Manitoba. Soon thereafter, a grading system was in place to render Manitoba wheat fungible. In 1897, the WGE adopted rules for trading in commodity futures contracts. The Winnipeg Grain and Produce Exchange Clearing Association, Ltd., was incorporated as a joint stock company in 1904, and in September 1908, the Exchange reorganized as the Winnipeg Grain Exchange.[11]

Data on grain futures volume before the 1880s are not available.[12] However, in the 1870s, CBT officials disclosed that traders settled more than 90 percent of grain futures contracts by offset rather than delivery.[13] As Figure 1 illustrates, futures trading volume for cereal grains on U.S. exchanges in the 1880s and 1890s suggests much the same. For the period from 1884 to 1888, the five-year average annual futures trading volume was 23.6 billion contract bushels, or eight times the five-year annual average amount of cereal grain produced during the same period. The comparable figure for the period from 1966 to 1970 was 25.8 billion contract bushels, or four times the five-year average annual amount of cereal grains produced during the same period. Similarly, in Canada "the volume of futures trading had increased to immense figures" by the early twentieth century.[14]

A Nationalized Grain Trade

During the First World War, Europe's grain production fell off, and the Allies' reliance on North and (to a lesser extent) South American foodstuffs grew. As Figure 2 illustrates, North American wheat prices rose to over $1.50/bushel from late summer 1914 to late spring 1915, amidst myriad declarations of war. Wheat prices settled back briefly to just over a $1.00/bushel, but rose again to more than $3.00/bushel by May 1917. Wheat price volatility also rose dramatically (see Figure 2, right-hand scale). Meanwhile, U.S. and Canadian wheat production increased in response to the war. Between 1915 and 1919, the United States produced, on average, 100 million bushels of wheat more per year than it had produced between 1910 and 1914; the comparable figure for Canada was 59 million bushels. Similarly, North America exported, on net, 110 million

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[11] Ibid., 297. The WGE sought this 1908 change when the Manitoba legislature amended the exchange's charter to allow judicial appeal of WGE decisions and prohibit the WGE from stipulating brokers' commissions and fees. Unlike its predecessor, the reorganized WGE was a voluntary unincorporated association and, as such, free from the government's extant regulatory purview.

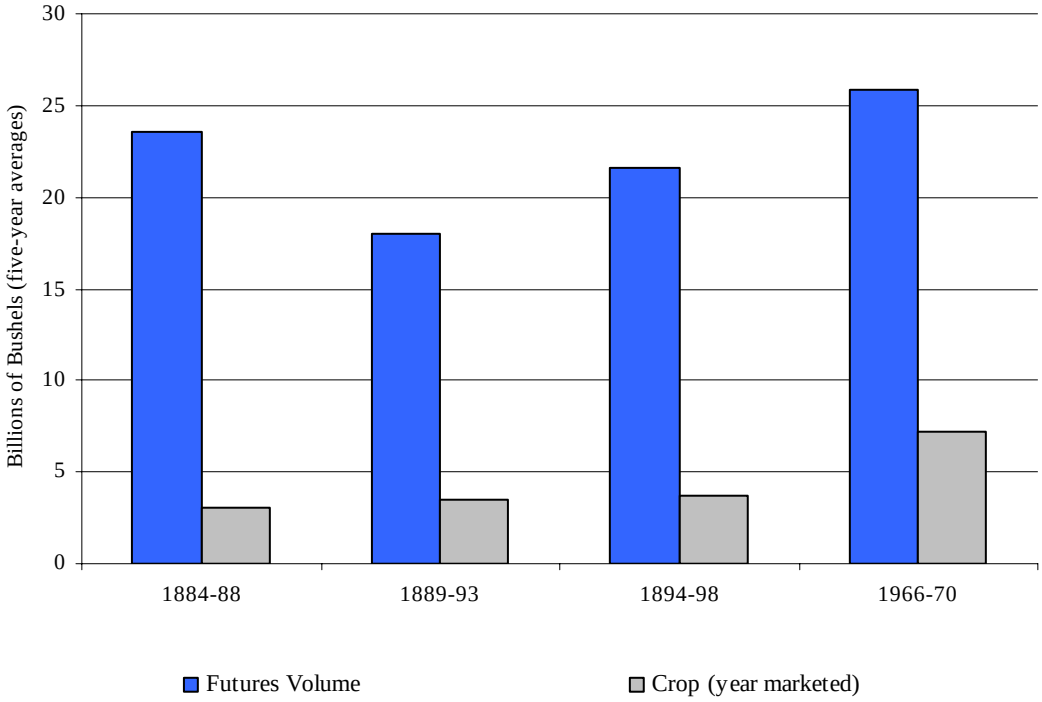
[12] George W. Hoffman, *Futures Trading upon Organized Commodity Markets in the United States* (Philadelphia, Pa., 1932), 30.

[13] Lurie, *The Chicago Board of Trade*, 59.

[14] MacGibbon, *Canadian Grain Trade*, 44.

bushels of wheat more per year between 1915 and 1919 than it had between 1910 and 1914.[15]

FIGURE 1
Futures Trading Volume: Cereal Grains—Wheat, Corn, Oats, Barley, Rye—on U.S. Exchanges, 1884-1970, Select Years

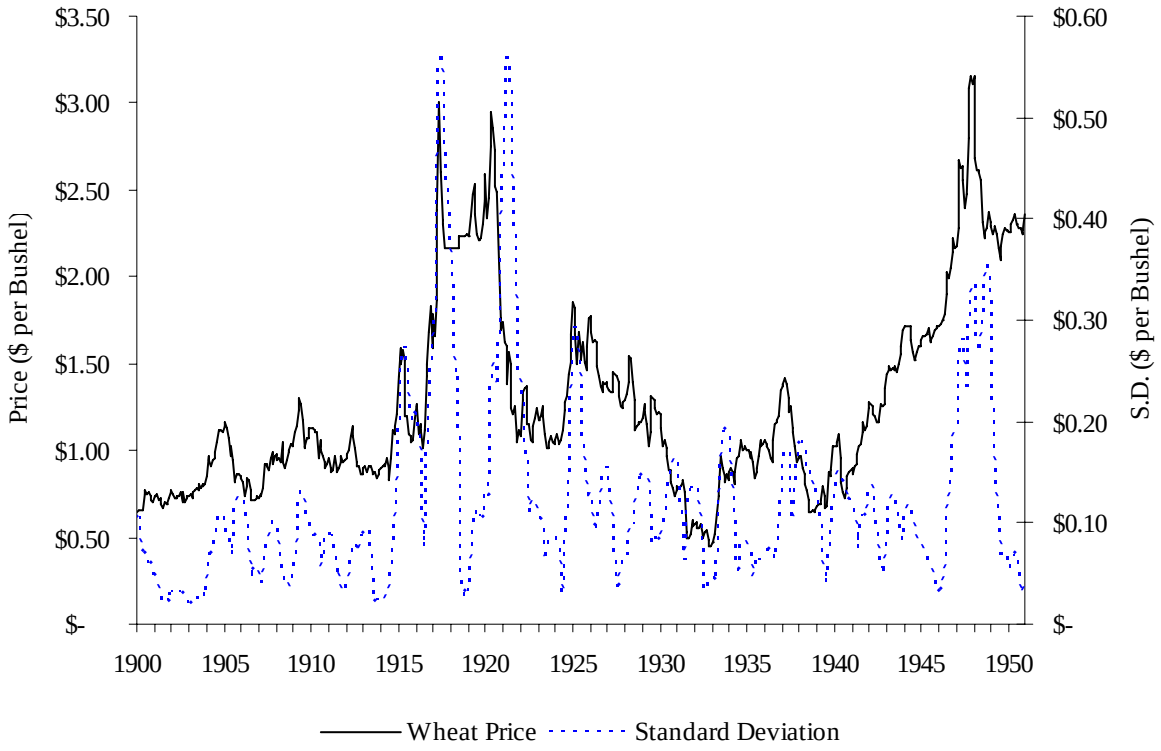


Sources: Hieronymus, *Economics of Futures Trading*, 23; *National Agricultural Statistics Service* (Washington, D.C., 2004).

In November 1916, the United Kingdom, France, and Italy signed a Wheat Executive Agreement that authorized the United Kingdom's Royal Commission on Wheat Supplies to purchase grain from North America and elsewhere on behalf of the Allies. The Royal Commission established Wheat Export Companies in New York and Winnipeg to purchase grain from North America. In the spring of 1917, the United States and Canada nationalized their grain trades and suspended futures trading in order to supply wheat to the Allies at fixed prices, as well as to quell wartime price volatility and to counter the Export Companies' enormous purchasing

[15] *Yearbook of Agriculture*, 349-50; *Historical Statistics of Canada*, Series M301-05.

FIGURE 2
U.S. Wholesale Price of Wheat, Six Markets, and 13-Month Rolling Standard Deviation



Source: *National Bureau of Economic Research* (Cambridge, Mass.), Series M04001a, and M04001b.

power.[16] On the latter, Frank M. Surface wrote,

> This consolidation, perfected in the early months of 1917, offered one of the strongest arguments for establishing some measure of unified selling control in this country, if our producers and merchants were not to be entirely at the mercy of the foreign combination.[17]

On August 10, 1917, the U.S. Congress passed, and President Woodrow Wilson signed into law, the Food Control Act; President Wilson immediately issued an executive order to establish the U.S. Food Administration Grain Corporation.[18] The act intended the administrator (Herbert Hoover) to use extant food production, distribution, and consumption channels to increase agricultural production, promote food-

[16] Between January 1917 and August 1919, the Royal Commission purchased 24.5 million metric tons of grain and flour; Frank M. Surface, *The Grain Trade during the War* (New York, 1928), 33-34.
[17] Surface, *The Grain Trade during the War*, 34.
[18] Ibid., 8.

stuff conservation, eliminate wartime speculation, and stabilize the prices of certain staples, including wheat. Moreover, the act authorized the Corporation to purchase wheat from U.S. terminal elevators and to sell it either to domestic mills or to the New York-based Wheat Export Company. The act guaranteed a minimum purchase price of $2.00/bushel for the 1918 crop.[19]

On June 11, 1917, the Canadian government authorized the Board of Grain Supervisors to administer the disposition of Canadian wheat. According to Duncan MacGibbon,

> . . . the functions of the Board, broadly speaking, were to regulate the price of Canadian grain and to exercise certain control over the grain trade, with the purpose in view of preventing "to the utmost extent any undue inflation or depreciation of values from speculation."[20]

The Board set the price of grain so that it was, in the Board's view, remunerative to producers. Moreover, the Board determined if and where the grain was milled, how much was sold to the Allies' Winnipeg-based Grain Export Company, and how much remained for domestic consumption. Every aspect of the Canadian grain trade at this time fell, in effect, within the purview of the Board.

The U.S. Food Administration Grain Corporation and the Canadian Board of Grain Supervisors worked closely during the war to fix parity prices for U.S. and Canadian wheat. This period was significant in the evolution of grain marketing in the United States and Canada, because it marked a swing toward comprehensive agricultural policies in both countries. Never before had either country controlled its grain trade in this way. This swing proved irreversible and, I argue, spurred two very different wheat-marketing schemes in North America.

Price Guarantees versus Best Efforts

In the final days of the First World War, North American agricultural interests agitated for continued price support, this time for the 1919 wheat crop. The U.S. and Canadian governments responded, but each did so in fundamentally different fashion. On September 2, 1918, President Wilson proclaimed that the U.S. government would guarantee a price for the 1919 wheat crop of $2.26/bushel for No. 1 Northern at Chicago. However, the government soon relinquished control of much the U.S. grain trade; the Armistice was signed two months later, the Food Administration Grain Corporation expired on June 1, 1919, and the Allies ceased to purchase North American grain collectively. Hence, Congress passed the Wheat Guarantee Act, which appropriated $1 billion to fund the effort and

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[19] Ibid., 64-65.
[20] MacGibbon, *Canadian Grain Trade*, 58.

authorized the Wheat Director (Julius H. Barnes) to purchase and sell grain as necessary to support the president's price guarantee.

The Canadian government also announced that it would support the 1919 wheat crop. To be sure, they had little choice but to do so, because "[b]efore the [Canadian] farmer was the spectacle of the United States providing for a guaranteed minimum price."[21] However, the Canadian government also soon relinquished control of much of the grain trade—the Board of Grain Supervisors ceased to deal in grain on August 15, 1919. The government then created the Canadian Wheat Board (CWB) and authorized it to accept Canadian grain from producers and to sell it on international and, to a lesser extent, domestic markets at prices that would garner "the greatest possible benefit to the Dominion as a whole."[22] In addition, the CWB controlled the distribution of domestic and export wheat and export flour.

The Wheat Guarantee Act expired on June 1, 1920; the CWB ceased to accept wheat on August 15, 1920. Wheat futures trading in both countries resumed that summer. In the end, the CWB garnered on behalf of Canadian producers an effective price—advance plus proceeds—for No. 1 Northern at Fort William of between $2.37 and $2.63; the comparable market prices for United States No. 1 Northern at Minneapolis were $2.56 to $3.09.[23] Administrative costs for the period came to $.005/bushel.[24] In the United States, the market price of wheat remained well above the guarantee for much of the time the policy was in place.

The U.S. and Canadian policies were fundamentally different. The U.S. policy guaranteed producers a price, and purchased wheat in order to peg the guaranteed price. The Canadian Wheat Board advanced producers a fraction of the wheat's expected value and then distributed any additional proceeds minus administrative expenses that accrued from the terminal sale. Hence, in effect, the Canadian Wheat Board offered producers its best effort to garner a remunerative price. Not surprisingly, there was among producers "disappointment that the Federal Government had not set a guaranteed price."[25]

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[21] MacGibbon, *Canadian Grain Trade*, 62.

[22] Ibid.

[23] Surface, *The Grain Trade during the War*, 289.

[24] What, if any, premium the Canadian Wheat Board garnered on behalf of producers in 1919 is difficult to ascertain, because wheat futures trading was suspended in both countries and the CWB's control of the market was nearly absolute; see Surface, *The Grain Trade during the War*, 288-89. On this question, Duncan MacGibbon wrote, "[t]he question is whether western wheat producers would benefit if these buyers from abroad were able to purchase their Canadian supplies by operating on the open market instead of by negotiating their purchases through the Canadian Wheat Board. It is a difficult question to answer." See Duncan MacGibbon, *The Canadian Grain Trade, 1931-1951* (Toronto, 1952), 213.

[25] MacGibbon, *Canadian Grain Trade*, 63.

This fundamental policy difference is significant, because it represents the first time that comprehensive U.S. and Canadian wheat price support policies diverged; the episode offers insight into why the United States and Canada were marketing their grain so differently by the Second World War. More specifically, the disparate policy responses that followed likely reflected changing U.S. and Canadian positions in the world grain market: the domestic consumption share of U.S. wheat production was rising, while the domestic consumption share of Canadian wheat production was falling. In general, a wheat price guarantee necessarily distributes resources from users (for example, consumers) to producers. If the country that implements the guarantee is a price taker in the world wheat market, as both the United States and Canada were in 1919, then the guarantee's burden is borne by domestic consumers only. The burden per bushel of wheat consumed domestically is inversely proportional to the share of wheat production consumed domestically. As Figure 3 illustrates, from 1915 to 1919, the net export share of U.S. wheat production remained below 31 percent, and the average annual share during the five-year period was 25 percent. By comparison, the net export share of Canadian wheat production remained above 48 percent, and the average annual share during the five-year period was 61 percent. Therefore, the United States absorbed roughly 75 percent of U.S. wheat produced during the period, while foreigners absorbed roughly 61 percent of Canadian wheat produced during the period. Put differently, the burden of a guaranteed price per bushel of wheat consumed domestically was relatively low in the U.S, but relatively high in Canada.

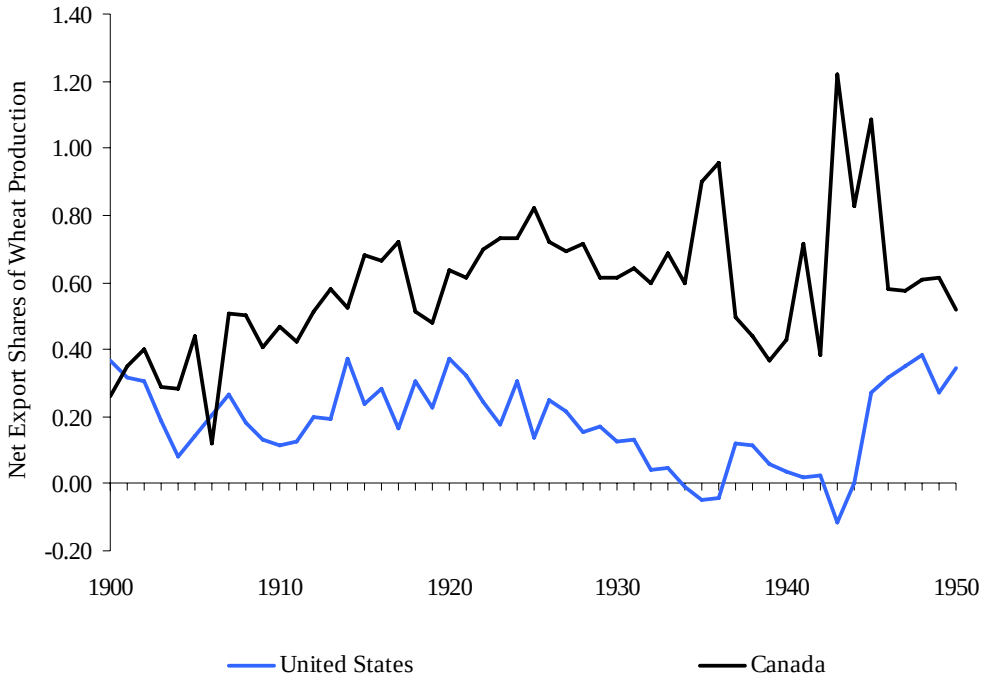
In general, Canada's large foreign consumption share of wheat production imposed a relatively more complex wheat policy challenge during and after the interwar period: namely, to support wheat prices for the good of producers and protect export market share for the good of producers and the macro economy. As Figure 4 illustrates, wheat production comprised a relatively large share of the Canadian economy, particularly prior to the Great Depression. For this reason, Canada often sought international wheat agreements, most notably with the United Kingdom, to stabilize both its wheat and macro economies during and after the interwar period. Often, the Canadian government could achieve these long-term agreements (which in effect fixed wheat prices for extended periods) only at or below competitive world market prices.[26]

Two-Price Plans and Wheat Pools

At the end of the First World War, orders for munitions and durable goods, as well as foreign demand for agricultural goods, fell off dramatically. Supply-demand coordination frictions brought unintended inventory accumulations and short-lived, though deep, macroeconomic

[26] MacGibbon, *The Canadian Grain Trade, 1931-1951*, 119-44.

FIGURE 3
Net Export Shares of Wheat Production, U.S. versus Canada, 1900-1950



Sources: *Yearbook of Agriculture*, 349-50; *Agricultural Statistics* (Washington, D.C., 1950), 7; *Agricultural Statistics* (Washington, D.C., 1953), 1; *Historical Statistics of Canada*, Series M301-05.

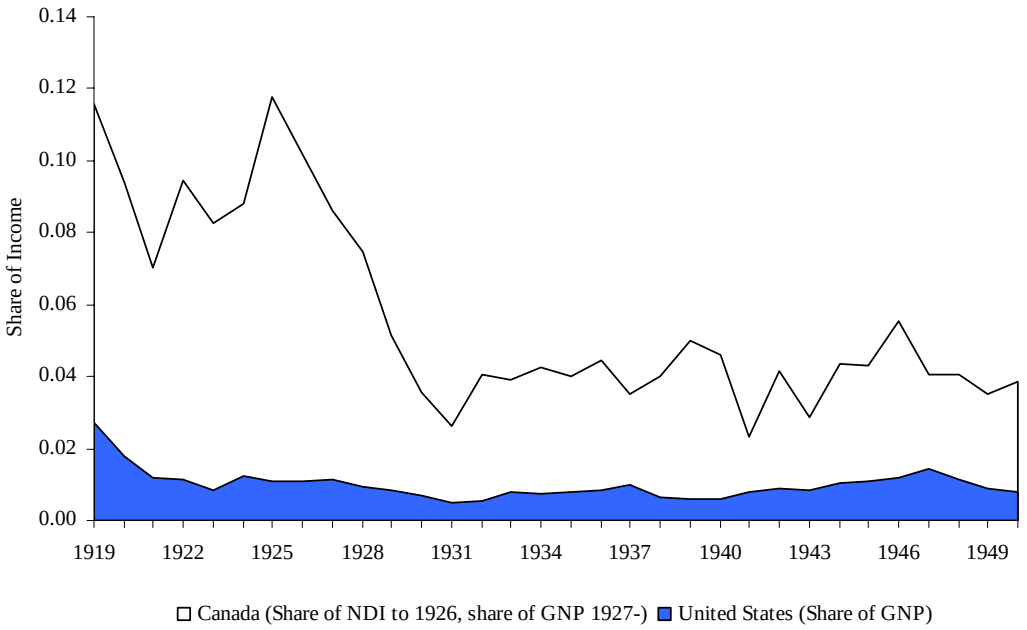
contractions to the U.S. and Canadian economies.[27] The concomitant "depression" in North America's agricultural economies lasted for much longer.[28] As Figure 2 illustrates, wheat prices at Chicago fell for roughly four years, from a postwar high of $2.94/bushel to a low of roughly $1.00/bushel. Farm values, incomes, and populations fell too, while farm mortgage debt and bankruptcies rose.[29] Agricultural interests lobbied heavily for relief. The United States debated so-called two-price plans, while both the United States and Canada promoted private producer pools.

Two-Price Plans

In the early 1920s, the U.S. Congress passed a series of Tariff Acts and drafted several two-price plans, plans to raise the price of wheat for

[27] Milton Friedman and Anna J. Schwartz, *A Monetary History of the United States, 1867-1960* (Chicago, Ill., 1963), 222.
[28] Joseph S. Davis, *On Agricultural Policy, 1926-1938* (Stanford, Calif., 1939), 75.
[29] Ibid., 76; MacGibbon, *Canadian Grain Trade*, 65.

FIGURE 4
Value of Wheat Production as a Share of Income, United States v. Canada, 1919-1950



Source: *Yearbook of Agriculture*, 349-50; *National Bureau of Economic Research*, Series A08165; *Historical Statistics of Canada*, Series M251, F153.

domestic consumption above that for foreign consumption.[30] The McNary-Haugen bills are perhaps the most famous examples of these plans.[31] The proposal introduced in the bills was that government raise wheat's domestic price above its world price by the amount of a wheat import tariff, sell on the world market the wheat that the domestic market could not absorb, and recoup losses through an equalization fee, or tax on domestic use. Though Congress passed two McNary-Haugen bills, President Calvin Coolidge vetoed both. According to economist John D. Black and other prominent agricultural economists of the period, the administration was concerned how industry would fare under the bill.

[30] Congress passed the Emergency Tariff Act of 27 May 1921, which imposed a duty of $.35/bu on wheat. The Tariff Act of 1922 reduced this to $.30/bu. Finally, on 6 April 1924 President Coolidge raised the duty to $.42/bu; see Joseph S. Davis, *Wheat and the AAA* (Washington, D.C., 1935), 9. Protectionist sentiment was strong throughout the decade and culminated in 1930, when "tariff levels and import restrictions reached an all-time high." See Murray R. Benedict, *Farm Policies of the United States, 1790-1950* (New York, 1953), 327.
[31] Benedict, *Farm Policies of the United States*, 266-68.

Ostensibly, under the status quo, agriculture subsidized industry with low prices for foodstuffs; under the bill, the subsidy would work in reverse.[32]

Two-price plans reflected, in part, the popularity among North American producers and politicians generally of the cooperative (or pool) framework for farm price support before the Great Depression. Meanwhile, like the 1919 Wheat Guarantee Act in the prior decade, the plans also reflected the United States' unique position vis-à-vis Canada in the world wheat market. In essence, U.S. policymakers had the option to tax domestic use and, hence, propose a price support scheme that went beyond a best effort, because of the country's high domestic consumption share of its wheat production. More specifically, the plans sought to garner producers a remunerative price through so-called scrip schemes, whereby producers would sell wheat to first-round purchasers for its market price plus scrip; first-round purchasers would obtain (and pay face value for) the scrip at U.S. Post Offices.

Under such schemes, a U.S. wheat export company—in effect, a pool of last resort—would purchase U.S. wheat that the domestic market could not absorb and sell it for the necessarily lower world market price. At season's end, the scrip's redemption value would equal its face value minus the wheat export company's losses. According to Murray Benedict, "Farmers, political leaders and the public were not yet thinking in terms of the far more aggressive and costly measures undertaken in the succeeding administration."[33]

Though these two-price plans did not come to fruition, the policy debates surrounding them were, nonetheless, formative. They demonstrated how U.S. farm price support schemes and private grain marketing, including futures trading, could coexist; scrip-styled schemes did not interfere directly with market prices. Moreover, they exposed an unintended consequence of price support programs in general: producers would increase production when government programs raised wheat prices.[34] Future U.S. wheat price support programs would rely largely on domestic-use taxes and allotment strategies in order to garner remunerative prices for producers, preserve the open market, and create disincentives to overproduce.

Wheat Pools

The response of President Herbert Hoover's administration to the farm problem was the Agricultural Marketing Act of 1929. The act established the Federal Farm Board, a central agency with broad powers over the U.S. grain trade. The Board sought, to little or no avail, to increase marketing efficiency through private producer pools in order to raise producers'

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[32] Don F. Hadwiger, *Federal Wheat Commodity Programs* (Ames, Iowa, 1970), 103.

[33] Benedict, *Farm Policies of the United States*, 267.

[34] Ibid.

returns.[35] Grain pools were particularly unsuccessful in the United States because of the country's heterogeneous crop, dissimilar regional geographies, varied storage and railroad configurations, trade routes, and marketing opportunities, as well as its relatively small export-driven market.[36] In any case, when the U.S. economy slipped into the Great Depression, and commodity prices fell dramatically, the Farm Board's objective defaulted to emergency price support via the Grain Stabilization Corporation.

Meanwhile, Canadian producers grew increasingly hostile toward the private grain trade and sought relief through private provincial pools.[37] The pools (collectively, the Pool) operated through a central selling agency based on five-year contracts with cooperating members. The Alberta pool was in place by 1923 with 2,602,797 acres of wheat under contract. The Saskatchewan and Manitoba pools were in place by 1924 with 6,166,149 and 711,579 acres under contract, respectively.[38] Unlike in the United States, Canada's homogenous wheat crop, similar provincial geographies, uniform storage and railroad configurations, limited trade routes, ports, and marketing opportunities, as well as its relatively large export-driven

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[35] Davis, *On Agricultural Policy*, 128; Hadwiger, *Federal Wheat Commodity Programs*, 109.

[36] Charles R. Fay, "Post-War Development of the Cooperative Movement in the Countries of the British Empire," in *American Cooperation* 1 (1928): 39-63; Joseph G. Knapp, *The Hard Winter Wheat Pools* (Chicago, Ill., 1933), 9; Alex F. McCalla and Andrew Schmitz, "Grain Marketing Systems: The Case of the United States versus Canada," *American Journal of Agricultural Economics* 61 (May 1979): 199-212.

[37] The Canadian government was reluctant to jettison the private grain trade and necessarily revive the CWB. In an attempt to assuage producers' hostilities, the government appointed a Royal Grain Inquiry Commission in 1923 to investigate the trade. The Commission reported in 1925 that it found no evidence of improprieties and suggested only minor improvements, which formed the basis of the Canada Grain Act of 1925. In the interim, the Federal Parliament passed an act that established a national wheat-marketing agency, but required that at least two provinces pass legislation to empower the agency. In the end, the provinces could not garner the support to do so. The requisite legislation passed in Saskatchewan and Alberta, but the provincial governments could not agree on who should staff the agency's provincial boards; the legislation did not pass in Manitoba.

[38] Initially, the provincial pools called themselves the Alberta Co-operative Wheat Producers, Limited; the Saskatchewan Co-operative Wheat Producers, Limited; and the Manitoba Wheat Producers, Limited. The central selling agency was the Canadian Co-operative Wheat Producers, Limited. At the end of the first five-year contract, the Pool owned 1,655 elevators (roughly one-third of western Canada's elevator capacity), Pool membership comprised roughly 56% of all farms in the three provinces and Pool grain was underwritten by the Pool's own Canadian Pool Agencies, Limited; see MacGibbon, *Canadian Grain Trade*, 329, 332-45.

market suited it well for pool organization. Nonetheless, the system collapsed when prices fell precipitously beginning in 1929 (see Figure 2). The Pool and, in effect, the banks, could no longer cover their advances.[39] In February 1930, the Pool appealed to, and received financial assistance from, the provincial governments.[40]

The United States' largely unsuccessful wheat pool experience effectively relegated such cooperative strategies to the second tier of comprehensive U.S. agricultural policy. Meanwhile, Canada's largely successful pool experience placed the cooperative framework at the center of the Canadian grain trade and hence of Canadian agricultural price support policy. The experience also revealed the Pool's inherent vulnerability to precipitous declines in wheat prices and its need for government intervention and price support during such episodes. This is significant because a pool-fashioned comprehensive government price support policy would have the government stand by to purchase wheat from producers for a minimum price and, by doing so, circumvent the open market. Hence, by the late 1920s, unlike the wheat price support framework that had emerged in the United States, the Canadian framework would obviate futures trading whenever the government intervened.

Domestic-Use Taxes and Futures Trading

The Agricultural Adjustment Act (AAA) of 1933, the primary agricultural component of a three-part New Deal–inspired comprehensive economic relief bill, largely shaped the framework for agriculture policy in the United States from the Great Depression forward. The act sought to improve and stabilize producers' incomes in the short term (1934 and 1935) and to reduce overproduction in the long term, utilizing the private grain marketing system, including futures markets, to accomplish both.

The program gave participating wheat producers certificates, denominated in bushels, according to each producer's average share of domestically consumed production—or so-called allotment—during a recent series of years (for example, from 1928 to 1932). The producers sold these certificates, along with their wheat, to millers, who bought the certificates at the tariff rate, roughly $.30 to $.45/bushel. The act's framers intended the market price of wheat plus certificate revenues (adjustment payments) to constitute, on average, a fair return to

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[39] To be sure, the Pool held wheat back from the market in the spring of 1929 on the assumption that prices would rebound. The policy kept Winnipeg wheat prices above those in Liverpool, but only temporarily. The Pool advanced producers $1.00/bu for the 1929 crop of No. 1 Northern, but by the close of 1930 the price had fallen to $.51.

[40] The episode had overextended the Pool and hence the banks by roughly $22 million; see MacGibbon, *Canadian Grain Trade*, 79.

producers.[41] Moreover, because those who produced in excess of their allotment received necessarily lower world market prices for their surplus, the program created a disincentive to overproduce.[42] In 1938, Congress passed a second AAA, which among other new provisions made available Commodity Credit Corporation (CCC) loans to AAA-participating wheat producers to store their produce until such time as prices were more favorable.[43]

The AAAs borrowed significantly from the two-price plan debates of the 1920s: the acts set a tariff price for wheat, taxed domestic use to supplement producers' incomes, and, hence, relied on the private trade, including (to a very large extent) futures markets, to market grain. The tax on domestic use was, in effect, the equalization fee of the two-price plans.[44]

In 1933, the Adjustment Act's burden per bushel of wheat consumed domestically was at its lowest level since the First World War. As Figure 3 illustrates, the net export share of U.S. wheat production had fallen to 4.3 percent. Meanwhile, the domestic burden of such a policy in Canada would have been relatively high, because its net export share of wheat production had risen to 69 percent.

To compare the magnitudes of these burdens, I calculate the effective price (market price + adjustment payment) per domestic bushel of wheat during the 1933/34 crop year for the United States and Canada (counterfactual) under the AAA; for simplicity, I assume 100 percent producer participation and the same market price in both countries. I report all calculations in Table 1.

The AAA based its adjustment on the average production during the years from 1928 to 1932 (see row 4). The gross tariff in 1933 was $0.29 (see row 5) and the U.S. allotment rate (percentage of total production to

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[41] See chap. 5 in Davis, *Wheat and the AAA*.

[42] In 1933, roughly one-third of eligible farmers participated in the program; however, roughly 78% of the acreage seeded between 1930 and 1932 was under contract in 1933; see Davis, *Wheat and the AAA*, 99. In 1936, the Supreme Court ruled the AAA of 1933 unconstitutional because the processing tax, or price of the certificate, effectively imposed a direct income transfer from consumers to producers.

[43] Murray R. Benedict and Oscar C. Stine, *The Agricultural Commodity Programs* (New York, 1956), 111.

[44] The AAA had a large influence on farm price support programs after the Second World War. For example, the modern-day Farm Service Agency (FSA) contains important fragments of the earlier AAA and CCC programs: the Loan Deficiency Payments (LDP) program finances, through the CCC, grain storage so that producers may market their grain when prices are most favorable. Because the CCC allows producers to deliver the actual produce in lieu of repayment, the program sets, in effect, a guaranteed price. In addition, the program limits crop acreage and relies on private trade to move and market grain.

TABLE 1
Agricultural Adjustment Act of 1933: United States v. Canadian Counterfactual

	1933-34 Crop Year	United States	Canada
1	Quantity Produced (millions of bushels)	552.22	282.00
2	Market Price ($ per bushel)	$ 0.74	$ 0.74
3	Actual Price x Quantity (million of $)	$ 408.64	$ 208.68
4	Average Quantity, 1928-1932 (millions of bushels)	864.59	410.80
5	Tariff ($ per bushel)	$ 0.29	$ 0.29
6	Allotment Rate	54.0%	54.0%
7	Allotment Quantity (millions of bushels)	466.88	221.83
8	Tariff x Allotment Quantity (millions of $)	$ 135.39	$ 64.33
9	Total Proceeds (millions of $)	$ 544.03	$ 273.01
10	Proceeds / Quantity Produced ($ per bushel)	$ 0.99	$ 0.97
11	Domestic Use Share	.95	.31
12	Proceeds / Domestic Use Share ($ per bushel)	**$ 1.03**	**$ 3.12**

Source: Author's calculations based on chap. 5 in Davis, *Wheat and the AAA*; Row 7=Row 4 x Row 6; Row 8=Row 5 x Row 7; Row 9= Row 3 + Row 8

which the tariff would be applied) was 54 percent (see row 6). Row 11 includes the domestic use share of production for each country. The larger this value, the lower the tax burden per bushel of domestic use. According to these figures, in order for U.S. wheat producers to receive, in effect, a price per bushel of $.99 (see row 10), the 95 percent of bushels produced that the United States absorbed would have had to cost $1.03. Likewise, in order for Canadian wheat producers to have received a price per bushel of $.97 (the $.02 difference occurs because the proportions of 1933 production to average production differ between the two countries), the 31 percent of bushels produced that Canada absorbed would have had to cost $3.12, roughly three times what domestic bushels cost in the United States. Speaking on the AAA in the United States, Joseph S. Davis noted that, "[p]olitical feasibility, administrative flexibility, and prospects of public acceptance constituted powerful reasons for choosing the processing tax device."[45]

By contrast, in reference to a 1940 amendment (soon repealed) to the Wheat Board Act that would have imposed a similar excise tax on wheat in Canada, Duncan MacGibbon noted:

> Unlike the United States, Canada has a small domestic consumers' market relative to the amount of wheat produced in the country. A

[45] Davis, *Wheat and the AAA*, 190.

> much larger portion of her supply is marketed abroad. This [means] that a levy would fall upon only a small portion of the total amount of wheat brought to market. Hence, unless the processing tax was imposed at a very high rate the return to the producer on his total marketings would not be of great significance.[46]

A Fragile Compromise

In 1930, the Canadian government closed the Pool's central selling agency, underwrote the banks' positions on Pool wheat, and appointed John I. McFarland to sell the Pool's inventories, only half of which were hedged in the futures market.[47] McFarland's nearly impossible challenge was to release the Pool wheat into the market without depressing prices further. This required him to take positions in the futures markets and, at times, to purchase wheat. Private banks financed the purchases and the government indemnified them against losses.

Meanwhile, producers grew increasingly more hostile toward the WGE, which many believed conspired with private grain elevators, railroads, and banks to supply suboptimal markets, storage, transportation, and credit,.[48] The fact that these traders, handlers, and financiers profited from high volumes rather than high prices fueled opposition to the WGE, as commodity prices were relatively low.[49] The Canadian government

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[46] MacGibbon, *The Canadian Grain Trade, 1931-1952*, 93-94.

[47] Ibid., 17.

[48] Solon J. Buck, *The Granger Movement: A Study of Agricultural Organization and Its Political, Economic and Social Manifestations, 1870-1880* (Lincoln, Neb., 1913), 131, 271; MacGibbon, *Canadian Grain Trade*, 37, 65.

[49] To be sure, some traders tried to manipulate grain prices: corners occurred on the CBT with varying success in wheat (1868, 1871, 1878/9), corn (1868), oats (1868, 1871, 1874), rye (1868), and pork (1868). This manipulation culminated in the so-called Three Big Corners, the Hutchinson (1888), the Leiter (1898), and the Patten (1909). The Patten corner was later debunked. See Boyle, *Speculation and the Chicago Board of Trade* (New York, 1920), 67-74; the Leiter corner was the inspiration for Frank Norris's classic *The Pit: A Story of Chicago*; Morton Rothstein, "Frank Norris and Popular Perceptions of the Market," *Agricultural History* 56 (Jan. 1982): 50-66. Nonetheless, throughout the late nineteenth and early twentieth centuries, North American legislatures, courts, and independent commissions typically took the view that futures markets benefited producers. Indeed, the extant literature demonstrates that early wheat futures markets performed rather well. In particular, the price of storage explains quite satisfactorily the inter-temporal differences in 1880s wheat futures prices at the CBT; see Holbrook Working, "The Theory of the Price of Storage," *American Economic Review* 39 (Dec. 1949): 1254-62. Wheat futures trading on the CBT reduced spot price volatility; see Janet S. Netz, "The Effect of Futures Markets and Corners on Storage and Spot Price Variability," *American Journal of Agricultural Economics* 77 (Feb. 1995): 182-93; Joseph Santos, "Commodity Futures Contracts: Furnishing an Elastic Currency in the Nineteenth Century,"

responded this time with the 1931 Stamp Commission, which investigated whether or not futures trading depressed wheat prices, and found no evidence that it did.[50]

Nevertheless, McFarland's sales continued to depress prices and to fuel agrarian hostilities. In 1935, less than a year before a federal election, the Canadian government submitted, and Parliament passed, the Wheat Board Act. The Board promised a minimum price (advance) to producers who chose to deliver wheat to it. From 1935 to the Second World War, a fragile compromise existed between the WGE and the Board: producers delivered wheat to the private trade, as well as futures traded on the WGE, when market prices rose above the Board's minimum price. Producers delivered wheat to the Board (and futures did not trade on the WGE) when market prices fell below the Board's minimum price. The compromise worked well up to the Second World War, and producers and the private trade supported it.[51] Unlike the U.S. domestic-use-tax framework, Canada's wheat price support program had evolved into the pool-fashioned Wheat Board, which necessarily eliminated futures trading whenever the Board intervened to support prices.

Journal of Macroeconomics 25 (Dec. 2003): 561-78. One-month-ahead wheat futures prices on the CBT were efficient estimates of their underlying spot prices; see Joseph Santos, "Did Futures Markets Stabilise U.S. Grain Prices?" *Journal of Agricultural Economics* 53 (March 2002): 25-36. And the price effects of alleged manipulation on early North American exchanges were likely trivial; see Boyle, *Speculation and the Chicago Board of Trade*, 62-74; Hieronymus, *Economics of Futures Trading*, 84; Rothstein, "Frank Norris and Popular Perceptions of the Market," 60.

[50] This was not uncommon. For example, in Canada, the Manitoba Grain Act of 1900 and the Canada Grain Act of 1912 brought nearly every aspect of the Canadian grain trade within the purview of the government. Nonetheless, the acts made "no attempt to interfere with the prices at which grain could be bought or sold. Prices were determined on the open market of the grain exchange by the free play of bids and offers. Hence, the typical grain trader in Canada, both elevator owner and grain merchant, though rigidly controlled in the former capacity, was free to pursue his own devices with regard to purchases and sales." MacGibbon, *Canadian Grain Trade*, 47-48.

[51] The WGE seemed on firm footing: the Turgeon Commission (1938) reported that the government should exit the grain trade, unfetter futures trading, supervise the WGE, and encourage private pools; see MacGibbon, *The Canadian Grain Trade, 1931-1951*, 44. Justice Turgeon wrote in the Commission's report, "I am convinced from all the knowledge I have been able to acquire on the subject, that the futures trading system, despite its imperfections, is one best qualified to look after the interests of our producers at home an abroad." See MacGibbon, *The Canadian Grain Trade, 1931-1951*, 42. Meanwhile Parliament passed the 1939 Grain Futures Act, which regulated, but left largely unfettered, futures trading on the WGE.

The Canadian Wheat Board, 1943

As Figure 2 illustrates, the Second World War brought large and sustained increases in wheat prices to North America. By 1943, crop failures in Eastern Canada and the United States, as well as the United States' removal of select import restrictions on Canadian wheat, drove prices above the CWB minimum price and producers delivered their wheat to the private trade. By September 1943, the price of No. 1 Northern at Fort William had reached $1.23/bushel, and all indications were that the price would continue to rise. Meanwhile, average annual inflation at the wholesale level had averaged 7.4 percent over the prior three years.

Amidst this persistent rise in wheat prices and the average price level, the Canadian government proclaimed on September 27, 1943, that producers must deliver grain to the Canadian Wheat Board; the compromise had ended. The Board set a price of $1.25/bushel for No. 1 Northern wheat at Fort William and, thus obviated grain futures trading on the WGE.[52] Although the Board's authority over grains changed slightly after the Second World War, its position as the sole marketer of wheat remains to this day.

Initially, Canada sought simply to honor its commitments to the Allies without having to pay dearly for wheat in the spot markets to do so and to enforce wartime price controls that the government instituted in 1941. Ultimately, however, Canada likely sought to retain its export markets (in particular, the UK market) and believed that a credible commitment to keep wheat prices affordable for the foreseeable future would accomplish that goal.[53]

Conclusion

The First World War and changes in the U.S. and Canadian positions in the world grain market shaped each country's interwar agricultural policies and by the Second World War fashioned very different wheat marketing schemes in the United States and Canada. U.S. and Canadian policies between the First and Second World Wars reflected the changing domestic and foreign consumption shares of each country's wheat production, as well as the relative importance of wheat production to each country's economy. Five interwar policy events—the 1919 wheat price support programs, the U.S. two-price plan debates and the pool movements in the 1920s, the U.S. Agricultural Adjustment Acts in the 1930s, and the Canadian Wheat Board Act in 1935—likely shaped U.S. and Canadian grain marketing by the Second World War.

In particular, the burden of a guaranteed price support scheme per bushel of wheat consumed domestically was relatively low in the United

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[52] MacGibbon, *The Canadian Grain Trade, 1931-1951*, 64.
[53] MacGibbon, *Canadian Grain Trade,* 428; MacGibbon, *The Canadian Grain Trade, 1931-1951*, 63.

States but high in Canada, because of relatively high and low domestic consumption shares of wheat production, respectively. Consequently, the United States experimented with guaranteed price schemes (the 1919 Wheat Guarantee Act, the two-price plan debates, and the 1933 and 1938 Agricultural Adjustment Acts), while Canada experimented, via the Canadian Wheat Board, with so-called best effort schemes. Moreover, because 1930s-styled U.S. price support programs did not interfere directly with the open market, futures trading could coexist. On the contrary, Canada's pool-fashioned comprehensive government price support policies had the government stand by to purchase wheat from producers and, by doing so, circumvent the open market. Hence, Canadian price support policies obviated futures trading whenever the government intervened to manage wheat prices.