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Analyzing Effects of the U.S. Duties on Canadian Hard Red Spring Wheat

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Since the United States imposed antidumping and countervailing duties totaling 14.16 percent on imports of Canadian hard red spring (HRS) wheat, Canadian exports to the United States have nearly stopped. This study examines the impact of the decreased HRS wheat imports from Canada on U.S. wheat prices and producer income. To measure the impacts of the U.S. duties accurately, special attention is paid to issues related to substitutability between HRS and hard red winter (HRW) wheat and third-country effects. Results suggest that the substantial decline in Canadian HRS wheat exports to the United States has increased U.S. HRS and HRW wheat prices and thus farm income.

Keywords: antidumping duties, Canadian exports, countervailing duties, farm revenue, hard red spring wheat

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Introduction

Since the implementation of the Canada–United States Free Trade Agreement (CUSTA) in 1989, a number of trade disputes have arisen between the two countries, especially with respect to wheat. Canadian wheat exports to the United States increased substantially in the early 1990s, which has helped fuel these disputes. A recent investigation by the U.S. Trade Representative (USTR) and the U.S. International Trade Commission (USITC) concluded that the Canadian Wheat Board (CWB) has used special monopoly rights and privileges that disadvantage U.S. farmers and are unfair trade practices. As a result of this investigation, the U.S. Department of Commerce (DOC) examined the possibility of imposing antidumping or countervailing duties on Canadian wheat. They determined that certain durum wheat and hard red spring (HRS) wheat imports were sold at less than fair value and were unfairly subsidized (U.S. DOC). The subsequent investigation by the USITC concluded that U.S. industry is materially injured by Canadian exports of HRS wheat, but that U.S. industry is not materially injured or threatened with material injury by Canadian exports of durum wheat. Therefore, antidumping and countervailing duties were applied to Canadian exports of Canadian HRS wheat but not to durum wheat. The antidumping and countervailing duties were set at 8.87 percent and 5.29 percent, respectively. These duties, however, were reduced in 2005 and were removed in 2006.

The objective of this study is to examine the effects of these duties on the U.S.-Canada wheat trade and on U.S. prices and producer income. Several studies have analyzed the impacts of Canadian wheat exports to the United States on U.S. domestic wheat prices. These studies have shown a wide range of results. A few studies were conducted in the mid-1990s, when the USITC investigated the impact of U.S. imports of Canadian wheat, wheat flour, and semolina on the U.S. farm program. These studies estimated the effect of wheat imports on U.S. prices. Babula, Jabara, and Reeder (1996) found that the annual decline in prices due to imports from Canada grew from 1.34 cents per bushel in 1989/90 to 4.41 cents per bushel in 1993/94. A study by Alston, Gray, and Sumner (1994) imposed on its model a restriction of Canadian wheat exports to the United States equal to 50 percent of the 1993/94 level, or about 1.2 million metric tons, which is about 3 to 4 percent of total U.S. wheat consumption. Their results indicated that such a restriction in Canadian exports to the United States would decrease the annual U.S. market price by 0.5 cents per bushel, implying that increased Canadian exports of HRS wheat to the United States had an insignificant impact on the U.S. domestic price of wheat. They argued that this is mainly because the United States was able to increase its exports to offshore markets when Canada started to export to the United States. The price changes in these studies

are for the average price of all U.S. wheat or all U.S. milling wheat and are not specific to different wheat classes such as HRS and durum.

More recently, McNew and Smith (2003) studied the impact of Canadian exports on HRS and durum wheat prices in specific U.S. markets and found the price effect to be much greater. They examined 23 durum markets and 57 spring wheat markets in the Northern Plains and Pacific Northwest and found that Canadian exports significantly affected price in 48 of the spring wheat markets and all but one of the durum markets. Their results indicated that a monthly increase of one million bushels of imports in northern U.S. ports negatively affects HRS wheat prices by an average of 5.3 cents per bushel and durum wheat prices by an average of 19.0 cents per bushel. As McNew and Smith showed, monthly exports of Canadian HRS wheat to the United States ranged from 2 to 6 million bushels before a poor Canadian crop and U.S. duties slowed the movement of wheat across the border.

Since the United States imposed countervailing and antidumping duties, Canadian HRS wheat exports to the United States have nearly stopped. Our study examines the impact that this reduction in HRS wheat imports from Canada has had on HRS and hard red winter (HRW) wheat prices. It is expected that the duties affect both HRS and HRW wheat prices, since these two classes of wheat are highly substitutable in consumption (Gilmore and Fawcett, 1987; Westcott and Hoffman, 1999; Koo and Mattson, 2002; Mulik and Koo, 2006). Our analysis also takes into consideration the possibility that the diversion of Canadian exports from the U.S. market to offshore markets could have a negative impact on U.S. offshore exports, a phenomenon known as third-country effects.

Investigation of U.S. International Trade Commission (USITC)

Following receipt of a petition filed by the North Dakota Wheat Commission, the Durum Growers Trade Action Committee, and the U.S. Durum Growers Association, the U.S. Commerce Department determined that Canadian exports of durum and HRS wheat to the United States were being unfairly subsidized, with a net subsidy rate of 5.29 percent, and sold at less than fair value, with dumping margins of 8.26 percent and 8.87 percent for durum and HRS wheat, respectively. The USITC then determined that the U.S. HRS wheat industry is materially injured by Canadian exports of HRS wheat, but that the durum industry is not materially injured, or threatened with material injury, by Canadian exports of durum wheat. Therefore, antidumping and countervailing duties were issued for Canadian exports of HRS wheat but not durum wheat.

In making their determination of material injury, the USITC considered the volume of Canadian exports, their effect on domestic prices, and their impact on domestic producers. The USITC found that, unlike Canadian durum wheat exports, Canadian HRS wheat exports were significantly undersold. The USITC collected pricing data for HRS and durum wheat and found that weighted-average delivered prices for Canadian Nos. 1 and 2 HRS wheat were lower than prices of comparable U.S.-grown HRS wheat in 28 of 40 monthly comparisons from June 2000 to August 2002. The USITC also made company-specific and place-specific comparisons that showed Canadian underselling in a majority of months, albeit by a slim majority.

The USITC concluded that not only was Canada underselling HRS wheat, but that Canadian exports had a significant price depressing effect on U.S. HRS wheat. The USITC demonstrated this by showing that monthly prices received by farmers were among the lowest in 2001/02 when import volumes were the highest, and that with the filing of the petition in September 2002, HRS wheat prices rose dramatically as imports fell. Two of the USITC commissioners dissented, concluding that the impact of Canadian exports is not significant. The dissenting commissioners argued that the evidence of underselling was mixed and that pricing data do not show price depression or suppression.

The USITC could not find evidence of underselling by Canadian durum exporters, nor could it find significant price depression or suppression caused by its exports of durum wheat. Its investigation found that demand for durum wheat is not price sensitive and that purchasers generally rank U.S. durum as inferior to Canadian durum in product consistency and dockage. Therefore, U.S. purchasers value the quality of Canadian durum and, unlike purchasers of spring wheat, their demand for Canadian wheat will not change significantly with changes in price.

As a result of the USITC investigation, an antidumping duty of 8.87 percent and a countervailing duty of 5.29 percent were imposed on Canadian HRS wheat in October 2003. The Canadian Wheat Board appealed the duties, and in March 2005 a NAFTA panel ordered the U.S. DOC to reconsider the countervailing duties. The DOC responded in August 2005 by lowering the countervailing duties from 5.29 percent to 2.54 percent, lowering the overall duties from 14.16 percent to 11.41 percent. A NAFTA panel also ruled in June 2005 that there is no substantial evidence to support the USITC injury ruling. The panel ordered the USITC to reconsider the ruling. In October 2005, the USITC reversed its previous decision, concluding that U.S. producers are not injured by HRS wheat imports from Canada. A final ruling from the NAFTA panel upheld the USITC's decision in December 2005. As a result of these

rulings, the antidumping and countervailing duties on spring wheat were removed in 2006.

U.S. Wheat Imports from Canada under the Canada–U.S. Free Trade Agreement

Canadian wheat exports to the United States increased substantially after CUSTA was implemented in 1989. Canadian exports consist of durum and non-durum wheat, mainly HRS wheat. In 1989/90, Canada's non-durum and durum wheat exports to the United States totaled 160 thousand and 221 thousand metric tons, respectively. By 1993/94, Canada's non-durum wheat exports had increased 13-fold, to 2.1 million metric tons, and its durum wheat exports had more than doubled, to 582 thousand metric tons.

After a dispute in 1994 and a negotiated settlement that restricted Canadian exports, imports from Canada declined, although it is not clear if the trade restrictions contributed significantly to the decline. Canadian exports increased again after 1996. During the six years from 1996/97 to 2001/02, Canada's non-durum wheat exports to the United States were fairly stable, ranging from 1.4 million to 1.7 million metric tons per year, and its durum wheat exports ranged from about 350 thousand to 600 thousand metric tons per year. Canadian exports of non-durum and durum wheat to the United States dropped in 2002/03 because of a poor Canadian crop.

When compared to the volume of U.S. domestic production, Canadian exports of durum wheat are more substantial than its exports of HRS wheat. In most years, its exports of durum wheat have equaled 20 to 40 percent of U.S. production. Canadian HRS wheat exports were equal to about 12 percent of U.S. HRS wheat production in the late 1990s and early 2000s and about 4 percent of combined U.S. HRS and HRW wheat production.

Since antidumping and countervailing duties on Canadian HRS wheat were imposed in October 2003, Canadian HRS wheat exports to the United States have decreased substantially. Canadian HRS wheat exports to the United States started declining in 2002, mainly due to a drop in Canadian production. U.S. HRS wheat imports from Canada decreased from 1.4 million metric tons in 2001/02 to 324 thousand metric tons in 2002/03. After the duties were imposed, Canadian exports of HRS wheat to the United States decreased further to 33 thousand metric tons in 2003/04 and just 8 thousand metric tons in 2004/05, which is a 97.5 percent reduction in imports compared to the 2002/03 crop year and a 99.4 percent reduction compared to the five previous crop years. This dramatic drop in Canadian HRS wheat exports to

the United States indicates that the duties have been highly successful in restricting imports.

The large decline in HRS wheat trade can be explained by examining both the demand side and the supply side. As the USITC concluded in its investigation, U.S. importers of HRS wheat are highly sensitive to price. The high sensitivity to price indicates that U.S. HRS wheat users would shift from Canadian to U.S. wheat if the Canadian price were to increase. Canada, therefore, would have to lower its wheat price by absorbing most of the duties to continue exporting to the United States. Under this circumstance, Canada is more likely to shift exports to overseas markets rather than export to the United States at lower prices. Transportation costs from the Canadian wheat producing regions to the United States are lower than those to overseas export markets, providing an incentive to export to the United States. The 14.16 percent tariff, however, negates the transportation cost advantage and provides incentive to export to overseas markets instead of the United States. A report from the U.S. Department of Agriculture's (USDA) Foreign Agricultural Service (FAS) (February 24, 2004) notes that the U.S. antidumping and countervailing duties make the United States an uneconomical market for Canadian HRS wheat.

Effects of Canadian Exports on Price and Revenue

Changes in Wheat Price

We first evaluate the impacts from reductions in Canadian exports of HRS wheat resulting from the U.S. duties on HRS and HRW wheat prices. For this purpose, using the average levels of prices, total supply, production, and Canadian offshore exports during 1997/98-2001/02, realistic quantity and prices in the U.S. wheat market are first calibrated as the baseline: (a) U.S. total supply of HRS wheat: 748.6 million bushels; (b) domestic production of HRS and HRW: 484.9 and 995.7 million bushels; (c) HRS and HRW prices (in 2000 U.S. dollars): \$3.88/bushel and \$3.61/bushel; and (d) Canadian offshore exports: 401.2 million bushels.¹ Then, we consider four scenarios for different levels of Canadian export reduction: 20, 30, 40, and 50 million bushels of wheat. Notice that since the United States imposed countervailing and antidumping duties Canadian HRS wheat exports to the United States have nearly stopped, decreasing by approximately 50 million bushels. As such, we can interpret the 50 million bushels as the upper bound of a reduction in Canadian HRS exports, as well as the real quantity effect of the U.S. duties.

Table 1 Effects of Various Import Reductions on U.S. HRS and HRW Wheat Prices

HRS imports reduction (mil bu)	HRS wheat change				HRW wheat change		
	Supply change		Exports change		Net price impacts (B+D)	Consumption change	Price change
	Volume (A)	Price (B)	Volume (C)	Price (D)			
20	-2.67%	+1.55%	-0.25%	-0.09%	+1.46% (\$0.06)	+1.50%	+0.59% (\$0.02)
30	-4.01%	+2.32%	-0.37%	-0.14%	+2.19% (\$0.08)	+2.25%	+0.88% (\$0.03)
40	-5.34%	+3.10%	-0.50%	-0.18%	+2.91% (\$0.11)	+3.00%	+1.17% (\$0.05)
50	-6.68%	+3.87%	-0.62%	-0.23%	+3.64% (\$0.14)	+3.75%	+1.46% (\$0.06)

Note: All values for price changes are in 2000 U.S. dollars. The effects of reductions in Canadian HRS wheat imports on U.S. HRS and HRW wheat prices are calculated using the average levels of prices and quantity during 1997/98-2001/02.

Table 1 summarizes the estimated effects of various import reductions on U.S. HRS and HRW wheat prices. For example, a reduction of 50 million bushels of Canadian exports results in a decrease in HRS wheat supply of approximately 6.68 percent, which leads to an HRS price increase of 3.87 percent. If Canada were to divert all of the spring wheat it had been exporting to the United States to offshore markets, its offshore exports would increase by approximately 12.46 percent. According to our results, a 12.46 percent increase in Canadian offshore exports would lead to a 0.62 percent reduction in U.S. HRS wheat exports. This leads to an HRS price decrease of 0.23 percent. As a result, the net effect is a 3.64 percent increase in the price of HRS wheat. The Minneapolis DNS #1 14 percent cash price averaged \$3.88 (in 2000 U.S. dollars) during the five years before Canadian exports to the United States decreased, so a 3.64 percent increase would equal \$0.14 per bushel.

Given the 3.64 percent increase in the price of HRS wheat resulting from a Canadian export reduction of 50 million bushels, domestic consumption of HRW wheat increases 3.75 percent. This leads to an HRW price increase of 1.46 percent, or about \$0.06 per bushel. Under a reduction in imports of 20 million bushels, on the other hand, HRS and HRW wheat prices increase 1.46 percent (\$0.06/bushel) and 0.59 percent (\$0.02/bushel), respectively.

It should be pointed out that when the 14.16 percent duties were imposed on Canadian HRS wheat between October 2003 and August 2005, the average HRS wheat price was \$4.21 (in 2000 U.S. dollars), which is a \$0.33 increase above the 1997/98-2001/02 average of \$3.88. However, our results suggest that the duties

caused the U.S. price of HRS wheat to increase by only \$0.14 per bushel. It is thus reasonable to infer that factors other than the duties also played important roles in increasing the HRW wheat price during the period. In fact, as a result of small crops in the United States and Canada in the latter half of 2002, domestic supply declined from approximately 750 million bushels in 2001/02 to approximately 600 million bushels in 2002/03. Consequently, ending stocks since 2002 have remained approximately 35 percent below the five-year average of 1997/98-2001/02. Furthermore, U.S. wheat exports actually increased significantly during the 2003/04 marketing year, despite Canada diverting exports to offshore markets. For example, U.S. HRS wheat exports increased from 217 million bushels in 2001/02 to over 270 million bushels in 2003/04, the highest level since 1996/97. Clearly, these factors have all contributed to the recent increase in the prices of HRS wheat.

Changes in Farm Revenue

Table 2 summarizes the estimated effects of reduction in Canadian wheat exports on U.S. farm revenue. Note that the estimated effects of an increase in revenue due to reduction in imports from Canada can be divided into three parts: (1) an increase in income due to the increased price (price effect); (2) an increase in farm revenue due to an increase in domestically produced wheat substituting for imports (substitution effect); and (3) an increase in revenue due to both price and substitution effects (dual effect) (Koo and Matson, 2002).

Table 2 Estimated Annual Effects of Reduced HRS Wheat Imports on Farm Revenue

		50 mil bushel reduction		40 mil bushel reduction		30 mil bushel reduction		20 mil bushel reduction	
		HRS	HRW	HRS	HRW	HRS	HRW	HRS	HRW
Market impact	Price change (\$/bushel)	+\$0.14	+\$0.06	+\$0.11	+\$0.05	+\$0.08	+\$0.03	+\$0.06	+\$0.02
	Production change (mil bushels)	+6.18	+2.67	+4.95	+2.14	+3.71	+1.60	+2.47	+1.07
Revenue impact	Price effect (million \$)	\$68.6	\$56.5	\$54.8	\$45.2	\$41.1	\$33.9	\$27.4	\$22.6
	Substitution effect (million \$)	\$24.0	\$9.6	\$19.2	\$7.7	\$14.4	\$5.8	\$9.6	\$3.9
	Dual effect (million \$)	\$0.9	\$0.2	\$0.6	\$0.1	\$0.4	\$0.1	\$0.1	\$0.02
	Total effect (million \$)	\$93.5	\$66.3	\$74.6	\$53.0	\$55.9	\$39.8	\$37.1	\$26.5

Note: All values for price changes are in 2000 U.S. dollars. The effects of reductions in Canadian HRS wheat imports on changes in total farm revenue in the United States are estimated using the following average levels of prices and quantity during 1997/98-2001/02: (a) U.S. total supply of HRS wheat: 748.6 million bushels; (b) domestic production of HRS and HRW: 484.9 and 995.7 million bushels; and (c) HRS and HRW prices (in 2000 U.S. dollars). Revenue impact consists of three parts: (1) an increase in income due to the increased price (price effect); (2) an increase in farm revenue due to an increase in domestically produced wheat substituting for imports (substitution effect); and (3) an increase in revenue due to both price and substitution effects (dual effect).

With average yearly HRS wheat production of 484.9 million bushels, for example, a \$0.14 per bushel price increase due to a reduction of 50 million bushels of Canadian exports results in an increase in annual income of \$68.6 million (in 2000 dollars). This is income gained strictly due to the increased HRS wheat price (price effect). The increase in price also leads to an increase in production, and domestic sales replace imports. To estimate the changes in production, we use information on U.S. supply elasticities for HRS and HRW wheat obtained from previous studies. More specifically, Koo et al. (1999) estimate an own-price supply elasticity of 0.3 for spring wheat, while results from a model developed by Koo and Mattson (2002) indicate an elasticity of 0.4. In addition, Lin (1999) estimates winter wheat own-price elasticity of 0.38 and spring wheat elasticity of 0.29. For this study, we adopt elasticities of 0.35 for both HRS and HRW wheat.² The 3.64 percent increase in HRS wheat price is found to cause an increase in HRS wheat production of 1.27 percent, or approximately 6.18 million bushels per year. This increase in production leads to an additional increase in revenue, from the substitution and dual effects, of \$24.9 million per year. As a result, the total increase in revenue for the U.S. HRS wheat industry is estimated to be \$93.5 million per year.

Similarly, with average annual HRW wheat production of 995.7 million bushels, a reduction in 50 million bushels of Canadian exports results in an increase in HRW price of \$0.06 per bushel and an increase in production of 2.67 million bushels. As a result, the total increase in revenue for the U.S. HRW wheat industry is estimated to be \$66.3 million per year. Under a reduction in imports of 20 million bushels, on the other hand, the HRS and HRW wheat industries gain \$37.1 million/year and \$26.5 million/year, respectively.

Conclusions

In this study we examine the effects of the antidumping and countervailing duties totaling 14.16 percent on U.S. wheat prices and farm revenue. The results suggest that the U.S. duties on imports of Canadian HRS wheat have been indeed effective. That is, Canadian HRS wheat exports to the United States have nearly stopped, decreasing by approximately 50 million bushels since the imposition of the duties in October 2003. This substantial decline in Canadian HRS wheat exports to the United States has led to a \$0.14 per bushel increase in the HRS wheat price and a \$0.06 per bushel increase in the HRW wheat price. Translated into revenue terms, this price increase suggests a total increase in annual revenue of \$93.5 million for the U.S. HRS wheat industry and of \$66.3 million for the U.S. HRW wheat industry.

Finally, since the interest of this study is limited to the effects of the U.S. duties on changes in U.S. farm-level revenue, we did not examine the welfare impacts for U.S. consumers. In addition, we did not consider the effects of the duties on other upstream industries that use wheat as an input (e.g., food-processing industries). For example, the induced price increase for HRS wheat due to the U.S. duties may have a negative effect on food-processing industries and thus their revenues. Combining the negative market effects, therefore, the U.S. wheat industry may witness a moderate increase in total revenue. These issues should be addressed in future research.

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Endnotes

1. Note that price and quantity in 2002/03 are not included in the calculation, since a poor Canadian wheat crop limited Canadian HRS wheat exports to the United States.
2. We also conduct a sensitivity analysis by changing the elasticity values to 0.29 and 0.4 for HRS wheat and to 0.38 for HRW wheat. The results show that the changes in domestic production are relatively insensitive over the range of elasticities tested.

The technical annex to this paper, pages 53-62 is available as a separate document.

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