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The Impacts on U.S. Cattle Prices of Re-Establishing Beef Trade Relations

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Introduction

The May 2003 case of bovine spongiform encephalopathy (BSE, or mad cow disease) in Canada and the December 2003 BSE case in Washington State (a dairy animal of Canadian origin) prompted several trade sanctions that affected both Canadian and U.S. cattle producers. Immediately after the Canadian discovery, the United States closed its border to imports of Canadian feeder cattle, fed cattle, cull cows, and beef. Later in 2003, the United States reopened its border to imports of Canadian boneless beef obtained from animals less than thirty months of age.

Japan and South Korea terminated imports of Canadian beef in May 2003. After the U.S. BSE discovery in December 2003, Japan and South Korea terminated imports of U.S. beef. As of February 2005, these borders had not been re-opened.

The consequences of trade restrictions on Canadian beef producers were severe. From 1995 to 2002, Canada exported an average of 30 percent of its live cattle to the United States. However, trade restrictions imposed by importing countries in 2003 and 2004 substantially increased Canadian domestic beef supplies and severely reduced prices. For example, the price of Canadian fed steers in March

2003 (prior to the BSE discovery) was \$77/hundredweight (U.S. dollars), but declined by 52 percent to \$37/hundredweight in September 2003. By September 2004, Canadian fed steer price had increased to about \$57/hundredweight.

The December 2003 discovery of BSE in the state of Washington reduced exports of live cattle from the United States to Canada and Mexico by 86 percent in 2004 relative to 2003. U.S. live cattle exports to all countries, however, constitute only about one-half of one percent of total domestic slaughter. More importantly, the U.S. also lost vital Japanese and South Korean beef export markets in 2004. Beef exports to Japan and South Korea normally account for over 60 percent of U.S. beef exports. U.S. beef exports in 2003 were 2.52 billion pounds, but declined by 84 percent to 0.417 billion pounds in 2004.

From 1995 to 2003, annual U.S. exports of live cattle and beef (carcass weight equivalent) ranged from 7 to 9 percent of domestic beef supplies. However, Canada's exports of live cattle *and* beef (carcass weight equivalent) to all countries as a percent of their domestic beef supplies exceeded 40 percent during this period. Consequently, the impacts on beef cattle prices in the United States and Canada from export market losses



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were considerably different. Canada experienced precipitous declines in cattle prices as a result of lost export markets while the United States experienced considerably smaller price reductions. For example, prior to the U.S. BSE case, U.S. (Nebraska) fed steer prices averaged \$97.05/hundredweight the first three weeks of December 2003. Following the BSE announcement, average fed steer prices declined by 21 percent to \$76.27/hundredweight over the first three weeks of January 2004. But, because of relatively low U.S. cattle inventories, reduced imports of Canadian beef, and strong consumer beef demand, U.S. beef prices rebounded. From February 2004 through December 2004, fed steer prices ranged between \$84/hundredweight and \$90/hundredweight.

In early December 2004, the U.S. Department of Agriculture (USDA) provided a status report on a proposed ruling to reopen the border between the United States and Canada to live cattle trade. The USDA rule is considered a Minimum Risk-Regional Rule (MRR). Under the MRR, the United States could import specific ruminants (live), ruminant products (meat), and by-products (tongue, liver, etc.) from certain Canadian regions that present minimal risk of introducing BSE into the United States. Minimal risk status means that Canada must meet numerous requirements such as import restrictions from countries where BSE has been discovered, BSE surveillance that meets or exceeds international guidelines, a ruminant-to-ruminant feed ban, and other appropriate investigations and risk assessments such as prohibiting risk materials (brains and spinal cord tissue) from entering food supplies.

The final USDA rule is effective as of March 7, 2005. Under the MRR, the following beef products may be imported from Canada: (1) cattle for feeding or immediate slaughter as long

as they are slaughtered at less than 30 months of age; (2) bone-in and bone-less beef; and (3) certain by-products such as livers, tongues, gelatin, and tallow. Recently (February 2005), R-Calf USA filed for a preliminary injunction against the USDA-MRR rule on the grounds the rule is insufficiently restrictive and poses unresolved animal and human health problems. Conversely, the American Meat Institute filed for a preliminary injunction against the USDA (February 2005) in an attempt to end the cattle import ban because meat processors indicate they have suffered substantial financial losses.

This briefing paper quantifies the impact on U.S. fed steer and feeder steer prices of reinstating U.S. imports of Canadian live cattle and beef as stipulated in the MRR rule. In addition, the impacts of renewed access to major U.S. export markets are also considered.

Estimating Price Effects

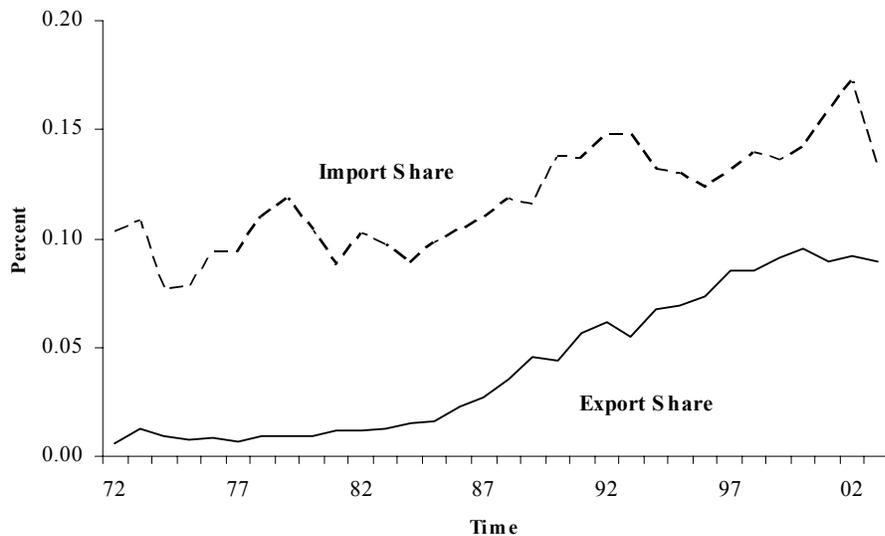
Four pieces of information were used to estimate the impacts of the North American discoveries of BSE on U.S. cattle prices. First, an estimate was required of the effect

of percentage changes in wholesale beef supplies on fed cattle prices (beef price flexibility coefficient at the slaughter-wholesale market level). Wholesale supplies are defined as wholesale beef production plus beef imports (carcass weight). Wholesale beef production includes U.S. slaughter of domestic and imported cattle. Results from a statistical model of beef demand and supply indicate that this coefficient is -1.42; that is, a 1.0 percent increase in wholesale beef supplies decreases fed cattle price by 1.42 percent (Marsh 2004).

Second, an estimate of the fed steer-to-feeder steer price transmission elasticity was required. This elasticity measures the percentage change in feeder steer price that results from a 1 percent change in fed steer price. The coefficient links changes in wholesale beef supplies to changes in feeder cattle prices. Previous statistical work indicates that this coefficient is 1.20 (Marsh 2003).

Third, information was required on import and export market shares in the U.S. beef sector. The beef import share is calculated by

Figure 1: U.S. Beef Import and Export Market Shares Of Live Cattle and Beef Supplies



dividing the quantity of U.S. beef imports (live cattle and beef) by the total quantity of U.S. beef supplies (wholesale beef production plus beef imports). The beef export share is calculated by dividing the quantity of U.S. beef exports (live cattle and beef) by the total quantity of U.S. beef supplies. U.S. beef import and export market shares are presented in Figure 1 for the 1970 to 2003 period.

Fourth, base period fed and feeder steer prices were identified to compute cattle price changes that would occur in response to the MRR. Average prices occurring during December 2004 are used as base period prices. The average Nebraska fed steer price for the month was \$86.85/hundredweight and the average feeder steer price (Oklahoma City, 500-600 pounds) for the month was \$124.70/hundredweight.

Several assumptions were coupled with the above information to estimate the impacts of the USDA-MRR rule on U.S. cattle prices:

- (1) The United States will import 400,000 head of Canadian feeder cattle and 1.1 million head of Canadian fed steers and heifers between March 2004 and December 2005 (Livestock Marketing Information Center). This translates into 1.155 billion

pounds of carcass weight beef (total of 1.5 million head multiplied by average dressed weight of U.S. steers and heifers in 2004 of 770 pounds). The average dressed weight is also applied to imported feeder cattle because they are assumed to be slaughtered in the United States at less than 30 months age.

- (2) U.S. imports of Canadian beef will return to the 2002 level of 1.09 billion pounds. In 2004, the U.S. imported 1.059 billion pounds.
- (3) U.S. exports of beef to Canada will return to the 2002 level of 0.241 billion pounds. In 2004, U.S. beef exports to Canada were only 0.045 billion pounds.
- (4) U.S. feeder cattle exports to Canada under the current Restricted Feeder Cattle program will return to 134,200 head, which was the level of U.S. feeder exports in 2002. The United States exported 31,082 head to Canada in 2004. Thus, the United States will export an additional 103,138 head of feeder cattle in 2005. Assuming an average feeder weight of 650 pounds and a dressing percentage of 60 percent, this amounts to 0.040 billion pounds of added carcass weight beef exports.
- (5) In 2005, U.S. beef trade with countries such as Mexico,

Russia, Latin America, and the Caribbean nations will be unchanged from 2002 levels.

- (6) Marketing flows of imports and exports of live cattle and beef for 2005 will be relatively evenly spaced throughout the year. However, it is possible that uneven marketings and sales could cause larger or smaller price changes in the short term.
- (7) Changes in beef by-products trade are not considered in the analysis.

Effects of Increased Trade With Canada Under the MRR

Normalizing cattle and beef trade with Canada will increase U.S. access to Canadian beef markets. This access is likely to increase the U.S. beef export share by 1.2 percentage points from 1.6 percent in 2004 to 2.8 percent in 2005. Assuming other market factors remain constant, this increase in export market share would cause fed steer prices to increase by \$1.43/hundredweight (or \$17/head) in 2005. Feeder steer prices would increase by \$2.46/hundredweight or \$16 per head.

Conversely, increased access for Canadian cattle and beef producers to the U.S. market is estimated to increase the U.S. import market share by 2.2 percentage points from 14.0 percent in 2004 to 16.2 percent in 2005 (Table 1). Increased imports would reduce fed steer prices by \$2.65/hundredweight and feeder steer prices by \$4.57 hundredweight.

Consequently, two different impacts will likely occur because of the implementation of the MRR. Increased exports to Canada will increase U.S. cattle prices, while increased U.S. imports of Canadian cattle and beef will decrease U.S. cattle prices. The combined effects of

Table 1: U.S. Import and Export Market Shares of Live Cattle and Beef Supplies and Beef Price Effects of Opening the Canadian Border in 2005: Assuming No Access to the Japanese and South Korean Markets

Year/ Cattle Price	Import Share	Export Share	Import Price Effects	Export Price Effects	Net Price Effects
2004	14.04%	16.30%			
2005	16.19%	2.79%			
Fed Steer			-\$2.65/cwt	\$1.43/cwt	-\$1.22/cwt
Feeder Steer			-\$4.57/cwt	\$2.46/cwt	-\$2.11/cwt

Note: Market shares and price effects are based on projected changes from 2004 to 2005

Table 2: U.S. Import and Export Market Shares of Live Cattle and Beef Supplies and Beef Price Effects of Opening the Canadian Border in 2005: Assuming Access to the Japanese and South Korean Markets

Year/ Cattle Price	Import Share	Export Share	Import Price Effects	Export Price Effects	Net Price Effects
2005	16.19%	7.10%			
Fed Steer			-\$2.65/cwt	\$6.75/cwt	\$4.10/cwt
Feeder Steer			-\$4.57/cwt	\$11.62/cwt	\$7.05/cwt

Note: Market shares and price effects are based on projected changes from 2004 to 2005

these two factors will result in *net* price reductions of \$1.22/hundredweight for fed steers and \$2.11/hundredweight for feeder steers.

The Effects of Normalizing World Beef Trade Relationships

Some industry experts have suggested that restoring U.S. beef trade with Japan and South Korea hinges, in part, on restoring trade with Canada. Therefore, we consider the effects on U.S. cattle prices of returning world beef trade relations with Canada, Japan, and South Korea to pre-BSE levels. In 2002, the U.S. exported 0.771 billion pounds of beef to Japan and 0.597 billion pounds of beef to South Korea. But in 2004, the United States exported only 0.012 billion pounds of beef to Japan and 0.001 billion pounds of beef to South Korea. If 2005 exports to those two countries return to 2002 levels, the U.S. beef export market share would increase to 7.1 percent. This increase in exports (including increased exports to Canada) would translate into increases in fed steer prices of \$6.75/hundredweight or \$81/head, and increases in feeder steer prices of \$11.62/hundredweight or \$76 per head (Table 2).

However, as previously noted, normalizing trade relations would also increase U.S. beef and cattle imports. Increased imports would reduce fed steer prices by \$2.65/hundredweight

and feeder steer prices by \$4.57/hundredweight. The net effect on U.S. prices is obtained by combining the price increases caused by additional U.S. exports with the price decreases caused by additional U.S. imports. The *net* effects of normalizing world beef trade are estimated to be an increase in U.S. fed cattle prices of \$4.10/hundredweight and an increase in U.S. feeder cattle prices of \$7.05/hundredweight (Table 2).

Conclusions

The USDA-MRR rule to allow U.S. backgrounders, feedlot operators, and meat packers to purchase Canadian feeder cattle and fed cattle beginning March 7, 2005 has evoked controversy among beef producers and beef industry organizations. Some assert that resuming U.S. imports of Canadian live cattle will disrupt marketings and may potentially cause animal and human health problems in the United States. Others are confident that Canadian and U.S. meat safeguards will protect meat supplies against BSE contamination.

We use a model that incorporates price flexibilities, import and export market shares, and 2004 base prices to estimate the likely effects on U.S. cattle prices from resuming live cattle and beef trade

with Canada. We estimated that U.S. fed cattle and feeder cattle prices would decline by \$1.22/hundredweight and \$2.11/hundredweight in 2005, assuming Japanese and South Korean beef export markets remained closed to U.S. beef exports. Based on U.S. fed steer and heifer slaughter and the U.S. calf crop in 2004, these price declines would reduce fed cattle revenues by \$417 million and feeder cattle revenues by \$457 million (or, about 1.5 percent and 2 percent of 2004 total revenues in these sectors).

The resumption of live cattle and beef trade with Canada may be linked to the resumption of beef trade with Japan and South Korea. If trade with Japan and South Korea is resumed, then U.S. fed steer prices would likely increase by \$4.10/hundredweight and feeder steer prices would increase by \$7.05/hundredweight in 2005. These price changes would increase fed cattle revenues by \$1.4 billion and feeder calf revenues by \$1.5 billion (or 5 percent and 6.5 percent of 2004 total revenues in these sectors).

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