

Impact of Animal Disease-related Trade Disruption on the U.S. Beef Market

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The US cases of BSE (Bovine Spongy Encephalopathy), also called mad cow disease, detected in Canada the U.S., have increased concern relative to the safety of the food supply chain. Animal disease outbreak on large scale brings massive impacts in affected countries. Huge costs can be encountered for disease management, slaughtering of infected animals and subsequent recovery. Outbreaks also cause trade disruptions and shifts in supply and sometimes demand for the affected commodity.

The meat industry is the largest sector in terms of product value within U.S. agriculture. About 10% of U.S. beef production was exported before 2003. However, the export markets to Japan, South Korea, Mexico and Canada were closed after the BSE event. The Canadian BSE cases also resulted in the trade ban on Canadian cattle and beef into the U.S. and the international market. Since Canada was a major source of live cattle imports to the U.S., then the U.S. cattle market was affected.

The objective of the study is to examine the meat market effects and their duration as caused by the BSE events examining effects on prices and market quantities for the U.S. live cattle, U.S. beef exports, and U.S. beef consumption. Results from this study also demonstrate how the U.S. beef market reacts to the shocks in international trade. The results will show the decomposition of the effects from trade disruption and beef demand shifts.

To do this the study employs a time series statistical approach analyzing the data for the U.S. beef market in the neighborhood of the 2003 BSE discoveries in the U.S. and Canada. Empirical results show that changes in trade associated with BSE had impacts on beef prices. The historical decompositions show that the BSE induced ban on live cattle imports from Canada had negative impact on beef prices after the outbreak in Canada. They also show the impact of beef exports is mixed on beef prices. It can be concluded that trade related effects of BSE have impacts on beef prices. Canadian import ban and U.S. export ban had countervailing effects. But the impact of these two outbreaks in North America in 2003 is not as great as we had expected.