

Cattle Market Economics
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What Are The Long-Run Effects of BSE on Beef Demand?

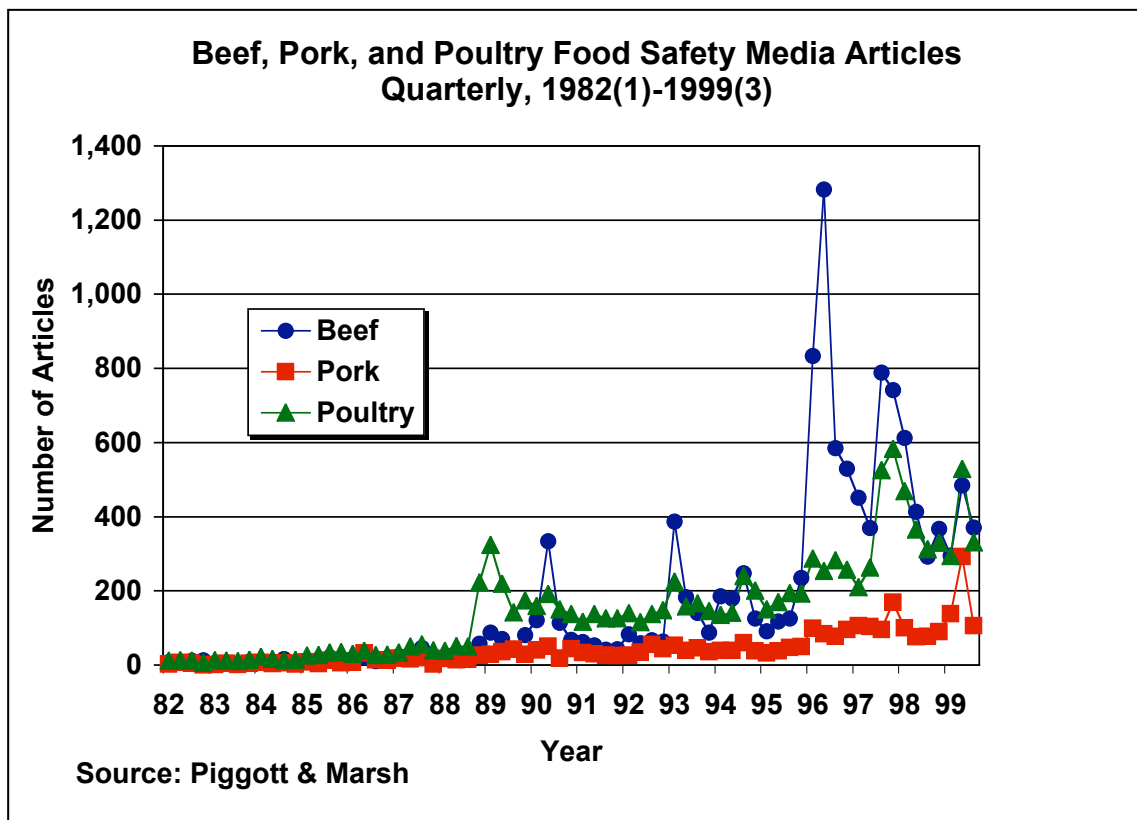
Canada's identification of a lone beef cow in Alberta with BSE has been a cause of great concern. The initial announcement of the positive BSE test in late May was followed by immediate suspension of cattle and beef trade between Canada and the U.S. All other major beef importers followed suit, resulting in the Canadian cattle and beef sector's isolation from the world market. Canada's BSE announcement initially triggered fears that beef and cattle prices in the U.S. would collapse, under the presumption that U.S. consumers would shy away from beef, both in the supermarket and in the away from home market. Fortunately, U.S. beef demand did not collapse. Research by two agricultural economists, Nick Piggott of North Carolina State University and Tom Marsh of Kansas State University, which is slated for publication in a forthcoming issue of the *American Journal of Agricultural Economics*, sheds light on how consumers respond to concerns about food safety. Their article, entitled "Does Food Safety Information Impact U.S. Meat Demand?", provides insight regarding how future food safety concerns will impact domestic beef demand.

Separating the effects of consumer concerns about food safety from other factors that can affect demand for beef, pork, and poultry required that the researchers develop a detailed meat demand model. The first step was to obtain estimates of per capita beef, pork, and poultry (broiler, other-chicken, and turkey) meat disappearance from the U.S. Department of Agriculture (USDA). Retail beef and pork prices were also obtained from USDA and the Bureau of Labor Statistics for whole chicken fryers and whole frozen turkey prices. To examine the effects of food safety on meat demand, the researchers had to develop a set of food safety indices.

To develop separate beef, pork, and poultry food safety indices, the North Carolina State and Kansas State researchers searched the top fifty English language newspapers for articles addressing food safety issues from 1982 through the third quarter of 1999. The newspapers were searched electronically for articles that mentioned food safety, contamination, product recall, outbreak, salmonella, listeria, E.coli, trichinae, staphylococcus, or foodborne. Examination of the resulting food safety indices reveals that more articles mentioning food safety in beef were published than on pork or poultry and that far more food safety articles were published each quarter in the late 1980's and 1990's than in the earlier years. A lot of the articles identified did not specifically focus on a particular meat type. For example, 56% of the articles in the beef index were not specific to a particular meat group. But the average number of beef only articles was on

the rise during the 1990's, whereas the number of pork-only and poultry-only articles both declined.

There is a big difference between the average number of food safety articles published each quarter and the peak number of articles published. Although the beef food safety index average per quarter was 174, the peak was 1283. The poultry index averaged 153 articles per quarter and the peak was 582, whereas the pork index average was just 43 per quarter, with a peak of 292. Peaks in the number of food safety articles published coincide with major food safety events. For example, the peak (1996) in the beef food safety index coincided with the announcement by European scientists that BSE and new variant Creutzfeldt-Jakob disease (CJD) in humans might be linked.



The average impact of food safety articles' publication on meat demand is small, according to Piggott and Marsh. For example, they conclude that a 10% increase in the beef food safety index results, on average, in a 0.144% decline in consumers' pre-committed quantity of beef demanded. Although the average impact is small, the short-run impact can be much larger. One example occurred in 1996, when the beef food safety index peaked, primarily because a large number of BSE related articles were published. Results from the agricultural economists meat demand model indicates that the second quarter 1996 impact was nearly 8 times larger than the average, as a result of the surge in the beef food safety index. Importantly, the researchers conclude that even though the quarterly effects associated with jumps in food safety indices are much bigger

than the average impact, the effects are still small compared with effect of traditional price and income variables. And of interest this year is the fact that when the food safety index drops back from its peak, the effect on consumer behavior seems to decline as well. In other words, there do not appear to be any significant lagged effects on meat demand.

The fact that there do not appear to be lagged effects on U.S. meat demand from publication of food safety information is significant. The implication is that U.S. consumer demand for beef, and other meat products, will decline in response to a food safety event. But once media attention on the event dies down, the impact on consumer demand also dissipates. So, as media attention on BSE dissipates, we can expect the impact on beef demand to decline as well. The key for the industry is to work hard at avoiding future spikes in media articles focusing on beef safety.