

Consumer Reaction to Additional Cases of BSE

Progress Report

Principal Investigators: J.A. Fox, Jen Blake

Introduction

In December 2003, the US recorded its first case of Bovine Spongiform Encephalopathy (BSE), more commonly known as Mad Cow Disease. As expected the market response was immediate with livestock futures at limit down prices for several days following the announcement. Export markets for US beef were closed and analysts expected a drop in domestic beef demand.

However, in the weeks following the announcement, prices recovered and by mid March, less than 3 months later, prices for April live cattle futures had regained pre-BSE levels despite the continued ban on exports to Japan and South Korea. Fueling the recovery was the realization that US domestic demand had suffered only a minimal setback with consumers apparently reassured that the case was isolated one and had resulted from a Canadian import.

Following discovery of the first case, USDA introduced a series of additional measures against BSE including a ban on downer animals in the food chain, restrictions on specified risk materials (brain, spinal cord etc) and plans for an enhanced surveillance scheme to begin in June 2004.

In the enhanced surveillance effort, USDA planned to test approx. 200,000 animals in a twelve to eighteen month period, up from approx 20,000 in 2003. Increased surveillance increases the chances that an indigenous case of BSE will be found. Thus, the objective of this research was to investigate how

domestic beef demand in the US might respond to such a discovery. In particular we wanted to investigate: a) respondent knowledge of BSE, b) how respondents reacted to the 1st case in Dec. 2003, c) how their consumption of beef would change if one (or twenty) additional cases of the disease were found in the US.

Materials and Methods

A survey was mailed to 2500 residents of Kansas, California and New York in late February 2004, with a follow-up mailing to all non-respondents after a 3 week interval. The first section of the survey asked about the respondent's beef consumption and familiarity with mad cow disease. We then asked whether respondents had changed their meat consumption habits as a result of the discovery of mad cow disease, and whether their beef consumption would change if additional cases were found.

For this particular question, we designed three versions of the survey instrument. In one, we asked how their consumption would change if a single US born case of BSE were discovered in Montana. In a second version, we asked how consumption would change if twenty cases were found throughout the US. In a third version, in an effort to investigate whether the framing of the question influenced responses, we elicited the response to both the single case and twenty case scenarios.

Results

Of 2498 surveys mailed, 198 were returned by the post office and 31 were returned by recipients choosing not to participate. A total of 737 consumers responded to the first mailing, with an additional 141 surveys received from a 2nd mailing. The overall response rate was 38.7% but only 856 surveys were complete enough to use in analysis.

Forty-seven percent of respondents were male and the median age of the sample was 55 years. Median education level was 'some college' and the median level of income before taxes was between \$50,000 and \$70,000. On average, the respondents' family consumed beef 5.3 times per month at-home, and 3.6 times per month away-from-home.

Ninety-nine percent of respondents had heard of mad cow disease but thirty-seven percent indicated they knew very little about it. This was confirmed by responses to three questions about the disease – for example, only forty-seven percent knew that BSE was not caused by genetically modified feed. When asked whether they were concerned about mad cow disease, only twenty-one percent were quite-a-bit- or very-concerned.

Seventy-seven percent of respondents indicated that their meat consumption had not changed in response to the first case of BSE. Of those indicating that their consumption had changed, eighteen percent said they were consuming less ground beef or burgers, ten percent were consuming fewer hot-dogs and eleven percent were consuming less steak. At the same time, two and half percent indicated increased steak consumption and sixteen percent indicated increased poultry consumption. Other surveys in the aftermath of the

first case found similar responses in terms of reduced consumption of beef products.

However, market data indicates no weakening in domestic beef demand in the first quarter of 2004. This suggests that the responses to surveys such as this may be misleading in that they exaggerate any reduction in consumption. The discrepancy between actual market behavior and survey data statements may be partly a result of non-response bias (with those who felt most strongly about the issue being more likely to reply), or hypothetical bias in the responses themselves (with individuals responding in the way they felt they ought to and thereby indicating that their consumption had fallen). On the other hand, it may be that these individuals did reduce consumption of certain beef products, but a very short time.

Whatever the explanation, the discrepancy between actual and stated behavior cautions us to be careful in interpreting survey results, particularly those from our next question regarding intended response to discovery of additional BSE cases. As described above, we used three versions of the survey to investigate response to one or twenty cases of BSE, with a third version featuring both scenarios.

Comparison of results from the different versions indicated that multiple cases of BSE would produce a significantly greater consumer reaction than discovery of a single case. In the one-case scenario, fifty-four percent indicated that their consumption would not change, thirty-two percent indicated their consumption would fall, and twelve percent indicated they would stop consuming beef (figure 1).

Analysis of these responses revealed that the majority of those indicating that their beef consumption would fall were the same individuals who indicated they had already reduced consumption in response to the first case. Given the comparison described above between survey responses and actual market behavior, this suggests that the actual demand response to an additional case will be far less dramatic than these results suggest.

Beef Consumption Change Due to One Additional U.S. Case

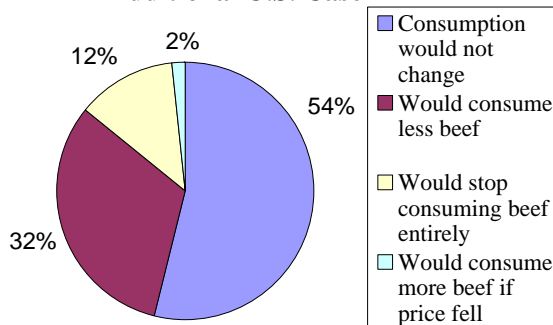


Figure 1. Response to one Case

Responses to the twenty-case scenario were significantly different from the one-case. If twenty BSE cases were found, thirty percent indicated that their consumption would not change, forty-three percent indicated their consumption would fall, and twenty-six percent indicated they would stop consuming beef (figure 2). Again, these responses likely exaggerate the true response to this (unlikely) scenario, but the comparison between the two sets of responses does suggest that multiple cases would have a much greater impact than discovery of another isolated case.

Finally, we use the results from the third version of the survey in which we presented both the 'one-case' and the 'twenty-case' scenarios, to examine the

effect of framing the 'twenty-case' scenario alongside the single case.

Beef Consumption Change Due to Twenty Additional U.S. Cases

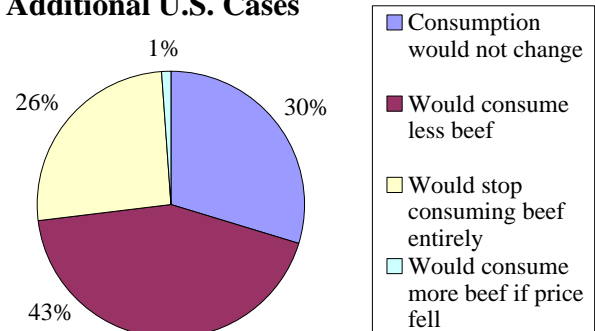


Figure 2. Response to twenty Cases

The framing effect was dramatic. When both questions were asked, only fifteen percent indicated consumption would be unchanged if twenty cases were found, thirty-nine percent indicated their consumption would fall, and forty-five percent indicated they would stop consuming beef! Clearly a demand response of this magnitude is unlikely, but the comparison with results from the version featuring only the 'twenty-case' scenario is instructive. When both questions are posed together, twenty cases is seen as twenty times riskier than a single case, and responses change accordingly. Thus the framing of the higher risk scenario in conjunction with a lower risk scenario biases the responses. In this context, it is reasonable to speculate that had we provided information about the number of cattle in the US (approx 100 million, or 45 million adult cattle), the discovery of a single case framed as one out of such a large population would have led to many more respondents saying that their consumption would be unchanged.