

United States
Department
of Agriculture



Economic
Research
Service

Economic
Research
Report
Number 34

December 2006

Did BSE Announcements Reduce Beef Purchases?

Fred Kuchler and Ababayehu Tegene

Visit Our Website To Learn More!

Want to learn more about consumers' food purchases after food safety announcements? Visit our website at **www.ers.usda.gov**.

You can also find additional information about ERS publications, databases, and other products at our website.

National Agricultural Library Cataloging Record:

Kuchler, Fred

Did BSE announcements reduce beef purchases?

Economic research report (United States. Dept. of Agriculture. Economic Research Service); no. 34)

1. Bovine spongiform encephalopathy—Economic aspects—United States.

2. Beef industry—United States.

3. Consumer behavior—United States.

I. Tegene, Ababayehu.

II. United States. Dept. of Agriculture. Economic Research Service.

III. Title.

HD9433.U62

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410, or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.



United States
Department
of Agriculture

Economic
Research
Report
Number 34

December 2006



A Report from the Economic Research Service

www.ers.usda.gov

Did BSE Announcements Reduce Beef Purchases?

Fred Kuchler and Abebayehu Tegene

Abstract

This study examines consumers' retail purchases of beef and beef products for evidence of a response to the 2003 U.S. government announcements of finding cows infected with Bovine Spongiform Encephalopathy (BSE). We constructed weekly estimates of quantities of beef products consumers purchased from 1998 through 2004 using ACNielsen Homescan data. While the variance in purchases was large, most could be explained by trend and seasonality. Deviations from established purchase patterns following the BSE announcements varied across beef products, but were limited to no more than 2 weeks in all cases.

Keywords: food safety, Bovine Spongiform Encephalopathy, BSE, retail beef purchases, Government announcements, retrospective analysis

Acknowledgments

We thank John Marsh (Montana State University), Ted Schroeder (Kansas State University), Elizabeth Buck and Cristina Ford McLaughlin (U.S. Food and Drug Administration), Ron Meekhof (Food Safety and Inspection Service, U.S. Department of Agriculture), and Elise Golan, Ephraim Leibtag, Jim MacDonald, Ken Mathews, and Jay Variyam (Economic Research Service, U.S. Department of Agriculture) for their comments on earlier drafts of our paper. We would also like to thank Lou King and Tom McDonald for their editorial contribution. Any remaining errors are ours alone.

Contents

Summary	iii
Introduction	1
Using ACNielsen Homescan Panel Data To Track	
Weekly Beef Purchases	3
Homescan Panel Data Is Rich and Detailed	3
Why Construct Weekly Purchase Data?	4
Weekly Purchase Data Display Strong Seasonal Patterns	6
Fresh Beef Purchases Trend Downward and Have	
Seasonal Peaks and Troughs	6
Frozen Beef Purchases Display Rising Seasonal Peaks	7
Frankfurter Purchases Are Strongly Seasonal	8
Modeling Fresh Beef Purchases	11
Accounting for Trend and Seasonality Reveals That	
Impacts Were Short-Lived	11
Accounting for Retail Prices Refines Estimates of Duration	14
Modeling Frozen Beef Purchases	20
Modeling Frankfurter Purchases	25
Generalizing Results to Other Types of Food Safety News	31
Were the BSE Announcements News?	31
Are Human Health Risks From BSE Like Other Food Safety Risks? ..	33
Predictions Need a Benchmark	34
References	36
Appendix	38

Summary

In May 2003, several U.S. Government agencies announced that Bovine Spongiform Encephalopathy (BSE—also known as Mad Cow disease) had been found in a cow in Alberta, Canada. The following December, agencies reported that BSE had been found in a cow in Washington State. Both of these sets of announcements had the potential to influence consumers' food choices and retail food markets in the United States.

What Is the Issue?

Knowing how consumers responded to these announcements and, more generally, to news about the safety of the food supply, is important for the design of food policy. Public information programs that effectively communicate risk information could prevent consumers from responding out of proportion to the risks they face. Consumers and food suppliers might both gain if consumers do not avoid foods that are safe. When consumers make informed risk decisions, they create incentives for food suppliers to take cost-effective safety precautions. Also, accurate assessments of consumer responses to food safety risk information will help the public sector gauge the need for industry relief.

Currently, most of the quantitative information about consumers' responses to the BSE announcements has come from consumer opinion surveys. Such surveys allow researchers to quickly gauge consumers' response to announcements. However, survey responses may differ from actual market behavior where consumers have to pay for each of their choices.

The proof of how consumers interpret news about food safety is in the market. Our goal is to see if market data reveal impacts of the BSE announcements, and if so, the magnitude and duration of those impacts.

What Did the Study Find?

Among the three markets examined—fresh beef, frozen beef, and frankfurters—fresh beef provided the strongest case for an impact of the BSE announcements. There is no evidence that the Canadian announcement altered purchase patterns of fresh beef, but purchases during the first 2 weeks after the Washington State announcement were unusually low. Frozen beef purchases fell only for the first week after the Washington State announcement. Frankfurter purchases dropped in the second week following each announcement, but purchases of no-beef frankfurters also fell, suggesting that unrelated events were more likely responsible for the decline.

The magnitude of responses in the market was difficult to estimate precisely, but the duration was clear: within 2 weeks, consumers were behaving exactly as they had before the announcements.

For each of the three commodities, the variation in weekly purchases is large, with seasonal purchasing peaks 2-10 times higher than seasonal troughs. However, about three-quarters of this variation can be explained by trend and seasonality, and, to a lesser extent, retail prices. Having explained

most of the variation in weekly purchases with these factors, large and persistent market impacts related to BSE announcements could be easily detected. In fact, such effects were not detected.

Other food safety announcements could meet with different responses. But, similar responses could reasonably be anticipated in situations where consumers' prior awareness of food safety risks is comparable and where risks have similar characteristics.

How Was the Study Conducted?

The study used purchase records from the ACNielsen Homescan panel (1998-2004) to create nationally representative weekly estimates of U.S. retail purchases. The ACNielsen Homescan panel is a nationally representative panel of households that scan their grocery purchases at home, thereby providing information on each food item purchased. For each item purchased, the data set shows the date of purchase, expenditure, quantity, and attributes of each food (finely differentiating food products). Thus, the researchers were able to construct high-frequency purchase data that were suitable for testing for the presence of even short-lived impacts.