CHOICES
The magazine of food, farm, and resource issues
2nd Quarter 2005 • 20(2)
A publication of the American Agricultural Economics Association

Economic Incentives, Public Policies, and Private Strategies to Control Foodborne Pathogens

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New scientific and management knowledge in both public and private sectors is improving economic incentives for food safety. New threats, such as bovine spongiform encephalopathy (BSE, popularly known as "mad cow disease") are altering global markets. Market incentives for food safety are relatively weak, however, because food safety is a credence good. Even after food has been consumed, the lag between consumption and illness hinders identification of the contaminated food. Food safety information is improving because of new testing and surveillance methods as well as new public and private control initiatives. Better supply chain control systems are being invented and used from farm to fork. Recent food safety innovations have been spurred by stringent standards demanded by large buyers—domestic and overseas—and by regulatory agencies.

The public and private sectors are in a food safety dance. Hazard Analysis and Critical Control Point (HACCP) systems started as a private-public partnership to develop safer food for US astronauts. Some firms were early adopters of HACCP to prevent pathogens from entering, surviving, and growing in their production processes. Starting in the mid-1990s, the Food and Drug Administration and the United States Department of Agriculture Food Safety and Inspection Service required HACCP for seafood, meat and poultry, juice, and shell eggs. Regulatory HACCP system requirements differ, and each plant has to develop and monitor its own HACCP system for the foods it produces. HACCP systems are evolving as regulators, scientists, corporate managers, and economists apply new scientific information, innovative equipment, and new pathogen tests and management strategies. Some companies are using continuous food safety innovation as a competitive strategy.

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In this issue of *Choices*, we explore the complex world of global food safety and the evolving economic incentives. The economics of food safety is a relatively new area of research. New models and improved understanding of the public policy/private strategy interface are bridging scientific disciplines and bringing new understanding to food safety issues. Not only are global markets at stake, but foodborne pathogens cause acute illness in 76 million US consumers, 5,000 deaths, and an unknown number of chronic complications annually.

Throughout the United States, consumers rely on local health authorities to regulate and inspect restaurants in an attempt to assure that high-quality hygiene standards are maintained. How effective are the regulations and inspections by public health authorities at assuring good-quality restaurant hygiene? Jin and Leslie study restaurant hygiene and the role played by health inspections. In January 1998, Los Angeles implemented a critical change in their regulations leading to a dramatic improvement in restaurant hygiene—restaurants are required to prominently display in their window a letter-grade card (A, B, or C)

corresponding to the result of their most recent hygiene inspection. They analyze a variety of different data to assess the effects of these grade cards on restaurant hygiene, restaurant revenue, restaurant prices and output, behavior of inspectors, and, most importantly, the occurrence of food-related illnesses.

Prior to the December 2003 discovery of a cow with BSE in Washington State, the United States implemented measures to prevent the disease from entering the country and to prevent its spread if it were found. Following that discovery, additional measures were introduced both to safeguard public health and reassure domestic and foreign consumers about the safety of US beef. Fox et al. review the various measures that have been taken and additional measures that have been proposed and discuss the efficiency of the US response to the disease.

Fearne and Garcia Martinez note that growing concern about food safety is pressuring government agencies to be more prescriptive and proactive in their regulation of the food industry. Given the scarcity of public sector resources and the scale of the task at hand, however, there is growing interest in the notion of coregulation, with public and private sectors working hand in hand to deliver safer food at lower (regulatory) cost. This paper explores the opportunities for and some of the barriers to coregulation of food safety from a UK perspective.

To maintain a reputation or to meet contractual or regulatory requirements, firms choose different target levels of pathogen control for various meat and poultry products. Roberts finds that private strategies to control pathogens are diverse and that supply chain control is crucial. Public information and regulations strengthen private incentives for pathogen control. Starbird uses a principal agent model to examine the design of supply chain contracts and improve the safety of purchased inputs. The opportunity to use supply chain contracts to improve food safety exists even when food safety is difficult to measure.

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