

**Title** Impacts of food borne illnesses on demand and consumers' willingness to pay for sensory quality in pears

**Author** Huifang Zhang, Thomas Marsh and Jill J. McCluskey

**Citation** Thesis, Doctor of Philosophy (Economic Sciences), Washington State University.135 pages. 2009.

**Keywords** Event study; Cattle trade; Food safety; Willingness to pay; Food-borne illness outbreak; Pears; Food-borne illness; Demand

### **Abstract**

This dissertation consists of three essays. The first essay is an event analysis of the 2006 *E.coli* O157:H7 outbreak on consumer demand for spinach and lettuce products with retail scanner data. A system of multifactor economic models is formulated as the benchmark and is estimated using a structural modeling approach under a spatial error model scheme with panel data. Results indicate that there were substantial declines in demands for spinach and lettuce products. Gradual recovery patterns are observed over the event window. However, the market responses to the outbreak tended to be distinct across regions and across different categories of products in terms of the patterns and rapidity of demand recovery. In addition, markdown promotions are more effective than price adjustments as a strategy to recover consumer demand.

The second essay applies the event study method to evaluate the impact of the BSE outbreak in North America and the potential structural change in post-BSE cattle trade between the United States and Mexico by analyzing the "Abnormal Imports" of Mexican cattle during and after the period that Canadian cattle were banned. Event analysis suggests that cattle imports from Mexico remained stable immediately after the BSE outbreak and then decreased afterwards, which suggests that the effects of higher cattle price, reinforced regulations, increase domestic beef supply, and USDA's announcement of the final minimal risk rule tended to dominate substitution effects over time, and that the effects of Canadian beef and cattle trade resumption on Mexican cattle imports are substantial.

The third essay evaluates consumers' willingness to pay (WTP) for Anjou pears with different ripening treatments. Data were collected from a sensory experiment and a consumer survey. The analysis indicates that the "treatment-induced" eating quality significantly affects consumers' WTP. The sensory characteristics Firmness, Sweetness and Juiciness, as well as presence of children under 18 years old in household, are influential factors in determining consumers' WTP. Mean WTP's for the four samples

indicate that consumers most like the pears with 6-day ethylene treatment and on average are willing to pay a premium of \$0.25/lb compared to the market price.