Three essays on consumer choices on food

by

Miyoung Oh

Abstract

The dissertation investigates how consumer choices on food are affected by habit forming behaviors of consumers, public policy and the uncertainty of the risk from food safety hazards and strategic interaction with food processors. Three stand-alone analyses on consumer choice consist of empirical frameworks to estimate parameters of dynamic demand, the treatment effects on program participation, and an analytical approach to modeling downstream consumer’s and upstream firm’s handling of food safety risk.

The first analysis focuses on dynamics in household demand. Incorporating dynamics such as habit formation in analysis of food demand can make estimation more reliable and help to explain the “stickiness” in consumer demand behavior. Capturing this response is important for evaluating consumers’ response to new information about products – whether nutrition, food safety or other event. Scanner data allow many repeated observations of the same household so are ideal for analyzing the impact of habit on food demand. In addition to that, scanner data allow us to easily observe the presence of zero purchases. The presence of zero purchases is an important econometric issue in empirical modeling on food demand in the sense that ignoring the censoring issue can lead to biased estimation results. The first study investigates the impact of state dependence on dairy food demand using 2009 and 2010 Nielsen HomeScan data. In this analysis, we take into account the censored nature of food expenditure data and employ a Bayesian procedure to estimate the dynamic demand models on dairy products. By controlling the individual heterogeneity in the model the source of endogeneity for the lagged dependent variable is removed. The empirical evidence of habitual behaviors particularly in milk demand provides support for considering a model with dynamics in a study of food demand.

The second analysis examines the relationship between The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) participation and purchases of WIC related foods during the period shortly after introduction of changes in the WIC package. We use Nielsen Homescan data 2008 to 2010 to assess how participation in the WIC program relates to food expenditures by WIC eligible households. The research includes analysis of select food
purchases by WIC eligible households – both of those reporting participation in the WIC program and those not participating in the program. In our analysis, we concentrate our attention on selected whole grain foods in the WIC food package as these foods are prominent in the revised WIC food package and grain products are purchased by most households. A propensity score matching estimator was used for estimating treatment effects and difference-in-difference method was conducted to control the policy change in the 2009 WIC package revision. The study contributes to current literature on WIC to confirm that the WIC package change in 2009 had a significant influence on WIC participating households to encourage greater whole grain expenditures relative to non-participating households.

The third analysis concerns the uncertainty of the risk from food safety hazards and strategic interaction with food processors. Domestic water consumers in many developing countries that boil water before use are presumably concerned about quality control on the part of upstream water authorities. In this third analysis, we investigate strategic incentives for food safety efforts by upstream food processors and downstream consumers. The strategic setting is where food processors move first and consumers react to perceptions about processor behavior. We consider two technological environments in which food safety is assured: i) weakest-link where both processor and consumer behavior must succeed; ii) best-shot where it suffices for efforts by either party to succeed. We study privately optimal behavior under negligence and strict liability rules, and also investigate the role of consumer risk aversion.