

Influence of generalized trust on Canadian consumers' reactions to three recurring BSE cases

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Background

- Trust is believed to play an important role in decision making in situations involving risk and uncertainty. However, there is varying use/interpretation of trust concepts/measures.
- Social scientists have focused more on generalized trust concepts; agricultural economists have focused more on trust expressed in institutions (institutional trust) but literature is sparse.
- Generalized trust is believed to reflect people's world view; institutional trust may be more reflective of experience; policy implications differ.

Background & Research Focus

- There is little research on the influence of recurrent food risks on consumers' behavior or on incorporating generalized trust into studies of food risks. We focus on both concepts in the context of the first three cases of BSE in a Canadian cow.
- Habit persistence was shown to influence Canadian consumer's behavior in the context of the first (2003) incident in which a Canadian cow was found to have BSE. However, these habits were modified after the second and third such cases in 2005 (Ding et al *CJAE* 2011).

Objectives

- To assess the role of generalized trust in the context of Canada's first three recurring BSE cases, and in particular:
- To investigate the relationship of generalized trust relative to habit persistence on consumer's behaviour as indicated by household's expenditures on beef

Approach

- Engel curve analysis focusing on the dynamics over time, of meat expenditure shares, for a sample of Canadian households
- Apply the model used by Ding et al (2011) to assess habit persistence using the Generalized Method of Moments approach developed by Arellano and Bond (1991) & Arellano and Bover (1995)
- Extend this to incorporate impacts of measures of generalized trust

Approach: variables included in modeling:

ω_{ht} = beef expenditure share for household h at time t ;

$\ln x_{ht}$ = log of total meat expenditure for household h at t ;

ω_{ht-1} = lagged beef expenditure share for h at time t ;

t = time trend;

D_{kt} = 11 monthly seasonal dummies (January base);

z_{iht} = demographic variables (include number of children in the household and a regional dummy variable);

BSE_{ij} = two sets of dummy variables indicating the months following the first BSE incident (May 2003) and second pair of BSE events (Jan 2005) respectively;

$trust_h$ = dummy variable, with value of 1 if the respondent in household h selected “most people can be trusted”;

μ_h = unobservable individual characteristics;

ε_{ht} = random error term;

$\beta_0, \beta_1, \beta_2, \beta_3, \gamma_k, \delta_l, \alpha_{ij}, \eta_{ij}$ & θ_{ij} = parameters to be estimated.

Analytic Model

$$\begin{aligned}\omega_{ht} = & \beta_0 + \beta_1 \ln x_{ht} + \beta_2 \omega_{ht-1} + \beta_3 t + \sum_{k=2}^{12} \gamma_k D_{kt} + \sum_l \delta_l z_{lht} + \sum_{i=1}^2 \sum_{j=1}^4 \alpha_{ij} BSE_{ij} \\ & + \sum_{i=1}^2 \sum_{j=1}^4 \eta_{ij} BSE_{ij} \omega_{ht-1} + \sum_{i=1}^2 \sum_{j=1}^4 \phi_{ij} BSE_{ij} trust_h + \mu_h + \varepsilon_{ht}\end{aligned}$$

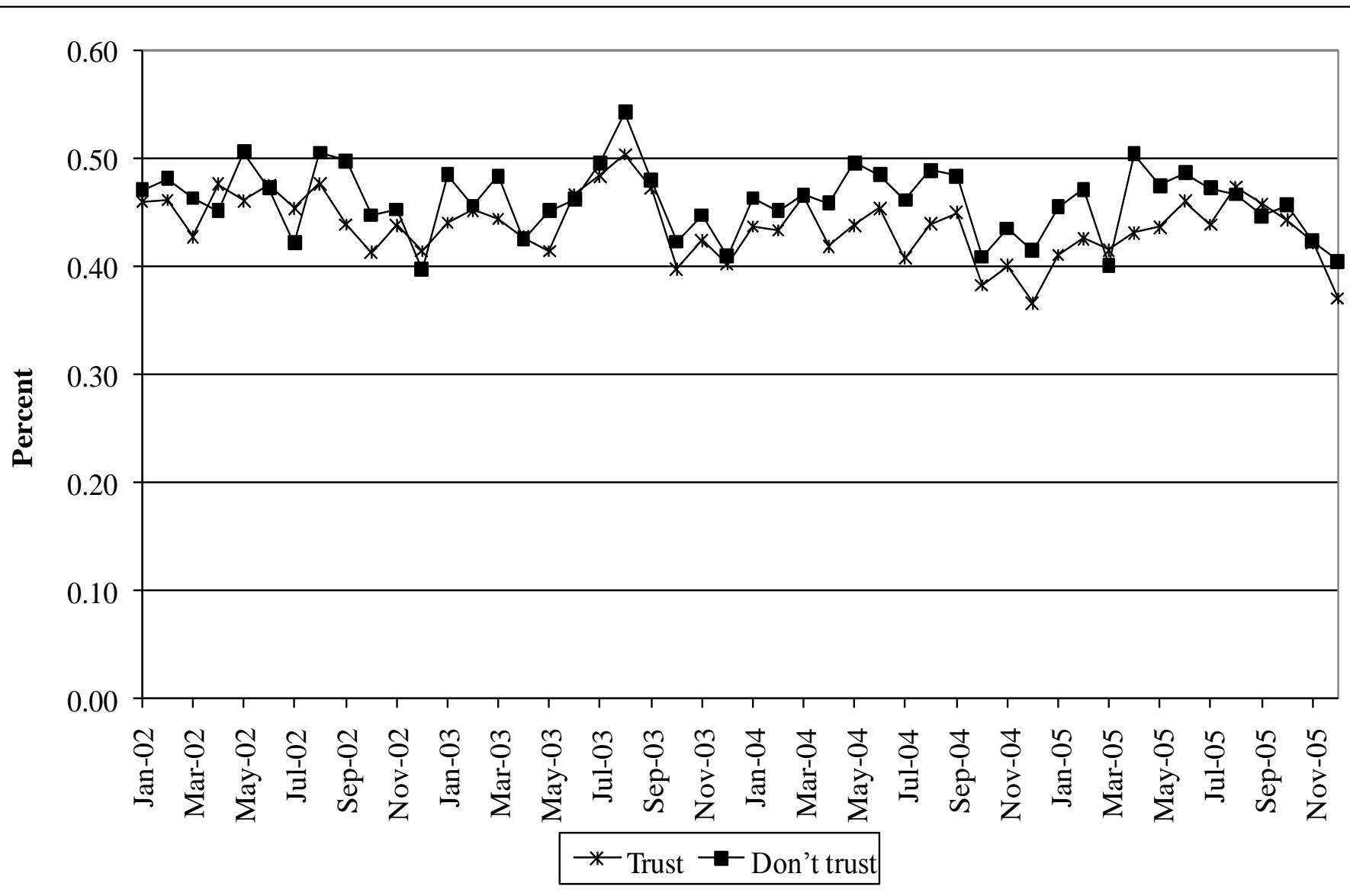
Issues related to the model & estimation:

- Engel function tested is consistent with the classic PIGLOG specification & applies a translating approach to incorporate non-price & non-income variables.
- Inclusion of the lagged dependent variable raises issues of endogeneity & related statistical issues which we address by applying GMM IV estimation procedures
- Lacking explicit prices paid by sampled households we deflate household's beef expenditures and total meat expenditures by monthly regional price indices for beef and other meats.

Data

- Household meat expenditures from that sample of Canada Nielsen Homescan® panel for which records are available before and after the first BSE incident in Canada (for the period January 1, 2002 to December 31, 2005) and for which responses are also available from a 2008 survey on trust attitudes (the standardized trust question: “...most people can be trusted or...can’t be too careful in dealing with people”)
- 437 Canadian household’s monthly expenditures, at retail grocery stores, on major categories of fresh meats
- Some major demographic characteristics of the sample are fairly close to those of the Canadian population but unobserved characteristics may differ

Figure 1: Average monthly beef shares of meat expenditures for sampled Canadian households (2002-2005): Households who trust versus households who do not trust



- Applying Arellano and Bond's GMM approach of equations in differences:

We take first differences of equations in levels (each level represents a specific month) and instrument two differenced endogenous variables (lagged beef share and the logarithm of total meat expenditure) with their own values, lagged two periods and more.

- Also used Arellano & Bover's GMM approach: estimating equations in levels using lagged differenced endogenous variables as instruments. Very similar results. Enables assessment of demographic influences

In estimation:

- Initially include one BSE dummy (month of BSE events) for each case, & successively add further dummies. BSE impacts vanish three months after the announcements so four BSE dummies are included for each event in the estimated model. Overall, only BSE11(-), BSE13(+), BSE14(+), BSE23(-) and BSE24(+) are significant

- Habit formation indicated by significant (+) lagged beef expenditure shares; these increase with the logarithm of beef expenditure; effects on BSE tested by interacting lagged expenditure share with significant BSE dummies: but these are only significant (+) for BSE11.

- Test trust role by interacting this variable with the significantly negative BSE11 & BSE23. Interaction coefficient with BSE 23 is sig positive & relatively large

Further results:

- Beef expenditure shares are also influenced by:
- Household size indicated by # kids (-);
- Residence in Quebec (+);
- Time trend t (-)
- Seasonality is evident.

Overall conclusions:

In contrast to some other nations, Canadian aggregate beef consumption increased in both 2003 and 2005 despite BSE events in both years: Why?

Our results suggest that habit persistence offset the influence of the first BSE event. Generalized trust appears to have offset the effects of the latter two BSE events.

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