

Canadian Consumers' Preferences for Food Safety and Agricultural Environmental Safety

RESEARCH SUMMARY

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This summary reports on a study of Canadian consumers' attitudes and awareness relative to a variety of food and environmental issues associated with Canadian agriculture.

Previous research on consumer attitudes and perceptions of various food safety and environmental issues has included surveys focused on single food technologies or food safety issues. Examples are Govindasamy and Italia¹ on pesticides; Grobe *et al.*² on hormones; Veeman *et al.*³ on GM food. Some studies focused on several issues, such as Nayga⁴ on irradiation, antibiotics, hormones, and pesticides; Dosman *et al.*⁵ on pesticides, hormones, additives; and Hwang *et al.*⁶ on antibiotics, pesticides, hormones, GM, and irradiation.

Gender is concluded to be an important determinant of risk perceptions across a variety of food and environmental concerns. In general, women perceived more risks than men. Dosman *et al.* found age to be associated with consumers' risk perceptions, suggesting that younger individuals may be more familiar with certain risks, such as risks associated with new technologies and may not have experienced the possible effects of certain health issues and therefore, do not perceive these as risks. Govindasamy and Italia concluded that households with higher levels of income and education exhibit lower risk aversion. Rosati suggested the trustworthiness or reliability of risk is dependent on three determinants: perceptions of knowledge, honesty and concern. There is still research to be done and our work aims to address two key issues: first, what are Canadian consumers'

perceptions of food and environment related risks? and second, what underlying factors affect respondents' risk perceptions?

Survey and Data: The analysis is based on a Canada-wide survey of 882 participants, drawn from a large representative panel, conducted in January 2003. Eight food safety issues (bacteria contamination, pesticide residues, use of hormones in food additives, use of antibiotics, BSE (mad cow disease), food additives, use of genetic modification/engineering in food production, fat and cholesterol content) and six environmental safety issues (water pollution by chemical run-offs from agriculture, soil erosion through agricultural activity, genetic modification/engineering, resistance to herbicides and pesticides, adverse effects of agriculture on biodiversity, agriculture waste disposal (e.g. animal manure)) were ranked by respondents from 1 (high risk) to 4 (almost no risk) and 5 (don't know). We report and investigate correlations across the levels of concern expressed by individuals for food safety and environmental safety respectively. Models that may explain the levels of concern based on socioeconomic factors that may influence ratings are also assessed

Statistical Analysis: In an initial analysis, we normalize each respondent's concern ranking relative to the sets of food safety and environmental safety issues. In this component of the analysis we apply seemingly unrelated (SUR) models to allow for the possibility that a respondent's partic-



ular concerns may be influenced by different sets of explanatory variables, while simultaneously allowing for the error term within each set of issues to be correlated. We also employ a multivariate Probit (binary Probit) system and single equation Ordered Probit models to examine factors affecting risk ratings and for each set of rankings.

Results: The results from the two types of Probit models are similar, but different from the SUR models. The Ordered Probit models method, which is applied to the original concern ratings, places emphasis on each particular issue of concern and seems most suitable to explain individual's ratings of specific safety issues

Our analysis shows there is significant variability among respondents in concerns about food and agricultural risks. Overall, economic and demographic factors do appear to influence the risk ratings. For example, from the Ordered Probit analysis, women tended to express more concern about the food and environmental safety issues. Quebec residents were more likely to perceive more risk for most of the food and environmental issues. Some, but not all, of our findings are consistent with previous literature. Future work will compare these ratings with a subsequent data set collected in 2005; the rankings for BSE will be of particular interest as there have been BSE incidents since the 2003 survey.

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