DOES CONSUMER INVOLVEMENT INFLUENCE PREFERENCES FOR PORK PRODUCTION ATTRIBUTES?

Violet Muringai and Ellen Goddard

Department of Resource Economics and Environmental Sociology, University of Alberta, Edmonton, Alberta, Canada, T6G 2H1

Abstract – In this paper the effects of consumer involvement in food issues on preferences for pork with production attributes including organic, traditionally raised and premium traditional are assessed. This analysis is based on two surveys that were conducted in Edmonton in 2009 and 2011. Results show that most of the respondents were involved in food issues in terms of buying particular foods or brands to encourage their sales and refusing to buy certain food types or brands to express opinions on a political or social issue. A significant proportion of respondents stated that they believe that their voice as a consumer matters. Poisson regression results show that age of the respondent, education, buying pork from a supermarket, the worry trait and pessimism about food safety significantly influence demand for organic pork in 2009. In 2011, regularly buying pork from a supermarket, butcher or farmer's market, involvement in food issues and the belief that your consumer voice matters significantly influence demand for organic pork. The demand for traditionally raised pork is significantly influenced by education, by regularly buying pork from a supermarket and pessimism. Lastly, demand for premium traditional pork is significantly influenced by age, education and the belief that the consumer's voice matters.

Key Words– credence, attitudes, consumer participation.

I. INTRODUCTION

Consumer demand for high intrinsic quality food products, improved welfare of animals, environment stewardship and sustainability have led to changes in animal production systems (Napolitano et al. [1]). Some supermarkets are now sourcing meat from farmers that have higher animal standards in order to improve animal welfare (Tudge [2]). Consumer pressure has resulted in changes in some agricultural production systems such as free run eggs, traceable products, organic products and the "free from" range of products. Innes and Hobbs [3] state that most Canadians are interested in attributes such as environmentally sustainable production practices, humane animal treatment and organic. Kjaernes et al. [4] state that "the idea of the active consumer reflects a growing sense of empowerment to respond positively to dissatisfactions regarding the operation and regulations of markets". Espejel [5] found that consumers involved in food issues were more highly influenced by perceived intrinsic and extrinsic product quality characteristics. People's involvement in food issues could drive their preferences for food products with certain attributes or be as a result of concerns about production systems. The degree of consumer involvement in food issues and how involvement affects people's preferences for food with certain production attributes (e.g. organic, natural, free range, vitamin enhanced and pasteurized) have been addressed in very few studies. In this study, the link between the degree to which consumer involvement in food issues influences demand for production attributes is assessed.

II. MATERIALS AND METHODS

This study is part of a Canadian project which was aimed at assessing consumers' willingness to pay (WTP) for pork production systems (traditionally raised, premium traditional) attributes, a Canadian Pork label or identified as coming from a farm with on farm food safety accreditation (CQA®). This analysis is based on two surveys conducted in 2009 and 2011 in Edmonton, Canada. Definitions of the production attributes studied were:

TRADITIONALLY RAISED - is defined as pork from a family farm production setting, **reared outdoors or in bedded settings**, with no subtherapeutic antibiotics or growth promotants, and no animal by products in feed

PREMIUM TRADITIONAL - is defined as pork from a family farm production setting, produced with no sub-therapeutic antibiotics or hormones, and no animal by-products in feed (100% grain fed).

Data was collected at the Alberta Agriculture Food Product Testing Centre. In 2009, there were 196 respondents while there were 125 respondents in the 2011 survey. The study was targeted at respondents that eat pork since the survey respondents were also required to participate in sensory tests on pork from different production systems.

Specifically for this analysis, respondents were asked about their involvement with food issues in several situations (Table 1) and responses were anchored on a 3 point Likert scale (0-No, 1-don't know and 2-yes). These questions were adopted from Halkier et al. [6]. Involvement in food issues was measured by summing up responses to the statements in Table 1. Respondents were also asked about the extent to which they think their voice as a consumer matters and this question was also adopted from Halkier et al. [6].

Respondents were asked to compare organic and traditionally raised (2009) (premium traditional (2011)) to conventional pork in terms of different characteristics shown in Table 2. In addition, information was collected on demographic variables, source of pork, frequency of purchase of pork, personal traits such as worry, optimism and pessimism about the safety of food and general trust. General trust was measured using the General Social Survey question "Generally speaking, would you say that most people can be trusted?" In this analysis responses were anchored as follows 1- People can be trusted, 0-otherwise. Optimism was measured using four constructs which assessed the degree to which people are confident in the safety of food. Pessimism was measured using three constructs that assessed the degree to which people worry about the safety of food. Lastly, worry was measured using three constructs that assessed the degree to which the respondent worry about situations or things in general. The constructs for optimism, pessimism and worry were all adopted from the questionnaire by de Jonge [7].

Data is analysed using descriptive statistics and poisson regressions to determine factors that influence consumers' preferences for certain production attributes.

III. RESULTS AND DISCUSSION

In terms of food involvement, many respondents (49% in 2009 and 47% in 2011) bought particular foods or brands in order to encourage or support their sale. Few respondents participated in consumer boycotts (4% in 2009 and 7% in 2011), worked for an organisation that is involved in the improvement of food (3% in both surveys) or took part in a public or political action for the improvement of food (3% in 2009 and 8% in 2011).

Table 1 Consumer involvement in food issues

	% of sample with 'yes' responses	
	2009 (n=196)	2011 (n=125)
Complained to a retailer about food quality	25.5	23.4
Refused to buy certain food types or brands to express opinion on a political or social issue	31.0	24.2
Bought particular foods or brands to encourage their sale	48.7	46.8
Participated in organised consumer boycotts	3.6	7.3
Been member of an organisation that works for the improvement of food	2.6	3.2
Taken part in any other kind of public or political action in order to improve the food we buy	2.6	8.1

About 45% of respondents in the 2009 survey and 44% of respondents in the 2011 survey felt that their voice as a consumer matters a lot in food issues. Results on the degree to which respondents think that their voice as a consumer matters are consistent between the two samples.

In both surveys, respondents ranked organic pork highly in terms of absence of antibiotics followed by absence of hormones. In 2009, traditionally raised pork was ranked highly in terms of being healthier than conventional pork followed by being safer. In 2011, premium traditional pork was ranked highly in terms of taste followed by healthiness. Rankings of premium traditional pork in 2011 are lower than those for traditionally raised pork in 2009. Compared to rankings of organic pork, traditionally raised pork and premium traditionally raised are ranked highly in terms of taste. Overall, organic pork seem to be preferred by both groups of respondents.

Table 2 In comparison to conventional pork, I believe that….. (organic pork /traditionally raised/premium traditional pork) 0-no opinion..5-strongly agree

	2009 (=196)		2011 (n=125)	
	Organic	Trad raised	Organic	Prem Trad
Tastes better	2.34[1] (1.55)	2.71 (1.55)	2.22[1] (1.68)	2.63 (1.53)
Is fresher	2.57 (1.54)	2.72 (1.39)	2.65 (1.60)	2.57 (1.44)
Is healthier	3.09 (1.67)	2.93 (1.40)	3.11[1] (1.68)	2.62 (1.45)
Does not contain hormones	3.32[1] (1.66)	2.71[2] (1.52)	3.27[1] (1.53)	2.30 (1.58)
Does not contain antibiotics	3.35[1] (1.67)	2.70[2] (1.49)	3.25[1] (1.55)	2.33 (1.57)
Is safer to eat	2.96 (1.58)	2.90[2] (1.30)	3.03[1] (1.61)	2.58 (1.41)

Standard deviations are in parentheses; Prem Trad-Premium Traditional, Trad raised-traditionally raised
[1, 2] – [1] statistically significant difference between organic pork and traditionally raised/premium traditional pork for each year using a t test, [2] statistically significant difference (5%) between organic (2009) and organic (2011) and between traditionally raised and premium traditional using a Welch's t test

Poisson regression results (Table 4) suggest that respondents that are actively involved in food issues prefer organic pork as compared to conventional pork in the 2011 survey. Respondents that feel that their voice as a consumer matters prefer premium traditional pork and organic pork in the 2011 survey as compared to conventional pork.

More educated respondents prefer premium traditional in 2011, as compared to conventional pork. In the 2009 survey, educated respondents also preferred organic pork as compared to conventional pork. In the 2009 survey, older respondents preferred conventional pork as compared to organic pork while they preferred premium traditional pork as compared to conventional pork in 2011.

In 2009, respondents that usually buy pork at a supermarket preferred conventional pork as compared to organic and traditionally raised pork. However in 2011, respondents that usually buy pork from the supermarket prefer organic pork as compared to conventional pork. Respondents that buy pork from the farmers market prefer conventional pork to organic pork in 2011. People that usually buy pork from the butcher prefer organic pork as compared to conventional pork in 2011.

Table 3 Descriptive statistics for variables in poisson regressions

	2009 (n=196)	2011 (n=125)
% male	48%	49%
Average age	41.37 (13.81)	41.11 (14.56)
Average years of education	15 (1.70)	15 (1.83)
% having children	26%	33%
Frequency of pork purchase (*0-never, 1-occassionally,2-regularly)*	1.57 (0.52)	1.67 (0.51)
Buy pork at a supermarket	94%	91%
Buy pork at a butcher	2%	6%
Buy pork at a farmer's market	2%	2%
Consumer voice *(0-don't know…..4-matters a lot)*	3.17 (0.97)	3.14 (0.90)
Worry trait *3-not at all typical.. 15-very typical)*	6.61 (2.74)	6.90 (3.11)
Optimism *(4-strongly disagree..20-strongly agree*	15.46 (2.86)	14.79 (2.96)
Pessimism *(3-strongly disagree..15-strongly agree*	7.68 (2.65)	8.30 (2.48)
% of people who generally trust	55%	60%
Involvement in food issues (0-no involvement..12-maximum involvement)	2.42 (2.28)	2.39 (2.63)

Standard deviations are in parentheses

Respondents that tend to worry prefer conventional pork to organic pork in the 2009 survey. Respondents that are pessimistic about food safety prefer traditionally raised and organic pork as compared to conventional pork in the 2009 survey.

Table 4 Poisson regression results on the factors that influence consumers' preference for pork attributes

	2009 (n=196)		2011 (n=125)	
	Organic	Trad raised	Organic	Prem Trad
Constant	3.17***	2.43***	2.50***	0.63
Female	0.10	0.04	-0.06	0.06
Age	-0.01***	-0.003	-0.03	0.08**
Education	0.12**	0.08	0.03	0.12**
Having children <18	0.002	0.09	-0.05	0.0001
Frequency of pork purchase	-0.04	-0.002	-0.09	0.06
Buy pork at a Supermarket	-0.26**	-0.23**	0.35**	0.91
Butcher	0.08	-0.16	0.49***	1.07
Farmer's market	0.03	-0.07	-0.67***	0.72
Consumer voice	0.01	-0.01	0.08**	0.09*
Worry trait	-0.04***	-0.01	-0.02	0.01
Optimism	-0.01	0.01	-0.001	-0.005
Pessimism	0.03**	0.04***	0.01	0.0002
General trust	-0.06	-0.04	-0.08	-0.08
Involvement in food issues	0.01	0.02	0.04**	0.02
R^2	0.18	0.10	0.17	0.17

Note: Prem Trad-Premium Traditional, Trad raised-traditionally raised, ***significant at 1% level, **significant at 5% level, *significant at 10% level

IV. CONCLUSION

In conclusion, although consumer involvement is significantly related to people' preferences for organic pork in 2011, it is not related to preferences for traditionally raised (premium traditional) pork in either survey or organic pork in 2009. Similar analysis was conducted for a national Canadian survey in 2011, and those results suggested that people who are actively involved in food issues preferred traditionally raised and organic pork as compared to conventional pork. Results from this analysis suggest that there are stronger preferences for organic pork. More educated respondents preferred organic pork in 2009 and premium traditional pork in 2011. Older respondents preferred conventional pork as compared to organic pork in 2009 while they preferred premium traditional pork in 2011.

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