

Consumer valuation and attitudes towards farm animal welfare claims

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Summary

A representative (n=1009) sample of Australian meat consumers completed a comprehensive online survey in 2015. A discrete choice experiment (DCE) was used to determine the relative importance of farm animal welfare status versus other credence attributes, and the trade-offs meat consumers make between credence attributes when purchasing four types of fresh meat (beef, pork, chicken, lamb) products. Credence claims have a significant impact on purchase decisions for all meat types investigated. Overall, meat buyers value the No-Added Hormones claim more than claims relating to animal welfare status, including 'Certified Humane' claims and Free-Range or Pasture-Raised claims, as well as other credence claims (Organic and Antibiotic-Free). There is relatively little difference in consumers' willingness to pay (WTP) for different claims across meat types; preferences for the credence claims are relatively independent of meat cut; and there are few significant interactions between socio-demographic characteristics and credence claims.

Introduction

Globally, there is increasing consumer concern about animal welfare across all livestock sectors. Recent media reports focusing on cases of unethical treatment of farm animals have impacted meat markets and public opinion. For example, in 2011, Australia banned the live export of beef cattle to Indonesia after media reports suggested animals were being treated unethically. Concern about adverse impacts on the livestock industry as well as consumers in Australia and Indonesia have driven livestock industries to implement new management (e.g. production and transport standards) and marketing strategies, including labelling, to both ensure and communicate their animal welfare values and standards to consumers. However, it remains to be established whether these strategies alleviate or exacerbate consumer concerns, or if Australian consumers understand and use the additional information when purchasing meat products.

This study used a discrete choice experiment (DCE) to determine the relative importance and the trade-offs Australian meat consumers make between credence attributes, including farm animal welfare status, when purchasing fresh meat (beef, pork, chicken, lamb).

Methods

The DCE was part of a national online survey of a representative sample of 1009 Australian meat consumers conducted in 2015. Respondents answered questions regarding socio-demographic variables; meat purchase and consumption behaviour; understanding of existing meat product labels; and experience, knowledge and attitudes related to livestock management practices.

For the DCE, respondents were asked to imagine they were shopping for fresh meat to be prepared and consumed at home for a typical main meal. Each respondent completed four choice sets, specific to one type of meat. Respondents indicated their most likely

choice in each choice set, out of the five options presented (including a no-choice option). The meat options shown in each choice set were described in terms of seven attributes: Price (four); meat cut (two) and the five credence claims (two levels) shown in Table 1.

Table 1. Meat claim attributes

Production method	Organic status	Farm Animal Welfare status	Other claims	Other claims
<i>Beef & Lamb:</i> Pasture-raised <i>Chicken & Pork:</i> Free Range	Certified Organic	Certified Humane	Antibiotic Free	No Added Hormones
Conventional	None	None	None	None

The DCE used a Bayesian design resulting in 24 choice sets in total for each of the four meat types. To avoid respondent fatigue, respondents were randomly allocated to one of six different versions of four choice sets. Respondents' choices were analysed using error component random parameter models, which were meat-specific and accounted for heterogeneity between alternative options (meat cuts).

The error component random parameter logit (ECL) model is a variant of the mixed logit model (Train, 2003), which can be specified as:

$$L_{ij}(\beta) = \frac{\exp(\beta X_{ijk} + \theta_j E_{ji})}{\sum_{q=1}^J \exp(\beta X_{qik} + \theta_q E_{qi})}$$

where X_{ijk} are the attributes for individual i making choice j from a set of k choices. β represents the density function explaining choice variation, E_{ji} are alternate specific random individual effects, θ is a parameter, and q are alternate choices to j . The density function varies with heteroscedasticity (Train 2003). Socio-demographics were

included in the choice models in an attempt to link choices with observable covariates and better understand preferences.

Results and Discussion

Overall, 70% of meat consumers indicated that they were somewhat concerned about or interested in FAW issues, suggesting that meat consumers might consider FAW claims in their purchase decisions. While 34% agreed to some extent that *'FAW in Australia concerns me so much that it influences my food purchases'*, 28% agreed that *'use of hormones in meat production concerns me so much that it influences my food purchases'*. There were significant preferences for all five credence claims across the different meat types.

Willingness to pay (WTP) was estimated for the different claims (Table 2) and these values can be compared across meat types as they account for scale heterogeneity across the separate models.

Poe et al. (2005) tests showed that WTP for 'No Added Hormone' meat was significantly higher ($P < 0.01$) than the WTP for all other claims, including those related to FAW (Production method and Certified Humane). WTP for the Certified Humane claim was significantly higher ($P < 0.10$) than the Antibiotic-free claim, while WTP for Production Method and the Organic claim was not significantly different to other claims apart from the 'No Added Hormone' claim. These findings suggest that consumers value the hormone status of their meat more than the welfare status of animals raised for meat. This may reflect both a greater concern for personal wellbeing rather than the wellbeing of farm animals, and a belief that hormone status of meat has a greater effect on consumers' health and safety than animal welfare status. Compared with 'Certified Humane', a larger share of meat consumers believed 'No-Added Hormones' is 'a healthier choice' (36% vs. 16%) and 'safer- less likely to make me or my family sick' (35% vs 12%).

Few significant interactions were found for credence claims and meat cut, indicating that preferences for the credence claims are relatively independent of the meat cut. Similarly, few significant interactions were found for credence claims and frequency of consumption. There were only three significant interactions between socio-demographic factors and credence claims: males were less likely than females to select the 'Certified Humane' claim; respondents aged 60 years and over were less likely than younger respondents to select the 'No Added Hormones' claim; and those with a higher than average household income were more likely than those with a lower income to select the 'Organic' claim

No known studies have explored the relative importance of such a wide variety of credence attributes for different meat types. This is also the first national study of Australian meat consumers, which provides insight into the understanding of existing meat product labelling and concerns regarding livestock management practices. Further analyses are needed to investigate interactions between credence claims and to explore how attitudes towards FAW influence preferences. This information will help to frame and target consumer information about FAW labelling. Findings from this research are well positioned to inform policy makers and stakeholders in meat markets tasked with labelling and information policies aimed at maintaining Australian consumers' trust in the livestock industry.

References

- Poe, G., Giraud, K., Loomis, J., 2005. Computational methods for measuring the differences of empirical distributions. *American Journal of Agricultural Economics* 87(2), 353-365.
- Train, K., 2003. *Discrete choice methods with simulation*, Cambridge University Press, Cambridge.

Table 2. WTP estimates for credence claims and 95% confidence intervals

	Beef	Chicken	Pork	Lamb
Production	\$1.49 (\$0.70 - \$2.54)	\$1.45 (\$0.88 - \$2.28)	\$1.12 (\$0.32 - \$2.40)	\$0.80 (\$0.22 - \$1.70)
Organic	\$1.76 (\$0.96 - \$2.84)	\$1.03 (\$0.45 - \$1.86)	\$0.75 (\$0.10 - \$1.80)	\$0.52 (-\$0.13 - \$1.51)
Humane	\$1.53 (\$0.68 - \$2.66)	\$0.98 (\$0.44 - \$1.77)	\$2.01 (\$1.03 - \$3.58)	\$1.09 (\$0.39 - \$2.16)
Antibiotic	\$1.49 (\$0.68 - \$2.57)	\$0.99 (\$0.44 - \$1.79)	\$1.35 (\$0.54 - \$2.64)	\$0.52 (-\$0.10 - \$1.48)
Hormone	\$2.47 (\$1.46 - \$3.83)	\$1.79 (\$1.10 - \$2.81)	\$2.52 (\$1.46 - \$4.23)	\$1.72 (\$0.96 - \$2.91)

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