

CONSUMER PREFERENCE IN TERMS OF THE WEIGHT OF LAMB SHOULDER ROASTS

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I. INTRODUCTION

One of the strategies adopted by the Australian lamb industry to achieve leaner carcasses required for more consumer acceptable cuts was a focus on genetic improvement. This has seen a continuing rise in the average carcass weight of Australian lamb, with no signs that this trend is going abate. This has presented a challenge to the industry, as prepared in a conventional way lamb cuts from heavy carcasses (>25 kg) are too heavy for many modern domestic 1-2 person households. Consequently, there has been a re-emergence of cuts at the retail level developed in the “Trim” lamb campaign of the mid 90’s [1]. While this has been a good strategy for the hind leg cuts, the challenge has been greater for the forequarter, which has led to a program to develop new forequarter cuts [2]. To aid this process a survey was undertaken to establish consumer attitudes towards lamb shoulder roasts with a focus on the weight of the cut.

II. MATERIALS AND METHODS

Respondents were required to indicate their ideal sized roast to feed their household (0.5, 1.0, 1.5, 2.0, 2.5, 2.5kg+, do not consume roasts, don’t know). Then a series of images made up of 4 different shoulder roasts, 1) Lamb shoulder roast, bone in, extra heavy, with shank attached, 2) Square cut lamb shoulder roast, bone in, large, 3) Square cut lamb shoulder roast, bone in, medium, and 4) Compact shoulder roast, bone in small were presented to respondents. The total price of the cut varied for each image (Labelled; A-D) as did the weight and price per kg. The 4 images were generated randomly for each respondent from 20 sets of 4 images. This process was repeated 5 times to give five responses. The following model was used to explore how selected weight related to the ideal roast size question and to the available choices: $\text{Weight} \sim \text{Ideal wt} * \text{Option mean wt} + \text{ID} + \text{spl}(\text{Option mean wt}) + \text{dev}(\text{Ideal wt})$, where weight is value selected (as calculated from the selection from one of the 4 images), ideal weight is the answer given to the question on ideal size of roast (a value of 3kg was used to replace >2.5kg), and option mean weight is the mean weight of all choices in the option. The terms in italics are random, with ID being the identifier for each respondent. The spline (spl) and deviance (dev) functions were used to model departures from linearity in the two covariates. All analyses were performed using the R statistical package (R Core Team 2017).

III. RESULTS AND DISCUSSION

A total of 868 respondents participated in this study representing a range of demographics [3], with more respondents being female and with the greatest number in the 30-49 age group. The majority of respondents were the primary shopper in the household. Prior to analysis, individuals who answered “do not consume roasts” or “don’t know” to the question on ideal roast size were removed from the data (n = 90). The fixed effects in this model (ideal weight and option mean weight) were all significant ($P < 0.001$). The variance component for respondent ID was zero. Although not actually significant ($P > 0.05$), the spline and deviance terms were retained in the model to account for possible nonlinearity. The predicted values from the model are shown in Fig. 1. Firstly the 1:1 correspondence between the ideal roast size and the (predicted) chosen weight is shown by the grey dashed line. At the low end of the ideal weight spectrum respondents opted for a higher than ideal weight, even though a lower option was available. Conversely, at the high end of the ideal weight spectrum respondents opted for a lower than ideal weight, even though a higher option was available. The 0.3-1.2 kg range illustrates the behaviour when the range of options is limited to lower weights. At the low end of the ideal weight

spectrum, respondents opted for a weight very close to the ideal weight. However at the high end of the ideal weight spectrum, respondents tended to choose a weight close to the largest available. The 1.4-4.3kg line illustrates the behaviour when the range of options is limited to higher weights. At the low end of the ideal weight spectrum, respondents tended to choose a weight close to the smallest available. However at the high end of the ideal weight spectrum, respondents opted for a weight very close to the ideal weight. This suggests that as the weight options change then at heavier weights, what is selected visually will be more strongly aligned with what is considered an ideal weight.

In reality this suggests an imperfect ranking of preferences and that respondents were influenced by the visual images. It has also been shown that the number in the household impacts on what is deemed the ideal roast weight [3] and that as household numbers decline so does the ideal weight.

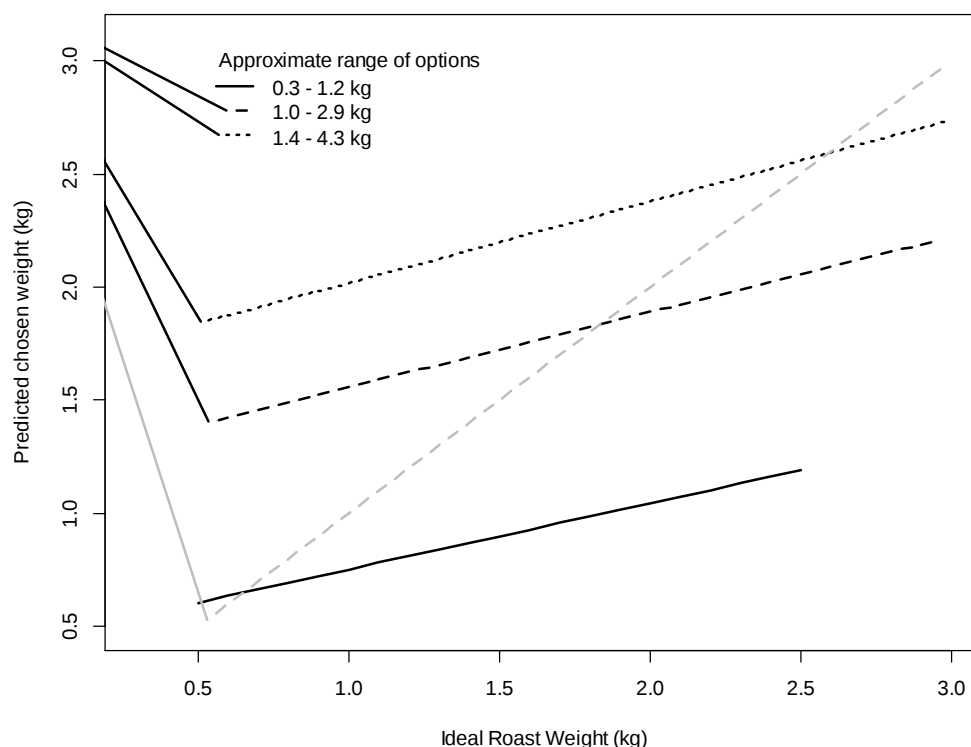


Fig. 1. The relationship between the “ideal weight” preferred by the respondents (verbal) and the actual predicted weight (from images).

IV. CONCLUSION

The weight options change and at heavier weights, what is selected visually will be more strongly aligned with what is considered an ideal weight. This suggests consumers preferences are not totally consistent and illustrates the benefit of surveying consumers using more than one communication medium. This is an important finding that should direct future surveys.

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