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Using the animal to the last bit: Consumer preferences for different beef cuts

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ABSTRACT

Meat is expensive to produce, making it is essential to understand the importance consumers pay to different meat cuts. Previous research on consumers' meat choices has mainly focused on meat species, while consumer preferences for meat cuts has so far only received limited interest. The aim of this study is to shed some light into this relatively unexplored area by answering four research questions. First, this study intends to show the relative importance meat cuts play in relation to other extrinsic product attributes. Secondly, this paper looks into differences in choice criteria between regular and special occasions. Third, consumer segments that differ in their preferences and beef purchase are identified, and, finally, the meat purchase portfolios of these segments are revealed. A stated preference methodology of a discrete choice experiment with cut-specific prices covering several meat cuts simultaneously is proposed to answer the research questions. The sample consists of 1500 respondents representative of the Italian population in terms of age, gender and geographic location The results shows that meat cut is the most important factor when choosing bovine meat followed by quality certification (origin), production technique, the type of breed and price. In terms of consumption occasions, we observe significantly lower price sensitivity for marbled steaks and cutlets for special occasions compared to normal occasions. Segmentation analysis shows that while the choices of two segments (comprising about 40% of the sample) are mostly driven by extrinsic product attributes, the remaining segments are mostly driven by meat cuts. These varying preferences are also reflected in the purchase portfolios of the different segments, while less variability is detected from a socio-demographic perspective.

1. Introduction

Meat is a component of many people's diets, and the demand for this product continues to grow with increases in income, demographic growth and a shift in choice preferences (Grunert, 2006; Gunderson, Lusk, & Norwood, 2009; Slingo, Challinor, Hoskins, & Wheeler, 2005).

However, growth in meat consumption is not even across all meat cuts, with the result that some cuts under perform from a commercial perspective (Casini, Contini, Romano, & Scozzafava, 2015). The general word 'meat' comprises different cuts, each of which is characterised by specific organoleptic characteristics, preparation techniques, cooking times, consumption frequencies and levels of desirability. This is particularly true for beef, which has seen no decline in demand of the finest cuts, such as steaks (Nielsen, 2013), while other, less noble, parts of the animal, such as the forequarter, are harder to sell and are often transformed into minced meat with varying levels of fat content and then sold as a specific meat cut (Casini, Marinelli, & Scozzafava, 2013). This asymmetry highlights the need for an investigation into not only the preferences for different types of meat, but also specific cuts within the same meat species, in order to improve the marketing strategies aimed at increasing the efficient use of the animal

Abbreviations: BIC, Bayesian information criterion; CAF, Cooperativa Agricola Firenzuola; DCE, Discrete choice experiments; GMO, Genetically modified organisms; ISMEA, Istituto di Servizi per il Mercato Agricolo Alimentare; PGI, Protected Geographical Indication.

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(Grunert, Bredahl, & Brunsø, 2004; Grunert, Verbeke, Kügler, Saeed, & Scholderer, 2011).

To date, this research question has not received much attention among food researchers. To date, the majority of studies on the consumption of meat products have focused solely on meat species (such as beef, lamb, pork and poultry), neglecting the fact that during their purchase decision, consumers also choose specific parts of an animal. Further, recent research based on the analysis of observed consumer purchase behaviour in supermarkets (Nielsen, 2013) has suggested that consumer demand analysis should be based on the animal cuts level, as the use of aggregated species data results in a considerable loss of information about consumers' behaviour (Blundell & Robin, 1999; Eales & Unnevehr, 1998). To date, only a few studies have analysed consumer demand for different meat cuts based on market data (Dong, Shonkwiler, & Capps Jr, 1998; Eales & Unnevehr, 1998; Fousekis & Revell, 2003; Lusk, 2013); however, none have focused on the role that different cuts play in consumers' purchase decisions relative to other product characteristics, such as origin (quality certification), price, production technique and breed.

Recently, several studies using stated consumer preferences (surveys) also examined individual meat cuts, but none analysed consumer preferences between different cuts. Schnettler et al. (2010, 2014) studied consumer preferences for the colour and fat levels related to different meat cuts, but they did not separately operationalise cut from the different colour and fat levels analysed. Morales et al. (2013) directly asked consumers to rate the importance of different attributes, including cut, without specifying different attribute levels for cut. Direct preference elicitation with ratings was shown to have poorer predictive ability compared to the indirect preference elicitation methods simulating consumers' choice and forcing them to make trade-offs (Mueller, Lockshin, & Louviere, 2010).

Despite the need to understand consumer preferences for different parts of the animal (cuts) relative to other meat attributes, there has been little research to date. Therefore, the research question this paper asks is:

- **RQ1:** What importance do consumers place on different meat cuts in relation to other extrinsic product attributes?

Consumer demand for food is generally known to depend on consumption context, such as situational and social context factors (Furst, Connors, Bisogni, Sobal, & Falk, 1996), as well as environmental factors (Stroebele & De Castro, 2004). Food consumption at social dinners has been found to be clearly different from eating an everyday dinner (Jaeger, Bava, Worch, Dawson, & Marshall, 2011). It could therefore be expected that consumer choice criteria for meat cuts differs between an everyday and a special consumption occasion, and that consumers are less price-sensitive for special occasions. To date, little is known about the context factors affecting the demand for meat cuts. Therefore, the second research question is:

- **RQ2**: How do consumer choice criteria for meat differ between an everyday and a special consumption occasion?

Food consumers are known to differ in their preferences and in the importance they place on different product attributes. If these preference differences are not taken into account, attribute importance may be underestimated on an aggregated level, as opposite preferences can cancel each other out (Mueller Loose, Peschel, & Grebitus, 2013). Modelling preference heterogeneity for beef attributes can provide insights for producers and marketers regarding how various beef cuts can be tailored to different consumer segments (McCarthy & Henson, 2005). Therefore, the third question this research asks is:

- **RQ3**: How do consumers differ in their preferences for meat characteristics and the relative attribute importance in their choice of different beef products?

Consumers' food purchases are usually not limited to one single product or brand; instead, consumers are known to consume from a portfolio of different related food components (Dawes, 2008). Accordingly, it cannot be expected that meat consumers will limit their purchases to only one beef cut; rather, they are likely to consume several cuts over time. However, yet again, very limited research has been conducted about the existence and composition of these purchase portfolios. Such knowledge could provide insights into which meat cuts can be jointly marketed and potentially substitute each other. To address this new research area, a portfolio and market share analysis is suggested as a suitable methodology. Therefore, the last question this research asks is:

- **RQ4:** How do beef consumers' segments differ in the variety of different beef cuts as part of their choice portfolio?

This study suggests a stated preference methodology of a discrete choice experiment with cut-specific prices covering several meat cuts simultaneously to shed some light on this unexplored research area. Beef was selected as a suitable meat product given its importance, particularly in developed countries. Meat producers and marketers would benefit from insights regarding the degree to which beef consumers trade off meat cuts with other product attributes. For instance, it may indicate whether origin certification or price discounts can be used to induce consumers to switch from more noble cuts, such as steaks, to less noble cuts, such as cutlets or ground meat. At the same time, given that the issue of meat cuts applies not just to beef, but also to all animals used as meat sources, such as pork and poultry, the approach used in this research can be replicable to other animal species that offer a range of cuts to consumers for commercial purposes.

2. Material and methods

2.1. Stated preference measurement

The analysis of preferences revealed through purchases (e.g., Fousekis & Revell, 2003) has some advantages, such as incentive compatibility, which result in more accurate willingness -to-pay estimates for food characteristics that are widely available on the market. Nevertheless, analysing sales data does not allow reliable conclusions for food attributes that are only rarely available or that are new to the market (Mueller Loose & Szolnoki, 2012; van Kleef, van Trijp, & Luning, 2005). This limitation can be overcome with stated preference methods, such as discrete choice experiments (DCEs) (Louviere, Hensher, & Swait, 2006). Choice experiments have been widely applied to the analysis of consumers' beef preferences for different attributes such as marbling and tenderness (Lusk, Roosen, & Fox, 2003), country of origin (Loureiro & Umberger, 2007) and safety certification (Gao & Schroeder, 2009); however, as indicated in the introduction, only a few studies have included in a DCE specifically meat cuts.

2.2. Attributes and levels included in the DCE

The attributes and levels used for the DCE in this study were selected by considering the main variables influencing the choice process when purchasing beef. The selection was based on a search