Joint production of safer, cleaner and animal friendlier beef: do consumers join it too? Insights from Focus Groups

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Abstract

Consumers' motivations and behaviour towards food safety, animal welfare and the environment in beef production and beef products were discussed in several focus groups, within a broader research program aiming at determining Portuguese consumers' willingness to pay for safer, cleaner and animal friendlier beef.

Regarding the supply context, food safety, animal welfare and environmental protection are, to some extent, jointly produced within beef production systems. From the demand perspective there are also reasons to believe consumers aren't able to separately value each one of these outputs of beef production. Due to considerable difficulties in production costs allocation as well as willingness to pay valuation, there are therefore reasons to jointly value them in a multi-dimensional package.

Six focus groups were used to elicit how respondents perceive and talk about these topics and to provide insights into their motivations towards beef. Results show that respondents often refer intrinsic attributes as determinants of beef quality. The main quality cues at the moment of purchase include appearance, expiration date and price.

Beef safety is generally taken for granted. However, concerns include hormones, antibiotics and slaughter hygiene. Environmental concerns are mainly linked with pollution and recycling. Animal welfare concerns include transportation, slaughtering and rearing conditions.

There are mixed reactions when it comes to willingness to pay premiums for any of the three given attributes. Participants refer preferences for products with bundles of these attributes, thus reinforcing the need to jointly value such complex and jointly produced attributes.

1 - Introduction

Portuguese consumers' motivations and behaviour towards beef safety, beef cattle welfare and environmental protection were discussed in several focus groups. Focus groups are fundamental in valuation questionnaire development when complex goods and attributes are at stake. The qualitative aspects analysed show the kind of issues to be addressed in the future valuation survey included in this research's framework and will help defining choice scenarios.

Regarding this article's specific objectives, the focus groups intended to show if the consumers participating in the discussions make a joint valuation of these three complex attributes, or if, on the other hand, they can separately assess them while considering their preferences for beef products.

More specifically, the discussions intended to determine whether, within a beef production and consumption context, there were common aspects among these subjects and underlying their shopping decisions. Additionally, it was intended to verify if there are common associations or crossed references when each one of these three aspects is discussed in a common context.

Food safety, animal welfare and environmental protection are, to some extent, jointly produced within beef production systems. For example, less intensive systems are less aggressive to the environment, and also prone to guarantee higher standards of animal welfare. Both can be linked to safer food (Harper and Henson 2001; Passilé and Rushen, 2005; Kallas *et al*, 2007).

Apart from the joint production, there are also reasons to believe consumers themselves aren't often able to separately assess each one of these non-commodity outputs of beef production. For example, it is known that many consumers prefer environmentally friendly products for health reasons (inferring that such products are safer) rather than just for the sake of the environment itself (Lusk *et al.*, 2007).

Nevertheless, whatever the reasoning behind consumers' preferences for such goods, they are still relevant in many niche markets within developed economies. There are therefore reasons to assess the market potential for such differentiated beef products, in order to determine if it is possible to offset higher production costs.

However, the above mentioned joint production leads to considerable difficulties in production costs allocation. The joint assessment by consumers increases the complexity of willingness to pay determination. These facts are the grounds to try to jointly value these three non-commodity outputs in a multi-dimensional package (Santos, 2000; Randall, 2007; Kallas *et al.*, 2007).

Previous research shows additional theoretical reasons to jointly value these goods. The independent valuation of multiple non-commodity outputs of farming, such as food safety or the environment, followed by the adding-up of these independently assessed values was empirically shown to be prone to considerable measurement bias, because the different outputs typically behave as substitutes in valuation (Santos, 1998; 2000).

The joint production and the postulated joint valuation by consumers were therefore the basis for the broader research program with the main objective of determining Portuguese consumers' willingness to pay for safer, cleaner and animal friendlier beef. For this research framework a stated preference survey was elected as the proper method to help clarify the above mentioned doubts about consumers' true demand.

However, as the validity of stated preference surveys (as contingent valuation and choice experiments) depends, in part, on the absence of methodological misspecification (which means the researcher and the respondent must perceive the survey scenarios in the same way), it is necessary to previously use focus groups, as the ones included in this articles' contents (Mitchell and Carson, 1989).

2 – Methods

Six focus groups were organized between July and September 2009, in Lisbon and Oporto, Portugal. The recruitment and invitation procedures were designed according to Krueger (2000). All participants had to be beef consumers and at least partially responsible for the household's meat shopping. No additional demographic characteristics were considered as a recruitment criterion. Beef consumption level, frequency and preferences were also not considered as a selection criteria, once variability was considered relevant for the discussions. In total, the six sessions included 35 participants (between 5 and 8 per group).

Sex			Age			Socio Economic Class			Marital Status		
Female	26	74,30%	26-35	14	40,0%	A	7	20,0%	Single	7	20,0%
Male	9	25,7%	36-45	12	34,3%	B	16	45,7%	Married	24	68,6%
			46-55	5	14,3%	C+D+E	12	34,3%	Divorced	4	11,4%
			>56	4	11,4%						

Table 1 – Participants demographic characteristics

A preliminary written questionnaire on beef shopping and consumption habits and preferences intended to help direct the attendants' mind frame towards the discussions' theme.
Regarding the questioning route, the first group of questions encouraged participants to introduce themselves and to describe their perceptions on beef quality and their concerns on beef shopping and consumption. The second group of questions introduced animal welfare, food safety and the environment in a beef production context. The next three question segments were dedicated to discussing food safety, animal welfare and the environment in beef production separately, in order to unveil participants' knowledge and concerns about these issues. Willingness to buy new differentiated beef products was also debated.
The sessions took around two hours and were all recorded, transcribed, and the contents subject to analysis according to Krueger (2000). Saturation was reached and new focus groups would not yield any new information.

3 –Results

This first part of the group discussions intended to direct the conversation towards beef quality while eliciting the participants' spontaneous thoughts when asked about this issue. Therefore, participants were asked to define what they considered a high quality beef product. No specific references were made by the moderator about beef safety, animal welfare or the environment in beef production.
Most participants spontaneously mentioned tenderness and texture (the terms often replaced each other). Other reports already mentioned tenderness as one of the most important aspects of beef quality for consumers across the EU (Korzen and Lassen, 2010; Verbeke *et al*, 2010a; de Carlos *et al.*, 2005; Aguiar Fontes et al., 2008). Other mentioned aspects are included in table 2.
These quality attributes seem to be somehow inferred from intrinsic quality cues, as good aspect and visible fat amount, which were often referred as features taken into account during shopping for beef products. The beef freshness (and therefore safety, as many pointed out) was said to be evaluated by many participants through judging the beef aspect and the expiration date.

Mentioned quality attributes	
	• Tenderness • Flavour • Freshness • Succulence • Colour • Texture • Court • Price
Mentioned quality cues	
	• Colour • Cut • Aspect • Amount of fat • Expiration date • Packing date • Price Value for money Buying less to buy more quality • National origin • Organic beef • Portuguese brands Portuguese PDO beef Portuguese organic beef

Table 2: Attributes and cues regarding beef quality

When such safety associations emerged, the moderator stimulated the discussion towards this issue. However, reactions often lead to the conclusion that food safety wasn't generally considered a concern, as minimum standards were perceived as guaranteed and satisfactory.

Furthermore, issues such as animal welfare and the environment were mostly mentioned only after a direct question, and although they were considered relevant and with influence in beef quality by many participants, most of them stated these aren't relevant concerns when shopping for beef products.

A very often mentioned quality cue is price. Although some participants referred finding good value for money as relevant for their shopping decisions, most consider that a higher priced beef is a sign of a better quality beef: "I don't buy a lot of beef, so I rather pay more for a high quality product".

Other relevant choice criteria were the origin (national origin is preferred) and the Protected Designation of Origin (PDO) label. Finally, organic beef, local beef products and certified beef were also referred as quality products.

When the discussion evolved towards specific beef safety issues, most participants stressed this is not, at the present time, a big concern. Nevertheless, issues such as drugs (or antibiotics) residues, hormone administration, feed quality and slaughter hygiene were considered to be worrisome during the production stages.

Participants stressed their confidence in the existing legal framework, regulatory institutions and in the existing audits and inspections, considering that if any given beef product is available for shopping, then it must be safe. The European Union regulatory role was considered to be relevant for this confidence level. All these findings are similar to those found among consumers of several European countries (Korzen and Lassen, 2010; Verbeke *et al.*, 2010b; Wezemael *et al.*, 2010; Angulo and Gil, 2007).

Mentioned concerns	
	• Drug residues Hormone / antibiotics • Dioxins • Slaughter hygiene • Feedstuffs' hygiene • Expiration date • Pre-packaged beef
Beef safety cues	
	• Meat aspect • Fat and meat colour • National origin • Shopping at butcher •
WTP for safer beef	Yes
	• Value for money Buying less to buy more quality • No Pleased with current Additional safety would have to be for all consumers • Don't know Trial Shopping Only if certified

Table 3: Specific aspects regarding beef safety

Some participants said they would be willing to pay a premium for beef with safety guarantees above the legally imposed ones, namely because they buy small quantities of beef products and are willing to pay for improved safety. Worth mentioning the fact that previous experience was often mentioned as influencing perceptions of beef safety.
Nevertheless, such decision was always said to be dependent on the premium amount, and the beef sensory quality would also need to be satisfactory.
Regarding the questions about the environmental impact of beef production and the participants' concerns about the environment, participants considered it to be a minor problem when compared to food safety, not taken into account when shopping for beef

(or even other products). Some participants even mentioned this to be more of an in vogue affair or a media concern, than a real issue.
However, most participants did state their environmental concerns, saying they try to do their share (namely through recycling), either because they are concerned about their health, or about future generations. Participants also mentioned grazing, extensive production and organic production as examples of environmentally friendly systems.

Mentioned concerns	
	• Health • Future generations • Not as important as beef safety • Lack of information • Just a fashionable media trend
Environmentally friendly beef	
	• Organic beef • Beef produced in grazing extensive systems • Not a concern while shopping
WTP for cleaner beef	
	• Yes Value for money Buying less to buy more quality Preference for "joint" products that include safety and environmental protection • No Green products are too expensive Can't tell the difference • Don't know Trial Shopping

Table 4: Specific aspects regarding the environment

The association between organic products and environmentally friendlier products was spontaneous, and some participants were regular shoppers of organic beef. We can argue that organic beef, a method of production and a credence attribute, here was used as a sign of an environmentally friendlier beef. Also worth mentioning that, on average, this was not a concern while shopping. That is to say, at the point of purchase, consumers do not often think of environmental implications of beef production and of the beef they are purchasing.
For those participants willing to buy environmentally friendlier beef products, the stated reasons were the same as for safer beef products: buying less to buy better quality, but the size of the premium would again be considered relevant.
More interesting is, however, the preference for products that include safety and environmental protection, i.e., participants stressed that beef products certified for both attributes would be more attractive.
When discussing animal welfare in beef production, the focus groups participants considered this to be a rather emotional subject, and acknowledged the contradiction

between eating beef and having concerns about cattle welfare. When asked to specify those concerns, most participants were able to specify them in quite precise terms, namely by describing transportation conditions and slaughtering techniques.
Intensive production was considered to be harmful for animal welfare, and issues like diminished space for movement and inability to fulfil natural behaviour were mentioned. Also, the lack of producers and caretakers training was also considered to be a concern for many attendants.
Finally, transportation and slaughtering conditions were also often mentioned as worrisome, and many participants actually said they rather not think about them.

Mentioned concerns	
	• Contradictory subject for meat eaters • Slaughter conditions • Animal transport conditions • Living conditions • Freedom to fulfil natural behaviour • Feeding • Caretakers formation
Animal friendlier beef	
	• Organic beef • Beef produced in grazing extensive systems • Not a concern while shopping
WTP for cleaner beef	
	• Yes Value for money Buying less to buy more quality Preference for "joint" products that include safety, environmental protection and animal welfare • No Consumers shouldn't be the ones to pay Can't tell the difference Distrust in certification • Don't know Trial Shopping

Table 5: Specific aspects regarding animal welfare

Thus, the willingness to buy animal friendlier beef was again a non consensual issue. Some attendants stressed it is not a concern during shopping, and, moreover, that it should not be the consumer responsibility to pay for the fulfilment of such animal welfare rules, although they are undoubtedly important rules.
However, as in the two previous issues, many participants said they would be willing to buy these products due to the small amount of beef they usually purchase, which allows them to make premium choices.

Finally, some participants spontaneously expressed interest in beef products with a bundle of these attributes, mentioning that if safety, animal welfare and the environment were all present in the same product they would be much more interested in buying it.
Such statements are consonant with what previous research has shown, i.e. the preference for these attribute bundles comes from the connection consumers make with increased product safety (Wezemael *et al.*, 2010; Harper and Makatouni, 2002). Moreover, such preferences even come in line with the above mentioned fact that food safety, animal welfare and environmental protection are, to some extent, jointly produced within beef production systems. For example, less intensive systems are less aggressive to the environment, and also prone to guarantee higher standards of animal welfare. Both can be linked to safer food (Kallas *et al*, 2007; de Passilé and Rushen, 2005; Harper and Henson, 2001).

Mentioned aspects	
	• Food safety Expiration date Packing date National Origin Animal age ID number Organic production • Environment Recyclable package Green logos Organic production • Animal Welfare Grazing animals Organic production • Others European symbols (PDO, Organic, etc) Certification logos
Negative reactions	
	• Unclear claims • Excess information • Difficult comprehension • Unreliable logos

Table 6: Aspects debated regarding beef labels

After this somewhat more specific discussions the conversation was directed towards beef labels. Some participants immediately referred not to notice anything besides price and expiration date, whatever beef they choose to buy. Moreover, a feeling about the excessive amount of information in all the labels emerged quite soon and was somewhat consensual.
When asked to elaborate further on their comments, many participants considered the labels to be difficult to understand, as they consider many of the present symbols and

references to be unclear, and therefore somewhat unreliable. Furthermore, participants often considered elaborate labels as a way to increase prices without providing increased quality.
Nevertheless, European symbols were consensually considered to be a source of trust and a reliable certification. Moreover, PDO beef was consensually referred to as a high quality beef product, even among those who don't usually consume it. Consumers' perception that PDO beef is a higher quality product has been reported previously in the literature (Wezemael *et al.*, 2010; Banovic *et al.*, 2009; Angulo and Gil, 2007¸ de Carlos *et al.*, 2005).
Considering the associations that participants made between labels and beef safety, the expiration date and the packing date were the most frequently mentioned items. However, many people also mentioned the reference to national origin as a safety guarantee. This result is similar to others found in the literature, which suggest higher trust in the own country or region (Wezemael *et al.*, 2010; Banovic *et al.*, 2009; Verbeke and Roosen, 2009; de Carlos *et al.*, 2005).
Regarding associations with the environment, some participants pointed out the organic symbol and stressed it as an environmentally friendly one.
Finally, associations with animal welfare were very scarce. Exceptions were mostly for associations with the organic symbol and the PDO symbol. Many participants considered that PDO beef is produced in countryside pastures, where animals have considerable available space and can enjoy quality of life.

4 – Discussion and conclusions

One conclusion to be drawn is that for these consumers beef quality is much more a matter of sensory, intrinsic quality, not being so much influenced by non sensory credence attributes such as food safety or animal welfare. Reasons for this attitude can be suggested. Food products are mainly characterized by the experienced dimension. For a food product, and as expected, the satisfaction derived from consumption is mostly sensorial. This experienced quality is known to determine the probability of repeated purchases (Grunert, 2004). Therefore, it can be considered expectable that the attributes that lead to satisfaction and repeated consumption are those more often mentioned as determinants of beef quality.
Another often mentioned quality cue is price. Although some participants referred finding good value for money as relevant for their shopping decisions, most consider that a higher priced beef is a sign of a better quality beef: ("I don't buy a lot of beef, so I rather pay more for a high quality product").
Issues such as animal welfare and the environment were mostly mentioned only after a direct question, and although they were considered relevant and with influence in beef quality by many participants, most of them stated these aren't relevant concerns when shopping for beef products. Nevertheless, when facing such topics many participants did claim these were important issues for them.
Although beef safety is often considered a concern, the food safety legal framework and its enforcement are thought to be efficient. Therefore, for many participants beef safety is not an immediate concern during shopping.

Nonetheless, the potential presence of drug, antibiotic and hormone residues in beef is a widespread concern among participants.
Environmental concerns are mainly linked with pollution and recycling. Preferences go towards extensive beef production systems which are regarded as environmentally friendlier, even if participants aren't able to specify the reasons why.
Animal welfare concerns include transportation, slaughtering and rearing conditions. Animal friendlier extensive pastures, which allow more space for movement and the ability to fulfil natural behaviour, were those preferred by participants.
The associations between beef production in extensive pastures and both animal welfare and the environment help show that consumers often consider these issues to be connected.
Furthermore, the immediate reference to organic products as safer, animal friendlier or environmentally friendlier also shows that for many consumers the provision of one attribute comes together with the provision of the other two.
There were mixed reactions when it comes to willingness to pay premiums for any of the three given attributes. However, there was a spontaneous stated interest in beef products that associate the three discussed credence quality attributes. Participants refer preferences for products with bundles of these attributes, probably considering the expectable price premium to be more attractive given the bundle of quality attributes they would be getting.
These consumers, even if not in the most conscious way, seem not to be able to embrace the separate supply of such attributes, making positive associations between them. In some cases, it may be possible for consumers to be aware of the joint production of food safety, animal welfare and environmental protection in beef production. This reinforces the need to jointly value such complex and jointly produced attributes.

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