Beef Quality Perceptions and Preferences in Ecuador

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Introduction

- The purpose of this study was to explore the role of the consumer for improving beef quality and the efficiency of the beef supply chain, through demand of higher quality beef, in the context of a developing country such as Ecuador.

- Specific study objectives were:
  1. To evaluate Ecuadorian consumers' perception, knowledge and experiences regarding beef quality.
  2. To assess consumer preferences for beef attributes.
  3. To evaluate the effect of educational information on consumer preferences for beef quality characteristics.

We posit that an increase in the local demand for high quality beef attributes could become a driving force to improve the efficiency of the beef sector and lead to quality improvements.

Overview of the Ecuadorean Beef Market

Beef Demand –low quantity
- Low per capita consumption: 10 kg/person/year, compared to Argentina 63 kg, Brazil 36 kg, USA 26 kg
- Low demand for high quality beef likely due to poor knowledge about meat cuts and quality cues
  - No information and education on beef quality
  - Stringent import protection policies -- no access to beef from high quality producing countries

Beef Supply – low quality
- Small producers (less than 50 heads) who sell to intermediaries
- Long supply chain with many opportunities for losses and damages
- Disconnection between production, processing and distribution
- Inadequate slaughter and carcass treatment processes carried out by municipal slaughterhouses with no direct connection to distributors

#### Governmental intervention – Interest in the export market
- Successful in obtaining World Organization for Animal Health's declaration of Ecuador as a country free of foot and mouth disease with vaccination (February of 2015)
- Interest in entering into the international beef market
- Investments in order to improve cattle breeds and pasture

Data and Methods

- Data was obtained from a random sample of 547 Ecuadorean households located in two cities:
  - Guayaquil, the largest city in the country, located in the coastal region.
  - Santo Domingo, a middle size city located in the foothills of the Andes.
- Survey included four sections: 1) socio-economic and demographic characteristics, 2) consumption of fresh beef purchased for cooking at home, 3) knowledge, opinions and experiences about beef quality, and 4) responses to two sets of stated choice experiments.

Choice experiments

- First experiment: only intrinsic attributes (color and texture) and the price of 'top round' cuts ($2.86/lb, $3.60/lb, $4.45/lb, and $5.31/lb).

- Second experiment: same as first experiment plus credence attributes: sanitary control, meat maturation, animal welfare and traceability.

Figure 3: A scenario of the second choice experiment
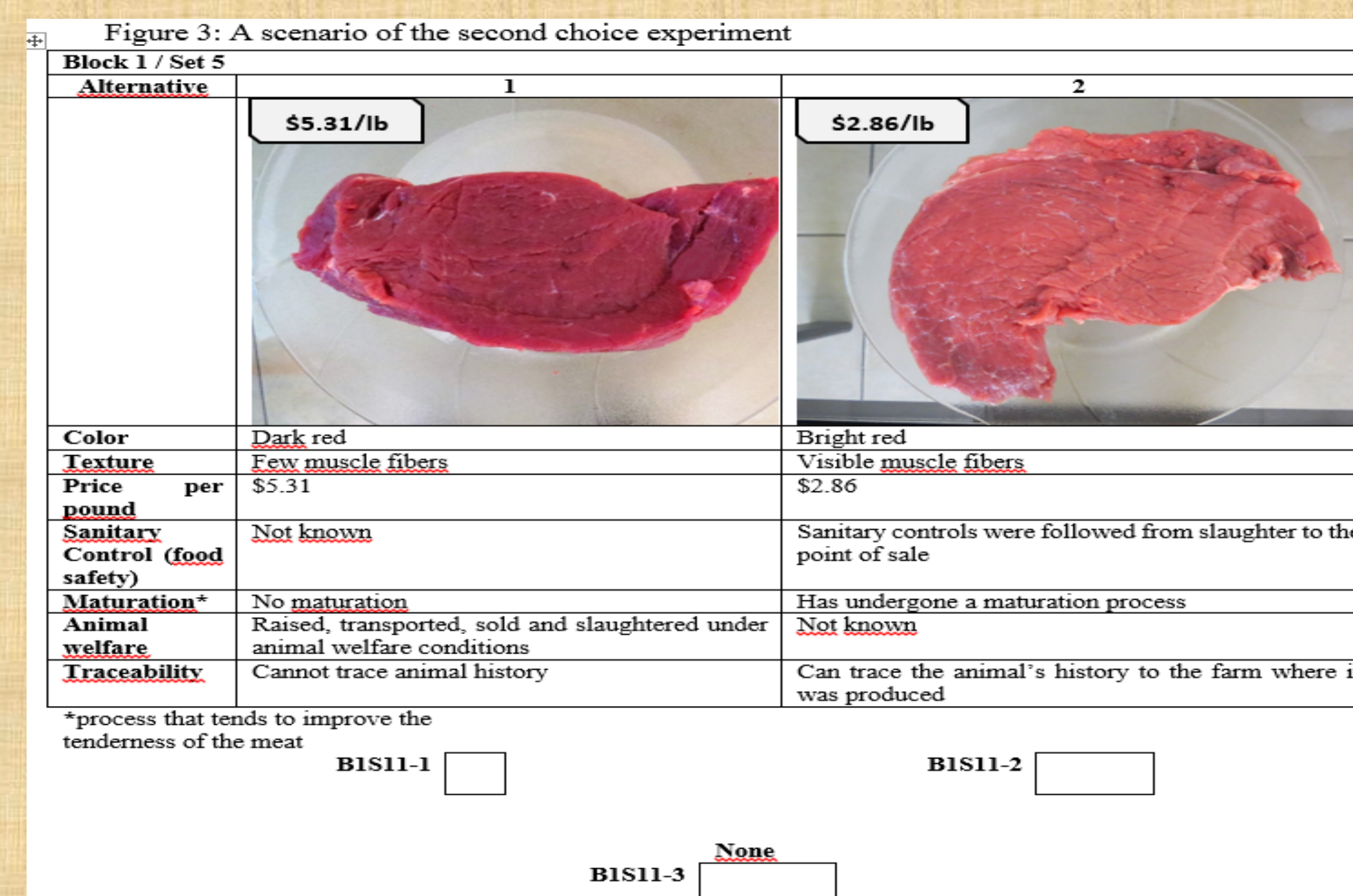
- A variation was introduced to the second choice experiment to evaluate the effect of education on preferences for the credence attributes:
  - One half of the sample was shown the credence attributes with only basic information.
  - The other half was provided *educational information* related to the credence attributes.

Data Analysis
- The economic framework for the analysis is the random utility model.

- A version of the mixed logit model in Willingness to Pay (WTP) space which accounts for the heterogeneous nature of buyers' preferences and the panel nature of the data was used for the analyses.

Results and Discussion

- 80% of the households consume beef at least once a week. Only 7% of respondents indicated that they would like to increase current beef consumption, and only 3% of respondents expect beef consumption to increase in the future.

- 61% of our sample expressed health concerns about beef consumption as one of the reasons limiting either current or future consumption.

- The majority of survey respondents perceive the quality of beef as good or very good (79% of consumers), 20% perceive it as fair and only 1% perceive it as bad or very bad. This is so in spite of the fact that:
  - 56% of respondents have experienced somewhat frequent disappointments when purchasing beef.
  - 62% have avoided purchasing beef at the first place they visited because they did not like the beef available.

Mixed logit model results

- When considered alone (experiment 1), mean WTP premiums and discounts for intrinsic attributes are very high (Table 1). These values are reduced significantly once the credence attributes are included in the experiments; however, in reference to current market prices they are still important.

- Positive and significant mean WTP values were also found for the credence attributes: *sanitary control*, *meat maturation*, *animal welfare* and *traceability* (Table 1).

- We also found evidence that information efforts can affect WTP values for credence attributes (Table 1).

Table 1: Estimated Mean Willingness to Pay Values ($/lib)

Attribute	Based on first experiment	Based on second experiment	Based on second experiment:
	intrinsic attributes	intrinsic + credence attributes	intrinsic + credence attributes + information
Intrinsic attributes			
Bright red	4.871	2.201	2.201
Dark red	-4.201	-2.388	-2.388
Few muscle fibers	3.532	1.295	1.295
Credence attributes			
Sanitary control		2.685	3.123
Meat maturation		0.617	1.496
Animal welfare		2.312	1.053
Traceability		0.364	0.797

Conclusions

- The relatively low per capita beef consumption in Ecuador does not seem to be driven by a poor overall quality perception of Ecuadorian beef but by a perception of beef as a not very healthy food product.

- Although most households show little understanding of credence attributes, they have positive and economically significant WTP values for all the credence attributes considered in the study. This suggests potential premiums for products marketed highlighting these attributes.

- From a policy perspective, the positive average WTP values for the credence attributes also reveal some potential welfare enhancing effects of improvements in food safety through policy and regulatory actions.

- Even limited educational efforts regarding beef credence attributes can have significant effects on the WTP values for these attributes; however, more work is needed to further evaluate the effect of different information efforts.

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