Title: Consumer Preferences and Willingness to Pay for Safety and Quality Beef Attributes in Ghana

By
OWUSU-SEKYERE, Enoch

Host: University of the Free State
Presentation Outline

• Background and Rationale
• Research Objectives
• Methodology
• Results
• Main Findings
• Conclusion
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• References
Background and Rationale

- Consumer demand for safe and high quality livestock products has been on ascendancy in sub-Saharan Africa, particularly in Ghana.

- The increase in demand for food safety and quality is triggered by the threat of food-borne diseases in Ghana (Saba and Gonzalez-zorn, 2012).

- The demand surge needs to be met by increasing and efficient supply-chain (Adzitey, 2013).

- The flow of information on consumers food safety and quality preferences upstream towards key players along the beef value-chain is lacking.

- The marketing environment of beef products comprises of informal distribution channels where safety and quality standards are inadequately defined.
The main objective of the study was to examine consumers’ preferences and willingness to pay for safety and quality attributes of beef. Specific objectives include

1. To identify and examine the safety and quality attributes that beef consumers prefer and use in their purchases using multi-attribute contingent rating.

2. To assess the level of reliance on the identified attributes for food safety and quality assurance in the beef industry using confirmatory factor analysis.

3. To determine the aspect of food safety that is of most concern to consumers using percentages.

4. To determine factors that influence consumers’ preferences and willingness to pay for safety and quality attributes or traits of beef using choice experiment and random parameter logit model.
Methodology

• The concept of consumer preference and willingness to pay originates from microeconomic theory and Lancaster’s characteristics methodology (Lancaster, 1991).

• The study adopted the random utility theory and choice experimental design to solicit consumers preferences and WTP for safety and quality attributes.

• Empirically, random parameter logit models and confirmatory factor analysis were estimated as well as multi-attribute contingent rating.

• Multi-stage sampling procedure was employed to sample 400 consumers from Kumasi Metropolis and Sunyani Municipality of Ghana.
Results

Figure 1. Attributes preferred and use by consumers in purchasing beef

- Packaging
- Leanness
- Origin
- Tenderness
- Slaughtermen
- Colour
- Shop environment
- Certification
- Freshness

Legend:
- Sunyani Municipality
- Kumasi Metropolis
- Pooled
Confirmatory Factor Analyses Estimates for Safety and Quality Indicators

Figure 2. Confirmatory factor analysis estimates
Figure 3. Important Aspect of Beef Safety
## Random Parameter Logit Estimates

### Table 1. Random parameter logit estimates with only choice-specific attributes

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Kumasi Metropolis</th>
<th>Sunyani Municipal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient Estimates</td>
<td>Standard Deviation Estimates</td>
</tr>
<tr>
<td>Anh</td>
<td>4.529*** (1.111)</td>
<td>6.779*** (1.364)</td>
</tr>
<tr>
<td>Fsaf</td>
<td>3.015*** (0.402)</td>
<td>1.157** (0.478)</td>
</tr>
<tr>
<td>Nutl</td>
<td>3.739*** (1.161)</td>
<td>-2.937*** (0.733)</td>
</tr>
<tr>
<td>Price</td>
<td>-0.571*** (0.139)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Rsq-Adj</th>
<th>Chi-squared</th>
<th>Log-likelihood</th>
<th>Replications</th>
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<tbody>
<tr>
<td>Kumasi Metropolis</td>
<td>0.71</td>
<td>804.07***</td>
<td>-377.06</td>
<td>500</td>
</tr>
<tr>
<td>Sunyani Municipal</td>
<td>0.61</td>
<td>1048.49***</td>
<td>-503.00</td>
<td>500</td>
</tr>
</tbody>
</table>

*** = significant at 1%, ** = significant at 5%, * = significant at 10%

Presented model was estimated using NLOGIT 3.0, with Halton draws and 500 replications.
Figure 4. Distribution of WTP estimates from RPL model.
Main Findings

• Preference for beef products is not necessarily based on intrinsic attributes, but also on external attributes that are associated with food safety and quality.

• Safety of beef products on the Ghanaian market is perceived low and consumers are more concerned about microbial and chemical safety.

• Consumers are heterogeneous in their preferences for verified animal health status, food safety inspection/certification and nutritional label.

• Willingness to pay price premium exists for food safety and quality beef attributes among consumers. Higher willingness to pay exists for verified animal health status.

• Socioeconomic characteristics, consumers perceptions and beef attributes tend to influence WTP premiums for high quality beef products. Albeit, gender and age impacts negatively on preferences for food safety and quality assurance.
Conclusions

• Ghanaian consumers mostly rely on external beef product image such as shopping environment, certification, packaging and steak colour.

• Traditional marketing strategies which focus solely on price and quality competition without food safety assurance may no longer be successful in today’s Ghanaian meat market.

• Microbial and chemical food safety are major issues of concern in the Ghanaian meat industry.

• Ghanaian beef consumers are heterogeneous in their preferences for food safety and quality attributes.

• Socioeconomic characteristics, consumers perceptions and beef attributes are significant determinants of WTP for safe and high quality beef products.

• Verified animal health status in both Kumasi and Sunyani promises to be an important tool for assuring consumers of the safety of beef products with a higher WTP premium.
Policy Recommendations

• Guaranteed food safety information and attributes should emerge as a new index and basis for future trade in the beef industry.

• The use of selective demographic targeting to build strong food safety and quality measures should be seen as a reality by policy makers and investors in the beef industry.

• Sensitization of women on food safety practices, handling and violation of food safety is very essential in the study area.

• Food and drug authorities should design effective strategies to mitigate microbial and chemical food contamination among others. Adoption of strict certification and inspections starting from the health status of animals to be slaughtered to the final product with proper labeling information for consumers is recommended.

• Strategies to mitigate unsafe beef marketing and consumption should target consumer segments base on classes and individual characteristics since consumers are heterogeneous.


