

Extended Abstract

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Paper/Poster Title	Effect of Information on Consumers' Trade-off between Subjective Food Safety Cues and Certification: Evidence from Nigeria
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Abstract prepared for presentation at the 98th Annual Conference of The Agricultural Economics Society will be held at The University of Edinburgh, UK, 18th - 20th March 2024.

Abstract	200 words max
<p>Despite the potential of food safety certification (FSC) to address information failures, the development of certified safe food markets in Sub-Saharan Africa (SSA) still face significant demand-side barriers including consumers' reliance on subjective safety cues, limited knowledge about contamination pathways, and distrust in the FSC systems. This study, focusing on Aflatoxin contamination (AC) in maize, investigates how information on health risks and higher relative accuracy of FSC in judging safe food can shift consumers' preference from subjective food safety cues to FSC. We conducted a discrete choice experiment with 360 urban maize consumers in Southern Nigeria, and estimated Mixed Logit Models. We find that, while information significantly narrows the gap between consumers' values for subjective safety cues and FSC, consumers still prioritize observable cues. Notably, informed consumers value local government (LG) and private-standard FSC the most. We conclude that well-targeted information campaigns can address demand-side barriers in developing certified safe food markets in SSA and that support for LG oversight in food safety governance should be accompanied with enhanced capacity. Further, consistent with emerging evidence, private-driven FSC governance seems to attract higher level of consumers' trust and can provide a unique opportunity for developing certified safe food markets in SSA.</p>	
Keywords	Food Safety, Certification, Cues, Knowledge,
JEL Code	D83 see: www.aeaweb.org/jel/guide/jel.php?class=Q)
Introduction	100 – 250 words
<p>Foodborne diseases (FBD) impose a substantial economic burden of about USD 16.7 billion annually on Sub-Saharan African (SSA) countries, with Nigeria accounting for 15% of this burden. Nonetheless, trade of dangerously contaminated food is prevalent in SSA's domestic markets due to the absence of food safety regulations and</p>	

information failures leading to market inefficiencies. Consequently, consumers relying on these markets face daily exposure to various food safety risks. While the potential of Food Safety Certification (FSC) to address information failures is evident, FSC remains notably absent for staple foods in these markets. Existing literature highlights three demand-side barriers: consumers' reliance on subjective safety cues, lack of knowledge on contamination pathways, and distrust in the FSC system. We do not know if elevating consumers' food safety knowledge through information can address these barriers and whether certain FSC systems attract higher level of consumers' trust. This study aims to fill this knowledge gap by investigating how information on health risks, the invisibility of aflatoxin contamination (AC) and the higher relative accuracy of FSC in judging safe food influences consumers' willingness to pay (WTP) for two observable maize safety cues and four FSC systems—three government-based and one private-based. Our hypothesis is that information will shift preferences from subjective cues to FSC for judging food safety, with consumers valuing reliability in their FSC preferences. We find that while information narrows the gap between WTP for subjective cues and FSC, subjective cues still take precedence in consumers' safe food choices. Notably, informed consumers place the highest value on local government and private-standard driven FSC systems.

Methodology	100 – 250 words
<p>We implemented a discrete choice experiment (DCE) with a survey of consumer characteristics among a sample of 360 urban maize consumers who purchase maize from typical informal unregulated markets in Southern Nigeria. The DCE, generated with a fractional Bayesian D-Efficient design, included seven attributes – discoloration, kernel damage, certification, price, packaging, maize type and maize form. To implement the DCE, respondents were randomly assigned to one control (uninformed) and one treatment (informed) group. The treatment group received information through a video explaining aflatoxin, its health risks, maize susceptibility, prevalence of maize contaminated with AC in the markets in the study area, and necessity for scientific testing to detect AC. The information emphasized the higher relative accuracy of FSC over colour and kernel integrity in judging maize safety. To mitigate hypothetical bias (HB), the enumerators read a cheap talk script to each consumer. Using the DCE data, we estimated Mixed Logit Models with Error Component (MXL). The MXL results were used to test three hypotheses grounded in a theoretical framework drawing from Lancaster's theory of consumer demand and Oslon's Cue utilization theory. For the first two hypotheses, we test equality of WTP between each of the FSC levels and colour and kernel integrity for both experimental groups. For the third hypothesis, we computed the rate of substituting each of the certification levels for color and kernel integrity respectively. Thereafter, we utilized a T-test procedure to test the difference in these values between consumers in treated and control groups.</p>	
Results	100 – 250 words

The sample, comprises predominantly female and highly educated respondents averaging 15 years of formal education and a monthly income around USD 201. About 90% of the consumers buy fresh and 60% buy dried Maize from the market. A few consumers (6.4%) have heard of the term "aflatoxin" despite being a sample that is highly educated. Only 16% of the sample have knowledge of the major health risks (especially liver cancer in adults and growth impairment in children) associated with Maize. Above half (64%) of the sample have objective knowledge of the pathways by which Maize gets contaminated from pre-harvest to consumption. Our balance test shows that randomization into the experimental groups was successful. Majority of the consumers in the control perceive FSC to be relatively the least important cue in judging food safety. Conversely, consumers in the treated group are split in their perception of FSC, with almost equal proportions perceiving it as most important and least important respectively. The MXL results show that respondents in the control and treated groups significantly use the observable quality attributes and FSC in their choices of Maize. Compared to the consumers in the control group, the treated group significantly place lower value on subjective food safety cues (color and kernel integrity) and higher value only on local government (LG) and private-based FSCs. Nonetheless, informed consumers still place relatively higher value on the subjective cues compared to their value for certification attributes.

Discussion and Conclusion

**100 – 250
words**

This study aimed to determine if educating consumers about health risks from aflatoxin contamination and the accuracy of cues in predicting food safety would make them rely more on FSC. Results show that consumers placed higher value on colour and kernel integrity over certification, regardless of the provided information. Specifically, both consumer groups prioritize colour integrity, as it is associated with food quality. Nonetheless, informed consumers significantly rely more on FSC to choose safe food when compared to the uninformed consumers. Therefore, efforts to improve food safety should also focus on improving visual cues since food quality and food safety seem to be closely linked in the minds of consumers. Informed consumers valued FSC governed by LG and Private sector the most, particularly the preference for LG which aligns with the proposed policy of LG overseeing local food markets. However, LG's ability to handle food safety issues is uncertain and needs improvement, specifically in data collection, analysis, and sharing. The finding that information had greatest shift towards private driven certification gives credence to emerging evidence that private certification standards have significant prospects in the domestic food market of LMIC. We concluded that well-targeted information campaigns complemented with the enhanced capacity of local government to handle food safety issues can address behavioural barriers that to generating demand for certified safe food markets in SSA. Further, policies should provide more support for the private-driven FSC governance which seems to be attracting higher level of consumers' trust compared to the government-based FSC.



