

Eliciting willingness to pay for quality maize and beans: Evidence from experimental auctions in Tanzania

Julius Manda, Adane H Tufa, Christopher Mutungi, Arega D Alene, Victor Manyong, and Tahirou Abdoulaye
International Institute of Tropical Agriculture (IITA)

Introduction

- Food safety hazards are associated with food and nutritional insecurity, trade disruption, disease burden, reduced productivity, and loss of human life, and impose costs on the food economy and public health system.
- These problems are often worsened because some of the food safety issues such as aflatoxin contamination are unobserved, and regulations to manage them are weakly enforced leading to the sale of unsafe food.
- Evidence showing how consumers value unobservable quality aspects is thin, yet they constitute an important part of quantifying the demand for food products.
- Therefore, the main objective of the study was to measure the relative demand for three grades of maize and beans products that differ in price and quality: unsorted, sorted and sorted and labeled

Data and Methods

- The study used socioeconomic and experimental auction data collected in the 2021 cropping season from 555 households in southern and central Tanzania.
- Using the Becker-DeGroot-Marschack (BDM) experimental auctions, we elicited the willingness to pay (WTP) for the different quality grades of maize and beans.



Fig. 1: Maize and beans auction samples

Results

- The demand curves (Fig. 2) were estimated as the share of households whose bid was greater than or equal to the price of maize and beans.
- The vertical distance between any of the two curves depicts the quality premium farmers' WTP i.e., a discount or a premium for the different quality maize and beans grades.
- Most of the auction participants placed a premium on the sorted and labeled maize as compared to the unsorted maize with demand curves of the two quality grades lying to the right of the unsorted grade (Fig. 2).

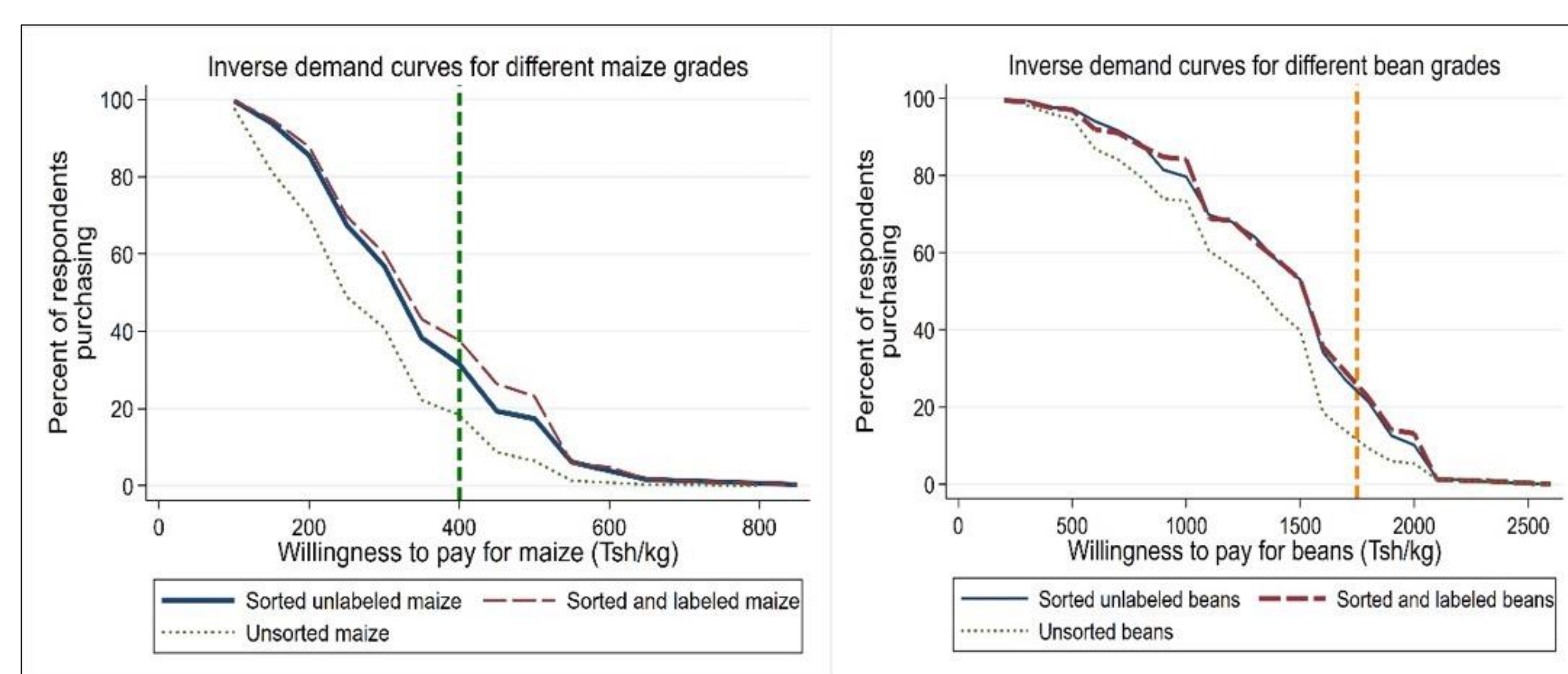


Fig. 2: Inverse demand curves for different quality maize (a) and beans (b)

- Table 1 shows the regression estimates with the WTP for all the quality grades as the dependent variable
- Consumers were willing to pay TZS 73 (25%) and TZS 191 (14%) more for observable quality attributes over the unsorted grades for maize and beans respectively.
- Farmers valued observable more than unobservable quality attributes with a Tsh 12.87 difference between the sorted and labeled maize grades.

Table 1: Observable and unobservable quality premiums for maize and beans

Variable	Maize WTP	Beans WTP
Sorted maize [Q1]	72.97***	
Sorted and labeled maize [Q2]	85.84***	
Sorted beans [Q1]		191.17***
Sorted and labeled beans [Q2]		214.41***
Constant	291.39***	1378.20***
Observations	1665	1665
Number of unique bidders	555	555
Observable quality premium [Q1]	72.973***	191.171***
Unobservable quality premium [Q2-Q1]	12.865*	23.243
F-test: Observed quality premium = unobserved quality premium	F = 3.61*	F = 2.12

p < 0.10, ** *p* < 0.05, *** *p* < 0.01. WTP in Tanzanian Shillings (TZS)

Conclusion

- Consumers were WTP premiums for the sorted and sorted and labeled grades of maize and beans but asked for a huge discount for the unsorted grade.
- The premium associated with the observable quality is higher than the value placed on the unobservable quality.
- Results suggest the need for policies that would increase access to information on unobservable quality attributes such as aflatoxin for consumers to understand the value of and promote the consumption of safe food