

A field experiment on bargaining for seed reveals discrimination against women agripreneurs

Summary of findings and policy recommendations

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Abstract:

This policy note summarizes results from a Lab-in-the-field experiment¹ in eastern Uganda, where a representative sample of 760 smallholder maize farmers were given the opportunity to bargain over a bag of maize seed from either a male or female seller. Specifically, we test whether the gender of the seed seller impacts the seed buyer's negotiation strategies and the eventual outcomes in bilateral price negotiations. The findings reveal that buyers confronted with a female seller were less likely to accept the seller's initial offer price and responded with a lower counter price compared to farmers faced with a male seller. Negotiations, on average, took one additional round when the seller was a woman and resulted in a transaction price that was almost 9 percent lower. These results relate to previous research with agro-input dealers in Uganda which showed that female managed/owned agro-input shops are perceived less favorable in terms of quality of seed sold and price competitiveness. Policies and programs working to advance women's empowerment through agribusiness need to recognize these gendered biases, and increase investment in public campaigns, extension and training to change attitudes towards women entrepreneurs.

Background

In rural societies with strong gender norms and customs, small-scale informal agribusinesses may often be one of the few ways in which women can independently generate revenue. Research indeed shows that informal vendors often tend to be self-employed, or women owned/operated.²

Unfortunately, even though women would be allowed in these roles, public perceptions may still be stacked against them. For instance, previous research with agro-input dealers in Uganda showed that female managed agro-input shops are perceived/rated less favorable on a range of attributes than their male counterparts. This includes perceptions that

female managed shops sold seed of lower quality, while in reality the reverse seemed to be true³. The difference in perceptions was largest in terms of price competitiveness, despite the fact that we found no difference between average prices charged by male and female managed agro-input shops.

Several other observational and experimental studies find overwhelming evidence of differences in the outcomes of market transactions when minorities (including women) are involved as a transacting party. Many of these studies find that consumer/buyer-side discrimination is more prominent than seller-side discrimination. In our experiment, we

only test for buyer-side discrimination when the seller is a man or woman.

We investigate if gender bias in perception extends into price bargaining processes and outcomes. In the context of rural Uganda, bargaining over prices is the rule rather than the exception. The bargaining process and outcome is likely to be influenced by range of variables, such as perceptions, power relationships, well-being of negotiating partners, etc. If some of these variables are skewed against female informal vendors (such as perceptions related to the quality of what they sell), gender bias may also manifest in the strategies that negotiating parties use, and the outcome of the process.

Study design: Lab-in-the-field bargaining experiment.

At the core of the study is a simple lab-in-the-field experiment where we offer a representative group of (both male and female) maize farmers the opportunity to buy a 1kg bag of hybrid maize seed (known as Bazooka).

A trained enumerator, guided by a script implemented on a tablet computer, acts as a seller. After explaining the virtues of hybrid maize seed to the buyer, the seller asks if the buyer wants to buy the seed at an initial (randomly assigned) offer price (in Uganda shillings). If the buyer rejects the offer, he or she is encouraged to call out a first counter bid price (the minimal bid price was UGX. 3000). The algorithm on the tablet then determines if the seller agrees on the counter price (depending on the difference between the two bids being small enough) or to enter a second round of negotiations where the seller makes a second offer price (which is lower than the previous offer price but higher than the farmer's previous counter bid). This process continues until the farmer accepts an offer price, or the algorithm instructs the seller to accept because the difference between last bid price and new offer price is equal or lower than UGX.500.

In the experiment, we randomly pair farmers to either a male or a female seller. This allows us to estimate the causal impact of the gender of the seller on the bargaining process and outcomes. Second, we also randomly assign the

initial offer price that the (male or female) seller quotes to the farmer, allowing us to estimate the causal impact of initial offer price on the bargaining process and outcomes. The randomly assigned initial offer prices were UGX.12000 or 11,000 (high), or 10,000 or 9,000 (low), based on the market prices of Bazooka seed (1kg) that prevailed in the study areas.



Figure 1: A female enumerator bargaining to sell seed to a maize farmer.

Our experiment allows us to investigate the effect of the seller's gender and/or initial offer price on the buyer's bargaining strategies and outcomes of the process. These include: (1) the likelihood that the buyer immediately accepts the initial offer prices (and hence no bargaining takes place); (2) the first counter bid following the initial offer price; (3) the likelihood that this first counter-bid is the minimum admissible counter-bid; (4) the likelihood that the buyer sticks with the initial counter bid throughout the process; (5) the number of negotiation rounds; and (6) the price at which the transaction occurs.

Sample and study sites

The total sample consists of a representative sample of 760 smallholder maize farming households, drawn from 4 districts in eastern Uganda (Mayuge, Kamuli, Iganga and Bugiri). These districts were chosen because maize is an important crop, both for food and cash. In

these 4 districts, 76 villages were randomly selected from a list of all villages, with the likelihood of a village being selected proportional to the number of households that live in the village. In each village, 10 households were then randomly selected.

Enumerators visited these households and asked to speak with the person that generally makes most decisions related to maize growing and input use such as what maize seed to use. These individuals were then subjected to the bargaining experiment and after completing the experiment, we administered a survey. We find that 22 percent of interviewed individuals were women, and the average age was 49 years old. They live in households of about 8 people.

About 40 percent of the farmers in the sample used an improved maize seed variety (open pollinated or hybrid maize variety) in the second season (*Nsambya*) of 2022 on any of their plots. However, only about 9 percent of farmers indicate that they used the type of seed (Bazooka maize seed) that we offered them in the field experiment.

Results--- Descriptive analysis

Gender of the seller and the negotiation prices: Descriptive results in Figure 2 show that the bargaining process is more likely to end up in lower transaction price when the seller is a woman than when the seller is a man. The disadvantage of the female seller already manifests itself at the very start of the negotiation process, when the buyer names their first counter bid price after the seller named the initial (randomly assigned) offer price. When the seller is man, the buyer's first price to start from is higher than when the seller is a woman.

Gender of the seller and the buyer's negotiation strategy: Results show that fewer farmers accepted the seller's first offer price when the seller was a woman than when the seller was a man (Figure 3). We also do see that a higher percentage of buyers start with the lowest admissible price bid when the seller is a woman than when the seller is man. Another interesting negotiation strategy some buyers seem to use is to name an initial counter bid and stick to this price. A surprisingly large share of

farmers use this strategy, especially when the seller is a man.

Figure 2: Negotiation prices

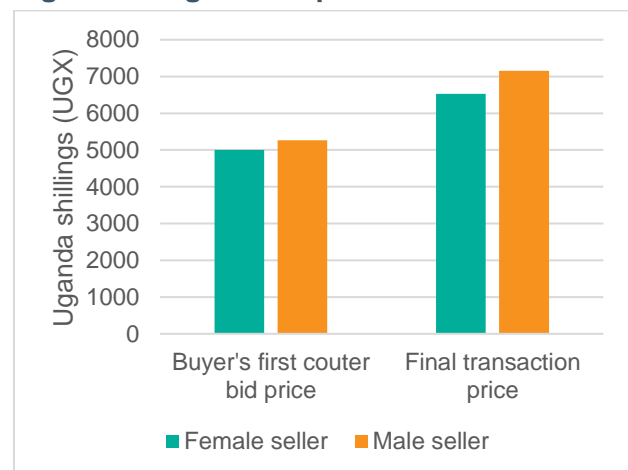


Figure 3: Buyer's negotiation strategies



Results--- Econometric analysis

Beyond the descriptive analysis, we conduct regression analysis to determine the size of the effect of the seller's gender on the buyer's bargaining strategies, and eventual outcomes. In the regression, we control for the seller's gender (where price level was the explanatory variable), the seller's initial price offer (where seller's gender was the explanatory variable), and gender of the buyer in all the models.

Results show that when the seller is a woman, buyers/farmers are 19 percent less likely to accept the initial offer price and respond with a counter bid that is UGX.800 less than when faced with a male seller. Negotiations take on average one round longer when the seller is a woman, and the transaction price is almost 9 percent lower.

For comparison, we also look at the effect of the starting price on the same bargaining outcomes and find that the gender disadvantage is roughly equal to the effect of a 20 percent higher starting price (UGX.12,000 or 11,000).

Table 1: Effect of gender of seller

	High offer price	Seller is a woman	Seller is a woman and high first offer price
Buyer accepts the initial offer of the seller	-0.192** (0.024)	-0.112** (0.026)	0.110* (0.051)
Buyer's first counter bid price	-84.549 (180.222)	-806.531** (189.679)	-54.451 (378.367)
Initial counter bid is the lowest admissible bid (UGX 3,000)	0.016 (0.029)	0.060+ (0.031)	0.025 (0.061)
Buyer sticks to his or her initial bid.	-0.038 (0.037)	-0.090* (0.039)	0.011 (0.077)
Number of negotiation rounds before final transaction	1.982** (0.209)	0.908** (0.220)	-0.093 (0.439)
Buyer accepts	-0.172** (0.030)	-0.116** (0.032)	0.154* (0.064)
Transaction price	334.915* (152.743)	-603.550** (160.705)	-42.104 (320.585)

Conclusion and recommendations

Through the lab-in-the-field experiment, we find that gendered perceptions about market actors indeed have different consequences on market transaction outcomes for men and women. Specifically, the findings suggest that the bias against women market actors/sellers seems to reduce the price women receive and increase the time (negotiation rounds) needed to conclude a transaction as buyers try to achieve a lower price.

Our findings are in line with similar studies which show that women owned micro-businesses are generally less profitable than male owned businesses.

Policies and programs working to advance women's empowerment through agribusiness ought to recognize these gendered biases, and increase investment in public campaigns, extension and training to change attitudes and discrimination towards women entrepreneurs.

Our experiment, however, only establishes the existence of discrimination, but it does not tell us anything about the source of discrimination. We believe more studies are needed to find out how context matters and establish if this discrimination is the result of prejudice, stereotypes or statistical discrimination.

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ENDNOTES

¹ Van Campenhout, B. and L. Nabwire. 2023. The role of gender in bargaining: evidence for selling seed to smallholders in Uganda. Discussion Paper, International Food Policy Research Institute.

² Giroux, S., J. Blekking, K. Waldman, D. Resnick, and D. Fobi. 2021. "Informal vendors and food systems planning in an emerging African city." Food Policy 103: 101997. Urban food policies for a sustainable and just future.

³ De, A., C. Mieke, and B. Van Campenhout. 2022. Gender bias in consumer perceptions: The case of agro-input dealers in Uganda, vol. 2132. Intl Food Policy Res Inst.