

Gendered Differences in Trade Margins? Evidence from Grain Value Chains in Nigeria

Michael Olabisi¹ Ashafa Sambo²
Mywish Maredia¹ Hakeem A. Ajeigbe²
Toyin Ajibade³

¹olabisim@msu.edu,
Michigan State University

²Bayero University Kano, Kano, Nigeria

³University of Ilorin, Ilorin, Nigeria

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Motivation: Do male traders obtain higher profit markups than their female counterparts?

- Many households in sub-Saharan Africa make their living from food value chains, either as farmers, or as intermediaries
- The midstream segment: processing, storage, trading, and logistics, is becoming more central to understanding developing economies
- Income for the intermediaries rests on the margin between the purchase prices they pay and the selling prices they get in the markets.

Prior Literature

- Trader actions impact price, quality distribution.
 - Liverpool-Tasie et al (2017), Bunte, Frank and Jack Peerlings (2003)
- Profit margin drives trader welfare
 - Liverpool-Tasie et al (2017), Sissoko et al (2022)

Our Approach

- Analyze profit margins across the value chain at the national level
- Use primary data from KasuwaGo outreach survey and KasuwaGo repeated weekly price survey of grain markets
- Calculate differences in prices by gender
- Estimate profit margins with linear regression models

Preview of Results

- Male resellers made significantly higher margins than their female counterparts
 - Female and male trade margins is around 5 and 7 percent respectively
- Farmers who also sell, have highest profit margins

Testable Propositions

- Equal market access will determine the profit margins that value chain participants can sustain.
- Gender differences may interact with market dynamics to impact profit margins within the value chains.

Nigeria Overview

- Mix of urban and rural: 46% of people live in rural areas
 - long food value chains from rural areas to large cities
 - Agriculture contributed 26 percent to GDP in 2021
 - Crop production accounts for over 90% of agriculture's GDP
- 63% of multidimensional poverty rate

KasuwaGo outreach

- Surveyed 10,504 traders, comprising 5,844 retailers and 4,660 re-sellers spread over the thirty-six states
- Covers September 2021 to March 2022
- Captures large grain markets in each state
- respondents were fairly representative of each market visited
- each respondent was asked to recall prices for their top product, for that month, and for the previous two months

KasuwaGo price surveys data

- Repeated weekly price survey of grain markets
 - 98 markets across 26 states
- The markets were selected as the key connection points in the flow of grains across the country.
- Captures large grain markets in each state
- Respondents were asked for prices usually, weekly, between the months of February 2022 and March 2023.

Profit margin regression

Two methods:

- comparisons of prices across genders using t-tests in a descriptive format
- rigorous estimation of trade margins using regression methods.

$$SalePrice_{ijg} = 0 + \beta_g PurchasePrice_{ijg} + \gamma X_{jg} + \varepsilon_{ijg} \quad (1)$$

Sale prices are usually higher than purchase prices, so trade margin is understood to be the coefficient β minus 1

Key Variables

- Sale Price is defined as the selling price of the of item i by trader j with gender g
- Purchase Price is defined as the purchasing price of item i by trader j with gender g
- Trade margins as the scaled difference between the purchase and sale prices for grains

Descriptive Statistics of Key Variables by Gender

Category	Outreach Survey Respondents		Price Survey			
	Female	Male	Obs		Respondents	
			Female	Male	Female	Male
Region						
North	1,544	7,879	1,106	15,421	42	457
South	1,897	1,735	4,918	4,976	112	50
Trader Type						
Reseller	651	4,688	1,850	12,671	37	354
Retailer	2,790	4,926	4,174	7,726	143	389
Product Type						
White beans (cowpeas)	1,062	3,731	1,319	3,710	133	467
Brown beans (cowpeas)	279	480	1,186	3,425	128	458
Rice	1,047	1,981				
Rice (local – no stone)			1,083	2,665	102	400
Rice (long grain)			998	2,512	102	404
Groundnut	242	598	74	1,587	14	323
Millet	116	625	58	1,671	9	338
Sorghum	117	656	14	1,496	12	329
Other	578	1,543	1,292	3,331	105	394

Sale and Purchase Prices by Gender and Zone

Panel 1: Purchase Prices (NGN/100kg bag)

Northern Zones						
Product	Resellers			Retailers		
	Male	Female	p-value	Male	Female	p-value
White Cowpea	39,092.62	42,376.36	0.01**	39,263.71	39,207.14	0.90
Brown Cowpea	41,443.62	43,954.55	0.08*	40,883.32	39,050	0.08*

Southern Zones						
Product	Resellers			Retailers		
	Male	Female	p-value	Male	Female	p-value
White Cowpea	47,183.72	46,080	0.30	43,836.67	44,487.77	0.44
Brown Cowpea	48807.69	48760.87	0.98	47492.27	46303.63	0.19

Panel 2: Sale Prices (NGN/100kg bag)

Northern Zones						
Product	Resellers			Retailers		
	Male	Female	p-value	Male	Female	p-value
White Cowpea	42,440.05	43,818.18	0.31	41,745.93	41,110.82	0.18
Brown Cowpea	44,448.61	46,809.09	0.05*	43,036.58	41,033.53	0.04**

Southern Zones						
Product	Resellers			Retailers		
	Male	Female	p-value	Male	Female	p-value
White Cowpea	49,418.6	48,440	0.38	46,125.25	46,625.9	0.56
Brown Cowpea	51,230.77	51,000	0.86	49,673.2	48,474.19	0.19

Differences in Margins by Gender and Zone

Margins - Northern Zones						
Product	Resellers			Retailers		
	Male	Female	p-value	Male	Female	p-value
White Cowpea	3,513.24	2,186	0.003***	2,635.09	1,903.67	0.00***
Brown Cowpea	3,810.58	2,854.55	0.12	2,760.06	1,983.53	0.00***
Margins - Southern Zones						
Product	Resellers			Retailers		
	Male	Female	p-value	Male	Female	p-value
White Cowpea	2,234.88	2,360	0.59	2,288.59	2,138.13	0.17
Brown Cowpea	2,423.07	2,239.13	0.58	2,180.93	2,170.57	0.92

Sales and purchases scaled to 100kg

Profit Margins OLS Estimates - Price Survey

	Sales price				
	(1)	(2)	(3)	(4)	(5)
Purchase Price	1.06*** (0.002)				
Purchase Price:Farmer-Seller		1.09*** (0.02)			
Purchase Price:Reseller		1.06*** (0.002)			
Purchase Price:Retailer		1.06*** (0.003)			
Purchase Price:Northern zone			1.07*** (0.002)		
Purchase Price:Southern zone			1.05*** (0.003)		
Purchase Price:Female				1.05*** (0.004)	
Purchase Price:Male				1.07*** (0.002)	
Purchase Price:Female:Northern zone					1.05*** (0.01)
Purchase Price:Male:Northern zone					1.07*** (0.002)
Purchase Price:Female:Southern zone					1.05*** (0.005)
Purchase Price:Male:Southern zone					1.05*** (0.003)
Observations	7,290	7,290	7,001	7,001	7,001
R ²	0.98	0.98	0.98	0.98	0.98

Conclusions

- ① The trade margins in grain markets differ by gender
- ② Gender-based market disparities can affect livelihoods and household well-being.
- ③ Enhanced women's involvement and unbiased market information empower economic growth.

Thank You!

Questions or comments:

Michael Olabisi olabisim@msu.edu