Agricultural Commercialization in Sub-Saharan Africa: Does Farmers' Gender Matter?

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Introduction

Agricultural commercialization in Sub-Saharan Africa (SSA) is promoted as a pathway to higher incomes, poverty reduction, and improved food security (Giller, 2020; Hilson, 2016).

Yet, the benefits of commercialization may not be equitably shared. Prior research documents systematic gender differences in access to land, inputs, credit, extension, and market networks, with implications for who participates and who gains in the process of commercialization (Doss, 2002; Kilic et al., 2015; Palacios-Lopez et al., 2017; Josephson, 2024).

These constraints, often rooted in social norms and market frictions, can limit women's opportunities in output markets and reduce both the inclusiveness and efficiency of commercialization.

Country Contexts

Ethiopia, Nigeria, and Tanzania are compared due to their shared reliance on smallholder agriculture, yet contrasting institutional, cultural, and market environments.

- **Ethiopia (ETH):** Heavily constrained by entrenched norms that restrict women from market negotiation. Limited land rights and poor rural infrastructure force reliance on local middlemen.
- **Nigeria (NGA):** Characterized by high regional diversity. Women are active traders in the South, but are severely restricted by socio-religious norms (limiting sales/mobility) in the North.
- **Tanzania (TAN):** Women contribute 52% of crop labor, are active in cooperatives, and benefit from national gender policies and infrastructure efforts.

Figure 1. Selected countries: Ethiopia (ETH), Nigeria (NGA), and Tanzania (TAN)

Data

We use three waves of longitudinal household data from the World Bank's Living Standard Measurement Study - Integrated Survey in Agriculture (LSMS-ISA) for three countries.

Table 1. Sample sizes by country and wave

	Wave 1		Wave 2		Wave 3	
Country	Survey year	Number of households	Survey year	Number of households	Survey year	Number of households
Ethiopia	2011/12	2,476	2013/14	2,446	2015/16	2,317
Nigeria	2010/11	2,326	2012/13	2,340	2015/16	2,363
Tanzania	2008/09	1,802	2010/11	1,853	2012/13	2,009

- All survey waves are nationally representative, except for the 2011/12 wave of the Ethiopian panel, which is representative of rural and small-town areas only.
- All households in the sample are agricultural households that reported cultivating land in the last 12 months.

Key Variables

Gender Measures

- **Woman Household Head:** A binary indicator for households headed by women.
- **Women-Managed Land:** The share of a household's total land area that is managed by women members.

Commercialization Measures

- **Sales Participation:** Binary variable for whether the household sold any crops.
- **Crop Commercialization Index (CCI):** The ratio of the gross value of crop sales to the gross value of all crops harvested.
- **Cash Crop Ratio:** The ratio of the value of cash crops sold to the value of total crop sales.

Empirical Strategy

- Two-Way Mundlak (TWM) Estimator
- Allows us to use time-invariant variables (like gender) while still controlling for household fixed effects.
- It controls for unobserved household and time effects by augmenting a random-effects model with household- and period-specific means of time-varying covariates.

Model Specification

We estimate the following model:

$$Y_{it} = \beta_1 \text{Gender}_i + \beta_2 X_{it} + \beta_3 X_{i.} + \beta_4 X_{.t} + \varepsilon_{it}$$

- Y_{it} denotes three commercialization indicators,
- $Gender_i$ denotes gender variables,
- X_{it} denotes the vector of control variables, $X_{.i}$ is the vector of panel unit constant means, and $X_{.t}$ is the vector of time-constant means.

Main Results: A Consistent Gender Gap

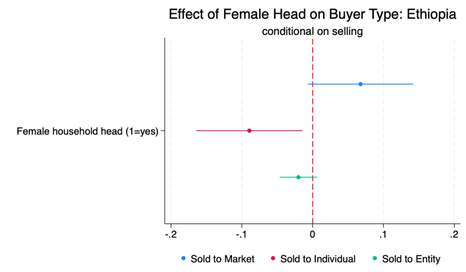
In Ethiopia and Nigeria, women's involvement is associated with significantly **lower** commercialization across all three measures.

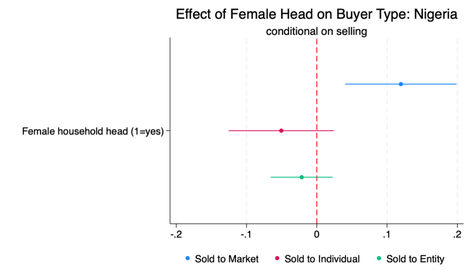
Compared to male-headed households, women-headed households:

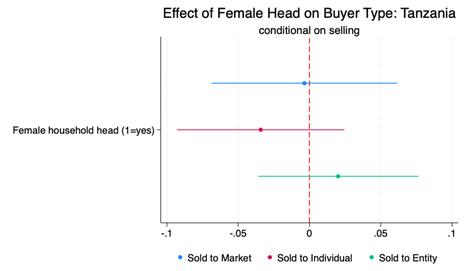
- Are 6.6 (ETH) and 8.9 (NGA) percentage points less likely to sell crops.
- Have a 3.0 (ETH) and 5.9 (NGA) point lower CCI.
- Have a 7.7 (ETH) and 7.3 (NGA) point lower Cash Crop Ratio.

A higher **share of women-managed land** shows similarly strong negative and significant associations.

In **Tanzania**, these negative associations are much weaker and less robust.







Deeper Dive on Sales Outlets

Contrary to the common narrative, conditional on selling, women-headed households are **not** less likely to engage with markets.

In **Ethiopia and Nigeria**, women-headed households are:

- **MORE likely** to sell to *market buyers*.
- **LESS likely** to sell to *individual buyers* (e.g., traders, neighbors).

This suggests women are not avoiding markets, but face other constraints.

Why do women sell less overall but still use markets when they sell?

- **Mechanism:** A high share of self-consumption (share of production consumed by the household) is strongly negatively associated with selling crops.
- **Key Interaction:** This negative effect is **significantly magnified** for women-headed households (and for women-managed land) in Ethiopia and Nigeria.
- **Implication:** Women farmers sell less overall, likely because a larger portion of their production is allocated to meet household food needs, leaving a smaller "marketable surplus".

Conclusion and Policy Implications

The gender gaps in commercialization are large, but highly context-specific.

Our findings suggest women are not less "market-oriented" but are more **constrained**. The primary constraints appear to be upstream from the point of sale, related to production levels and the need to ensure household food security.

Policies should focus on relaxing these practical constraints:

1. **Ease the self-consumption trade-off:** Improve on-farm storage, access to short-term credit, and seasonal safety nets.
2. **Reduce mobility/proximity frictions:** Invest in safer transport, village-level aggregation points, and trustworthy intermediaries to help women access markets more easily.

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