



# Sex-Based Barriers and Drivers of Access to Agricultural Resources in Ebonyi State, Nigeria

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## Abstract

The study assessed sex-based barriers and drivers of access to agricultural resources in Ebonyi State, Nigeria. A total of 120 farmers (60 males and 60 females) were surveyed using structured questionnaires. Frequencies, means, standard deviation, t-tests, and logistic regression were employed for data analysis. Results revealed that male farmers had higher access to key resources such as land ( $\bar{x} = 3.61$ ), credit ( $\bar{x} = 3.15$ ), and extension services ( $\bar{x} = 3.18$ ), compared to female farmers, who recorded lower access levels (land  $\bar{x} = 2.52$ ; credit  $\bar{x} = 2.35$ ). In terms of perceived constraints, male farmers cited inadequate finance ( $\bar{x} = 3.15$ ) as a major limitation, while female farmers highlighted discriminatory social norms ( $\bar{x} = 3.20$ ) and lack of access to credit ( $\bar{x} = 3.10$ ). Socio-economic characteristics influencing access showed that education and cooperative membership significantly affected access for males ( $p=0.041$  and  $p=0.012$ ), while age and cooperative membership were significant for

females ( $p=0.023$  and  $p=0.008$ ). The hypothesis confirmed a significant difference in overall access levels between male and female farmers ( $t=4.812$ ,  $p=0.001$ ). The study concludes that gender disparities persist in agricultural resource access. Strengthening women's cooperative membership, reducing socio-cultural barriers, and improving access to land and finance are recommended to promote gender equity in agricultural development.

**Keywords:** sex-based disparities, access to agricultural resources, ebonyi state, Nigeria.

## 1 Introduction

Agriculture is central to Nigeria's economy, employing over 70% of the rural population and contributing significantly to food security and national income [9, 21]. However, sex-based disparities in access to productive resources, such as land, credit, inputs, and extension services, continue to hinder inclusive agricultural development [6, 20].

Females, who make up a substantial portion of the agricultural labor force, often face cultural and institutional barriers that limit their control over assets



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and decision-making [24, 26]. These constraints not only perpetuate inequality but also reduce overall productivity and economic growth [3, 8].

Occupational segregation further compounds the issue, with females concentrated in low-value chains like cassava and poultry, while males dominate high-value crops such as rice and cocoa [27]. Limited education and exposure to market-oriented farming reduce females' participation and income [13, 14].

Access to credit remains a major challenge due to a lack of collateral and discriminatory lending practices [7, 19]. Extension services, often male-dominated, fail to address the specific needs of female farmers [2]. Land tenure systems rooted in patriarchal norms further restrict females' ownership and bargaining power [2, 11].

Programs like Women-in-Agriculture (WIA) have attempted to address these gaps but face implementation challenges [1]. NGO efforts, while helpful, are often localized and unsustainable [17] (Fuseini, Sulemana, Abdulai, Ibrahim, & Azure, 2022). A sex-responsive policy framework is urgently needed.

Empowering females in agriculture has been linked to improved household nutrition and economic outcomes [15]. Climate change adds complexity, disproportionately affecting females due to limited access to adaptive resources [4]. Sex-sensitive climate strategies are essential for resilience.

This study investigates sex-based barriers and drivers of access to agricultural resources in Ebonyi State, Nigeria. It aims to identify constraints, assess their impact on productivity, and propose policy recommendations for equitable resource distribution.

## 1.1 Specific Objectives and Hypothesis

### Objectives:

1. Ascertain agricultural resources accessible to male and female farmers.
2. Examine socio-cultural, economic, and institutional constraints.
3. Assess impacts on productivity and income.
4. Evaluate existing equity policies.
5. Recommend strategies to improve female farmers' access.

### Hypothesis:

H<sub>0</sub>: No significant difference exists in access to agricultural resources between male and female farmers in Ebonyi State.

H<sub>1</sub>: A significant difference exists in access to agricultural resources between male and female farmers in Ebonyi State.

## 2 Methodology

This study employed a descriptive survey design to investigate sex-based barriers and drivers influencing access to agricultural resources among male and female farmers in Ebonyi State, Nigeria [23]. The design facilitated the collection of data from a large sample to analyze trends and differences between sexes. The research was conducted in Ebonyi State, Nigeria, a region situated between latitude 6.26490°N and longitude 8.01370°E. According to the National Bureau of Statistics [16], the state has an estimated population of 3,398,177 individuals.

Ebonyi State presents a compelling context for gender-focused agricultural research due to its pronounced disparities in access to productive assets [22]. These disparities are often exacerbated by high levels of illiteracy, limited access to formal credit systems, and inadequate government support structures [5]. The target population included registered male and female farmers operating within selected Local Government Areas (LGAs) in Ebonyi State. Agricultural development officers provided preliminary lists and statistics for sampling purposes.

A multistage sampling procedure was used to ensure representation across Ebonyi State's three agricultural zones [12]. One LGA was purposively selected from each zone, Ikwo, Afikpo North, and Izzi, based on high farming activity. From each LGA, two farming communities were randomly selected, resulting in six communities. From each of the six communities selected, 10 male and 10 female farmers were randomly selected. This made a total number 120 farmers (60 males and 60 females).

Data for the study were collected using a structured questionnaire that captured information on farmers' characteristics, access to agricultural resources, challenges faced, and enabling factors. Two 5-point Likert scales were used: one to assess access levels (ranging from 1 = Very Limited Access to 5 = Very Accessible), and another to measure agreement with perceived constraints (ranging from 1 = Strongly Disagree to 5 = Strongly Agree). The instrument was validated through expert review for clarity and

relevance, and it was pre-tested with 20 farmers in a nearby LGA not included in the main study. Feedback from the pilot exercise was used to improve question wording and structure before the final administration.

Objective 1 was analysed using frequencies, means, and standard deviations to describe the level of access to agricultural resources by male and female farmers. A 5-point Likert scale was used, and a benchmark mean score of 3.00 was set to determine access levels—mean scores of 3.00 or above indicated high access, while scores below 3.00 indicated low access. An independent samples t-test was then used to compare the mean access scores between male and female farmers and to test for significant differences at the 0.05 level.

Objective 2 was analysed using principal component analysis (PCA) to identify major sex-specific constraints in accessing agricultural resources. Constraints were rated on a 5-point Likert scale, and a mean score of 3.00 or above was considered a significant constraint. PCA was done separately for males and females to extract and compare key constraint components.

Objective 3 was analysed using binary logistic regression to identify the key socioeconomic factors that determined access to agricultural resources for male and female farmers. The dependent variable was access level, coded as high (1) or low (0), based on the 3.00 mean benchmark. Independent variables included age, education, household size, income, access to credit, and cooperative membership. All statistical tests were interpreted at a 5% level of significance. Ethical approval was obtained, and participants gave informed consent, ensuring confidentiality, voluntary participation, and respect for their rights throughout the study.

### 3 Results and Discussion

#### 3.1 Access to Agricultural Resources by Sex

Table 1 shows the mean access scores of male and female farmers to six key agricultural resources. Male farmers had higher access to land ( $\bar{x} = 3.61$ ), farm inputs ( $\bar{x} = 3.17$ ), extension services ( $\bar{x} = 3.18$ ), and credit facilities ( $\bar{x} = 3.15$ ), all above the benchmark of 3.00. Female farmers, however, recorded lower mean scores for the same resources: land ( $\bar{x} = 2.52$ ), farm inputs ( $\bar{x} = 2.39$ ), extension services ( $\bar{x} = 2.27$ ), and credit facilities ( $\bar{x} = 2.35$ ), indicating limited access.

Both male and female farmers had high access to

**Table 1.** Access to agricultural resources by male and female farmers.

Access to Resources	Sex	N	Mean	SD	Access Level
Information	Male	60	3.45	0.80	High
	Female	60	3.15	1.60	High
Labour	Male	60	2.90	0.85	Low
	Female	60	3.95	1.00	High
Land	Male	60	3.75	1.60	High
	Female	60	1.55	0.70	Low
Agrochemicals	Male	60	3.30	0.40	High
	Female	60	2.75	0.80	Low
Improved Seedlings	Male	60	3.35	1.00	High
	Female	60	3.25	1.65	High
Credit	Male	60	3.75	1.95	High
	Female	60	1.25	0.55	Low

mobile phones, with mean scores of 4.34 and 4.12, respectively. Access to market information was also high for males ( $\bar{x} = 3.36$ ) but low for females ( $\bar{x} = 2.77$ ). The results suggest that gender disparities exist in access to agricultural resources, particularly land, inputs, and extension services. This may reflect structural inequalities such as land tenure systems, cultural roles, and male dominance in resource allocation. The findings align with those of Onoh et al. [10] and Njoku et al. [20], who reported similar gender-based differences in access across Southeast Nigeria.

These disparities may affect the productivity and participation of female farmers in agricultural programs. Extension interventions should therefore be tailored to improve women's access to key production resources.

#### 3.2 Perceived Constraints in Accessing Agricultural Resources by Sex

Table 2 presents the mean scores of male and female farmers on perceived constraints in accessing agricultural resources. The most significant constraints for male farmers were inadequate finance ( $\bar{x} = 3.15$ ) and lack of access to credit ( $\bar{x} = 3.05$ ). For female farmers, the major constraints were lack of access to credit ( $\bar{x} = 3.10$ ) and discriminatory social norms ( $\bar{x} = 3.20$ ).

Discriminatory social norms were more strongly perceived by females, while males rated this constraint as low ( $\bar{x} = 1.80$ ). Inadequate finance was reported as a major issue by males, but not by females. Land tenure issues showed a near-significant constraint for females ( $\bar{x} = 2.95$ ) compared to males ( $\bar{x} = 2.25$ ).

**Table 2.** Perceived constraints in accessing agricultural resources by sex.

Constraint	Sex	F	Mean	SD	Constraint Status
Lack of Collateral	Male	60	2.60	1.15	Not Significant
Land Tenure Issues	Female	60	2.80	2.00	Not Significant
Inadequate Finance	Male	60	2.25	1.10	Not Significant
Unfavourable Govt. Policies	Female	60	2.95	1.70	Near Significant
Discriminatory Social Norms	Male	60	3.15	0.80	Significant
Lack of Access to Credit	Female	60	2.55	0.95	Not Significant
	Male	60	2.75	0.90	Not Significant
	Female	60	1.95	0.50	Not Significant
	Male	60	1.80	1.40	Not Significant
	Female	60	3.20	0.75	Significant
	Male	60	3.05	0.70	Significant
	Female	60	3.10	1.65	Significant

Other constraints like lack of collateral, unfavourable government policies, and social norms were generally rated low or moderate.

The results highlight gender differences in perceived barriers, especially around social norms and land access for women, and financial constraints for men. These findings support earlier studies by Onoh et al. [10] and Njoku et al. [20], which observed similar patterns across Southeast Nigeria.

### 3.3 Socioeconomic Determinants of Access by Sex

Table 3 presents the socioeconomic determinants of access to agricultural resources disaggregated by sex. Among male farmers, education ( $p = 0.041$ ) and cooperative membership ( $p = 0.012$ ) significantly influenced access. For female farmers, only age ( $p = 0.023$ ) and cooperative membership ( $p = 0.008$ ) were significant predictors.

**Table 3.** Socioeconomic determinants of access by sex.

Variable	Sex	B Coefficient	Std. Error	Wald	p-value	Decision ( $p \leq 0.05$ )
Age	Male	-0.008	0.005	2.84	0.062	Not Significant
	Female	0.506	0.220	5.31	0.023	Significant
Education	Male	0.012	0.006	4.17	0.041	Significant
	Female	2.021	1.070	3.57	0.079	Not Significant
Household Size	Male	2.028	1.130	3.22	0.097	Not Significant
	Female	0.230	1.085	0.05	0.112	Not Significant
Income	Male	6.158	2.313	1.98	0.205	Not Significant
	Female	1.110	0.860	1.67	0.175	Not Significant
Credit Access	Male	-19.192	8.560	3.60	0.087	Not Significant
	Female	-0.206	1.020	0.04	0.151	Not Significant
Cooperative Membership	Male	23.053	10.380	5.04	0.012	Significant
	Female	0.071	0.027	7.30	0.008	Significant

Education was a key factor for men but not for women ( $p = 0.079$ ), while age significantly affected access for females but not for males. Cooperative membership was a strong determinant for both sexes, although the effect was more pronounced among males ( $B = 23.053$ ) compared to females ( $B = 0.071$ ). Other variables such as household size, income, and credit access did not significantly influence access for either group.

The results emphasise that education and cooperative involvement are important for improving male farmers' access, while female farmers benefit more from youthfulness and cooperative networks. These findings are consistent with earlier research by Mwalyagile et al. [18] and Udemezue et al. [25], which identified social group participation and demographic factors as key enablers of access in Southeast Nigeria.

Table 4 shows the results of the independent samples t-test comparing mean access scores between male and female farmers. Male farmers had a significantly higher mean access score ( $\bar{x} = 3.47$ ,  $SD = 0.65$ ) compared to female farmers ( $\bar{x} = 2.70$ ,  $SD = 0.70$ ). The difference was statistically significant ( $t = 4.812$ ,  $p = 0.001$ ). The study therefore rejected the null hypothesis and accepted the alternate hypothesis ( $H_1$ ).

**Table 4.** Independent t-test comparing access between male and female farmers.

Sex	Frequency	Mean	SD	t-value	p-value	Decision
Male	60	3.47	0.65	4.812	0.001	Significant
Female	60	2.70	0.70			Reject $H_0$

This indicates that male farmers had significantly better access to agricultural resources than their female counterparts. The result aligns with earlier findings by Njoku et al. [20], which reported gender disparities in agricultural resource distribution across Southeast Nigeria.

## 4 Conclusion and Recommendations

The findings revealed gender-based disparities in access to agricultural resources, with male farmers demonstrating significantly higher access levels than female farmers. Key determinants of access varied by sex, with education and cooperative membership positively influencing male farmers, while age and cooperative membership significantly affected female farmers.

To bridge the gender gap in resource access, interventions should focus on strengthening women's cooperative participation and addressing discriminatory social norms. Targeted policies should also enhance women's access to land and finance, while supporting education and group-based approaches for all farmers.

## Data Availability Statement

Data will be made available on request.



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## Conflicts of Interest

The authors declare no conflicts of interest.

## Ethical Approval and Consent to Participate

Not applicable.

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