

COMPARATIVE ANALYSIS OF SOCIOECONOMIC CHARACTERISTICS AND POVERTY STATUS OF COOPERATIVE AND NON-COOPERATIVE CASSAVA-BASED FARMERS IN AKWA IBOM STATE, NIGERIA

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Abstract

The study compared the socioeconomic characteristics and poverty status of cooperative and non-cooperative cassava-based farmers in Akwa Ibom State, Nigeria. Specifically, the study examined the socioeconomic characteristics of cooperative and non-cooperative cassava-based farmers; derived and compared the poverty status of cooperative and non-cooperative cassava-based farmers. The study population was all cassava-based farmers in Akwa Ibom State, Nigeria, comprising 60 cooperative and 60 non-cooperative cassava farmers. Data were analyzed using descriptive statistics and poverty line formula. Results showed that cooperative farmers had better socioeconomic characteristics, including greater access to credit (90%), extension services (80%), larger household sizes, and more years of farming experience compared to non-cooperative farmers. Poverty incidence (P_0) for cooperative members was 0.29 (29%), while that of non-cooperative cassava-based farmers was 0.33 (33%). Cooperative membership significantly reduced depth, and severity of poverty among the farmers. The study recommended that government agencies, non-governmental organizations, cooperative societies, and extension agents should make concerted efforts to sensitize and encourage non-cooperative farmers to join existing cooperatives or form new ones, as cooperative membership enhances access to credit and contributes to poverty reduction.

Keywords: Poverty status, access to credit, cooperative membership, comparison, small holder farmers, cassava.

Introduction

Cassava is an important staple crop commonly grown in Nigeria. It is known to support many rural households in terms of food security, income, and employment. Cassava has supported the economy of Nigeria, boosted its gross domestic product (GDP) and generated foreign exchange earnings. Nigeria is the largest producer of cassava globally, producing over 59 million metric tonnes of cassava annually (Food and Agriculture Organization, [FAO], 2022). This feat is possible because many states in the country, specifically Akwa Ibom State, have invested massively in cassava production. In February 2025, the government of Akwa Ibom State launched a ₦5.1 billion initiative under the Arise Empowerment Scheme, targeting cassava farmers with grants and equipment support (Akwa Ibom State Government, 2025). In Akwa Ibom State, cassava production is common among rural farmers because it adapts to diverse agro-ecological zones, provides staple food and raw materials for industries (Ekong *et al.*, 2023).

Most cassava-based farmers in Akwa Ibom State are predominantly smallholder farmers, operating on small plots with crude implements, practicing mixed cropping systems. They face many institutional challenges like limited access to credit, lack of access to training, and low access to extension services, which limit their productivity (Okon and Enete, 2021). Also, socioeconomic characteristics such as sex, age, educational level, household size, experience, cooperative membership, among others, influence productivity, market access, and poverty status of cassava farmers (Akoroda *et al.*, 2022).

Poverty is a critical problem among rural cassava-based farmers in Nigeria, and Akwa Ibom State is no exception. More than 63% of rural households in Nigeria are poor, relying on cassava production for survival (National Bureau of Statistics [NBS], 2022). According to Ekong *et al.*, (2023), there is a high level of poverty among cassava farmers in Nigeria, particularly in Akwa Ibom State, traced to a lack of access to institutional support like credit and extension services. However,

agricultural cooperatives have been promoted as a veritable tool for managing low productivity and poverty among cassava farmers. This is because cooperatives enhance access to farm input, credit, extension services, and better marketing platforms, which results in improved income and poverty reduction (Okonkwoet *al.*, 2022). It also facilitates knowledge sharing, input subsidies, and risk management, which non-members often lack, limiting their socioeconomic potential and remaining in abject poverty.

Recent empirical studies in Akwa Ibom State are focusing on technical efficiency, productivity, cooperative membership, and poverty status of cassava farmers. For example, Bassey *et al.*, (2022) examined effect of cooperative societies on poverty status of cassava farmers in Akwa Ibom State, Nigeria; Ekong *et al.*, (2023) estimated the determinants of poverty status among cassava farming households in Akwa Ibom State, Nigeria; Okon and Enete (2021) examined the effects of socioeconomic factors on technical efficiency of cassava farmers in Akwa Ibom State, Nigeria; and Udoh and Ekanem (2020) examined the socioeconomic characteristics and poverty status of cassava processors in rural communities of Southern Nigeria. To the best of the researcher's knowledge, no study has compared the socioeconomic characteristics and poverty status of cooperative and non-cooperative cassava-based farmers in Akwa Ibom State. This study filled this gap by examining the socioeconomic characteristics of cooperative and non-cooperative cassava-based farmers; and deriving and comparing the poverty status of cooperative and non-cooperative cassava-based farmers in Akwa Ibom State. The following null hypothesis was formulated and tested:

H₀: There is no significant difference in the poverty status of cooperative and non-cooperative cassava-based farmers in Akwa Ibom State.

Methodology

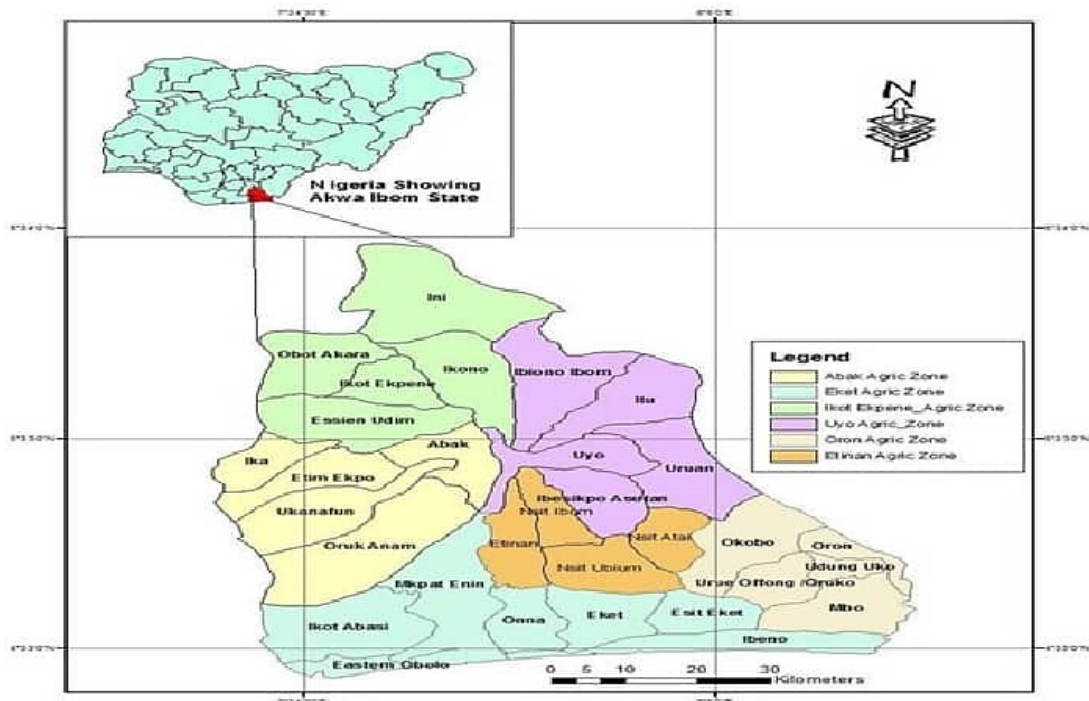
The Study Area

The study was conducted in Akwa Ibom State, Nigeria. Akwa Ibom State lies between Longitudes 7°30' and 8°30'E and latitude 4°30' and 5°30' N. According to NBS (2016)

population projection estimates, Akwa Ibom State has a projected population of 5,450,758 and a total land area of 7,081km². Akwa Ibom is bounded to the West by Rivers State, to the North by Abia State, Cross River State to the East and the Atlantic Cross River on the South-Southern Nigerian Coastal Plain. The State is a major oil-producing area and it is in the South-South geo-political zone and South-West ecological zone of Nigeria. Based on the National Population Commission (NPC) projections, Akwa Ibom State's population is estimated to be approximately 7,301,000 in 2025 (NPC, 2025). The major ethnic groupings in the state are Ibibio, Annang, Oron, Eket and Ibeno (Obot *et al.*, 2023). Ninety percent of its population live in the rural areas and are engaged mainly in agriculture, trading and craftsmen (Effiong and Ukpa, 2024). The Akwa Ibom State people are mostly civil servants, and they are also engaged in other traditional occupations such as fishing, hunting, raffia work, wood carving, pottery, iron works and tailoring. The near absence of industrialization makes Akwa Ibom State a "Civil Service State". The type of governance in Akwa Ibom State is democratic governance.

Akwa Ibom State is characterized by two seasons; the wet and rainy seasons that occur between April to October and the short dry season between November to March (Nigerian Meteorological Agency (NiMet), 2024). During the dry season, the state is usually covered by dry, dusty harmattan winds. The annual rainfall in the state ranges between 2000mm and 3000mm with annual mean temperature between 27°C and 28°C (NiMet, 2024). Akwa Ibom State has six (6) agricultural zones namely, Abak, Eket, Etinan, Ikot Ekpene, Oron and Uyo (Umoh, 2021). The soils of Akwa Ibom State are typically sandy to loamy sand in texture, with low organic carbon and nitrogen content, indicating low fertility. Soil pH is generally acidic, ranging from 4.3 to 5.7 (Simeon & Anthony, 2023). The food crops produced in Akwa Ibom State include cassava, yam, maize, rice, okra, melon, cocoyam, vegetables (e.g. water leaf, fluted pumpkin), plantain, banana, potatoes and so on. Cash crops grown in the state include oil palm, rubber and cocoa. Again, the farmers in Akwa Ibom State are also into Animal Husbandry. The livestock

mangrove swamps, rivers, creeks and flood plains. Fishing practices are still rudimentary and aquaculture negligible (Umoh *et al.*, 2019).



Sampling Technique

The selected LGAs were Ibesikpo and Uruan LGAs in the Uyo agricultural zone, Ikono and Obot Akara LGAs in the Ikot Ekpene agricultural zone, and Okobo and Udung Uko LGAs in the Oron agricultural zone. These gave a total of six (6) LGAs randomly sampled for the study. A list of the villages in each of the selected LGAs was obtained from their LGA Headquarters, and these formed the sampling frame for the selection of the villages for the study. At the third stage, two villages each were randomly selected from the six (6) LGAs selected for the study. These gave a total of twelve (12) villages for the study. At the fourth stage, ten (10) cassava-based farmers were randomly selected from the selected villages, where five (5) were members of co-operative societies and the other five (5) were non-members of co-operative societies. These gave a total of one hundred and twenty (120) cassava-based farmers as respondents for the study. The extension agent resident in each zone was recruited as enumerators.

Method of Data Collection

The data collection was done through a cost-route approach, because it helps in tracking agricultural production costs, income, and expenditure patterns at the farm level, which are essential for analyzing socioeconomic characteristics and poverty status of farmers. The cost-route approach involved visiting the smallholder cassava-based farmers fortnightly for the entire farming season to collect data. Primary data was collected using a well-structured questionnaire administered to the selected respondents by the researcher and other trained enumerators. The enumerators were trained on how to administer the questionnaire. One enumerator was used for one study location.

Analytical Technique

Objective I was achieved using descriptive statistics like frequency table, percentage, and mean;

Objective II was achieved using Foster-Greer-Thorbecke (FGT) poverty index.

This model had been previously used by Ishiaku, Haruna, Danwanka and Suleiman (2017), Onwumere, Agu-aguiyi and Umeh (2019).

The FGT poverty index was given as:

$$H = \frac{q}{n} \dots \dots \dots \text{Equation 1}$$

Where:

H = Head count ratio

q = number of poor smallholder cassava-based farmers in each group (co-operative and non-co-operative members).

n = total number of smallholder cassava-based farmers in each group (co-operative and non-co-operative members).

The head count ratio is also called Poverty Incidence. It was given as thus;

$$P_{\alpha} = \frac{1}{n} \sum_{i=1}^q \left(\frac{Z-Y}{Z} \right)^{\alpha} \dots \dots \dots \text{Equation 2}$$

Where,

Z = Poverty line

Y = Per capita food expenditure of the ith smallholder cassava-based farmer whose expenditure is below the poverty line ($Y_i < Z$)

q = the number of poor households in the population size n,

α = the degree of poverty aversion. It ranges from 0 – 2. When $\alpha = 0$, it measured Poverty Incidence or Headcount Index (P_{α}) measuring the incidence of poverty that was, the proportion of the total population of a given group that was poor or those that fell below the poverty line.

Poverty Depth (gap)

When $\alpha = 1$ in FGT as shown in equation 3 below,

$$P_{\alpha} = \frac{1}{n} \sum_{i=1}^q \left(\frac{Z-Y}{Z} \right)^1 \dots \dots \dots \text{Equation 3}$$

Where, FGT variables are previously defined in equation 3.6. $P_{\alpha} = 1$, it measured the poverty gap or the depth of poverty that is, how far the poor was from the poverty line which was also the percentage of the poverty line needed by the poor smallholder cassava-based farmers to come out of poverty or the proportion of the poverty line that an individual below the poverty line required to attained the poverty line.

Poverty Severity

When $\alpha = 2$ in FGT as shown in equation 3.8 below;

$$P_{\alpha} = \frac{1}{n} \sum_{i=1}^q \left(\frac{Z-Y}{Z} \right)^2 \dots \dots \dots \text{Equation 4}$$

Where, FGT variables are previously defined in equation 3. $P_{\alpha} = 2$, it measured how serious or the severity and inequality or variation in expenditure (income) among the poor smallholder cassava-based farmers in the study area. It was also the squared poverty gap.

Results and Discussion

Socioeconomic characteristics of cooperative and non-cooperative cassava-based farmers

Table 1: Distribution of the respondents according to socioeconomic characteristics is presented (n=120)

Variables	Cooperative members		Non-cooperative members	
	Frequency	Percentage	Frequency	Percentage
Sex				
Female	23	38.3	22	36.7
Male	37	61.7	38	63.3
Marital status				
Married	37	61.7	40	66.37
Otherwise	23	38.3	20	33.30
Access to credit				
No	6	10.0	48	80.00
Yes	54	90.0	12	20.00
Extension				
No	12	20.0	50	83.3
Yes	48	80.0	10	16.7
Age				
19 – 28	12	20.0	27	45.0
29 – 38	13	21.7	8	13.3
39 – 48	24	40.0	18	30.0
49 – 58	9	15.0	5	8.3
59 – 68	2	3.3	2	3.3
Mean	38.15		32.98	
Std deviation	10.470		11.684	
Household Size				
1 – 5	5	8.3	4	6.7
6 – 10	53	88.3	55	91.7
11 – 15	2	3.3	1	1.7
Mean	8.54		8.200	
Std deviation	5.78		1.6240	
Experience				
1-5	28	46.67	47	78.3
6-10	14	23.33	10	16.7
11-15	18	30.00	3	5.0
Mean	9.13		7.617	
Std deviation	5.78		4.8611	
Farm Size				
0.1-1.0	13	21.67	21	35.00
1.1-2.0	32	53.33	26	43.33
2.1-3.0	13	21.67	7	11.67
3.1-4.0	2	3.33	6	10.00
Mean	1.6692		2.304	
Std deviation	0.84698		2.89	

Field survey, 2025

Results in Table 1 showed that the majority of cooperative members (61.7%) and non-cooperative members (63.3%) were males. The preponderance of male folks in cassava production in the study area is likely due to the high labor demands of cassava farming, which can be challenging for female farmers. These

findings align with Ngepah *et al.* (2021) who assessed food insecurity and its drivers among smallholder farming households in rural Oyo State, Nigeria and reported that 85% of cassava farmers were male, confirming gender skew in production.

Results also showed that the majority of the cooperative farmers (61.7%) and non-cooperative farmers (66.37%) were married. This implies that both cooperative and non-cooperative cassava-based farmers in the study area are responsible and committed to their farming activities. Marital status plays a crucial role in farm output, primarily through the availability of family labor, which is often higher in households headed by married individuals. This finding aligns with Smith and Okeke (2014) who studied social capital and access to credit among cassava farmers in Nigeria and reported that 93% of cassava farmers were married.

Results showed that the majority of cooperative members (90%) had access to credit. This finding has positive implications for cassava production and the poverty status of the farmers because credit facilitates technology adoption, profitability, food security, nutrition, health, and overall household welfare. However, 80.0% of non-cooperative members did not have access to credit, probably due to bureaucratic hurdles, limited awareness of credit opportunities, or higher perceived risk from lenders, further restricting their access to formal credit sources. This finding is in tandem with Adeosun *et al.*, (2024) who studied access to credit and factors influencing credit utilization among smallholder cassava farmers in Southwest Nigeria and reported that 80.0% of non-cooperative cassava farmers had no access to credit.

Results showed that the majority of the cooperative members (65%) accessed extension services in the study area. This implies that cooperative members were exposed to improved agricultural practices, technologies, and market information. However, 83.33% of non-cooperative members did not have access to extension services. The limited access to extension services could be attributed to several institutional and structural challenges in the study area. This finding aligns with Adeosun *et al.*, (2024) who reported that majority of non-cooperative cassava farmers had no contact with extension services.

The mean ages of cooperative and non-cooperative farmers were 38 and 33 years

respectively, implying that the cooperative cassava-based farmers were young, energetic, and innovative than non-members. This finding agrees with Adeosun *et al.* (2024) who reported that the mean age of cassava farmers was 38 years.

Results showed that the mean household size of cooperative and non-cooperative farmers was 9 and 8 persons respectively. This implies that cooperative cassava-based farmers maintained relatively large household sizes than non-members. This could enhance their production efficiency and poverty status. The relatively large household sizes suggest that family labor is readily available, which can reduce the cost of hired labor and enhance productivity if effectively managed. This corroborates with Adeoti *et al.* (2022) who reported that average household size among cassava-based farmers in Ogun State was 8, contributing to family labor availability.

Results showed that the average experience of cooperative and non-cooperative farmers in the study area was 9 and 8 years respectively. This implies that cooperative cassava farmers in the study area have accumulated a reasonable level of farming experience than non-members. This can positively impact their productivity level, income and poverty status. This agrees with Anyikwa *et al.* (2019) who studied resource management among male and female cassava farmers in Fadama III (AF) in Anambra State, Nigeria and found that the mean farming experience of cassava farmers was 9 years.

Results showed that the mean farm size of cooperative and non-cooperative farmers in the study area was 2.3ha and 1.67ha, respectively. This implies that cooperative farmers generally had access to larger farmland than non-members. A larger farm size allows for increased cassava cultivation, higher yields, and greater economies of scale, ultimately leading to improved income levels. This finding aligns with Awotona *et al.*, (2022) who analysed gender dynamics in cassava production for resource empowerment among farmers in Oyo State, Nigeria and reported that majority of the farmers had contact with extension agents, indicating generally poor extension access across cassava farmers.

Comparison of the poverty status of cooperative and non-cooperative cassava-based farmers

Table 2: Poverty Incidence, Depth and Severity of cooperative and non-cooperative cassava-based farmers

Poverty index	Cooperative members	Non-cooperative members
Poverty incidence (Po)	0.29	0.33
Poverty depth (P ₁)	0.14	0.18
Poverty severity (P ₂)	0.022	0.029

Source: Field Survey, 2025

Results in Table 2 show that the poverty incidence (Po) for cooperative members was 0.29, suggesting that 29% of cooperative farmers fall below the poverty line, while 33% of non-cooperative farmers are classified as poor. This aligns with findings from Edike and Kainga (2024), who reported that the intensity and inequality of poverty were less pronounced within cooperatives in South-South, Nigeria. The poverty depth (P₁) and severity (P₂) further emphasized this disparity, with cooperative members exhibiting lower values, indicating that the intensity and inequality of poverty are less pronounced within cooperatives. This implies that cooperatives played a significant role in alleviating poverty among cassava farmers in the study area. By pooling resources, sharing knowledge, and accessing collective bargaining power, cooperative members can enhance their productivity and income levels, thereby reducing the extent and severity of poverty.

Conclusion

The study has shown that cooperative cassava-based farmers in Akwa Ibom State had better socioeconomic characteristics than non-cooperative farmers. Cooperative membership significantly reduced poverty incidence, depth, and severity among cassava-based farmers in Akwa Ibom State by enhancing access to resources, knowledge sharing, and collective economic opportunities.

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Recommendations

Based on the findings and conclusion of this study, the following recommendations were proffered;

- Government agencies, non-governmental organizations, cooperative societies, and extension agents should make concerted efforts to sensitize and encourage non-cooperative farmers to join existing cooperatives or form new ones, as cooperative membership enhances access to credit and contributes to poverty reduction.
- Government and non-governmental organizations should beef up extension services through adequate investment, recruitment, and continuous training of extension agents to provide both cooperative and non-cooperative farmers with relevant innovations, knowledge, and agricultural best practices to improve farm performance and welfare.
- Sensitization and awareness campaigns should be intensified to encourage non-cooperative cassava-based farmers to join or form active cooperatives in order to benefit from access to credit, extension services, improved input supply, and collective marketing, all of which help reduce poverty and enhance farm productivity.

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