

COMPARATIVE ANALYSIS OF POVERTY STATUS AMONG CASSAVA FARMING HOUSEHOLDS IN AKWA IBOM STATE, NIGERIA

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Abstract

This study conducted a comparative analysis of the poverty status among cooperative and non-cooperative cassava farming households in Akwa Ibom State, Nigeria. A multi-stage sampling technique was employed to select 360 respondents, and primary data were analyzed using descriptive statistics, the Foster Greer Thorbecke Model, Logit regression, and Z-tests. Both groups were dominated by female farming households, with average ages around 46 years and 45 years, predominantly married, with primary education, and household sizes of 4-8 persons. However, cooperative farming households realized significantly higher average incomes (₦122,439.30) and larger farm sizes (2.3 hectares) compared to non-cooperators who had ₦116,526.00 and 1.7 hectares, respectively. The result on poverty status showed that 93.89% of cooperative farming households were non-poor while 68.89% of non-cooperative farming households were non-poor. Cooperative farming households exhibited a considerably lower poverty headcount ratio (9.09%) while non-cooperative farming households had poverty headcount ratio of 31.79% and poverty severity index, indicating less widespread and severe poverty. Marital status and farming experience influenced poverty for cooperative farming households, while age and farm size were major determinants for non-cooperative farming households. The study concludes that cooperative membership significantly improves food security and reduces poverty among cassava farming households. It is recommended that Cassava farming households should seek to join existing cooperatives or form new ones to benefit from collective bargaining, shared resources, and improved market access. Non-cooperative farming households should prioritize strategies to increase their farm size, as this was a major factor in reducing poverty.

Keywords: Cassava, Cooperative, Poverty, and Household

Introduction

Poverty is a complex, multidimensional phenomenon that affects all aspects of human life, with its most severe impacts felt in developing nations. It is defined as the inability to meet basic needs such as food, clothing, and shelter, and to fulfill social and economic obligations due to a lack of assets, skills, or income (Anuolawapo & Edwin, 2020). Its effects permeate critical areas like food security, health, and education, making it a persistent global challenge that has attracted numerous interventions from international and local organizations with limited success in achieving notable progressive improvement (Danaan, 2018). Nigeria, as a developing nation, exemplifies this challenge, often being described as the world's poverty capital (Akanle & Shittu,

2022). With a population projected to be the third largest globally by 2050 (Mustapha, 2024), the country grapples with profound poverty. Recent statistics indicated that 37% of Nigerians, approximately 84 million people, live below the poverty line (Idris, 2024). Although the Multi-dimensional Poverty Index (MPI) showed a slight improvement from 0.25 in 2022 to 0.18 in 2023, 18.1% of citizens still live in severe poverty, with another 16.6% vulnerable to multi-dimensional poverty (UNDP, 2023). This situates Nigeria as one of the world's most unequal and impoverished societies (Enaberue, Musa & Magaji, 2024; Nigerian Bureau of Statistics, 2020).

Within this national context, agriculture remains a critical sector for livelihood (Inyang, 2024a),

and cassava holds a pivotal role. Cassava is a crucial crop for smallholder farming households due to its drought resistance, ability to thrive on marginal lands, and capacity to be stored in the ground for extended periods (Akomolafe, Sennuga, Bamidele, Osho-Lagunju & Alabuja, 2023). As a staple food for over a billion people worldwide (Olutosin & Sawicka, 2019), its importance for income is undeniable. For rural households in Nigeria, who are the primary producers of cassava, the crop's year-round availability positions it as a potential catalyst for poverty alleviation (Otun, Escrich, Achilonu, Rauwane, Lerma-Escalera, Morones-Ramírez & Rios-Solis, 2023). The quest for alleviation of poverty, since pro-government programmes have failed over the years, has engendered persistent interest in community-based solutions. The most readily and effective community-based solution is the formation of cooperative societies. The creation of cooperatives has resulted in programs and projects targeted at increasing agricultural output and productivity, to improve farming households' wellbeing.

According to Tumenta, Amungwa, and Nformi (2021), cooperatives are essential in combating rural poverty and boosting food security. Low-income rural households pool their resources together to form cooperatives with the goal of increasing income. Cooperatives combine various resources, including labor, credit, and information, to produce large quantities of goods, buy food, and meet other essential needs for their members (Inyang, 2024b; Liang, Ma & Liu, 2023). As such, they are crucial for promoting both long-term food security and the reduction of poverty (Tumenta *et al.*, 2021). As per the findings of Bosompem, Arhin, Arhin, and Amoah's (2024) report, agricultural cooperatives are crucial in aiding Cassava farming households as they offer resources, knowledge sharing, group marketing, and bargaining power. The persistent and severe poverty in Nigeria has prompted numerous governmental interventions, such as the National Poverty Eradication Program (2001) and others. Despite these efforts and Nigeria's considerable GDP, their impact has been limited. According to the report by Elem (2018), the country's low GDP per capita of \$1,109 contrasts sharply with developed nations, and the living

conditions for over 70% of the population, particularly rural farming households, continue to deteriorate. This paradox of poverty amid potential is aptly described as "Ants bearing the burden of an Elephant."

For cassava farming households in Akwa Ibom State, this often translates to a critical lack of capital for operations and inputs (Akpaeti, Okon & Archibong, 2023). However, empirical reports suggest that cooperative societies are a vital mechanism for ameliorating challenges such as lack of access to production resources by being members of cooperatives. Non-cooperative members may lack access to these resources which may in turn pose a threat on their poverty levels by making them impoverish due to low productivity because of lack of access to the production resources cooperatives provides. Farming households in cooperatives benefit from enhanced access to credit, inputs, and information, potentially leading to greater productivity (Akpaeti, Agom & Ekukpan, 2021). The study sought to examine the poverty status of cooperative and non-cooperative Cassava farming households by addressing the following objectives; describe the socio-economic characteristics of cooperative and non-cooperative cassava farming households in Akwa Ibom State; analyze and compare the poverty status of cooperative and non-cooperative cassava farming households in Akwa Ibom State; estimate the determinants of poverty of cooperative and non-cooperative cassava farming households in Akwa Ibom State.

Literature Review

Edike and Kainga (2024) assessed poverty status of cassava cooperative farming households in South-South, Nigeria. Utilizing a multi-stage sampling technique to select 300 members from Delta, Edo, and Akwa Ibom states. The majority of members fall within the 41-60 age range, which accounts for 66% of the total membership. There was also a higher representation of female members (58.33%) compared to male members (41.67%). However, majority (75.67%) of the cassava cooperative members were married while 51.67% of the farming households had been in a cooperative for 1-5 years. The relative poverty line was determined based on consumption

expenditure, and the Foster-Greer-Thorbecke (FGT) index was employed to assess poverty status. The results indicated that over one-third of members lived below the relative poverty line of ₦882.29, although the depth (8.52%) and severity (3.13%) of poverty were relatively low.

Akpaeti, Okon and Archibong (2023) assessed the determinants of income poverty of cassava farming households in the Uyo Agricultural Zone. Data were collected using a structured questionnaire. The data obtained were analysed using descriptive statistics, Foster Greer Thorbecke (FGT) and a probit regression model. The results showed that majority (72.1%) of the farming households were between the ages of 21-40 years with a mean age of 35 years. Marital status showed that there were slightly more single farming households (49.1%) than married (44.2%) or even those separated (3.0%). The result of probit regression showed that fertilizer use, net income, household size, participation in cassava farming, labour cost, access to credit and access to extension agents were the determinants of income poverty of cassava farming households in the study area.

Osuji (2019) assessed the determinants of Poverty Status of Cassava based farming households in Imo State, specifically; it examined the socio-economic characteristics of cassava farming households and assessed determinants of poverty status among cassava-based farming households in Imo state. The result showed that the mean age was 50 years, 67% of the respondents were women, 47% of the respondents attended secondary education, they have 25 years mean farming experience, the mean household size was 6 persons, 88% of the farming households are married, and they have mean farm size of 1.03 hectare. Findings revealed that education, household size, farm income and extension contact were the significant determinants of farming households poverty status.

Agunbiade and Oke (2019) examined the poverty status as well as analysed the factors affecting poverty profile of cassava farming households in Osun State. Primary data were obtained from 180 cassava farming households by multistage random sampling with the aid of well-structured

questionnaire and interview schedule. The data were analysed using descriptive statistics, Foster-Greer Thorbecke index and Tobit regression model. The results of descriptive statistics revealed that 85.6% of cassava farming households were males with majority (50.0%) between 31 and 50 years of age who were married (85.0%) with relatively large household members. The results also showed that 73.3% of them acquired farmland by inheritance and had formal education. The results of FGT analysis showed that poverty incidence was 28.9%, poverty depth was 5.3% and poverty severity was 1.5%.

Study Area

The study was conducted in Akwa Ibom State, which occupies part of the South- South region of Nigeria. It has a population of 6,444,440 and a total land mass of 6,900sq km (NPC, 2006). It is located between latitude 4^o 32¹ and 5^o 33¹ North and longitude 7^o 25¹ and 8^o 25¹ East of the Greenwich Meridian and comprises of 31 Local Government with Uyo as the State capital. The region is characterized by a bimodal rainfall regime, with annual precipitation ranging from 2000 to 3000 mm, and a mean temperature of 26–29°C. The language of the people include Efik, Annang, Ibibio, Oro, Ekid and Andoni. The occupation of the people includes farming, fishing, trading, hunting, wood-craving, raffia works, blacksmithing, pottery, iron works, arts and crafts creation. The main crops grown in the area include cassava, cocoyam, yam, maize, melon, okra and vegetables. Akwa Ibom State has six (6) Agricultural Zones namely, Oron, Abak, Ikot Ekpene, Etinan, Eket, and Uyo Agricultural Zones.

Sampling Technique

Multi-stage sampling technique was employed in the selection of the respondents for the study. In the first stage, three (3) agricultural zones were selected using simple random techniques. The second stage involved simple random selection of three (3) blocks from each of the selected agricultural zones. The third stage involved simple random selection of two (2) circles from each of the blocks earlier selected. Finally, ten (10) cooperative cassava farming households and ten (10) non cooperative cassava farming

households were selected from each circle, and this gave a sample size of 180 respondents. Cross sectional or primary data were collected using well-structured questionnaire. The data were obtained using a structured questionnaire.

The study used Cochran's (1963) formula to obtain representative sample from a large population of cooperative and non-cooperative cassava farming households in the study area. The equation is specified as thus:

$$S_n = \frac{z^2 P(1 - P)}{D^2} \dots \dots \dots (3.1)$$

Where:

- S_n is the required sample size;
 - Z is the 95% confidence interval (1.96);
 - P is the expected proportion of cooperative and non-cooperative cassava farming household in the study area (about 86%);
 - D is the absolute error or precision at 5% type 1 error.
- The sample size was obtained as shown in equation (3.2).

$$S_n = \frac{(1.96)^2 0.86 (1-0.86)}{(0.05)^2} = 185 \dots \dots \dots (3.2)$$

For ease of sampling, the calculated sample population was reduced to 180 respondents.

Analytical Techniques

Objective 1: Descriptive statistics such as means, percentages and frequency tables were employed to describe the socio-economic characteristics of the farming households in the study area.

It is expressed as;

$$X = \frac{\sum Fx}{N} \dots \dots \dots (3.3)$$

Where; X = mean; Σfx = sum of individual observation; N = sample size

Chi-square was used to test significance difference in the socio-economic characteristics between cooperative and non-cooperative farming household

$$X^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

Where; X² = Chi-square; O_i = Observed value; E_i = Expected value

Objective 2: The study computed a poverty line by using 2/3 of the Mean Per Capita Household Expenditure (MPCHHE) from household expenditures of the respondents in the study area. The poverty line was used as a benchmark to estimate the poverty status of cooperative and non-cooperative cassava farming households in the study area. Accordingly, farming households whose MPCHHE exceeded the poverty line were regarded as non-poor while those whose MPCHHE fell below the poverty line were regarded as poor. The category of poor farming household was dis-aggregated into moderate and core poor by using poverty line of the 1/3 of MPCHHE in its classification. In line with this poverty line, farming households with MPCHHE less than 1/3 of MPCHHE were regarded as core poor while those with MPCHHE of more than 1/3 of MPCHHE and less than 2/3 of MPCHHE were regarded as moderate poor.

Foster, Greer and Thorbecke Model

Having established the poverty line, the Foster, Greer and Thorbecke (FGT) (1984) model of poverty analysis was adopted.

The formula for FGT is presented as

$$P_\alpha = \frac{1}{n} \sum_{i=1}^q \left[\frac{z - y_i}{z} \right]^\alpha \dots \dots \dots (3.4)$$

Where;

- Z = poverty line for the households
- q = number of poor households
- n = total number of households in the population
- y_i = per capital household income
- α = poverty aversion parameter and takes on the values 0,1,2

The quality in the bracket $\left[\frac{z - y_i}{z} \right]^\alpha$ is the proportionate short fall in expenditure or income below the poverty line.

(i) If α is raised to 0 then the poverty index measured is the head count ratio or incidence of poverty.

When α = 0, then FGT index is expressed as:

$$P_0 = \frac{1}{n} \sum_{i=1}^q \left[\frac{z - y_i}{z} \right]^\alpha = \frac{1}{n} \sum_{i=1}^q \left[\frac{z - y_i}{z} \right]_0 \dots\dots (3.5)$$

(ii) If α is raised to 1 then the poverty index measured is the poverty gap ratio or intensity of poverty. This represents the proportion that the average poor will require to at least get to the poverty line.

When $\alpha = 1$, then FGT index is expressed as:

$$P_1 = \frac{1}{n} \sum_{i=1}^q \left[\frac{z - y_i}{z} \right]^\alpha = \frac{1}{n} \sum_{i=1}^q \left[\frac{z - y_i}{z} \right]_1 \dots\dots\dots (3.6)$$

(iii) If α is raised to 2 then the poverty index measured is the severity of poverty. The closer the value is to 1 the higher the seriousness of poverty.

When $\alpha = 2$, then FGT index is expressed as:

$$P_2 = \frac{1}{n} \sum_{i=1}^q \left[\frac{z - y_i}{z} \right]^\alpha = \frac{1}{n} \sum_{i=1}^q \left[\frac{z - y_i}{z} \right]_2 \dots\dots\dots (3.7)$$

In comparing poverty status between cooperative and non-cooperative cassava farming households, Z-test analysis was carried out.

Objective 3: A binary logistic regression model as used Agom *et al.* (2022) to examine the determinants of household poverty status was adopted. The logistic model is specified explicitly as:

$$Y = \ln\left(\frac{P_1}{1-P_1}\right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + e_i \dots\dots\dots (3.8)$$

Where;

P_1 = Non-Poor

$1 - P_1$ = Poor

X_1 = Age of cassava farming household heads (years)

X_2 = Household size of cassava farming household heads (measured by number of persons in a household)

X_3 = Level of education of cassava farming household heads (measured by years spent in school)

X_4 = Income (₦)

X_5 = Farm size (hectares)

X_6 = Marital Status (dummy, where 1 = if married, and 0 = otherwise.)

X_7 = Farming experience (years)

Results and Discussion

Socioeconomic characteristics of cooperative and non-cooperative cassava farming households

The socio-economic characteristics of the cassava farming households as shown in Table 1 reveal key insights into their demographic and economic profiles, with implications for household poverty status. Across both cooperative and non-cooperative groups, female farming households constituted the majority (71.10% and 71.70%, respectively), a finding consistent with previous studies on cassava production (Aniekan, Damian & Sylvia, 2023; Hoa, Hoi, Ngoc & Nha, 2023; Ironkwe, Mbanaso & Ezebuoro, 2023; Awotona, Oladimeji & Damisa, 2022; Amadi, Ezeh & Okoye, 2019) who reported that females dominated c. Furthermore, most farming households in both cooperative (67.20%) and non-cooperative (71.70%) settings were within the active age range of 30-60 years, with average ages of 46 and 45 years, respectively. This aligns with findings by Akpaeti and Agom (2023) and implies that farming households possess the physical and mental capabilities necessary for effective agricultural production decisions. No significant difference in age distribution was observed between the groups.

Based on marital status, most cassava farming households in both cooperative (53.90%) and non-cooperative (61.70%) groups were married, the result aligned with the findings Edike and Kainga (2024) who reported that majority (75.67%) of the cassava cooperative members were married. Educational attainment, a critical factor for adopting new technologies and enhancing farm management, showed that most farming households in both groups had primary education (50.00% for cooperators, 71.10% for

non-cooperators). Although no statistically significant difference in educational levels was found overall, cooperative members exhibited a

notably higher percentage of tertiary education (14.40%) compared to non-cooperators (3.30%).

Table 1: Socio-economic characteristics of Respondents in the Study Area

Variables	Cassava Cooperators		Cassava Non-cooperators		Chi-Square Statistics
	F (n=180)	%	F(n=180)	%	
Gender					
Male	52	28.90	51	28.30	
Female	128	71.10	129	71.70	
Age (years)					
< 30	25	13.90	21	11.60	0.000
30 – 60	121	67.20	129	71.70	
> 60	34	18.90	30	16.70	
Mean ±SD	46.00±15.50		45.00±14.60		
Marital Status					
Single	6	3.30	50	27.80	
Married	97	53.90	111	61.70	
Divorced	52	28.90	9	5.00	
Widow	25	13.90	10	5.60	
Education					
Primary	90	50.00	128	71.10	0.996
Secondary	64	35.60	46	25.60	
Tertiary	26	14.40	6	3.30	
Household Size (persons)					
< 4	28	15.60	26	14.40	0.000
4 – 8	145	80.60	146	81.10	
> 8	7	3.80	8	4.50	
Mean ±SD	5±1.60		5.00±1.70		
Income (₦)					
< 80,000	28	15.60	30	16.70	0.000
80,000 – 160,000	126	70.00	134	74.40	
> 160,000	26	14.40	16	8.90	
Mean ±SD	122,439.30 ±43,336.30		116,526.00±39,409.60		
Farming Experience (years)					
< 8	17	0.40	123	68.30	0.281
8 – 16	63	35.00	51	28.30	
> 16	100	55.60	6	3.40	
Mean ±SD	15.90±5.30		6.70±4.00		
Farm Size (hectares)					
< 2	41	22.80	83	46.10	0.008
2 – 3	137	76.10	95	52.80	
> 3	2	1.10	2	1.10	
Mean ±SD	2.30±0.80		1.70±0.80		

Source: Field Survey, 2025. Note: F – Frequency, % - Percentage

This suggests that cooperatives might attract or benefit more from educated farming households, potentially leading to better access and utilization of modern farming practices and market opportunities that enhance household income and reduce poverty (Akpaeti et al., 2021). Most farming households in both cooperative (80.60%) and non-cooperative (81.10%) settings have household sizes ranging from 4 to 8 persons, averaging 5 persons. The significant difference as shown by the chi-square test could indicate varying labor dynamics and consumption demands, directly impacting household poverty situation. Economically, cooperative members demonstrated a statistically significant higher average income (₦122,439.30) compared to non-cooperators (₦116,526.00). Cooperators also showed a greater representation in the middle and high-income brackets, suggesting a tangible economic benefit of cooperative membership. This financial advantage, potentially stemming from improved market access, bulk purchasing, or shared knowledge, directly enhances the purchasing power and resilience of cooperative households, thereby reducing their poverty (Ige & Ojo, 2024; Akpaeti et al., 2021; Ahado, Hejkrlik, Enkhtur, Tseren, & Raterger, 2021; Mojo, Fischer & Degefa, 2017).

Farming experience, while not statistically different in its overall distribution, revealed a notable disparity in mean experience, with cooperators possessing significantly more years of farming experience (15.90 ± 5.30 years) compared to non-cooperators (6.70 ± 4.00 years). This suggests that more experienced farming households may be inclined to join or benefit from cooperatives (Ahado et al., 2021), leveraging their expertise for better decision-making and risk management, which are vital for consistent food production. Concurrently, farm size, a key determinant of agricultural productivity and income, was significantly larger for cooperative members (average 2.3 hectares) than for non-cooperators (average 1.7 hectares). This larger farm size among cooperators indicates that collective action may facilitate the cultivation of greater areas, leading to higher overall production and, consequently, reducing household poverty (Akpaeti & Agom, 2021; Guttmann, 2021).

Poverty Status of Cooperative and Non-Cooperative Cassava Farming Households

Farming households in the study area were profiled into non-poor and moderate poor groups based on their per capita household expenditure. The poverty status was analyzed by computing the poverty line ($2/3$ Mean Per Capita Household Expenditure ($2/3$ MPCHHE)) of both cooperators and non-cooperators in the study area, as shown in Table 2. Cooperative and non-cooperative cassava farming households whose per capita household expenditure (PCHHE) was below $2/3$ MPCHHE were considered non-poor while the poor households were further disaggregated into moderate poor and core poor using $1/3$ MPCHHE as the poverty line. The result showed that none of the farming households had per capita household expenditure below $1/3$ MPCHHE. The poverty line computed for cooperators and non-cooperators were ₦52,454.44 and ₦52,521.16, respectively. The result shows non-poor (93.89% and 68.89%) and moderate poor (6.11% and 31.11%) of cassava cooperative farming households and cassava non-cooperative farming households, respectively. Based on the result of Z-test analysis, there is no statistically significant difference in the proportion of moderately poor individuals between cassava cooperators and non-cooperators based on this Z-test. The finding corroborated with the results of Okafor, Nwaru and Udokure (2024), and Edike and Kainga (2024) who reported that cooperatives often serve as platforms for disseminating information on improved farming techniques, post-harvest management, and business skills.

The head count ratio indicates the proportion of the population below the poverty line. It is substantially lower for cooperators (0.0909 or 9.09%) compared to non-cooperators (0.3179 or 31.79%). This aligns with the frequency distribution, showing a lower incidence of poverty among cooperators. This substantial difference strongly suggests that membership of Cassava cooperatives is associated with a significant reduction in the likelihood of being poor. The cooperative structure appears to provide a protective effect against falling below the poverty line for its members. Income gap ratio measures the average income shortfall of the poor

as a proportion of the poverty line. It is slightly higher for cooperators (0.7156) than for non-cooperators (0.6472). This suggests that, on average, those cooperators who are poor have a slightly larger gap between their income and the poverty line compared to the poor non-cooperators. The severity of poverty index takes

into account not only the incidence and depth of poverty but also the inequality among the poor. It is considerably lower for cooperators (5.6337) compared to non-cooperators (23.4570). This indicates that poverty is not only less prevalent among cooperators but also less severe and less unequal among those who are poor.

Table 2: Poverty Status of the Respondents in the Study Area

Poverty Status	Cassava Cooperators		Cassava non-cooperators		Z-test
	Frequency	Percentage	Frequency	Percentage	
Moderate Poor	11	6.11	56	31.11	0.8526
Non-Poor	169	93.89	124	68.89	
<i>Statistics</i>					
Head Count Ratio	0.0909		0.0179		
Income Gap Ratio	0.7156		0.6472		
Severity of Poverty	5.6337		23.4570		
MPCFHHE	78,681.66		78,781.75		
2/3MPCFHHE	52,454.44		52,521.16		
1/3MPCFHHE	26,260.58		26,260.58		

Source: Field Survey, 2025.

Key: MPCFHHE – Mean Per Capita Household Expenditure

Determinants of Poverty Status Among Cooperative Cassava Farming Households

Table 3 present the maximum likelihood (-20.285167) and (-54.146609) estimates of the logit model described in equation 3.8. and 3.10, respectively. The Pseudo R-square of 0.51 implies that all the explanatory variables included in the model were able to explain 51% of the variation in the log-odds of poverty status. This is a moderately good fit for a logit model. The log-likelihood ratio (LR) test is significant at one per cent meaning that the model is adequate in explaining the probability of the effect of the explanatory variables on household poverty status. Findings revealed that of the seven (7) variables that were included in the model, two (2) variables impacted significantly on poverty incidence. These were marital status and farming experience.

The empirical result revealed that the odds ratio (5.795) of marital status of farming households was statistically significant at the 5% level. Marital status is a significant determinant of poverty. Marriage often signifies a pooling of labor resources for farm work and shared financial management (Pierotti et al., 2022). Non-married individuals (single, divorced, widowed)

might have less access to consistent labor for farming activities, potentially leading to lower productivity and income. They also lack the benefit of combining financial resources, making them more vulnerable to economic shocks.

The odds (1.965) of farming experience of the farming households head were statistically significant at the 1% level. The implication is that, for every one-year increase in farming experience of the household head, the odds of the household being poor among cooperative members almost double (increase by a factor of 1.965). According to Lim (2024), more experienced cooperative farming households are significantly more likely to be poor due to resistance to change.

The regression result for non-cooperative members showed pseudo R-square of 0.51, implying that all the explanatory variables included in the model were able to explain 51% of the variation in the log-odds of poverty status. This is a moderately good fit for a logit model. The log-likelihood ratio (LR) test is significant at one per cent meaning that the model is adequate in explaining the probability of the effect of the explanatory variables on household poverty status. Findings revealed that of the seven (7)

variables that were included in the model, two (2) variables impacted significantly on poverty incidence. These were age and farm size.

The empirical result revealed that the odds ratio (0.965) of age of the farming households head was statistically significant at the 10% level. The implication is that, for every one-year increase in the age of the household head, the odds of the household being poor among non-cooperative farming households decrease by a factor of 0.965 (or by 3.5%). This suggests that older non-cooperative farming households heads are slightly less likely to be poor. It might suggest that while older farming households head might

face challenges in productivity, they might have accumulated assets or social safety nets that buffer against falling into poverty.

The odds (0.240) of farm size of the farming households were statistically significant at the 1% level. The implication is that, for every one-hectare increase in farm size, the odds of a non-cooperative household being poor decrease significantly by a factor of 0.240 (meaning their odds are reduced to only 24% of the original odds). This indicates a strong negative relationship between farm size and poverty among non-cooperative farming households.

Table 3. Estimate of the Logit Model for the Determinants of Poverty Status Among Cooperative and Non-Cooperative Cassava Farming Households in the Study Area

Variables	Cooperative Membership				Non-Cooperative Membership				
	Odds Ratio	Std. Err.	Z	P-Values	Odds Ratio	Std. Err.	Z	P-Values	
Age	0.9455453	0.0401533	-1.32	0.187	0.9653128	0.0191029	-1.78	0.074*	
HHS	1.274846	0.3728782	0.83	0.406	0.8919349	0.135355	-0.75	0.451	
EDU	1.025922	0.1118481	0.23	0.814	1.237661	0.17806	1.48	0.138	
INC	0.9999982	0.0000113	-0.16	0.874	1	6.56e-06	0.02	0.987	
FMS	1.488875	0.8823469	0.67	0.502	0.2404896	0.0543928	-6.30	0.000***	
MAS	5.794699	4.852013	2.10	0.036**	0.8284699	0.2910493	-0.54	0.592	
FEX	1.965012	0.4132484	3.21	0.001***	0.9062281	0.0619794	-1.44	0.150	
CONST	0.0004236	0.0017525	-1.88	0.060***	786.2024	1298.631	4.04	0.000***	
Diagnostic statistics					Diagnostic statistics				
Number of obs = 180 Prob > chi ² = 0.0000					Number of obs = 180 Prob > chi ² = 0.0000				
LR chi ² (7) = 42.23 Pseudo R ² = 0.5100					LR chi ² (7) = 114.90 Pseudo R ² = 0.5148				
Log likelihood = -20.285167					Log likelihood = -54.146609				

Source: Field Survey Data. Computed Using Stata64.

***, * means 1% and 10% probability level of significance, respectively.

HHS- Household size, EDU- Education, INC – Income, FMS – Farm size, MAS – Marital status, FEX – Farming Experience, CONST – Constant

Conclusion

This study concludes that cooperative membership plays a significant role in mitigating poverty among Cassava farming households in Akwa Ibom State. While both cooperative and non-cooperative farming households share similar demographic profiles, cooperators exhibit superior economic outcomes, including significantly higher incomes, larger farm sizes, and a drastically lower poverty incidence compared to non-cooperators. The determinants of poverty also differ for cooperators, marital status and farming experience are key factors,

whereas for non-cooperators, age and, most critically, farm size are the primary determinants. This underscores that cooperatives provides a crucial buffer against poverty, but the pathways out of poverty are distinct for each group.

Recommendations

The following recommendations are suggested based on the findings;

1. Cassava farming households should seek to join existing cooperatives or form new ones to benefit from collective bargaining, shared resources, and improved market access. This study

clearly shows that cooperative membership is linked to higher incomes, larger farm sizes, and a significantly lower likelihood of being poor.

2. Non-cooperative farming households should prioritize strategies to increase

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