



DETERMINANTS OF POVERTY STATUS AMONG CASSAVA COOPERATIVE FARMERS IN SOUTH-SOUTH, NIGERIA

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Abstract

This study investigated the determinants of poverty status among cassava cooperative farmers in South-South Nigeria. The specific objectives were to describe the socio-economic characteristics of cassava cooperative farmers in South-South, Nigeria; establish a poverty line among the cassava cooperative farmers; analyze the poverty status of the cassava cooperative farmers; and assess the poverty indicators as it relates to cassava cooperative farmers. The research adopted a multi-stage sampling technique to select 300 cassava cooperative farmers across Delta, Edo, and Akwa Ibom states. Descriptive statistics, the Foster-Greer-Thorbecke (FGT) poverty index, and binomial logit regression were employed to analyze data collected through structured questionnaires. The findings showed that the majority of cooperative members are were above 41 years old, with a significant proportion being female. Marital status and household size also significantly influence cooperative membership. The average per capita expenditure (PCE) among the farmers is ₦1,323.44 per day, with a relative poverty line established at ₦882.29. Approximately 35.67% of the cooperative members live below this poverty line. The poverty gap and severity indexes indicate a moderate level of poverty intensity and inequality. The binomial logit regression analysis identified key determinants of poverty status, including sex, marital status, years in the cooperative, household size, age, education level, and primary occupation. Notably, male members are more likely to be poor compared to their female counterparts. The study concludes that while cooperatives provide some benefits, such as resource sharing and collective action, additional measures are necessary to effectively combat poverty and improve the livelihoods of cassava cooperative farmers in the region.

Keywords: Poverty, cassava cooperative farmers, South-South Nigeria, Foster-Greer-Thorbecke (FGT) index, binomial logit regression, socioeconomic determinants

INTRODUCTION

Poverty, which can be considered as the inability to afford basic human needs and necessities of life (food, clothing, shelter, security, education, etc.), is a global challenge. Nigeria was still recovering from its 2016 economic recession when another recession hit in 2020 due to the effect of the COVID-19 pandemic which could derail economic recovery. There is possibility that the lingering effect of the 2020 recession and covid-19 as well as the recent continuous depreciation of the naira may impact on household welfare and exacerbated poverty and vulnerability in the country. According to World Bank (2001), Poverty is pronounced deprivation in wellbeing and it is multi-dimensional. The dimension include inability to acquire the basic goods and services for necessary survival as well as low income, poor access to clean water and sanitation, low level of health and education, lack of voice, insufficient capacity to make life better and inadequate security. Poverty in its most extreme form is a lack of human basic needs such as nutritious food, housing, clothing, health services and clean water. Extreme poverty can cause terrible suffering and death, and even modest level of

poverty can limit the actualization of one's desire (Ayoade and Adeola, 2012).

The incidence of multidimensional poverty index and the incidence of monetary poverty respectively in the South-South States as reported by Nigerian Bureau of Statistics (NBS), (2022) are; Edo State (35.4% and 12%), Delta State (47.6% and 6%), Bayelsa State (88.5% and 22.6%), Rivers State (62.4% and 23.9%), Akwa Ibom (71.3% and 26.8%) and Cross River State (75.4% and 36.3%). Also, the NBS (2022) report revealed that the three states with the highest rate of people who are multi-dimensionally poor and deprived in unemployment are in the south-south part of the country and they are Bayelsa State (55.8%), Rivers State (38.6%) and Cross River State (36.4%). The report further highlighted that more than one out of five Nigerians (15.9%) are multi-dimensionally poor and affected by unemployment; a household is deprived if at least one household member aged 15years and above is working fewer than 40hours per week but is available and willing to do extra hours of work. One in seven Nigerians are multi-dimensionally poor and live in a household where at least one person is unemployed NBS, (2022).

In 2023 nearly 12% of the world population in extreme poverty live in Nigeria, considering the poverty threshold at 1.90 US dollar per day while the number of people living in extreme poverty in Africa was estimated to reach 422million in 2025 (NBS, 2022). According to the National Bureau of Statistic, Nigeria with the population of over 200 million people is the most populous country in the African continent and the seventh largest in the world. The United Nations forecast that the population will double by 2050 to become the third largest populous country in the world (United Nations, 2019). Given Nigeria's growth potentials and size, the need to improve and safeguard the lives of its citizens is very significant.

Cooperative as described by the International Cooperative Alliance (ICA) is an autonomous association of persons who are united voluntarily to meet their shared social, cultural and economic needs and aspirations through a democratically controlled and jointly owned enterprise (ICA, 1995). These autonomous associations of individuals have collaborative conduct with a fundamental economic purpose of vertical integration and surmounting scale discrepancies that will typically exist between the farm sector and the upstream or downstream industries (Sexton, 1988). These self-governed association of persons bring to the fore the reason most group of people like the farmers join cooperatives. Across the globe, the cooperative sector is regarded as a dependable organization which is significantly contributing to the global economy. The cooperative sector was valued at about \$2.5trillion annually, of which agriculture and food processing contribute about 32-33% (ICA, 2017).

The major roles of cassava in food economy and its ability to withstand drought and do well in poor soils makes it an all-important food and cash crop which has the capacity to reduce poverty Owusu, (2012). However, the rural dwellers who are the main cultivators of cassava are still largely poverty stricken. This is in agreement with the report of Adekoya, (2014) that 65% of people who are poor live in rural areas and are predominantly peasant farmers. It also agrees with the report of NBS, (2012) that poverty is mostly severe among the rural dwellers where more than 80% of the population lives below the poverty line. Since rural people have been posited to be more vulnerable to poverty and in the south-south states of Nigeria the rural dwellers are predominantly cassava farmers and cooperative society has to do with people of like minds coming together and pooling their resources for uplifting or improving in their welfare, as is the case with cassava cooperative farmers who voluntarily pool resources together with the aim of enhancing their productivity.

Irrespective of all efforts of the government, international bodies and other non-government agencies coupled with the role cassava production play in poverty alleviation, Nigeria still have record of more than two-third of its populace ascribed as being poor. Several studies has been done on poverty status of cassava farmers for instance Osuji, (2019) worked on Determinant of Poverty Status of Cassava-based farmers in Imo State, Nigeria, Babatunde, Salami and Adeboye,(2016) studied Poverty Among Cassava Farmers in Oyo State, Nigeria. Adie, Dibah and Luka, (2022) studied Contributions of Agricultural Cooperative in South-South Nigeria. Akerele (2016) worked on Effects of Cooperative Credit on Cassava Production in Yewa Division, Ogun State. While Nzenwa and Oboh (2005) carried out a research on Household's Endowment on Poverty among farmers in Benue State, Nigeria. However, not much work has been done considering cassava cooperative farmers in relation to the determinant of their poverty status in South-South states of Nigeria; hence, this study. Specifically, the objectives included to describe the socio-economic characteristics of cassava cooperative farmers in South-South, Nigeria; establish a poverty line among the cassava cooperative farmers; analyze the poverty status of the cassava cooperative farmers; and assess the poverty indicators as it relates to cassava cooperative farmers.

METHODOLOGY

This study was carried out in the South-South of Nigeria. The South-South comprises of six (6) states namely Akwa Ibom, Bayelsa, Cross-River, Delta, Edo and Rivers. Edo State has its location in the heart of the tropical rainforest and it lies between longitude 50 East and 60 42'' and latitude 50 45'' North and 70 35'' North of the equator.

Edo State is bounded by Delta state to the South, Ondo state to the West, Anambra States to the East, and Kogi State to the North. The total land area of Edo State is 19,559.00 square kilometers. Delta State approximately lies between longitudes 50 00'' and 60 45'' East of the Greenwich meridian and latitude 50 00''and 60 30'' North of the Equator. The state is bounded by Edo State to the North, Anambra State to the East, Edo State to the West and Bayelsa State to the South.

Delta state has a land mass of 18,050 square kilometers and has a wide coastal belt interlaced with rivers and streams which form part of the Niger Delta region (Delta State Ministry of Agriculture and Natural Resources, 2010) with a population of 5,636,100 (National Population Commission, 2022).

Bayelsa State is bounded by Delta State to the north across the River Niger for 17km and Forcados River for 198km, with the waters of the Atlantic Ocean dominating its southern borders and shares boundary with Rivers State to the east. Bayelsa State has a total area of 10,773 square kilometers with a total of eight (8) local government areas namely Ekeremor, Yenagoa, Ogbia, Nembe, Southern Ijaw, Brass, Kolokuma/Opokuma and Sagbama.

The third state, Rivers State has boundary with Imo State to the North, Bayelsa and Delta States to the West and Akwa Ibom and Abia states to the East. Port-Harcourt is the capital of Rivers State. The capital is a metropolis and can be classified as the commercial center of the Nigerian oil industry. Rivers State has a total area of 11,077 square kilometers and it is a home to diverse ethnic groups which include; Ogoni, Ijaw, Ogba, Ikwerre, Etche and Ekpeye. Rivers State is particularly distinct and known for its linguistic diversity.

Meanwhile, Cross River State has a boundary to the north with Benue State, it is bordered to the southwest with Akwa Ibom State, to the West

through Ebonyi State and Abia States and to the East with Cameroon. It was originally known as the South-Eastern State before it was renamed in 1976.

Akwa Ibom State which became a separate state in 1987 was formally part of Cross River State. Cross River State has a population of 3,737,517 but National Population Commission 2022 projection, projected Cross River State to have a population of 4,406,200. The state has an area of 20, 156 square meters being the nineteenth largest state out of the 36 states in Nigeria and the 27th most popular state in the country. Finally Akwa Ibom has boundary on the East with Cross River State, in the West with Abia and Rivers States and in the south with the Atlantic Oceans. The name of the state was taken from the Qua Iboe River which bisects the state before flowing into the Bright of bonny. The location of Akwa Ibom State in Nigeria coordinate is 50°00'' North and 70°50'' East. Akwa Ibom is the 30th largest in area and the 15th most popular state out of the 36 states in Nigeria's. Akwa Ibom State is geographically divided between the Central African mangroves in the coastal extreme south and the Cross-Niger transition forests (NBS, 2022).



Figure 1: Map of South-South States of Nigeria.
Source: National Bureau of Statistics, 2022.

The study population comprises of all cassava cooperative farmers in the six South-South States of Nigeria which include Edo, Delta, Bayelsa State, Rivers, Akwa Ibom and Cross-River. A multi stage sampling procedure was adopted for this study. The first stage was simple random sampling of 50% of the states that is three (3) States (Delta, Edo and

Akwa Ibom) in South-South. The second stage was random selection of ten (10) cassava cooperative societies from the list of cassava cooperative farmers societies that are registered with the state's Ministry of Industry, Business, Trade, Investment and Cooperatives; which are saddled with the responsibility of registration of cooperative societies

in the states and we obtained a total of thirty (30) cassava cooperative farmers societies which constituted the sampling frame. The third and last stage was simple random sampling of ten (10) cassava cooperative farmers (members) from the list of each of the 30 cassava cooperative societies that were selected in the second stage (sampling frame) and we sampled a total of 300 cassava cooperative farmers (members). Structured questionnaire was used for the generation of primary data with the use of interview schedule that was conducted by our research team and enumerators who were fluent in the use of English language and the local dialects of the cassava cooperative farmers in the various South-South States of Nigeria. Meanwhile, Descriptive statistics such as frequency counts, means, standard deviations and percentages was used in this study to describe analyze the socio-economic characteristics of cassava cooperative farmers.

The Foster-Greer-Thorbecke (FGT) index of poverty was used to analyze the poverty status of the cassava cooperative farmers (Igbalajobi, Fatuase, and Ajiberfun, 2013 and Adekoya, 2014).

The model is given as

$$P_{\alpha} = \frac{1}{N} \sum_{i=1}^H \left(\frac{Y_p - Y_i}{Y_p} \right)^{\alpha} \quad (1)$$

Where

Y_p = poverty line

N = total number of respondents

Y_i = expenditure of the poor household

α = poverty aversion parameter that takes a value of 0, if $\alpha = 0$, 1, if $\alpha = 1$ or 2, if $\alpha = 2$

P_{α} = Foster-Greer-Thorbecke Index (FGT), ($0 \leq P_{\alpha} \leq 1$)

To determine the poverty index

When $\alpha = 0$, the expression becomes the headcount index which measure the proportion of the population that falls below the poverty line. It is given as

$$P_0 = \frac{H}{N} \quad (2)$$

Where:

P_0 = Headcount index

H = Number Household below poverty line

N = Total number of households

When $\alpha = 1$ in FGT, the expression becomes

$$P_1 = \frac{1}{2} \sum_{i=1}^H \left(\frac{Y_p - Y_i}{Y_p} \right) \quad (3)$$

This is known as poverty depth or poverty gap which means the extent to which individual fall below the poverty line as a proportion of the poverty line.

When $\alpha = 2$, the expression becomes

$$P_2 = \frac{1}{N} \sum_{i=1}^H \left(\frac{Y_p - Y_i}{Y_p} \right)^2 \quad (4)$$

This is called poverty severity. It shows the impact of measured poverty if a given income by a poor person increases in proportion to the distance of the person from the poverty line.

Determinant of poverty status was tested using the binomial logit regression model. The mathematical model is implicitly specified as:

$$P(Y = 1/X_i) = \beta_0 + \beta_1 X_1 \dots \beta_n X_n + e \quad (5)$$

The model is explicitly specified as

$$\ln [P/(1-P)] = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + e \quad (6)$$

Where:

Logit (P) = probability of being poor, P(P/1-P) is simply the odd ratio in favor of poor (poor = 1, non-poor = 0),

1-P = the probability of being non-poor

β = coefficients to be estimated

X_i = the independent variables

X_1 = sex of respondents (male = 1, female = 0)

X_2 = age (in years)

X_3 = marital status (married = 1, otherwise = 0)

X_4 = household size (number)

X_5 = farming experience (years)

X_6 = educational level (educated = 1, not educated = 0)

RESULTS AND DISCUSSION

Socio-Economic Characteristics of Cassava Cooperative Members

Results in Table 1 revealed that the mean age across all three states was 53 years with no members below 31 years old. This implies that older and middle-aged people are more likely to be involved in cassava cooperatives. Akwa-Ibom (53.62), Delta (53.28), and Edo (52.72) have relatively similar mean ages, suggesting that the states have a similar age distribution. This consistency shows that the demographic issues cooperatives face—like luring in new members—are prevalent throughout the area. The result suggests that perks and cooperative activities may be more geared toward senior members, thus excluding younger groups who could infuse the industry with fresh ideas and vitality. The sustainability of cassava cooperatives is significantly impacted by the bias towards an older membership. The ability of senior members to continue actively participating may deteriorate with age, thereby undermining the cooperative framework. Ogunleye and Oladejo (2016) stress that in order to maintain the viability and vitality of agricultural cooperatives, initiatives for including younger farmers are imperative. Likewise, the paucity of participants in the age range of 21 to 30 implies that there aren't enough young farmers in cassava cooperatives. This may suggest obstacles to entry for younger people or a lack of enthusiasm for youth agricultural cooperatives. Research, like that conducted by Anyanwu et al. (2013), has shown that younger people frequently move to cities in quest of

better prospects, leaving older people in charge of agricultural operations.

In addition, there was a greater percentage of female members (58.33 percent) than male members (41.67 percent). The higher proportion of female members in cassava cooperatives is consistent with larger patterns in Nigeria, where women make up a sizable share of the labor force employed in agriculture. Women make up between 60 and 80 percent of the labor force in the food production industry, according to the FAO (2011). In a similar vein, Odebode (2012) observed that the majority of women in cassava cooperatives points to important

socio-economic advantages because women's involvement in cooperatives can increase household income and food security because they give access to markets, resources, and training.

Regarding marital status, the majority of members of the cassava cooperative (75.67%) were married, whereas 2. percent were divorced, 10.33 percent were separated from their spouse, and 12 percent were widowed. It is possible that the majority of married members in cassava cooperatives are a reflection of the social and economic stability that comes with marriage.

Table 1: Socio-economic characteristics of cassava corporative members

Characteristics	Akwa-Ibom		Delta		Edo		Total	
	Freq	%	Freq	%	Freq	%	Freq	%
Age (Years)								
31-40	8	2.67	10	3.33	8	2.67	26	8.67
41-50	33	11.00	38	12.67	34	11.33	105	35.00
51-60	32	10.67	27	9.00	34	11.33	93	31.00
>60	27	9.00	25	8.33	24	8.00	76	25.33
Total	100	33.33	100	33.33	100	33.33	300	100.00
Mean	53.62		53.28		52.72		53.21	
Minimum	38		38		38		38	
Maximum	79		79		79		79	
Sex								
Male	38	12.67	42	14.00	45	15.00	125	41.67
Female	62	20.67	58	19.33	55	18.33	175	58.33
Total	100	33.33	100	33.33	100	33.33	300	100.00
Marital Status								
Married	74	24.67	80	26.67	73	24.33	227	75.67
Single	2	0.67	2	0.67	2	0.67	6	2.00
Separated/Divorced	5	1.67	4	1.33	22	7.33	31	10.33
Widowed	19	6.33	14	4.67	3	1.00	36	12.00
Total	100	33.33	100	33.33	100	33.33	300	100.00
Duration of Cooperative Membership (Years)								
1-5	52	17.33	49	16.33	54	18.00	155	51.67
6-10	29	9.67	38	12.67	24	8.00	91	30.33
11-15	10	3.33	11	3.67	11	3.67	32	10.67
16-20	6	2.00	2	0.67	8	2.67	16	5.33
>20	3	1.00	0	0.00	3	1.00	6	2.00
Total	100	33.33	100	33.33	100	33.33	300	100.00
Mean	7.88		7.09		8.02		7.66	
Minimum	4		2		2		2	
Maximum	26		18		26		26	
Household Size								
1-4	53	17.67	44	14.67	42	14.00	139	46.33
5-8	38	12.67	44	14.67	38	12.67	120	40.00
9-12	6	2.00	4	1.33	14	4.67	24	8.00
>12	3	1.00	8	2.67	6	2.00	17	5.67
Total	100	33.33	100	33.33	100	33.33	300	100.00
Mean	5.49		6.02		6.48		6.00	
Minimum	2		2		1		1	
Maximum	18		18		18		18	
Primary Occupation								
Cassava Farming	88	29.33	85	28.33	73	24.33	246	82.00
Other occupation	12	4.00	15	5.00	27	9.00	54	18.00

All three states have a high percentage of married population, but Delta has the most at 26.67 percent, followed by Edo and Akwa-Ibom at 24.67 percent and 24.33 percent respectively. Compared to Akwa-Ibom (1.67 percent) and Delta, Edo (7.33 percent) has a significantly greater number of separated/divorced members (1.33 percent). Ovwigho and Ifie's (2012) study found that married farmers are more likely to be involved in cooperative organizations because they share duties and work together to complete farming tasks. Married people frequently have easier access to labor and resources, which might improve their involvement in cooperative activities. On the other hand, the very large percentage of widowed members (12.00 percent) suggests that single-headed households are a noticeable feature of the cooperatives. In agriculture, widows frequently have particular difficulties such as restricted access to resources and land. The FAO emphasizes that their membership in cooperatives can give them access to resources and the help they need (2018).

Furthermore, most of the farmers had been members of a cooperative for one to five years (51.67 percent). 51.67 percent of members have been in the cooperative for one to five years, which is a significant ratio that suggests relatively recent involvement. The average membership term of 7.66 years shows that cooperatives have done a fair job of keeping members.

The majority of households (46.33 percent) are made up of 1-4 people, followed by households with 5-8 members (40.00 percent), and the average household size is six people, according to the distribution of household sizes among cassava cooperative members. The high proportion of members with smaller households (1-4 people) implies that cooperative activities are more common in smaller families. This might be because there is less work to be done around the house, which gives everyone more time to engage in group activities.

Smaller households tend to have higher participation rates in agricultural cooperatives because members can devote more time and resources to cooperative operations, according to Ogunlela and Mukhtar (2017).

Lastly, the majority of members say that growing cassava is their main source of income (82%). This illustrates how vital cassava is to Nigeria as a staple crop and how these people depend on cassava farming for a living. The importance of cassava as a major vocation is consistent with research by Omoregbee and Ajayi (2014), who highlight the crop's critical significance in rural Nigerian communities' efforts to generate cash and ensure food security.

Per-Capita Expenditure (PCE) Per Day and Relative Poverty Line

Table 2 shows the PCE and Relative Poverty Line for the cooperative cassava farmers. The results showed that the cassava farmers spent an average of ₦1,323.44 per day per person. Particularly, 47.33 percent of the study's cassava growers spend less than ₦1,000 a day. According to Adepoju and Yusuf (2012), subsistence living is typical in these communities in Nigeria and there is a significant incidence of low income levels in Nigeria. A further forty-one percent of members spend between ₦1,000 and ₦2,000. This group can satisfy their basic necessities, but they still have financial difficulties, which is consistent with findings made by Alabi, Oviasogie, and Yusuf (2018) about the financial difficulties faced by rural households. Better economic stability is indicated by the fact that only a tiny portion of members—11.67 percent—spend more than ₦2,000 every day. This validates the results of Afolabi (2020), who pointed out that higher income rural households typically have better living conditions and can buy more than the bare needs. States have different mean PCEs; Delta has the lowest mean PCE (₦1,282.25), and Edo has the highest mean PCE (₦1,363.73).

Table 2: Relative poverty line and distribution of cassava cooperative members according to per capita expenditure per day

Per Capita Expenditure (PCE)/day (₦)	Akwa-Ibom		Delta		Edo		Total	
	Freq	%	Freq	%	Freq	%	Freq	%
<1,000	51	17.00	44	14.67	47	15.67	142	47.33
1,001-2,000	36	12.00	48	16.00	39	13.00	123	41.00
2,001-3,000	10	3.33	4	1.33	10	3.33	24	8.00
3,001-4,000	0	0.00	2	0.67	0	0.00	2	0.67
>4,000	3	1.00	2	0.67	4	1.33	9	3.00
Total	100	33.33	100	33.33	100	33.33	300	100.00
Mean PCE	1,324.33		1,282.25		1,363.73		1,323.44	
Minimum	257.14		321.43		228.06		228.06	
Maximum	6,357.14		6,303.57		6,081.25		6,357.14	
Relative Poverty Line (Zi)=2/3(MPCE)							882.29	

Source: Data Analysis, 2024

The relative poverty level is set at ₦882.29. The total mean PCE is ₦1,323.44. At the \$1 to ₦1,504.50 exchange rate of July 2024, this is approximately \$0.59. Notably, the study's cassava growers' relative poverty line is 69.11 percent lower than the \$1.90 (or ₦2,858.55 at the current exchange rate) World Bank absolute poverty standard (World Bank, 2020). This implies that a significant percentage of members are below this poverty line, supporting the research done 2015 by Ozughalu and Ogwumike, (2015) who found that high rates of poverty were present in some Nigerian communities. In contrast, research like that conducted by Akinlo and Akinbobola (2019) contends that rural cooperatives frequently improve members' access to resources and financial services, which may eventually result in increased PCE.

Poverty Status of Cassava Cooperative Farmers

Table 3 displays the outcome of the Foster-Greer-Thorbecke (FGT) poverty indexes. Akwa-Ibom, Delta, and Edo had poverty head counts (P_0) of 14.33 percent, 9.33 percent, and 12.00 percent, respectively, for a total of 35.67 percent. More than one-third of members of the cassava cooperative live below the relative poverty line of ₦882.29. This finding is consistent with that of Nwosu, Dike, and Oguoma (2018), who found similar headcount ratios, highlighting the potential of rural agricultural cooperatives to significantly reduce poverty levels through collective action and resource sharing. Likewise, Osabohien et al. (2020) discovered greater rates of poverty and disparities in areas with less structured agricultural industries. Regional disparities were highlighted by the headcount ratio of over 40% found in their study conducted in Northern Nigeria. Gillespie et al. (2019), on the other hand, offer a different perspective, arguing that infrastructural development and wider economic reforms are necessary in addition to cooperatives in order to effectively combat poverty.

With an aggregate value of 0.0852, the poverty gap index (P_1) for Akwa-Ibom (0.0278), Delta (0.0249), and Edo (0.0325) demonstrates that the degree of poverty is minimal (8.52 percent). Similar levels of economic shortfall among the poor are suggested by the slight variations among states for this indicator, which displays the average shortfall of the poor

relative to the poverty line. The poverty severity index (P_2), which has a total score of 0.0313, indicates low poverty severity for Akwa-Ibom (0.0089), Delta (0.0090), and Edo (0.0134) and an aggregate of 3.13 percent. The figures indicate that there is little poverty inequality in these areas since the statistic prioritizes individuals who are living in extreme poverty. As a whole, the findings imply that although cassava cooperatives contribute to the reduction of poverty, complete approaches involving the development of infrastructure, financial access, and education are necessary for meaningful poverty reduction.

Determinants of Poverty Status of Cassava Cooperative Farmers in South-South

The result of the binomial logit regression of the relationship between poverty status and socioeconomic characteristics of cassava cooperative members is presented in Table 3. Significant predictors include sex, marital status, years in the cooperative, household size, age, education level, and primary occupation. From the model, males are 1.882 times more likely to be poor compared to females ($p = 0.043$). This suggests that sex plays a significant role in poverty status among cassava cooperative members. This result contrasts with findings by Oseni et al. (2019), which indicated that female-headed households were more susceptible/vulnerable to poverty due to limited access to resources and opportunities. In the same vein, Umeh and Asogwa (2017) found no significant relationship between sex and poverty status among rural farmers, which differs from the significant effect observed in this study.

Marital status significantly impacts poverty status ($p = 0.006$). Specifically, being single ($B = 1.104$, $p = 0.040$, $\text{Exp}(B) = 3.015$) or divorced/separated ($B = 1.652$, $p = 0.001$, $\text{Exp}(B) = 5.217$) increases the likelihood of being poor compared to being married. This indicates that marital stability may offer economic benefits that reduce poverty risk. This is consistent with Adeniran and Adewuyi (2021), who found that single or widowed individuals face higher poverty risks. Meanwhile, Nwaogwugwu and Obasi (2017) observed that marital status did not significantly affect poverty status among rural farmers in South-Eastern Nigeria, contrasting with the significant impact found in this study.

Table 3: Poverty Status of Cassava Cooperative Farmers

FGT Scenarios	Akwa-Ibom		Delta		Edo		Total	
	Index	%	Index	%	Index	%	Index	%
Poverty headcount (P_0)	0.1433	14.33	0.0933	9.33	0.1200	12.00	0.3567	35.67
Poverty gap (P_1)	0.0278	0.03	0.0249	0.02	0.0325	0.03	0.0852	8.52
Poverty severity (P_2)	0.0089	0.01	0.0090	0.01	0.0134	0.01	0.0313	3.13

Source: Data Analysis, 2024

Longer membership in the cooperative ($B = -0.135$, $p < 0.001$, $\text{Exp}(B) = 0.874$) reduces the likelihood of being poor as each additional year of cooperative membership reduced the likelihood of being poor by a factor of 0.874. This finding underscores the economic benefits of long-term cooperative membership, likely due to increased access to resources and support. It also supports the notion that cooperative membership enhances economic stability over time, as highlighted by Kwara and Mensah (2019). Adewuyi et al. (2018) similarly reported that the duration of cooperative membership negatively correlates with poverty.

Larger household sizes ($B = 0.181$, $p < 0.001$, $\text{Exp}(B) = 1.198$) are associated with a higher likelihood of being poor. This finding reflects higher consumption needs in larger families, which is consistent with Adepoju et al. (2020). The result also showed that there is a higher likelihood of being poor as age increases ($B = 0.065$, $p < 0.001$, $\text{Exp}(B) = 1.067$). This can be attributed to reduced physical capacity for labor-intensive farming as age increases. However, the finding contrasts with Adepoju, et al. (2020) and Adeniran and Adewuyi (2021), who found that older individuals are often more economically stable due to accumulated assets. Meanwhile, the overall significance of education level ($p = 0.012$) indicates its importance, although individual categories (primary, secondary, tertiary)

are not significant, indicating that having any formal education is more important than the specific level (Oni and Adepoju, 2020). Those primarily engaged in cassava farming ($B = -1.609$, $p = 0.00$, $\text{Exp}(B) = 0.200$) are significantly less likely to be poor. This suggests that cassava farming can be a viable means of livelihood that mitigates poverty. The finding contrasts with Ofei-Mensah and Bennell (2020) who underscored that there are benefits to be gained by economic diversification.

Considering the model in general, the result shows that the constant term ($B = -4.377$, $p < 0.000$, $\text{Exp}(B) = 0.013$) is significant, indicating a baseline likelihood of not being poor when all predictors are zero. This highlights the importance of the included variables in influencing poverty status. In the same vein, the Chi-square value of 15.977 with a significance level of 0.043 suggests a good fit for the model, as the test indicates that the model's estimates are not significantly different from observed values. While the Cox and Snell R Square value of 0.528 and Nagelkerke R Square value of 0.613 suggest that the model explains 52.8% to 61.3% of the variance in poverty status, indicating a strong level of explanatory power. Thus, we conclude that socio-economic characteristics are significant determinants of poverty status among cassava cooperative members.

Table 4: Binomial logit regression of the relationship between poverty status and socio-economic characteristics of cassava cooperative members

Variables ^a	B	S.E.	Wald	Df	Sig.	Exp(B)
Sex(1)	.633	.312	4.107	1	.043	1.882
Marital status			12.317	3	.006	
Marital status(1)	-.152	.948	.026	1	.872	.859
Marital status(2)	1.104	.537	4.222	1	.040	3.015
Marital status(3)	1.652	.510	10.510	1	.001	5.217
Coop years	-.135	.038	12.545	1	.000	.874
House size	.181	.051	12.457	1	.000	1.198
Age	.065	.016	16.309	1	.000	1.067
Edu level			10.919	3	.012	
Edu level(1)	-.612	.404	2.298	1	.130	.542
Edu level(2)	.825	.554	2.216	1	.137	2.282
Edu level(3)	-.492	.471	1.090	1	.296	.611
Pri occup(1)	-1.609	.475	11.469	1	.000	.200
Constant	-4.377	1.002	19.064	1	.000	.013
Hosmer and Lemeshow Test Chi-square		15.977				
Hosmer and Lemeshow Test Df		8				
Hosmer and Lemeshow Test Significance		0.043				
-2 Log likelihood		313.320				
Cox and Snell R Square		0.528				
Nagelkerke R Square		0.613				

Coding: Sex(1) = Male; Marital status(1)=Married; Marital status(2)=Single; Marital status(3)=Divorced/Separated; Edu level(1)=No Formal Education; Edu level(2)=Primary; Edu level(3)=Secondary; Pri occup(1)=Cassava Farming; Poverty Status Coded as 0=Not-poor, 1=Poor.

Source: Data Analysis, 2024

CONCLUSION AND RECOMMENDATIONS

The study on the determinants of poverty status among cassava cooperative farmers in South-South Nigeria reveals significant insights into the socio-economic dynamics affecting these farmers. The findings indicate that poverty remains a pervasive issue among cassava cooperative members, despite the potential benefits of cooperative membership. Key socio-economic characteristics, such as age, gender, marital status, years of cooperative membership, household size, education level, and primary occupation, play crucial roles in determining poverty status. The analysis shows that a considerable proportion of cassava cooperative farmers live below the relative poverty line, highlighting the persistent challenge of low income and subsistence living among these farmers. The higher percentage of older members and the predominance of female members in the cooperatives suggest specific demographic trends and potential areas for targeted interventions. The study underscores the importance of cassava as a primary source of income for these farmers, yet it also points to the need for more comprehensive support to enhance their economic stability. The results suggest that while cooperatives provide some benefits, such as resource sharing and collective action, additional measures are necessary to effectively combat poverty and improve the livelihoods of cassava cooperative farmers in the region. Based on the findings, it is recommended that the participation of women in leadership roles within cooperatives to ensure their voices are heard in decision-making processes should be encouraged as well as developing and implementing social protection programs targeted at the most vulnerable cassava farmers, including widows and elderly members, to provide safety nets and reduce their susceptibility to poverty.

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