



POVERTY VULNERABILITY AND COPING STRATEGIES AMONG HOUSEHOLDS OF CASSAVA PRODUCERS AND PROCESSORS IN OYO STATE, NIGERIA

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ABSTRACT

The study analysed poverty vulnerability and coping strategies among households of cassava producers and processors in Oyo State, Nigeria. It described the socio-economic characteristics of the respondents; estimated the households' poverty vulnerability levels; and analysed the poverty coping strategies adopted by the households. Primary data were sourced through the use of questionnaire from 99 cassava producers, 71 *gari* processors, and 62 cassava flour processors making a total of 232 respondents who were randomly and proportionately selected from the membership register of their respective associations. Descriptive statistics and quantile regression (of the 50th percentile) were used to analyse the data collected. Results revealed that cassava production is male-dominated (85%) while *gari* processing (87% female) and cassava flour processing (83% female) were female-dominated respectively. The mean age of the cassava producers was 47.7 years, *gari* processors (45.7 years) and cassava flour processors, 46.6 year, The highest mean number of successful years spent in school (10.5 years) was found among cassava producers. Factors found to have significant effects at 5% percent level of significance on the poverty vulnerability status of the households as a result of their effect on the future per capita consumption of the households include household size (-821.68), asset ownership (0.000056), expenditure on treatment of illnesses (-0.0056), price shock (-0.0021), among others. Percentage of households found to be vulnerable to poverty in a year's time (27.59%) is lower than those who are currently poor (33.62%). The most prevalent coping strategies were reduction of expenditure on transportation costs (mean = 2.92, 1st), reduction of clothing expenses (mean = 2.90, 2nd), use of dirty cooking fuels (mean = 2.82, 3rd) all at a high empirical level of adoption given a mean of mean of 2.42. The study concluded that majority of the cassava producing and processing households in the study area are not vulnerable to poverty as their engagement in cassava value chain acted as buffer against economic shocks. It therefore, recommended, among other things, that the households should invest more along the cassava value chain to further improve their economic resilience.

Keyword: Poverty, Vulnerability, Regression, Coping, Strategies

INTRODUCTION

Poverty remains a persistent challenge in Nigeria, with a significant proportion of the population living below the poverty line. While the country is the largest economy in Africa, income inequality remains high, and poverty is particularly prevalent in rural areas where agricultural activities are most prominent (Lawal & Yushau, 2025). The agricultural sector is the backbone of Nigeria's rural economy, providing livelihoods for over 70% of the population (Nwankwo *et al.*, 2024). Nigeria is the world's largest producer of cassava, and its cultivation is vital to the country's economy (Onomu & Aliber, 2024). Cassava, a crucial food and cash crop, is a primary source of income and food security for millions of smallholder farmers and processors (IITA, 2025). The crop's resilience to drought and its numerous industrial applications, from producing flour and starch to livestock feed, make it a strategic driver for sustainable economic development and poverty reduction.

In Oyo State, cassava production and processing constitute major agricultural activities making the cassava value chain a significant contributor to the state's economy (Omotoso & Oyewo, 2025). However, despite cassava value chain's potential to alleviate poverty, many producers and processors of the crop, particularly smallholders, remain poor as they are exposed to both idiosyncratic and covariate shocks which continue to predispose them to poverty in the nearest future (Isibor *et al.*, 2024). Poverty vulnerability, that is, the risk of falling or remaining below the poverty line in the future is increasingly recognized as a more dynamic and forward-looking measure of welfare than static poverty

status (Cesar & Stefan, 2007). Vulnerability stems from a combination of socioeconomic (Fineman, 2008), environmental (Holzmann & Jørgensen, 2000), and institutional (Fineman, 2008; Sen, 2000) factors. Moreover, the choice of poverty coping strategies employed by the poor could contribute to how long a poor household remains poor as the choice of harsh coping strategies (for instance, withdrawal of children from school, sale of productive asset, among others) which have the capacity to limit the future income earning potential of the household can perpetuate the cycle of poverty in the household. Therefore, understanding the specific poverty vulnerability levels and the strategies cassava producers and processors employ to cope with this challenge is crucial for designing effective interventions.

The study therefore, sought to:

- i. describe the socio-economic characteristics of smallholder cassava producers and processors;
- ii. estimate their households' poverty vulnerability levels; and
- iii. analyze the poverty coping strategies adopted by their households.

METHODOLOGY

Study Area

This study was conducted in Oyo State, Nigeria covering all the 4 agricultural extension zones of the State as categorized by the State's defunct Agricultural Development Programme (Olatunji *et al.*, 2022). These include Ibadan/Ibarapa, Ogbomosho, Oyo, and Saki zones as shown in Figure 1.

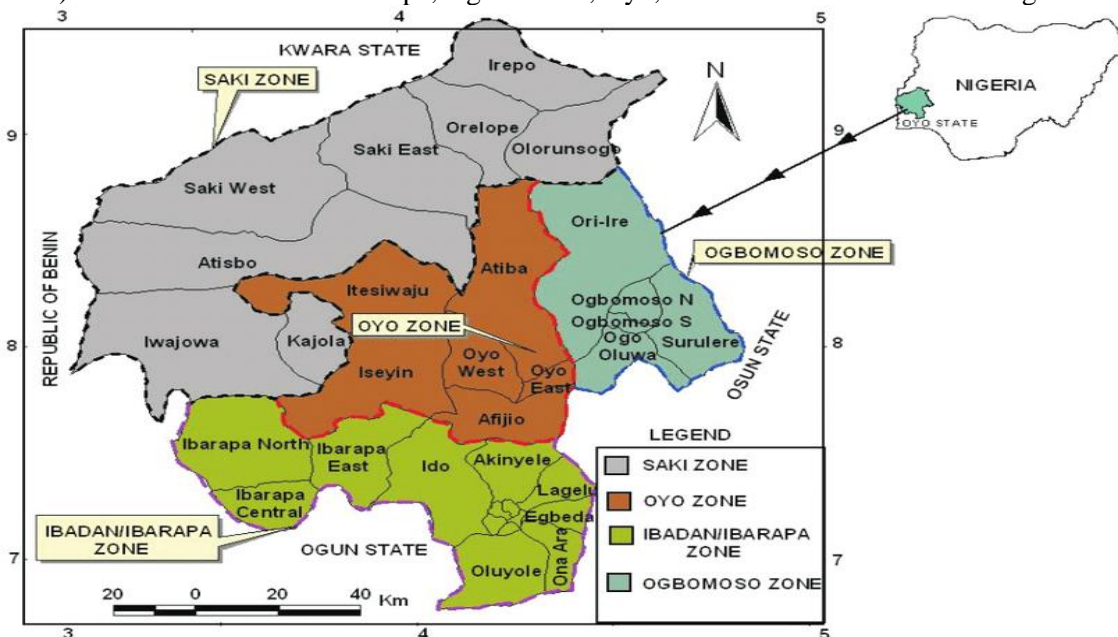


Figure 1: Map of Oyo State Showing its Agricultural Extension Zones

Oyo State is located in the rainforest vegetation belt of Nigeria. The State lies between latitudes 7.6°N and 9.3°N; and longitudes 2.9°E and 4.6°E of the Greenwich meridian. Oyo State has a projected population of 7,976,100 people (City Population, 2022). The State experiences two main seasons annually: the harmattan season; and the rainy season. Crops that thrive well in Oyo State include cassava, maize, yam, rice, sorghum, soybean, etc.

Population and Sampling Technique

Cassava farmers, *gari* processors, and cassava flour processors in Oyo State constituted the population of this study. Processors of *gari* and cassava flour were targeted for the study because *gari* and cassava flour are widely consumed derivatives of cassava in the State. A total of 232 respondents were sampled. These were proportionately and randomly selected across the 4 agricultural extension zones in the State using their respective association membership register as sampling frame. Twenty per cent of the registered members of each enterprise association were randomly selected for the study



such that more respondents were selected in zones with higher number of registered members. The distribution of the respondents is as shown in Table 1.

Table 1: Distribution of Respondents

S/N	Category of Respondents	Ibadan/ Ibarapa	Oyo	Saki	Ogbomosho	Total
1	Cassava Farmers	38	21	20	20	99
2	Gari Processors	26	18	11	16	71
3	Cassava flour processors	30	11	6	15	62
Total						232

Source: Field survey (2025)

Method of Data Collection

Primary data were used for this study. These were collected using a carefully designed, semi-structured questionnaire which was administered through kobo collect tool in the first quarter of year 2025.

Analytical Techniques

Descriptive statistics such as mean, frequency, percentages were used to describe the socio-economic characteristics of the respondents.

Median regression (i.e., Quantile regression of the 50th percentile) was used to estimate the poverty vulnerability of the respondents in line with Oconnor (2023). The poverty vulnerability of the respondents was assessed on the basis of expected household per capita consumption expenditure.

$$Q_{0.5}(C_{i,t}) = X_{i,t}\beta_1 + X_{i,t}\theta_{i,t}\beta_2 + \dots + \theta_{i,t} + e_{i,t} \dots \dots \dots (1)$$

Where: $C_{i,t}$ - Per capita consumption expenditure (in Naira)

- β - co-efficient of independent variables
- X_1 - sex of respondent (1 – Male; 0 - Female)
- X_2 - age of respondent (in years)
- X_3 - number of successful years spent in school by the respondent (years)
- X_4 - amount of credit accessed in the last one year (in Naira)
- X_5 - value of asset (in Naira)
- X_6 - household size in adult equivalence (First adult – 1, other adults – 0.7, children (≤ 14 years) – 0.5 (in line with OECD (2013).
- X_7 - membership of cooperative society (Member – 1; Non-member - 0)
- X_8 - Farm size for producers (in hectares)
- X_9 - Number of extension visits in the last production cycle
- X_{10} - amount of capital lost due to fire outbreak in the last two years (in ₦)
- X_{11} - amount of capital lost due to communal violence in the last two years (in ₦)
- X_{12} - amount of expenses incurred on treatment of ill health in the last two years (in ₦).
- X_{13} - Access to healthcare services in the community (Yes – 1; No - 0).
- X_{14} - Access to credit facility in the community (Yes – 1; No - 0).
- X_{15} - Access to education service in the community (Yes – 1; No - 0).

Upon the estimation of the expected value of respondents’ households’ future consumption ($E(C_{i,t+1}|X_t)$) and its variance ($\sigma(C_{i,t+1}|X_t)$), the vulnerability status of respondents’ households was estimated using equation 2 where z is the poverty line.

$$V_{i,t} = \Phi\left(\frac{z - E(C_{i,t+1}|X_t)}{\sigma(C_{i,t+1}|X_t)}\right) \dots \dots \dots (2)$$

A household is categorized as vulnerable if its vulnerability score is greater than 0.5 in line with Guther and Harttegen (2009); and Tesliuc and Lindert (2004).

Four-point likert scale was used to analyse the poverty coping strategies employed by the households.

Construction of Relative Poverty Line

A relative poverty line was constructed for this study in line with Ayantoye (2020) and Babatunde *et al* (2016). Two-third mean per capita consumption expenditure was set as the poverty line.

RESULTS AND DISCUSSION

The demographic and socio-economic characteristics of respondents examined include sex, age, number of successful years spent in school, adult equivalent household size, and membership of cooperative societies.

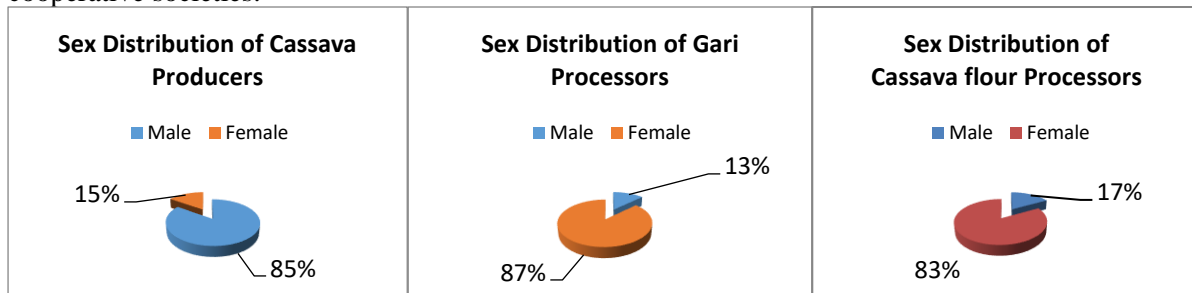


Figure 2: Sex Distribution of Sampled Cassava Producers and Processors

Source: Field survey (2025)

The sex distribution of the respondents is as presented in Figure 2 which reveals that cassava production is male dominated (85%) in the study area. The processing of cassava into *gari* and cassava flour on the other side are female dominated with majority (87%) of *gari* processors being female; and majority (83%) of cassava flour processors being female as well. This is similar to the findings of Agada *et al.* (2018) that reported that more males than females took part in cassava production while greater percentage of females are involved in cassava processing and marketing operations than their male counterparts. The difference in the gender participation is probably due to the laborious nature of some of the operations in cassava production (Ibrahim & Adeyemi, 2025).

Table 2: Socio-economic Characteristics of Respondents

Respondents' category	Sample size	Mean Age	Mean School Years	Mean Household Size
Cassava producers	99	47.7±12.4	10.5 ±5.5	3.6±1.7
<i>Gari</i> processors	71	45.7±13.6	8.4±4.9	3.4±1.2
Cassava flour processors	62	46.6±10.4	9.3±5.1	3.2±0.8

Source: Field survey (2025)

The results in Table 2 also revealed that the mean age of cassava producers, *gari* processors, and cassava flour processors are 47.7±12.4 years, 45.7±13.6 years, and 46.6±10.4, respectively. This indicates that the modal classes of the 3 categories of the respondents were made up of adults; and youths only constitute a minor proportion of the sampled cassava producers and processors. Mgbakor (2021) also reported a mean age of 50 years and poor youth participation in cassava production and processing in Enugu State, Nigeria.

The Table further revealed that cassava producers have the highest number of successful school years (10.5 ±5.5 years), followed by cassava flour processors (9.3±5.1 years), while *gari* processors have the least (8.4±4.9 years) number of school years. It is apparent that the pursuit of scholarly education is of low priority among all the categories of actors/ respondents sampled as the mean number of years spent in school by the respondents in all the categories is only equivalent to less than senior secondary school academic qualification. This closely aligns with Ojedokun *et al.*, (2025) which reported a mean 9 years of education among cassava farmers in Lagos State, Nigeria. This, however,

has negative implications for the ability of the actors to seek new knowledge and skills as well as their willingness to adopt modern technologies which can improve their productivity due to low levels of exposure.

Cassava flour processors have the least mean adult equivalent household size of 3.2 ± 0.8 persons. This is followed by *gari* processors (3.4 ± 1.2 persons); and cassava producers have the largest adult equivalent household size of 3.6 ± 1.7 persons.

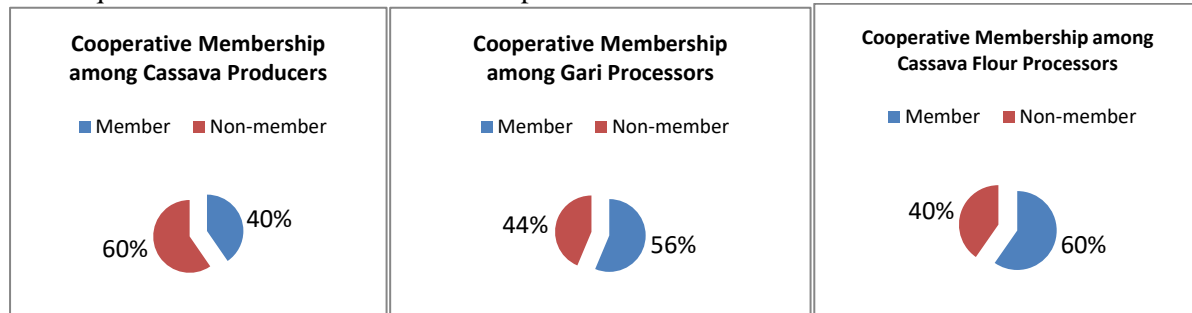


Figure 3: Cooperative Membership among Cassava Producers and Processors
Source: Field survey, 2025

Figure 3 presents the cooperative membership status of respondents along their respective categories. Majority (60%) of cassava producers are non-members of cooperative societies. Agboola (2021) reported similar finding, 57 per cent of cassava farmers are not members of co-operative societies in Ogun State.

Conversely, majority (56% and 60%) of *gari* processors and cassava flour processors respectively are members of cooperative societies. This agrees with Azeez *et al.*, (2021) which reported that over 55 per cent of cassava processors are active members of cooperative societies.

Poverty Vulnerability Status of Respondents

The result of the median regression analysis identified variables that have significant effects on the adult-equivalent per capita consumption of the households. Table 3 reveals twelve of such variables. These include household size in adult equivalence, asset ownership, farm size, number of extension visits, gross margin earned from cassava production, loss due to pest and disease attack, loss due to communal violence, expenditure incurred on treatment of illnesses, loss due to price shock, loss of job by main income earner, death of main income earner, and access to educational service within the community.

Table 3: Estimation of Expected Per Capita Consumption among Respondents' Households

Variable	Coef.	Std. Err.	t	P> t
Sex	-85.4972	254.0697	-0.34	0.737
Age	-10.9815	9.9254	-1.11	0.270
School years	29.6952	20.6131	1.44	0.151
Household size	-821.68	87.6666	-9.37	0.000***
Asset	0.000056	0.000013	4.29	0.000***
Cooperative Membership	96.0264	204.7638	0.47	0.640
Remittance received	-0.0027	0.0026	-1.03	0.303
Total credit accessed	-0.0011	0.0007	-1.48	0.141
Farm size	16.0390	8.0778	1.99	0.048**
Extension visits	55.8516	23.4615	2.38	0.018**
Gross Margin _ Production	0.0003	0.0001	2.46	0.015**
Gross Margin _ Gari processing	0.0105	0.0055	1.91	0.058
GM _ Cassava Flour Processing	0.0009	0.0005	1.96	0.051
Level of participation	-555.9723	309.2377	-1.80	0.074
Dry spell loss	0.0018	0.0020	0.91	0.365
Flooding loss	-0.0042	0.0033	-1.25	0.213
Pest and Disease loss	-0.0158	0.0055	-2.90	0.004***
Fire outbreak loss	0.0026	0.0014	1.92	0.057
Communal violence	-0.0007	0.0002	-4.21	0.000***
Treatment of illnesses	-0.0056	0.0016	-3.51	0.001***
Price shock	-0.0021	0.0004	-5.55	0.000***
Job Loss by Main Income Earner	-2238.891	1020.914	-2.19	0.029**
Death of Main Income Earner	-1862.926	902.4590	-2.06	0.040**
Medical Access	25.5500	261.7361	0.10	0.922
Credit Access	186.1534	290.8203	0.64	0.523
Access to Educational Service	940.7294	346.0128	2.72	0.007***
_cons	5587.909	714.0036	7.83	0.000
Number of observations =	232			
Raw sum of deviations	239539.5 (about 3373.5842)			
Min sum of deviations	145508.6			
Pseudo R2 =	0.3925			

Source: Field survey (2025) P<0.05** and P<0.01***

The results of the regression analysis revealed that household size (adult equivalence) was found to be statistically significant ($p < 0.01$) predictor of household per capita consumption. With a negative co-efficient, it is estimated that a household's per capital consumption decreases by 821.68 Naira for every unit increase in household size. This is consistent with the finding of Agyepong *et al.* (2024) which identified household size as one of the important determinants of household consumption expenditure.

The asset owned by the actor households was also found to be significant ($p < 0.01$) as well in predicting the households' per capita consumption. Though the coefficient is very small, its high significance level hints that every minor increase in the asset owned by the households is associated with a significant positive change in their per capita consumption. Han & Si (2020) reported a similar result asserting that asset levels and asset prices have positive influences on household consumption.

In addition, Farm size ($p < 0.05$) and number of extension visits ($p < 0.02$) were also found to have significant effect on households' per capita consumption. With a coefficient of 16.04, a unit increase in farm size is expected to translate into 16.04 unit increase in household per capita consumption. Whereas it is estimated that a unit increase in extension visit to the cassava producers will produce a 55.85unit increment in their per capita consumption. Extension visits are expected to bring about improvements in the productivity and competitiveness of the actors ultimately, leading to increase in the disposable income of the household. Aremu & Reynolds (2024) highlighted the welfare benefits



associated with extension visits including improvement in household food security status and asset ownership.

Gross margin earned from cassava production was a significant ($p < 0.015$) predictor of the actor households' per capita consumption. While the coefficient is also small as in the case of 'asset owned', its high significance suggests that every minor increase in the gross margin earned by the actors from cassava production brings about a significant increase in the per capita consumption of the actor households.

The results further revealed that loss due to communal violence was also found to be a significant ($p < 0.01$) predictor of household per capita consumption. While the negative coefficient is very small, it suggests that every minor loss due to communal violence is associated with a significant decrease in the per capita consumption of the actor households. Nagombe (2025) reported similar finding in Taraba State, Nigeria where communal crises were found to disturb livelihoods by reducing agricultural productivity and wasting economic opportunities. Ogungbenro (2024) also reported loss of income and livelihood among rural dwellers in Oyo State due to farmers–herdsmen conflict.

Also, expenditure incurred on the treatment of illnesses was also found to be a significant ($p < 0.01$) predictor of per capita consumption. However, it is inversely related to the actor households' per capita consumption as it reduces the disposable income of the household. In like manner, Qiu & Zhang (2024) reported the devastating effect of health shock on household consumption leading to downward review of other basic household consumptions including food and education to mitigate the health shock.

Furthermore, loss due to price shock was statistically significant ($p < 0.001$) in predicting the per capita consumption of the actor households. Its very small negative coefficient suggests that even minor losses due to price shock are associated with significant decrease in the median of the household per capita consumption. Similarly, Adekunle *et al* (2020) reported deterioration in welfare as one the negative effects of price shock on farm households. Similarly, loss of job of main income earner in the household ($p = 0.03$) and death of main income earner ($p = 0.04$) were also found to be significant predictors of household per capita consumption. While loss of job of main income earner is estimated to account for 2,238.89-unit reduction in the per capita consumption of the actor households, the death of main income earner is attributable to 1,862.93-unit reduction in the per capita consumption of the households. The loss of job of the main income earner as well as the death of the main income earner in a household imply significant reduction in the total income accruing to the household which expectedly diminishes its per capita consumption.

Access to educational services was also found to have a significant ($P < 0.01$) on households' per capita consumption. The variable has a co-efficient of 940.73 which suggests that access to educational service is attributable to 940.73 unit increase in household per capita consumption. This implies that access to educational service is associated with higher likelihood of being non-vulnerable. This relationship was also reported by Khan & Ali (2022).

The results in Table 4 presents the mean distribution of poverty vulnerability scores among the households. The households' vulnerability scores are the outputs of equation 2. Equation 2 was computed sequel to the prediction of the future per capita consumption as well as the variance of future per capita consumption of each household by STATA after the execution of the quantile regression. The cassava flour processing households have the highest mean poverty vulnerability score of 0.3535 ± 0.2150 followed by cassava producing households (0.3469 ± 0.2565), and *gari* processing households have the least mean vulnerability score (0.3457 ± 0.2575) among the three categories. The table reveals that the mean vulnerability score among the three categories of households is lower than the established poverty vulnerability line of 0.50. This indicates that majority of the households have individual vulnerability scores which are a lower than the established cut-off line.

Table 4: Distribution of Households' Poverty Vulnerability Scores

Category of Respondents	Obs.	Mean	Std. Dev.	Min	Max
Cassava Producers	99	0.3469	0.2565	0.0001	0.9889
Gari Processors	77	0.3457	0.2575	0.0036	0.9449
Cassava Flour Processors	62	0.3535	0.2150	0.0001	0.8377

Source: Field survey (2025)

Table 5 compares the incidence of poverty with the incidence of poverty vulnerability among the respondents across their respective functional domains. The results also revealed that 35.35% of cassava producing households are poor, only 28.28% were seen to be vulnerable to poverty in the next one year. Similar improvements were noticed among gari processing households (29.58% poor against 26.76% vulnerable to poverty in the next one year) and cassava flour processing households (33.62% poor against 27.42% who are foreseen to be vulnerable to poverty in a year period). The predicted improvement across the three categories was most pronounced among the cassava flour processors.

Table 5: Distribution of Poverty Vulnerability among Respondents

Actor Category	Poverty Status				Poverty Vulnerability Status			
	Poor		Non-poor		Vulnerable		Non-vulnerable	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Cassava producers	35	35.35	64	64.65	28	28.28	71	71.72
Gari processors	21	29.58	50	70.42	19	26.76	52	73.24
Cassava Flour processors	22	35.48	40	64.52	17	27.42	45	72.58
Total	78	33.62	154	66.38	64	27.59	168	72.41

Source: Field survey, 2025

Table 6 paints a scenario of the foreseen transition of the households in and out of poverty over a year period. While 24.57% of all the households are poor and remained vulnerable to poverty (indicating chronic poverty), 9.05% of the households are poor but, foreseen to be non-vulnerable to poverty over a year period. Moreover, while majority (63.36%) of the households are non-poor and are predicted to remain non-vulnerable to poverty, some of the non-poor households are expected to slip into poverty (indicating transitory poverty) over a year period.

Table 6: Respondents' Households' Transition In and Out of Poverty

Actor Category	Poor actors who remained vulnerable to poverty		Poor actors who became non-vulnerable to poverty		Non-poor actors who remained non-vulnerable to poverty		Non-poor actors who are vulnerable to poverty	
	Freq.	Per cent.	Freq.	Per cent.	Freq.	Per cent.	Freq.	Per cent.
Cassava producers	27	27.27	8	8.08	63	63.64	1	1.01
Gari processors	13	18.31	8	11.27	44	61.97	6	8.45
Cassava Flour processors	17	27.42	5	8.06	40	64.52	0	0.00
Total	57	24.57	21	9.05	147	63.36	7	3.02

Source: Field survey (2025)

Table 7 presents the result of the analysis of the poverty coping strategies employed by the households. Out of the nine strategies analysed, reduction of expenditure on transportation with a mean score of 2.92 was ranked first, reduction of expenditure on clothing with a mean score of 2.90 was ranked second, and use of dirty cooking fuels with a mean score of 2.82 was ranked third. Withdrawal of children from school with a mean score of 2.10 was ranked seventh, involvement of children in child labour with a mean score of 2.04 was ranked eighth, and reduction of expenditure on food with a mean score of 1.96 was ranked ninth. Given a mean of mean of 2.42, reduction of expenditure on transportation, reduction of expenditure on clothing, and use of dirty cooking fuels are ranked in the high empirical level of adoption while withdrawal of children from school, involvement of children in child labour, and reduction of expenditure on food are ranked in the low empirical level of adoption. The preference for less severe coping strategies among the cassava producing households suggests that the households are not in desperate or extreme poverty situation yet.

Table 7: Analysis of Respondents' Households' Coping Strategies

Coping Strategies	Responses								Mean Score	Rank
	Most likely		Likely		Unlikely		Most unlikely			
	Freq.	%	Freq.	%	Freq.	%	Freq.	%		
Reduction of Expenditure on Food	47	20.2	21	9.1	40	17.2	124	53.5	1.96	9th
Use of Dirty Cooking Fuels	84	36.3	61	26.3	47	20.2	40	17.2	2.82	3rd
Reduction of Expenditure on Transportation	96	41.4	58	25.2	40	17.2	38	16.2	2.92	1st
Reduction of Expenditure on Clothing	77	33.2	91	39.2	26	11.2	38	16.4	2.90	2nd
Sale of Asset	35	15.1	38	16.2	91	39.4	68	29.3	2.17	5th
Depletion of Natural Asset	70	30.3	73	31.3	49	21.2	40	17.2	2.75	4th
Withdrawal of Children from School	49	21.1	17	7.3	75	32.3	91	39.2	2.10	7th
Involvement of Children in Child Labour	33	14.2	33	14.2	77	33.2	89	38.4	2.04	8th
Migration to other Communities	44	19.0	40	17.2	52	22.4	96	41.4	2.14	6th
Mean of Mean									2.42	

Source: Field survey (2025)

CONCLUSION AND RECOMMENDATION

The study concluded that majority of the households in the study area are not vulnerable to poverty. Also, majority of the household are not in a state of extreme poverty to warrant the adoption of severe coping strategies. However, to stem the tide of non-poor households transiting into vulnerable household category, it is recommended that:

- Households should be encouraged to invest more along the cassava value chain to improve their economic resilience.
- Households should be sensitized and encourage to manage their respective household sizes by adopting modern family planning techniques so as to prevent spreading the household's resource on too many members.



- Cassava producer groups should patronize private extension outfits who can also facilitate value chain linkages.
- Government should design affordable health insurance packages for actors' households so as to reduce out-of-pocket expenditure on the treatment of illnesses.
- Households should be encouraged to diversify their investment to mitigate losses due to price shock.
- Government should ensure access to quality education for children of school age within their respective communities.

REFERENCES

- Adekunle, C. P., Akinbode, S. O., Shittu, A. M., & Momoh, S. (2020). Food price changes and farm households' welfare in Nigeria: direct and indirect approach. *Journal of Applied Economics*, **23**(1): 409-425.
- Agada, M. O., Onuche, F. I., & Mbah, E. N. (2018). Gender participation and constraints in cassava production, processing and marketing in Makurdi, Benue State, Nigeria. *International Journal of Gender and Women's Studies*, **6**(1): 79-87.
- Agboola, W. L. (2021). Profitability of cassava-garri enterprise in Nigeria among smallholder farmers. *Applied Tropical Agriculture*, **26**(1): 196–204.
- Agyepong, L., Kuuwill, A., Kimengsi, J. N., Darfor, K. N., Ampomah, S., Evans, K., ... & Charles, A. K. (2024). Household Consumption Expenditure Determinants Across Poverty Subgroups in Sub-Saharan Africa: Evidence from the Ghanaian Living Standard Survey. *Journal of Poverty*, **5**: 1-26.
- Aremu, T., & Reynolds, T. W. (2024). Welfare benefits associated with access to agricultural extension services in Nigeria. *Food Security*, **16**(2): 295-320.
- Ayantoye, K. (2020). Determinants of Vulnerability to Poverty and Coping Mechanism of Rural Households in Nigeria. *JABU International Journal of Agriculture and Food Science (IJAFS)*, **10**: 202-210
- Azeez, F. A., Usman, J. M., Obadimu, O. O., Mukarumbwa, P., & Kabir, G. B. (2021). Women involvement in cassava value chain among cassava processors and marketers in Afijio Local Government Area, Oyo State, Nigeria. *Russian Journal of Agricultural and Socio-Economic Sciences*, **110**(2): 103–109. <https://doi.org/10.18551/rjoas.2021-02.12>
- Babatunde, R., Salami, M., Adebaje, A. (2016). Poverty among cassava farmers in Oyo State, Nigeria – characteristics and drivers. *J. Agribus. Rural Dev.*, **3**(41): 249–254. DOI: 10.17306/JARD.2016.51
- Cesar C. & Stefan D. (2007). Vulnerability to Poverty. CSAE WPS/2007-03 <https://www.researchgate.net/publication/46469623>
- Fineman, M. A. (2008). The vulnerable subject: Anchoring equality in the human condition. *Yale JL & Feminism*, **20**: 1-12.
- Han, H., & Si, F. (2020). How does the composition of asset portfolios affect household consumption: Evidence from China based on micro data. *Sustainability*, **12**(7): 2946.
- Holzmann, R., & Jørgensen, S. L. (2000). *Social risk management: A new conceptual framework for social protection and beyond* (Social Protection Discussion Paper No. 0006). The World Bank. <https://documents.worldbank.org/curated/en/932501468762357711/pdf/multi-page.pdf>
- Ibrahim, I. M., & Adeyemi, O. O. (2025). Measuring the Effect of Climate Change and Productivity Factors on Cassava Production in Nigeria: ARDL Approach (1990-2023). *African Journal of Agricultural Science and Food Research*, **19**(1): 65-81.
- International Institute of Tropical Agriculture (IITA) (2025, July 18). World Cassava Day 2025: Propelling Nigeria and Africa towards agricultural transformation. *IITA News*. <https://www.iita.org/>
- Isibor, C. A., Obianefo, C. A., Obiekwe, J. N., & Nwankwo, G. N. (2024). The Effects of Livelihood Risk on Poverty Types among Smallholder Cassava Farmers in Anambra State, Nigeria. *UNIZIK Journal of Agricultural Economics and Extension*, **1**(1): 199–212.



- Khan, R., & Ali, S. (2022). Re-Visiting the Role of Education on Poverty Through the Channel of Financial Inclusion: Evidence From Lower-Income and Lower-Middle-Income Countries. *Frontiers in Environmental Science*, **10**: 873652. <https://doi.org/10.3389/fenvs.2022.873652>
- Lawal, S. O., & Yushau, H. (2025). Impact of income inequality on economic growth in Nigeria: Lorenz curve and ARDL approach. *Al-Hikmah Journal of Economics (AJEC)*, **6**(1): 35-48. <https://alhikmahuniversity.edu.ng/AJEC/>
- Mgbakor, M. N. (2021). Socio-economic characteristics of cassava producers and processors in Enugu State, Nigeria. *IDOSR Journal of Banking, Economics and Social Sciences*, **6**(1): 75–92.
- Nagombe, J. T. (2025). Impact of communal conflict on livelihoods of some selected communities in NGADA special development area Taraba State, Nigeria. *International Journal of Conflict and Security Management*, **1**(02): 100-111.
- Nwankwo, C. U., Ikehi, M. E., Ejiofor, T. E., & Ifeanyieze, F. O. (2024). Successive national agricultural policies/programmes, growth of gross domestic product (GDP) and expansion of agribusinesses in Nigeria. *Plos one*, **19**(2): 291-299.
- Ogungbenro, A. M. (2024). Enhancing Food Security in Rural Communities: A Comprehensive Examination of Farmers-Herdsmen Conflicts in Oyo State, Nigeria. *Kwararafa Security Review*.
- Ojedokun, A. O., Kareem, D. A., & Adelana, O. I. (2025). Compliance with recommended production practices among cassava farmers in Epe local government area of Lagos State, Nigeria. *Nigerian Journal of Agriculture and Agricultural Technology*, **5**(1A): 40-48.
- Olatunji, O. J., Omolara, G. M., & Letuma, P. (2022). Assessment of Agricultural Land-Use Intensification Practice and Its Determinants Among Food Crop Farmers in South-Western Nigeria. *Journal of Integrated Sciences*, **2**(4).
- Omotoso, O., & Oyewo, I. O. (2025). Impacts of the value chain development programme (VCDP) on poverty reduction among rice- and cassava-based farming households in rural Nigeria. *Agricultura Tropica et Subtropica*, **58**(1): 10-22. <https://doi.org/10.2478/ats-2025-0002>
- Onomu, A. R., & Aliber, M. (2024). Nigeria's Agriculture and Technology Use: Current Structure and Challenges. *Path of Science*, **10**(11): 1001-1023.
- Qiu, Y., & Zhang, F. (2024). Impact of health shocks on household consumption structure. *Frontiers in Public Health*, **12**: 1431833.
- Sen, A. (2000). Social exclusion: Concept, application, and scrutiny. *Social Development Papers No. 1, Office of Environment and Social Development Asian Development Bank*. ISBN 971-561-274-1