



Cassava Marketing and Rural Poverty among Smallholder Farmers in Southwest, Nigeria

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ABSTRACT

The potentials of cassava marketing in agricultural and overall economic development cannot be overemphasized. In this study, cross-sectional data from 150 smallholder cassava farmers in Ogun state, southwest Nigeria were used to examine cassava marketing and poverty among rural farming households. Descriptive statistics, The Foster, Greer and Thorbecke class of measures and Tobit regression model were used for the analysis. The results revealed that majority of the farmers market their produce at the farm gate. The mean monthly per capita household expenditure was ₦4428 (Nigerian Naira) while the moderate poverty line was ₦2952 and the core/ extreme poverty threshold was put at ₦1476. About fifty-seven percent of the farming households fall below the poverty line that is poor while the other forty-three percent fall above the poverty line and thus classified as Non-poor. Out of the poor, 16% are core poor while 40.67% are moderately poor. Those who market their produce at the farm gate have the highest proportion of the poor while those that sell directly to the end users have the least. The results of the Tobit regression model showed that age, years of education, off-farm income, and access to credit, household size, commercialization extent and access to market information were significant variables. All these variables except household size influenced household poverty negatively. The negative impact of market information on poverty implicitly showed improvement in household's welfare that had access to market information. These results generally suggest that in order to effectively alleviate poverty, there should be improved market information systems with strong linkages between crop producers and end users.

KEYWORDS: cassava marketing, poverty, smallholder farmers, Southwest, Nigeria.

INTRODUCTION

Nigeria is currently the largest producer of cassava in the world with an annual output of over 34 million tonnes of tuberous roots (1). This could be attributed to the cassava multiplication programmes in the country. In 2002, cassava suddenly gained prominence following the pronouncement of a presidential initiative on the crop which was aimed at using cassava production as an engine of economic growth in Nigeria. Cassava is majorly produced by small holder farmers cultivating less than two hectares of land it's playing a dominant role in the rural economy of the southern agro-ecological zones though is increasingly gaining importance in other parts of Nigeria. It is important, not just as a food crop but even more so as a major source of cash income for producing households.

As a cash crop, cassava generates cash income for the largest number of households, in comparison with other staples, contributing positively to poverty alleviation. As a food crop, cassava fits well into the farming systems of the smallholder farmers in Nigeria because it is available all year round, thus providing household food security. Hence, efficiency in cassava marketing is an important determinant of both consumers' living cost and producers' income and the potentials of cassava marketing to agricultural and overall economic development cannot be overemphasized (2).

Over the years, remarkable progress have been made by agricultural research and development organizations on increasing agricultural productivity and promoting sustainable intensification of major food crops for small-scale farmers. However, sustaining success in productivity-based agricultural growth critically depends on expansion of market opportunities (3) and requires an holistic view beyond productivity to incorporating profitability and competitiveness (4). Therefore, the concern of small holder farmers is not only agricultural productivity but also increasingly better market access. However, improving the ability of smallholder and resource-poor farmers to access market opportunities has been a pressing developmental challenge facing both governments and non-governmental organizations (5). It is therefore imperative to understand how farming households can best achieve their income and other livelihood outcomes through

better links with markets. It has been noted that agricultural markets play significant roles in combating poverty in a nation's economy. In Nigeria, poverty is especially severe and more concentrated in the rural areas where the main occupation is farming (6). According to the HNLSS Report (2011), 73.2 percent of the rural population are described poor and farming population comprises predominantly of resource-poor peasants, cultivating an average of about two hectares of land usually on scattered holdings with low and declining productivity (7). There are evidences that the farming households are poorer among the rural poor (8). The challenge therefore is how to make small-scale farming more market orientated, and make market benefit the poor which constitute a higher percentage of the population. This study attempts to contribute to improvement of cassava marketing and alleviation of poverty by examining the various cassava marketing channels, determining the poverty status and the factors influencing poverty among cassava farming households in southwest Nigeria.

MATERIALS AND METHODS

The Study Area: This study was carried out in Ogun state, Southwest Nigeria. It is bounded in the west by Republic of Benin and in the south by Lagos state, in the North both by Oyo and Osun states and in the East by Ondo state (Ogun state of Nigeria, 1998). Its lies within latitudes 6°N and 8°N and longitude 2.5°E and 5°E. The state is approximately 19 percent, that is, 17,542 square kilometers of Nigeria's 923,219 square kilometres Land area with population of 3.3 million (Nation). Ogun state is a heterogeneous state, inhabited predominantly by the Egba, Yewa, Ijebu, Remo, Awori and Egun who belong to the Yoruba ethnic group, the largest ethnic group in west African coast and one the largest and longest established ethnic groups on the Africa continent .

Data Collection: the study was based on primary data collected through the use of structured questionnaire from a cross-section of cassava farmers. Data collected included demographic characteristics of the farmers; socio-economic, living standard and farm-specific variables; as well as income and expenditure variables. A multistage sampling technique was adopted for the study. The first stage involved the selection of two zones from the four agro-ecological zones in the state. In the second stage, two Local Government Area (LGAs) each were selected from the two zones while the third stage involved random selection of four villages from each LGA. In the final stage, ten cassava farmers were randomly selected from each village. Therefore, a total of 160 cassava farming households were sampled but as a result of inappropriate completion of ten questionnaires, a total of 150 farming households were used for the study.

Data Analysis: statistical tools used in data analysis include descriptive analysis, the Foster- Greer-Thorbecke (1984) class of poverty measures (FGT) and the Tobit regression model. The descriptive statistics included frequency, means, percentages, tables and standard deviation. These were used to categorize cassava farming households by market participation under different socio-economic and demographic characteristics. The FGT poverty measure was used to analyze poverty level of the cassava farming households.

The FGT is presented below:

$$P_{\alpha} = \frac{1}{n} \sum_{i=1}^q \left[\frac{Z - y}{Z} \right]^{\alpha} \quad (1) \quad \text{Where,}$$

Z = the poverty line defined as 2/3 of Mean annual per capita expenditure
 Y = the annual per capita expenditure –poverty indicator/welfare index per capita
 q = the number of poor households in the population of size n,
 α = the degree of poverty aversion; α =0; is the Headcount index (P₀) measuring the incidence of poverty (proportion of the total population of a given group that is poor, based on poverty line).
 α =1; is the poverty gap index measuring the depth of poverty that is on average how far the poor is from the poverty line; α =2; is the squared poverty gap measuring the severity of poverty among households that is the depth of poverty and inequality among the poor.

The poverty line: This is a pre-determined and well defined standard of income or value of consumption. In the study, the line was based on the expenditure of the households. Two –third of the mean per capita expenditure was used as the poverty line. The mean per capita household expenditure (MPCHE) was obtained by dividing the total of all individual household per capita expenditure by the number of households surveyed

$$\text{Per capita expenditure (PCE)} = \frac{\text{Total expenditure}}{\text{Household size}} \quad (2)$$

$$\text{Mean per capita household expenditure (MPCHE)} = \frac{\text{Total household PCE}}{\text{Total number of households}} \quad (3)$$

The categorization of the poverty line is given as:

Extreme poor: those spending < 1/3 of MPCHE

Moderately poor: those spending < 2/3 of MPCHE

Non-poor: those spending > 2/3 of MPCHE

Tobit regression model was employed to determine the factors influencing poverty. The model is as stated below:

$$q_i = p_i = \beta X_i + u_i \quad (4)$$

$$q_i = 0 = \beta X_i + u_i$$

i = 1,2,3,..... 150

q_i is the dependent variable. It is discrete when the household is not poor and continuous when poor. P_i is the depth of the intensity of poverty defined as (Z- Y/ Z), where p_i* is the poverty depth when the poverty line (Z) equals the per capita household expenditure. X_i is a vector of explanatory variables, β is the vector of unknown coefficients and u_i is an independently distributed error term. The independent variables specified as determinants of poverty are defined below:

- X₁ = Sex of the respondent (D=1 if male ; 0, if otherwise)
- X₂ = Age of respondent (years)
- X₃ = Education of the respondents (years)
- X₄ = Household size
- X₅ = Primary occupation of respondent (D= 1 if farming; 0, if otherwise)
- X₆ = Participation in off- farm activities (D =1 if yes; 0 if otherwise)
- X₇ = Credit access (D =1 if yes; 0 if otherwise)
- X₈ = Land size (ha)
- X₉ = market information access (D =1 if yes; 0 if otherwise)
- X₁₀ = Commercialization extent

The extent of commercialization is calculated as follows:

$$X_{10} = \text{Total sale / value of total production} * 100$$

RESULTS AND DISCUSSION

Classification of Respondents According to Market channels

Table 1 shows the farmers' participation in the various market channels. From the table, farm gate and the rural market served as the major market channels for cassava farmers. 44% of the farmers marketed their produce at the farm gate while 21.33% of the farmers sell at the rural market. 16.67%, 4% and 14% sell their produce through factory, urban market and direct to the end users respectively.

TABLE 1: Distribution of Respondents by Market channels

Market Channels	Frequency	Percentage
Farm gate	66	44.00
Factory	25	16.67
Rural market	32	21.33
Urban market	6	4.0
Direct to end Users	21	14.00

Field survey, 2011

Determination of Poverty Line among Farming Households

The poverty line as specified in the methodology was used to define the poverty status and classify the farmers into poor and non-poor groups. Table 2 shows the average amount spent on the basic needs of the farming households in the study area. Food which is a basic necessity represents about 55% of the total mean per capita expenditure. Clothing is next in priority followed by transportation while health and Medicare accounted for the least percentage of household expenditure. The mean monthly per capita household expenditure was ₦4428 (Nigerian Naira)

while the moderate poverty line was ₦2952 and the core/ extreme poverty threshold was put at ₦1476.

TABLE 2: Household Monthly Expenditure Profile

Item	Mean monthly Expenditure	% of total expenditure
Food	13560.25	55.4
Clothing & footwear	1664.44	6.8
Health and medicare	832.22	3.4
Education	1125.94	4.6
Fuel and Lightning	1517.57	6.2
Remittances	1517.57	6.2
Transportation	1639.96	6.7
Rent	1199.37	4.9
Others	1419.67	5.8
Total expenditure	24476.99	100
Mean per capita household expenditure (MPCHHE)	4428	
2/3 MPCHHE	2952	
1/ 3 MPCHHE	1476	

Field Survey, 2011

Profile of Poverty among Farmers

Table 3 shows the distribution of farmers falling into each of the mutually exclusive welfare groupings. About fifty- seven percent of the farmers fall below the poverty line while the other 43% fall above the poverty line and thus classified as Non- poor. Out of the poor farmers, 24 (16%) are core poor while 61 (40.67%) are moderately poor.

Table 3: Profile of Poverty among Farmers

Group	Amount (₦)	Frequency	Percentage
Core poor	< 1476	24	16.00
Moderate poor	1476 ≤ Z < 2952	61	40.67
Non poor	≥ 2952	65	43.33
Total		150	100

Field Survey, 2011

The Distribution of Poverty Among Farmers by Socio-economic Characteristics:

Table 4 shows the distribution of poverty amongst farmers with respect to socio-economic variables. The proportion of the poor among the female-headed households is higher than their male counterparts. About 48% of the male-headed households are poor compared to 74% female-headed households. The prevalence of poverty among farmers with low years of education is very high (81%). Farmers below the age of 40 years have a relatively low proportion of poor. The poverty incidence of those in the age group of 41- 50 years is about 57% while those above 50 years have poverty incidence of 52%. A household size of above 9 members has the highest poverty incidence of about 84% while households with less than 5 members have a poverty incidence of about 17%. The shows that the larger the household, the higher the incidence of poverty. Furthermore, the table shows that those with no access to credit have a higher percentage of the poor than those with access to credit. Also, poverty incidence is higher among farmers with no access to market information (85%) compared to those with access to market information. Farmers who market their produce at the farm gate have the highest proportion of the poor (86%) while those that sell directly to the end users have the least (8.7%). The incidence of poverty is 15%, 56% and 43% of those who market their produce through factory, rural market and urban markets respectively.

Determinants of Household Poverty

The factors that determine household poverty among the cassava farming households is shown in Table 5. The estimates of the Tobit regression results show a log likelihood of -64.04 and significant at 1% level. This implies that the model has a good fit to data. Age, years of education, participation in off-farm activities, access to credit commercialization extent and access to market information are significant factors influencing household poverty.

Table 4: Incidence of farmers by poverty group

Characteristics	Core poor		Moderate poor		Non- poor	
	Frequency	%	Frequency	%	Frequency	%
Sex						
Male	15	14.56	35	33.98	53	51.46
Female	9	19.15	26	55.32	12	25.53
Age						
≤ 30	2	15.38	5	38.46	6	46.16
31-40	3	5.00	13	21.67	44	73.33
41-50	10	24.39	23	57.10	8	17.02
≥ 50	9	25.00	20	52.56	7	19.44
Household size						
0- 4	2	5.56	4	11.11	30	83.33
5- 9	7	12.73	22	40.00	26	47.27
>9	15	25.42	35	59.32	9	15.26
Years of education						
0-6	17	24.64	39	56.52	13	18.84
7-12	7	9.09	22	28.57	48	62.34
13-19	-	-	-	-	4	100
Credit access						
Yes	3	3.85	26	33.33	49	62.82
No	21	30.88	35	51.47	12	17.65
Market information						
Yes	5	7.35	18	26.47	45	66.18
No	19	23.17	43	52.44	20	24.39
Market Channels						
Farm gate	16	22.22	46	63.89	10	13.89
Factory	-	-	4	14.81	23	85.19
Rural market	8	32.00	6	24.00	11	44.00
Urban market	-	-	3	42.86	4	57.14
Direct to end users	-	-	2	8.70	21	91.30

Field survey, 2011

The age of the farmer is significant at 5% and has a negative sign. This implies that the older the farmer, the lower his probability of being poor. This may be attributed to the lower dependency ratios, whereby the dependants tend to search for lucrative off-farm jobs as the household head is aging. The coefficient is -0.0033 which means that a unit increase in age of the farmer will reduce the likelihood of poverty by 0.0033. The years of education is significant at 5% with a negative sign. This implies that the more educated a farmer is, the less the likelihood of being poor, this is due to the fact that education enlightens the farmer with regards to farming activities and marketing efficiency. The farming households with larger size have higher levels of poverty. A unit increase in the household size will increase the probability of being poor by 0.0183. The regression coefficient of credit access is -0.04619 and its significant at 10%, this implies that farmers with access to credit have lower levels of poverty. The extent of commercialization is significant at 1% with a coefficient of -0.0821 which implies that a unit increase in the extent of commercialization reduce the reduce the probability of being poor. This is because commercially inclined farmers are less likely to be poor than farmers whose sole purpose of farming is subsistence. Finally, access to market information reduces the farmers' level of poverty this is as indicated by the regression coefficient of -0.1312.

TABLE 5: parameter Estimates of the Tobit Regression

Variabes	Coefficients	t-value	p-value
Sex	-0.0158	-0.140	0.2036
Age	-0.0033**	-2.471	0.0421
Primary occupation	0.0144	0.132	0.6321
Off- farm income	-0.0194***	-5.461	0.0014
Household size	0.0183*	1.847	0.0742
Land size	-0.0977	-1.283	0.1541
Access to credit	-0.0462*	1.907	0.0613
Commercialization extent	-0.0821***	-6.280	0.0023
Market information access	-0.1312**	-2.315	0.0254
Years of education	-0.0022**	-2.014	0.0367
Constant	-0.1659**	-2.270	0.0678
Sigma	0.3671		

Field survey, 2011. ***, **, * represents 1%, 5% and 10% significant level respectively.

CONCLUSION

This study has successfully shown the various channels of cassava marketing, the poverty status and the factors influencing poverty among the cassava farming households. Farm gate and rural markets serve as the major marketing channels for cassava farmers. It is clear that crucial factors like credit accessibility, market information, off-farm income and extent of commercialization are germane to poverty reduction. Farmers need to take full advantage of market information in order to improve their standard of living.

Based on the findings of this study, the following recommendations are suggested in order to improve the welfare of the farming households in the study area:

- ❖ There should be improved market information systems with strong linkages between crop producers and end users as this will not only generate added value but also create employment opportunities in rural areas, thereby contributing to economic growth and poverty reduction.
- ❖ The government should create the right policy environment and target incentives for private investment in the cassava marketing sub-sector.
- ❖ Policy consistency should be ensured in favour of cassava utilization in Nigeria.
- ❖ Policy makers should target resources to the rural poor and gender sensitivity should be incorporated into the poverty alleviation programmes in the country.
- ❖ Government should enhance support schemes through provision of loan and the provision of basic infrastructure.

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