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EFFECTS OF AGRICULTURAL COMMERCIALIZATION ON POVERTY STATUS OF SMALLHOLDER CASSAVA FARMING HOUSEHOLDS IN OYO STATE, NIGERIA

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Abstract

Transforming the subsistence-oriented cassava production system into a market-oriented production system as a way of increasing the smallholder farmers' income, reducing poverty and thus increasing their welfare has been a policy focus in Nigeria. The study examined the effects of agricultural commercialization on poverty status of smallholder cassava farming households. Multistage sampling procedure was used to select 189 households; data were collected with the use of a well-structured questionnaire and analysed with the use of household commercialization index, FGT index, ordered probit model and logistic regression model. The result of household commercialization index revealed that larger proportion of the farmers commercialize at a high level. Level of education, farming experience, farm income, quantity of cassava produced and extension visits influenced commercialization. The results further showed that 37.28% of smallholder cassava farming household were poor. Sex, level of education, farming experience, quantity of cassava produced, farm income, level of commercialization and extension visit significantly influenced poverty status. The study concludes that most cassava farmers have a high level of commercialization which has a positive influence on the farmers' welfare. The study recommends farmers' education, effective policy intervention and programmes on commercialization and access to credit to improve farmers welfare.

Key words**:** *cassava, commercialization, poverty, ordered probit, Nigeria*

INTRODUCTION

Agriculture continues to play a strategic role in contributing to economic development and poverty reduction in most countries. In 2017, the agricultural sector contributed to a Gross Domestic Product (GDP) of 3.33% globally [31]. Also, in sub-Saharan Africa, agriculture remains one of the key sectors that serve as a primary source of income and livelihoods to the majority of rural farming households who represents 70% of the poor [25]. However, common to countries in sub-Saharan Africa, Nigeria inclusive, smallholder farmers produce most of the agricultural output and majority of the population live below the poverty line [24, 30]. Previous studies [28], [18] and [27] have attributed these challenges faced by smallholder farmers to be as a result of subsistence-oriented farming patterns that are highly vulnerable to risk and poor market orientation. Hence the need for Agricultural commercialisation of major cash crops, especially cassava due to it resilient to drought and abundant agribusiness opportunities which remains untapped [12, 1, 9]. This will serve as a strategic driver to attaining sustainable economic development, high-income levels and extreme poverty reduction.

Cassava (*Manihot esculenta*) is widely cultivated in Africa by smallholder farmers and it is the world fourth major staple cash crop after rice, wheat and maize [8, 15]. Nigeria, the world largest producer of cassava, contributes 60% of the world total production [21]. Over the years, the Nigeria cassava market is composed of subsistence-oriented section and a newly evolving industrial market where smallholder farmers are also tapping into the various cassava value chains.

Thus, cassava commercialization has been a priority to development experts due to its key role in reducing poverty among smallholder farmers.

[18] and [7] have emphasized that agricultural commercialization is a reality in many developing countries and has increased income which in turn has reflected on the poverty status of smallholder farmers. Hence, promoting agricultural commercialization is an important step to development and poverty reduction of these smallholder farmers in Nigeria, as well as other developing countries. Globally, poverty rates have reduced considerably; however, many of the world poor are still smallholder farmers [22].

Although, there is a growing emphasis on Agricultural commercialization, to make smallholder farmers more market-oriented to improve their income and poverty level especially in developing countries like Nigeria. There are also promising cases of smallholder cassava farmers engaging in commercialization.

Currently, smallholder cassava farmers operate at different levels of commercialization and these levels are still not high enough due to several social-economic and institutional factors [10, 25]. Researches had identified these factors to include farmer's level of awareness on commercialization, market imperfections and high transaction costs. These determine the participation or non-participation of smallholder cassava farmers. Similarly, smallholder cassava farmers still experience a high incidence of post-harvest losses and weak linkages between the local and international markets. Thus, making these potential markets and the cassava value chain underexploited [5]. Other challenges faced by these farmers include poor infrastructure, inadequate access to technology and credit facilities. All these factors negatively affect farmer's income, making it difficult for these farmers to integrate with the market and enjoy the benefits of commercialization [11]. This triggers food insecurity and increases poverty levels of these farmers.

Previous studies on the assessment of agricultural commercialization and poverty, like those of [29], [18], [4] and [22], dwelt on market participation, agricultural productivity and income poverty levels. There has been a limited scope as to assess how the level at which commercialization affects farmer's poverty status. Also, limited answers to whether this income generated through commercialization are used to satisfy the farmer's needs. Hence, this paper is significant in filling this gap by examining the effects of commercialization on the poverty status of smallholder cassava farmers. The specific objections are to profile the level of commercialization among cassava farmers; examine the factors that influence the level of commercialization; estimate the poverty level of the cassava farmers in the study area to their level of commercialization, and to determine the effect of commercialization on the poverty levels of smallholder cassava farmers. Consequently, the paper will serve as reference material for researchers, academics and policymakers.

Empirical Review

[25] examined Cassava commercialization and household income of Smallholder Farmers in Kenya. The study found that farmers who undertook cassava commercialization had a significantly higher income relative to those who did not. Also, several factors were found to significantly affect commercialization. These included farm size, years of education and remittances which positively ($p<0.05$) influenced cassava commercialization and group membership ($P<0.10$). However, distance to the market ($p<0.01$) had a negative effect. [14] researched status, determinants and effect of agriculture commercialization among smallholder farmers in Tanzania. The result found that Age of household head, sex, household size, land area allocated for production, use of inorganic fertilizer, use of improved seed and accessibility to agricultural inputs on credit were found to significantly influence the decision for farmers to participate in agricultural commercialization of the four commodities. [10], examined the assessment of commercialization of food crops among farming households in the southwest, Nigeria. The study found that sex,

age, household size, access to market information and non-farm income positively influenced commercialization and cooperative society, distance to the farm to the nearest market, farming experience, educational status and farm size negatively influenced commercialization. [11] conducted a study on market information and extent of agricultural commercialization: empirical evidence from smallholder farmers in the Effutu municipality of Ghana. The truncated regression estimate revealed that gender, the total number of male adults within the household, education, market information, farm size, access to land and non-farm income significantly explain variation in the extent of agricultural commercialization.

[20] carried out a study on the effects of small-scale agricultural crop commercialization on rural household welfare in Tanzania. The results showed that crop commercialization, women participation in crop income allocation, off-farm income, access to extension services and household size significantly reduce household poverty while household head's age had an adverse effect. [13] analyzed the determinants of market participation and the implication of this market participation on the welfare of the poor and marginalized households in Kenya. Their results also showed that a high proportion of households who exited poverty sold some of their crop production, and similarly, a high proportion of those who exited poverty sold a high proportion of their crop production.

MATERIALS AND METHODS

The study was conducted in Oyo State, Nigeria. Oyo state is an inland state in south-western Nigeria, with its capital at Ibadan. Oyo State was one of the three States carved out of the former Western State of Nigeria in 1976. The state is bounded in the north by Kwara State, in the east by Osun State, in the north by Ogun state and it the west partly by Ogun state and partly by the Republic of Benin.

It has the coordinates of 8º00'N 4º00'E/ 8.00'N 4.00'E and covers approximately an area of 28,454 square kilometres ranking 14th by size. Oyo state comprises of 33 local government areas. The landscape consists of mostly old hard rocks and dome shaped hills. With an average temperature of 26.5^{o}c and a mean relative humidity of 80.8%, the state enjoys the characteristic West African monsoon climate, which has two major seasons (rain- March to October and Dry - November to February). Major crops cultivated include cassava, yam, maize, cocoa, plantain and fruits.

Types and Sources of Data

Primary data were obtained from cassava farming households with the aid of well-structured questionnaires. Data were collected on variables such as socio-economic characteristics of respondents including; Age of household head, gender, farming experience, farm size, marital status and household head years of schooling. Also, information on labour, off-farm income, farming experience, irrigation availability, access to credit in the previous season, distance to input market, access to road, access to transport, access to market information, access to extension services, the total area under crop production, household gross production value, distance to nearest output market and household expenditure were obtained as well.

Sampling Technique and Sample Size

Multi-stage sampling technique was adopted for this study. At the first, three Agricultural Development Program (ADP) zones were randomly selected from the four ADP zones in Oyo state. The second stage involved random selection of three agricultural blocks from the selected ADP zones, the third stage entails random selection of three cells from the selected blocks, at the last stage seven cassava farming households were randomly selected making 189 households. However, during the process of data clean up only 180 responses were fit for analysis due to incomplete responses and outliers, thus representing 95.2% of the total responses.

Analytical Technique and Model Specification

Descriptive statistics such as frequencies, table, percentages, mean, and standard

deviation were used to describe the socio-economic characteristics of the cassava farmers and profile the level of commercialization among farmers.

Household Commercialization Index (HCI)

The study employs the household commercialization index (HCI) as used by [19], [23], [17] and [3] to determine the household level of commercialization. HCI is mathematically expressed as:

$$HCIi = \frac{\text{Gross value of crop sales in a year}}{\text{Gross value of all crop production in a year}} X100$$

.....(1)

The index measures the ratio of the gross value of crop sales by household ***i*** in year ***j*** to the gross value of all crops produced by the same household ***i*** in the same year ***j*** expressed as a percentage. The index measures the extent to which household crop production is oriented toward the market. A value of zero would signify a subsistence-oriented household and the closer the index is to 100, the higher the degree of commercialization. If HCI ≤ 25% farmers have very low commercialization, if HCI ≤ 50% farmers have averagely (medium) commercialization, if HCI ≤ 75% farmers have high commercialization and if HCI >75% farmers have very high commercialization. The advantage of this approach is that commercialization is treated as a continuum thereby avoiding crude distinction between "commercialized" and "non-commercialized" households.

Foster Greer and Thorbecke (FGT) Poverty Index

The study employs the Foster Greer and Thorbecke (FGT) poverty measure to estimate the poverty status among smallholder cassava farmers in the study area. The formula following [6] and as adopted by [23] is specified as follows:

$$P_\alpha = 1/n \sum(Z-Y_i/ Z)^\alpha \ldots\ldots\ldots\ldots\ldots\ldots \quad (2)$$

where:

Y_i is the expenditure per adult equivalent of i^{th} household, Z is the poverty line, n is the number of households; α is the number of the sampled population below the poverty line and a is the aversion to poverty, a coefficient reflecting different degrees of importance accorded to the depth or severity of poverty. A poverty threshold was obtained using the two-third of the mean consumption per adult equivalent of the rural farming households. This threshold was used to separate the poor from the non-poor. The Foster, Greer and Thorbecke class of poverty measures were used to profile the poverty status of the rural farming households in the study area.

Ordered Probit Model

To examine the factors influencing the level of commercialization among cassava farmers in the study area, ordered probit model was employed. The ordered probit regression model is employed to quantify the magnitude and the direction of the effects of factors influencing commercialization of smallholder agriculture. Following [19], the model specification is as specified as:

$$Y^* = \hat{a}_0 + \hat{a}_1 C_1 + \hat{a}_2 C_2 + \hat{a}_3 C_3 + \hat{a}_4 C_4 + \hat{a}_5 C_5 + \hat{a}_6 C_6 + \hat{a}_7 C_7 + \hat{a}_8 C_8 + \hat{a}_9 C_9 + \hat{a}_{10} C_{10} + \hat{a}_{11} C_{11} + ì$$

……..... (3)

Y= commercialization (High, Medium and Low)

C_1= Age (years)

C_2= Marital status (1 if married; 0 otherwise)

C_3= Sex (1 if male; 0 if otherwise)

C_4= Level of education (years)

C_5= Household size (number of persons)

C_6= Market distance (kilometres)

C_7= Total quantity produced (Kilogram)

C_8= Farming experience (years)

C_9= Access to extension service (1 if yes; 0 otherwise)

C_{10}= Farm income (Naira)

C_{11}= Primary occupation (1 if farming; 0 otherwise)

$\hat{a}_0$ = Intercept term

$\hat{a}_1$-$\hat{a}_8$ = Coefficient of parameters estimates

i = error term

Logistic Regression Model

To determine the effect of commercialization on the poverty levels of cassava farmers in the study area, the logistic regression was employed. Following [20], the model is as specified as:

$D^*_i = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_1X_1 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \beta_7X_7 + \beta_8X_8 + \beta_9X_9 + \beta_{10}X_{10} + \beta_{11}X_{11} + \beta_{12}X_{12} + \beta_{13}X_{13} + \varepsilon i$ …. ..(4)

D= Poverty status (poor= 1, otherwise= 0)
X_1= Age (years)
X_2= Marital status (1 if married; 0 otherwise)
X_3= Sex (1 if male; 0 if otherwise)
X_4= Level of education (years)
X_5= Household size (number of persons)
X_6= Farm size (hectares)
X_7= Market distance (kilometres)
X_8= Access to market information (1 if yes; 0 otherwise)
X_9= Total quantity produced (Kilogram)
X_{10}= Farming experience (years)
X_{11}= Access to extension service (1 if yes; 0 otherwise)
X_{12}= Farm income (Naira)
X_{13}= Commercialization index in percentage
β_0 = Intercept term
β_1- β_8 = Coefficient of parameters estimates
εi = error term.

RESULTS AND DISCUSSIONS

Socioeconomic Characteristics

Table 1 shows the frequency distribution of respondents according to sex, age, marital status, education, farming experience, household size and membership of cooperative society.

Table 1. Distribution of Respondents According to their Socioeconomic Characteristics

Variable	Frequency	Percentage	Mean	Standard deviation
Sex				
Female	67	37.22		
Male	113	62.78		
Total	180	100.00		
Age (years)				
1-20	1	0.56	42	11.76
21-40	91	50.56		
41-60	74	41.11		
61-80	13	7.22		
>80	1	0.86		
Total	180	100.00		
Marital status				
Single	28	15.56		
Married	131	72.78		
Widow	20	11.11		
Divorced	1	0.56		
Total	180	100.00		
Level of Education				
No formal	15	8.33		
Primary	47	26.11		
Secondary	59	32.78		
Tertiary	59	32.78		
Total	180	100.00		
Household size (persons)				
1-5	168	93.33	5	1.78
6-10	5	2.78		
11-15	6	3.33		
16-20	1	0.56		
Total	180	100.00		
Farming experience (years)				
1-10	104	57.78	12	4.85
11-20	56	31.11		
21-30	10	5.56		
31-40	10	5.56		
Total	180	100.00		
Member of cooperative				
Yes	122	67.78		
No	56	31.11		
Total	180	100.00		

Source: Field Survey, 2019.ț

The majority (62.78%) of the respondents were male while 37.22% were of female; this implies that more male farmers are involved in cassava farming than female. This connotes a typical Nigerian farming system especially in the western region where men are

predominantly farmers. This is substantiated by the study conducted by [26]. Most (50.56%) of cassava the farmers are within the ages of 41-60 years. The mean age was 42 years. This indicates that most of the farmers are in their active and productive age. It is expected that younger farmers will be more productive than older farmers thereby improving their poverty status as a result of additional income. This result agrees with that of [20].

Majority (72.78%) of cassava farmers were married, this implies that most of the cassava farmers are matured and responsible to cater for their households as well as have a clear knowledge of their wellbeing, there is also an implanted sense of responsibility as marital status prompts commitment to business because of the family needs that must be met and this would subsequently enhance productivity, this result corroborates the findings of [16].

Less than half (32.78%) of cassava farmers had secondary and tertiary education, this indicates that farmers can read and write, which is an important factor in the commercialization of farming, this corroborates the study conducted by [23].

Almost all (93.33%) of the respondents had between 1-5persons in their households with a mean household size of 5 persons, this implies that most of the cassava farmers had a fairly large household size they could employ on their farms whenever they are available, this result is in line with the findings of [16]. Most (57.78%) of the respondents had 1-10years experience with mean farming experience of 12years, this implies that most of the cassava farmers had enough experience about farming and this may influence their level of commercialization positively, this result agrees with [17].

The majority (67.78%) are members of cooperative society; this implies that the farmers are more likely to have access to information that will enhance their production and marketing of cassava. This may positively influence their level of market participation and reduces their poverty status. This result is in line with [13].

Level of Commercialization among Cassava farmers

Table 2 shows the level of commercialization among cassava farmers, the majority (77.22%), operated at a high level of commercialization. The mean household commercialization index is 58%. This indicates that cassava farmers highly participate in markets. The implication of this result is that the cassava farmers are more likely to be poor as commercialization provides an avenue to escape poverty.

Table 2. Distribution of cassava farmers according to the level of commercialization

Commercialization index	Frequency	Percentage
Low (≤25%)	7	3.89
Medium (26–50%)	34	18.89
High (51 – 100%)	139	77.22
Total	180	100.00
Standard deviation	12.96	
Mean comm. Index	58%	
Min. comm. index	5.45%	
Max. comm. Index	94%	

Source: Field Survey, 2019.

Factors Affecting the Level of Commercialization among Cassava farmers

Table 3 shows the relationship between the level of commercialization among cassava farmers and factors such as; age, sex, marital status, educational background, household size, family labour, years of experience, distance to output market, farm income, the quantity of cassava produced, primary occupation and extension visit. The significant LR chi-square value of 32.30 indicates that the explanatory variables jointly influence commercialization. The diagnostic tests (Pseudo R^2 = 0.1401 and Prob> chi2 = 0.0007), indicates that the model is a good fit for the data.

The result of the marginal effect shows that the coefficient of the level of education is significant ($p<0.01$) and positively influenced commercialization, this implies that an additional year of education would increase the extent of commercialization by 0.145%. This result corroborates the findings of [25] that farmers operate well in the market when they can read and write and this aid

transaction process. Farming experience is significant (p<0.05) and positively influenced commercialization, the marginal effect coefficient indicates that an additional 1 percent increase in farmer's years of experience will increase the extent of commercialization by 0.923%, this result aligns with the findings of [13] that postulated that years spent in the marketing of farm produce could improve customer base and make negotiations easier with buyers. Farm income is significant (p<0.10) and positively influenced commercialization. The marginal effect coefficient indicates that 1 percent increase in the amount realized from farm business will increase the extent of commercialization by 0.000028%, this result is in line with the findings of [11]. Quantity of cassava produced is significant (p<0.01) and positively influenced commercialization, the marginal effect coefficient indicates that an additional 1% in the quantity of cassava produced will improve the extent of commercialization by 0.00016%. This result is following the postulation of [2]. Extension visit is significant (p<0.01) and positively influenced commercialization, the marginal effect coefficient indicates that an additional 1% in the number of times extension agents visit farmers will improve the extent of commercialization by 2.17%. This result is following the postulation of [13].

Table 3. Factors influencing levels of commercialization

Variable	Coefficient	Std. Err.	Z	P>z	Marginal effect
Age	0.01926	0.01527	1.26	0.207	-0.00056
Sex	0.02838	0.24060	0.12	0.906	-0.00084
Marital status	-0.35692	0.25238	-1.41	0.157	0.01055
Years of education	0.04930**	0.02415	2.04	0.041	0.00145
Household size	0.28421	0.31948	0.89	0.374	-0.00840
Years of farming experience	-0.31244*	0.17733	-1.76	0.085	0.00923
Primary occupation	0.23540	0.25255	0.93	0.351	-0.00684
Farm income	-9.46e-06*	5.61e-06	-1.69	0.092	2.80e-07
Quantity of cassava produced	0.00005***	0.00001	3.57	0.000	1.68e-06
Distance to output market	0.01316	0.01017	1.29	0.195	-0.00038
Extension visit	-0.63977***	0.24765	-2.58	0.010	0.02174
/cut1	-1.89376	0.71725			
/cut2	-0.70173	0.69681			
Log likelihood	-99.17125				
LR chi2	32.30				
Prob>chi2	0.0007				
Pseudo R2	0.1401				

Note: Significance level: *** (p<0.01), ** (p< 0.05), * (p< 0.10)
Source: Field survey, 2019.

Level of Poverty among Cassava farmers

The result in Table 4 shows the distribution of cassava farmers' food and non-food expenditure.

The total monthly food and non-food expenditure is ₦1,535,490, the poverty line is ₦5,544.83 the implication of this result is that households whose per capita expenditure fell below the poverty line were classified as being poor while those equal or above the poverty line were classified as non-poor.

Table 4. Distribution of Cassava farmer's Food and Non-Food Expenditure

Estimate	Non-Food	Food	Total
Total monthly expenditure	679,030	856,460	1,535,490
Mean per capita expenditure	3,772.39	4,758.11	8,530.5
Two-third of the mean	2,452.05	3,092.77	5,544.83

Source: Field Survey, 2019.

Estimates of Poverty Indices among Cassava farmers

The result of the poverty indices among cassava farmers was presented on Table 5. The results show the estimates for the headcount poverty gap and poverty severity. The headcount ratio indicates that 37.28% are poor. That is, their expenditure on food and non-food items fell below the poverty line; the implication of this result is that poverty is pervasive among the sampled cassava farming households. The poverty gap reveals that poor households need 10% of the poverty line expenditure to move out of poverty. The poverty severity shows that 3% of the cassava farming households were the poorest among the poor, that is, 3% of the sampled households require the attention of policy makers in the provision of welfare indicator materials such as clean water, healthcare facilities, good roads, school, etc.

Table 5. Poverty indices of cassava farmers

Poverty status	Estimate	Std. Err
Headcount P_o	0.37286	0.00741
Poverty gap P_1	0.10007	0.00427
Poverty severity P_2	0.03104	0.00290

Source: Field Survey, 2019.

Effects of commercialization on poverty status of cassava farmers

Table 6 shows the relationship between poverty status among cassava farmers and age, sex, marital status, educational background, household size, family labour, years of experience, distance to output market, farm income, the quantity of cassava produced, extension visit, farm size and level of commercialization. The significant LR chi-square value of 82.69 indicates that the explanatory variables jointly influence poverty status.

The diagnostic tests (PseudoR^2 = 0.3425 and Prob> chi^2 = 0.0000), indicates that the model is a good fit.

Sex of the farmers was found to be significant ($p<0.05$) and positively influenced poverty status, the marginal effect coefficient indicates that an additional percentage increase in farmer's household head sex been male will reduce the probability of been poor by 19.2%. This result conforms to the postulation of [20]. Year of education was found to be significant ($p< 0.05$) and positively influenced poverty status, the marginal effect coefficient implies that an additional increase in years spent on education will reduce the likelihood of being poor by 11.1%. This result agrees with the postulation of [26]. The farming experience was found to be significant ($p< 0.10$) and positively influenced poverty status, the marginal effect coefficient indicates that an additional percentage increase in the year spent in farming will reduce the probability of been poor by 12.5%. This supports the findings of [12]. Quantity of cassava produced was found to be significant ($p< 0.01$) and positively influenced poverty status, the marginal effect coefficient indicates that an additional percentage increase in the quantity of cassava produced will reduce the chances of been poor by 0.00227%. This result is in line with the postulation of [29], which says that the higher the quantity produced, the more the farm income, thus improving farmer's welfare. Level of commercialization was found to be significant ($p< 0.01$) and negatively influenced poverty status, the marginal effect coefficient indicates that an additional percentage increase in the level of commercialization will reduce the chances of been poor by 0.15%, this result supports the findings of [20]. Farm income was found to be significant ($p<0.05$) and positively influenced poverty status, the marginal effect

coefficient indicates that an additional percentage increase in the amount realized as farm income will reduce the chances of been poor by 0.000004%. This result is also consistent with the findings of [29]. Access to extension agent was found to be significant ($p< 0.10$) and positively influenced poverty status, the marginal effect coefficient indicates that an additional percentage increase in the number of extension visit will reduce the chances of been poor by 14.11%. This result is in line with the postulation of [26].

Table 6. Result of logistic regression analysis

Welfare	Coefficient	Std. Err.	Z	P>z	Marginal effect
Age	0.0057681	0.0242392	0.24	0.812	0.0010003
Sex	1.037362**	0.4229941	2.45	0.014	0.1919401
Years of education	0.6383387**	0.2844218	2.24	0.025	0.1107029
Marital status	0.2982699	0.4075099	0.73	0.464	-0.051727
Household size	0.2440948	0.7039535	0.35	0.729	0.0423318
Farming experience	-0.7245195*	0.3926977	-1.84	0.065	0.1256486
Farm size	-0.5340952	11.08489	0.49	0.623	-0.0926246
Quantity of cassava produced	0.000131***	0.0000338	4.32	0.000	0.0000227
Distance to output market	-0.0001925	0.0199823	-0.01	0.992	-0.0000334
Level of commercialization	-0.008641***	0.0029137	-2.95	0.003	-0.0014985
Farm income	0.0000219*	0.0000127	1.72	0.085	-3.80e-06
Extension visit	0.8336745*	0.4276782	1.95	0.051	0.1411495
Constant	0.1803194	1.881192	0.10	0.924	-9.40574
LR chi2	82.69				
P>chi2	0.0000				
Pseudo R2	0.3425				

Note: Significance level: *** ($p< 0.01$), ** ($p< 0.05$), *($p< 0.10$)
Source: Field survey, 2019.

CONCLUSIONS

The study examined the effects of agricultural commercialization on poverty status of cassava farming households. It can be concluded that smallholder cassava farmers show a high level of commercialization. Furthermore, level of education, farming experience, farm income, quantity of cassava produced, and extension visit were the positive and significant factors influencing the level of commercialization among cassava farmers. The study further established that poverty is pervasive among the cassava farming households in the study area. Sex, level of education, farming experience, quantity of cassava produced level of commercialization, farm income and extension visit were the significant factors that promote cassava farmers welfare. The study concluded that agricultural commercialization reduces the poverty status of cassava farming households, it was recommended that to reduce poverty; interventions which would support cassava commercialization should be enhanced for improved farmer's welfare. These include better education for farmers and encouraging the youth into cassava production. Access to Extension agents should be improved among cassava farmers. There should be an increase in the number of visits on cassava farms and the introduction of new technologies to farmers as this was found to improve cassava farmer's level of commercialization. The government should improve the road network and other infrastructural facilities so that the farmers can easily move their produce to the market for sales, this will at the long run improve their level of commercialization and stamp out poverty.

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