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ANALYSIS OF ECONOMIC EFFICIENCY OF SMALL-SCALE CASSAVA (*Manihot esculenta)* FARMERS IN ADO LOCAL GOVERNMENT AREA OF BENUE STATE, NIGERIA

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Abstract
This study analyzed economic efficiency of small-scale cassava (Manihot esculenta) farmers in Ado Local Government Area of Benue State, Nigeria. Multistage sampling technique was used to select respondents. Structured questionnaires was used and administered to obtain primary data. Both descriptive and inferential statistics were used to analyze the data obtained. Descriptive statistics used were frequency, percentage, mean and ranking. The inferential statistics used was stochastic frontier cost function to analyze the level and determinants of economic inefficiency in the studied area. The result of the socio-economic characteristics indicated that majority (68.7%) of the respondents were males with 46.3% of them fell within the age range of 31-40 years with the mean of 41.0 year About 53.7% of the respondents had household size from 6-10 persons and mean of 7.2. About 41.8% had farming experience of 21-30 years in cassava production with mean 22.2 About 43.3% of the respondents had farm size of 0.51-1.00 hectare of land for cultivation which had the mean 1.01. The result of mean economic efficiency of the cassava farmers was 0.954. The maximum likelihood estimates of the cost function indicate sigma square value of 0.2759 and significant at one percent. The coefficients of production variables in the stochastic frontier cost function were positive and significant at one percent level. The study concluded that there were presences of economic inefficiency in cassava production in the study area despite high levels of economic efficiencies among the cassava farmers. It is recommended that government should provide support in respect to price stability, good market facilities and market information to enhance efficiently of cassava production.
Keywords: Analysis, Efficiency, economic, Small-scale, cassava farmer.

1.0 Introduction

Cassava (*Manihot esculenta*) is believed to have originated in Northern Brazil and Central America. This popular crop is now grown in almost every tropical country. It is regarded as a benchmark for food security in the sub-Saharan Africa. It is ranked second to maize in terms of calorie intake. In Africa, Nigeria in particular, cassava is one of the most important staple foods. In Nigeria cassava was introduced into Warri in the then Bendel State of Nigeria, by Portuguese explorer in the 16th-17th century. Since then, Nigerians have accepted cassava as one of their main non-cash crops (staple) and cash crop within the domain. The large population of Nigeria depended on daily basis on it as their main dish. Cassava can be a powerful poverty fighter in Nigeria. The cash income from cassava proves more egalitarian than the other major staples because of cassava's

low cash input cost and also because of its high demand both locally and internationally, it is deemed fit to be cultivated more than it is done now (Odoemenem and Otanwa, 2011).

As a main source of carbohydrate, it is noteworthy to mention here that cassava also contains 2 cyanogenic glycosides namely linamarin and lotaustralin which are highly toxic to humans and animals. Therefore, it must be properly processed before it become suitable for consumption. There are many industrial derivatives from cassava including starch, ethanol, monosodium glutamate, paper etc. These good attributes of cassava enable it to have a comparative advantage over other tropical crops. It can be processed into many forms including "garri", fufu, cassava chips, flour, bread, and beer, among others (Kuye and Oludayo, 2015).

Recently, out of 186 million metric ton produced in the world, Nigeria accounted for 54,831,600 million metric tons, in 2010 production was 42,533,108 million metric tons, in 2011 production was 46,190,248 million metric tons, in 2012 production was 50,950,292. While in 2013 there was a reduction in production where 47,406,770 metric tons was produced and in 2014 there was an increase in production with 54,831,600 metric tonnes produced (Yakasai, 2015).

Cassava is the only crop whose production level has tripled over the past 50 years while its development has been further advanced in the continent by the activities of the International Institute of Tropical Agriculture (IITA). IITA has distributed more productive new varieties that are resistant to a number of diseases as well as drought. It is estimated that 250 million people in Sub-Saharan Africa derive half of their daily calories from cassava being the second most important food staple and supplier of calories after maize (Akingbe, 2010).

According to Daud et al. (2015) Kogi State is the second largest producer of cassava in Nigeria after Benue State with a production figure of 2.854 million metric tonnes. Farmers produce cassava as a source of family food and income. IITA (2015) corroborated this ranking by noting that Benue and Kogi States in the North Central Zone are the largest producers of cassava in Nigeria.

Ogunbameru and Okeowo (2013) showed that on a per capita basis, North Central is the highest producing Zone at 0.72 tonnes per person in 2008, followed by South East (0.56), South-South (0.47), South-West (0.34), North-West (0.10) and North-East (0.01). National per capita production of cassava is about 0.32tonne per person.

In view of the Federal Government policy on cassava production for both local and international markets a strategy of adding 10 percent cassava flour in wheat flour for local industries from January, 2005 was adopted. It is worthy to note that small-scale farmers are widely involved in cassava production in Nigeria. These farmers use low-level production techniques. They are constrained to adopt improved technologies in cassava production. Some of their constraints include inaccessibility to credit facility, illiteracy, small farm size, inadequate access to agricultural information like market product prices, input prices, interest rates and poor market and rural road networks (Osun et al., 2015).

To achieve prosperity and overcome stagnation, there is a need to increase growth in all sectors of the economy, for such growth is the most efficient means of alleviating poverty and generating long-term sustainable development. Resources must be used much more efficiently, with more attention paid to eliminating waste. This will lead to an increase in productivity and incomes. The success in achieving broad-based economic growth will depend largely on the ability to efficiently utilize the available resources (Bassey et al., 2014).

2.0 Objectives of the Study

The broad objective of the study was to analyze economic efficiency of small-scale cassava farmers in Ado Local Government Area of Benue State, Nigeria. The specific objectives of the study were to:

i. describe the socio-economic characteristics of cassava farmers in the study area;
ii. ascertain the level of economic efficiency of cassava;
iii. analyze determinants of economic efficiency; and

iv. identify constraint associated with cassava farmers in the study area

3.0 Methodology

study will be conducted in Ado Local Government Area of Benue State, Nigeria. The Local Government was created in 1989. The LGA has five districts: Agila, Igumale, Ulayi, Ijigban and Utonkon, with its headquarters in Igumale. The local Government Area shares boundary with Otukpo, Obi and Oju LGAs of Benue State and with Ishielu and Ohaukwu LGAs of Ebonyi State. Ado Local Government lies in Latitude 795' and 7°15' north and longitude 9º and 9°6' east of the equator (Amali, 2012). The area is renowned for yam, rice, cassava, maize, sesame, cocoyam and palm oil production. Fishing is a lucrative occupation in the area due to the presence of Okpokwu, Ogege, Awu, Astani, and Ado streams. There is a large number of Blacksmiths in the area producing hoes, cutlasses and other basic farm implements. The population of the local government is about 214,837, and the populace speak predominantly Idoma and Ufia languages (Oduma-Aboh, 2015).

The climate of the study area is characterized by wet and cold season during greater part of the year. The rainy season lasts for six to seven months which is mostly between the month of April and October with an average annual record of 1000mm. The area has a temperature generally high during the day, particularly in February March. Maximum temperature ranges from 22°C (during the rainy season) to 37°C (in the dry season). The vegetation of the area consists of rain forest and Guinea Savannah. Agriculture is the mainstay of the economy, engaging over 87% of the population into farming (Egor et al., 2015).

Both primary and secondary data were used for this study. The relevant primary data were collected through administration of structured questionnaires. The primary data was collected on socio-economic characteristics of cassava farmers, cost of input and output quantities, determinant of efficiency and constraint associated with cassava farmers.

A multistage sampling technique was used to select respondents for this study. The first stage involved selection of three districts known for production of cassava. The second stage involved random selection of four villages from the selected districts. This was based on the list of major cassava producing villages obtained from Benue State Agricultural Development Programme (BESADP). Third stage and final stage involved selection of 67 respondents based on 7% proportion of cassava farmers in each of the selected villages. The sampling frame is the list of registered cassava farmers in the selected communities.

Both descriptive and inferential statistics were was for the analysis of data obtained. Descriptive statistics include frequencies, mean, rank and percentage distributions. Inferential statistics used include stochastic frontier cost function.

This will be used to satisfy the socio-economic characteristics of cassava farmers and constraints. The descriptive statistic employed includes frequency, percentages, mean and rank.

Stochastic frontier cost analysis gave priorities to input oriented approaches to estimate the determinant of economic efficiency and efficiency level of production is explicitly expressed as:

$$Inc = \alpha_0 + \alpha_1 InQ_1P_1 + \alpha_2 InQ_2P_2 + \alpha_3 InQ_3P_3 + \alpha_4 InQ_4P_4 + \alpha_5 InQ_5P_5 + \alpha_6 InQ_6P_6 + \alpha_7 InQ_7P_7 + \alpha_8 InQ_8P_8 + V + U \ldots\ldots\ldots\ldots\ldots\ldots 3.1$$

Where:

C_1 = total input cost of i^{th} farm (₦)
Q_1 = output quantity of the i^{th} farm (kg)
P_1 = cost of cassava stick (₦/kg)
P_2 = cost of agrochemicals (₦/kg)
P_3 = price of fertilizer (₦/kg)
P_4= of farm implements (₦)
P_5 = cost of fuel maintenance (₦)
P_6 = cost of planting of planting materials (₦/kg)
P_7 = cost depreciation of farm tools

α_0 = constant
α_{1-7} = estimated parameters
V = random variable assumed to be independently and identically distributed; that represent the stochastic effect outside the farmer's control.
U = efficiency component that represents economic inefficiency in production which is assumed to be independently and identically distributed.

The economic inefficiency model will be explicitly express as:

$$\mu = \alpha_0 + \alpha_1 \ln K_{1ij} + \alpha_2 \ln K_{2ij} + \alpha_3 \ln K_{3ij} + \alpha_4 \ln K_{4ij} + \alpha_5 \ln K_{5ij} + \alpha_6 \ln K_{6ij} + \alpha_7 \ln K_{7ij} + W_1 \ldots\ldots\ldots\ldots\ldots 2.4$$

μ_1 = economic inefficiency
K_1 = farming experience (years)
K_2 = formal education(years)
K_3 = extension contact (number of visit)
K_4 = access to credit (Dummy =1 if available and 0 otherwise)
K_5 = membership of cooperatives (Dummy =1 if available and 0 otherwise)
K_6 = -farm income (₦)
K_7= to market (km)
K_{1-7} = vectors of unknown parameters to be estimated
W = random variable that will be defined by the normal distribution with zero mean and variance.

4.0 Results and Discussion

4.1 Socio-Economic Characteristics of Respondents

Table 1 reveals that majority (68.7%) of the cassava farmers in the area were males, while 31.3% were females. This indicates dominance of male folk cassava production in the study area. This could be attributed to the fact that cassava farming required rigorous labour which male farmers can provide than their female counterpart. The dominance of male farmers in cassava production in the study area may also be due to upper hand enjoyed by male farmers in terms of accessibility to farm land and production inputs. The result of this findings conforms with the findings of Shettima et al. (2016) which shows that majority of the respondent of irrigated vegetable production in Borno State of Nigeria were male. Findings showed that 46.3% of the respondents were within the age group of 40 and below. The result implies that there is presence of young and middle-aged individuals known to be active in agricultural production. This may be due to the fact that cassava production requires a lot of management practices and high labour.

Majority (70.1%) of the respondents had a household size below 10 persons, while about 29.9% had a household size of l1 persons and above. The relatively large family size could be as a result of some men married more than one wife while some women gave birth to numerous children in the study area. The implication is that needed labour in cassava production can be provided through family labour for the execution of farm activities to enhance efficiency.

Table 1 further reveals that majority (89.6%) of the respondents had farming experience of equal to or greater than 11 years in cassava production. The result also indicated that very few; about 10.4% were in cassava production for short period of less than 11 years. This implies that cassava farmers in the study area had experienced which could help production since they learn more by doing regularly. The findings conform to the findings of Femi and Shitu (2014) which shows older farmers are more efficient than younger ones because of the growing stock of experience in farming. In addition, older farmers had more resources at their disposal which include capital, agricultural implement and assets.

The dominance (88.1%) of the respondents had level of education below 10 years, while about 11.9% had level of education greater than 10 years. This means that the respondents were educated not beyond secondary school level. The implication of low level of education is that they could not be easily exposed to/and adopt production technologies and innovations. Hence, this could have

negative effect on the efficiency of cassava production in the study area. Education contributes positively in enhancing agricultural productivity especially in this era of technological advancement, which leads to efficiency in cassava production.

The pattern of land ownership by inheritance and purchase tends to promote management and motivation to farmers for efficient utilization of resources than land acquired through lease or rented, (Rahman, 2009). The distribution of ownership of land among the respondent is also presented in Table 1, the result revealed that majority (49.3%) of the respondents acquired the land by inheritance, while about 23.9% were purchase. The least percentage was about 14.9% and 11.9% came from land acquired through rented/lease and gift respectively. The implication is that user of family lands is likely to have smaller farm land since each member of the family would have a right to use that particular land and ownership of land could affect profit of cassava farmers as part of the profit goes to payment of rent, purchasing, and other land related expenses.

Table 1 further reveals that a substantial proportion (68.7%) of the respondents were not member of any cooperatives. This may be due to the fact that there is no much enlightenment on the importance or benefits derived from being a member of association in the study area. The result also indicated that about 31.3% of the respondents were members of different farming cooperatives. This implies that the respondents may enjoy from benefit of being a member of cooperatives such as loans, inputs among others; which may affect efficiency.

The percentage distribution of annual farm income of the respondents is also presented in Table 1. The result revealed that mostly (40.3%) of the respondents earned between ₦51,000-100,000 naira per annum as an annual farm income with a mean of ₦95,200. While only 9.0% earn above ₦200,000. This moderate-income profile underscores the importance of economic efficiency which implies that respondents were averagely earning well and this coupled with non-farm income could enable them to acquire farm inputs for efficient utilization.

Annual non-farm income further supported this trend, with (44.8%) with a mean of ₦76,000 derived by farmers from other sources other than farming to supplement income generated through farming. While only about 7.4% earned above ₦200,000 as annual non-farm income. This implies that respondents have other sources of livelihood to supplement the annual farm income, in spite of their small-scale nature. Which make them to finance their farming operations without delay.

Farm size plays a significant role in agricultural production which largely determines the ability of the farmers to source for labour and production inputs. The distribution of farm size among the respondents is presented in Table 1. The result revealed that mostly (43.3%) of the respondents had between 0.51-1.00 hectare as farm size, with a mean of 1.01. While about 4.4% had farm size greater or equal to 2.00ha. The implication is that respondents can manage their farm lands with ease and intensify utilization of inputs to maximize productivity. However, they cannot increase output through land expansion due to limited farm size.

Table 1: Distribution of Respondents Based on Socio-economic Characteristics (N =67)

Variables	Frequency	Percentage	Mean
41-50	15	22.4	
Sex			
Male	46	68.7	
Female	21	31.3	
Age (Years)			
≤ 20	5	7.5	41.0
21-30	9	13.4	
31-40	31	46.3	
≥ 50	7	10.4	
Household size			
≤5	11	16.4	7.2
6-10	36	53.7	
11-15	14	20.9	
≥ 16	6	9.0	
Years of formal education			
≤5	41	61.2	5.0
6-10	18	26.9	
≥10	8	11.9	
Years of farming experience			
≤10	7	10.4	22.2
11-20	18	26.9	
21-30	28	41.8	
31-40	11	16.4	
≥41	3	4.5	
Types of ownership			
Inheritance	33	49.3	
Purchase	16	23.9	
Rented/lease	10	14.9	
Gifted	8	11.9	
Membership of cooperatives			
Member	21	31.3	
Non-member	46	68.7	
Annual farm income			
≤50,000	14	20.9	95,200
51,000 – 100,000	27	40.3	
101,000 – 150,000	8	11.9	
151,000 – 200,000	12	17.9	
≥200,000	6	9.0	
Non - farm income			
≤50,000	10	14.9	76,000
51,000 – 100,000	30	44.8	
101,000 – 150,000	18	26.9	
151,000 – 200,000	4	6.0	
≥200,000	5	7.4	
Farm size			
≤0.5	5	7.5	1.01
0.51 – 1.00	29	43.3	
1.01 – 1.50	11	16.4	
1.51 -2.00	19	28.4	
≥2.00	3	4.4	

Source: Field survey (2017)

4.2 Level of Economic Efficiency of Cassava Producers

The distribution of economic efficiency level among the respondents in the study area is presented in Table 2. The result shows that the mean economic efficiency was 0.954. The minimum and maximum economic efficiency attained by the cassava farmers were about 0.825 and 0.990 respectively.

Table 2: Distribution of Respondents Based on Level of Economic Efficiency (n=67)

Efficiency level	Frequency	Percentage
0.80 – 0.85	4	6.06
0.86-0.90	6	9.09
>0.91	56	84.85
Total	66	100
Mean	0.954	
Min	0.825	
Max	0.990	

Source: Field survey (2017).

This means that, there is room for increase in economic efficiency of cassava farmers by about 15%. This indicates that cassava farmers can reach the frontier level by using same inputs and saving cost of production. This conform with the findings of Adewuyi et al. (2013) whose results revealed that farmers were efficient and they still have room to increase the efficiency in their farming using the same available resources.

The level of economic efficiency distribution in the table also indicates that about (84%) of the respondents had economic efficiency level greater than 0.90. This indicates that farmers were operating at higher levels of economic efficiency. The results also show that about 9% had an economic efficiency level of 0.86 - 0.90, while 6% had 0.80 -0.85 levels. This is an indication that economic efficiency varies from least to highest among the cassava farmers.

4.3 Determinant of Economic Efficiency

The result of maximum likelihood estimate of the stochastic frontier cost function for the cassava production is presented in Table 3.

Table 3: Maximum Log-likelihood Estimate of Cobb-Douglas Cost Function for Cassava Producers.

Variables	Parameters	Coefficient	Std error	T-value
Constants	δ0	0.4008	0.0235	17.0***
Ln Qty. Cost of cassava stick (P_1)	δ1	0.0125	0.0045	2.77***
Ln Qty. Cost of agrochemicals (P_2)	δ2	0.0014	0.0001	12.9***
Ln Qty. Cost of Fertilizer (P_3)	δ3	0.0018	0.0947	1.99**
Ln Qty. Cost of fuel/maintenance (P_4)	δ4	0.0634	0.0164	3.86***
Ln Qty. Cost of farm implements (P_5)	δ5	0.0934	0.0344	2.71***
Ln Qty. Cost of planting materials (P_6)	δ6	0.0337	0.0032	10.461***
Ln Qty. Cost depreciation (P_7) δ7	δ7	0.0041	0.0019	86.807***
Inefficiency				
Ln Farming experience (K_1)	α1	-0.0160	0.7466	67.869***
Ln Formal education (K_2)	α2	-0.0103	0.6386	-1.61**
Ln Extension contact (K_3)	α3	-0.0027	0.7210	-38.699***
Ln Access to credit (K_4)	α4	-0.0047	0.4264	-1.12**
Ln membership of cooperatives (K_5)	α5	-0.0002	0.0344	-59.030***
Ln Off-farm income (K_6)	α6	-0.0030	0.1881	-1.60**
Ln Distance to market (K_7)	α7	-0.0009	0.1923	0.991***
Sigma-squared	α2	0.2759	0.2784	0.991***
Gamma	ϒ	0.4969	0.9975	0.498***
Log likelihood ratio		-14.684		

Source: from Field Survey Data (2017).

Note: *** significant at 1%, ** significant at 5%

The result revealed that the sigma square estimates for the cassava production enterprise was less than 1 (0.2759). This attests to the goodness of fit and correctness of distribution from assumed for the composite error term. The variance ratio (gamma), indicate that inefficiency effect exist which justify the use of stochastic cost frontier model as indicated by 0.4969 and significant

at one percent level. The higher percentage of variation in the production cost of cassava was due to difference in cost inefficiency.

The results in Table 3, further shows that the coefficients of cost of cassava stick is positive (0.0125) and significant at 1 percent level, meaning that as the cost of cassava stick increases by a unit, the total production by value equal the coefficient. The implication is that; as the cost of cassava stick increase which leads to increase in total cost of production may likely affect profit in the production of cassava. This result agrees with findings of Bassey et al. (2014) who also found positive relationship between cassava stick and output of cassava stick.

The coefficient of agrochemicals was found to be positive and significant at 1% level, the value of the coefficient was (0.0014). The implication of low value of the coefficient is an indication that cassava production the study area is usually done mostly without the application of agrochemicals, although cost associated with agrochemicals form part of the total cost of production meaning that as the cost of agrochemicals increase the total production, cost increases as well.

The coefficient of cost of fertilizer was found positive (0.0018) and significant at 5% level. This implies that it is positively related to production cost. The increase in this variable by a unit will result to an increase in cost of cassava production. This finding agrees with the findings of Bamidele et al. (2008) who also found positive relationship between cost of fertilizer and production cost which was significant at 5% level.

The coefficient of cost of farm implements also had positive coefficient and significant at one percent level. This indicates that a unit increase in cost of farm implement leads to an increase in cost of cassava production by a value equal to the coefficient (0.0934). The farm implement is the highest among the coefficient of cost function, indicating that farm implement may have been used most inefficiently. The implication of this is that as cost of farm implements increases, total cost of production also increases which may likely affects the profit obtained from the cassava production activities.

The cost of planting/planting materials also had positive coefficient (0.0337) and significant at one percent level. This means that there is positive contribution of variable to total cost of production equivalent to the coefficient. The result implies that planting material is an important factor contributing positively to the cost of production. This conforms with the findings of Ogunbameru and Okeowo (2013) who also found positive and significant relationship cost of planting/planting materials and the total cost of production for cassava producers.

The coefficient of cost of fuel/maintenance (0.0634), cost depreciation of farm tools (0.0357), was also found to be positive and significant at one percent level respectively. The result indicates that cost of production of cassava increases with the equal coefficients of these variables. This may be due to the fact that cassava producers may require the use of machines for transportation to the farm and also for farm operations required fuel, lubricants, maintenance and depreciation form part of the total cost of production. This result is consistent with the findings of Daud et al. (2015) who also found a positive and significant relationship between maintenance costs and total cost of production for cassava farmers.

The inefficiency component of the cost function is also presented in Table 4.3. As expected a priori, the coefficients of the inefficiency variables were negative and significant. The negative signs on the coefficient indicate that a unit increase in the affected variables leads to decrease in economic inefficiency in cassava production. The coefficient of years of farming experience was negative and significant at one percent level (-0.0160). This means that an increase in years of cassava farming experience leads to a decrease in economic inefficiency. This may be due to the fact that, more years of cassava production experience comes greater understanding of cultural practices and other management practices that would help reduce products losses as the cassava grow up to the point of harvest. This may influence the economic efficiency of the cassava farmers significantly.

The coefficient of level of formal education was negative and significant. The coefficient was -0.0103 and significant at 5 percent level. This indicates that as educational level of farmers increases, the economic inefficiency in cassava production reduces. The implication is that higher level of education by farmers leads to higher economic efficiency. This conforms to the findings of (Ogunniyi, 2015) which reported a negative relationship between economic efficiency and level of formal education.

Extension contacts, membership of cooperatives all have negative coefficient and are significant at one percent. The result revealed that these variables had the coefficient -0.0027 and -0.0002 respectively and significant at one percent. This implies that extension contact and membership of cooperatives reduces economic inefficiencies by values equal to the respective coefficients. The implication is that providing appropriate extension services to cassava farmers have influence of reducing inefficiency in their production activities. While membership of cooperatives the result indicates that participation in farmers associations leads to decrease in economic inefficiency by equal amount of the coefficient. The findings conform to the findings of Shettima et al. (2016) who reported a negative relationship between economic inefficiency and level of formal education and membership of cooperatives.

The coefficient of access to credit (-0.0047) was negative and significant at five percent level. This means that increasing access to credit will lead to decrease in economic inefficiency in cassava production in the study area. The implication is that with credit availability, farmers can purchase all required inputs for efficient production. This result is similar to the findings of Aboki et al. (2013) in which access to credit was significant at five percent and had a negative coefficient.

The coefficient of off-farm income (-0.0030), was also negative and significant at five percent level. This implies that a unit increase in off-farm income leads to reduction in economic inefficiency equal the coefficient of the cassava farmers. The implication is that off-farm income can also be used in purchasing additional equipment, paying labour for smooth operations on the farm leading to economic efficiency. These findings conform with the findings of Adeyemo and Akinola (2010) in which distance to market and off-farm income had negative coefficient and was significant at five percent level.

The coefficient of distance to market was negative and significant at five percent level as expected a priori with the value (-0.0009). This implies that a unit increase distance to market also leads to reduction in economic inefficiency. The implication is that distance to market in cassava production is crucial in terms of easy access to inputs and outputs disposal.

4.4 Constraints Associated with Cassava Production

The cassava farmers sampled face a number of constraints in their farming activities. The constraints associated with cassava production in the study area are presented in Table 4.

Table 4: Distribution of Respondents Based on Constraints Associated with Cassava Production (N=67)

Constraints	Frequency	Percentage*	Rank
Small farm size	63	94.03	1
Lack of government support	59	88.06	2
Lack of market for the product	56	83.58	3
Transportation	53	79.10	4
Lack of storage facilities	49	73.13	5
High cost of inputs	47	70.15	6
Lack of fertilizer	41	61.19	7
Poor price	38	56.71	8
Pest and diseases	23	34.33	9
Theft	19	28.36	10

Source: Field survey (2017).

*: Multiple responses exist.

The result in table 4 reveals that most prominent constraint of cassava production in the study area was small farm size and is ranked first. About 94.03% of the respondents complained of small farm size. This implies that majority of the respondents cultivated less than 2.00 hectares of land for cassava production. The implication is that respondents could manage their farm lands with ease and intensify utilization of inputs to maximize productivity. However, they cannot increase output through land expansion due to limited farm size.

About 88.06% of the respondents suffered the problem of lack of government support such as inaccessibility of farm inputs, credit facilities among others, and its ranked second. The implication of this result is that lack of provision of adequate inputs at right quantities and at right time affects the productivity and efficiency of cassava farmers.

Lack of market for the product was ranked third most important constraint with about (83.58%) of the respondent suffered of lack of market for the product. The implication is that if government provides an enabling environment and provide assistance necessary to create alternate market output, then there will be increase in the product. Transportation of cassava to farms and to house or market place was a major problem ranked fourth and constituted about 79.10 percent of the respondents. Roads were bad, resulting in high cost of transportation of both input, output which may increase the cost of output to consumers.

Storage facilities are another constraint faced by cassava farmers in the study area. About 73.13% of the respondents indicated that lack of storage facilities as one of the constraint encounters during cassava production and its ranked fifth. This implies that storage facilities affect cassava production in term of profitability, due to spoilage of the product. cost of inputs was also other constraints faced by cassava farmers in the study area. About 70.15% of the respondents indicated that high cost of inputs which was ranked sixth. High cost of inputs equally decreases the output of cassava in the study area.

Other constraints encountered in cassava production in the study area Lack of fertilizer (61.19%) which is ranked seventh, poor price (56.7%) also ranked eight. This may be due that fact that most agricultural product was associated with price fluctuation especially during harvest period. The implication is that poor price affects the revenue from sales, hence less profit for the cassava farmers. Pest and diseases (34.33%) ranked ninth and Theft (28.36%) ranked tenth. This implies that, these constraints were among problems faced by the cassava farmers in the study area. The implication is that; if there is proper enlightenment by extension workers on how to eradicate pest and diseases through the use of chemicals such as pesticides, there will be increase in outputs.

5.0 Conclusion and Recommendations

5.1 Conclusion

The study concluded that there was economic inefficiency in cassava production in the study area despite high levels of economic efficiencies among the cassava farmers. The study also concludes that cassava farmers in the study area was dominated by about (68.7%) male as against female with about 31.3%, and there is ample opportunity to increase the present level economic efficiency of cassava farmers in the study area by about 15%. This indicates that cassava farmers can reach the frontier level by using same available inputs and saving cost of production. Furthermore, farm size is the major constraint encountered by cassava farmers in the study area and is ranked first among other constraints.

5.2 Recommendations

Based on the findings of the study the following recommendations were made:

i. Farm land should be made available to cassava farmers to reduce problems of land and other land related matters. To address the land fragmentation, government can acquire large

expanse of land and lease out to cassava farmers at reduce rate, this approach will enhance access to land and reduce land rental value.

ii. Loans and credits should be provided under institutional arrangements whereby the farmers repay them after harvest at subsidized rate of interest on the loan in order to provide for their finance.

iii. There is need for the concerned agencies to promote both formal and non-formal education as the way forward to increase efficiency in cassava production

iv. Subsidies in the form of farm inputs like planting materials, agrochemicals, fertilizers etc. should be given to cassava farmers. This will go a long a way to reduce their production cost per hectare of cassava to the barest minimum and enhance their efficiency level.

v. Storage facilities should be provided in the study area to reduce the rampant incidence of post-harvest loses. And there is need for construction of accessible roads linking to villages to reduce transportation problem.

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