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3 **Determinants of Poverty Status of Cassava-based farmers in Imo State,**  
4 **Nigeria.**

5 **Abstract**

6 The study assessed the determinants of Poverty Status of Cassava based farmers in Imo State,  
7 specifically; it examined the socio-economic characteristics of cassava farmers and assessed  
8 determinants of poverty status among cassava-based farmers in Imo state. Multistage and  
9 purposive sampling techniques were used in selecting sixty (60) cassava-based farmers in the  
10 three agricultural zones in the area. Data used for the study were obtained using structured  
11 questionnaire. The data obtained were analyzed using descriptive statistics, Foster Greer  
12 Thorbecke (FGT) and ordered probit model. The result showed that the mean age was 50  
13 years, 67% of the respondents were women, 47% of the respondents attended secondary  
14 education, they have 25 years mean farming experience, the mean household size was 6  
15 persons, 88% of the farmers are married, and they have mean farm size of 1.03 hectare. The  
16 result of Foster Greer Thorbecke (FGT) analysis showed that the estimate of the poverty profile  
17 of cassava-based farmers in the study area was N62, 476.67k, the poverty incidence was 0.25,  
18 and the poverty depth and severity were 0.0659 and 0.0362 respectively. This implied that  
19 6.59% of the total expenditure is required to close the poverty gap while in extreme cases  
20 additional 3.62% was required to cross the poverty line. The ordered probit analysis showed  
21 that education, household size, farm income and extension contact were statistically  
22 significant at 1% and 5% probability levels, respectively. Findings revealed that education,  
23 household size, farm income and extension contact were the significant determinants of  
24 farmers poverty status.

25 **Keywords:** Determinants, Poverty status, Cassava-based farmers, Imo State.  
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28 **INTRODUCTION**

29 Poverty is an unacceptable deprivation in human well-being comprising both physiological and  
30 social deprivation (World Bank, 2000; Etim *et al.*, 2013). According to Food and Agriculture

31 Organization (FAO, 2005), poverty is a situation in which an individual lacks control over  
32 economic resources, is unable to take part in the society and fails to meet up to a standard of  
33 living generally accepted by a given society at a given period. Based on proper scrutiny  
34 and understanding of various definitions and concepts of poverty, suffice it to say that,  
35 poverty can be seen as the sum-total of all the factors, both social, psychological, physical,  
36 economic and otherwise which affects and predisposes a particular set of people in the society  
37 and makes them vulnerable to adverse conditions thereby making them live below the  
38 generally accepted standard of living. Nigeria has been reported to have assumed the position  
39 of poverty capital of the world. There is an estimate of 86.9million Nigerians living in extreme  
40 poverty. The international poverty line is \$1.90 i.e. ₦684, however a recent assessment on  
41 poverty level in Nigeria shows that over 70% of the population are living on less than \$1 per  
42 day where over 50% are living below the national poverty line (Adekoya, 2014).

43 Poverty could be absolute or relative. Absolute poverty is a situation whereby a person cannot  
44 afford to meet basic needs, similarly, relative poverty is when a person cannot afford to  
45 meet up with his desires and wants, in other words, his resources (material, cultural and  
46 social) are inadequate and exclude him from the minimum acceptable living standard of  
47 the society in which he lives (Etim *et al.*, 2013, Oduwole, 2015). The Food and Agriculture  
48 Organization, FAO (2012) reported that close to 870 million in the world were suffering from  
49 chronic undernourishment between the years 2010 and 2012 with the majority of them found in  
50 developing countries of which Nigeria is inclusive. According to Oladeebo *et al.*, (2017), Many  
51 programs and projects that were based on resource allocation such as Millennium Development  
52 Goals (MDGs), farm input subsidies (E-wallet project) and N-power programmes have been  
53 developed by government and civil society in Nigeria with the help of non-governmental  
54 agencies. The aim was to eradicate poverty in the society. However the global statistics of  
55 hunger and undernourishment are still shocking; Thus, the need to eradicate hunger remains the  
56 major global challenge confronting both developed and developing countries (Ehinmowo *et al.*,  
57 2017).

58 In Nigeria, the agricultural sector is characterized by intense poverty which is at an  
59 increasing rate even though many policies have been formulated for its alleviation (Anger,  
60 2010, Apata *et al.*, 2010 and Etim *et al.*, 2013). According to Etim *et al.* (2013), the reasons  
61 behind the pervasiveness of poverty in the Nigerian agricultural sector cannot be far-fetched due

62 to the fact that most of the people living in Nigeria are poor. This has been due to the fact that  
63 about 63% of rural dwellers mainly the poor engage in subsistence farming on relatively small  
64 fragmented lands, have low access to infrastructures and social amenities, inadequate access to  
65 modern technology, increasing population growth, poor market and road network, high rate of  
66 illiteracy, poor storage facilities, etc. These challenges militating crop production is  
67 undoubtedly the reason behind the insufficiency in food production and supply in the  
68 country resulting to abject hunger and poverty. This in line with the findings of Ibekwe  
69 *et al.*,( 2012) that the gap between food production rate and food demand is continuously  
70 widening despite the fact that various programs have being introduced by the government in order  
71 to increase food production, eradicate hunger and poverty and also increase the standard of  
72 living of the populace.

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74 Cassava (*Manihot esculenta*) as defined by the International Institute of Tropical Agriculture  
75 (IITA, 2015) is a herbaceous perennial woody shrub with an edible root, which grows in  
76 tropical and subtropical areas of the world. It is a nutty-flavored starch-tuber that belongs to  
77 the spurge family *Euphorbiaceae*. It is rich in carbohydrates, calcium, vitamins B and C, and  
78 essential minerals. However, its nutrient composition differs according to variety, soil  
79 conditions, climate, and other environmental factors during cultivation (IITA, 2015). Akpan  
80 *et al.*, (2013) also reported that cassava is one of the popular and widely cultivated food crops  
81 in the southern part of Nigeria. This could be as a result of its wide range of use and ability to  
82 be processed into different products such as garri, fufu, dry cassava chips, cassava flour,  
83 cassava starch, etc. its importance in the livelihood of rural poor and the developing country  
84 like Nigeria cannot be overstated. Aside from satisfying the dietary needs of the greater part of  
85 Nigeria population especially the rural poor, there is a record of increasing demand for cassava  
86 as a raw material for manufacturing livestock feed, biofuel, pharmaceutical and textile  
87 industries (Akpan *et al.*, 2015). As result cassava has been considered as one of the preemptive  
88 famine reserve crops in areas where rainfall is unpredictable, this gives it an advantage over  
89 yam and other root and tuber crops in Africa most especially in Nigeria (Hendershot, 2004) as  
90 reported by (Ehinmowo *et al.*, 2017), as a result cassava production in Nigeria is on the  
91 increase with an average yield of 10.6-tonnes per hectare Ebong *et al.* (2011) and Onubuogu  
92 *et al.* (2014). Despite all the aforementioned efforts of the government and non-governmental

93 agencies alongside with the role of cassava poverty eradication, there is still a record of over  
94 two-third of Nigerian populace ascribed as being poor. The principal roles of cassava in food  
95 economy and its ability to survive drought and do well on poor soils have made it an important  
96 food and cash crop which has the capability of reducing poverty (Owusu and Donkor, 2012),  
97 yet, the rural people that are the main producers of cassava are poverty stricken. This in line  
98 with (Adekoya, 2014) agrees that 65% of the poor people live in rural areas where their major  
99 occupation is farming. The question now is what determines poverty level of rural farmers who  
100 engage in cassava production in the study area and this is the research gap this study sought to  
101 close. The relationship between poverty and agriculture is essential because of the key role  
102 played by agriculture in raising economic growth, improving productivity and income. Hence  
103 there is a need for sustainability of cassava production as food security and poverty reduction  
104 tool in Nigeria. Therefore, this study seeks to assess the determinants of Poverty Status of  
105 Cassava based farmers in Imo State, specifically; it examines the socio-economic  
106 characteristics of cassava farmers and examines the determinants of poverty status among  
107 cassava-based farmers in Imo state.

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## 109 **Materials and Methods**

110 The study was conducted in the three agricultural zones in Imo state which are Okigwe, Orlu and  
111 Owerri. Imo state is situated in the South Eastern part of Nigeria. It consists of twenty seven  
112 (27) local government areas (Obasi *et al.*, 2015). Imo State lies within the latitude  $4^{\circ} 45\text{-N}$   
113 and  $7^{\circ}15\text{-N}$  and longitude  $6^{\circ}50\text{-E}$  and  $7^{\circ} 25\text{-E}$  with land area of about  $5,100\text{km}^2$   
114 (National Bureau of Statistics, 2014). It is bordered by Abia state on the East, River Niger and  
115 Delta state on the West, by Anambra State to the North and Rivers State to the South. It has an  
116 annual rainfall varying from 1,500mm to 2,200mm, an average annual temperature above  $20^{\circ}\text{C}$   
117 and an annual relative humidity of 75% with humidity reaching 90% in rainy season (National  
118 Bureau of Statistics, 2014). The estimated population is 4.8 million and the population  
119 density varies from 230-1,400 people per square kilometer (National Bureau of Statistics, 2014).  
120 The main occupation in Imo state is trading and agriculture (Obasi *et al.*, 2015).  
121 Most households cultivate food crops such as cassava, cocoyam, yam, maize, melon,  
122 okra and vegetables (green, fluted pumpkin, water-leaf and bitter leaf), etc. and rear

123 livestock especially birds and goats (Obasi *et al.*, 2015). The household are also involved in the  
124 processing of some of these crops example; maize to corn meal, cassava to garri, fufu and  
125 flour. The choice of using Imo State as a study area is because cassava is the predominant  
126 crop in the area and is usually planted as a mixed or mono cropping.

127 Multistage and purposive sampling techniques were used to select households from which  
128 socio-economic characteristics and the determinants of poverty status among cassava-based  
129 farmers were carried out in the study area. In the first stage one local government area was  
130 randomly selected from each of the three agricultural zones in the State. This was  
131 because farming was their major occupation in the study area. In the second stage, two  
132 communities were randomly selected from each of the three local government areas. In the third  
133 stage, one rural village was randomly selected from each of the six communities making a total  
134 of six villages for the study. Finally, a total of ten farmers were randomly selected from each of  
135 the villages giving a sample size of sixty (60) respondents. The study utilized primary data which  
136 was collected by using structured questionnaire/focus-group discussion method, while the  
137 secondary information were gotten from relevant literatures, academic journals and online  
138 publications on cassava-based farmers in the area. Objectives were analyzed using simple  
139 descriptive statistical techniques such as mean,

140 Frequency distribution, tables and percentages, Foster Greer Thorbecke (FGT) indices and  
141 ordered probit model. The FGT Poverty indices are stated by (Edoumiekumo *et al.*, 2014):

$$142 \quad Pa = \frac{1}{N} \sum_{i=1}^n \left[ \frac{Z - Y_i}{Z} \right] \alpha \quad \text{Where,}$$

143  $N$  = Total population (number)

144  $n$  = Number of farmers below the poverty line (number)

145  $Y_i$  = Per capita expenditure of those classified poor (naira)

146  $\alpha$  = poverty aversion parameter that takes the value 0, 1, 2 (number)

147  $z$  = poverty line: two-third of the total expenditure (naira) and

$$z = \frac{2}{3} \left[ \frac{\text{Total Expenditure}}{N} \right]$$

148 When  $\alpha = 0$ , the poverty incidence was calculated as follows:

$$149 \quad P_0 = \frac{n}{N}$$

150 Poverty incidence also known as poverty head-count refers to the proportion of the total  
151 population of a given group that is poor, based on a given poverty line.

152 When  $\alpha = 1$ , the poverty depth is stated as:

$$153 P_1 = \frac{1}{N} \sum_{i=1}^n \left( \frac{z-y_i}{z} \right)^1$$

154 The poverty depth also known as poverty gap refers to the difference between a given poverty  
155 line and the mean expenditure of the poor, expressed as a ratio of the poverty line.

156 When  $\alpha = 2$ , the poverty severity is stated as:

$$157 P_2 = \frac{1}{N} \sum_{i=1}^n \left( \frac{z-y_i}{z} \right)^2$$

158 This is often described as a measure of the severity of poverty. While the poverty gap takes into  
159 account the distance separating the poor from the poverty line, the square gap takes the square of  
160 that distance into account. However, given the expenditures and poverty line generated, the  
161 cassava-based farmers were further categorized into the following poverty state.

162 0 = extremely poor

163 1 = moderately poor

164 2 = slightly non poor

165 3 = Non poor

166 The ordered probit model was then used to assess the determinants of poverty status among  
167 cassava-based. Whenever poverty categories have a natural order, the ordered probit is the  
168 appropriate model to be employed in the estimation of relevant probabilities (Greene, 2002).

169 Ordered probit measures the probability that the dependent variable falls in one of the discrete  
170 categories conditioned on levels of the independent variable. This is stated as:

$$y^* = \beta_0 + \sum_{j=1}^k \beta_j X_{ji} + \mu_i$$

171 Where,

172  $y^*$  = Unobserved variable (latent variable)

173  $\mu_i$  = error term

174  $\beta_0, \dots, \beta_j$  = Parameters

175  $X_{ji}$  = Independent variables of the  $i$ th farmer ( $X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8$ )

176  $X_1$  = Age (years)

177  $X_2$  = Education (Years)

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X<sub>3</sub>= Farming experience (years)

X<sub>4</sub>= Household size (number of persons)

X<sub>5</sub>= Annual farm income (N)

X<sub>6</sub>= Farm size (hectares)

X<sub>7</sub> = Extension contact (number of visits per month)

X<sub>8</sub> = Membership of Cooperative (Member=1, Non-member= 0)

Given the various categories, the study derived the probabilities of being poor as:

$$Pr(y_i = 0) = Pr(y_i^* < \mu_1)$$

$$Pr(y_i = 1) = Pr(\mu_1 \leq y_i^* < \mu_2)$$

$$Pr(y_i = 2) = Pr(\mu_2 \leq y_i^* < \mu_3)$$

$$Pr(y_i = 3) = Pr(\mu_3 \leq y_i^*)$$

Therefore, what was observed ( $y_i$ ) is the following actual placement in the discrete category:

0 = extremely poor if  $Y_i = 0$  if  $Y_i^* < Z_1$  (extremely poor)

1 = moderately poor if  $Y_i = 1$  if  $Z_1 \leq Y_i^* < Z_2$  (moderately poor)

2 = slightly non poor if  $Y_i = 2$  if  $Z_2 \leq Y_i^* < Z_3$  (slightly non poor)

3 = Non poor if  $Y_i = 3$  if  $Z_3 \leq Y_i^*$  (non-poor)

Where

$Y_i$  = Observed variable (Dependent variable)

$Z_i$  = threshold parameter for the placement of  $y_i^*$  in the discrete poverty categories (constructed from the poverty line).

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## Result and Discussion

**Table1.0: Socioeconomic characteristics of Cocoyam farmers in the study area**

Socio-economic variables	Mean distribution
Age	50 years
Household size	6 persons
Education	9.23 years
Years of experience	25 years
Farm size	1.03 ha

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**Table 1:1** Distribution of respondents based on their socio-economic characteristics

Gender	Frequency	% distribution
Male	20	33
Female	40	67
<b>Marital status</b>		
Single	7	12
Married	53	88
<b>Level of Education</b>		
No formal education	0	0
Primary	24	40
Secondary	28	47
Tertiary	8	13
<b>Membership of cooperative</b>		
Members	25	42
Non-members	35	58
<b>No. of extension visit/month</b>		
0	26	43
1	0	0
2	34	57
<b>Total</b>	<b>60</b>	<b>100</b>

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**Source: Field Survey Data (2019)**

214 From **Table 1.1** the mean age was 50 years meaning that cassava production was relatively  
215 dominated by aged farmers. This could be associated with increased rural-urban migration and  
216 also youth engagement in non-agricultural activities hence leaving cassava production in the  
217 hands of old farmers, this could create hindrance to efficient production as Anyanwu *et.al*  
218 (2012) recognized that young people are more likely to be energetic and have the capacity to



219 use innovation than aged people. The mean farm size of 1.03 ha, showed that cassava farming in  
 220 the study area was dominated by small farm scale farmers and this is in agreement  
 221 with the findings of Offor and Onyewuchi, (2013) and Anyiro *et.al* (2013) who stated that  
 222 most farmers have farmland of less than or equal to 1 ha. The implication of having less than or 1  
 223 ha of land invariably means that the farmers cannot commercialize cassava farming to be more  
 224 profitable. The household size of 6 persons confirms an average household among cassava  
 225 farmers in the area which implies that they can be supportive and can serve as a cheap source of  
 226 labour for farming activities thereby reducing the cost of production. But there are two sides of  
 227 the coin which is if the average age of the farmers household is too young or too old, therefore it  
 228 may become a burden which implies that the too young and too old may not be supportive in his  
 229 cassava venture but rather are dependent and are expensive to cater for.

230 This is consistent with the findings of Eze and Nwibo, (2014) in Delta State and Akpan *et al.*,  
 231 (2017) in Akwa Ibom State. The mean value of 25 years in cassava production showed that  
 232 majority of the respondents in the area has adequate experience in cassava production, but  
 233 adequate experience must translate into more profit in cassava farmers' ventures. This is  
 234 because more years of experience increase technical know-how. Also more women are involved  
 235 in cassava production than men because farming is perceived as female occupation (Amusa *et.al*  
 236 2011), the perception of cassava being categorized as a female crop should be scrutinize as  
 237 males should be encouraged to go into it for commercial purposes than the gender dichotomy  
 238 which is perceived to occupy presently in order to close the poverty gap. The farmers had basic  
 239 education and are literate enough about the practice and can impart knowledge to others. This is  
 240 in agreement with Anyanwu *et al.* (2012), who showed that increase in the educational level of  
 241 smallholder cassava farmers will result in increase in their orientation towards cassava  
 242 production for the market or commercialization index.

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244 **Estimation of Poverty Status of Cassava-Based Farmers and Determinants**

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246 **Table 2:** Estimated Poverty Profile of Cassava-based Farmers

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Items	Values
Poverty line (Z)	62476.67
Number below Z	15

Poverty incidence (Head count)	0.25
Poverty depth	0.0659
Poverty severity	0.0362

**Source: Field Survey Data, 2019**

248 **Table 2** showed the estimate of the poverty profile of cassava-based farmers in the study  
 249 area. It showed that the poverty line was ₦62476.67k. This is an indication that the  
 250 expenditure of a cassava-based farmer below this value was poor. The poverty incidence was  
 251 0.25, implying that about 25% of cassava-based farmers are classified poor in the area. It also  
 252 showed that the poverty depth and severity were 0.0659 and 0.0362 respectively. This an  
 253 indication that additional 6.59% of the total expenditure required to close the poverty gap,  
 254 while at extreme cases additional 3.62% is required to cross the poverty line.  
 255 Using the poverty line, the farmers were further placed into four poverty categories, namely,  
 256 extremely poor (0), moderately poor (1), slightly non poor (2) and non-poor (3). The  
 257 ordered probit was then used to measure the probability that the poverty state of  
 258 each farmer falls in one of the category.  
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**Table 3: Estimate of Ordered Probit**

	Coefficient	Std. Error	Z	p-value	
Age	0.00083926	0.00083608	-1.0038	0.31548	
		6			
Education	0.110422	0.0497391	2.2200	0.02642	**
Farm experience	-0.0212265	0.0179367	-1.1834	0.23665	
Household size	-0.402818	0.102332	-3.9364	0.00008	***
Farm Income	3.38124e-05	1.43448e-05	2.3571	0.01842	**
Farm Size	0.15379	0.171299	0.8978	0.36930	
Extension contact	-0.791578	0.323866	-2.4442	0.01452	**

<b>Membership</b>	0.102088	0.342199	0.2983	0.76545	
<b>Coop</b>					
<b>Cut1</b>	0.214418	0.912876	0.2349	0.81430	
<b>Cut2</b>	1.22951	0.916981	1.3408	0.17998	
<b>Cut3</b>	2.09201	0.938329	2.2295	0.02578	**

264 Mean dependent var 1.440678 S.D. dependent var. 1.118361

265 Log-likelihood -66.55774 Akaike criterion 155.1155

266 Schwarz criterion 177.9684 Hannan-Quinn 164.0363

267 Likelihood ratio test: Chi-square [0.0002] 29.8809

268 **Source: Field survey (2019)**

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270 The ordered probit analysis showed that education, household size, farm income and extension  
271 contact were statistically significant at 1% and 5% probability levels, respectively. However, the  
272 likelihood chi square (29.8809) was found significant at 1% probability, and as a result, the null  
273 hypothesis was rejected. Therefore the study accepted the alternative and concluded that the  
274 socioeconomic characteristics of cassava-based farmers influence the poverty level in the area.  
275 Given that the dependent variable of the regression, is an ordered variable, the marginal effects  
276 of the explanatory variables were computed for the four categories of poverty which, to some  
277 extent, would reflect the effect of a unit change in any explanatory variable on the probability of  
278 being extremely poor (0), moderately poor (1), slightly non poor (2), and non-poor (3).

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280 **Table 4: Marginal Effects of Poverty Determinants**

Variables	Extremely poor (0)	Moderately poor(1)	Slightly Non Poor (2)	Non poor (3)
Age	-0.0274	-0.0272	0.0235	0.0311
Education	-0.0519	-0.0309	0.0312	0.0516
Farm Experience	-0.0166	-0.0109	0.0101	0.0174
Household size	0.0788	0.1303	-0.0125	-0.1966
Farm Income	-0.0205	-0.0182	0.0133	0.0254
Farm size	0.0107	0.0022	-0.0101	-0.0028
Extension contact	-0.0107	-0.0284	0.021	0.0181

Membership	0.0059	0.0074	-0.0026	-0.0107
Coop				

281 **Source: Field survey (2019)**

282 **Table 4** showing the marginal effects of poverty Determinants. Education was found positive  
 283 and statistically significant at 5% probability level. This implies that a unit change in  
 284 education level will influence the level of poverty in the area which invariably means that 95%  
 285 times that education reduces the level of poverty in the area increases. Household size was  
 286 found negative and statistically significant at 1% probability level. Household size which is  
 287 negative means that more of the cassava base farmers household were not supportive but rather  
 288 dependent and it further drives down the fact that more mouths to feed or aged family to take  
 289 care of increases the cassava based farmers level of poverty. Farm income was found positive  
 290 and statistically significant at 5% probability level. Extension contact was found positive and  
 291 statistically significant at 5% probability level.

292 **Conclusion**

293 From the findings, it could be concluded that cassava farmers were mostly female and falls  
 294 below poverty level. This implies that cassava based farmers in the study are were poor.  
 295 Socio-economic characteristics of the cassava-based farmers were found to influence their  
 296 poverty status. The main determinants of poverty level in the study area were level of education,  
 297 household size, farm income and extension contact. More males and especially youths should be  
 298 encouraged to join cassava venture to be able to help aged ones, learn from their experiences and  
 299 bring innovation to cassava production. Farm size of cassava based farmers should be increased  
 300 through giving them loans to acquire lands for cassava commercialization so as to increase their  
 301 profit

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303 **REFERENCES**

304  
 305 Adekoya Olusoji Adetayo (2014), Analysis of Farm households Poverty Status in Ogun  
 306 State, Nigeria. *Asian Economic and Financial Review*, 4(3):325-340  
 307  
 308 Akpan, B.S., Jeiyol, E.N., John, D.E., Nkeme, K.K., & Okon, E.U. (2013).  
 309 Economic efficiency of cassava based farmers in Southern wetland region of Cross River State,  
 310 Nigeria: A translog model approach.  
 311 *International Journal of Humanities and Social Science*, 3(12), 1-7.

312 Anger, B. (2010). Poverty eradication, millennium development goals and sustainable development in  
313 Nigeria. *Journal of Sustainable Development*, 3(4), 138-142. Canada: Canadian Centre of  
314 Science and Education.

315 Anyiro, C. O., Osondu, C. K., Eze, H. and Akabueze, I. C. 2013. Resource-use efficiency of rural women  
316 smallholder cocoyam farmers in Onitsha Agricultural zone of Anambra, Nigeria. *Research web*  
317 *pub* vol.1 (2), pp 12-17.

318 Apata, T. G., Apata, O.M., Awoniyi, S.M.O., and Igbalajobi, O.A. (2010).  
319 Determinants of rural poverty in Nigeria: Evidence from smallholder farmers in South-  
320 western, Nigeria. *Journal of Science and Technology Education Research*, 1(4), 85 – 91

321 Ebong, V.O., E.O. Effiong, A.J. Eshiet and H. Nuka, (2011). Resource use efficiency of landowners and  
322 tenants in cassava based farms in Akwa Ibom State, Nigeria: A comparative analysis. *Agricultural*  
323 *Biology Journal of North America*, 2: 1042–1047.

324 Ehinmowo O.O, Adewale I.F and Ojo S.O (2017). Empirical Analysis of Poverty Status of Small Scale  
325 Cassava Processors in Nigeria. *Journal of Agricultural Faculty of Gaziosmanpasa*  
326 *University*.34 (1), 26-32

327 Eze, A. V., & Nwibo, S.U. (2014). Economic and technical efficiency of cassava production in  
328 Ika North East Local Government Area of Delta State, Nigeria. *Journal of development and*  
329 *Agricultural Economics*, 6(10), 429-436.

330 Etim, N.A., & Udoh, E.J. (2013). The determinants of rural poverty in Nigeria.  
331 *International Journal of Agricultural Management & Development*  
332 *(IJAMAD)*. Retrieved from <http://www.ijamad.com>

333 Food and Agricultural Organisation of the United Nation (FAO) (2005). The definition of poverty:  
334 Impacts of policies on poverty. *Conceptual and Technical Material 4(1)*. Retrieved from  
335 <http://www.fao.org/tc/easypol.pdf>.

336 Food and Agricultural Organization (FAO) 2012. The State of Food Insecurity in the World 2012 Key  
337 messages W. and I. 2012.

338 Ibekwe, U.C., Orebiyi, J.S., Henri-Ukoha, A., Okorji, E.C., Nwagbo, E.C., & Chidiebere-Mark, N.M.  
339 (2012). Resource use efficiency in cassava production in South East Nigeria.  
340 *Asian Journal of Agricultural Extension, Economics & Sociology*, 1(1), 16-21, doi:  
341 AJAEES.2012.002.

342 International Institute of Tropical Agriculture. (2015). Cassava. Oyo, Ibadan: CGIAR. Retrieved  
343 from <http://www.iita.org/cassava>.

344 National Bureau of Statistics. (2014). Imo State Information. Retrieved from  
345 <http://nigerianstat.gov.ng/information/details/Imo>.

346 Obasi, P. C., Henri-Ukoha, O.N., Anosike & Ibekwe, U.C. (2015). Net returns to cassava -based  
347 crop mixtures in Imo state, Nigeria. *European Journal of Agriculture and Forestry Research*,  
348 3(1), 15-21.

349 Oduwole, T.A. (2015). Youth Unemployment and Poverty in Nigeria. *International Journal of Sociology*  
350 *and Anthropology Research* 1(2) pp.23-39.

351 Offor, I. R. and Onyewuchi, U. U. (2013), Assessment of the Potentials and Returns of cocoyam  
352 production for food security in Okigwe local government area of Imo State, Nigeria. *Nigerian*  
353 *Journal of Agriculture, Food and Environment*. 9(2):42-47

354 Oladeebo J.O, Ganiyu M.O, and Omotayo A.O (2016) analysis of poverty level and land management  
355 practices among maize-based food crop farmers in oyo state, nigeria

356 Onubuogu, G.C., Esiobu. N.S., Nwosu, C.S. & Okereke, C.N. (2014). Resource use efficiency of  
357 smallholder cassava farmers in Owerri Agricultural zone, Imo State, Nigeria. *Scholarly*  
358 *Journal of Agricultural Science* 4(6), 306-318.

359 Owusu V and Donkor E (2012). Adoption of improved cassava varieties in Ghana. *Agricultural Journal*,  
360 Vol.7 (2): 146 – 151.

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