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EVALUATION OF PROFITABILITY OF SMALL HOLDERS CASSAVA FARMERS IN EKITI STATE, NIGERIA

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ABSTRACT

This study investigated the evaluation of profitability of small holders' cassava farmers in Ekiti State, Nigeria**.** The purpose of the study was to; examine the socio economics characteristics of the cassava farmers in Ekiti State; determine the profitability of cassava production by small holder cassava farmers in the study area and evaluate the small holder cassava farmers' rental market type in the study area. The population for this study was land rental smallholder cassava farmers and non-rental smallholder cassava farmers. The sample of the hundred and sixty (160) respondents were selected with multi-sampling procedure and data collected with a well-structured questionnaire. The study adopted Descriptive Statistics, Gross Margin and Endogenous Switching Regression Model to analyze the data collected. The result showed that average production capacity for rental farmers' stood at 4641.87kg against 1582.36kg average production capacity for non-rental farmers, indicating that rental farmers gained up to 49.2% production capacity over non-rental farmers. The factors that were found to influence the choice for famers were household size, farming experience, fertilizer application and farm size while of the benefits of land renting system were gender, age, marital status, farming experience, access to credit loan, identification with association and cooperative society, family hired labour, herbicide, and farm size. The finding also revealed that land rental market system facilitates farmland utilization and land rentage significantly increase productivity. Result showed that land rentage significantly increased productivity. This difference represents increase in cassava productivity from rental farmers by 58.6%. It was concluded that, land rentage on cassava production was worthwhile as it was found to earn more profit and achieved higher productivity. It was recommended that farmers should be sensitized and encouraged to participate in land

rental market to increase their cultivation. The farmer should be made aware of the benefits of renting land to increase their productivity.

In Nigeria, with small-scale farmers, the focus of the agricultural finance is to stage a favourable operating environment. Small-scale farmers donor community has shifted away from food aid and now the suppliers of food to the tables of Nigerians. In fact, now focused on developing small farmers and a report has it that more than 80 per cent of the total establishing food security. The stage which is being set for food farmers, including medium and large ones, are small scale production in Africa to gain momentum (Alston, 2010). Africa's small farmers are the backbone of the Nigerian. Farmers are unique in that they generally have access to agricultural sector and deserve every support to produce land that is free (communally held) or can be used for subsistence farming and at relatively low cost.

Insecure land tenure or the lack of land ownership also restricts the farmers' access to credit that are required for improved land practices. This lack of access to credit forces them to go for traditional land-use practices, despite their willingness to change. Thus, national policies influence the land-use systems by influencing institutional arrangements such as credit and marketing facilities, and infrastructural development which according to Bergeron and Pender, (2015) forced them to go for traditional land-use practices, despite their willingness to change. Thus, national policies influence the land-use systems by influencing institutional arrangements such as credit and marketing facilities, and infrastructural development (Bergeron and Pender, 2015)

Smallholder farmers are farmers whose production capacity falls between 0.1 and 4.99 hectare of land. (Mgbenka and Mbah 2016) They have no access to vital information either because there is very limited access to modern improved facilities or it is poorly disseminated. Often, agricultural information technologies and their general circumstance does not integrated

with other development programmes to always merit tangible investments in capital, inputs and address the numerous related problems that face farmers.(Ogunya *et all*, 2017).

Cassava (Manhihot esculenta Crantz) production is a reputable food security crop in tropical Africa. Also, well-developed as an organized agricultural crop. It has well-established multiplication and processing techniques for food products and cattle feed. There are more than 40 cassava varieties in use though the crop is produced in 24 of the country's 36 States of Nigeria. (Oladele and Wakatsuki, 2015).

The demand for cassava has been increasing at a much faster rate in Nigeria than in other West African countries since the mid-1970s). According to the FAO (2017), Nigeria had the lowest per-capita annual consumption of cassava in the sub-region (average of 3 kg) during the 1960s. Since then, Nigerian per-capita consumption levels have grown significantly to 7.3% per annum. Consequently, per-capita consumption during the 1980s averaged 18 kg and reached 22 kg in 1995–1999. Average growth rates in Nigerian per-capita cassava consumption increments are likely to continue for years to come.

Despite the importance of Cassava which serves as raw material for agro- base industries and production of foods such as garri, fufu, starch, cassava flour etc and also in the increase in foreign exchange of the country’s currency which has been of huge support to advancement of economy in Nigeria its production faced many challenged. Among the major problems facing the small scale farmers is land for farm use in promoting agricultural development which is due to unstructured land tenure system that Nigeria operates. Mgbenka *et al* (2015), reported that acquisition of land for new entrants into farming is one of the **targets that have** not been achieved. Small scale farmers lack capital, hence they do not acquire land for agriculture. Unavailability of land is one of the serious problems militating against small scale farming in Ekiti State.

Land owners who live off rent are the most parasitical class of bourgeois Ekiti State. On the one hand they appropriate the fruits of progress of the productive forces of agriculture, because their rent increases as the productivity of agriculture increases. (Krishna *et a*l, 2014). On the other hand, they are also enriched by the backwardness of this sector, because the more expensive agricultural products are, the greater is the profit of agricultural capitalists, whose excess profit are appropriated by the land owners. The increase in the wealth of the big owners is reflected in the increase of the price of land. The effects of land rental market participation on smallholders' equity, efficiency and welfare are therefore ambiguous, and new empirical evidence is require (Chamberlin and Ricker-Gilbert 2016).

It is now imperative for this research work to be carried out in order to evaluate profitability and land rental market type of small holder cassava farmers in Ekiti State. Therefore, the study would provide answers to the following research questions:

(a) How profitable is cassava production in Ekiti State?

(b) What is the type and participation of cassava farmers on land rental market in Ekiti State?

Objectives of the study

The general objective of this study was to evaluate profitability and land rental market type of small holder cassava farmers in Ekiti State.

The specific objectives are to:

(i) examine the socio economics characteristics of the cassava farmers in Ekiti State;

(ii) determine the profitability of cassava production by small holder cassava farmers in the study area;

(iii) evaluate the small holder cassava farmers rental market type in the study area;

Material and Methodology

Study Area

The study was carried out in Ekiti State. Ekiti State was created in October 1, 1996 from the old Ondo state. The State has sixteen (16) Local Government Areas(LGAs) with the population of 1,647,822 while the estimated population upon its creation on October 1st 1996 was 1,750,000. The 2006 population census by the National Population Commission put the Population of Ekiti State at 2,384,212 people(Memory lane,2014) .

The State is situated entirely within the tropics. It is located between longitudes 40° 5Í and 50° 45Í North of the Equator. It enjoys tropical climate with two distinct seasons.

Agriculture is the main occupation in Ekiti State, and is the major source of income for many people of Ekiti. Agriculture provides income and employment for more than 75% of the population of Ekiti State. Some of Ekiti's agricultural produce are: Cash Crops such as Cocoa, Oil Palm, Kolanut, Plantain, Bananas, Cashew, Citrus and Timber; Arable/Food Crop such as Rice, Yam, Cassava, Maize and Cowpea.

Data Collection and Sampling Techniques and sample size

Data for the study were from primary source. Primary data were collected with the use of well-structured questionnaire. In this study a farmer was defined as a smallholder farmer on rentage if he was found to have rented land for cassava production at least for a season prior to year 2019. with the farm size 1 to 5 hectare. The population for this study were land rental and non-rental smallholder cassava farmers.

For the purpose of this study, a multistage sampling proceedure was used to select the respondents. In the first stage there was purposive selection of two (2) Local Government Areas (LGAS) in Ekiti State that are known for production of cassava. The LGAS are Ekiti West and Ijero. The second stage involved random selection of five (5) communities in each of the local Area (LGAS). through the assistance of Agricultural Development Programme (ADP) Staff. The third stage involved stratified sampling to divide the farmers into two groups (rentals and non-rentals). The fourth stage involved a snowball sampling procedure to select eight respondents

each from the rental and non-rental farmers from each of the communities. This came to a total of one hundred and sixty (160) respondents that were selected.

Analytical Techniques

To achieve the objective of this study, Descriptive Statistics, Gross Margin and Endogenous Switching Regression Model were used to analyze the data collected.

Descriptive statistics

The descriptive statistics that were used include tables, frequency, percentages, mean and standard deviation. Descriptive statistics were used to describe the rental market types. The gross margin analysis was carried out to measure the profitability of cassava production. According to David and Stanley (2000), gross margin is measured as Total Revenue (TR) less Total Variable Cost (TVC):

GM = TR – TVC

Where,

GM = Gross Margin

TR = Total Revenue

TVC = Total Variable Cost e.g cost of hired labour in Naira,(cost of labour for cultivation, planting weeding and harvesting that is man days / Naira), cost of herbicides (naira), cost of pesticide in Naira, cost of fertilizer in naira and cost of transportation.

Results and Discussion

This chapter presents the interpretation and discussion of results obtained from the analysis of data collected for this study. The socio-economic characteristics is delimited to sex, educational level, credit loan accessibility and farming status,

Sex of Respondents

Figure 1 shows the distribution of respondents by gender. The result showed that 75% of rental small holder cassava farmers were male and 25% were female while 56.3% of non-rental small holder cassava farmers were male and 43.8% were female. The involvement of more male in cassava production may not be unconnected with the stress and rigor that characterized crop production which many females might not be able to bear. This shows cassava farming is mostly done by male farmers. This is in conformity with Ezeibe *et al*. 2015 that men are more involved in tedious farm work.

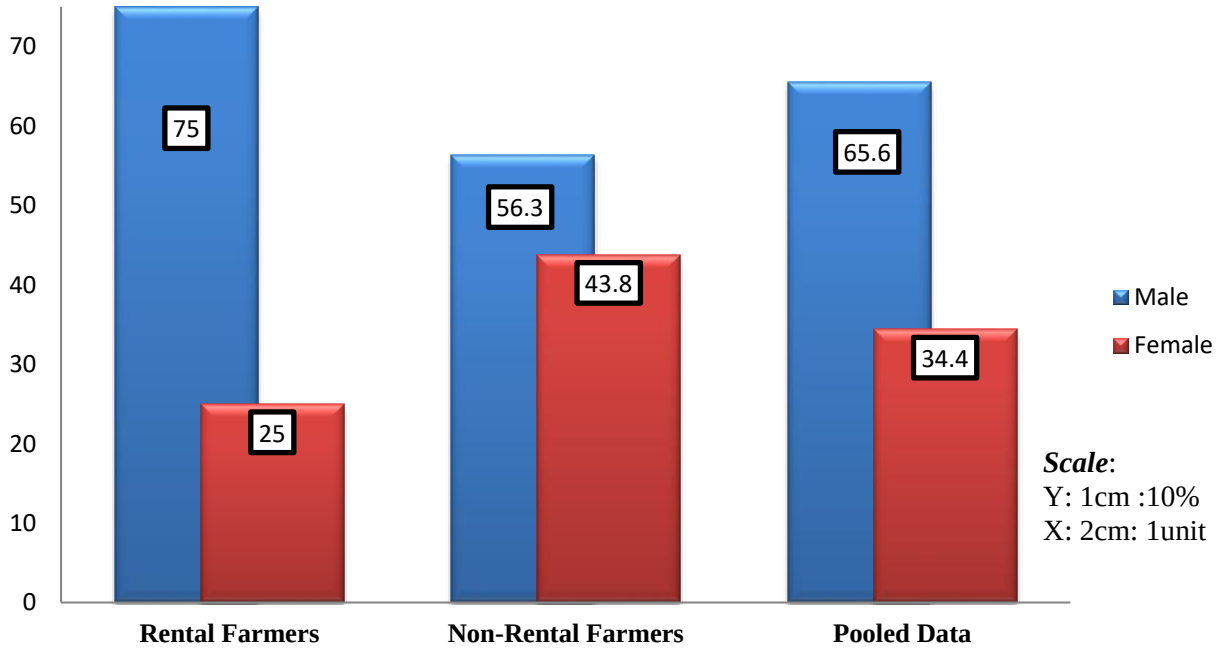

Figure 1: Distribution of Respondents by Sex

Source: Computed from Field Survey Data, 2019

Educational Level of Respondents

Figure 1 shows educational status of the respondents. The result showed that tertiary institution education was the highest level of education obtained by both rental small holder cassava farmers (55.0%) and non-rental small holder cassava farmers (42.5%). However, small proportion of rental small holder cassava farmers (5.0%) had no formal education compare with 23.8% of non-rental small holder cassava farmers. The implication of this is that, with the higher

level of literacy among rental small holder cassava farmers, they may like to appreciate their right under tenancy and land tenure system and be more rapid in the use of extension information services to solve land related problems. In addition, the high level of education is expected to contribute positively to the production of cassava. Since improvement on efficient production and management methods are emerging constantly in the field of agriculture due to technological advancement, the success and ability of cassava producers to be able to move in the trend of evolving innovations require some high level of educational attainment by the farmer. (Romennont A. de 2018).

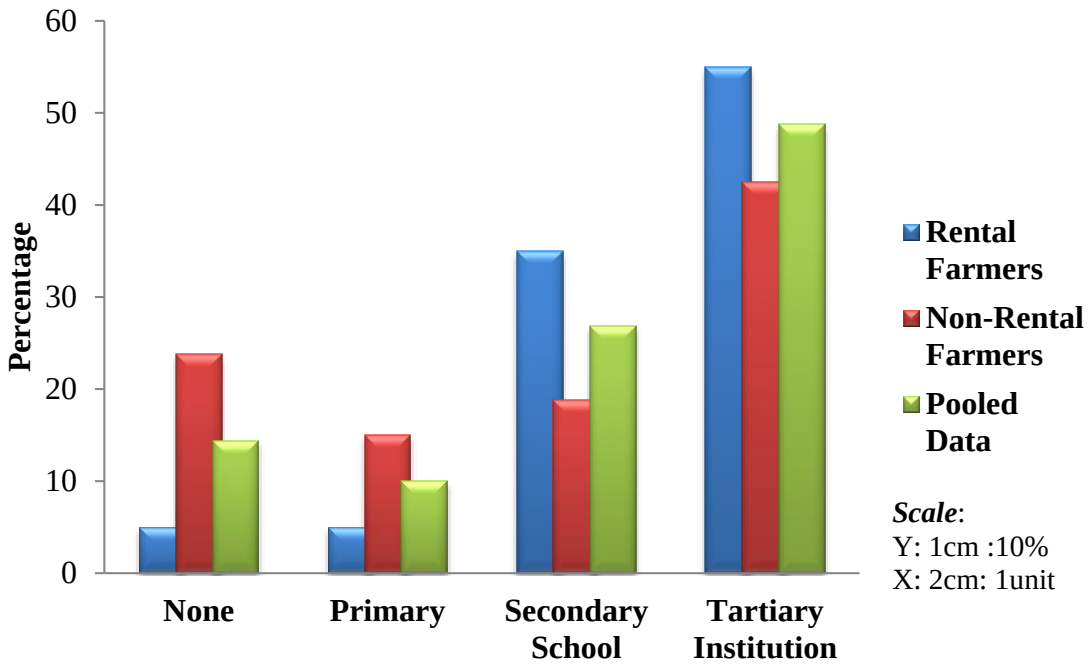

Figure 2 Distribution of Respondents by Educational Level

Source: Computed from Field Survey Data, 2019

Distribution of Respondents by Credit Loan Accessibility

Figure 2 shows respondents access to soft credit loan. The result revealed that majority (80.0%) of land rental farmers are yet to access credit loan to enlarge their cassava production scale while

66.3% of non-land rental farmers have no access to credit loan. However, 10.0% of land rental cassava farmers obtained access to minimum of 101,000 naira and 500,000 naira maximum compare with 5.0% of non-land rental cassava farmers that obtained access to more than 500000 naira minimum. This result of this study indicated that there has been low soft credit loan accessible to cassava producers in the study area and this could result in low cassava food production to meet the need of teeming population in the area. Perhaps, the reason for high price of cassava production observed in the recent years. Expectedly, the more available capital to run cassava production, the more capacity to increase food production scale. This is in support of the findings of Simonyan *et al*., (2011) that credit access and use increased productivity.

Table 1: Distribution of Respondents by Credit Loan Accessibility

Access to Credit	**Rental**		**Non-Rental**		**Pooled Data**	
Loan (Naira)	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**
No access	64	80.0	53	66.3	117	73.1
10000 – 50000	4	5.0	7	8.8	11	6.9
51000 -100000	4	5.0	12	15.0	16	10
101000 – 500000	8	10.0	4	5.0	12	7.5
Above 5000000	-	-	4	5.0	4	2.5
TOTAL	**80**	**100**	**80**	**100**	**160**	**100**

Source: Computed from Field Survey Data, 2019

Respondents Farming Status

Table 1 revealed the farming status of the respondents. The result showed that 55.0 of the land rental cassava farmers make a full business of cassava production while the majorities (66.3%) of non-land rental cassava farmers are part time cassava producers. The result suggested some of

the cassava production farmers in the study areas have alternative sources of income and could perhaps hinder them from investing into cassava production on a large scale.

Table 2: ***Distribution of Respondents by Farming Status***

	Rental		Non-Rental	
Variables	**Freq.**	**%**	**Freq.**	**%**
Part time	36	45.0	53	66.3
Full time	44	55.0	27	33.8
Total	**80**	**100**	**80**	**100.0**

Source: Computed from Field Survey Data, 2019

Profitability of Cassava Production by Small Holder Cassava Farmers

Table 2 showed the costs and returns in Naira per production period for land rental small holder cassava farmers and non-land rental small holder cassava farmers in the study area. The total variable cost for land rental cassava farmers and non-land rental cassava farmers were ₦393, 062.50 and ₦112, 000.91 respectively. The cost of mechanical land preparation which amount to 8.4% of the total variable cost of production accounted for the highest proportion of the total variable cost for land rental small holder cassava farmers. For non-land rental small holder cassava farmers, the cost of fertilizer of about 19.0% of the total variable cost of production accounted for the highest proportion of the total variable cost. The total revenue for both land rental farmers and non-land rental farmers were ₦ 520,680.60 and ₦161, 667.20 respectively and accounted for the highest proportion of the total revenue from the cassava production business. The gross margin of both land rental farmers and non-land rental farmers were estimated as ₦127, 618.10 and ₦49, 666.29 respectively. The gross margin income was

positive for both categories of cassava farmers in the study area except that it was higher for land rental farmers. The finding is supported by Ifeanyi, (2018).

Table 3: Cost and Return Analysis of Cassava Production by Small Holder Cassava Farmers in the Study Area

	Rental		**Non-Rental**		**Pooled**	
Items	**Mean(₦)**	**%**	**Mean(₦)**	**%**	**Mean(₦)**	**%**
(A) Variable Items						
Cost of Family labour	9,664.71	2.6	6,181.82	6.2	15,846.53	3.3
Cost of Hired labour	13,111.76	3.5	17,052.63	17.2	30,164.39	6.3
Cost of Cassava stem	11,864.71	3.1	6,164.38	6.2	18,029.09	3.8
Cost of Fertilizer	9,250.00	2.4	21,323.33	21.5	30,573.33	6.4
Cost of Pesticide	9,184.62	2.4	6,988.89	7.1	16,173.51	3.4
Cost of Herbicide	14,725.00	3.9	10,567.53	10.7	25,292.53	5.3
Cost of Transportation	6,269.23	1.7	10,812.33	10.9	17,081.56	3.6
Cost of land preparation	33,020.00	8.7	20,000.00	20.2	53,020.00	11.1
Cost of land rent	271,175.25	71.7	-	-	271,175.25	56.8
TVC	**378,265.28**	**100**	**99,090.91**	**100**	**477,356.19**	**100**
(B) Fixed Items						
Dep. Cost of Cutlass	5,152.78	34.8	6,311.25	48.9	11,464.03	41.4
Dep. Cost of Wheelbarrow	9,644.44	65.2	6,598.75	51.1	16,243.19	58.6
TFC	**14,797.22**	**100**	**12,910.00**	**100**	**27,707.22**	**100**
TC (A + B)	**393,062.50**		**112,000.91**		**505,063.41**	

(C) Production Output		
(a) Quantity produced (kg)	2508.57	1081.24
(b) Unit Price	80.00	80.00
Naira Value (NV1) (a×b)	200,685.60	86,499.20
(D) Processed Output		
(a) Quantity processed (kg)	2133.30	501.12
(b) Unit Price (₦)	150.00	150.00
Naira Value (NV2) (a×b)	319,995.00	75168.00
Total Revenue (TR) (NV1 + NV1)	**520,680.6**	**161,667.2**
Gross Margin (TR –TVC)	**127,618.10**	**49,666.29**

Source: Computed from Field Survey Data, 2019

Cassava Productivity

Table 3 shows productivity level of both rental and non-rental cassava farmers. The result showed that majority of rental farmers (31%) has capacity to produce ≥4000kg compare with majority of non-rental farmers (44%) with capacity to produce ≤1000kg. On the average productivity, rental farmers cassava productivity capacity stood at 4641.87kg against 1582.36kg average productivity capacity for non-rental farmers, thus rental farmers gain up to 49.2% productivity capacity over non-rental farmers. The result shows that land rental market system facilitates farmland utilization (Hisatoshi H. 2015) and increase in productivity.

Table 4: Productivity Output of Small Holder Cassava Farmer in the Study Area.

Productivity kg/hec	**Rental**		**Non-rental**		**Pool Data in**
	Frequency	**%**	**Frequency**	**%**	**Percentage**
≤1000	20	25	35	44	34.4

1001 – 2000	12	15	27	34	24.4
2001 – 3000	4	5	9	11	8.1
30001 – 4000	25	31	9	11	21.3
≥4000	19	24	-	-	11.8
Total	**80**	**100**	**80**	**100**	
Mean	**4641.87**		**1582.36**		

Source: Computed from Field Survey Data, 2019

Land Related Constraints Faced by Small Holder Cassava Farmers in the Study Area

Results in Table 4 shows the constraints facing land rental small holder cassava farmers and non-land rental small holder cassava farmers in the study area respectively. As shown in table 11, major constraints applicable to land rental farmers were: Limited land for farming (20%), Poor road and transport facilitates (15%), inadequate rainfall (10%), bushy land prevent farming practices (10%), unstable market prices (10%), inadequate information (10%), inadequate extension supervision (10%), pest and disease attack (10%), prompt payment to the owner (5%), cattle invasion (5%), land topography (5%), unfertile land (5%) and family interference (5%) in descending order of ranking. On the other hand the major constraints encountered by non-land rental cassava farmers include: unfertile land(45.0%), poor road and transport facilitates(20.0%), limited land for farming(20.0%), the topography of the land(10%),, unstable market prices (10%), heaping of lard is very difficult(10%),, inadequate information (5%),, and pest and disease attack(5%) in decreasing order of ranking. In land rental cassava farmers group, limited land for farming was ranked first while unfertile land top the land related problem among non-land rental cassava farmers. This suggested that land rental cassava farmers require government intervention on land acquisition for farming and while non-land rental

farmers need government intervention to access fertilizer at considerable price to boost their cassava production.

CONCLUSION

It is concluded that revenue from the output sold for both land rental farmers and non-land rental farmers were ₦127,618.10 and ₦49,666.29 respectively and accounted for the highest proportion of the total revenue from the cassava production business. The gross margin revealed that income was positive for both categories of cassava farmers in the study area except that it was higher for land rental farmers.

Recommendations

1. Government should give farmers more land right, tenure security and right for land transferable to encourage farmers participation in land rental markets. Also price policies can be implemented to reduce the land renting cost by the land lord to reduce the cost of cassava production hereby increase farmer's income.
2. Both land rental and non-land rental farmers need government intervention to access fertilizer and other farm inputs at subsidizing and avoidable prices to boost cassava profitability to make it more inviting. Policies should be implemented through agricultural research institute and programmes to ensure access to these farm inputs.

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