ASSESSMENT OF COMMERCIALIZATION OF FOOD CROPS AMONG FARMING HOUSEHOLDS IN SOUTHWEST, NIGERIA

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Abstract

This study assessed the commercialization of food crops among farming household in Osun state by administering questionnaires to 99 food crop farmers. Furthermore, descriptive statistics, Household Commercialization Index (HCl) and Linear Regression analysis were used for data analysis. Results of field data analyses revealed that food crops farmers carry out full commercialization in the study area with Household Commercialization Index at 51.7% and about 54.6% of the respondent are at full commercialization. Also 79% of the respondents are male with 56% within the age range of 50 to 69 years and 53% having a household size between the range 4 to 7. However, the respondents travelled an average distance of 17.5km from farm to market. The study also revealed that usage of modern machinery and storage facilities, are some of the major determinants that contribute to the commercialization of food crops. With these, it is recommended that, farmers need to be provided with good storage facilities to ensure that food crops produced in excess quantities are stored in order to make it available throughout the year at an affordable prices. There is need to also sensitize the farmers on the benefits that can be derive from commercialization of food crops.

Key Words: *Commercialization, Food crop, Agriculture, Regression, Nigeria*

Introduction

One of the largest sectors in the Nigerian economy is Agriculture, contributing about forty percent of the Gross Domestic Product (GDP) and employing above 70% of the active labour force in the nation (Ajekigbe, 2007). The vast and fertile land resources and the unique climatic condition in Nigeria, characterized by different variations encourage the practice of food and cash crop farming. In the 1960s and early 70s, these crops were main source of foreign income to the country. The common stable food crops include maize, rice, seat potatoes, yam, cassava, and different fruits and vegetables while the cash crops include groundnut, palm oil and cocoa. (Fakayode *et al.*, 2012; U.S.

Library of Congress, 2009). However, over the years there has been a steady decline in agricultural productivity with the advent of the petroleum boom in the early 1970s. The boom in the oil sector brought about a distortion in the labour market which in turn produced adverse effects on the production levels of both food and cash crops (Ayorinde, 2005).

Moreover, the aim and objective of most government policies since the 1960s is to increase economic growth and development in order to enhance the welfare of the populace. Agriculture is believed to be one of the most important sectors expected to achieve this goal. The importance of agriculture in economic development cannot

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be understated. It helps in factor, product and market contribution. (Job and Felix, 2012; Johnston and Mellor, 1961). In addition, Lipton (2005), he noted in a study that the growth in the agricultural sector is inversely proportional to poverty. He further explained that agricultural growth has multiplier effect. Increasing farming leads to a growth in the agricultural sector which leads to a rise in the demand for labor, hence creating employment and income in rural communities

Going by the rapid rate of population growth in Nigeria, it is logical to conclude that the rate of growth in output of food crops may not be sufficient to satisfy the demand for food by the increasing population. Small farmers are bound to cultivate food crops for self-consumption and wish to avoid risks associated with the cultivation of food crops on a commercial scale which may lead to commercialization. The factors that could likely determine commercialization of food crops are educational level attained by the farmers, years of farming experience by the farmers, usage of machinery on the farm, distance of the farm to the market, availability of storage facilities etc. Also, Agriculture still remains under-developed despite the various initiatives aimed at improving the agricultural sector. The foregoing therefore answered the questions: what is the level of commercialization of food crops and what are the determinants of commercialization of food crops among the farming households?

The main objective of the study was to assess the commercialization of food crops among farming households in Osun state by estimating the level of commercialization of food crops and examining the determinants of commercialization of food crops among the farming households.

Methodology
Area of Study
The study was conducted in Osun state, Nigeria. The state occupies a land area of 9,251km^2 with a population of 4.14 million. Osun State is in the south-western part of Nigeria, West Africa. It lies in the rain forest zone of Nigeria on latitude 07° N north of the equator and longitude 14° E east of the Greenwich meridian (Lamidi and Akande, 2013).

Agriculture is one of the major occupations as over 90 percent of the rural populace is involved in farming. Osun state is made up of 30 Local Government Areas (LGAs) (Wikipedia, 2009).Osun state has 2 main climatic seasons namely; the dry and wet season. The natural vegetation comprises of moist evergreen and semi-evergreen forest and secondary forest, and an average annual rainfall ranging between 1400 to 2000mm. The average annual temperature ranges between 26 to 27° C (Atlas, 2006). The state is classified into six (6) agro-ecological zones by the Osun state Agricultural Development Programme (OSSADEP). These zones include Ede, Ife, Ikirun, Ilesha, Iwo and Osogbo (Fakayode *et al*., 2012).

Data Collection and Sampling Technique
Primary data were used for this study. The primary data was collected through a set of well-structured questionnaire. The target population for this study was the food crops farmers. A four stage sampling technique was adopted for this study. Table 1 explains the distribution of respondents and the sampling techniques.

Table 1: Distribution of Respondents

L.G.A	Number of Respondent	Percentage
Ede South	30	30.303
Ede North	25	25.253
Osogbo South	26	26.263
Osogbo North	18	18.181
Total	99	100.000

The first stage involved the selection of 2 agro-ecological from the 6 agro-ecological zones and these 2 zones are Ede and Osogbo. The second stage was the selection of 2 local Government from each of these 2 zones. The third stage was the selection of 2 communities from each of the 2 local Government Areas. The fourth stage was random selection of 15 food crops farming households from each of the 2 communities making a total of 120 questionnaires out of which 99 were recovered.

Data Analysis

Different analytical tools were used for the study. These include Descriptive Statistical Analysis, Household Commercialization Index (HCI), and Linear Regression. Descriptive statistical analysis was used to describe the socio-economic characteristic of the farmers. The descriptive statistical tools that were employed include; percentage, frequency distribution, mean. These tools were used to analyze the socio-economic characteristics of the respondents as well as to examine the types of food crops grown.

The Household Commercialization Index (HCI) was used to determine household specific level of commercialization as used by Agwu, *et al.* (2012a) and Govereh *et al.* (1999). The ratio of the gross value of crop sales by household *a* in year *b* to the gross value of all crops produced by the same household *a* in the same year *b* expressed as a percentage is measured using this index (Agwu *et al.,* 2012a).

$$HCIi = \frac{\text{Gross value of crop sold by hh } a \text{ in year } b}{\text{Gross value of all crop produced by hh } a \text{ in year } b} \times 100 \qquad (1)$$

Where HCl*i* = Household commercialization index for household I, hh*i* = ith household, Year *j* = jth year

Scale for Commercialization

0% – 30% : Not Commercializing
31% – 50% : Moderately Commercializing
51% – 100% : Fully Commercializing

Linear Regression

The implicit form of the regression is stated as follows:

$$Y = f (XI, X2,X3,X4,X5,X6,X7,X8,X9,X10,X11,X12,X13,X14,X15,\varepsilon) \qquad (2)$$

Where Y= Household Commercialization Index *(%)*, X_1= Age *(Years)*, X_2= Household Size *(no.)*, X_3= Educational status, X_4= Non-farm Income *(Naira)*, X_5= Farming experience *(Years)*, X_6= Farm size *(ha)*, X_7= Cooperative society *(yes=1, no=0)*, X_8= Distance to Market *(Km)*, X_9= Output *(Kg)*, X_{10}= Sex *(male=1, female=0)*, X_{11}= Timely market Information *(yes=1, no=0)*, X_{12}= Uses of Machinery *(yes=1, no=0)*, X_{13}= Access to credit facilities *(yes=1, no=0)*, X_{14}= Storage of produce *(yes=1, no=0)*, X_{15}= Transportation cost *(Naira)*, ε = Error term

Results and Discussion

Socio-economic Characteristics of Respondents

The socio-economic characteristics as shown in Table 2 gives the age, education status, religion, marital status, household size, etc.

Table 2 shows that about 79% of the food crops respondents were male. This implies that more males are into food crops farming than females. This may be because the women are only involved in marketing farm produce and doing domestic chores. However, land resource is poorly secured on

gender basis which might have a negative impact on agricultural commercialization as noted by Von Braun (1995). Also, most of the respondents (56%) are within the age range of 50 to 69 years which makes it worrisome because that could affect the level of productivity of food crops negatively because most of the respondents are ageing and this could be counterproductive. Also, according to Randela *et al.* (2008), older farmers view farming as a way of life rather than as a business

Table 2 also indicates that about half of the respondents (45.5%) have had education up to tertiary level, meaning many of the respondents have had considerable level of educational background. Furthermore, about 53% of the respondents have a household size ranging from 4 to 7 persons, yet, they still employ hired labour thus, confirming the hectic and time consuming nature of the enterprise. The average years of involvement in food crops farming was found to be 24.28 years. What this indicates is that, the food crops respondents are well experienced in farming enterprise. Furthermore, 77.8% of the respondents belong to different associations and 86.9% had other sources of income other than food crops farming. According to the study carried out by Olwande (2010), being a member of associations and groups is directly proportional to the access to information important to production and marketing decisions. In addition, 79.8% of the respondents cultivated area of land below 0.9 hectares. With the small farm holdings, the farmers may be subsistence in nature and this is in line with the study of Gebremedhin and Jaleta (2010)

Level of Commercialization of Food Crops

The level of commercialization of food crops by the respondents was examined in Table 3. It shows the level of commercialization of food crops attained by the respondents in the study area.

Table 3 showed that 54.6% of the respondents were into full commercialization. On the average, 51.7% of the respondents were into full commercialization. The above expression means that those that are fully commercializing are producing mainly for the market, that is, to sell in the market for income generation, those that are not commercializing are producing food crops mainly for consumption, while those that are commercializing on a moderate scale are producing both for consumption and for sale. There are a lot of issues which affect households' ability to go into commercialization of agricultural commodity as discussed in the next section. The distribution of households according to the issues that surrounding their ability to commercialize is as presented in Table 4.

Table 4 shows that the respondents travelled an average distance of 17.25km from the farm to the market. In addition, 73.7% of the respondents spent below N5000 on the transportation of food crops from the farm to the market and on the average, N3947 was spent by the respondents. Table 4 also showed that most of the respondents (67.7%) have access to timely market information Furthermore, about half of the respondents (50.5%) have access to machinery on their farm while (49.5%) of the respondents did not have access to machinery on their farm. In addition, 61.6% of the respondents store their food crops and 46.5% of the respondents sold their food crops as a result of excessive production Also, 43.4% of the respondents sold their food crops for the purpose of income earning and 10.1% of the respondents sold their food crops at the time when the price of the food crops have gone up in order to make more profit.

Determinants of Commercialization of Food Crops

Linear Regression Analysis was used to examine the determinants of

commercialization of food crops in the study area, shown on Table 5.

Table 5 showed that sex, farming experience and educational status were significant at 5% level of probability while usage of machinery on the farm, distant of farm to the nearest market, storage of produce, transportation cost from the farm to the market, non-farm income were significant at 1%. As shown from the Table 5, Sex was significant at 5% level of probability with a positive sign. This could as a result of more male venturing into the cultivation of food crops that are oriented towards the market. Moreover, male farmers have the ability to do more tedious work than their female counterpart and this could call for the production of food crops that are directed towards the market.

Equally, farming experience was significant at 5% probability level but with a negative sign. This implies that increase in farming experience has a negative effect on commercialization. The reason for this could be that, the longer farmers have engaged in the farming profession, the harder it will take for them to adopt new ideas which could bring about improvement in their level of output. The result of the findings counter that of (Agwu and Ibeabuchi, 2011) that opined experience has been known to lead to perfection in activities. This resultantly manifests in increased knowledge of techniques or otherwise involved in any enterprise.

Also, educational status was also significant at 5% probability level with a negative sign. This implies that as the level of education status achieved by the farmers' increases, the probability to go into commercialization decreases. This reason for this could be that majority of the farmers were learned individuals who were into professions that pay faster than agriculture. This could be the reason why their food crops were not directed towards the market. Usage

of machinery on the farm was significant at 1% level of probability with a positive sign. This implies that as usage of machinery on the farm increases, the probability to commercialize also increases. This could be that machinery usage on the farm will make the work faster and it will enable the farmers to cultivate more crops that will be directed towards the market. Distant of farm to the nearest market was also significant at 1% probability level with a negative sign. This implies that the farther the distance of the farm to the market, the less likely will the farmer want to go into commercialization. This result supports the study of Omiti (2009).

Storage of produce was significant at 1% level of probability with a positive sign. The implication of this is this is that, as the storage culture persists with the farmers, the more likely for them to go into commercialization. The reason for storage could be that they want to keep their food crops for the period that there will be scarcity of those crops. And from there, they can bring out the crops and make it available to the consumers who are likely to pay any amount in order to purchase the crops.

Transportation cost from the farm to the market was also significant at 1% probability level with a positive sign. This implies that the higher the amount spent to transport food crops from the farm to the market, the more likely for them to go into commercialization. Moreover, a rational human being would want to spend more in the area where he knows he is going to benefit more. For farmer to spend more money to transport food crops from farm to market, that means he actually want to make more money selling the crops in the market which in turn will make him want to go into commercialization.

Non-farm income was significant at 1% level of probability with a positive sign. This implies that as the amount of non-farm income generated increases, the probability

to commercialize also increases. The reason for this could be that with the increase in income the farmers the farmers had more fund to invest and there is the potentials of reducing dependency on the agricultural output and thus commercialization. This finding is in line with that of Agwu and Ibeabuchi (2011) who stated that increase in income leads to increase in the quantity and volume traded and hence enterprise expansion.

Conclusion and Recommendations

It can be concluded based on the findings obtained from this study that food crops farmers are into full commercialization, considering the fact that many of the farmers sampled sell their food crops as a result of excess production.

Consequently, it can be concluded that if food crops farmers were to maintain their full commercialization, factors such as sex of the household members, years of farming experience attained by farmers, level of education attained by farmers, the usage of machinery on the farm, distance of farm to the nearest market, availability of storage facilities, transportation cost from farm to the market, income from non-farm activities must be clearly brought into focus and strategies designed to ensure that the determinants increase the probability of the food crops farmers to commercialization. In view of these findings, it is recommended that:

Farmers need to be provided with enough and good storage facilities to ensure that food crops produced in excess quantities are stored in order to make it available throughout the year at an affordable prices.

There is need to sensitize the farmers on the benefits that can be derive from commercialization of food crops. Doing this will make the farmers to plan ahead and increase their food crops orientation towards the market, thereby, making it possible to

attain and maintain their full commercialization.

There is need for the Government to provide enough farming space for the farmers so as to increase their agricultural output which in turn will make it very likely to further increase their level of commercialization.

The Government should try and make available the needed farm machinery like tractor so as to make farmers' work easier. Doing this will motivate the farmers to want to go into full commercialization and maintain the commercialization level.

Finally, there is need for the farmers to diversify their income generating activities. Instead of the farming household to focus all its attention on farming alone, some of the household members can take up other activities like furniture making, carpentering etc. in order to expand their level of farming. Part of the money generated from the non-farm activities can be diverted into the farming activities which in turn will make them to maintain their level of full commercialization.

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Table 2: Socio-economic Characteristics of Respondents

Characteristics	Frequency	Percentage
Gender		
Male	78	78.8
Female	21	21.2
Total	99	100.0
Religion		
Christianity	45	45.5
Islamic	52	52.5
Traditional	2	2.0
Total	99	100.0
Marital status		
Single	15	15.2
Married	70	70.7
Divorced	5	5.1
Widow	6	6.1
Widower	3	3.0
Total	99	100.0
Age group (Years)		
30 – 49	38	38.3
50 – 69	55	55.6
70 – 89	6	6.1
Total	99	100.0
Educational status		
None	4	4.0
Quranic	2	2.0
Adult Education	4	4.0
Primary	16	16.2
Secondary	28	28.3
Tertiary	45	45.5
Total	99	100.0
Household size		
0 – 3	19	19.2
4 – 7	52	52.6
8 – 11	28	28.2
Total	99	100.0
Mean	5.83	
Farming experience (years)		
1 – 10	2	2.0
11 – 20	34	34.3
21 – 30	40	40.4
31 – 40	23	23.2
Total	99	100.0
Mean	24.28	
Membership of association		
Member	77	77.8
Non-member	22	22.2
Total	99	100.0
Other sources of Income		
Yes	86	86.9
No	13	13.1
Total	99	100.0
Land Area (ha)		
0 – 0.9	79	79.8
1 – 1.9	10	10.1

2 – 2.9		9	9.1
3 – 3.9		1	1.0
Total		99	100.0
Mean		0.756	

Table 3: Level of Commercialization of Food Crops

i. Yam	Gross value of Yam produced (₦)	Frequency	Percentage
	<= 150000	3	5.6
	150001 – 1192500	40	74.1
	1192501 – 2235000	7	13.0
	2235001 – 3277500	2	3.7
	>3277500	2	3.7
	Total	54	100.0
	Gross value of Yam Sold (₦)		
	<= 100000	21	38.9
	100001 – 1065000	24	44.4
	1065001 – 2030000	5	9.3
	2030001 – 2995000	2	3.7
	>2995000	2	3.7
	Total	54	100.0
	Household Commercialization Index for Yam (%)		
	<= 10.00	9	16.7
	10.01 – 31.56	14	25.9
	31.57 – 53.13	2	3.7
	53.14 – 74.69	5	9.3
	>74.70	24	44.4
	Total	54	100.0
ii. Cassava	**Gross value of Cassava Produced (₦)**		
	<= 200000	1	1.9
	200001 – 723750	14	25.9
	723751 – 1247500	13	24.1
	1247501 – 1771250	2	3.7
	>1771250	2	3.7
	NA	22	40.7
	Total	54	100.0
	Gross value of Cassava Sold (₦)		
	<= 25000	2	3.7
	25001 – 401250	8	14.8
	401251 – 777500	8	14.8
	777501 – 1153750	11	20.4
	>1153750	3	5.6
	NA	22	40.7
	Total	54	100.0
	Household Commercialization Index for Cassava (%)		
	<= 20.00	8	14.8
	38.70 - 57.37	2	3.7
	57.38 - 76.05	2	3.7
	>76.06	20	37.0

	NA	22	40.7
	Total	54	100.0
iii. Maize	**Gross value of Maize Produced (₦)**		
	<= 100000	17	31.5
	>1150000	1	1.9
	NA	36	66.6
	Total	54	100.0
	Gross value of Maize Sold (₦)		
	<= 100000	17	31.5
	>887500	1	1.9
	NA	36	66.6
	Total	54	100.0
	Household Commercialization Index for Maize (%)		
	<= 20.00	8	14.8
	20.01 - 36.67	1	1.9
	53.35 - 70.00	1	1.9
	>70.00	8	14.8
	NA	36	66.6
	Total	54	100.0

	Gross value of all crop produced (₦)	**Gross value of crop sold (₦)**	**Household Commercialization Index (%)**
iv. Fruits and Vegetables			
	Orange		
	750	500	66.7
	2500	500	20.0
	250	0	0.0
	Okra		
	252000	222600	88.3
	Tomato		
	252000	222600	88.3
	Corchorus olitorius **(EWEDU)**		
	32500	16900	52.0
v. Roots and Tubers	**Sweet Potato**		
	250	25	10.0
	2000	1250	62.5
	Cocoyam		
	900000	525000	58.3
	105000	94500	90.0
	900000	525000	58.3

	Household Commercialization		
vi. Overall Household Commercialization Index (%)	**Feature**	**Frequency**	**Percentage**
	0 – 30	43	43.4
	31 – 50	2	2.0
	51 – 100	54	54.6
	Total	99	100.0
	Mean	51.7	

Table 4: Issues affecting Commercialization among Food Crops Farmers

Distance from Farm to market (Km)	Frequency	Percentage
0 – 10	21	21.2
11 – 20	43	43.4
21 – 30	29	29.3
31 – 40	5	5.1
41 – 50	1	1
Total	99	100
Mean	17.25	
Transportation cost (₦)		
0 – 4999	73	73.7
5000 – 9999	16	16.2
10000 – 14999	6	6.1
15000 – 19999	1	1
20000 – 24999	1	1
25000 – 29999	2	2
Total	99	100
Mean	3947.17	
Access to Market Information		
Yes	67	67.7
No	32	32.3
Total	99	100
Access to Machinery		
Yes	50	50.5
No	49	49.5
Total	99	100
Storage of Produce (s)		
Yes	61	61.6
No	38	38.4
Reason for selling		
Income Earning	43	43.4
Excess Production	46	46.5
High Price for the produce (s)	10	10.1
Total	99	100
Food Crops		
Cassava	32	32.3
Corchorus olitorius (Ewedu)	1	1
Maize	18	18.1
Orange	3	3
Sweet potato	2	2
Yam	54	54.5
Cocoyam	3	3
Okra	1	1
Tomato	1	1

Table 5: Result of Linear Regression Analysis

Independent Variables	Coefficient	Standard Error	T-Value
(Constant)	26.019	19.773	1.316
Sex	12.149**	5.995	2.027
Farming experience	-1.204**	.549	-2.193
Educational Status	-4.055**	1.969	-2.059
Age	.573	.449	1.276
Household size	.582	1.404	.414
Cooperative society	-2.970	10.744	-.276
farm size	-1.157	5.545	-.209
Access to timely market information	2.865	5.983	.479
Usage of machinery on the farm	24.101***	6.720	3.586
Access to credit facilities	-1.715	10.292	-.167
Output	-3.750E-5	.000	-.471
Distant of farm to the nearest market	-1.009***	.330	-3.060
Storage of produce	19.823***	6.724	2.948
Transportation cost from farm to the market	.002***	.001	2.980
Income from non-farm activities	23.260***	8.051	2.889

Dependent Variable: Household Commercialization Index

***, ** = Significant at 1% and 5% level of probability respectively

R Square: 0.641

Adjusted R Square: 0.576