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Original Article

Food Security Status and Kolanut Marketing Households: A Synergic Linkage in Ondo State, Nigeria

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A B S T R A C T

More than 780 million people are chronically undernourished worldwide despite the fact that there is adequate food for everyone. Unfortunately, over 40% of Nigerians live in food insecure homes, and the country has the greatest rate of undernourishment out of West Africa. Kolanut selling households have also received minimal attention with regard to food security. This study, therefore, sought to access the linkage between food security status and Kolanut marketing households in Ondo State, Nigeria. A total of 120 Kolanut marketing households were randomly selected and data were collected using pretested semi-structured questionnaires. Specifically, we estimated the costs and returns to Kolanut marketing, food security status of Kolanut marketing households and the determinants of food security status. These objectives were analyzed using marketing margin analysis, food security index, logistic regression and Likert scale were used. It was reported that the net marketing margin received annually was ₦2,781.33/ha. Also, each dollar invested resulted in a profit for the marketers of 34.92 percent. Additionally, it was discovered that the majority (55.83%) of Kolanut marketing households had food insecurity, using 2260 Kcal/Adult Equivalent as a measure. Additionally, a logistic regression analysis showed that the household size of Kolanut marketing households in the research area had a negative impact on their level of food security. Poor road conditions, expensive transportation, limited access to market information, and inadequate financing facilities were the main obstacles for the households. Therefore, we urge the creation of educational programs on birth control methods that can actually reduce excessive family sizes.

Introduction

Despite the fact that there is enough food for everyone on the planet, more than 780 million people suffer from chronic undernourishment, according to FAO (1992). According to Idachaba (2004), almost 40% of Nigerians experience food insecurity. Nigeria has the worst rate of undernutrition in West Africa. However, the Nigerian economy was kept afloat by agricultural production and provided food; during colonial Nigeria's existence and for a brief period after independence, agriculture dominated the country's economy in relation to providing enough food for its people, providing rural employment, providing raw materials for its industries, providing foreign exchange, providing public revenue, and creating a domestic market for agriculturally related tools (Adegbola, Bamishaiye and Daura, 2011).

To meet their dietary needs and preferences for an active and healthy life, everyone must always have physical and economic access to enough safe, nourishing food. This state is known as food security (Uche, 2014). It is the procedure that makes food accessible to people, allowing them to access enough when they need it and maintaining stability. Another definition of food security is the state of having access to enough food to maintain a healthy lifestyle (Adepoju, Ogunniyi and Agbedeyi, 2015). Therefore, these definitions also included information about food stability, accessibility, and availability.

Kolanut is a key economic cash crop for a considerable portion of the Nigerian people involved in kolanut farming, industrial kolanut utilization, trading, and marketing (Ashaye *et al.*, 2017). The "kola nut" is the name for the fruit of the

Kola tree, which is native to the tropical rainforests of Africa (Oluwalana, *et al*., 2016). Other tropical nations such as Gabon, West India, and Brazil have all been exposed to it. The two most well-known varieties of kola nuts, Cola nitida and Cola acumilata, are among the many species that exist; however, only six of them may be found in West Africa. State-level kola nut production in Nigeria has been higher. Kolanut is an important economic crop in the south-west region of Nigeria. Kolanut is highly produced in Odigbo LGAs of Ondo state and other South-Western state of Nigeria (Ekiti, Oyo, Ogun, Osun) and predominantly consumed in Northern Nigeria. Kolanut is a tropical tree crop with over 20 species; out of which are two main species grown in Nigeria which are Cola nitida (Gbanja) and Cola acuminata (Abata).

With the creation of excess, above and beyond consumption, agricultural marketing becomes necessary. This relates to the idea of marketable surplus, which is characterized as the portion of total output that is suitable for sale while still meeting the needs of the producer (Ashaye *et al*, 2017).

Despite improvements in nutrition security, there is still a significant prevalence of undernourishment, particularly in Asia and Africa. Food insecurity and malnutrition have been a major challenge for many countries across the world.

Kolanut cultivation and marketing are still done on a subsistence level, despite the fact that it has several uses and is highly consumed by rural households. Unfortunately, the government hasn't given much attention to research into kolanut production, processing, marketing, or storage. Kolanuts have been produced in Ondo State for a very long time, but information on the crop's immense potential as a significant export good is not easily available. Few efforts have been made to help the Kolanut marketing households improve their standard of living and level of food security.

Therefore, the specific objectives of the study were to estimate the costs and returns to Kolanut marketing households; examine the food security status of kolanut marketing households as well as the determinants of food security status of kolanut marketing households in the study area.

Methodology

Area of study

Nigeria's Ondo State is where the study was carried out. The state was picked precisely because they are the primary producer of kolanut. Its total land area is roughly 1,818 square kilometers, and it is located between longitudes 40 51' 59"E and latitude 60 47'21" N of the equator. The 1976 creation of the state resulted in the division of its 18 local government units (LGAs) into three senatorial districts. Its neighbors to the north are Ekiti State, Kogi State, Edo State, the northeast, the southeast, Ogun State, the southwest, and the northwest are Delta State, Ogun State, and Osun State. The state has a tropical climate with primarily two seasons: the rainy season (April to October) and the dry season (November-March). In the southern part of the state, the annual rainfall ranges between 1,150mm and 2000mm. The daytime temperatures are generally high, especially in March and April. The permitted maximum temperature is from 30.1 C to 35.7 C, while the minimum temperature goes from 20.6 C to 25 C. From January to November, there are 9.9 months of wet weather.

Sampling technique

The study's sample was chosen using a two-stage sampling process. Because there were many kola nut marketers in the Odigbo Local Government Area in Ondo state, it was purposefully chosen for the first stage. A total of 120 marketers were included in the second stage's random selection of 6 communities, including Orita, Ajue, Asewele, Lasia, Omifun, and Akintola. There were 20 marketers from each community.

Analytical framework marketing margin and return on capital analysis

Gross and net marketing margins was used the profit margin of the marketers.

Gross marketing margin: selling price – producer price

Net marketing margin: gross marketing margin –marketing cost

This was given as:

Gross marketing margin (₦) $= Selling\ price - Producers\ price - TVC$ ……(3)

Net marketing margin (₦) = $Gross\ marketing\ margin - Total\ marketing\ cost$….. (4)

Where; Total marketing cost = TVC + TFC

$$\textbf{Return on Capital} = \frac{Net\ Farm\ Income}{Total\ \ Marketing\ Cost}$$

The Kolanut marketing households' food security was evaluated using the food security index. In this study, the food security line was defined as 2260 kcal per day as a suggested threshold (Olayemi 1998, Omotesho *et al*., 2006, Ogunbiyi, 2015). A household was considered to have food security if their daily per capita calorie intake was up to 2260 kcal, whereas those with intakes below 2260 kcal were considered to have food insecurity. (Babatunde *et al*., 2007)

$$Zi = \frac{Yi}{R}$$

Where Z*i*= the security of the food Status of *ith* households where 1 indicates a household has access to food and 0 indicates a household does not

Yi = daily caloric intake for each person in *ith* families

R =Recommended per capital daily calorie intake (2260Kcal)

When Yi exceeds or is equal to R, Z=1.

Z=0 when Yi falls below R.

For the purposes of this study, a household is defined as a collection of people who reside together and share a pot of food (Omotesho *et al*., 2006)

Based on Z, several food security measures were calculated as: the shortfall/surplus index, p given as

$$P=\frac{1}{M}\sum_{j=1}^{m} Gj$$

Where $G_j = (X_j - I)/I$ is the deficiency (or surplus faced by household j, X*j* is the average daily calorie available to the *jth* household while M is the number of households that are either food secure (for the surplus index) or food insecure (for shortfall index). The extent to which households fall below (or above) the food security line is measured on an aggregate basis.

Logistic Regression Model: It was used in determining the determinants of food security status of kola nut marketing households.

To describe data and explain the relationship between one dependent binary variable and one or more independent

nominal, ordinal, interval, or ratio-level variables, we employ logistic regression.

$Y = F(X_1, X_2, X_3, X_4, X_5, X_6)$

$Y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \beta_6 x_6 + U$

where,

Y = Status of food security (Food secure =1, Food insecure =2); X = independent variable

β_0= Intercept; β_i= regression coefficients

X_1 = Age of the households head (years); X_2 = Household size (Number);X_3 = Level of education (Non formal education =1, Primary =2, Secondary =3, Tertiary =4); X_4 = Marital status (Single =1, Married =2); X_5 =Experience (years); X_6=Gender (Male = 1, Female = 2); U = Error term.

Likert-type scale: The limitations affecting Kolanut marketing in the research area were discovered using this. Responses were rated on a 5-point scale and classified into: Extremely Serious = 5; Very Serious = 4; Moderately Serious = 3; Slightly Serious = 2; Not Serious = 1

Results and Discussion

Costs and Returns on Kola Nut Marketing

Table 1 summarized the analysis of net farm income and gross margin. It was discovered that a total expenditure/cost of ₦ 955,740 resulted in a total revenue of ₦1,289,500. This resulted in an average profit of ₦ 2,781.33 and a net income of ₦ 333,760. With a gross margin of ₦ 379,420 and a Return on Investment of 34.92, kola nut marketing is successful. According to the return on capital invested, the marketers made a profit of 34.92 percent on every dollar invested, or $1.

Table 1. Costs and Returns on kola nut Marketing.

Cost / Revenue	Total Average (₦)	Values (₦)	Percentage of total
Total Revenue	**10,745.83**	**1,289,500**	
Variable Cost			
Purchasing cost (A)	6,582.5	789,900	86.79
Transportation Cost	833.33	100,000	10.99
Cost of Offloading	168.17	20,180	2.22
Total Variable Cost	**7,584**	**910,080**	100
Total Revenue	**10,745.83**	**1,289,500**	
Fixed cost			
Storage cost	320.5	38,460	84.23
Government Levy/Tax	60	7,200	15.77
Total Fixed Cost	**380.5**	**45660**	100
Total Cost (TVC + TFC)	**7,964.5**	**955,740**	
Average Profit (ATR - ATC)	**2,781.33**		
Net Income (TR - TC)	**333,760**		
Gross margin (TR - TVC)	**379,420**		
Profitability Index (NI ÷ TR x 100)			25.88
Rate of return on Investment (NI ÷ TC) x 100			34.92

Note: 1dollar = ₦408; Source: Field Survey, 2021.

Food Security Status of Kola Nut Marketing Households

Table 2 details the level of food security for farming households in the research area. The various variables were utilized as a foundation for investigating the degree of food insecurity among Kolanut selling households from various angles. According to the recommended daily calorie intake R of 2260 kcal, it was found that 44.17% of households had access to enough food, while 55.83% did not, suggesting that households in the research area may have food insecurity.

The shortfall or surplus index (P), which gauges the degree of departure from the food security line, reveals that whereas households with enough access to food exceeded the minimum daily per capita calorie need by 63, those with inadequate access fell 27 short.

Table 2. Food Security Status of Kola nut marketing households.

Food Security Indices	Values
Number of participants	120
Food Secure Households	53
Food Insecure households	67
Percentage of Food Secure Households	44.17
Percentage of Food Insecure Households	55.83
Surplus index	0.63
Shortfall index	0.27

Source: Field Survey, 2021.

Determinant of Food Security Status of Kola Nut Marketing Households

A regression analysis of the Kola nut marketing households' food security status is shown in Table 3 below. The results showed that, of the six variables, only household size was significant at ($p<0.01$) with a negative coefficient of -0.324. This suggests that increasing household size would result in a decline in the household's level of food security, as larger households are more likely to experience food insecurity than smaller households. According to this finding, a household's likelihood of having enough food decreases as the number of members grows because more people will be consuming from the same resources. Table 3's outcome is consistent with that of Oluyole *et al.*, (2009).

Table 3. Determinant of Food Security Status of Kolanut Marketing Households.

	Coefficients	Std. Error	t-value	Sig.
Age	0.028	0.055	1.529	0.129
Gender	0.103	0.111	0.927	0.356
Marital status	0.038	0.062	0.601	0.549
Educational Level	0.039	0.066	0.593	0.554
Experience	-0.124	0.495	-0.252	0.802
Household size	-0.324**	0.078	-4.131	0.000
Constant	0.442	0.289	1.529	0.129
R	0.381			
R^2	0.145			
Adjusted R^2	0.107			
F value	3.838			

Source: Field Survey, 2021.

Constraints to Kola Nut Marketing

The Kolanut Marketing households in the study region were subject to the limitations shown in Table 4. The majority identified a lack of access to adequate roads as the main barrier to Kolanut marketing. Another significant challenge for marketers is high transportation costs, which may be caused by poor roads. Another barrier to the marketing of kola nuts was limited access to market information. The majority of those surveyed had little access to market data that could help them grow their businesses and produce more effectively. According to the respondents, poor storage

facilities have an impact on marketing in the research area. High level of perishability was ranked fifth and was viewed as restraint by the study's respondents.

A small number of the respondents also agreed that seasonal volatility is one of their issues. The respondents thought that the study area's limited supply was the biggest barrier to the marketing of kola nuts.

In conclusion, a lack of adequate roads is the main obstacle, ranking first, followed by the high cost of transportation, a lack of market information, subpar storage facilities, a high level of perishability, a lack of finance, and a lack of supply, in that order.

Table 4. Constraints to Kolanut Marketing.

Factors	Extremely Serious	Very Serious	Moderately Serious	Slightly Serious	Not Serious	Mean	Rank
Poor access to good roads	66(55.0)	52(43.3)	2(1.7)	0(0)	0(0)	4.53	1st
High cost of transportation	29(24.1)	85(70.8)	5(4.2)	1(0.8)	0(0)	4.18	2nd
Poor access to market information	5(4.2)	101(84.2)	13(10.8)	1(0.8)	0(0)	3.92	3rd
Poor storage facilities	7(5.8)	85(70.8)	26(21.7)	2(1.7)	0(0)	3.81	4th
High level of perishability	6(5.0)	84(70.0)	30(25.0)	0(0)	0(0)	3.8	5th
Poor access to credit	13(10.8)	75(62.5)	27(22.5)	3(1.7)	3(2.5)	3.78	6th
Low supply	5(4.2)	78(65.0)	37(30.8)	0(0)	0(0)	3.73	7th

Source: Field Survey, 2021.

Conclusion and Recommendations

After conducting this study, it is clear that Kolanut marketing offers a high rate of return on investment, with a marketing margin of ₦333,760 for each nut sold and an average cost of ₦2,781.33 for marketing margin. It was further determined that a lack of access to decent roads is the main barrier to kola nut marketing in the research area. The study suggests that birth control education programs be implemented in order to lower excessive family sizes. Additionally, the government should build good roads to address the issues with Kolanut transportation that marketers encounter.

References

Adegbola JA, Bamishaiye EI and Daura AM (2011). Food security in Nigeria: Government's Intervention and the Place of Effective Storage. *Asian Economic and social society*, 2.

Adepoju AA, Ogunniyi LT and Agbedeyi D (2015). The role of women in household food security. *International Journal of Agricultural Policy and Research* , 2.

Ashaye WO, Wahab AA, Samaila RS, Daramola RB and Kupoluyi OO (2017). Overcoming the Challenges of Food Importation and Agricultural Development in Nigeria. *Continental Journal of Sustainable Development*, 8(1):33-54

Babatunde RO, Omotesho OA and Sholotan OS (2007). Socio-economic characteristics of food security status of farming household in Kwara state, north central Nigeria. *Pakistan Journal of Nutrition*, 6(1):49-58.

FAO (1992). Proceedings of the 1992 world food day symposium. (FAO)Rome

FAO (2003). The reforms and food security: Conceptualizing the linkages. *Commodity policy and projection service commodities and trade division.* Food and Agriculture organization of United Nations. Rome.

Idachaba FS (2004). Food security in Nigeria: Challenges under democratic dispensation. 9th ARMTI annual lecture, Ilorin 24th March, 2004.

Olayemi JK (1998). Food Security in Nigeria. Research Reports No. 2. Development Policy Centre, Ibadan. 2 (32):77-78.

Oluyole KA, Oni, OA, Omonona BT and Adenegan KO (2009). Food Security among cocoa farming Households of Ondo State, Nigeria. Journal of Agricultural and Biological Science, 4(5):7-13

Ogunbiyi KK (2015). Climatic Smart Agricultural Practices and Food Security Status among farm household in Kwara State, Nigeria. An unpublished M.Sc. thesis in Department of agricultural economics, University of Ibadan, Nigeria.

Omotesho OA, Adewumi MO, Muhammad-Lawal A and Ayinde OE (2006). Determinants of food security among the rural farming households in Kwara State, Nigeria. *African Journal of General Agriculture*, 2(1):7-15.

Uche (2014). Food insecurity in Nigeria: A Thematic Exposition. *Arabian Journal of Business and Management Review*, 4(1):1-14.