

Original Article

Factors affecting Kolanut marketing in Kaduna metropolis, Kaduna State, Nigeria

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ABSTRACT

The study examined factors affecting Kolanut marketing in Kaduna Metropolis, Kaduna State, Nigeria. Multi-stage sampling techniques were used for the study. Purposive sampling was used to select four markets in the study area. Random sampling techniques were used to select 100 marketers in all the selected markets. Personal interview with the aid of semi-structured questionnaires was used to obtain information from the marketers. Data collected were analyzed with descriptive statistics and multiple regression analysis. The results showed that majority (88.42%) of Kolanut marketers are male, married with the highest household size of 6–10 members. They had mostly (37.89%) secondary school education and the highest marketing experience of 6–10 years. The net income from Kolanut marketing is influenced by gender, household size, educational level, years of marketing experience, and transportation cost. The constraints of Kolanut marketing are inadequate capital, high transportation cost, unavailability of Kolanut, and poor storage. Other includes high cost of labor, price fluctuation, and lastly, low price. The study concludes that adequate training on proper storage of Kolanut should be organized by the government at all levels and by the cooperative society for the marketers. Furthermore, farmers should be encouraged to grow and produce more of Kolanut so as to increase the quantity of Kolanut that will be available to marketers.

Keywords: Factors, Kolanut, marketing, marketers, net income

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INTRODUCTION

Kolanut is a tropical tree crop belonging to the family Sterculiaceae. There are over fifty species of kola, of which seven have edible nuts, but only two species are grown in Nigeria and widely exploited, these are *Cola nitida* (Gbanja) and *Cola acuminata* (Abata).^[1,2] The most important is *C. nitida* because of its wide economic value. Kolanut is mostly produced in Africa and is cultivated to a large degree in Nigeria, but also in Ghana, Ivory Coast, Brazil, and the West Indian Islands.^[3,4,5] Annual production from these countries alone is in excess of 250,000 tons, while the world production is about

300,000 tons.^[6] Nigeria produces 88% of the world's *C. nitida* crop and of this total, 90% is consumed within the country, mainly in the kola chewing areas of the Northern states. It is eaten in a fresh state for stimulating effect, while 10% only is exported. There exists wide export market for it because it has a lot of uses. The Yoruba of the southwest of Nigeria cherished the consumption of *C. acuminata*, while the people of northern and southeast Nigeria prefer *C. nitida*.

Kolanut is chewed in many West African countries, individually or in a social setting to restore vitality and ease hunger pangs. The seeds are chewed as a stimulating narcotic,

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beverage could be made by boiling powder seed in water, and also a cough syrup made from the juice extract.^[7] Kolanuts are an important part of the traditional, spiritual practice of culture and religion in West Africa, particularly Nigeria.^[8] Kolanut is used as a masticatory stimulant by Africans and has numerous uses in social, religion, ritual, and ceremonial functions by the natives in the forest regions of Africa.^[9] It is used during ceremonies related to marriage, child naming, and installation of chiefs, funerals, and sacrifices made to various gods of African mythology.^[10] It is also used in the everyday entertainment of important visitors where it is offered as a valuable gift on such important occasions.

In Nigeria, there is a common saying that “kola is produced in the West by Yorubas, consumed in the North by Hausas and worshiped in the East by Ibos.” It enjoys special favor with the people of northern Nigeria who have accepted the *C. nitida* as a stimulant substitute for alcoholic drinks. The South Easterners are more interested in *C. acuminata*, which features prominently in most traditional ceremonies and social functions such as marriages, weddings, coronation, installation of high chiefs, and traditional rulers.^[11] Kolanut, apart from the fact that it is widely consumed by virtually all categories of income groups, commodity has been found to be useful in the production of beverages, flavoring material alkaloids, caffeine, theobromine, laxatives, heart stimulants, and sedatives.

Various studies have been carried out to determine factors affecting the marketing of agricultural products and non-timber forest products (NTFPs) in Nigeria. For instance Anozie *et al.*^[12] in their study of Economic Analysis of Banana Fruits Marketing in Ivo Local Government Area (LGAs) of Ebonyi State, Nigeria found the age of the marketers, education level, marketing experience, cost of transport, and access to credit were the factors that significantly affect retail banana fruit marketing in the study area, while age of the marketers, their educational level, marketing experience, cost of transportation, and membership of cooperative association were the factors that significantly affect wholesale banana marketing in the study area.^[13] Stated that age of the respondents, experience of the household heads, farm practice, and quantity of harvested maize had a significant influence on the proportion of maize that will be offered for sale in the market. Ariyo,^[14] in his study of determinants of fuelwood marketing in Igabi LGAs of Kaduna State, found years of formal education, years of marketing experience, household size, transportation cost, and labor cost significantly affecting gross return from the sales of fuelwood. In a similar study conducted by Ariyo *et al.*^[15] on determinants of bushmeat marketing in Kaduna Metropolis, Kaduna State, Nigeria, selling price of fresh bushmeat, marketing experience, and household size were significantly different and play crucial role in determining the gross income of the respondents

The relationship between the output of Kolanut and socioeconomic factors of the respondents was determined by Oluwalana *et al.*^[16] and found three variables such as age of farmers, farming experience, and farm size to be significantly different to the Kolanut output. Taiwo *et al.*^[17] in their study of analysis of factors affecting the marketing of Kolanut in Ogun State, Nigeria, found the income earned per year by the marketers, source of Kolanut, and the preference of kola type consumed are major significant factors determining kola marketing in the study area at 5%, and 10% level of significance. This indicates that the income realizable from kola sales, source of Kolanut, and the preference of kola type consumed are important variables and to a large extent determines the volume of Kolanut the marketer is able to sell in a given year. Oluyole *et al.*,^[2] in their study of Economic Analysis of Kolanut Marketing in Osun and Ogun States of Nigeria, found 12 out of 13 variables to significantly affect the income of Kolanut marketers in Osun and Ogun State, Nigeria. The significant variables are age ($P < 0.01$), marital status ($P < 0.01$), educational status ($P < 0.01$), years of marketing experience ($P < 0.01$), cost of fetching water ($P < 0.01$), cost of peeling/washing ($P < 0.01$), cost of packaging/preservation ($P < 0.01$), cost of transportation ($P < 0.01$), cost of reservoir ($P < 0.01$), cost of basket ($P < 0.01$), cost of preservatives/chemical ($P < 0.01$), and cost of nylon ($P < 0.01$).

Over 100 forest genetic resources of major importance have been reported in international market and Kolanuts are one of the products.^[18] Furthermore, the marketing of Kolanut is more profitable than the marketing of other NTFPs because of its high amenability to storage, both fresh and dried.^[19] Marketing of Kolanut is done by the producers who sell at the farm gate or village site to either the wholesalers in rural and urban areas or directly to the retailers who are mostly women.^[20] These women process the kolanuts from the pods before selling to the consumers.^[21] The Kolanut farmers are located in remote areas and are saddled with poor market infrastructure and marketing information.^[22] The marketers of Kolanut required marketing information such as policies which influence prices, how to store Kolanut, insecticides used during storage, marketing outlets, and handling of Kolanut. This marketing information will help to reduce the risk involved in and enhances marketing of Kolanut.

According to Adedoyin,^[23] availability and effectiveness of marketing infrastructures such as storage facilities, transportation facilities, and communication networks determine the ability of marketing system to effectively and efficiently perform its developmental function; furthermore, the study revealed that an adequate transportation network must exist for effective distribution of Kolanut to take place. According to Ajani and Onwubuya,^[24] the major problems of kola marketers were inadequate capital, poor storage facilities, and high cost of transportation, language barrier, inadequate

supply of Kolanut, poor market experience, and other losses emanating from sprouting and theft. Based on the premises above, several factors affect the marketing of Kolanut, especially in the Kolanut consuming area of the North like Kaduna. Some of these factors have not been model in the study area to determine specifically which of the factors has significant effects on the income of the marketers. It is against this backdrop the study seeks to determine the factors affecting Kolanut marketing in the study area with the following specific objectives: (i) Describe the socioeconomic characteristics of Kolanut marketers, (ii) analyze factors affecting Kolanut marketing, and (iii) identify constraints encountered by marketers in Kolanut marketing in the study area.

Hypothesis of the Study

The hypothesis of the study was stated in null form as follows:

Ho: There was no significant relationship between the net income of Kolanut marketers and the factors that are affecting it.

METHODOLOGY

Study Area

Kaduna metropolis is made up of four LGAs, namely; Kaduna North, Kaduna South, Igabi, and Chikun LGAs. Kaduna State lies between latitude $10^{\circ} 37'N$ and $10^{\circ}20'N$ longitude $7^{\circ} 17' E$ and $7^{\circ}45' E$ (Wikipedia). It has a population of about 6,066,512 people according to 2006 census figure, making it the third-largest state in the Federation after Lagos and Kano States.[25] The state is currently made up of 23 LGAs[25] and divided into four agricultural zones, namely: Maidala, Samaru, Birnin Gwari, and Lere zones. According to Wikipedia, Kaduna state has a total land area of about 46,053 km² and the density is about 131.7 km² (341.2 m²). The metropolis is a commercial and industrial center of Nigeria. The city has many factories such as textile, beverages, and furniture. It is a rail and road junction, thus, a trade center for the surrounding agricultural areas. The city was founded by the British in 1913 and became the capital on May 25, 1967, of Nigeria's former Northern region. It got her name after the Kaduna river which flows through the center of the state and on which the city lies (Wikipedia). The area is marked with two distinct seasons of wet and dry seasons. The wet season commences in the month of April in the southern part of the state and late June in the northern part. The dry season extends from October to March and is marked by the hot, dry North-East, Harmattan wind. It has an annual rainfall of about 1000 mm–1500 mm per annum, maximum and minimum temperature of 32°C and 20°C, and maximum and minimum humidity of 89.42% and 27.83%.[26] Farming is the main occupation of the people of Kaduna and it is characterized predominantly by mixed cropping of crops such as maize, onion, cassava, groundnut, sorghum, millet, and cowpea. Rain-fed agriculture is mostly practiced with little Fadama Agriculture. The major ethnic groups in the city

are the Hausas, Gwaris, Katafs, Gbagiis, and Jaba, who form the majority of the inhabitants of the area. Others include the Fulanis, Tiv, Idoma, Yoruba, and Ibos.

Sample Techniques and Sample Size

Multi-stage sampling techniques were adopted for this study. One major market with a high concentration of Kolanut marketers from each of the local government that made up of Kaduna Metropolis was purposefully selected. The markets are Barkin-Dogo in Kaduna North, Sabo Market in Kaduna South, Igabi market in Igabi, and Monday market in Chikun LGAs. Within each market, 25 marketers were randomly selected for this study. This made a total of 100 marketers as sample size.

Method of Data Collection

Primary data were used for the study. The primary data were collected through the administration of a well-structured questionnaire to Kolanut marketers in the selected market within Kaduna Metropolis. The questionnaires were designed in line with the objectives of the study, contained open- and close-ended questions. This was used to collect qualitative and quantitative data from 100 randomly selected Kolanut marketers. Data collection was done by personal interview of the respondents to determine factors affecting Kolanut marketing. Only ninety-five questionnaires were used for the analysis, while five were discarded due to inconsistencies in the information given by the respondents.

Data Analysis

Data obtained were analyzed using descriptive statistics and multiple regression analysis.

Descriptive Statistics

Descriptive statistics such as frequency table, mean, and percentage were used to summarize the constraints of Kolanut marketing and socioeconomic characteristics of the marketers. The socioeconomic variables include: Age, sex, marital status, educational qualification, household size, and marketing experience.

Multiple Regression Analysis

Regression model is a casual relationship between two or more independent variables and a dependent variable.^[27] It is a technique for determining the relationship between dependent and independent variable. Ordinary least square (OLS) regression analysis was used to analyze factors affecting Kolanut marketing. The multiple regression analysis was used in this study because it will help to analyze quantitatively the pertinent factors affecting Kolanut marketing in the study area. Three functional forms were tried, namely, the linear function, the semi-log, and the double log function. The best functional form based on coefficient of multiple determination- R^2 , F –statistics, t – ratio, and a-priori expectations as well as the number of significant variables was chosen. The data

involving the null hypothesis was tested at 10, 5, and 1 % level of significance to determine the probability of association between variables. The model in its general (implicit) form is;

$$Y = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, X_{10}, X_{11} \times X_{12} + \mu_1) \dots \dots \dots \text{equation 1}$$

Explicitly the function can be represented as

Linear function;

$$Y = \beta_0 + \beta_1 \times 1 + \beta_2 \times 2 + \beta_3 \times 3 + \beta_4 \times 4 + \beta_5 \times 5 + \beta_6 \times 6 + \beta_7 \times 7 + \beta_8 \times 8 + \beta_9 \times 9 + \beta_{10} \times 10 + \beta_{11} \times 11 + \beta_{12} \times 12 + \mu_1 \dots \dots \dots \text{equation 2}$$

Semi-log;

$$Y = \beta_0 + \beta_1 \log X_1 + \beta_2 \log X_2 + \beta_3 \log X_3 + \beta_4 \log X_4 + \beta_5 \log X_5 + \beta_6 \log X_6 + \beta_7 \log X_7 + \beta_8 \log X_8 + \beta_9 \log X_9 + \beta_{10} \log X_{10} + \beta_{11} \log X_{11} + \beta_{12} \log X_{12} + \mu_1 \dots \dots \dots \text{equation 3}$$

Double-log;

$$\log Y = \beta_0 + \beta_1 \log X_1 + \beta_2 \log X_2 + \beta_3 \log X_3 + \beta_4 \log X_4 + \beta_5 \log X_5 + \beta_6 \log X_6 + \beta_7 \log X_7 + \beta_8 \log X_8 + \beta_9 \log X_9 + \beta_{10} \log X_{10} + \beta_{11} \log X_{11} + \beta_{12} \log X_{12} + \mu_1 \dots \dots \dots \text{equation 4}$$

β_0 = Constant, β_1 to β_{12} = regression coefficient, μ_1 = error terms

Y = net income (₦), X_1 = Gender, X_2 = Age of respondents, X_3 = Marital status, X_4 = Household size, X_5 = Educational level, X_6 = Years of experience, X_7 = Purchase cost (₦), X_8 = Storage cost (₦), X_9 = Transportation cost (₦), X_{10} = Marketing charges (₦), X_{11} = Labor cost (₦), X_{12} = Rent cost (₦)

RESULTS AND DISCUSSION

Socioeconomic Characteristics of Kolanut Marketers

The socioeconomic characteristic of the respondents was presented in Table 1. It showed that majority (88.42%) of the respondents are male while 11.58% are female. This revealed that male marketers dominated the sales of Kolanut in the study area. This result was contrary to the findings of Taiwo *et al.*^[17] which found female (mostly women) dominated the marketing of Kolanut in Ogun State. The majority of people in the study area are Muslims, and as such, Islamic religion and the culture of the people do not allow women to participate in businesses that require their outing and exposure to the male sex. This corroborates the statement made by Olagunju *et al.*^[28] that religious beliefs and cultural background of the people in northern Nigeria restricts women from participating in some economic activities. Moreover, majority of the women in the

Table 1: Socioeconomic characteristics of the respondents

Socioeconomic characteristics	Frequency	Percentage	Mean
Gender			
Male	84	88.42	
Female	11	11.58	
Age			44
21–30	10	10.53	
31–40	23	24.21	
41–50	36	37.89	
51–60	20	21.05	
>60	6	6.32	
Marital status			
Married	92	96.84	
Single	3	3.16	
Household size			7
1–5	36	37.89	
6–10	44	46.32	
11–15	10	10.53	
16–20	5	5.26	
Level of education			
Primary	33	34.74	
Secondary	36	37.89	
Tertiary	5	5.26	
Islamic	17	17.89	
Not educated	4	4.21	
Years of marketing experience			7
1–5	35	36.84	
6–10	43	45.26	
11–15	15	15.79	
16–20	2	2.11	

study area are in Purdah and this explained why males are more in the marketing of Kolanut than females in the study area.

The highest age range (62.10%) of the respondents falls between 31 and 50 years, while the average age was 44 years. This was contrary to the finding of Adewumi^[29] that the average age of kola marketers in Ekiti State is 50 years and 90 percent are female traders. The result showed that most of the Kolanut marketers are within the active and productive age range, young, and agile with enough vigor and innovative ideas to pursue the marketing activities. This is in line with the findings of Agwu and Anyaeche,^[30] Nwawuisi *et al.*,^[31] Nwaru,^[32] and Banabana-Wabbi,^[33] who noted that the ability of a farmer to bear risk, be innovative, and be able to do manual work decreases with age. However, 21.05% and 10.53% of the marketers are within 51–60 and 21–30 years, respectively, while only 6.32% are >60 years of age.

In terms of marital status, 96.84% which formed the majority of the marketers are married while only 3.16% are single. Marriage gives people the sense of responsibility to provide the basic needs of the family.^[34] The married respondents are also expected to benefit from unpaid labor that will enhance their sales and increase income.

The household size of the marketers showed that majority (46.32%) of the marketers had family size of 6–10 members. Those marketers with household size between 1–5 and 11–15 members were 37.89% and 10.53%. Only 5.26% of the marketers had a larger household size of 16–20 members. The average household size of the marketers was 7. This implies that the marketers may perhaps utilize members of the household as labor for some activities relating to the marketing of Kolanut. This may reduce some transaction costs that may be incurred, thereby increasing the net income of the marketers.

The level of education of the marketers revealed that 37.89% and 34.74% had secondary and primary education. About 5.26% had tertiary education and 17.89% Islamic education. The proportion of the marketers that were not educated was low, 4.21%. This showed that majority of the respondents had formal education. This implies that they will have better marketing strategies that will boost their sales of Kolanut. Marketers with formal education have a greater ability to adopt new innovations, ideas, information, and marketing strategies to increase volume of sales. It is expected that the level of education will significantly influence decision-making of marketers. The result agreed with the findings of Nwaru *et al.*,^[35] who stated that education helps for product management and easy access to information. Furthermore, Esiobu *et al.*^[36] opined that exposure to high level of education is an added advantage in terms of achieving a higher volume of sales, huge profit, and efficient marketing.

Years of marketing experience of the marketers showed that majority 45.26% of the marketers had 6–10 years of experience in the marketing of Kolanut. This was followed by 36.84% which had 1–5 years of experience. The percentage of marketers that had 11–15 years and 16–20 years of experience was 15.79% and 2.11%, respectively. The average year of experience was 7. This reveals that the marketers had moderate knowledge of marketing Kolanut. Long years of involvement in marketing expose the marketers to marketing ideas that will help them to overcome marketing intricacies.^[37]

Regression Analysis of Factors Affecting Kolanut Marketing in the Study Area

The factors affecting the marketing of Kolanut in the study area were determined by OLS Regression Analysis. Variables such as gender, age, marital status, household size, educational level, years of marketing experience, purchased cost, storage cost, transportation cost, marketing charges, labor cost, and rent

cost were subjected to regression analysis. Three functional forms: Linear, Semi-log, and Double-log, or Cob-Douglas functions, were tried. The result of the three functional forms was examined in terms of their significance as indicated by F- statistics, magnitude of the coefficient of multiple determinations (R^2), a-priori expectations which include the magnitude and sign of the coefficient. Considering the above criteria, the semi-log gave the lead equation and was chosen based on the statistical criteria such as coefficient of multiple determination- R^2 , value of F-ratio, t-ratio, a-priori expectations, as well as the number of significant variables. The result of the analysis presented in Table 2 showed the R^2 value of 0.7635, which implies the 76.35% of the variation in the dependent variables (net income) by the respondents was explained by the independent or explanatory variables while the remaining 23.65% was due to random error term. Variable X4 (household size) and X5 (educational level) are significant at ($P < 0.01$) probability level while variable X1 (gender), X6 (years of marketing experience), and X9 (transportation cost) were significant at ($P < 0.05$) probability level. The coefficient of significant variables and their sign IS explained below:

The coefficient of gender represented by variable X1 was positively signed in accordance with *a priori* expectation

Table 2: Result of regression analysis

Variable	Coefficient	Std. err.	t-values	P>/t/
Constant	-19384.35	482705.2	-0.04	0.968
X1=Gender	2841.650	1280.268	2.23	0.038**
X2=Age of respondents	2088.02	1353.13	1.54	0.127
X3=Marital status	1956.32	1884.89	1.03	0.345
X4=Household size	1052.85	2834.086	3.71	0.000***
X5=Educational level	9144.724	2308.287	3.96	0.000***
X6=Years of experience	4363.231	1881.07	2.32	0.029**
X7=Purchase cost	-220.8555	534.46	-0.41	0.680
X8=Storage cost	-742.9925	580.7012	-1.28	0.204
X9=Transportation cost	-311.391	151.1711	-2.06	0.043**
X10=Marketing charges	-48.59621	47.73285	-1.02	0.312
X11=Labor cost	5872.43	4896.58	1.19	0.424
X12=Rent cost	-15.62747	64.2696	-0.24	0.809
F- Statistic	16.23			0.000***
R^2	0.7635			
Adjusted R	0.6322			

Source: Computed from field survey data, 2018. *** Significant at 0.01, ** Significant at 0.05

and significant at ($P < 0.05$) probability level. This implies that the male Kolanut marketers are more than the female counterpart. An increase in male marketers will increase the sales of Kolanut and consequently increase the net income of the marketers. This disagreed with the findings of Taiwo *et al.*^[17] and Adewumi,^[29] which stated that the majority of Kolanut marketers are female. However, Offor *et al.*^[38] found coefficient of gender to be positive and highly significant at 1% probability level in yam marketing.

The household size of the respondents represented by variable X4 has a positive sign coefficient and significant at ($P < 0.01$) probability level. This indicates that the larger the number of household, the lower the marketing cost and the higher the net income obtained from the sales of Kolanut by the marketers. The larger household size will provide labor in the running of the business. Ariyo^[14] and Ariyo *et al.*^[15] found the coefficient of household size to be positive and significant at ($P < 0.01$) and ($P < 0.10$) in the marketing of fuelwood and bush meat at Igabi LGAs, Kaduna, and in Kaduna metropolis.

The coefficient of educational level denoted by variable X5 was positive in accordance with *a priori* expectation and significant at ($P < 0.01$) probability level. The positive relationship means that the more years of acquisition of former education by the marketers, the more the increase in sales and net income. This is because with the high level of education of the marketers, the marketers will be able to apply the new innovations to their marketing operations. This agreed with the statement of Offor *et al.*^[38] that an increase in the level of education of the marketers leads to a corresponding increase in marketing efficiency. Educational attainment gives additional intellectual capital stock which may, in turn, leads to increase potentials for skills acquisition in marketing.^[39] This was also supported by Ndaghu *et al.*^[40] who stated that the higher the level of education of a marketer, the better the chances of enjoying higher returns from his effort in the business. The result agreed with Oluyole *et al.*^[2], Ariyo,^[14] and Offor *et al.*^[38] which found coefficient of educational level positive and significant at ($P < 0.01$) and ($P < 0.05$) probability level in the marketing of Kolanut, fuelwood, and yam.

The years of marketing experience of the respondents represented by variable X6 has positive sign coefficient in accordance with *a priori* expectation and significant at ($P < 0.05$) probability level. The higher the number of years of marketing experience, the more the sales and income derived from Kolanut marketing. This showed that marketing experience increases the net income of the respondents. According to Okoye,^[41] marketing experience helps to reduce proportionately the transaction cost of the business which in turns increases the net income of the respondents. This corroborates the findings of Ariyo^[14] which found coefficient of years of marketing experience of fuelwood marketers to be positive and significant at ($P < 0.01$) probability level.

The coefficient of transportation cost denoted by X9 has a negative sign in accordance with *a priori* expectation and significant at ($P < 0.05$) probability level. This implies the inverse relationship, as transportation cost increases, the net income decreases, meaning the higher the transportation cost, the lesser the net income. They agreed with the findings of Oluyole *et al.*^[2], Ariyo,^[14] and Offor *et al.*^[38] found coefficient of transportation cost negative and significant at ($P < 0.01$) and ($P < 0.10$) in the marketing of Kolanut, fuelwood, and yam.

These significant variables (gender, household size, educational level, years of marketing experience, and transportation cost) in this study thus play crucial roles in determining the net income from Kolanut marketing. However, Oluyole *et al.*^[2] identified 12 out of 13 variables to significantly affect the income of Kolanut marketers in Osun and Ogun State, Nigeria. The significant variables are age ($P < 0.01$), marital status ($P < 0.01$), educational status ($P < 0.01$), years of marketing experience ($P < 0.01$), cost of fetching water ($P < 0.01$), cost of peeling/washing ($P < 0.01$), cost of packaging/preservation ($P < 0.01$), cost of transportation ($P < 0.01$), cost of reservoir ($P < 0.01$), cost of basket ($P < 0.01$), cost of preservatives/chemical ($P < 0.01$), and cost of nylon ($P < 0.01$).

However, variables such as age of the respondents (X2), marital status (X3), and labor cost (X11) were not significant in the present study but had positive coefficients. This means that increasing the variable will bring about an increase in net income; however, the positive coefficient of labor was against *a priori* expectation, this may be due to the large family size of the marketers which translate to the family labor use by the respondents, on the other hand, the coefficient of the purchase cost (X7), storage cost (X8), marketing charges (X10), and rent cost (X12) were negative, showing inverse relationship to net income. This implies that reducing these variables will increase the net income.

The F- statistics of 16.23 revealed that the overall model was significant at ($P < 0.01$) probability level and all the coefficients estimated by the model were not all equal to zero. Base on his result, the null hypothesis which stated that there was no significant relationship between the net income of respondents and factors that are affecting it, is rejected, and the alternative hypothesis accepted. This means that the variables used in the model determine the net income obtained by the respondents from the marketing of Kolanut.

Problems Encountered by Marketers in Kolanut Marketing

The various constraints encountered by the marketers were presented in Table 3. It showed that inadequate capital had the highest value of 33.60%. This was followed by high transportation cost and unavailability of Kolanut with 19.76% and 17.00%, respectively. Poor storage system accounted for

Table 3: Constraints encountered by marketers in Kolanut marketing

Problems	Frequency*	Percentage
High transportation cost	50	19.76
Poor storage system	30	11.86
Price fluctuation	15	5.93
Low price	10	3.95
Inadequate capital	85	33.60
High cost of labor	20	7.91
Unavailability of Kolanut	43	17.00
Total	253	100

11.86%. Adedokun *et al.*^[42] stated that the different constraints experienced by marketers of Kolanut are majorly storage, of which insects accounted for 53.33%, heat 51.77%, and transportation. Price fluctuation and low price had 15.79% and 10.53%, respectively. Other constraints as found in this study are high cost of labor 7.91%, price fluctuation 5.93%, and lastly, low price had 3.95%. The analysis of constraints to Kolanut marketing by Ashaye *et al.*^[43] revealed that lack of credit, non-availability of loan, high cost of transportation, and storage facilities fall in the category of “very severe” with a respective mean score of 3.36, 3.31, and 3.09. Availability of storage facilities and poor road network with respective mean scores of 3.06 and 3.01 were in the category of “severe,” while the high cost of labor, grading, packaging, and processing of Kolanut and poor prices of products were considered “not severe” with mean scores of 2.99, 2.88, and 2.71, respectively. Osalusi^[44] stated that seasonality of the product, high cost of transportation, low demand, and climatic problems are the most severe constraints associated with Kolanut marketing, while price fluctuation, insufficient capital, and deforestation are severe but not too severe constraints associated with Kolanut marketing.

CONCLUSION AND RECOMMENDATIONS

It can be concluded from the results of the study that majority of Kolanut marketers in the study area are male, having an average age of 44 years, married with an average household size of 7 members. They had mostly secondary school education and average marketing experience of 7 years. The net income from Kolanut marketing is influenced by gender, household size, educational level, years of marketing experience, and transportation cost. The constraints of Kolanut marketing are inadequate capital, high transportation cost, unavailability of Kolanut, and poor storage. Other includes high cost of labor, price fluctuation, and lastly, low price. However, based on the findings of the study, the following recommendations were made:

- i. Effective transportation network should be provided to reduce the cost of transportation, thereby reducing the marketing cost. This can be done by renovating the bad roads and new ones constructed by the government.
- ii. The marketers should come together to form cooperative society. This will enable them to pool their resources together for members to obtain loan at lower interest rate. This will boost their capital base and expand their business. Furthermore, the Central Bank should encourage commercial banks to give out loan to marketers at a single-digit interest rate to boost the marketing activities of Kolanut.
- iii. Adequate training on proper storage of Kolanut should be organized by the government at all levels and by the cooperative society for the marketers. This will help to reduce storage losses.
- iv. The farmers should be encouraged to grow and produce more of Kolanut so as to increase the quantity of Kolanut that will be available to marketers.

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