

# Economic Analysis of Bitter Kola Marketing in Osun State, Nigeria

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**Abstract:** - Kola is an important economic cash crop to a significant proportion of Nigerian population who are involved in kola farming, trading and industrial utilization. This study analyse the economics of bitter kola marketing in Osun state. Specifically, it described the socio-economic characteristics of the farmers, examined profitability of bitter kola marketing and factors affecting bitter kola marketing in the study area. Multistage sampling procedure was used to sample 270 bitter kola marketers and data were collected through the use a well-structured questionnaire. The data collected were analyzed using descriptive statistics, farm budget analysis and inferential statistics (Linear Regression Model; OLS).

The findings of the analysis revealed that majority of the respondents (86.3% ) were female, 33.8% of them were between the age range of 61 years and above respectively with the mean age of 57 years. Majority of the respondents (86%) were married, 65.2% of the respondents had secondary education, 59.3% of the respondents had between 5-8 household members with the mean of 7 household members. Again, 48.1% of the respondents had between 15-30 years of marketing experience 65.6% and 77.4% of the respondents do not have access to credit and extension service respectively. The gross margin (GM) was ₦2,694,800 while the net profit was ₦2,102,200 with the benefit cost ratio of ₦ 1.53K. The regression analysis showed that variables such as age, household size, years spent in school, extension service, transportation cost and access to credit contributed significantly to the profitability of bitter kola marketing. It was recommended that marketers should be given better access to credit at low interest rate to boost bitter kola marketing business while agricultural extension model is adopted, the government's direct promotion and practice of extension delivery in Nigeria should be reviewed.

**Key words:** Bitter Kola, Economic analysis, Marketing.

## I. INTRODUCTION

Forests and the goods and services they provide are essential for human well-being. Humans use forest for many purposes and the products derived from forests and their benefits are referred to as 'forest goods and services (Okafor, 1991). Generally the services fall into four groups: supporting, provisioning, regulating and cultural services. Although forest goods are the result of provisioning services, they are usually mentioned separately, being more tangible than the other services. This value chain includes wood and wood products such as fuel wood, paper, charcoal and wood structural products and non-wood products (food and plant products) such as rattan, mushrooms, nuts and fruits, honey, bush meat, rubber and biochemical (Babalola, 2009).

Non-timber forest products (NTFPs) as part of forestry sector in any economy have always been supportive for many rural dwellers that live within and around the forests estates. In many rural communities, the people depend solely on farming and marketing of NTFPs in order to generate income, boost their economic lives, improve their nutritional intakes and sustain their livelihood (Onyekwelu and Stimm, 2006). However, the socioeconomic, nutritional, cultural factors are importance values of NTFPs, especially to rural communities that depend on them and were only brought to limelight in recent time (Ayuk, Duguma and Franzel, 1999). The awareness of the benefits of NTFPs has been on the increase due to the roles it plays within the micro-level of the economy and high potential of the products to contribute to the livelihood of the people. In most part of developing countries employment opportunities from traditional industries are declining, people within forest reservation areas look for alternative sources of income and often turn to the collection of these products from the nearby forest (Adepoju and Salau, 2007).

Kola is an important economic cash crop to a significant proportion of Nigerian population who are involved in kola farming, trading and industrial utilization. However, Nigeria accounts for about 70% of the total world production of kolanuts (Oluokun and Oladokun, 1999). The kolanut is used as a masticatory and stimulant in the tropics and has social and traditional significance as it features in many traditional ceremonies in Nigeria. The kolanut pod husk, which is a by-product from processing the nut, is widely used for animal feeding because of its high nutritive quality. According to Babatunde and Hamzat (2005), broilers fed with kola nut pod husk meal diets had an outstanding growth performance. Commonly known as "bitter cola" for the bitter attributes of the seed, *Garcinia kola* (Guttiferae) is a non-timber forest product exclusively tropical in distribution. Locally, the seed is used medicinally to treat cough and hypertension (Adebisi, 2004) and hence *G. kola* is symbolic and valued culturally across southern Nigeria. It is a typical non-timber forest product that generates income for many people in rural and urban areas in developing countries including Nigeria. It is known as "male kola" or "Aku ilu" in Igbo land, "Orogbo" in Yoruba and "Namijiri – goro" among the Hausas (Andel, 2006).

In Nigeria less than 10% of the total annual crop of the bitter cola fruit or the kernel is harvested from planted trees, while

the rest are collected from wild sources (Ladipo, 2003). Fruits are processed by separating seeds from the pulp, air-drying them locally and preserving them for marketing locally. In most cases non-timber forest product marketing involves intermediaries or middlemen who traverse the interior rural areas looking for primary collectors from wild sources and then ship the product to urban markets. Middlemen distribute to retailers who have direct contact with consumers in urban areas. Data on profits from non-timber forest product marketing and its contribution to rural and national economies have not been properly recorded in developing countries due to lack of or scanty documentation (Sunderland, 2001). Many households make and sustain their livelihoods from the collection and marketing of various non-timber forest products in sub-Saharan Africa (Ogunwusi, 2012).

*Garcinia kola* (Bitter kola) fruits are harvested annually between July and October, which makes it a highly seasonal product. Bitter kola fruits are smooth and elliptically shaped, with yellow pulp and brown seed coat. *Garcinia kola* has economic value across West African countries where the seeds are commonly chewed and used for traditional ceremonies and medicines. It is highly valued for its perceived medicinal attributes, and the fact that consumption of large quantities does not cause indigestion (as cola nuts do) makes it a highly desired product (Adebisi, 2004). The bark when soaked into water can be used as a treatment for intestinal worms and to cure stomach pain. The edible part of *Garcinia kola* fruit aids digestion when eaten raw. The potential utilization of *Garcinia kola* as hop substitutes in beer brewing has been reported (Eleyinmi and Oloyo, 2001). The fruit constitutes an integral part of the rural livelihood of the people, and it boosts their economic status within the rural setting. The potentials of some NTFPs like *Garcinia kola* (Bitter kola) in rural livelihood make it imperative to create awareness on the uses of the fruit as well as its economic importance.

Agricultural marketing in the tropics is one of the most important sectors of the economy in which therefore, bitter kola marketing have a substantial impact on the economy in which it operates. The importance of agricultural marketing cannot be overestimated since it brings about specialized production for better skill and efficiency thereby providing opportunities for exchange of goods and services (Ofor *et al.*, 2004). Therefore the study is aimed to examine the economics analysis of bitter kola marketing in Osun state.

## II. METHODOLOGY

The study was carried out in Osun state Nigeria. Osun state was carved out of the Old Oyo State in 1991. It is located in the south-western part of Nigeria, covers a land area of approximately 14,875 square kilometers. In terms of location, Osun State lies between latitudes 7.0° and 9.0°N, and longitudes 2.8° and 6.8°E. The topography is rolling hills and lies between 300 and 600 m above sea level. Average rainfall decreases from 1475 mm in the forest belt in the southern sections of the state to 1125 mm in the savannah section to the

north. Mean annual temperature ranges from 27.2°C in June to 39.0°C in December. Soil types are varied but most contain a high proportion of clay and sand and are mainly dominated by the lateritic series.

The state is bounded in the south by Ogun state; in the North by Kwara state; in the west by Oyo state; and in the East by Ondo and Ekiti states. The population of Osun State is 3,423,535 (2006) census. Osun State is home to several of Nigeria's most famous landmarks, including the campus of Obafemi Awolowo University, Nigeria's pre-eminent institution of higher learning. The university is also located in the ancient town of Ile-Ife, the historical cultural and traditional headquarters of the Yoruba people and centre of political and religious development for Yoruba culture. Other important cities, towns and ancient kingdoms in Osun state include Oke-IlaOrangun, IlaOrangun, IjebuJesa, Ede, Iwo, Ejigbo, Modakeke, Ibokun, Ifetedo, Esa-Oke and Ilesa. The dry season is between November and March while the wet season is between March and October. The mean annual temperature is 24.3°C and highest in March with a mean temperature of 28.7°C. Humidity is highest in July to September and lowest in December to February. The major occupation in the area include Civil service, farming trading etc and the major agricultural activities in that area include livestock production, production of annual crops such as vegetable, yam, cowpea, maize, cassava, rice etc. Permanent crops grown include cocoa, Kola nut, Palm, citrus etc while fruit crops grown include banana, plantain, pawpaw, pineapple etc.

Multistage random and purposive sampling procedures were used for this study. Out of the three Agricultural Development Zones in the state, Ife/Ijesha Agricultural development zone was chosen because it is the major production area and higher number of bitter kola marketers in Osun state. Multistage and random sampling procedure was used to select 270 respondents from the registered bitter kola marketers in the study area. Primary data was used by collecting information through the use of a well-structured questionnaire. The data collected were analyzed using both descriptive statistical tools (such as tables and percentages) and inferential statistics like gross margin analysis and regression analysis.

### Gross Margin Analysis

Gross margin analysis was used to test the profitability of kola marketing

$$GM = TR - TVC$$

$$\pi = GM - TFC$$

Where; TR= Total revenue TVC= Total variable cost, TFC=Total fixed cost  $\pi$  =Profit

### Regression Analysis

The regression analysis was used to examine the factors influencing the price of bitter kola in the study area as stated in the model below.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n + \varepsilon$$

Where; Y= Revenue of bitter kola marketer (₦)

X<sub>1</sub>= Age in years

X<sub>2</sub>= Sex

X<sub>3</sub>= Household size (Actual number)

X<sub>4</sub>= Years spent in school (Years)

X<sub>5</sub>= Years of bitter kola experience (Years)

X<sub>6</sub>= Membership of association

X<sub>7</sub>= Extension Visit

X<sub>8</sub>= Total Cost (₦)

X<sub>9</sub>= Storage cost (₦)

X<sub>10</sub>= Transportation cost (₦)

X<sub>11</sub>= Access to credit (Dummy)

$\beta_0$  = Intercept

$\beta_1 - \beta_n$  = Regression coefficients

### III. RESULTS AND DISCUSSION

#### *Socio-economic Characteristics of Respondents*

The socio-economic characteristics of the respondents were presented in Table 1. The result from table 1 revealed that, 13.7% of the respondents were male while the remaining 86.3% of the respondents were female this may be due to the fact that women tend to be more industrious than men. 13.3%,

20.7%, 32.3% and 33.8% of the respondent were between the age range of less or equal to 40 years, 41-50 years, 51-60 year and 61 years and above respectively with the mean age of 57 year, 85.5%, 5.6% and 8.9% of the respondent were married, divorced and widowed respectively and this may be the fact that marriage is seen as being responsible in our societies, 24.8%, 65.2%, 6.3% and 3.7% of the respondents had primary education, secondary education, tertiary education and adult education respectively, 5.6%, 59.3% and 35.1% of the respondents had between less or equal to 4 household members, 5-8 household members and greater than 8 household members with the means of 7 household members, 13.7%, 48.1% and 38.2% of the respondents had between less or equal to 15 years of marketing experience, 15-30 years of marketing experience and greater than 30 years of marketing experience with the mean of 25 years of marketing experience. Also, 84.1% of the respondents belong to association while 15.9% of the respondents do not belong to any association, 34.4% and 22.6% of the respondents had access to credit and extension respectively, 65.6% and 77.4% of the respondents do not have access to credit and extension service respectively, 70.0% of the respondent are the producers of their bitter kola they sell, 43.7% and 18.9% of the respondent do get their bitter kola from processors and middlemen respectively.

The result in table 2 showed the analysis of cost and return of the marketers and indicates that the gross margin (GM) = ₦2,694,800 while, the net profit was ₦2,102,200 and the benefit cost ratio was ₦1.53k which implies that for every N1 invested in bitter kola marking in the study area, ₦0.53K is realized as profit. This result indicates that marketing of bitter kola is profitable in the study area.

**Table 1: Socio economic characteristics of the respondents**

Socio-economic characteristic	Frequency	Percentages
<b>Sex</b>		
Male	37	13.7
Female	233	86.3
<b>Age</b>		
≤40	36	13.3
41-50	56	20.7
51-60	87	32.2
Above 61	91	33.8
<b>Marital Status</b>		
Married	231	85.5
Divorced	15	5.6
Widowed	24	8.9
<b>Educational Level</b>		
Primary	67	24.8
Secondary	176	65.2
Tertiary	17	6.3
Adult education	10	3.7

<b>Household Size</b>		
≤4	15	5.6
5-8	160	59.3
Above 8	95	35.1
Mean= 7.3		
<b>Marketing Experience</b>		
≤15	37	13.7
15-30	130	48.1
Above 31	103	38.2
Mean= 25		
<b>Membership of Association</b>		
No	43	15.9
Yes	227	84.1
<b>Access to Credit</b>		
Yes	93	34.4
No	177	65.6
<b>Extension Visit</b>		
Yes	61	22.6
No	209	77.4
<b>Sources of Bitter Kola</b>		
Producer	189	70.0
Processor	118	43.7
Middlemen	51	18.9

Source: Field Survey, 2018.

Table 2: Net Margin of the Bitter Kola Marketers

Parameters	Cost (₦)	Value (₦)
<b>Revenue</b>		₦6,049,200
<b>Variable cost</b>		
Cost of Bitter Kola	₦2,570,000	
Transportation	₦571600	
Storage	₦212800	
<b>Total variable cost</b>	<b>₦3,354,400</b>	
Total fixed cost (TFC)	₦592600	
<b>Total cost (TFC + TVC)</b>		<b>₦3,947,000</b>
<b>Gross Margin</b>		<b>₦2,694,800</b>
<b>Net revenue (Profit)</b>		<b>₦2,102,200</b>
<b>Benefit Cost Ratio</b>		<b>1.53</b>

Source: Field survey, 2018.

#### *Factors Affecting Bitter Kola Marketers' Revenue*

Table 3 showed that  $R^2$  is 0.8978, this implies that 89.78% variation in the revenue of the respondents is explained by the independent variables. The remaining 10.22% is covered by the error terms included in the model. Age and household sizes were significant at 1% probability level. Age of the respondents has a negative effect on their revenue and implies a unit increase in the age of the respondents reduces their revenue in the sense that it will reduced the work ability of the respondents and therefore will make them to employ labour

and increases the cost of production thereby reduce the profit of the respondents, meanwhile, household size has positive and direct effect of their revenue and implies that a unit increase in household size members of the respondents tend to increase their revenue by in that it supply family labour and reduces the cost of production thereby reduce the profit of the respondents.

Years spent in school and cost of bitter kola were positively and negatively significant at 1% level respectively. Increases in years spent in school by the respondents' increase their

revenue, this may be due to the fact that education exposes individual to new innovation and knowledge of marketing strategies which will enhance their revenue, while increase in the cost of buying bitter kola will reduce the revenue from bitter kola marketing. Transportation cost and access to credit were negatively significant at 5% level respectively. Credit access also affects respondents' revenue negatively, this may be due to lack of access to credit in the study area, also a unit increase in the cost of transportation will reduce their revenue,

this is in line with apriori expectation. Lastly, extension visit has negative effect on respondents' revenue and significant at 10% level and it may be due to lack/inadequate access to extension services in the study area. This is in accordance with apriori expectation as it is expected that if the respondents had access to extension services they may be able to acquire new method of bitter kola preservation and also marketing strategies that will lead to increase in their revenue.

Table 3: Factors Affecting Bitter Kola Marketers' Revenue

Variable	Coefficient	Std. Err.	t-ratio
Sex	-697.4661	480.6399	-1.45
Age	-92.65405	32.11086	-2.89***
Household size	503.3517	154.8739	3.25***
Years spent in school	4586.436	1998.059	2.30**
Years of marketing exp.	21.67932	386.3672	0.06
Association	239.2785	376.5348	0.64
Extension visit	-659.9462	368.8816	-1.79*
Cost of bitter Kola	-299.1588	101.0559	-2.96***
Storage cost	-0.2408798	0.5617465	-0.43
Transportation cost	-0.9414575	0.4204059	-2.24**
Credit access	-843.9238	364.0595	-2.32**
_cons	3394.979	2325.271	1.46

Source: Field Survey, 2018

Source: Linear regression

\*\*\*1% level of significance

\*\*5% level of significance

\*10% level of significance

#### IV. CONCLUSION AND RECOMMENDATION

The study examines economic analysis of bitter kola marketing in Osun state, Nigeria. Majority of the respondents were moving gradually out of their productive age. Female were more involved in marketing than male in the study area. All the respondents were married. The mean household size was 7 members. Majority of the respondents had formal education up to secondary school level. Majority of the respondents do not have access to credit. Furthermore, from this study it can be concluded that Bitter kola marketing in the study area is profitable. Also, the study concluded that age, household size, level of education, extension visit, and transportation cost and credit source are the significant factors determining the bitter kola marketers' revenue. Finally, most of the bitter kola marketers encountered challenges in their production which includes; problem inadequate credit facilities, inadequate supply, inadequate market demand, problem of production seasonality, lack of storage facilities and price fluctuation. Based on the result of this work, the following recommendation were made; as it has been observed from this study that majority of the respondents that were involved in the business were female, it is thereby recommended that the male should be involved in production of bitter kola so as to increase productivity. Adult education should be given to bitter kola marketers to enhance the

adoption of new marketing innovation and strategies. Marketers should be given better access to credit at low interest rate to boost bitter kola marketing business. Finally, whatever agricultural extension model is adopted, the government's direct promotion and practice of extension delivery in Nigeria should be reviewed.

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