

**PROFITABILITY ANALYSIS OF PALM OIL MARKETING IN OGUN-STATE,  
NIGERIA**

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**ABSTRACT**

The primary aim of this study is to analyze the profitability and marketing efficiency of marketers in Ogun State, Nigeria. To achieve this objective, one hundred and five respondents were interviewed but only eighty were finally considered. The socio-demographic and economics characteristics of the marketers were analyzed and that of the market survey. The results showed that women invested in palm oil marketing more than the men, the age distribution of the respondents show that people between the age group of 31-40 years has capacity to meet their daily needs. From the data collected on the level of education, it showed that 41.3% of the sample respondents had primary education only, 35.0% respondents have secondary education and 23.8% respondents have tertiary education. The implication of the study is that all the palm oil marketers had one form of formal education or the other. The data on the respondents initial capital, showed that 51.3% of the respondents sourced their start up capital from cooperatives, 32.5% got their business finance through loans from banks, while 16.3% those with self business finance i.e. owners equity. It could be inferred from the result that cooperative have been of good and important aid in the aspect of business finance in Ogun State and the country as a whole.

**Key Words:** Palm-Oil, Marketing, Efficiency, Marketers, Profitability.

**1. INTRODUCTION**

Palm oil is the major agricultural commodity export of Nigeria in terms of foreign exchange earning. Although its contribution to the total natural exports earnings during the past two decades propped considerably due to the enormity of foreign exchange earnings of crude petroleum. The importance of palm oil production and marketing in Nigeria agricultural sector becomes clearer when one realizes its substantial contribution to the Gross Domestic Product (GDP) and its supply for both domestic and industrial uses (Rapsomanikis, *et al.*, 2003, 2004).

Palm oil is extracted from the pericarp or outer beneath outer skin of the nut from the oil palm, (*Elaeis guineensis*) coloured red due to high content of alpha carotene (24mg per 100g) and beta-

carotene (30mg) together with about 60mg of 5-12% polyunsaturated fatty acids, and linoleic acid. One of the major oils commerce that is widely used in cooking fats and margarines (Karapanaglotides, 2002).

According to Ibrahim 2003, the social and environmental impacts of palm oil is highly controversial topic, negative aspects of this industry. Oil palm is a valuable economic crop and provides major sources of employment. It allows many small land holders to participate in the cash economy and also often results in the upgrade of the infrastructure (schools, road and telecommunication) within the area. Palm oil provides a valuable source of beta-carotene and vitamin E. studies have found that tocotrienols which are antioxidant and may be associated with more favourable cholesterol profiles and lower risk of heart diseases and some type of cancer (Sang-Minlee, *et al*, 2003).

According to Opeke (2005), Palm oil is composed mainly of palm stearic acid and Oleic acid, saturated and unsaturated fatty acids in Palm oil are as follows: Stearic acid (C16) 4.3%, palmitic acid (C16) 41.20%, Myristic (C14) 2.30 %. Linoleic acid 9.60%, Oleic acid 42.50% and palmitoleic acid 1.10%, palm oil belongs to warm, high rainfall, tropical forest area. It grows best where rainfall is not less than 1500mm evenly distributed throughout the year. Ideal temperature are 27<sup>o</sup>c to 35<sup>o</sup>c, while the soil should be first free, oil palms will tolerate even higher temperature provided there is adequate moisture. It also requires plenty of sunshine, productivity being reduced in areas with excessive humidity, yields are adversely influenced when the crops is exposed to dry harmattan winds.

The importance of palm oil gives the highest yield of oil per area compared to any other crop and produces two distinct oil, palm oil and palm kernel oil both of which are important in the world trade. The percentage of obtained palm oil per fresh fruit bunch (FFB) is put at 21-23% while that of palm kernel is 5-7% (FAO 2002).

Off recent, palm oil production and marketing to diversify, its economy particularly into agriculture, many small holding of palm oil plantation have started to spring up, this has encouraged the business community in exploiting the rich opportunity in the palm oil market, even though the market may be rich, the quantity that is handled is still very small resulting from primitive techniques of processing and poor stage system.

According to Ola Oluwa (2000), one of the salient features of the oils and fats market, palm oil in particular is price variability and volatility as depicted. Larson and Fatimoh (1998), suggest that selected vegetable oils, such as palm oil, groundnut and coconut-exhibit significant volatile behaviour as measured by the instability index. The instability index for palm oil is estimated at 2.24 compares to cocoa 1.46 and rubber 1.42. Fatimoh and Zain (1998), indicates that the MacBean index for palm oil stands at 2.1 compares to 1.7 and 0.7 for rubber and timber respectively. Harvested palm bunches undergo processing stages of sterilization, stripping, digestion and palm oil extraction. Palm nuts and fibers are left as residue. The nuts are dried and cracked. It is separated into palm kernel oil (PKO) and water in proportionate composition of about 47%, 49% and 4% respectively.

According to Akinoso (2006), the distribution and marketing of palm oil in Nigeria has been affected by official's neglect of the staple food market because policy makers have not considered it a serious bottleneck to the economic development of the nation. Emphasis has been on the exports crop sector and the exports of agricultural by products. Invariably, the availability of marketing facilities for palm oil such as storage, communication of official prices and other market information on palm oil are affected. (FAO 2002).

Palm oil as a function of both fundamental & technical factors; price is determined by the interaction of market forces as well as non market forces and barriers to trade. Visual examination of the price trend of palm oil between 1980 – 98 suggests some significant observations. Firstly, in the last two decades there is no clear increasing trend for palm oil prices. The price oscillates around RM 1000/tonne. Secondly, the price series exhibit a number of prominent short term peaks around 1983-84, 1988-89, and lately 1997-98. Currently palm oil is enjoying high price at RM 2138 (as at 21 January 1999).

According to Porla (1999), the oil palm originates in West Africa but has since been planted successfully in tropical regional within 20 degrees of the equator. There is evidence of palm oil use in the Northern Egypt. In the Republic of the Congo, precisely in the Northern part, not far from Oyoso, local people produce this oil by hand. The world's largest producer and exporter of palm oil today is Malaysia, producing about 47% of the world's supply of palm oil. Indonesia is the second largest world producer of palm oil producing approximately 36% of world palm oil volume. Worldwide palm oil production during 2005-2006 growing season was 39.8million tones of which 4.3 million tones as in the form of palm kernel oil and constitutes percent of total edible oil production worldwide (Long 2003).

However, palm oil production and export dropped over the years, this has not only been attributed to the small holding and wild grooves, (Ola-Oluwa 2000) attributed the production and exports decline to the following reasons:-

1. Increasing age of the palm oil and hence harvesting problem and yield decline of these trees.
2. Increasing industrial and domestic consumption resulting from raising gro-industrial uses and population rise.
3. Discovery of petroleum which made the country to pay less attention to agriculture

Operational efficiency is evident where marketing costs are reduced but output are either maintained or actually increased. Technical innovations are not avenue leading to higher levels of operational efficiency. Marketing firms, operating within a competitive environment are especially well motivated in seeking to increase operational efficiency (David and Leatham 1998). This assessment is to make the country regain her pre-oil boom era status of net exporter of palm oil, exploit the economy of the marketer and create job opportunities for many people, the overall affect of which will improve the standard of living of both the palm oil producers and marketers.

According to Atiku, *et al.*, (2004), performance of oil palm marketing is also concerned with how the marketing of palm oil is carried out. It shows the efficiency of the marketing system to

effectively allocate resources and direct the marketing process in accordance with consumer's wishes. Achievement of this efficiency may be impeding by difficulties in both moving produce within the country and in obtaining timely and accurately information on market prices. FAO (2003).

Economically palm oil is of a good composition in food. It is useful in industrial production of cosmetics like soap, pharmaceutical materials. Therefore, its production, processing and marketing provides a good employment for many Nigerians who earn their live hood from it. Prospects of oil palm marketing is therefore refers to the great improvement of the operations of buying and selling and for future aspect to reflect consumer's wishes. In marketing of palm oil, success is important as it tends to improve returns to rural producers and enhance food security to urban residence. In prospect, markets ameliorated through the movement of produce goods from region to relatives, abundance to region of relative scarce. Ola-Oluwa (2000).

## **2. OBJECTIVES OF THE STUDY**

The broad objectives of the study is to examine the profitability of palm oil marketing in Ogun State, Nigeria and provide solution in forms of policy recommendation and implementations: -

Specific objectives are to: -

- (i) describe the socio-economic characteristics of the palm oil marketers.
- (ii) Identify the functions performed by middlemen in palm oil marketing
- (iii) Ascertain the determinants of wholesale and retail selling prices.
- (iv) To estimate the pricing efficiency level in palm oil marketing.

## **3. RESEARCH METHODOLOGY**

### **The Study Area**

The study area is Ijebu-North Local Government Area, Ogun State, Nigeria. The area is located in the North part of Ogun State, which is one of the Local Government Areas in the State, with its capital at Ijebu-Igbo. It has many towns and villages including Ago-Iwoye, Oru, Ijebu-Igbo, Ilaporu, Idofe, Aparake, Iganran, Mamu, and Ajegunle. It has few motorable roads with erratic electricity and pipe borne water supply. Markets have adequate infrastructural facilities for farm products. Farmer's stalls often faced with the problem of evaluation their farm product to urban centers like Ijebu-Ode, Abeokuta, Sagamu, Ibadan, Lagos, and so on.

### **Methods of Data Collection**

Both primary and secondary data were used for the study. The data used for the study is a cross sectional data collected from a survey of palm oil marketers (producers, wholesalers and retailers) in the study area. While secondary data were collected from journals, bulletins, statistical data and reports.

### Sampling Techniques

The simple random technique was used for this study. The towns and villages used in this study were purposefully selected. These areas were noted for high concentration of palm oil traders. Six towns and villages were covered in this survey; interview was conducted in seven or more than seven markets and total sampled respondents were (105) one hundred and five respondents in all.

### Methods of Data Analysis

Both descriptive statistics and quantitative analysis were employed in this study. The descriptive tools includes: percentage, frequency distribution and mean was used to collect information on the socio-economic characteristics and demographics of the respondents, such as sex, age, education qualification, experience, household size and so on, and to outline the roles of middlemen in the marketing of palm oil. While quantitative analysis was used to examine the determinants of wholesale and retail selling price and price efficiency of the palm oil in the study area.

### Model Specification

#### Regression Analysis

Regression analysis was used to determine the marketing margin that significantly contributed to price in wholesale and retail marketers of palm oil. The implicit regression model for wholesale marketers is given as:

$$Y = f(P_1, P_2, P_3, P_4, P_5, E)$$

Where Y= wholesale selling price (per litter)

P<sub>1</sub>= wholesale purchase price (per litter)

P<sub>2</sub>= storage cost (₦)

P<sub>3</sub>= transportation cost (₦)

P<sub>4</sub>= quantity purchased

P<sub>5</sub>= packaging cost (₦)

E= random error

For retail market: - the implicit regression function is given as

$$Z = f(X_1, X_2, X_3, X_4, X_5, E)$$

Z= retail price

X<sub>1</sub>= quantity purchased from the wholesaler (per liter)

X<sub>2</sub>=transport cost (₦)

X<sub>3</sub>= retailers purchase price (per liter)

X<sub>4</sub>= storage cost (₦)

X<sub>5</sub>= cost of packaging materials (₦)

E= random error

The four functional forms of regression that were tried and the best fit was used to analyze wholesale and retail price determinants as the linear, semi-log and double-log and exponential functions. Thereafter, a lead equation is chosen on which conclusion are based.

Therefore, to estimate the price efficiency level in palm oil marketing, using Olukosi and Isitor (1990) studies:

It is calculated by:

$$\text{Price efficiency} = \frac{U_p}{U_c}$$

U<sub>p</sub> =- Retail price per litre (₦)

U<sub>c</sub> = Cost per litre of palm oil (₦)

When:

Price efficiency = 1: the market is said to be price efficient

Price efficiency > 1: the price is inefficient as the marketers are running business at a loss

Price efficiency < 1: the price is over efficient as the consumers are paying more than the normal price and the marketer is making more profit over the satisfaction of the consumers

#### 4. RESULTS AND DISCUSSION

**Table 1: Socio-Economic Characteristics of the Respondents**

<b>Variables</b>	<b>Frequency</b>	<b>Percentage</b>	<b>Cumulative Percentage</b>
<b><u>Sex</u></b>			
Male	14	17.5	17.5
Female	66	82.5	100.0
<b><u>Age (years)</u></b>			
22-30	13	16.3	16.3
31-40	40	50.0	66.3
41-50	24	30.0	96.3
51-56	3	3.8	100.0
<b><u>Marital Status</u></b>			
Single	5	6.3	6.3
Married	59	73.8	80.0
Divorced	7	8.8	88.8
Widowed	9	11.3	100.0
<b><u>Household Size (person)</u></b>			
2-4	48	60.0	60.0
5-7	31	38.8	98.8
8-10	1	1.3	100.0
<b><u>Educational Level</u></b>			
Primary education	33	41.3	41.3
Secondary education	28	35.0	76.3
Tertiary education	19	23.8	100.0

<b><u>Marketing Experience</u></b> (years)			
<5	32	40.0	40.0
5-10	36	45.0	85.0
11-15	8	10.0	95.0
16-20	4	5.0	100.0
<b><u>Source of Start-Up Capital</u></b>			
Owners' equity	13	16.3	16.3
Loan from bank	26	32.5	48.8
Cooperative	41	51.3	100.0
<b><u>Categories of Marketers</u></b>			
Wholesalers	44	55.0	55.0
Retailers	36	45.0	100.0
<b>TOTAL</b>	<b>80</b>	<b>100.0</b>	

Source: Field Survey, 2018

### Socio-economic Characteristics of Palm Oil Marketers.

Some socio-economic characteristics are known to influence the marketing efficiency of palm oil marketers. The variables analysed in this study include sex, age, marital status, household size, marketing experience, educational qualification, source of initial capital as well as category of marketers.

The distribution of palm oil marketers by their sex is presented in Table 1. Results show that more females are invested in palm oil marketing than males. Specifically, 82.5 percent of the total respondents were females while the remaining 17.5 percent account for the number of males that market palm oil in the study area.

The percentage distribution of the respondents by their age categories is presentation. The findings of the study with regards to age category revealed that respondents between the ages of 31-40 constituting (50.0 percent) were in the majority. Hence, 3.0 percent account for the palm oil marketers between the ages of 51-56 years and the average age of the respondents on the survey area was 37.36 and this implies that people involving in palm oil marketing are mostly young with enough strength and capacity to meets their daily needs and household food security.



The majority (73.8%) of the palm oil marketers interviewed were married while only 6.3 percent were still single. The implication of this is that palm oil marketing is more attractive to married people, so as to improve income, maximize resource use efficiency and also ensure their household's welfare and well being. In terms of household size of palm oil marketers, the dominant sizes are households of 2-4 persons. 38.8 percent of the total respondents sampled had the family size of 5-7 persons while 1.3 percent account for households with household size between 8-10 persons. This implies that the more the household size increases, the more the quest to generate money to take care of the home through marketing of palm oil in the study area.

Data on the educational status of palm oil marketers in the survey area were elicited from the respondents so as to provide background information. Results showed that majority (41.3%) of the sampled respondents had primary education, 35.0 percent had secondary education while 23.8 percent account for those with tertiary education. The implication of the study shows that all the sampled palm oil marketers had one form of formal education or the other, which will enhance their marketing performance and efficiency.

The results show that (40.0%) of the sampled palm oil marketers have been in palm oil marketing business for less than 5 years; while only (5.0%) have marketing experiences of 16-20 years. It is obvious from these results that, majority of the respondents have enough experience that will enable them to efficiently allocate resources for optimum marketing output. Thus, the average palm oil marketing experience in the survey area was 7 years.

Respondents were asked to indicate their sources of startup capital on which they started their palm oil marketing activity with. This is to serve as background information on palm oil marketers in the survey area. The findings indicate that majority (51.3%) of the total respondents sourced their start-up capital from cooperatives, 32.5 percent got their business financed through loans from banks, while 16.3 percent account for those with self business finance i.e. Owners' equity. It could be inferred from the result that cooperative societies have been of good and important aid in the aspect of business finances in Ogun State and the country as a whole.

The categories of sampled palm oil marketers in the survey area were based on the scale of operations. Two categories were identified i.e. wholesalers and retailers. The wholesalers were the palm oil marketers that buy palm oil in drums of 200 litres and sell in 50kg or 25kg, 10kg or 5kgs while the retailers were those that buy from wholesalers in kegs and sell in bottles to the customers. Results also showed that 55.0 percent of the total sampled respondents were wholesalers while 45.0 percent were retailers. This implies that there is a marginal difference between the number of wholesalers and retailers in the survey area.

### **Functions of Middlemen and Palm oil Marketing**

The presentation of functions performed by middlemen in palm oil marketing in the survey area is depicted in Table 2. These functions performed are physical activities of packaging, transporting; functions of buying, selling and storage; as well as facilitating function of risk bearing only. However, the study also revealed that there is absence of government regulations in

palm oil marketing and lack of quick market information provision regarding place sources of good quality palm oil at better prices.

**Table 2. Functions performed by palm oil marketers**

Functions	Activity
Transportation	Movement of palm oil by motor vehicle or motor cycles through road to proximate market.
Packaging	Palm oil is being packaging in 200 litres of drum, 100 litres, 50 litres, 25 litres, 10 litres, 5 litres keys and as well as sahnapp’s bottles
Storage	They store their palm oil in a rented shops and while most retailer take back their palm oil in kegs home for proper keeping.
Buying and Selling	Wholesalers buy in drums of 200 litres, 100 litres, 50 litres and sell to retailers in kegs of different litres while retailers buy in kegs and also sell in smellers kegs or bottles to consumers.
Risk-Taking	This usually takes the form of stealing, spoilage and roads accident.

Source: Survey Data, 2018.

**Determinations of selling prices in wholesale and retail marketing of palm oil**

**Wholesales Market:**

Based on the R<sup>2</sup>, F-value, t-statistic and theoretical expectation of the variables, the Cobb-Douglas function was chosen as lead equation. Table 3 shows the regression estimates for the determinants of wholesale selling prices in the study area.

Results showed that 25.2% of the variations in wholesale selling prices were explained by the independent variables included in the model. The F-statistic (6.322) confirms the suitability of the overall regression equation. The result indicates that quantity of palm oil purchased by wholesalers was negatively significant at 5% level of significance while purchase price and was found to be positively related to wholesale selling price and this was significant at 1% level of significance. The implication of the findings is that the higher the quantity of palm oil purchased by wholesalers, the lesser are their selling prices and this might be attributed to the fact that bulk buying attracts discounts which invariably reduce cost per unit and therefore give the sellers the

opportunity at selling at reduced price. Consequently, it facilitates high rate of turnover and more profit. On the other hand, the higher the purchasing price, the higher the wholesale selling price.

**Table 3: Determinants of Wholesale Selling Price.**

Variable Code	Variable Name	Co-efficient	T-values
$\beta_0$	Constant	4.095***	8.137
X <sub>1</sub>	Quantity purchased	-0.040**	-2.103
X <sub>2</sub>	Purchase price	0.269*	3.395
X <sub>3</sub>	Transportation cost	0.026	1.438
X <sub>4</sub>	Storage cost	0.014	0.129
R <sup>2</sup>		0.252	
Adjusted R <sup>2</sup>		0.213	
F-value		6.332***	

\*\*\* = Significant at 1%; \*\* = Significant at 5%; and \* = Significant at 10%

Source: Survey Data, 2018.

**Retail Selling Price**

On determinants of retail selling price, the analysis revealed that transportation cost and purchased price were positively significant at 1% level of significance while storage cost was found to be positive and significant at 5% level of significance. However, the quantity purchased by retailers from wholesalers was negatively significant at 1% level of significance. The contribution of marketing factor i.e. transportation cost, purchase price and storage cost are consistent with a priori expectations that the higher any one of them, the higher will be the retail selling price of palm oil while the higher the quantity purchased by the retailer, the lesser its selling price with respect to reduction in price paid to wholesalers. The regression result showed that the variables used in predicting retail selling price of palm oil in Ogun State accounted for 47.5% of the prediction with F-value statistically significant at 1% level of significance which indicates the chosen as lead equation and the results are presented in Table 4.

**Table 4: Determinants of Retail Selling Price of Palm oil**

Variable Code	Variable Name	Co-efficient	T-values
$\beta_0$	Constant	2.140**	2.268
X <sub>1</sub>	Quantity purchased	-0.243***	-3.369
X <sub>2</sub>	Purchase price	0.531***	3.541
X <sub>3</sub>	Transportation cost	0.273**	4.344
X <sub>4</sub>	Storage cost	0.028	2.419
R <sup>2</sup>		0.475	
Adjusted R <sup>2</sup>		0.447	
F-value		16.961***	

\*\*\* = Significant at 1%; \*\* = Significant at 5%; and \* = Significant at 10%

Source: Survey Data, 2018.

**Pricing Efficiency of Wholesale and Retail Palm Marketing**

The results in Table 5 show the pricing efficiency of wholesalers and retailers of palm oil marketing in the study area. It is shown in the table that the retail average selling price of palm oil per litre was ₦427.60 while its cost per litre was found to be ₦312.80 and the pricing efficiency ratio was found to be greater than 1 (i.e. 1.367). Therefore, it could be concluded that retail palm oil marketing price was under efficient as the marketers are running business at a loss. In respect to wholesale price efficiency, the average wholesale selling price per litre was ₦314.70 and its cost per litre was ₦267.90. The pricing efficiency ratio was found to be greater than 1 (i.e. 1.175) which implies that wholesale palm oil marketing price was also under efficient.

**Table 5: Pricing Efficiency of Palm oil Marketing**

Marketer	Average Price/Litre	Average cost/Litre	Efficiency ratio
Retailers	427.60	312.80	1.367
Wholesalers	314.70	267.90	1.175

Source: Survey Data, 2018

**5. CONCLUSION**

This study researched into the analysis of palm oil marketing taking Ogun State as the study area. From the data collected through questionnaire administered and desk research with main intention of drawing out a conclusion as regards the analysis of palm oil marketing in the study area. In the general findings, it was found that females are more involved in palm oil marketing than males; the results of the study also showed that people involving in palm oil marketing are mostly young with enough strength and capacity to meets their daily needs and household food security.

According to the respondents, it is obvious from these results that, majority of the respondents have enough experience that will enable them to efficiently allocate resources for optimum marketing output. Hence the results of the study also showed that aspect of palm oil marketing business finances. The finding indicates that majority of respondents (51.3%) sourced their startup capital from cooperatives. Considering the determinants of selling prices both in wholesale and retail marketing of palm oil, quantity of palm oil purchased and purchased price of wholesalers were found to be the main significant determinants of wholesale selling price, while quantity purchased transportation cost, purchased price and storage cost were found as significantly determinant factors of retail selling prices of palm oil in the study. Thus, it implies that change in any of those factors identify would cause forward or backward shift in the selling prices of wholesaler and retailers in the marketing of palm oil depending the relationship between those variables and selling prices. It was also revealed by the study that wholesalers and retailers quoted prices were under efficient implying that few of them were running the business at a loss.

## 6. RECOMMENDATIONS

Having considered the analysis of marketing of palm oil in the study area, the following recommendations were made in respect to the findings of the study.

- (i) Government should provide adequate credit facilities for palm oil marketers (retailers and wholesalers).
- (ii) Government should provide adequate transportation for the palm oil marketers.
- (iii) Government should help in establishing good and enough market.
- (iv) Development and training to the palm oil marketers for efficiency in their operations.
- (v) Provision of adequate storage facilities.

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