



PERFORMANCE AND PROFITABILITY OF PALM OIL WHOLESALE MARKETING IN ABIA STATE, NIGERIA

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Abstract

The study was designed to examine the profitability of palm oil wholesale marketing in Enugu State, Nigeria. A Multi-stage sampling technique was adopted in sampling 60 palm oil wholesalers for the study. Data were collected using structured questionnaire, and analyzed using descriptive statistics, cost and returns analysis and ordinary least square regression. Socioeconomic characteristics of the wholesalers showed that the mean age of the wholesalers was 47 years. Majority (66.7%) of the wholesalers were married, with many (55%) of them were females. Mean household size of 4 persons was recorded and they all had formal education. Mean marketing experience of 11 years was recorded from the study and many (53%) do not belong to any cooperative society. The marketing of palm oil was found to be viable, as indicated by positive net returns of N106, 002.55 per month. The coefficient of marketing margin was 15%, while the marketing efficiency was 116%. Result of the regression analysis indicated that, age, marital status, household size educational level, marketing experience, membership of market union, cost of purchase, transportation cost and selling price were significant at various probability levels. Inadequate capital and high cost of transportation were the major constraints to palm oil marketing. The study therefore recommends that palm oil marketers should form cooperative society to enhance their access to finance. Marketers who are still strong and agile and experienced should be encouraged to up-scale production and remain in business. There is need also for access to free and affordable education to enable marketers' access and process information on marketing innovations that will enhance marketing and revenue.

Keywords: Performance, profitability, palm oil, marketing

Introduction

Palm oil is an important commodity in the Nigerian economy with reference to its role as a source of farm income and food requirement. In addition to providing direct and indirect employment for about 4 million people, palm oil and palm kernel oil together contribute around 70% of the country's national consumption requirement of vegetable oils (Olagunju, 2008; Nzeka, 2014). The Nigerian palm oil industry has witnessed a tremendous growth ever since despite its recent neglect. Its importance has permeated every facet of the economic sphere of the nation. Nigeria used to be the world's largest producer of palm fruit (*Elaeis guineensis*), before the crude oil boom era and now (Ibitoye *et al.*, 2014). Today, Nigeria has conceded this feat to Malaysia and Indonesia which together can boast of 83% of the world's total production of palm oil, while Nigeria can boast of only 1.7% of which is insufficient to meet its domestic consumption which stands at 2.7% (Adetola *et al.*, 2016). Palm oil is world's second major vegetable oil, after soybean with world annual production of fresh fruit bunches approaching 100 million metric tons per year (Ada-Okunmbowa *et al.*,

2013). Ibekwe (2008) noted that palm oil is currently the second largest traded edible oil and accounts for about one quarter of the world's fats and oil supply. It is worthwhile to note however, that palm oil is not only used domestically (as edible oil) but is applied to a wide variety of uses including the manufacture of candles, soaps, margarine and several others. This accounts for the high demand on the product and the consequent need to increase production. According to Ibitoye (2014), world production of palm oil had increased tremendously during the last 30 years as a result of rapid expansion of oil palm planting in Southeast Asian countries, spearheaded by Malaysia and Indonesia. He further reiterated that it is thus, by far, the most widely produced tropical oil and constitutes thirty percent (30%) of the total edible oil production worldwide.

Production of palm oil in Nigeria has retrogressed compared to what was obtainable in time past. Nigeria which was the leading producer of palm oil in 1950s and early 1960s is now the third world's largest producer of palm oil (FAO, 2012). The cause of this decrease is traceable to the civil war of 1967 to 1970 and the general

neglect of Agriculture upon the discovery of petroleum. Efforts geared towards raising production again have not been as successful as anticipated. Ibitoye (2014) reported that in Nigeria, 80% of production comes from dispersed small holders who harvest semi-wild plants and use manual processing technique. The estimate for oil palm plantation in Nigeria ranges from 169,000 to 360,000 hectares of plantations (Carrere, 2010).

In economics, production is never regarded as complete until the product gets to the final consumer, thus the importance of marketing. Nwauwa (2012) reported that because of the increase in demand of palm oil, resulting from an increase in population and income growth relative to the low productivity of the oil palm sector, Nigeria has become a net importer of palm oil. This, undoubtedly, has negatively affected balance of trade and hence, the need to correct the anomaly. The nature of Agricultural produce demands efficient marketing to avoid wastage or spoilage. Palm oil is no exception to this requirement. The fact that they are produced majorly in the rural areas, where there are challenges of low social infrastructure like good road network is a constraint. Their bulky nature and high perishability tendency also constitutes difficulty in marketing. According to Carrere (2010), low provisions of market information standard and quality control constitute constraint to palm oil marketing.

Marketing of agricultural produce is no doubt a viable income generating activity capable enough to improve the economic status of the people involved in it. The pivotal role of marketing in enhancing income and the overall development of any economy of the world cannot be overemphasized. One of the functions of agricultural marketing is to bring items of trade from surplus to deficit areas (Joshua, 2015). There are indeed several factors that impede the efficient marketing of palm oil and they will need to be addressed because the potentials of the sector are too enormous to be neglected. In view of the above, this study becomes expedient as it would provide the information needed to promote palm oil marketing enterprise and also could serve as a guide for investors in the venture and for policy makers. Hence, the study described the socioeconomic characteristics of palm oil wholesalers, estimated the costs, returns, marketing margin and marketing efficiency, estimated the factors that influence net returns from palm oil marketing, and identified major constraints that militate against palm oil marketing in the study area.

Methodology

The study area was Abia State. The State lies between longitude 04°45' and 06°07' North and Latitude 07°00' and 08°10' East. It is situated in the South-East geographical zone of Nigeria and is bounded by Imo State on the west, Ebonyi and Enugu States on the north, Cross Rivers and Akwa-Ibom States on the east and Rivers State on the south. The State has a population density of 580 persons per square kilometer and a population of 2,833,999 persons (NPC, 2006). The climate of the State

is tropical and it is usually humid all year round. The major occupation of the people is farming and the major crops grown are maize, yam, cassava, rice, and vegetable, etc. Livestock kept include; goat, sheep, pigs, etc. Oil palm, cocoa and rubber are some of the cash crops produced by the people. Palm oil is one of the most important sources of income to the people of Abia State. A multi-stage sampling technique was adopted for this study. The first stage was the selection of two agricultural zones (Umuahia and Aba) out of the three agricultural zones in the state. The second stage was a purposive selection of two (2) markets known for large supply of palm oil from each of the agricultural zones. The markets are Ubani and Ndoruru markets for Umuahia agricultural zone and Ahia Ohuu and Itungwa for Aba agricultural zone. From each of the four (4) markets, fifteen (15) palm oil wholesalers were randomly selected, giving a total of 60 palm oil wholesalers. The palm oil wholesalers are those marketers who sell palm oil in 25 litre gallons in the major markets and also store palm oil to sell when price increases. Cross-sectional data was used for the study which was collected from the palm oil wholesalers with the aid of structured questionnaire. The data collected were analysed using descriptive statistics, cost and return analysis, multiple regression and factor analysis.

For cost and return analysis, it is given as:

$$NR = TRS - TMC \quad \dots(1)$$

Where;

NR = Net return (N)

TRS = Total revenue from sales (N)

TMC = Total marketing costs (N)

$$\text{Margin} = \frac{\text{Selling price} - \text{Purchase price}}{\text{Selling price}} \times \frac{100}{1} \quad \dots(2)$$

Marketing efficiency is expressed as :

$$ME = \frac{\text{Total revenue}}{\text{Marketing cost}} \times 100 \quad \dots(3)$$

Return on Investment (ROI) depicts the level of profitability of the investment. It is the return due to a naira invested. It is given as:

$$ROI = \frac{NR}{TC} \times 100 \quad \dots(4)$$

Where;

Y = Net returns (N)

X₁ = Age of the marketers (years)

X₂ = Marital Status (1= married, 0= others)

X₃ = Sex (1= male, 0= female)

X₄ = Household Size (Number of people)

X₅ = Educational level (years)

X₆ = Marketing Experience (years)

X₇ = Membership of market union (1= yes, 0= no)

X₈ = Source of finance (1= personal, 0= others)

X₉ = Cost of purchase (N)

X₁₀ = Transportation cost (N)

X₁₁ = Handling cost (cost of loading and offloading of the produce) (N)

X₁₂ = Selling price (N)

X₁₃ = Storage cost (Cost of rent for the space where the palm oil is stored) (N)

X_{14} = Depreciation cost for the fixed cost items (N)
 e_i = error term

Constraints militating against of palm oil marketing were actualized with factor analysis. The principal component factor analysis with varimax – rotation and factor loading of 0.40 was used. It is specified as

$$Z_1 = a_{11}x_1 + a_{122}x_2 + \dots \dots \dots a_{1n}x_n \dots (6)$$

$$Z_2 = a_{21}x_1 + a_{222}x_2 + \dots \dots \dots a_{2n}x_n \dots (7)$$

$$Z_3 = a_{31}x_1 + a_{322}x_2 + \dots \dots \dots a_{3n}x_n \dots (8)$$

Where,
 Z_1, Z_2 and Z_3 = Observed variables
 $a_{11} - a_{nn}$ = Factor loadings or correlation coefficients
 x_1, x_2, \dots, x_n = Factors constraining palm oil marketing

Results and Discussion

The socio-economic characteristics of the respondents are presented in Table 1.

Table 1: Socio-economic characteristics of palm oil wholesalers in Abia state

Variables	Frequency	Percentage (%)
Age of respondents		
26 – 34	3	5.0
35 – 43	20	33.3
44 – 52	19	31.7
53 – 61	15	25.0
62 – 70	3	5.0
Total	60	100.0
Mean	46.97	
Marital status		
Married	40	66.7
Single	10	16.7
Divorced/Separated	2	3.3
Widow/widower	8	13.3
Sex		
Male	27	45.0
Female	33	55.0
Household size		
1 – 3	21	35.0
4 – 6	25	41.7
7 – 9	14	23.3
Mean	4.65	
Educational level (years)		
Primary school	19	31.7
Secondary school	33	55.0
Tertiary education	8	13.3
Marketing experience		
1 – 5	12	20.0
6 – 10	24	40.0
11 – 15	11	18.3
16 – 20	6	10.0
21 – 25	7	11.7
Mean	11.20	
Cooperative membership		
No	32	53.3
Yes	28	46.7
Source of finance		
Personal savings	34	56.0
Market unions	20	33.3
Banks	6	10.0
Total	60	100.0

Source: Field survey, 2019

The mean age of the wholesalers was 46 years, implying that they are still in their active years. This observation is in consonance with the findings of Udoh and Essien, (2015) who noted that major work force involved in palm oil marketing were within the ages of 40 – 49. Marital status indicated that 66.7% were married. This is in tandem with the findings of Nwauwa (2012) who noted that 70% of palm oil marketers in Imo state were married. Study shows that females dominated in palm oil marketing. This finding corresponds with that of Nwalieji and Ojike (2018) who indicated that more females are involved in palm oil marketing than their male counterparts. Mean average of 4 persons per household was also estimated, implying a moderate household size that could assist in carrying out some of the marketing activities and help minimize the cost of hired labour since the family members will constitute the family labour. Many (55%) of the respondents completed their secondary education. This result is in conformity with Obasi and Kalu (2015) who observed that the level of education enhances the marketers' efficiency and his ability to evaluate new techniques. Mean marketing experience of 11 years was recorded. Marketing experience is important as it provides the

marketers with efficient market information. Palm oil wholesalers need information about the business cycle, where and when to buy the product, the quality and type of the product to buy, when to store the product and an appropriate time to sell. This agrees with the findings of Ali and Iheanacho (2008) who stated that marketing experience is important in determining the profit levels of marketers. The more their experience, the more the marketers understand the marketing system, condition, trends and prices. About 53.3% of the marketers do not belong to cooperative societies. The result implies most of the palm oil wholesalers in the study area do not enjoy the assumed benefits accrued to co-operative societies through pooling of resources together for a better expansion, efficiency and effective management of resources and for profit maximization. Personal savings recorded the highest percentage for source of finance with 56.7%. This agrees with the findings of Nwankwo (2016), who noted that most marketers finance their business through personal savings.

Cost and returns of palm oil marketing on monthly average is shown in Table 2.

Table 2: Average cost and returns of palm oil marketing in Abia State

Items	Value
A. Variable Cost	
Purchase price per 25 litres of palm oil	7,455.83
Number of 25 litres jerry can of palm oil purchase	86
Cost of palm oil purchase	641,201.67
Transportation cost	756.00
Cost of loading and offloading	101.67
Storage cost	325.18
Other marketing costs	2,735.91
Total Variable Cost (TVC)	645,120.42
B. Fixed Cost	
Rent of shop	1,206.78
Depreciation on gallons and drums	3,108.58
Total Fixed Cost (TFC)	4,315.36
C. Total Cost (TC)	649,435.78
D. Revenue	
Selling price	9,101.67
Number of 25 litres can of palm oil sold	83
Total Revenue (TR)	755,438.33
Net Returns (NR)	106,002.55
Marketing Margin (MM)%	0.15
Marketing Efficiency (ME)%	1.16
Return On Investment (ROI)%	0.16
Expense Structure Ratio (ESR)%	0.01

Source: Field survey, 2019

Table 2 shows net returns of 106,002.55. Positive net returns imply that the business is profitable. This is in line with Ayawari *et al.* (2018) who reported that palm oil marketing was profitable. Marketing margin of 15% was recorded. 116% was obtained as marketing efficiency value and this implies that the wholesalers are able to cover the cost of value addition (marketing service cost) and made a profitable margin above 100%. Kohls and Uhl (2011) stated that higher value of the ratio of efficiency indicates improved marketing efficiency and lower value denotes reduced efficiency. Return on Investment (ROI) was 16% and it means that for every

one naira invested in the business, 16 kobo accrued to the palm oil wholesalers. The result is in tandem with the findings of Oluwadare *et al.* (2009) who recorded return of investment of 35% in their study. The Expense Structure Ratio (ESR) of 0.01 implies that 0.1% of the total cost of palm oil marketing was made up of fixed cost component. This corroborates the findings of Simpa and Nmadu (2015) who stated that fixed cost of their study was very low compared to the variable costs. The result shows that palm oil marketing though capital intensive is a trade that will not tie down the equity of the marketer in fixed asset.

Table 3: Factors affecting the net returns of palm oil wholesalers in Abia State

Variabes	Linear	Exponential	Double-Log ⁺	Semi-log
Constant	105432.9 (7.096)***	4.779 (10.507)***	9.369 (3.270)***	-530223.900 (-5.763)***
Age	-225.591 (-3.289)***	-0.401 (-2.329)**	-1.036 (-3.285)***	-10560.340 (-2.347)**
Marital Status	620.396 (0.041)	-0.101 (-0.022)	0.981 (2.427)***	1498.901 (0.118)
Sex	10041.1 (0.949)	0.033 (1.977)*	0.036 (0.919)	10378.160 (2.101)**
Household size	5631.732 (2.359)**	0.023 (1.364)	1.103 (2.542)**	28986.810 (1.795)*
Educational level	155.312 (3.098)***	0.311 (2.158)**	1.617 (3.185)***	2077.750 (2.150)**
Marketing experience	524.575 (2.535)**	0.201 (2.301)**	1.642 (2.296)**	2938.264 (1.935)*
Membership of market union	14742.32 (1.342)	0.052 (2.475)**	0.845 (2.441)**	13751.540 (1.432)
Source of finance	-12577.36 (-1.181)	-0.056 (-1.308)	-0.052 (-1.325)	-10698.250 (-2.135)**
Cost of purchase	-180.245 (-2.469)**	0.012 (-0.540)	-1.989 (-3.187)***	-1456.167 (-2.127)**
Transportation cost	-222.663 (-2.101)**	-0.068 (-2.274)**	-0.129 (-3.815)***	-34351.810 (-4.184)***
Handling cost	180.85 (0.223)	0.111 (0.513)	0.064 (1.219)	11221.970 (0.876)
Selling price	110.906 (2.573)**	0.038 (1.197)	1.392 (4.329)***	102419.600 (1.434)
Storage cost	2311.032 (0.273)	0.106 (0.302)	-0.032 (-1.442)	-8387.828 (-0.481)
Depreciation cost	3220.039 (0.195)	0.089 (2.313)**	0.011 (1.482)	2906.498 (0.743)
R ²	0.753	0.746	0.847	0.725
Adjusted R ²	0.736	0.723	0.824	0.709
F-statistics	31.025***	29.161***	45.673***	26.970***

*Source: Field survey, 2019. ***, ** and * represents 1%, 5% and 10% levels of significance respectively. + = lead equation. Values in parentheses are t-ratios. N = 60*

The coefficient of multiple determination (R²) was 0.847 which implies that 84.7% of the total variation in the net returns of the palm oil marketers was accounted for by the explanatory variables in the model, while the remaining 15.3% was unaccounted for due to error or omitted variables not captured in the model (Table 3). Age, marital status, household size, educational level, marketing experience, membership of market union, cost of purchase, transportation cost and selling price were significant variables that influenced net returns of the wholesalers in Abia State.

Age of the wholesalers was significant at 1% and negatively related to their net returns. This result suggests that wholesale marketers who are younger, had higher net returns more than those who are older. This is likely to be as a result that the younger wholesalers are more enterprising and could afford to take more risk than the aged ones considering the nature of palm oil wholesale business. This implies that net returns generated from palm oil marketing declined with an increase in age. Nwibo *et al.* (2011) and Nze *et al.* (2017) supported this finding and were of the opinion that advancement in age had a diminishing returns effect on net returns of marketers. Marital status was significant at 1% and positively related to net returns. This positive

relationship is an indication that net returns were higher among marketers who are married. It was possible that spouses assisted their partners in the business. This assistance may have contributed to cost reduction. This portrays married respondents as being stable. This stability creates conducive environment for good citizen training, development of personal integrity and entrepreneurship, which are very important for efficient uses of resources. This is in tandem with Nwauwa (2011) who noted that married people get support from spouse and children and this goes a long way in giving assistance to the marketing activities. Household size was significant at 5% and had a positive relationship with net return of the marketers. This implies that larger household size is likely to increase scale of marketing activities and as a result, net returns increases. Increase in household size is certainly of immense advantage to the marketer since the household members could assist in the marketing activities. This enhances scale of operation and also affects the net returns of the wholesalers. Educational level was significant at 1% and positively related to the net returns of the marketers. The result could be explained given the fact that education empowers the marketers to adopt innovations. As wholesalers acquire more education,

their performance also increases. They become more objective in decision-making which enhances the marketers' abilities to adjust to modern marketing, which leads to better performance. Marketing experience was significant at 5% and was positively related to net return of the wholesalers. This suggests that marketers who have more experience in the business earned more net returns. This is in line with *a priori* expectation that experience gained over the years would enable marketers to efficiently allocate scarce resources in marketing and minimise cost in order to maximise net returns. This finding is in consonance with Njoku (2017) who noted that higher years of experience leads to higher net returns from marketing. Membership of market union was positive and significant at 5% level of probability. The result indicates that belonging to a market union enhances net returns because there is information sharing as regards marketing strategies and also financial incentives which helps to boost the business. They can borrow money from the union and expand their scale of operation which will lead to more revenue. Cost of purchase was significant at 1% and negatively related to net returns of the palm oil wholesalers. Increase in cost of purchase leads to higher cost per unit of the commodity. This by implication implies as cost of purchase increases, net returns of the marketers decreases. Transportation cost impacted negatively on the net returns of wholesalers at 1% significance level. This implies that increase in transportation cost will decrease the net returns of the wholesalers. This is because increase in transportation cost will lead to more expenditure for the wholesalers and thereby leads to a decrease in net returns. This corroborates the findings of Bassey *et al.* (2013) who reported that transportation accounted for a large portion of marketing margin in Africa. Selling price had

positive coefficient value in the result and significant at 1% level of probability. This suggests that net returns was higher when selling price increased. This follows the findings of Fareyola *et al.* (2013) that increase in selling price of a commodity leads to increase in net returns.

Constraints militating against palm oil marketing are shown in Table 4. From the result obtained it was observed that two (2) major constraints were extracted based on the responses from the wholesalers. The component factor was named based on the characteristics it was made of and the set of variables that loaded high. The component factors were endogenous and exogenous constraints. Component one was named endogenous constraints because variables that loaded high were related to it and as such was within the control of the wholesalers. These variables were poor access to market price information (0.811), high cost of palm oil (0.642) and competition (0.861). Component two was named exogenous factors because the variables that loaded high were not within the control of the wholesalers. These variables are inadequate financial capital (0.738), high transportation cost (0.860), low patronage (0.729), seasonal price variation (0.733), high interest rate (0.694) and bad road network (0.616). Consequent upon the finding, Nwibo and Odoh (2014) in their study reported that palm oil marketers in Enugu North zone of Enugu State were constrained by problem of inadequate capital, high cost of transportation and price instability. Similarly, the finding is in consonance with Ibitoye (2014) who identified poor market information as one of the major constraints to effective palm oil marketing.

Table 4: Varimax rotated matrix on constraints to palm oil marketing in Abia state

Constraints	Endogenous Factor	Exogenous Factor	Commonality
Inadequate financial capital	-	0.738	0.855
High transportation cost	-	0.860	0.853
Spoilage	0.343	-0.396	0.627
Low patronage	-	0.729	0.747
Poor access to market price information	0.811	-	0.804
Seasonality of the product	-	0.168	0.678
High cost of palm oil	0.642	-	0.845
Seasonal price variation	-	0.733	0.766
Competition	0.861	-	0.834
High interest rate	-	0.694	0.747
High/frequent taxation levy by government officials	-	0.379	0.582
Bad road network	-	0.693	0.616
Percentage of total variance	37.51	46.03	

Source: Field survey data, 2019. Factor loading of 0.40 and above

Conclusion

Palm oil marketing is a means of livelihood and income generation. Results showed that the business was profitable in terms of cost and return analysis and also the marketing system was efficient. The major constraints of the business were poor access to market price information, inadequate financial capital and cost of transportation among others. The study therefore recommends that marketers should form cooperative

society to enhance their access to finance and to help reduce cost of marketing while taking advantage of economies of scale. Marketers who are still strong and agile and experienced should be encouraged to up-scale production and remain in business. There is need also for access to free and affordable education to enable marketers' access and process information on marketing innovations that will enhance marketing and revenue.

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