



Analysis of Palm Oil Marketing among Women Marketers in Umuahia Agricultural Zone, Abia State

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Abstract

The study was conducted as an analysis of palm oil marketing among women in Umuahia Agricultural Zone, Abia State. A multistage sampling technique was used to select 72 respondents for the study. Data were analyzed with descriptive statistical tools such as means, frequencies and percentages. A budgetary approach and multiple regression model were also used. Results of the analysis showed that women marketers participated in the assembling, storage, buying and selling of palm oil in the study area and did not participate in the transportation of palm oil. The total variable cost was estimated at ₦30,250.60, which is about 75.06% of the total cost. It also showed that the cost of palm oil bought formed the major cost, such that it was 50.25% of the total marketing cost. The respondents realized a total revenue of ₦94,440.50 and the total marketing cost was ₦ 40, 300.81. The profitability index estimate of 1.34 was recorded, implying that 134k was received as the net margin for every N1 received as the value of sales and this buttresses the profitability of palm oil marketing among women in the study area. More so, the marketing efficiency computation suggests that the palm oil marketing enterprise was 134.24% efficient in the study area. Age was statistically significant at a 1% probability level and had an inverse relationship with the marketing efficiency of the respondents. Education was statistically significant at a 1% significant level and positively related to marketing efficiency. Access to credit was statistically significant at a 1% significant level and positively related to marketing efficiency. The coefficient of cooperative membership was statistically significant at 1% and positively related to marketing efficiency. The most common constraints to palm oil marketing among the women in the study area in the order of their magnitude include bulkiness (94.44%), inadequate market information (93.06%), poor storage facilities (76.39%), bad road network (69.44%), lack of government subsidy/credit (62.50%), remoteness of markets (59.72%), high cost of transportation (56.94%) and poor pricing (55.56%). The study therefore recommended that transportation facilities and market infrastructure like good roads, vehicles, electricity and storage facilities should be made available in the study area by government and relevant stakeholders this would make participation in the transportation of palm oil and other relevant activities easier for women.

Keywords: Analysis, profitability, efficiency, palm oil, marketing and women

Introduction

Women are agents of change and veritable tools for rural and economic development both in developed and developing countries (Nzeakor and Ukoha, 2020). In a developing nation like Nigeria, where agriculture contributes substantially to the economy, women play an important role in agriculture, particularly in rural areas. In terms of labour supply, women are a force to be reckoned with because they account for more than 50% of the population in Nigeria, provide 68.8% of the labour in agriculture, and produce about 80% of the country's food (Ezeibe, Diogu, Eze, Chiaha, and Nwokenna, 2013). They contribute between 40 and 65% of all hours spent in agricultural production and

processing and also undertake 60 to 90% of the rural agricultural product marketing, thus providing more than two-thirds of the workforce in agriculture (Anselem, Enete and Amusa, 2010). Women have put in a lot of effort in Abia State to produce large amounts of crops, and animals, process and prepare food, work in agricultural or other rural enterprises for pay, collect fuel and water, and engage in the marketing of agricultural produce. Of particular importance to the agricultural sector is their involvement in the production and marketing of palm oil (Agwu, Nwachukwu, Oteh, and Nwosu, 2013).

Palm oil marketing involves all activities undertaken by

palm oil dealers in conveying palm oil from producers to consumers (Nse-Nelson, Mejeha, and Oke, 2021). It is a successful business in Nigeria, particularly since palm oil is used by manufacturing companies across the country to produce goods used by consumers every day (Shahbandeh, 2020) In the country, about twenty- four (24) states, namely; Abia, Akwa Ibom, Cross River, Rivers, Bayelsa, Imo, Anambra, Ebonyi, Enugu, Delta, Edo, Ondo, Ogun, Osun, Oyo, Ekiti, Benue, Kwara, Kogi, Nasarawa, Plateau, Taraba, Adamawa and Kaduna (especially in the southern part) are well known for palm oil marketing in Nigeria (Alabi *et al.*, 2020). However, rural palm oil dealers, itinerant traders, and other middlemen in the states of Delta, Edo, Akwa-Ibom, Cross River, Bayelsa, Rivers, Anambra, Enugu, Imo, Abia, Ogun, Ondo, Oyo, and Ekiti account for 80% of the total palm oil marketed in Nigeria (Nwandu *et al.*, 2021).

Marketing of palm oil is an important income-generating activity with a high tendency to improve the welfare status of women in Abia State. It has been reported by Nse-Nelson *et al.*, (2021) that palm oil marketing is a lucrative and profitable business that offers substantial economic benefits to women in Abia State especially when the market is efficient. Efficient palm oil marketing systems have been shown to improve the level of food security in Abia State by lowering post-harvest losses, guaranteeing adequate returns on farmers' investments, and stimulating growth in food production (Obasi and Kalu 2015). However, several factors have been reported to influence the profitability and marketing efficiency of palm oil. For example, Asogwa, Omah, and Asogwa, (2020) reported that lack of access to credit, marketing information, storage and transport facilities among others are the factors influencing the profitability and marketing efficiency of palm oil among women in Nigeria. The level to which these factors influence the profitability and marketing efficiency of palm oil among women in Abia State is not known.

Empirical evidence suggests that women in Abia State are more adversely affected by poverty than men (Agwu *et al.*, 2013). Because of poverty, most women are unable to take advantage of economies of scale because they are unable to access the resources they need to perform their marketing duties effectively and may have been forced to live on subsistence levels. The use of conventional marketing techniques, which severely restrict the quantity and quality of palm oil that can be supplied in the market, may mean that women are faced with low returns on sales. In addition to the use of conventional marketing techniques, low return on sales may result from illiteracy, insufficient processing, storage, and transport facilities, inappropriate marketing techniques, inadequate road systems, inadequate communication channels, exploitation taxes, poor quality control, and high perishability, among other factors.

Empirical efforts have been made in Nigeria to proffer

solutions to the challenges of profitability and marketing efficiency of women participating in agribusiness. For example, Asogwa *et al.*, (2020) studied empowering women through agribusiness: a key to reducing poverty and food insecurity in Nigeria; Agwu *et al.*, (2013) studied determinants of growth in women-operated agribusiness enterprises in Abia State and Anselm, Enete, Taofeeq and Amusa (2010) studied determinants of women's contribution to farming decisions in cocoa-based agroforestry households of Ekiti State, Nigeria. Despite all the empirical efforts made, studies on the profitability and efficiency of palm oil marketing among women in the Umuahia Agricultural Zone are lacking, which is the gap in the literature the study intended to fill.

Materials and Methods

The study was conducted in Umuahia Agricultural Zone of Abia State, Nigeria located about latitudes 4° - 7° N and longitudes 7° - 8°E. Umuahia Agricultural Zone is one of the three Agricultural Zones of the Abia State ADP. It comprises Ibeku, Umuahia Urban, Ohuhu North, Ohuhu South, Olokoro/ Ubakala , Ntigha , Mbawsi , Isiala – Ngwa , Owerrinta, Umuoba , Nvosi , Ikwuano North and South Agricultural Extension Blocks of Abia State. Abia State is located in the Southeastern geo-political Zone of Nigeria. The state shares boundaries with Enugu and Ebonyi states in the North, Rivers state in the South, Cross River and Akwa-Ibom states in the East and Imo State in the West respectively. A multistage sampling technique was used to select 72 respondents for the study. The first stage consists of a purposive selection of two local government areas Ikwuano and Umuahia South from the five local government areas that make up the Umuahia agricultural zone. The two local government areas were purposively chosen because of the high concentration of palm oil marketing in the area. In the second stage, three communities from each of the two selected local government areas were randomly picked giving a total of 6 communities. Again, in the third stage, two villages from each of these communities were selected amounting to a total number of 12 villages, and, 6 palm oil marketers (wholesalers) were picked from each of these villages giving a total sample size of 72 palm oil marketers. Primary data were used in the study and were collected with the aid of a structured questionnaire. Means, frequency count and percentages were used to analyse the socio-economic characteristics of the respondents and determine the level of women's participation in palm oil marketing in the study area. A market budgetary approach was used to determine the cost and return of palm oil marketing in the study area. A multiple regression model was used to estimate the determinants of marketing efficiency of women's participation in palm oil marketing in the study. Frequency counts and percentages were used to assess the constraints of palm oil marketing in the study area. The market budgetary analysis is given as:

$$\text{Net Profit (NP)} = \text{Total revenue from sales (TR)} - \text{Total marketing cost (TMC)} \dots\dots 3.1$$

Profitability Index (PI) = Net Profit (NP)/ Total marketing cost (TMC).... 3.2

Where:

Total marketing cost (TR) = Total fixed cost (TFC) + Total variable cost (TVC).....3.3

Marketing efficiency was realized using the marketing efficiency ratio. The formula is specified as follows:

$$M. E = \frac{\text{Value added by marketing (Net profit)}}{\text{Total marketing cost}} \times 100.....3.4$$

Where:

M. E = Marketing efficiency

The ordinary least square regression model is specified below implicitly as follows:

$$Y = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9).....3.5$$

Where:

Y = Marketing efficiency (%)

X₁ = Age (Years)

X₂ = Marital status (Married=1, otherwise=0)

X₃ = educational status (Number of years)

X₄ = Marketing experience (Years)

X₅ = Access to credit (N)

X₆ = Price of palm oil (N)

X₇ = Transport cost (N)

X₈ = Market charges (N)

X₉ = Cooperative membership (Yes =1, otherwise =0)

β₀ = Intercept

β₁-β₉ = Parameter estimate

ei = Stochastic variables or error term

Results and Discussion

The Socioeconomic Characteristics of the Respondents

The Socioeconomic Characteristics of the Respondents is presented in Table 1.

Results in Table 1 have shown that the mean age of the farmers was 52.90, implying that the respondents were middle-aged marketers. This is a blatant indication that middle-aged marketers dominate the study area's palm oil marketing. This is consistent with Ukoha and Okonkwo's (2019) findings, which showed that the majority of female palm oil marketers in the study area are middle-aged and still very active in carrying out their marketing activities. The majority of respondents (33.33%) had SSCE/GCE education. Education is thought to be the strongest determinant of marketing innovation adoption and may have an impact on their level of profitability and efficiency. The mean household size in the study area was approximately seven (7) persons, implying that the respondents maintained a fairly large household size. Fairly large household sizes may have a significant impact on the labour pool for their marketing activities by lowering labour costs and opening up opportunities for increased profitability (Effiong, Ndifon, and Odunuga, 2012). The mean years of marketing experience of the respondents was 21.00. This demonstrated that the respondents had considerable years of experience in palm oil marketing in the study area. The result has some positive

implications for their profitability and efficiency level because years of marketing experience could indicate the practical knowledge acquired over time.

The level of women's participation in palm oil marketing

The level of women's participation in palm oil marketing in the study area is presented in Table 2. Table 2 presents the mean rating of the level of women's participation in palm oil marketing in the study area. The critical mean score was 2.5 and any mean score that is greater than or equal to 2.5 was significant, implying the respondents strongly agreed that they participated in palm oil marketing to a very high level, otherwise, if less than 2.5. A grand mean score of 2.70 was recorded, implying the respondents participated in palm oil marketing to a very high level. The result further shows that four out of six variables namely: Assembling (Mean =3.26), storage (Mean =4.00), buying (Mean =2.80) and selling (Mean =3.28) were accepted in the study area because their mean scores were greater than the benchmark mean score of 2.50 on a 4-point scale. This proves that the respondents recorded a very high level of participation in the assembling, storage, buying and selling of palm oil in the study area.

The profitability of palm oil marketing

The profitability of palm oil marketing in the Study Area is presented in Table 3. Results in Table 3 show the costs, returns, profitability index and marketing efficiency of women palm oil marketers in the study area. As shown in the table, the variable cost items are the purchase of palm oil, storage, labour and transportation while the fixed cost items are; rent, depreciation and market charges. However, the total variable cost was estimated at ₦30,250.60, which is about 75.06% of the total cost. It also showed that the cost of palm oil bought formed the major cost, such that it was 50.25% of the total marketing cost. The respondents realized a total revenue of ₦94,440.50 and the total marketing cost was ₦ 40, 300.81. The profitability index estimate of 1.34 was recorded, implying that 134k was received as the net margin for every N1 received as the value of sales and this buttresses the profitability of palm oil marketing among women in the study area. More so, the marketing efficiency computation suggests that the palm oil marketing enterprise was 134.24% efficient in the study area. However, M.E > 100% implies that the participant covered the costs of value addition plus marketing and made a margin above 100%. Considering this result, one can conveniently conclude that the market performance of women palm oil marketers in the study area is satisfactory.

The determinants of marketing efficiency of the respondents

The determinants of the marketing efficiency of the respondents are presented in Table 4. The regression result of the determinants of marketing efficiency of the respondents is shown in Table 4. The linear functional form was chosen as the lead equation. This was based on statistical and econometric reasons which include the

magnitude of the coefficient of multiple determination, the number of significant variables, as well as the significance of F-ratio. The coefficient of multiple determination (R²) was 0.745 which implies that 74.50% of the variations in the marketing efficiency of women palm oil dealers were explained by the independent variables included in the model (age, marital status, cooperative education, cooperative credit, marketing experience, price of the commodity, transport cost, market charges and cooperative strength) while 25.5% unexplained was due to error factor. The F-ratio of 71.114 was statistically significant at a 1% significant level indicating that the variables included in the estimated regression model were correct and have a line of best fit. However, the significant variables were age, cooperative education, marketing experience and cooperative strength. Age was statistically significant at a 1% probability level and had an inverse relationship with the marketing efficiency of the respondents. This means that the marketing efficiency of the respondents tends to decrease as the age of the respondents increases. This finding is plausible because aged women are often risk-averse have less energy to handle a series of marketing activities and are also conservative in the adoption of innovations to improve their marketing efficiency. This finding is in tandem with Ariyo (2019) who opined that age exerted a negative effect on the marketing efficiency of agricultural produce in Akwa Ibom State. Education was statistically significant at a 1% significant level and positively related to marketing efficiency. This could mean that the marketing efficiency of women participating in palm oil marketing in the study area increased with an increase in the educational status of the respondents. This could be attributed to the fact that education is important in palm oil marketing decision making especially decisions regarding setting realistic costs and smart projects that will yield higher marketing efficiency. Access to credit was statistically significant at a 1% significant level and positively related to marketing efficiency. This result implies that marketing efficiency increased with an increase in access to credit by the respondents. This is in line with a priori expectation as access to credit could enhance the confidence of palm oil dealers, increase their financial base and facilitate investment in palm oil marketing assets that would yield higher returns. This finding is in tandem with Ojiagu and Uchenna (2015) who reported that access to credit promotes marketing efficiency of farmers in Anambra State, Nigeria. The coefficient of cooperative membership was statistically significant at 1% and positively related to marketing efficiency. This result implies that the higher the cooperative membership, the higher the marketing efficiency of the respondents. This result can be viewed as a result of the implication of increased access to cooperative credit, education collective bargaining, collective labour, and economies of scale among others.

The constraints militating against palm oil marketing

The constraints of palm oil marketing in the study area are presented in Table 5. Entries from Table 5 show that

the most common constraints to palm oil marketing among the women in the study area in the order of their magnitude include: Bulkiness (94.44%), inadequate market information (93.06%), poor storage facilities (76.39%), bad road network (69.44%), lack of government subsidy/credit (62.50%), remoteness of markets (59.72%), high cost of transportation (56.94%) and poor pricing (55.56%). This finding is in tandem with Enwelu *et al.*, (2020) who reported that the challenges of women's participation in palm oil marketing in Imo State, Nigeria are: The high cost of transportation, bad road network and lack of government subsidy/credit.

Conclusion

This study concluded as follows: Women marketers participated in the assembling, storage, buying and selling of palm oil in the study area and did not participate in the transportation of palm oil. Palm oil marketing in the study area is a profitable business with an average net profit of N54,139.69. The marketing efficiency computation has shown that the palm oil marketing enterprise was 134.24% efficient in the study area. Age, education, access to credit and cooperative membership were the significant variables influencing the marketing efficiency of the respondents. The most common constraints to palm oil marketing among the women in the study area in the order of their magnitude include Bulkiness, inadequate market information, poor storage facilities, bad road network, lack of government subsidy/credit, remoteness of markets, high cost of transportation and poor pricing. It is therefore necessary for good roads and market infrastructures such as storage facilities and electricity among others to be put in place by the government to reduce the cost of storage and transportation as storage and transportation costs hurt the profitability of the respondents. Palm oil marketers should be encouraged through sensitization, education and financial incentives to form cooperatives to mitigate the cost of marketing (transportation costs, handling costs and storage costs) while taking advantage of economies of scale.

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Table 1: Socioeconomic characteristics of the respondents

Variables	Frequency	Percentage
Age		
21-30	0	0.00
31-40	13	18.06
41-50	10	13.89
51-60	34	47.22
61-70	15	20.83
Total	72	100
Mean	52.90	
Educational Qualification		
NONE	9	12.50
FSLC	20	27.78
SSCE/GCE	24	33.33
OND/NCE	8	11.11
HND/B.Sc	7	9.72
M.Sc/Ph.D	4	5.56
Total	72	100
Household Size		
1-5	23	31.94
6-10	49	68.06
11 and above	0	0.00
Total	72	100
Mean	7	
Total	30	100
Household Size		
1-5	23	31.94
6-10	49	68.06
11 and above	0	0.00
Total	72	100
Mean	7	
Marketing Experience		
1 – 5	2	2.78
6 – 10	12	16.67
11 – 15	11	15.28
16 and above	47	65.27
Total	72	100
Mean	21	

Source: Field survey, 2023

Table 2: The mean rating of the level of women's participation in palm oil marketing in the study area

Variables	Cummulative	Mean	Decision
Assembling	163	3.26	Accepted
Storage	200	4.00	Accepted
Distribution	80	1.60	Rejected
Buying	140	2.80	Accepted
Selling	164	3.28	Accepted
Transportation	65	1.30	Rejected
Grand Mean	2.70		

Source: Field survey, 2023; VHL=Very high level, HL=High level, LL=Low level and VLL=Very low level. Critical mean score = 2.50. Decision rule: Mean \geq 2.50 = Accepted while Mean $<$ 2.50 = Rejected.

Table 3: The profitability of palm oil marketing in the Study Area

Variables	Mean Values (₦)	Share (%)
Revenue		
Sales of palm oil	94,440.50	
Total Revenue	94,440.50	
<u>Fixed Costs</u>		
Rent	6,550.00	16.25
Depreciation	3,500.21	8.69
Market charges	700.00	1.73
Total Fixed Cost	10,750.21	
<u>Variable Costs</u>		
Purchase of palm oil	20,250.10	50.25
Storage	1,500.00	3.72
Labour	2,300.00	5.71
Transportation	5,500.50	13.65
Total Variable Cost	29,550.60	100
Total Marketing Cost (TVC+TFC)	40,300.81	
Net Profit (TR-TMC)	54,139.69	
Profitability Index (NP/TC)	1.34	
M.E(%) (Net profit/TMC\times100)	134.24	

Source: Field survey, 2023; Note: TVC= Total variable cost; TFC=Total fixed cost; TR=Total revenue; NP=Net profit; M.E=Marketing efficiency

Table 4: Regression estimate of the determinants of marketing efficiency of the respondents

Variables	(+)Linear	Exponential	Semi log	Double log
Intercept	-1.111 (-0.305)	0.890 (0.888)	-10.67 (-1.991)*	0.211 (0.308)
Age	-0.113 (-4.480)***	0.390 (3.730)***	84.130 (0.107)	0.350 (7.007)***
Marital status	-0.190 (-0.117)	-0.008 (-0.101)	51.311 (0.010)	0.149 (0.300)
Education	0.401 (6.322)***	-0.062 (-0.099)	987.518 (5.407)***	0.661 (0.700)
Marketing experience	0.088 (0.007)	0.056 (5.551)***	22.690 (0.654)	-0.017 (-0.700)
Access to credit	0.184 (9.771)***	6.660 (2.483)**	40.485 (0.008)	-1.037 (-0.777)
Price of commodity	0.015 (0.021)	0.039 (1.300)	11.209 (0.088)	3.063 (0.020)
Transport cost	-0.027 (-0.065)	0.011 (0.920)	154.971 (1.200)	-5.202 (-0.801)
Market charges	0.031 (0.011)	-5.000 (-0.021)	34.100 (7.006)***	-5.012 (-5.300)***
Cooperative membership	0.120 (3.810)***	-0.483 (-0.559)	573.180 (0.002)	-0.500 (-0.008)
R²	0.745	0.401	0.535	0.478
R⁻²	0.744	0.400	0.533	0.460
F-ratio	71.114***	45.347***	14.480**	9.648***

Source: Field Survey, 2023, Note: Note: values in parentheses () are the respective t-ratio. ***, **, and * implies statistical significance at 0.01, 0.05 and 0.1 probability levels respectively

Table 5: Distribution of respondents according to the constraints of palm oil marketing in the study area

Variables	Frequency*	%
Inadequate market information	67	93.06
Poor pricing	40	55.56
Market Remoteness	43	59.72
Poor storage facilities	55	76.39
Bulkiness	68	94.44
Bad road network	50	69.44
Lack of government subsidy /credit	45	62.50
High cost of transportation	41	56.94

Source: Field survey, 2023