COMPARATIVE ANALYSIS OF MARKETING EFFICIENCY OF FARM GATE AND ITINERANT PALM OIL TRADERS IN AKWA IBOM STATE, NIGERIA

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Abstract - The study compared the marketing efficiency of farm gate and itinerant palm oil traders in Akwa Ibom State, Nigeria. Specifically, the study derived and compared the efficiency level of the traders and estimated the determinants of marketing efficiency of the respondents. A multistage sampling procedure was adopted to select 240 respondents for the study (120 farm gate palm oil traders and 120 itinerant palm oil traders). Primary data were obtained using a structured questionnaire. Data were analyzed using a market budgetary approach and a multiple regression model. Results showed that the average total revenue, total marketing cost, net income, and marketing efficiency of the farm gate traders were: N98,324.55, N67,852.59, N30,471.96, and 44.90% respectively, while those of itinerant traders were: N706,959.60, N443,956.01, N263,003.59, and 59.24% respectively. Net income ($p<0.01$), household size ($p<0.01$), credit amount ($p<0.01$), market information ($p<0.05$), cost of labor ($p<0.10$), transportation cost ($p<0.10$), storage cost ($p<0.01$), and selling price of palm oil ($p<0.10$) determined the marketing efficiency of itinerant palm oil traders. Also, Net income ($p<0.01$), household size ($p<0.01$), market information ($p<0.05$), storage cost ($p<0.01$), and purchase cost ($p<0.10$) determined the marketing efficiency of farm gate palm oil traders. Since the efficiency of itinerant palm oil traders was higher than that of farm gate traders, farm gate traders should be supported by the government and non-governmental organizations to expand their market access through better transport infrastructure, mobile trading opportunities, and organized linkages with urban markets.

Keywords - Net Income, Profit, Cost, Palm Oil, Traders, Farm Gate, Itinerant

Palm is one of Nigeria's most vital agricultural products, serving as a source of income for millions of rural communities as well as industrial use. Nigeria ranks among the top five producers of palm oil worldwide, with an expected yearly production of more than 1.4 million metric tonnes as of 2023 (Food and Agriculture Organization [FAO], 2023; Nigerian Institute for Oil Palm Research [NIFOR], 2023). Palm oil is used by industries in the manufacturing of finished and partly finished goods. It creates jobs and income for thousands of rural and urban dwellers in Nigeria. Palm oil's marketing system in Nigeria is underdeveloped and inefficient, as seen by price fluctuations, limited market accessibility, high marketing costs, and an unequal distribution of profit margins among value chain actors (Alufohai & Oyakhilomen, 2021).

In Akwa Ibom State, there is widespread use of informal and unstructured systems of buying and selling that lack the infrastructure and efficiency that are common in the modern palm oil value chains (Udokure et al., 2024). Farm-gate traders buy directly from producers at the point of production, often at lower prices and with minimal handling costs. Itinerant traders, however, move from one locality to another to purchase palm oil in larger quantities, and usually sell in more distant or urban markets (Udokure et al., 2024). These two groups of traders operate under different cost structures, market conditions, and levels of access to price information, all of which may influence their marketing efficiency (Olukosi & Isitor, 2020).

The specific objectives of the study were to: (i) derive and compare the efficiency level of the marketers; and (ii) estimate the determinants of marketing efficiency of the respondents

I. METHODOLOGY

The Study Area and sampling procedure

The study was carried out in Nigeria's Akwa Ibom State of Nigeria. The respondents were selected through the use of a multistage sampling procedure. Due to the high intensity of palm oil marketing activities, three (3) agricultural zones Viz-a-Viz Ikot Ekpene, Abak, and Etinan were purposively selected from the six (6) Agricultural Zones in Akwa Ibom State. Four Local Government Areas were chosen at random from each of the chosen Agricultural Zones for the second stage. This meant that there were twelve (12) local government areas in total: Etinan, Nsit Ibom, Nsit Ubium, and Nsit Atai from the Etinan agricultural zone; Etim Ekpo, Ika, Ukanafun, and Oruk Anam from the Abak agricultural zone; and Ikot Ekpene, Essien Udim, Obot Akara, and Ikono from the Ikot Ekpene agricultural zone. In the third stage, two villages were randomly selected from each Local Government Areas, making a total number of 24 villages for the study. A list of all farm gate palm oil marketers in the selected villages were formed through the support of village heads, extension agents and key informants. From the list, 5 farm gate palm oil marketers were randomly selected, giving a total of 120 farm gate marketers for the study.

On the other hand, one (1) large palm oil market was purposively selected from each of the previously selected twelve (12) Local Government Areas for the study. The markets were: Urua Otor from Ikot Ekpene, Obo Annang market from Essien Udim, Affiong Etor from Obot Akara, Ibiaku market from Ikono, Urua Obo from Etim Ekpo, Urua Mkpogho-Eto from Ika, Urua Akpan Esiet from Ukanafun, Urua Anwan from Oruk Anam, Udua Mkpafi from Etinan, Afaha Nsit market from Nsit Ibom, Ikot Akpaotu market from Nsit Ubium and Afia Nsit Atai from Nsit Atai. A list of all itinerant palm oil marketers in the selected markets were confidentially obtained from palm oil marketers' union leaders. This formed the sampling frame for the study. Ten (10) itinerant palm oil marketers were randomly selected from each of the selected markets, giving a total of 120 itinerant marketers for the study.

Analytical Technique

Data were collected with the aid of questionnaire. Descriptive and econometric techniques were employed to analyze the data collected.

Objective i was realized using market budgetary approach as follows:

Net income

$$NI = TR - TC \quad \text{…. Equation 1}$$

Where: NI = Net income from palm oil marketing (N), TR = Total returns from the sale of palm oil which is given by the price per 25 litres of palm oil multiplied by the total quantity (litres) sold (N), TC = Total cost incurred in marketing which is made up of fixed costs (Shop rent, depreciation, interest.) and variable costs (cost of purchase of palm oil, transportation, storage, off-loading and loading cost, the amount paid as tax, and other marketing costs.) (N).

Marketing efficiency

The marketing efficiency formula is specified as follows:

$$M.E = \frac{\text{Value added (Net income)}}{\text{Total marketing cost}} * 100 \ldots \text{Equation 2}$$

Where: M. E = Marketing efficiency

In comparing the efficiency of the respondents, Z-test was applied as follows:

$$Z = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{S^2X_1}{n_1} + \frac{S^2X_2}{n_2}}} \quad \text{…….Equation 3}$$

Where:

$\bar{X}_1$ = mean marketing efficiency of farm gate palm oil marketers, $\bar{X}_2$ = mean marketing efficiency of itinerant palm oil marketers, S^2X_3= variance of X_1; S^2X_4= variance of X_2;, n_1 = number of farm gate palm oil marketers, n_2 = number of itinerant palm oil marketers

Objective ii was analysed with multiple regression models. The model is stated implicitly as follows:

Marketing efficiency = f(Z_1, Z_2, Z_3, Z_4, Z_5, Z_6, Z_7, Z_8, Z_9, Z_{10}, Z_{11})…….Equation 4

Where:

Y= Marketing efficiency of farm gate traders

Z_1 = Marketing experience (Number of years spent in palm oil marketing), Z_2= Level of education (Number of years spent in school), Z_3= Household size (Number of household members), Z_4= Amount of credit (Naira), Z_5= Selling price of palm oil (Naira), Z_6= Cooperative membership (Yes=1, otherwise = 0), Z_7= Age (Number of years), Z_8= Processing cost (Naira), Z_9= Labour (Naira), Z_{10}= Storage cost (Naira), Z_{11}= Depreciation ($\frac{\text{Initial cost} - \text{salvage value}}{\text{Useful life}}$)

For itinerant palm oil marketers, the model is stated as follows:

Marketing efficiency=f(M_1, M_2, M_3, M_4, M_5, M_6, M_7, M_8, M_9, M_{10}, M_{11}, M_{12}, M_{13}, M_{14}). . Equation5

Where:

Y= Marketing efficiency

M_1= Level of education (Number of years spent in school), M_2 = Marketing experience (Number of years spent in palm oil marketing), M_3= Household size (Number of household members), M_4= Amount of credit (Naira), M_5= Level of market information (%), M_6= Selling price per 25 litres of palm oil (Naira), M_7= Cooperative membership (Yes=1, otherwise = 0), M_8= Age (Number of years), M_9= Transport cost (Naira), M_{10}= Amount of tax (Naira), M_{11}= Cost of labour (Naira), M_{12}= Purchase cost (Naira), M_{13}= Storage cost (Naira), M_{14}= Depreciation ($\frac{\text{Initial cost} - \text{salvage value}}{\text{Useful life}}$)

II. RESULTS AND DISCUSSION

Derivation And Comparison of Efficiency Level of Farm Gate and Itinerant Palm Oil Traders

Efficiency level of farm gate and itinerant palm oil traders is presented in Table 1

Items	Farm gate Marketers		Itinerant Marketers		Pooled	
	Amount (N)	%	Amount (N)	%	Amount (N)	%
Average Revenue	98,324.55		706,959.60		402,756.16	
Average selling price/25litres	24,766.89		28,785.00		26,779.00	

Number of 25litres	3.97		24.56		15.04	
Variable cost (N)						
Average purchase cost	60,588.33	89.29	411,500.00	92.68	236,044.16	92.24
Transportation cost	573.84	0.84	6,550.92	1.47	3,562.38	1.39
Cost of loading and offloading	2,835.00	4.17	5,980.83	1.34	4,407.92	1.72
Storage cost	468.33	0.69	1,108.33	0.24	788.33	0.31
Market charges	-	-	1,421.00	0.32	710.5	0.27
Tax	-	-	3,791.86	0.85	1,895.93	0.74
Firewood	563.92	0.83	1,957.25	0.44	1,260.59	0.49
Water	248.83	0.36	2,854.16	0.64	1,551.49	0.61
Total Variable Cost (TVC)	65,278.25	96.20	435,164.35	98.02	250,221.30	97.78
Fixed cost (N)						
Rent	702.67	1.03	6,052.50	1.36	3,377.59	1.32
Depreciation on assets	1,871.67	2.75	2,739.16	0.61	2,305.42	0.90
Total Fixed Cost (FC) (N)	2,574.34	3.79	8,791.66	1.98	5,683.01	2.22
Total cost (TC) (N)	67,852.59	100	443,956.01	100	255,904.31	100
Net Income (N)	30,471.96		263,003.59		146,851.85	
ME (%)	44.90		59.24		57.39	

Source: Field Survey, 2025, ME= Marketing efficiency

Table 1: Efficiency level of farm gate and itinerant palm oil traders

Results in Table 1 show the efficiency scores for farm gate traders (44.90%), itinerant traders (59.24%), and pooled data 57.39%. This result means that the traders are inefficient at palm oil marketing because their efficiency ratio is less than 100. A marketing efficiency ratio of less than 100% indicates the existence of excessive marketing expenses in relation to the value contributed, reflecting systemic inefficiencies (Olukosi and Isitor, 1990). This could be attributed to high marketing costs, limited access to infrastructure, lack of negotiating strength, and exploitation by middlemen in the study area. This finding contradicts Osundu et al. (2024), who explored the economics of palm oil marketing and processing in Abia State, Nigeria, and reported that the marketers were efficient. This disparity could be attributed to differences in market infrastructure, degree of organization among marketers, and levels of policy or institutional support.

Comparison of Efficiency Level of Farm Gate and Itinerant Palm Oil Traders

Comparison of efficiency level of farm gate and itinerant palm oil traders is presented in table 2

Marketing efficiency	Obs	Mean	Std. Dev	S.E Mean	Z
Itinerant palm oil traders	120	59.24	23.21	2.12	6.09***
Farmgate palm oil traders	120	44.90	11.79	1.07	
Difference		14.34	24.38	2.23	

Table 2: Differences in marketing efficiency of itinerant and farm gate traders

Source: Survey data, 2025

Results in Table 4.2 showed that farm gate traders had a lower mean marketing efficiency (44.90%) than itinerant traders (59.24%). The difference in marketing efficiency in favour of itinerant traders was statistically significant at the 1% level. This could be attributed to their greater mobility, broader market networks, and ability to respond to price differentials across locations. However, farm gate marketers typically operate in localized areas with limited access to market information, poor infrastructure, and weak bargaining positions, which often lead to higher per-unit marketing costs and lower returns (Ebe & Alimba, 2022).

Determinants of marketing efficiency of farm gate and itinerant palm oil traders

Determinants of marketing efficiency of farm gate and itinerant palm oil traders are presented in Table 3

Variables	Marketing efficiency of farm gate marketers (LN)		Marketing efficiency of itinerant marketers (DL)	
	Coefficient	T-statistic	Coefficient	T-statistic

Constant	409.921	1.01	5.995347	2.61***
Net income	0.009	8.20***	0.2304231	4.21***
Age	-0.11282	-0.10	-0.999745	-6.07***
Education	1.08048	0.14	1.377548	1.63
Household size	22.90867	3.10***	0.4038941	5.62***
Experience	1.316905	0.93	0.0363083	1.23
Credit amount	0.001	1.09	0.0132366	4.15***
Cooperative membership	8.101281	0.27	0.0350998	0.50
Marketing information	114.9288	3.04***	0.2010654	2.44**
Cost of labour	-0.005	-0.78	-0.0524527	-1.71*
Transportation cost	0.001	1.17	0.045637	-1.91*
Storage cost	0.015901	3.51***	0.0148635	2.79***
Depreciation on assets	-0.005	-0.65	-0.0146383	-0.62
Selling price of palm oil	-0.007	-1.06	-0.8407841	-1.69*
Purchase cost	-0.015	-1.97*	-0.2451986	-1.06
R^2	0.5662		0.6373	
F-Ratio	9.97***		12.18***	

Source: Field Survey, 2025, LN=Linear Functional form, DL= Double log functional form

Table 3: Determinants of marketing efficiency of farm gate and itinerant palm oil traders

From the results, the coefficient of net income was significant and showed a positive relationship with the marketing efficiency of both farm gate and itinerant palm oil marketers at 1%, indicating that higher net income positively contributes to marketing efficiency in both contexts. The relationship suggests that greater financial resources enable investment in better marketing equipment, technology, or infrastructure, leading to improved marketing efficiency. This finding is consistent with Rahman and Awerije (2014) who reported that an increase in net income increased the efficiency of farm product marketers in Delta State. The coefficient of age was significant and has a negative relationship with the marketing efficiency of itinerant palm oil marketers at 1%. This showed the negative contribution of age to the marketing efficiency of the itinerant palm oil marketers. This finding corroborates with Aminu and Umoh (2020) who reported a negative relationship between age and marketing efficiency of palm oil marketers in Akwa Ibom state. This report is plausible because older itinerant palm oil marketers may be less adaptable to new technologies and modern marketing techniques compared to younger marketers.

The coefficient of household size was significant and demonstrated a positive relationship with the marketing efficiency of both farm gate and itinerant palm oil marketers at 1%, indicating that a larger household size positively influences marketing efficiency in both settings. The positive relationship suggests that a larger household provides more individuals to assist with marketing tasks such as transportation, marketing, and negotiation. More so, larger households provide additional manpower and resources, enabling more effective handling of marketing tasks and benefiting from economies of scale. This finding is in tandem with Okereafor et al. (2018), who reported a positive relationship between household size and efficiency of farm product marketers in Imo State, Nigeria. The credit amount was significant and related positively with the marketing efficiency of itinerant palm oil marketers at 1%. This showed that higher credit amounts will enhance the marketing efficiency of the itinerant palm oil marketers.

The coefficient of market information was significant and had a positive relationship with the marketing efficiency of both farm gate and itinerant palm oil marketers, at 1% and 5% significance levels, respectively. The positive relationship indicates that access to market information enhances their marketing efficiency by helping them identify new market opportunities, diversify their customer base, and make more informed decisions about when to buy and sell palm oil (Nwauwa, 2011).

The coefficient of transportation cost was significant and showed a negative relationship with the marketing efficiency of itinerant palm oil marketers at the 10% level. This indicates a negative contribution of transportation costs to the marketing efficiency of these marketers. This finding aligns with Nse-Nelson et al. (2021), who reported that transport costs reduce the marketing performance of palm oil marketers in Abia State, Nigeria. The coefficient of storage cost was significant, showing a positive relationship with the marketing efficiency of both farm gate and itinerant palm oil marketers, at the 1% and 10% significance levels, respectively. This positive relationship suggests that higher storage costs can actually enhance marketing efficiency.

The coefficient of the price of palm oil was significant and had a negative relationship with the marketing efficiency of itinerant palm oil marketers at 10%. This means that the reduction in the selling price of palm oil would lead to higher marketing efficiency. However, higher prices could lead to decreased demand for palm oil in the markets, which may affect the sales and marketing efforts of itinerant

marketers. The coefficient of purchase cost was significant and had a negative relationship with the marketing efficiency of farm gate palm oil marketers at 1%.

III. CONCLUSION

Itinerant palm oil traders had higher efficiency than farm gate traders due to broader market reach, access to information, and improved marketing strategies. Net income, age, household size, credit amount, marketing information, storage cost, labour cost, and selling price determined the efficiency of itinerant palm oil traders. On the other hand, net income, household size, marketing information, storage cost, and purchase cost determined the efficiency of farm gate traders.

RECOMMENDATIONS

Based on the findings and conclusion of this study, the following recommendations were proffered;
Since the efficiency of itinerant palm oil traders was higher than that of farm gate traders, farm gate traders should be supported by government and non-governmental organizations to expand their market access through better transport infrastructure, mobile trading opportunities, and organized linkages with urban markets. Given that credit and marketing information were significant determinants of the efficiency of farm gate and itinerant palm oil traders, the government's policies and programmes should provide affordable credit and structured market information systems through mobile alerts and extension agents.

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