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Comparative Analysis of Income of Farm Gate and Itinerant Palm Oil Marketers in Akwa Ibom State, Nigeria

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Abstract

Variation in the marketing system and the spatial movement of palm oil have influenced the cost structure and income of palm oil marketers in Nigeria. Many farm gate and itinerant palm oil marketers face difficulties in accessing supply sources, transportation facilities, and price formation, which negatively impacts their income. Thus, this study was conducted to compare the income of farm gate and itinerant palm oil marketers in Akwa Ibom State, Nigeria. The data for this study were collected through a multi-sampling procedure, and a sample size of 240 respondents (120 itinerant marketers, 120 farm gate marketers) was obtained. Data were analyzed using statistical and inferential tools such as frequency tables, means and percentages, Net income formula, Z-test, and multiple regression models. Results showed that itinerant palm oil marketers were relatively younger ($\bar{X}$ = 44.05), educated ($\bar{X}$=8 years), less experienced ($\bar{X}$=14 years), with more access to credit ($\bar{X}$= ₦200,072.50) than farm gate marketers. On average, the revenue (₦706,959.60), selling price (₦28,785.00), and profit (₦263,003.59) of itinerant palm oil marketers were higher than the revenue (₦98,324.55), selling price (₦24,766.89), and profit (₦30,471.96) of farm gate marketers. There was a difference in net income between farm gate and itinerant marketers, determined by age, education, household size, marketing experience, credit access, cooperative membership, market information, transportation cost, storage cost, tax, and purchase cost. The study recommended that palm oil marketers should be encouraged by the government and non-governmental organizations through sensitization to join well-structured cooperatives that provide real economic benefits, such as bulk purchasing, access to credit, and shared logistics, in order to check high purchase costs and enhance their net income.

Keywords: Efficiency, palm oil marketers, farm gate, and itinerant palm oil marketers, net income

Introduction

Palm oil is one of the most economically important agricultural commodities, contributing significantly to food security, employment generation, household income, and industrial development in many developing countries. It is the second-highest merchandised oil, accounting for about one-quarter of the world's oil demand and supply (Alabi *et al.*, 2020), and an important driver of economic development and poverty reduction in the major producing countries of Southeast Asia and Central and West Africa (Agomoh and Alocha, 2017). In Nigeria, palm oil provides income and employment for the palm oil value chain actors, including input suppliers, oil palm farmers (producers), processors, farm gate marketers, itinerant traders, wholesalers, retailers, and final consumers (Shahbandeh, 2020). Farm gate marketing is a form of market reform in Sub-Saharan Africa aimed at improving market efficiency and competition (Mbeche and Dorward, 2014). Farm gate marketers are important actors in the palm oil value chain because of their roles in reducing the need for palm oil producers to travel long distances to urban markets by buying directly from them. They enhance the flow of palm oil from rural production areas to broader markets (Ateka *et al.*,2021). Transactions at farm gate markets are often associated with relatively lower producer prices and flexible quality requirements and prompt payment systems, which can help address the immediate liquidity needs of rural households (Negi *et al.*, 2018).Itinerant marketing, on the other hand, is a livelihood activity that takes place outside the shop environment or formal norms of economic transactions established by the state and formal business practice (Yendaw *et al.*, 2019). Itinerant marketers include individuals buying and selling their products on the streets of major cities; hawkers and peddlers with trays or barrows of wares selling along the streets or selling door to door. In this study, itinerant palm oil marketers are mobile palm oil dealers who buy and sell palm oil using different instruments to aid mobility, often with motorcycles, vehicles, bicycles, hand carts, trolley-pushers, barrows) Or who moved from one place to another on foot. Itinerant markets, through their nature of operations, buy and sell palm oil in remote or underserved areas, expanding the market reach and increasing their income (Udokure *et al.*, 2024).The net income of farm gate and itinerant palm oil marketers is the difference between total revenue and total marketing costs. Purchase cost, transportation, loading and offloading, storage, and market charges are included in the variable cost components of the marketers, while depreciation on equipment, rent, and interest on capital constitute the fixed cost. Net income is an important indicator of the performance of the marketers (Heni *et al.*, 2023). It helps in assessing the level of efficiency and economic viability, as a positive and higher net income shows that palm oil marketing is a profitable venture.Palm oil marketing is an important livelihood activity in Nigeria, mainly carried out by farm gate marketers, who purchase directly from producers, and itinerant marketers, who travel from one location to another to procure and sell the commodity (Udoh and Essien, 2015). These two categories of marketers operate under different marketing conditions, incur

different marketing costs, and face varying levels of risk, all of which may influence their income.Previous studies have surprisingly ignored comparing the net income of the farm gate and the itinerant palm oil market in Nigeria. For example, Oyibe *et al.* (2019) studied comparative analysis of income of palm oil processors using modern and traditional methods in Ankpa local government, Kogi state, Nigeria; Nzeocha *et al.* (2024) assessed the profitability of palm oil marketing in Southeast Nigeria: The intervening role of information and communication technology (ICT); Udoh and Essien (2015) studied palm oil processing and marketing and sustainable livelihood in rural communities of Akwa Ibom State, South-South- Nigeria; and Akpaeti *et al.* (2025) assessed the factors affecting income levels of oil palm farmers after credit utilization in Akwa Ibom State, Nigeria. This study therefore represents the first attempt and for that matter contributing to the existing literature by comparing the income of farm gate and itinerant palm oil marketers in Akwa Ibom State, Nigeria. The specific objectives were to examine the socio-economic characteristics of farm gate palm oil marketers and itinerant palm oil marketers; derive and compare the net income of farm gate and itinerant palm oil marketers; and estimate the determinants of the net income of farm gate and itinerant palm oil marketers.

Methodology

This study was conducted in Akwa Ibom State, Nigeria. Akwa Ibom State is located in the South-South region of Nigeria. It has an estimated population of 5,482,177 (National Population Commission, 2016) and a land area of 6,900 sq Km. It lies between latitudes $4^0$32'N and $5^0$33'N of the Equator and longitudes $7^0$25'E and $8^0$25'E of the Greenwich Meridian. It is situated within the tropical region with significant rainfall most months, with a short dry season. The average annual temperature is 25.7 °C or 78.3 °F. The rainfall here is around 3033 mm or 119.4 inches per year (Climate Data, 2021). It is bordered on the east by Cross River State, west by Rivers State and Abia State, and on the south by the Atlantic Ocean. It is currently the highest oil-producing State in Nigeria. The vegetation is characterized by three easily distinguishable types, namely, the saline water swamp forest, the freshwater swamp, and the rainforest (Wikipedia, 2020). Agriculture is the dominant economic activity, and the various agricultural products available in the State include palm oil, cassava, yams, cocoyam, plantain, cucumbers, tomatoes, peppers, maize, rice, rubber, sea foods such as varieties of fish, shrimps, crayfish, oysters, etc., poultry eggs and meats, pork, and snails, among others. The respondents were selected through the use of a multistage sampling procedure. Due to the high intensity of palm oil marketing activities, twelve (12) Local Government Areas, were purposively selected from the thirty-one (31) Local Government Areas in Akwa Ibom State. The Local Government Areas include; Etinan, Nsit Ibom, Nsit Ubium, Nsit Atai, Etim Ekpo, Ika, Ukanafun, Oruk Anam Ikot Ekpene, Essien Udim, Obot Akara, and Ikono. In the third stage, two villages were randomly selected from each Local Government Area, making a total of 24 villages for the study. A sampling frame comprising all farm gate palm oil marketers in the selected villages was developed with the assistance 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 MkpoghoEto 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 sampling frame of itinerant palm oil marketers in the selected markets was compiled with the assistance of the leaders of the palm oil marketers' unions. 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.Primary data were used for the study and were collected using a structured questionnaire that was administered to the respondents.

Method of Data Analysis

Data were analyzed using descriptive statistics, the net income formula, and multiple regression models.

The models are specified thus:

Net income

NI = TR – TC ….1

Where: NI = Net income from palm oil marketing (₦),

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 (₦),

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). (₦).

Z-Test

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

Where:

$\overline{X}_1$ = mean net income of farm gate palm oil marketers. $\overline{X}_2$ = mean net income of itinerant palm oil marketers. S^2X_1 = variance of X1;

S^2X_2 = variance of X_2;
n_1 = number of farm gate palm oil marketers n_2 = number of itinerant palm oil marketers

Multiple Regression Model

For farm gate palm oil marketers, four functional forms were fitted as follows:

Linear

$Y = \beta_0 + \beta_1 Z_1 + \beta_2 Z_2 + \beta_3 Z_3 + \beta_4 Z_4 + \beta_5 Z_5 + \beta_6 Z_6 + \beta_7 Z_7 + \beta_8 Z_8 + \beta_9 Z_9 + \beta_{10} Z_{10} + \beta_{11} Z_{11} + ei \ldots 3$

Exponential

$\text{Log}Y = \beta_0 + \beta_1 Z_1 + \beta_2 Z_2 + \beta_3 Z_3 + \beta_4 Z_4 + \beta_5 Z_5 + \beta_6 Z_6 + \beta_7 Z_7 + \beta_8 Z_8 + \beta_9 Z_9 + \beta_{10} Z_{10} + \beta_{11} Z_{11} + ei \ldots 4$

Semilog

$Y = \text{Log}\beta_0 + \beta_1 \text{Log} Z_1 + \beta_2 \text{Log} Z_2 + \beta_3 \text{Log} Z_3 + \beta_4 \text{Log} Z_4 + \beta_5 \text{Log} Z_5 + \beta_6 \text{Log} Z_6 + \beta_7 \text{Log} Z_7 + \beta_8 \text{Log} Z_8 + \beta_9 \text{Log} Z_9 + \beta_{10} \text{Log} Z_{10} + \beta_{11} \text{Log} Z_{11} + ei \ldots 5$

Double log

$\text{Log}Y = \text{Log}\beta_0 + \beta_1 \text{Log} Z_1 + \beta_2 \text{Log} Z_2 + \beta_3 \text{Log} Z_3 + \beta_4 \text{Log} Z_4 + \beta_5 \text{Log} Z_5 + \beta_6 \text{Log} Z_6 + \beta_7 \text{Log} Z_7 + \beta_8 \text{Log} Z_8 + \beta_9 \text{Log} Z_9 + \beta_{10} \text{Log} Z_{10} + \beta_{11} \text{Log} Z_{11} + ei \ldots 6$

The model is stated implicitly as follows:
$Y = f(Z_1, Z_2, Z_3, Z_4, Z_5, Z_6, Z_7, Z_8, Z_9, Z_{10}, Z_{11}) \ldots\ldots 7$
Where:
β_o = Intercept
β_i = Regression coefficients that explain the value of net income Z's = Independent variables
e_i = Error term.
Y= Net income (₦)
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 (₦)
Z_5= Selling price of palm oil (₦)
Z_6= Cooperative membership (Yes=1, otherwise = 0) Z_7= Age (Number of years)
Z_8= Processing cost (₦) Z_9= Labour cost (₦) Z_{10}= Storage cost (₦)
Z_{11}= Depreciation $\left(\frac{\text{Initial cost} - \text{salvage value}}{\text{Useful life}}\right)$
For itinerant palm oil marketers, four functional forms were also fitted as follows:
Linear
$Y = \beta_0 + \beta_1 M_1 + \beta_2 M_2 + \beta_3 M_3 + \beta_4 M_4 + \beta_5 M_5 + \beta_6 M_6 + \beta_7 M_7 + \beta_8 M_8 + \beta_9 M_9 + \beta_{10} M_{10} + \beta_{11} M_{11} + \beta_{12} M_{12} + \beta_{13} M_{13} + \beta_{14} M_{14} + ei \ldots 8$

Exponential
$\text{Log}Y = \beta_0 + \beta_1 M_1 + \beta_2 M_2 + \beta_3 M_3 + \beta_4 M_4 + \beta_5 M_5 + \beta_6 M_6 + \beta_7 M_7 + \beta_8 M_8 + \beta_9 M_9 + \beta_{10} M_{10} + \beta_{11} M_{11} + \beta_{12} M_{12} + \beta_{13} M_{13} + \beta_{14} M_{14} + ei \ldots 9$

Semilog

$Y = \text{Log}\beta_0 + \beta_1 \text{Log} M_1 + \beta_2 \text{Log} M_2 + \beta_3 \text{Log} M_3 + \beta_4 \text{Log} M_4 + \beta_5 \text{Log} M_5 + \beta_6 \text{Log} M_6 + \beta_7 \text{Log} M_7 + \beta_8 \text{Log} M_8 + \beta_9 \text{Log} M_9 + \beta_{10} \text{Log} M_{10} + \beta_{11} \text{Log} M_{11} + \beta_{12} \text{Log} M_{12} + \beta_{13} \text{Log} M_{13} + \beta_{14} \text{Log} M_{14} + ei \ldots 10$

Double log

$\text{Log}Y = \text{Log}\beta_0 + \beta_1\text{Log}\ M_1 + \beta_2\text{Log}\ M_2 + \beta_3\text{Log}\ M_3 + \beta_4\text{Log}\ M_4 + \beta_5\text{Log}\ M_5 + \beta_6\text{Log}\ Z_6 + \beta_7\text{Log}\ M_7 + \beta_8\text{Log}\ M_8 + \beta_9\text{Log}\ M_9 + \beta_{10}\text{Log}\ M_{10} + \beta_{11}\text{Log}\ M_{11} + \beta_{12}\text{Log}\ M_{12} + \beta_{13}\text{Log}\ M_{13} + \beta_{14}\text{Log}\ M_{14} + ei \ldots 11$

Implicitly, the model is stated as follows:

$Y = f(M_1, M_2, M_3, M_4, M_5, M_6, M_7, M_8, M_9, M_{10}, M_{11}, M_{12}, M_{13}, M_{14}) \ldots\ldots\ldots\ldots\ldots\ldots 12$

Where:

β_o = Intercept

β_i = Regression coefficients that explain the net income Z's = Independent variables

e_i = Error term.

Y= Net income (₦)

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 (₦)

M_5= Level of market information (%)

M_6= Selling price per 25 litres of palm oil (₦)

M_7= Cooperative membership (Yes=1, otherwise = 0) M_8= Age (Number of years)

M_9= Transport cost (₦) M_{10}= Amount of tax (₦) M_{11}= Cost of labour (₦) M_{12}= Purchase cost (₦) M_{13}= Storage cost (₦)

M_{14}= Depreciation $\left(\frac{\text{Initial cost} - \text{salvage value}}{\text{Useful life}}\right)$

Results and Discussion

Socio-economic characteristics of farm gate palm oil marketers and itinerant palm oil marketers

Results in Table 1 showed that farm gate palm oil marketers had a mean age of 50 years, while itinerant palm oil marketers had a mean age of 44.05 years. The pooled results showed that the mean age of the marketers was 48years. This finding is in tandem with Udoh and Essien (2015), who reported that palm oil marketers in Akwa Ibom state are approximately 48 years old. The majority of farm gate palm oil marketers (54.17%) and itinerant palm oil marketers (80.83%) were married. The pooled result also showed that 67.50% of palm oil marketers in the study area were married. This finding is in tandem with Anyanwu *et al.* (2020), who reported that most palm oil marketers in Umuahia, Abia state, Nigeria, are married. The majority of farm gate palm oil marketers (68.33%) and most itinerant palm oil marketers (45.83%) had a household size between 4 and 6 persons, respectively. The mean household size of farm gate and itinerant palm oil marketers was 5 and 4 persons, respectively. This implies that the respondents maintained a relatively modest household size, which could be a substantial labor force for their palm oil marketing activities. This result is consistent with Oluwatusin (2017), who reported that palm oil marketers in Nigeria's Ekiti and Ondo states employed family members for their palm oil marketing enterprises. The pooled result in Table 1 showed that 35.00% of palm oil marketers had no formal education, implying that most of the respondents lack the basic business skills and knowledge necessary for effective marketing strategies, pricing decisions, negotiation tactics, and financial management. Aina *et al.* (2021) reported that the lack of education may make these marketers more vulnerable to exploitation by middlemen or larger corporations who may take advantage of their limited understanding of market dynamics, pricing mechanisms, and contractual agreements. The mean years of experience of the farm gate and itinerant palm oil marketers were 17 and 14 years, respectively. The pooled mean marketing experience for palm oil marketers was 15 years. This shows that the respondents are likely to be more efficient in their marketing activities, including sourcing, packaging, and distributing palm oil. Nwankwo and Nwosu (2018) reported that experienced palm oil marketers can contribute to market stability by providing a consistent and reliable supply.The average credit amount accessed by farm gate palm oil marketers and itinerant palm oil marketers in Table 1 were ₦154, 524.1, and ₦200, 072.5 respectively. The pooled result also majority of farm gate palm oil marketers (55.83%) and itinerant palm oil marketers (62.50%) belonged to a market union. The pooled result shows that 59.17% of palm oil marketers belong to a market union. This suggests that the majority of marketers benefit from being a member of a market union. Nwafor (2020) reported that membership in a market union often grants marketers access to better market infrastructure, information, and resources.

Derivation of the net income of farm gate and itinerant palm oil marketers

Table 2 showed that 89.29%, 92.68%, and 92.24% of the total cost of marketing for farm gate marketers, itinerant marketers, and pooled data was the purchase cost of palm oil. This is because palm oil is the main commodity being traded by the marketers; they usually buy in bulk to benefit from the price difference between locations and seasons. This finding is in tandem with Nwankwo and Nwosu (2018), who reported that purchase cost was the highest cost incurred by palm oil marketers in Imo State, Nigeria. The total revenue of the farm gate marketers, itinerant marketers, and pooled data were ₦98,324.55, ₦706,959.60, and ₦402,756.16, respectively. These results imply that farm gate marketers operated on a small scale, while itinerant marketers operated on a commercial scale in the study area. Itinerant marketers, by their nature, move from place

to place, and typically amass a large volume of palm oil, allowing them to generate significantly higher revenue (Anyanwu *et al.*, 2020). The net income of the farm gate marketers, itinerant marketers, and pooled data were ₦30,471.96, ₦263,003.59, and ₦146,851.85, respectively. This implies that palm oil marketing in the study area is a profitable enterprise for both farm gate marketers and itinerant marketers, as neither of them is operating at a loss. This result is consistent with that of Aina *et al.* (2021), who found that the marketing of palm oil is a lucrative and profitable enterprise in Ondo State, Nigeria. products.

Comparison of the net income of farm gate and itinerant palm oil marketers

Results in Table 3 show a statistically significant difference in the net income of farm gate marketers and itinerant palm oil marketers in the area. The mean net income of itinerant marketers (₦263,003.59) was higher than that of the farm gate palm oil marketers (₦30,471.96), probably due to structural and operational differences within the marketing system. The high net income of itinerant marketers indicates that the business is highly profitable and commercially viable in the study area. Also, itinerant marketers may have seized the advantage of spatial price differences (arbitrage opportunities) in the market, since they deal with a large volume of palm oil and move from place to place to buy and sell their products. Aina *et al.* (2021) reported that the difference in the net income of palm oil marketers is due to the volume of trade and the fact that each type of trader may incur different operating costs.

Determinants of the net income of farm gate and itinerant palm oil marketers

The analysis was done using an ordinary least squares regression model. Four functional forms of the regression model were tried, and the exponential functional form was chosen as the lead equation. The choice of the lead equation was based on the number of significant variables, the magnitude of the coefficient of multiple determination (R^2), the conformity of variables *priori* expectation, as well as the significance level of the F-ratio. The coefficient of multiple determination (R^2) was 0.5142 for the farm gate marketers, while that of itinerant traders was 0.7611. The F-statistic was statistically significant at 1%, which indicates that the models are a good fit.The coefficient of age was negative and statistically significant at 1%, implying that an increase in age decreases the net income of the marketers. This is because, as itinerant marketers get older, they experience declining physical abilities, limiting their capacity to engage in buying and selling of palm oil at different locations effectively. This finding is in tandem with Nse-Nelson *et al.* (2021), who reported a negative relationship between age and net income of wholesale palm oil marketers in Abia State, Nigeria. The coefficient of education was positive and statistically significant 1% for farm gate and itinerant palm oil marketers, respectively, implying that higher educational attainment increased net income in both groups. This is because education improves the skills of marketers and allows them to make informed decisions and investments to enhance their net income. This result contradicts Ayawari *et al.* (2018), who reported a negative relationship between education and income among women marketers in South-South NigeriaThe coefficient of household size was negative and statistically significant at 1%, implying that an increase in household size decreases the net income of the marketers. This is because palm oil marketers with a large household size are likely to have a higher consumption of palm oil for cooking and other purposes. If a significant quantity of palm oil is consumed in this case, it may reduce their marketable surplus and net income. This finding contradicts Anyanwu *et al.* (2020), who reported a positive relationship between household size and net income of palm oil marketers in Umuahia Agricultural Zone, Abia State. The coefficient of marketing experience was positive and statistically significant 10% for farm gate palm oil marketers, respectively, implying that a higher level of experience increases net income. This finding aligns with Osuji *et al.* (2020), who reported that marketing experience enhances understanding of market dynamics, leading to better decision-making and negotiation skills, which ultimately boost profitability. However, the coefficient of marketing was negative and statistically significant at 1%, implying that an increase in marketing experience decreases the net income of the marketers. This negative relationship suggests that despite having more experience, they are struggling with the volatility of palm oil prices and other challenges that negatively impact their net income. This finding contradicts Njoku (2017), who found that greater marketing experience generally leads to higher net returns.The coefficient of credit amount was negative and statistically significant at 10% and 5% for farm gate and itinerant marketers, respectively, implying that an increase in the amount of credit decreases the net income of the marketers. This could be attributed to the burden of high interest rates and the risks inherent in palm oil marketing, which can make the cost of servicing credit outweigh its benefits. This finding contrasts with Oluwatusin (2017), who observed a positive effect of credit on net income in Ondo and Ekiti States. The coefficient of cooperative membership showed a significant and negative relationship with the net income of farm gate palm oil marketers at 5%, indicating that cooperative membership contributes negatively to their net income. This aligns with Adakaren *et al.* (2011), who reported that cooperative membership negatively affected net income and margins due to the limited financial resources of most cooperatives in the rural areas of Nigeria. Conversely, for itinerant palm oil marketers, the coefficient of cooperative membership was significant and had a positive relationship with net income at 5%, suggesting that increased cooperative membership correlates with higher net income. This finding supports Nse-Nelson *et al.* (2021), who noted that cooperatives offervaluable resources such as bulk purchasing power, access to credit and information, which enhance the net income of members.The coefficient of market information was negative and statistically significant at 10% for farm gate, implying that an increase in market information decreases the net income of the marketers. The negative relationship could be plausible if the costs associated with acquiring market information, such as subscription fees and data analysis expenses, outweigh the benefits. However, the coefficient of market information was positive and statistically significant at 1% for itinerant marketers, implying that increased access to market information correlates with higher net income. This relationship is plausible because market information enables marketers to understand market trends, price fluctuations, and demand changes, enhancing the marketers' profit. This finding supports Okidim *et al.* (2019), who noted that market information enables marketers to enhance their income. The coefficient of storage cost was negative and statistically significant at 1% for farm gate, implying that an increase in storage cost decreases the net income of the marketers. This finding is in line with Ayawari *et al.* (2018), who reported a negative relationship between storage cost and net income of women palm oil marketers in South-South States, Nigeria. The coefficient of purchase cost was negative and statistically significant at 1% for farm gate, implying that an increase in purchase cost decreases the

net income of the marketers. Higher purchase costs mean that the marketers have to spend more money on palm oil acquisition, which lowers their profit margins. This finding is in line with Akerele *et al.* (2020) who reported a negative relationship between purchase cost and net income of palm oil marketers in Ogun State, Nigeria. The coefficient of total tax paid was significant and had a negative relationship with the net income of itinerant palm oil marketers at 1%. This implies that the net income of itinerant marketers decreases with an increase in total tax paid by the marketers. This finding is in line with *a prori* expectation. This finding is in tandem with Ogbonna and Appah (2016), who reported a negative relationship between taxation and the profitability of entrepreneurs in Nigeria. The coefficient of cost of transportation was significant and had a negative relationship with the net income of itinerant palm oil marketers at 1%. This implies that the net income of itinerant marketers decreases with an increase in transport costs. These costs include fuel, vehicle maintenance, tolls, and other related expenses. As transportation costs rise, the margin between revenue from selling palm oil and the expenses associated with transporting it decreases. Nse-Nelson *et al.* (2021) also reported a negative relationship between transportation costs and the net income of palm oil marketers in Abia State.

Conclusion and Recommendations

Most itinerant palm oil marketers were younger, more educated, mostly members of the market union, and accessed a higher amount of credit. Purchase cost constituted the largest proportion of the total marketing cost of palm oil marketing in the study area. Farm gate and itinerant marketing were profitable in the study area. However, itinerant marketers earned significantly higher revenue and net income than farm gate marketers. Age, household size, education, market information, credit amount, purchase cost, transportation cost, amount of taxes, and membership in the market union had a significant influence on the net income of the marketers. The study recommended that the government should partner with financial institutions in designing credit programmes devoid of stringent collateral requirements and high interest rates to enable them to access and utilize the credit to enhance their investment and income. palm oil marketers should be encouraged by the government and non-governmental organizations through sensitization to join well-structured cooperatives that provide real economic benefits, such as bulk purchasing, access to credit, and shared logistics, in order to to check high purchase costs and enhance their net income. Farm gate marketers should be supported to scale up their operations through improved access to capital, storage facilities, and market linkages.

References

Agomoh, A. K and Alocha, O. C. (2017). Involvement in oil palm production in Abia State, Nigeria. *Journal of Agriculture*, 5(4), 1-9.

Aina, O. S, Odegbade, O. O, Yakubu, S. A, Dada, O. A and Sangodare, A. O. (2021). Analysis of palm oil value chain in Ondo state, Nigeria. *International Journal of Agricultural Economics, Extension and Rural Development*, 7(1), 173-178.

Akerele, E. O, Oyebanjo, O, Rufai A. O, Ilori A. R., Fadipe M. O. and Aderinto, A. (2020). Profitability analysis of palm oil marketing in Ogun-State, Nigeria. *International Journal of Education Humanities and Social Science*, 3(3), 141-154.

Akpaeti, A. J, Antia-Obong, E. A, Okorie, N. U and Umoh, I. M. (2025). Factors affecting income levels of oil palm farmers after credit utilization in Akwa Ibom State, Nigeria. *Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development*, 25(1), 17-22.

Alabi, D. L, Famakinwa, M and Akinnawonu, O. E. (2020). Involvement of Rural Households in Oil Palm (Elaeis guineensis) Fruits Postharvest Activities in Ondo State, Nigeria. *Journal of Agricultural Extension*, 24(1), 42-53.

Alabi, D. L, Famakinwa, M and Akinnawonu, O. E. (2020). Involvement of Rural Households in Oil Palm (*Elaeis guineensis*) Fruits Postharvest Activities in Ondo State, Nigeria. *Journal of Agricultural Extension*, 24(1), 42-53.

Anyanwu, U. G, Osuji, E. E and Ben-Chendo, N. G. (2020). Profitability determinants of palm oil marketing in Umuahia Agricultural Zone of Abia State, Nigeria. *Finance & Economics Review*, 2(3), 18-30.

Ateka, J. M, Onono-Okelo, P. M & Etyang, M. (2021) Selling at the farmgate? Role of liquidity constraints and implications for agricultural productivity, *Agrekon*, 60(4), 388-407.

Ayawari, D. T, Nwankwo, N. T. O, Ugwumba, C. O. A and Ugbaja, M. O. (2018). Palm oil marketing as veritable enterprise for poverty reduction and women empowerment in South-South States of Nigeria. *International Journal of Multidisciplinary Research and Analysis*, 1(1), 23-39.

Climate-Data.org. (2021). *Climate: Akwa Ibom State, Nigeria.* Retrieved from https://en.climate-data.org.

Heni, M. S, Reisanty, M. D and Maisy, F. B. (2023). Comparative analysis between the income of itinerant fish traders and sedentary fish traders in Oesapa Market, Kupang City. *Journal of Economics*, 12(04), 2408-2412.

Mbeche, R., and Dorward, P. (2014). Privatization, empowerment and accountability: what are the policy implications for establishing effective farmer organisations? *Land Use Policy*, 36(1), 285–295.

National Population Commission (NPC). (2016). *Population distribution by sex, state, LGA, and senatorial district: 2006 Census Priority Tables (Vol. 3).* Abuja, Nigeria: National Population Commission.

Negi, D. S., Birthal, P. S., Roy, D and Khan. T. (2018). Farmers choice of market channels and producer prices in India: role of transportation and communication networks. *Food Policy*, 81(1), 106-121.

Njoku, M. E. (2017). Economics of Irvingia marketing in Njaba Local Government Area of Imo State, Nigeria. *The Nigerian Agricultural Journal*, 48(1), 38-46.

Nse-Nelson, F.A., Mejeha, R.O. and Oke, U.R. (2021). Performance and profitability of palm oil wholesale marketing in Abia State, Nigeria. *Nigerian Agricultural Journal*, 52(1), 38-44.

Nwafor, C. U. (2020). Market participation variables in commercializing South African smallholder farmers. *Journal of Rural Social Sciences*, 35(1), 1-9.

Nzeocha, C. C, Umebali, E.E, Isibor, C.A and Okeke, A. M. (2024). Profitability of palm oil marketing in Southeast Nigeria: The Intervening Role of Information and Communication Technology (ICT). *International Journal of Agriculture and Earth Science*, 10(4), 10-18.

Ogbonna, G. N and Appah, E. T. (2016). Effect of tax administration and revenue on economic growth in Nigeria. *Research Journal of Finance and Accounting*, 7(13), 49-58.

Okidim, I. A., Hermon, G. I. and Obe-Nwaka, M. O. (2019). Palm oil marketing and financing in Oyigbo local government area of Rivers state. *International Journal of Agricultural Economics and Rural Development*, 10(1), 36-43.

Oluwatosin, F. E. (2017). Performance analysis of technical palm oil marketing in Ondo and Ekiti States Nigeria. *Researcher*, 9(2), 22-32.

Osuji, E. E., Onyebinama, I. C., Agu, C. G., Eze, E. U and Ibekwe, C.C. (2020). The industrial revolution of Africa's agricultural sector. A Paradigm shift transformation. *International Journal of Agriculture & Research*. 03(05), 01-10.

Oyibo F, Ajibade, Y. E, Haruna, O. E and Omieza, M. Z. (2019). Comparative analysis of income of palm oil processors using modern and traditional methods in Ankpa local government, Kogi state, Nigeria. *International Journal of Applied Research*, 5(12), 233-238.

Shahbandeh, M. A. (2020). Nigeria's oil palm consumption, 2011/12-2020, Statista Reports.

Udoh, O. S., and Essien, B. S. (2015). Palm oil processing and marketing and sustainable livelihood in rural communities of Akwa Ibom State, South-South-Nigeria. *IOSR Journal of Business and Management (IOSR-JBM)*, 17(10), 43-50.

Udokure, U. J, Obasi, I. O, Njoku, M. E, and Onya, S. C. (2024). Analysis of taxation and welfare of itinerant palm oil marketers in Akwa Ibom State, Nigeria. *AKSU Journal of Agricultural Economics, Extension and Rural Development*, 7(2), 96-104.

Wikipedia contributors. (2020). *Akwa Ibom State*. In *Wikipedia, The Free Encyclopedia.* Retrieved from https://en.wikipedia.org/wiki/Akwa_Ibom_State.

Yendaw, E, Tanle, A and Kumi-Kyereme, A. (2019). Analysis of livelihood activity amongst itinerant west African migrant traders in the Accra metropolitan area. *Journal of Global Entrepreneurship Research*, 9(11), 1-21.

Table 1: Socio-economic characteristics of farm gate palm oil marketers and itinerant palm oil marketers

	Farm gate marketers		Itinerant marketers		Pooled	
Variable	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**
Age (years)						
20 – 29	-	-	7	5.83	7	2.92
30 – 39	16	13.33	33	27.50	49	20.42
40 – 49	40	33.33	41	34.17	81	33.75
50 – 59	40	33.33	31	25.83	71	29.58
60 – 69	15	12.50	8	6.67	23	9.58
70 – 79	5	4.17	-	-	5	2.08
80 – 89	4	3.33	-	-	4	1.67
Total	**120**	**100**	**120**	**100**	**240**	**100**
Mean	**50**		**44**		**47**	
Marital status						
Single	9	7.50	12	10.00	21	8.75
Married	65	54.17	97	80.83	162	67.50
Separated	40	33.33	6	5.00	46	19.17
Widowed	6	5.00	5	4.17	11	4.58
Total	**120**	**100**	**120**	**100**	**240**	**100**
Household size						
1 – 3	29	24.17	48	40.00	77	32.08
4 – 6	82	68.33	55	45.83	137	57.08
7 – 10	9	7.50	17	14.17	26	10.83
Total	**120**	**100**	**120**	**100**	**240**	**100**
Mean	**5**		**4**		**4**	
Educational level						
No formal education	50	41.67	34	28.33	84	35.00
FSLC	37	30.83	25	20.83	62	25.83
SSCE/GCE	26	21.67	48	40.00	74	30.83

OND/NCE	3	2.50	7	5.83	10	4.17
Degree	4	3.33	2	1.67	6	2.50
Masters	-	-	4	3.33	4	1.66
Total	**120**	**100**	**120**	**100**	**240**	**100**
Mean	**5**		**8**		**7**	
Marketing experience						
1 – 9	8	6.67	32	26.67	40	16.67
10 – 19	40	33.33	47	39.17	87	36.25
20 – 29	44	36.67	25	20.83	69	28.75
30 – 39	23	19.17	15	12.50	38	15.83
40 – 49	5	4.17	1	0.83	6	2.50
Total	**120**	**100**	**120**	**100**	**240**	**100**
Mean	**17**		**14**		**15**	
Credit amount obtained						
<200,000	23	19.17	44	36.67	67	27.92
200,000-499,999	97	80.83	61	50.83	158	65.83
500,000 and above	-	-	15	12.50	15	6.25
Total	**120**	**100**	**120**	**100**	**240**	**100**
Mean	**154,524.1**		**200,072.5**		**177,298.3**	
Market union Membership						
Member	67	55.83	75	62.50	142	59.17
Non-member	53	44.17	45	37.50	98	40.83
Total	**120**	**100**	**120**	**100**	**240**	**100**

Source: Field survey, 2025

Table 2: Net income of farm gate and itinerant palm oil marketers in a month

Items	**Farm gate Marketers**		**Itinerant Marketers**		**Pooled**	
	Amount (₦)	**%**	**Amount (₦)**	**%**	**Amount (₦)**	**%**
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 (₦)						
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 (₦)						
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) (₦)	**2,574.34**	**3.79**	**8,791.66**	**1.98**	**5,683.01**	**2.22**
Total cost (TC) (₦)	**67,852.59**	**100**	**443,956.01**	**100**	**255,904.31**	**100**
Net Income (₦)	**30,471.96**		**263,003.59**		**146,851.85**	

Source: Field Survey, 2025

Table 3: Comparison of the net income of farm gate and itinerant palm oil marketers

Variable	Mean	Std. Deviation	S.E. Mean	Z-value
Itinerant marketers	263,003.59	164,945.90	15,057.44	
Farm gate marketers	30,471.96	11,532.57	1,052.77	
Differences	232,531.63		14,990.28	**12.53*** **

Source: Field survey, 2025.

Table 4: Determinants of net income of farm gate and itinerant palm oil marketers

	Farm gate marketers (EX)		**Itinerant marketers (LN)**	
Variables	Coefficient	T-statistic	Coefficient	T-statistic
Constant	5.97	12.40***	-3.38	-1.47
Age	0.01	0.91	-24.33	-3.44***
Education	0.03	3.52***	33.81	6.56***
Household size	-0.36	-4.47***	-3.47	-0.73
Marketing experience	0.02	1.72*	-31.77	-2.61***
Credit amount	-2.00	-1.80*	-5.21	-2.03**
Cooperative membership	-0.84	-2.49**	4.34	2.17**
Market information	0.14	3.21***	10.48	4.66***
Labour cost	-0.64	-0.81	50.11	1.05
Total tax paid	-	-	-831.26	-8.98***
Transportation cost	1.93	0.14	-27.51	-3.37***
Storage cost	-0.01	-3.35***	-42.38	-0.99
Depreciation	-2.87	-0.28	26.85	0.53
Selling price of palm oil	3.49	0.22	-5.35	-0.07
Purchase cost	-0.01	2.05**	34.92	0.79
R^2	0.5142		0.7611	
F-Ratio	8.63***		23.90***	

Source: Field Survey Data, 2025, EX= Exponential functional form, LN=Linear

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