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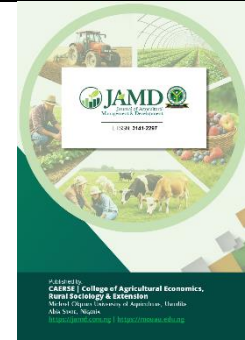
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Gender Differentials in Performance of Palm Oil Marketers in Abia State, Nigeria

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ABSTRACT

The study examined the gender differentials in performance of palm oil marketers in Abia State, Nigeria. Specifically, the study described the socio-economic characteristics of the male and female palm oil marketer; determined the marketing performance with respect to net returns, marketing margin and marketing efficiency, estimated the determinants of marketing performance; analyzed the impact of gender on the performance and identified the problems faced by the palm oil marketers in the study area. A multistage random sampling techniques were used to select 80 palm oil marketers (comprising of 40 males and 40 females). Primary data was collected with the aid of structured questionnaire and analyzed using net returns analysis, marketing margin, marketing efficiency index, OLS regression and Z-test. The result indicates the mean ages were 48 and 51 years for both male and female respectively, majority of the respondents were married with mean household of 6. The average net return realized was N 156,052.70 and N 165,242.37 with marketing margin of N4350 and N4550 for male and female marketers. The marketers received N23.3k (male) and N22.70K (female) for every N1 invested into the business. The coefficient of age and quantity sold were positive while storage cost and distance to market were negative factors that influence the marketing performance of male oil palm marketers in the study area. Also the coefficient of education, market levies and marketing experience were positive while storage cost and distance to market were negative factors that influence the marketing performance of female oil palm marketers in the study area. The Z-test showed that gender has a significant effect on the performance. The major constraint were damage due to animal and theft, poor access road and lack of credit facilities. It was therefore recommended that variables such as age, education, quantity, experience, storage cost and levies should be taken into consideration while formulating policies on palm oil marketing market so as to further enhance the profitability of the business and also need for government to invest in human capital, educate/create awareness on the benefits of product marketing.

Introduction

Palm oil is a rich source of pabulum vegetable oil mainly obtained from the African oil palm-*Elaeisguineensis*. The palm oil is extracted from the mesocarp (the reddish fruit) of oil palms. The high beta-carotene content of palm oil makes it naturally reddish (Tridge, 2020). Palm oil is the world's biggest source of fat production and improved edible oil after soya bean oil. According to Stockbrokers (2020), palm oil is notably the world's second rich vegetable oil with world yearly output of fresh fruit bunches approaching 100 million metric tons per year. Gender refers to the economic, social, political, and cultural attributes and opportunities associated with being males and females and about the socio-cultural roles assigned to men and women and the dynamics between them.

Gender refers to socially constructed roles, opportunities and value associated with women, girls, boys and men. It is an acquired identity that is learned, changes over time and varies widely within and across cultures (Ezeibe, *et al.*, 2015). Gender participation in palm oil marketing provides form, possession, place and time utility to commodities and services thereby adding economic value (Asogwa and Okwoche, 2018). Gender analysis examines the different roles, rights, and opportunities of men and women and relations between them. It also identifies disparities, examines why such disparities exist, determines whether there are potential impediments to achieving results, and looks at how they can be addressed (United States Agency for International Development (USAID, 2011). Palm oil agricultural marketing deals with the movement of palm oil from the farm gate to the consumption center and includes all the activities involved in the value chain. The marketing agents/middle men and women thus play a significant role in distributing products to consumers located within or outside a region. Market performance is the appraisal of the extent to which the interactions of buyers and sellers in a market stimulate results that are consistent with social purposes (Olukosi *et al.*, 2012).

Market performance is the strategic end result of market adjustments engaged in by the buyers and sellers. It is the appraisal of the extent to which the interactions of buyers and sellers in a market stimulate results that are consistent with social purposes. Efficient marketing plays an important requirement in the attempt to achieve wider accessibility and affordability of palm oil to consumers as both the male and female get satisfied in the sense that both get it at an affordable price that stimulates continued consumption (Oyewo *et al.*, 2018). Increasing marketing performance requires the marketers to understand the factors that influence market participation and the pricing system in the market. Poor efficiency in marketing has serious consequences for both marketers and consumer. Also the seasonal pattern of production of palm oil which creates surplus at harvest periods and shortage during the off season as well as its perishable nature affect its production and marketing. This leads to a gap in the supply and demand situation and high fluctuation in prices of palm oil. Demand of palm oil remains constant all through the year and to avoid spoilage, it requires efficient marketing.

This study therefore examined the marketing system of palm oil, including its gender differentials in performance of palm oil marketers in Abia State, Nigeria. The specific objectives are to describe the socio-economic characteristics of the male and female palm oil marketer; determine the marketing performance of male and female marketers with respect to net returns analysis, marketing margin and marketing efficiency, estimate the determinants of marketing performance of the male and female palm oil marketer; analyze the impact of gender on the performance of palm oil marketers, identify the problems faced by the palm oil marketers in Abia State, Nigeria

Methodology

The study was conducted in Abia State, Nigeria. It has a land mass of 700 square km with 17 local government areas and was created out of Imo State on August 27, 1991. The state lies between longitudes 7° 23' and 8° 02' East of Greenwich meridian and latitudes 5° 49' and 6° 12' North of the equator. Abia State is bounded on the east by the Cross River and Akwa Ibom States, on the north by Ebonyi and Enugu States, on the West by Imo State and on the South by Rivers State. Abia has three agricultural zones, namely; Aba, Umuahia and Ohafia.

A multistage sampling technique was used in selecting the respondents. In the first stage, two (2) agricultural zones was randomly selected out of the three agricultural zones. In the second stage, two (2) Local Government Areas (LGAs) was randomly selected from each of the zone while the third stage involves a random selection of two markets from each of the Local Government Area (based on intensity of palm oil

marketers). At the last stage, five (5) male and five (5) female palm oil marketers were randomly selected from each of the two markets. This gave a total of eighty (80) palm oil marketers comprising of forty (40) male and forty (40) female marketers.

Primary data were collected with the aid of structured questionnaire and analyzed using descriptive statistics, Net return analysis, Marketing margin, Marketing efficiency, OLS regression and Z – test.

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

Where: NR = Net Returns, TRS = Total Revenue from Sales and TMC = Total marketing costs

$$Marketing\ Margin = \frac{Selling\ price - Supply\ Price}{Selling\ Price} \times \frac{100}{1} \quad (2)$$

$$Marketing\ Efficiency\ (ME) = \frac{Value\ Added\ by\ Marketing\ (Net\ profit)}{Total\ Marketing\ costs} \times \frac{100}{1} \quad (3)$$

According to Scarborough and Kydd (1992) the value of marketing efficiency ranges from 0% to infinity. If marketing efficiency is 100% (unity) it means that the market is perfectly efficient because price increase is just high enough to cover the cost of marketing such commodity. If marketing efficiency is greater than 100%, then, there is excess profit while if marketing efficiency is less than 100%, there is inefficiency in the marketing process.

The implicit form of the OLS regression model is specified as:

$$\pi_i = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, X_{10}) \quad (4)$$

Where: π_i = Profit from i^{th} palm oil markers; X_1 = Educational level (year), X_2 = Age (Year), X_3 = Purchase cost (Naira), X_4 = Quantity sold (liters), X_5 = Transport cost (Naira), X_6 = Market levies (Naira), X_7 = loading and offloading cost (Naira), X_8 = Storage cost (Naira), X_9 = Marketing experience (Naira), and X_{10} = Distance to market (kilometers)

The functional forms were tried and the best fit was selected on the basis of the coefficient of multiple determination (R^2), F ratio and the responsiveness of the magnitude of the coefficient.

$$Z = \frac{X_1 - X_2}{\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}} \quad (5)$$

Z = Paired Z statistics, X_1 = Mean performance for male palm oil marketer, X_2 = Mean performance for female palm oil marketer, S_1^2 = Variance level of performance for male marketer, S_2^2 = Variance level of performance for female marketer, n_1 = Number of male palm oil marketers and n_2 = Number of female palm oil marketers

Results and Discussion

The result in Table 1 shows the socio-economic characteristics of the respondents. The mean ages of 41 and 37 years for both male and female respectively, shows that the marketers were still in their active age. Age influences the ability to seek and obtain reasonable income, which could increase palm oil marketers' income and ultimately their marketing capacity. Aina et al., (2021) described this age range as "working age" and noted that people within a certain age range would have acquired some good level of experience. Majority of the respondents were married for both male (97.5%) and female (95%). The implication of marital status on marketing strategy can be explained in terms of the supply of family labour. The supply of family labour would be more where the household heads are married. This is in consonance with the findings of Ridwan et al., (2021). Furthermore, marital status can influence the role and responsibilities as well as occupational lives of members and their family. The mean household size of 6 for both male and female palm oil marketers shows a moderate size that will provide family labour, reduced cost of marketing and increased revenue. This corroborates with the findings of Anyanwu et al., (2020) who made an argument that the large household have the capacity to relax the labour constraints required during introduction of new marketing technology. Majority of the respondents have formal education for both male and female palm oil marketers. The result implies that palm oil marketers are literate having acquired one level of education or the other.

This means that they can be easily convinced to accept better practices of their business operations. It is in conformity with Bulama *et al.* (2020) who posited that a greater deal of change has occurred in recent times due to the introduction of education. High literacy level is an asset of palm oil marketers which would be exposed to many information sources, embrace innovations and analyze farm situations objectively. Undoubtedly, the high level of literacy predisposes some level of managerial ability in the farm business (Bulama *et al.*, 2020). The result showed marketing experience of 11 and 8 years for male and female palm oil marketers respectively. Nwaru (2004), noted that the number of years spent in business may give an indication of the practical knowledge he has acquired on how he can overcome certain inherent farm marketing problems. Palm oil marketers would count more on their business experiences for improved output rather than educational attainment. A dominant number of palm oil marketers indicated access to credit for male palm oil marketers (52.5%) and female palm oil marketers (60%). Access to credit is in turn believed to have significant negative consequences for aggregate and performance level outcomes. Improved access to credit will help poor marketers engage in more commercialization activities that will raise their living standards. Access to credit has the capacity to transform the poor through acquiring marketing capital, which improves their capacity to generate income, savings and investment for better welfare (Chukwuma et al., 2021). The mean income was 156,052.70 and 165,242.37 for male and female palm oil marketers respectively. The implication is that palm oil marketers are better positioned to expand their business with new technique and innovation through as their income continue to increase. Most markets use income to pay for loans received. Moreover, some palm oil marketers have used the return from sales as well as other sources of money to invest in modest labour-saving equipment suitable for palm oil marketing.

The result in Table 2 shows the marketing performance of male and female marketers with respect to net returns, marketing margins and marketing efficiency. An average net return of ₦ 156,052.70 and ₦ 165,242.37 for male and female palm oil marketers was realized, which is a meaningful amount to make per month. This shows that the business was profitable as indicated by the positive net return recorded with male marketers being more profitable than female marketers. The marketing margin was N4350 and N4550 for male and female palm oil marketers respectively. The marketing margin for the female palm oil marketers was seen to be the highest when compared with male palm oil marketers. The implication is that the female palm oil marketers' tendency in exercising high economic power on price at the expense of male palm oil marketers is somehow checked and marketing cost was considerably reduced due to low transportation and other related costs for female palm oil marketers. The marketing efficiency for both male and female palm oil marketers revealed that for every ₦1 invested in the business, the marketers received ₦23.3k and ₦22.70K for the male and female palm oil marketers respectively, thus showing that male palm oil marketers was more efficient than female palm oil marketers. This result conforms with the findings of Oyewo *et al.*, (2018) as they noted that efficient marketing plays an important requirement in the attempt to achieve wider accessibility and affordability of palm oil to consumers as both the male and female get satisfied in the sense that both get it at an affordable price that stimulates continued consumption.

The result in Table 3 shows determinants of marketing performance of the male and female palm oil marketers. The double functional form and exponential functional forms were chosen as lead equations for male and female palm oil marketers respectively. For the male palm oil marketers, the coefficient of multiple determination was 0.889 which implies that 88.9% of the variation in the marketer's returns was explained by the explanatory variables included in the model. Similarly, the F- statistic indicates that the analysis was statistically significant at 1% level of significance. The coefficient of age and quantity sold were positive and significant variables that influence their marketing performance. Age was significant at 5% level while quantity sold was significant at 1% level. This implies that increase in age or quantity sold will increase the performance/ profit level of the male marketers. The coefficient of storage cost and distance to market were negative and significant at 1% level. This implies that increase in storage cost and distance to market will decrease the performance/ profit level of the male palm oil marketers. For the female palm oil marketers, the coefficient of multiple determination was 0.521 which implies that 52.1% of the variation in the profit was explained by the explanatory variables included in the variables. The F- statistic indicates that the analysis was statistically significant at 1% level of significance. The coefficient of educational level was positive and significant at 10%, which implies that as the educational level of the female marketers increase, their performance/ profit level also increases. Better education has the effect of enabling marketer's access to conceptualize information on improved marketing methods and other related issues capable of enhancing marketing profit. Market levies was positive and significant at 1%, which implies that as the market levies increase, the performance/ profit of the marketers increase. This is against *a priori* expectation and the

findings of Ibitoye (2014) who noted a negative relationship between levies and profit. Marketing experience was positive and significant at 1%, which means that as the female marketers spend more years in marketing of palm oil, their performance/ profit level increases. Increase in experience raises human knowledge and skill to adapt to new marketing techniques which increase their profit in marketing. This corroborate with the findings of Saeyang and Nissapa (2021). The storage cost was significant at 5% and negatively related to the performance of the marketers. This denotes that the storage cost significantly affected the level of performance of the marketers. An increase in the cost of storage will decrease level of marketing of palm oil by female marketers. Also, distance was statistically significant at 5% and negatively related to profit, meaning that the distance negatively affects the level of profit of the female marketers. The negative sign of the coefficient shows that as the distance increases, the profit level of the female marketers decrease and vice versa. The implication is that the greater the distance apart from market, the less likely the marketer's orientation towards marketing.

The result in Table 4 shows the impact of gender on the performance of palm oil marketers. This shows the mean, standard deviation and standard error of profit for female palm oil marketers in the area were 165,242.37, 96,587.55 and 85271.8 respectively. While for male, the mean, standard deviation and standard error of income from all source in the area were 156,052.70, 81970.386 and 81878.4 respectively. The Z-value was 4.16 ($p < 0.05$) and was significant at 5%. This implies that gender has significant effect on performance of palm oil marketers in the study area as the female are making more profit than male as shown by the positive difference in profit.

Table 5 shows the problems faced by the palm oil marketers in the study area. A 5-point scale, ranging from very serious (5) to not very serious (1) was used. Participants were asked to show their opinion by choosing of question from 1-5, scale is compound scale. The choice reflects the argument or disagreement with the particular concept. The constraints above 3.0 are the major constraint in the area while constraints whose values were less than 3.0 are less constraints. The result shows that Nine (9) variables were perceived as constraining factors affecting palm oil marketing as their mean value was greater than 3.0. The Table further reviewed the major constraint were damage due to animal and theft ($\bar{X} = 4.05$), this was followed by Poor access road ($\bar{X} = 3.85$) and Lack of credit facilities ($\bar{X} = 3.77$) for male palm oil marketers while the major constraint for female palm oil marketers were damage due to animal and theft ($\bar{X} = 3.80$), this was followed by Poor access road ($\bar{X} = 3.60$) and Lack of credit facilities ($\bar{X} = 3.52$). This implies that the first three problems were seen as the major problems.

One of the major problems facing marketers in the developing world is damage due to animal and theft, poor access road and Lack of credit facilities (Salau *et al.*, 2017). This is more so for palm oils that are mostly store without being processed properly. These resulted in low quality and poor priced oil when taken to the market. In addition, most consumer markets in Nigeria are not well developed particularly in the area of weights and measures. There are no standard units of measurement and lack of uniform means of measurement in most areas and where such exist, they have been tampered with. This leaves the consumer to their preferences and bargaining capabilities in securing a good deal. The palm oil gatherers are often times exploited by the so-called palm oil retailers and wholesalers. They end up getting peanuts for the sales of their oil, just because they cannot afford to transport their product to the cities.

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Appendix

Table 1: Distributions of Respondents according to socioeconomic characteristics

Variables	Male		Female	
	Frequency	Percentage	Frequency	Percentage
Age				
25-34	9	7.5	25	10.0
35-44	21	22.5	6	15.0
45-54	3	52.5	5	12.5
55-64	7	17.5	4	62.5
Mean	41		37	
Std deviation	8.13		6.96	
Marital status				
Married	39	97.5	38	95.0
Single	1	2.5	2	5.0
Education				52.5
Primary	4	10.0	21	47.5
Secondary	24	60.0	19	95.0
Tertiary	12	30.0	0	0.00
Household Size				
1-4	16	40.0	9	22.5
5-8	11	27.5	8	20.0
9-12	13	32.5	23	57.5
Mean	6.4		6.1	
Std deviation	3.44		3.53	
Access to credit				
No	19	47.5	16	40.0
Yes	21	52.5	24	60.0
Marketing Experience				
1-5	15	37.5	14	35.0
6-10	8	20.0	11	27.5
11-15	17	42.5	15	37.5
Mean	10.8		8.3	
Std deviation	4.25		4.07	
Cooperatives				
No	19	47.5	16	40.0
Yes	21	52.5	24	60.0
Income				
10000-100000	12	30	13	32.5
110000-200000	24	60	23	57.5
210000-300000	3	7.5	2	5
310000-400000	1	2.5	2	5
Mean	156,052.70		165,242.37	

Source: Field survey, 2023

Table 2: Cost, return, marketing margins and efficiency associated with male and female palm oil marketing per month

Variables	Male (Amount ₦)	Female (Amount ₦)
Selling price (per 25 liters)	25,950.00	25,650.00
Quality sold (month)	32.00	35.00
Total return/revenue	830,400.00	897,750.00
Variable cost		
Purchase price/Per 25 liters	21,600.00	21,100.00
Quality sold (month)	29.00	33.00
Total Purchase price	626,400.00	696,300.00
Transportation cost	13,850.00	13,600.43
Other market charges	4,477.63	2,283.33
Total variable cost	644,727.63	712,183.76
Gross profit	160,622.37	169,716.24
Fixed cost		
Depreciated value of marketing items	4,569.67	4,473.87
Rent	25,050.00	15,850.00
Total fixed cost	29,619.67	20,323.87
Total cost	674,347.30	732,507.63
Net return (profit)	156,052.70	165,242.37
Marketing margin (₦)	4,350.00	4,550.00
Marketing Efficiency (%)	23.30	22.70

Source: Field Survey. 2023.

Table 3: Multiple Regression result on determinants of marketing performance of the male and female palm oil marketer is presented

Variables	Male marketers		Female marketers	
	Coefficient	t - ratio	Coefficient	t - ratio
Intercept	-1.273	-0.97	3.936	28.85***
X ₁ = Educational level (year)	0.013	0.11	0.001	1.67*
X ₂ = Age (Year)	0.122	2.55***	-0.002	-0.96
X ₃ = Purchase cost (Naira)	0.480	0.84	0.002	1.16
X ₄ = Quantity sold (liters)	0.122	3.13***	-0.003	-0.51
X ₅ = Transport cost (Naira)	0.058	1.02	0.010	0.32
X ₆ = Market levies (Naira)	-0.079	-1.31	0.023	3.06***
X ₇ = Loading & offloading cost	0.076	0.82	0.003	1.04
X ₈ = Storage cost (Naira)	-0.792	-11.86***	-0.062	-2.05**
X ₉ = Experience (Naira)	0.015	-0.68	3.426E-6	5.55***
X ₁₀ = Distance to market	-0.859	-7.60***	-0.006	-2.18**
R ²			0.521	
R ²			0.423	
F-ratio			5.325***	

Source: Field survey (2023) + lead equation ***significant at 1%, **significant at 5%, *significant at 10%

Table 4: Z-test to compare the mean income share of the different livelihood

	Mean	N	Std. Deviation	Std. Error Mean	Z	df	Sig. (2-tailed)
Female	165,242.37	40	96,587.55	85271.8			
Male	156,052.70	40	81970.386	81878.4			
Difference	9,189.67		14,617.17	3,393.42	2.243**	39	0.029

Source: Field Survey, 2023. Significant at 5%

Table 5: Constraints affecting marketing of palm oil in the study area

Constraint	Male	Remark	Female	Remark
	Mean		Mean	
Market Remoteness	3.72	Accepted	3.47	Accepted
Poor access road	3.85	Accepted	3.60	Accepted
Inadequate capital	2.60	Rejected	2.35	Rejected
Lack of credit facilities	3.77	Accepted	3.52	Accepted
Low demand for products	3.55	Accepted	3.30	Accepted
Weak advisory services	3.60	Accepted	3.35	Accepted
Damage due to animal and theft	4.05	Accepted	3.80	Accepted
High cost of transportation	3.65	Accepted	3.40	Accepted
Price Instability	3.58	Accepted	3.33	Accepted
Storage	3.28	Accepted	3.03	Accepted

Source: Field survey (2023) Bench Mark = 3.0. VS = Very Serious (5), S = Serious (4), U = Undecided (3), NS = Not Serious (2) and NVS = Not Very Serious (1).