

## **Marketing Efficiency and Profitability of Smoked Fish in Kosofe Local Government Area Lagos State, Nigeria.**

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### **Abstract**

*The study was carried out in Kosofe Local Government Area (LGA) of Lagos state, Nigeria using a two-stage random sampling technique to select smoked fish 120 marketers across the markets based on predominance of smoked fish marketers. The study revealed that all the respondents were female (100%), many were married (63.3%) and young (75%) with a mean age of  $\pm 43.42$  years and more than six years of marketing experiences (54.2%). Most (55.8%) of them had no formal education. Budgetary analysis of smoked fish marketing in the study area revealed that total variable cost of fish marketed was ₦55,712.25 and total revenue was ₦104,455.83. The gross margin was ₦51,406.08K with 1.88 benefit cost ratio revealing that smoked fish marketing in the study area was profitable. The marketing efficiency (1.97%) of smoked fish marketing revealed that the price of smoked was efficient. The variables age, marital status, years of marketing experience, educational level and membership of cooperative societies influenced the marketing of smoked fish. Constraints faced by respondents included price fluctuations (100%), lack of credit facilities (87.5%), lack of preservation facilities (83.3%), change in price of fish due to perishability with (80.0%), inadequate storage (74.2%), lack of regulated and cooperative market (67.5%) and distance to source (66.7%). The study concluded that smoked fish marketing was profitable and efficient in the study area and women were the major players. The study recommended that government should provide adequate storage, weighing scale and affordable credit facilities by financial institutions to smoked fish marketers.*

**Keywords:** Smoked Fish, Profitability, Marketing Efficiency, Marketers.

### **Introduction**

Fish as an important animal source of protein contributes significantly to the sustenance and welfare of the global population. According to FAO (2018), fish is a very inexpensive and readily accessible source of nutritional varieties. Fish offers vital nutrition, particularly high-quality macronutrients like proteins and lipids, as well as micronutrients like vitamins and minerals. Fisheries and aquaculture products are both dynamic and significant subsectors in Nigeria and contributes about 3 – 5% to the agriculture share of the Gross Domestic Products. According to Ewepu (2019), Nigeria's annual fish demand is 2.7million metric tonnes, with local production standing at 0.8 million metric tonnes and a 1.9 million metric tonne deficit supplied through imports and worth about \$1.2 billion. A

substantial part of the population depends on fish for both source of protein and also income. Fish was once known as the "doorman's protein" and is frequently the most well-liked diet in the entire world, Nyong, *et al.*,2023.

Fish marketing entails the performance of all activities which are involved in the distribution of fish products from the pond to the end of the value chain when it gets to the final consumers. According to Iliyasu, A.H., J.I. Onu, A. Midau and J.S. Fintan, (2011), Nigeria has a significant market for smoked fish due to its coastal location and a large population that relies on fish as a primary source of protein. Smoked fish is a popular food item and is widely consumed across various regions of the country. The market for

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smoked fish in Nigeria is predominantly driven by domestic consumption and mostly sold by women who do fish farming, processing and also marketing themselves. Fish is sold in different forms such as fresh, smoked, dried, salted and frozen, Nyong, *et al.*,2023. Smoked fish is a special ingredient in preparing stew and soups in most part of Nigeria. It’s unique taste and aroma adds a unique flavor to various delicacies in many households, thus, it is always in high demand all through the year. Many households prefer smoked fish to any other form of processed fish. Marketing of smoked fish is a major source of livelihood to many people, especially the womenfolk since it is always in very high demand. In view of this, this study sought to provide answers to the following research questions: is marketing of smoked fish profitable and efficient? what are the problems smoked fish marketers face?

**Materials and Methods:** study was conducted in Kosofe Local Government Area of Lagos State, located in the South Western part of Nigeria. It is bordered to the northeast by Ogun state, to the West by the Republic of Benin and bordered to the South by the Bight of Benin. Lagos state has twenty (20) Local Governments and Kosofe is a one them. It has a land area of approximately

$$GM = TR - TVC \dots\dots\dots(1)$$

$$\text{Profit } (\pi) = TR - TC \dots\dots\dots(2)$$

$$TC = TVC + TFC \dots\dots\dots(3)$$

where,

GM = Gross Margin (₦)

TR = Total Revenue (₦)

TFC = Total Fixed Cost (₦)

TVC = Total Variable Cost (₦)

TC = Total Cost (₦)

NFI = Net Income (₦)

$$\text{Rate of returns (RRI)} = \frac{NI}{TC} \times 100$$

$$\text{Profitability Index (PI)} = \frac{NI}{TR}$$

**Marketing Efficiency:** Marketing efficiency is defined as the maximization of the ratio of output to input in marketing Olukosi, J.O., Isitor, S. U., and Ode, O. (2007)). Marketing efficiency is the ratio of market output to market input and is the

81km<sup>2</sup> and a population of 682,772 people of diverse ethnicity and religious backgrounds (Nigeria Population Commission, 2006). Kosofe Local Government Area lies between the latitude 6.5824°N and Longitude 3.3851°E.

**Sampling Procedure:** A two-stage random sampling technique was used to select 120 respondents. The first stage was the selection of four major markets in the LGA namely Ketu, Alapere, Mile 12 and Ojota markets. In the second stage, thirty (30) smoked fish marketers were selected from each of the four markets, making a total of one hundred and twenty (120) smoked fish marketers used for the study. To obtain information from the respondents, a well-structured questionnaire/interview schedule was used.

**Method of Data Analysis:** The data collected was analyzed using both descriptive and inferential statistics.

**Descriptive Statistics:** Descriptive statistical tools such as mean, tables, frequencies, percentages were used to describe the socio-economic characteristics of the respondents and the constraints to marketing of smoked fish.

**Cost and Return Analysis:** The cost and return analysis entail the analysis of the gross margin of fish marketing in the study area. The gross margin formula is explicitly stated below:

degree of marketing performance. Increasing ratio represents improved efficiency and decrease denotes reduced efficiency (Acharya and Agarwal 2004).

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$$\text{Marketing Efficiency} = \frac{\text{Gross Revenue (GR)}}{\text{Total Marketing Cost (TMC)}} \times 100$$

**Ordinary Least Square Regression Model**

Multiple regression analysis was used to measure the different factors that influence the sale of smoked fish. The model is specified below:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3, \dots, + b_nX_n + e$$

where:

Y = Profit

a = Constant

bi (1 – n) = Coefficients

X<sub>1</sub> – X<sub>n</sub> = explanatory variables

e = Error term

The explanatory variables in the equation are defined below;

Y = Profit (₦)

X<sub>1</sub> = Gender (male = 1, female = 0)

X<sub>2</sub> = Age (years)

X<sub>3</sub> = Marital status (single, married, divorced, widow and widower)

X<sub>4</sub> = Educational level (years)

X<sub>5</sub> = Household size (number of people living and feeding together)

X<sub>6</sub> = Marketing experience (years)

X<sub>7</sub> = Source of capital

X<sub>8</sub> = Membership of a cooperative societies.

**Results and Discussion.: Socio-economic Features of the Respondents**

This chapter presents the result of various data analyses carried out in pursuant of the study objective and their interpretations. These are presented in the following order: the socioeconomic characteristics of the marketer’s households. The latter section present results of various regression analyses carried out from the data obtained in this study.

**Socio-economic Characteristics of Smoked Fish Marketers :**

The socio-economic characteristics of the smoked fish marketers in the study area are presented in Table 1. Age is an important socioeconomic characteristic because it affects productivity, out and adoption of innovation. It was observed from Table 1 that majority (33.3%) of the respondent were within the age range of 41-50 years with the mean age of ±43.42years. This is similar to the findings of Daniel A. O., Abdulhameed A. O., Emmanuel D., Edward A. A., Uzoamaka A., Stephen A. A., (2019) that trader’s age may influence his resources allocation, reasoning and management ability. The table also revealed that all the marketers (100%) were female and this finding is in consonance with those of Offor, E.I., Ibeagwa, O.B., Ikemefuna, C.S. (2016), Agbolagba, O. J., Ogboru, R. O., Ajari, E. E. (2018), Ajibade, Y.,

Onimisis, M.and Yusuf, A. (2022) and Agbolagba, O. J., Ogboru, R. O., Joshua, D. K. and Amadin, D. A. (2023) who discovered that women played a higher role than men in the marketing of smoked fish. However, it is in contrast with those of Danmaigoro, A., Gona, A and Danmaigoro, A. (2023) who revealed that majority (65%) of the smoked fish marketers in their study area were male. The result from the study also showed that 63.3% were married. As shown in the table, majority (55.8%) had no formal education. This finding is contrary to the findings of Viswanathan et al., (2023) and Agbolagba et al., (2023). The mean household size was 6 revealing that there were enough hands (family labor) to assist in smoked fish marketing operations. This result agrees with Omoare A. O, Isitor, S. U and Oladejo, J. A., (2016) who posited that the number of persons in a family pave way for use of family labor in fish processing and marketing but may also imply that a large percentage of income would go for consumption. The mean marketing experience was 8.36 years. Furthermore, most (81.7%) of the respondents did not belong to any association while 18.3% were members of an association. This finding is in agreement with the findings of Agbebi, F. O., and Adetuwo, K. I. P. (2018) and in disagreement with Adebo G. M., Toluwase S. O. (2014).

**Table 1: Socio-economic characteristics of smoked fish sellers in selected markets**

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Variables	Frequency	Percent	Mean
<b>Age</b>			
<30	13	10.8	
31-40	37	30.8	43.42
41-50	40	33.3	
>51	30	25.0	
<b>Sex</b>			
Female	120	100.0	
<b>Marital status</b>			
Married	76	63.3	
Divorced	33	27.5	
Widowed	11	9.2	
<b>Educational level</b>			
No formal education	67	55.8	
Primary education	17	14.2	
Secondary education	23	19.2	
Adult education	13	10.8	
<b>Religion of marketers</b>			
Christian	86	71.7	
Muslim	24	20.0	
Traditional	10	8.3	
<b>Household size</b>			
1-3	6	5.0	
4-6	79	65.8	5.86
7-8	27	22.5	
>9	8	6.7	
<b>Years of Experience</b>			
1-3	14	11.7	
4-6	41	34.2	
7-9	38	31.7	8.36
10-12	17	14.2	
13>	10	8.3	
<b>Member of any association</b>			
Yes	22	18.3	
No	98	81.7	

Source: Field Survey, 2023

**Cost>Returns Structure Analysis of Smoked Fish Marketing.:** The cost and return structure of smoked fish marketing is revealed in table 2. The total cost of marketing smoked fish incurred was

₦55,712.25. The average cost of fish purchased was ₦45,736.42 representing 82.1% of the total cost while total variable cost was ₦53,049.75 gulping about 95.2% of the total cost incurred in

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marketing smoked fish. Total fixed cost represented by its depreciation was low (4.8%). This, thus, revealed that smoked fish marketers incurred less fixed cost compared to variable cost. Average total revenue accrued to smoked fish marketers was ₦104,455.83 with a gross and net margin of ₦51,406.08 and ₦48,743.58, respectively. The result indicates that smoked fish business is a profitable venture and agrees with the findings of Danmaigoro et al. (2023),

Awolumate, S., Okwuokenye, G. F., Agbo, A. N. and Akinbami, D. M. (2022), Fapohunda, O. O. (2012), Abah, D., Zaknayiba, D. B and Simon E. (2013) and Agbebi and Adetuwo (2018). The rate of return computed was 1.88 and it is greater than one and also implying that smoked fish business was profitable in the study area. The result on marketing efficiency was calculated at 1.97 (197%) implying efficient marketing of smoked fish in the study area.

**Table 2: Average Cost and Returns Analysis of Smoked Fish Marketing**

Items	Mean value (₦)	Percentage
<b>Total Revenue (Smoked fish)</b>	<b>104,455.83</b>	
<b>Variable Cost</b>		
Fish purchased	45,736.42	82.1
Transportation cost	1,617.50	2.9
Load and off-loading	155.83	0.3
Handling cost	245.83	0.4
Polythene bag	594.58	1.1
Tax or union	520.83	0.9
Water for cleaning	127.50	0.2
Basket	1,624.17	2.9
Security	516.67	0.9
Waste management	1,422.92	2.6
Electricity or fuel	487.50	0.9
<b>Total Variable Cost</b>	<b>53,049.75</b>	<b>95.2</b>
<b>Fixed cost</b>		
Stall or Rent	700.00	1.3
Bowl	1,627.50	2.9
Fryer	335.00	0.6
<b>Total Fixed Cost</b>	<b>2,662.5</b>	<b>4.8</b>
<b>Total Cost</b>	<b>55,712.25</b>	<b>100.0</b>
<b>Gross Margin (TR-TVC)</b>	<b>51,406.08</b>	
<b>Net Income (GM-TFC)</b>	<b>48,743.58</b>	
<b>Rate of Return (TR/TC)</b>	<b>1.88</b>	
<b>Profitability Index</b>	<b>0.47</b>	
<b>Marketing Efficiency (GR/TMC)</b>	<b>1.97%</b>	
<b>Marketing efficiency percentage</b>	<b>197%</b>	

Source: Field Survey, 2023

**Factors that Affects the Profitability Level of Smoked Fish Marketers:** The result of the linear regression analysis showing the various factors that influence the level of profitability of smoked

fish marketers is presented in table 3. The result shows that the F-value (36.428) was highly significant at 1% level. The adjusted R<sup>2</sup> which measures the ability of the explanatory variables

to explain all the variations in the dependent variable for the equation, was 0.749. The coefficient of the variables age, marketing experience and educational level of the respondents significantly determined the level of profit of the smoked fish marketers.

The variable age negatively influenced the marketers' profit level. This means that the younger women earn more income than the older ones. This result is in agreement with the findings of Awolunate, S., Okwuokenye, G. F., Agbo, A. N. and Akinbami, D. M. (2022) and Okwuokenye, G. F. and Onemolese, E. A. (2006). The marital status of the respondents was also found to positively determine the profitability of smoked fish marketers and is in consonance with the findings of Awolunate et al. (2022). The years of marketing experience also positively

determined the marketers' profit level and corroborates the findings of Oyekale, A. S., Awoyemi, T. T and Jaiyebo, A. (2003) and Awolunate et al. (2022). Educational level of the respondents was also found to be positively associated with high level of profitability of the marketers. This indicates that the more educated a marketer is, the higher is the likelihood that she will earn a bigger profit. This substantiates the findings of Adeoye, A., Ayanboye, A. O., Oyeleye, A. A., Amao, S. A., Taiwo, A. M. (2022), Awolunate et al., (2022) and Okwuokenye & Onemolese (2006). Being a member of a cooperative society also positively affected profits level of smoked fish marketers. This resonates with the findings of Awolunate et al., (2022).

**Table 3: Factors that Affects the Quantity of Smoked Fish Purchased by the Marketers**

Variables	Coefficient	T value
Constant	3856.615***	3.860
Age of marketers	-70.529**	-0.527
Marital status	679.858	0.043
Educational level	1174.080*	-1.693
Household size	310.158	-.424
Member of cooperative society	1054.319	-1.096
Marketing experience	136.458*	1.644
Distance to source	950.459	.586
R	0.865	
R square	0.749	
F	36.428	

Source: Field Survey, 2023

\*\*\*=Significant at 1%; \*=Significant at 10%

**Constraints to Marketing of Smoked Fish:** The constraints faced by smoked fish marketers in the study area are presented in table 4. These constraints were ranked by percentage distribution. All the respondents (100.0%) reported that price fluctuation was a very serious problem in their marketing activities. This was followed by lack of credit facilities (87.5%) while lack of preservation facility (83.3%) ranked 3<sup>rd</sup>. The others were change in price of fish due to

perishability (80.0%), inadequate storage (74.2%), lack of regulated and cooperative market (67.5%), distance to source (66.7%), lack of access to capital (65.8%), high cost of transportation (60.8%) and theft (21.7%). This implies that, price fluctuation constituted the most important problem in smoked fish business. This is in disagreement with the findings of Nyong, and Nweze., 2012) Jabo M. S., Mustapha U. A., Musa I. A., and Lawali A. A (2020) who

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reported that inadequate processing equipment ranked first among the constraints to smoked fish marketing, followed by inadequate extension services, poor price and no availability of credit facilities. These constraints are in agreement to

the findings of Agbolagba et al., (2023), Nyong, and Nweze., 2012). Jibrin, S. A., Bulama, Y. M., Idi, A. S., Orjiakor, C. C. (2023), Nwabeze, G. O., Faleke, S., Tanko, M., Maigwi, Y. Y. (2019).

**Table 4: Factors Militating Against the Marketing of Smoked Fish**

Constraint	Frequency	Percent	Rank
Lack of access to capital	79	65.8	8 <sup>th</sup>
Distance to source	80	66.7	7 <sup>th</sup>
Change in price of fish due to perishability	96	80.0	4 <sup>th</sup>
Inadequate storage	89	74.2	5 <sup>th</sup>
Lack of preservation facilities	100	83.3	3 <sup>rd</sup>
Inadequate capital	96	80.0	4 <sup>th</sup>
Lack of credit facilities	105	87.5	2 <sup>nd</sup>
High cost of transportation	73	60.8	9 <sup>th</sup>
Price fluctuation	120	100.0	1 <sup>st</sup>
Theft	26	21.7	10 <sup>th</sup>
Lack of regulated and cooperative market	81	67.5	6 <sup>th</sup>

Source: Field Survey, 2023

**Conclusion:** The study concluded that smoked fish marketing was largely done by women in the study area and it was profitable and efficient. The major constraint to smoked fish marketing was price fluctuation.

**Recommendations:** Based on the major findings, the study the following recommendation were made: There should be provision of storage, weighing scale and affordable credit facilities by financial institutions to smoked fish marketers to improve the profitability and shelf life of smoked fish. There should be strong marketing ties for smoked fish sellers. There should be an enlightenment programme to educate smoked fish marketers on the needs and method of an advance smoked fish processing and preservation. Attainment of such knowledge could help to reduce the level of losses and improve profit. The smoked fish marketers should be organized through assistance such as loans, get more remunerative prices and other benefit from the cooperative society .Young farmers and graduate should be encouraged into smoked fish marketing this is to allow reduction in the rate of unemployment in the country.

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