

Economics analysis of smoked – dried fish marketing in Akinyele local government area of Oyo state, Nigeria

Adeoye, A¹., Ayanboye, A.O²., Taiwo, A.M¹., Awolola, A.A¹., and Adejumo, D.R¹.

¹Department of Agricultural Technology, Oyo State College of Agriculture and Technology, Igboora

²Department of Fisheries and aquatic Resources Management, Osun State University. Email: adeoyeadelayo2017@yahoo.com

ABSTRACT

It is obvious that increased production of fish without corresponding increase in Processing and marketing may leads to wastage of resources, therefore this study investigated the economics analysis of smoked dried fish marketing in Akinyele local government area Oyo state, Nigeria. One hundred and twenty fish marketers were selected using a multi-stage random sampling technique. Collected data were analyzed using descriptive and inferential statistics. Majority (90%) of the respondents were female with the mean age of 38 years, About 70% of the respondents were married and had formal education with average household size of six (6) persons. Majority did not belong to any marketing association or cooperative. Marketing margin was estimated as 42.43%, the gross margin profitability was N 913,000 per annum and the Benefit Cost Ratio (BCR) was N 1.5. Major constraints in the study area includes lack of capital, high tax rate, poor marketing system, poor storage facility, poor transportation network, processing and inadequate technical knowhow. Thus, it is imperative that marketers form cooperative societies so as to get access to credit loan from both cooperative societies and other financial institutions in order to increase their size of production and thereby increase profit. Also there is need for the provision of improve infrastructural facilities to increase the profitability of the marketers as well improve welfare for community development.

Keywords:

Smoked dried fish, fish marketing, poor transportation network, fish profitability and marketing cooperative.

Article History:

Received: 11 Jan 2022

Accepted: 25 Feb 2022

Available Online: 05 Mar 2022



© 2022 The authors. This is an open access article under the Creative Commons Attribution 4.0 International (CC BY 4.0) License.

1. INTRODUCTION

Fish is one of the most important sources of food and income to many people in developing countries. The demand of fish globally has been on the increase with supplies not meeting up the demand (FAO, 2012). With an annual fish demand in Nigeria of about 2.66 million tons, and a domestic production of about 780,000 tons, the demand supply gap stands at staggering 1.8 million tons (Oyinbo and Rekwot, 2013). In Nigeria fish is generally important and accepted as protein source and represents about 55% of the protein sources intake of Nigerians (Agbabiaka, 2010; Nwiro, 2012). Nyarko *et al.* (2011) stated that fish is marketed in different forms such as fresh, smoked, dried, salted and frozen all of which vary in their capital requirements, technological complexities, raw material requirement, nutritional quality of the processed products. Fish marketing can be broadly defined as all those functions involve from the point of catching of fish, to the point of final consumption. It involves all activities carried out from landing site to the point of utilization. Such activities include the collection of fish, processing and preservation, transportation to consumers, pricing, buying and utilization. These processes ascertain that the best product is available at the right time to fully satisfy the consumers' needs (Okoh *et al.*, 2008). Efficient fish marketing is bound to fast the goals of the economic development (Njoku and Offor, 2016).

Owing to the fact that fish is susceptible to deterioration without any preservative or processing measure (Okonta and Ekelemu, 2005), a number of processing techniques are employed to prolong its shelf life so that it does not lose quality, taste, odor and nutritional value, this include smoking, chilling, salting, drying and fermentation among others. Smoked drying fish possessing is a faster and cheaper method of drying fish when compare to other methods. It is also the affordable and most widely used method for fish preservation in Nigeria, Ghana and other West African countries (Adeyemi *et al.*, 2013). Smoking is the process of preserving fish by exposing it to smoke from burning or smoldering material most often wood / charcoal. It is an important ingredient in the Nigeria traditional diet and is relish for its appetizing taste and flavor hygiene (Nyarko *et al.*, 2011). However, according to George *et al.* (2014) problems of smoked fish marketing include lack of modern or improved processing facilities, lack of capital for investment and insufficient marketing services etc. Furthermore, due to the cumbersome nature of fish distribution channel, the local fish seller is faced with problem of profit maximization. Adekoya (2010) reported that fish is perishable and must be processed within few hours of been caught because no form of processing or preservation can improve the quality of spoilt fish. It is obvious that increased production without corresponding increase in processing and marketing may leads to wastage of resources (George *et al.*, 2014). Therefore, this study was set out to analyze the economics of smoked-dried fish marketing in the study area.

2. RESEARCH METHODOLOGY

The study was conducted in Akinyele Local Government area of Oyo State Nigeria. It occupies a land area of 464.892 square kilometer with the population density of 516 people per square kilometer. Using 3.2% growth rate from 2006 census figures, the 2010 estimated population for the local government is 239,745. The major occupation of the people includes trading and farming. Fish farming is paramount in the area due to availabilities of river and streams that surrounds the place. Multi-stage random sampling technique was used to select 120 smoked-dried fish marketers with a well-structured questionnaire. Stage one involves random selection of 6 Wards out of 12 wards in the local government area. Stage two involves random selection of 4 main markets from each ward. Stage three involves random selection of 5 smoke-dried fish marketers from each market given a total of 6 wards, 24 markets and 120 marketers. Note that the selection of markets in each ward was based on proportionate number of smoked dried fish marketers available in the market. The data collected were analyzed using descriptive statistics and budgetary techniques

3. PROFITABILITY ANALYSIS

The budgetary technique was used to determine the Profitability of smoked dried fish marketing in the study area. Gross margin was estimated using the Model below

$$GM = \sum TR - \sum TVC \text{----- (i)}$$

$$TR = P_y Y_i \text{----- (ii)}$$

$$TC = TVC + TFC \text{----- (iii)}$$

Where,

GM= Gross Margin (₦), TR= Total Revenue (₦), TVC= Total Variable Cost (₦)

TC= Total Cost (₦), P_y= Unit Price of Output Produced (₦), Y= Quantity of Output (kg)

3.1 Benefit- Cost- Ratio

Benefit cost ratio (BCR) = $\frac{\sum TR}{\sum TC}$,

If BCR less than 1, then the business is not profitable

BCR greater than 1, then the business is profitable

To determine the marketing margin of the respondents

Marketing margin for a particular commodity is the difference between the amount that the consumer pays for the final product and the amount the producer receives (Ike and Chukwuji, 2005). At each intermediary level, it is the difference between price received on resale and the purchase price. Marketing margin has remained an important tool in analyzing the performance of marketing systems. Marketing costs and profit margins which make up marketing margins can be both indicators of efficiency or inefficiency of marketing systems. Therefore, the marketing margin of smoked dried fish is the difference between the retail or selling price of smoked dried fish and the actual cost it took to produce it (Achike1 and Anzaku, 2010). Proper computation, understanding and interpretation of marketing margin value in relation to prevailing circumstances can reveal a lot about performance in the marketing channels (Wadud, 2011)

$$\text{Marketing margin} = \frac{SP - CP}{SP} \times 100$$

Sp = Selling price

Cp = Cost price

4. RESULTS AND DISCUSSIONS

Table 1 showed that the mean age of the respondents was 38 years which implies that majority of the marketers are still young and active that usually has physical fitness prone to expend energy in smoked dried fish processing and marketing. Majority of the marketers were female (90%) which was similar to the study of Nwabunike (2015) that fish marketing business is majored by female gender. Table 1 also revealed that more than 70% of the marketers had primary education, married with average household size and marketing years of experience of 6 members per households and 5 years respectively. According to table 1, about 80% of the marketers did not belong to any marketing association or cooperative and do not have access to loan while 70% of the respondents make smoked dried fish marketing as full time occupation.

Table 1. Distribution of socio-economic characteristics

Characteristics	Frequency	Percentage	Mean
Age group			
< 30	18	15.00	38
31-40	58	48.33	
41-50	44	36.67	
Total	120	100.00	
Gender			
Male	12	10.00	
Female	108	90.00	
Total	120	100.00	
Marital status			
Single	8	6.67	
Married	88	73.33	
Divorce	8	6.67	
Widow	16	13.33	

Total	120	100.00
Educational status		
Non formal education	20	16.67
Primary education	35	29.16
Secondary education	45	37.50
Tertiary education	20	16.67
Total	120	100.00
Access to loan		
No	96	80.00
Yes	24	20.00
Total	120	100.00
Association of co-operative society		
No	100	83.33
Yes	20	16.67
Total	120	100.00
Employment		
Full time	84	70.00
Part time	36	30.00
Total	120	100.00

Source: Field survey, 2018

To determine the marketing margin of the respondents

$$\text{Marketing margin} = \frac{SP - CP}{SP} \times 100$$

Where;

Sp = Selling price = ₦8718

Cp = Cost price = ₦5019

$$\text{M.M} = \frac{8718 - 5019}{8718} \times 100 = 42.43\%$$

The market margin was found to be 42.43%. This implies that smoked dried fish marketer perform less service in transferring smoked dried fish from the point of production to the point of consumption.

4.1 Estimation of Budgetary analysis of smoked dried fish marketing

Budgetary analysis was used to measure cost and return of fish marketing in the study area

Gross margin: the gross margin is explicitly stated below

GMI=TR-TVC

Where; TVC= Total Variable Cost i.e. cost of fish (carton) + cost of firewood + cost of broom + cost of transportation. TVC = 12000+15000+8000+12000 = ₦47000

TR= Total Revenue i.e. price x quantity of the product

12000 X 80kg = 960000

Therefore, GM = 960000 - 47000

GM = ₦913,000 per annum

Benefit Cost Ratio (BCR):

The BCR formula is explicitly stated below

- TR/TC
- BCR = Benefit/Total Cost
- BCR = ₦960000/ ₦659130 = ₦1.456 = ₦1.5

This implies that, if the marketer invests ₦1 in the smoked dried fish, it is evidence from the Benefit cost Ratio (BCR) result that the marketer will spent ₦1.50k with 50% profit on investment as return. Therefore, the smoked dried fish marketing is profitable in the study area. The result was similar to Iliyasu (2011) that it is worthwhile to invest in smoked and dried fish marketing because the return on investment is profitable.

4.2 Constraint faced by smoked and dried fish marketers

More than half of the marketers agreed to lack of capital (60.83) and poor transportation (51.67%) as a major constraints faced by the marketers, this was similar to the study of Njoku and Offor (2016) who ranked lack of capital and transportation as top most constrains of fish marketers in the their study area. Also high tax rate (52.50%), poor marketing system (60.00%), poor storage facility (38.33%), inadequate technical knowhow (50.83%) and lack of modern Processing equipment (57.50%) were other constrains faced by marketers in the study area. According to table 3 below, many of these constrains reduce the marketers profitability and efficiency. This result also conforms to the finding of Akinkali and Jamabo (2011), who opined that unavailability of adequate transport and lack of adequate capital are hindrances to effective distribution of goods from one point to another.

Table 2. Distribution of the constraints faced by smoked and dried fish marketers

Constraints	Strongly Agree		Agree		Disagree		Strongly Disagree	
	Freq	Percent	Freq	Percent	Freq	Percent	Freq	Percent
lack of capital	73	60.80	40	33.33	5	4.17	2	1.67
High Tax rate	63	52.50	49	40.83	7	5.83	1	0.83
Poor Marketing	52	43.33	60	50.00	7	5.83	1	0.83
Poor Storage	46	38.33	57	47.50	14	11.67	3	2.50
Poor Transportation	32	51.67	44	36.67	11	9.17	3	2.50
Lack Equipmen	34	28.33	69	57.50	16	13.33	1	0.83
Technical know how	36	30.33	61	50.83	20	16.67	3	2.50

Source: field survey, 2018

5. CONCLUSION AND RECOMMENDATION

The study investigated economic analysis of smoked dried fish in Akinyele local government area of Oyo state, Nigeria. The majority of the marketers were in their active age with the mean age of 38 years; more than 70 percent of the respondents were married with post primary school education and did not belong to any marketing association or cooperative while 62.50 percent engaged in fish marketing as their major occupation. The marketing margin was estimated as 42.43%, the gross margin profitability on average was ₦ 913,000 per annum. Lack of capital, high tax rate, poor marketing system, poor storage facility, poor transportation network, lack of modern processing equipment and inadequate technical knowhow has been identified as major constraints faced by the marketers. The study concluded that the smoked dried fish marketing was profitable with the evidence of benefit cost ratio which is 1.5 in the study area. Therefore, there is need for joint efforts of the community leaders, Non-Governmental Organization (NGO) and if possible government intervention for the provision of improved infrastructural development such as modern processing equipment, good road network to ease transportation problems, marketing system and storage facilities, this will not only increase the profitability of the marketers but as well improve welfare and bring community development. Majority of the marketers were not members of any cooperative society and had no access to credit. This indicates the need for community leaders, household heads and financial institutions to intensify efforts on cooperative education, training and public enlightenment in order to bring about increased participation and involvement of fish marketers in the cooperative movement.

REFERENCES

- Adeyemi, O. T., Osilesi, O. O., Onajobi, F., Adebawo, O., and Afolayan, A. J. (2013). Stability study of smoked fish, horse mackerel (*Trachurus trachurus*) by different methods and storage at room temperature. *African Journal of Biochemistry Research*, 7 (6): 98-106.
- Agbabiaka L. A. (2010). *Aquaculture and Pond management in the tropics*. Vintage books limited, Owerri. 111.
- Akinkali, J.A., and Jamabo, N.A. (2011). A review of some factor militating against sustainable artisanal fisheries development in Niger delta Nigeria. *Asian Journal of Agricultural Sciences*, 3 (5): 369-377
- Achike, 1. A., And Anzaku, T.A.K. (2010). Economic Analysis of the marketing margin of Benniseed in Nasarawa State, Nigeria *Journal of Tropical Agriculture, Food, Environment and Extension*, 9 (1): 47 – 55
- Food and Agricultural Organization (2012). *The state of World Fishery and Aquaculture*, Rome. 209
- FAO, (2007). *The State of World Fisheries and Aquaculture 2006*. Rome. 162.
- George, F. O. A., Ogbolu A. O., Olaoye O. J., Obasa S. O., Idowu A. A. and Odulate D. O.,(2014). Fish Processing Technologies in Nigeria: A Case Study of Ibeju-Lekki Local Government Area, Lagos State. *American Journal of Food Technology*, (9): 302-310.
- Ike, P. C. and Chukwuji, C. O. (2005). efficiency measurement of cashew nut marketing in Enugu state, Nigeria *Journal of Agriculture, Food, Environment and Extension*. 4(1): 46-49
- Iliyasu, A.H., Onu, J.I., Midau, A. and Fintan, J.S. (2011). Economics of smoked and dried fish marketing in Yola North and South local Government areas of Adamawa State, Nigeria. *Journal of Agriculture and Social Sciences*, 7: 13–16
- Njoku, M.E. and Offor, E.I. (2016). Cost and Returns Analysis of Catfish Marketing in Aba South Local Government Area Of Abia State, Nigeria *Journal of Tropical Agriculture, Food, Environment And Extension*. 15 (2): 9 - 14
- Nyarko, H. D., Obodai, E. A., Boamponsem, L. K., Coomson, S. S., & Aniwe, Y. (2011). Microbial profile of smoked sardine (*Sardinellaaurita*) at smoking sites and market centres of Tema, Ghana-1. *Archives of Applied Science Research*, 3 (3):443-453.
- Nwabunike, M .O. (2015). The Socio-Economic Characteristics of Fish Marketers in Abakaliki Metropolis of Ebonyi State. *Journal of Animal Health and Livestock Production Research International*. 1 (1): 28-36,
- Nwiro, E. (2012) Fish Farming a lucrative Business Accessed on line 20th October 2012. <http://www.thisdaylive.com/articles/fish-farming-alucrative-business/119253/>.
- Okoh, R.N., Ugwumba, C.O.A., and Elue, H.O. (2008). Gender roles in foodstuff marketing in delta-north agricultural zone: The case of rice. In: J.C. Urme, C.P. Obinne and W. Lawal (eds.), *Prospects and Challenges of Adding Value to Agricultural Products: Proceedings of the 22nd Annual National Conference of Farm Managers Association of Nigeria (FAMAN)*, Markudi, Nigeria, 114–123
- Okonta, A. A. and J. K. Ekelemu, (2005). A preliminary study of micro-organisms associated with fish spoilage in Asaba, Southern Nigeria. *Proceedings of the 20th Annual Conference of the Fisheries Society of Nigeria*, November 14-18, 2005, Port Harcourt, 557-560.
- Oyinbo O, Rekwot G.Z. (2013). Fishery production and economic growth in Nigeria: Pathway for sustainable economic development. *Journal of Sustain Development of African*, 15(2):99-109.

Wadud, I. K. (2011). Profit efficiency and farm characteristics: evidence from the rice farmers in Bangladesh. Proceedings of the 2011 Barcelona European academic conference, Barcelona Spain.