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Cost benefit of smoked fish marketing within Abakaliki Metropolis

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Abstract

The study analyzed the cost benefits of smoked fish marketing within Abakaliki metropolis, the objectives of the study were to determine the costs and returns of smoked fish marketing in the study area, as well as identify the factors affecting the quality and quantity of smoked fish marketed in the study area. Oral interview schedule was used to collect data from seventy (70) respondents who were randomly selected. The data were analyzed using appropriate statistical tools. Objective (1) was analyzed using gross margin model, while objective (2), was analyzed using mean score in the form of a five-point Likert scale model. The result obtained from the gross margin analysis showed that a profit (π) of (N 4,093,600) was made by smoked fish sellers from selling smoked Scomber (*Scomber japonctatus*) given a TFC of N 3,000, TVC of N 2,455,400, TR of N 6,552,000, and a GM of N 4,096,600. The mean score analysis in the form of a five-point likert scale showed that the most accepted factors that affect the quality and quantity of fresh fish sold include; financial problem (3.8) and consumer's choice (3.7). In conclusion, it has been observed that smoked fish marketing in Abakaliki urban is a lucrative venture. Marketers have lots of challenges, which the researcher has tried to proffer solutions to as attested by the majority of the respondents. Based on the research findings, the following policy recommendations were therefore proffered. Government should subsidize the price of fish to enable fish sellers purchase at cheaper rate, as well there should be adequate provision of cold rooms to reduce the losses by fish sellers.

Keywords: Smoked Fish, Marketing, Abakaliki Metropolis

1. Introduction

The importance of fish notwithstanding, fish marketing in Nigeria is hinged on some basic questions; what do consumers want? Which specie? At what price and size? In what form? Of what grade or quality, what services do they want? Fishes of various sizes | kinds are were either dried in the sun or smoked in kilns in order to preserve them for long or short distant market. All these notwithstanding, many of the world's fisheries are challenged by a combination of overexploitation, habitat damage and poor economic returns. For the first time ever it appears the world's total harvest of fish from wild stocks is in decline because of over fishing [9]. In an attempt to address these difficulties managers are looking for innovative ways to address the tragedy of the commons' whereby individuals operating in their own self-interest over exploit a common- pool resource which is open to all [8]. At the forefront of 'new' thinking about fisheries is the so-called ecosystem approach [14] that places a much greater weight on integrating management across fisheries and maintaining healthy ecosystems (habitats, biodiversity, resilience to shocks etc). While an integrated approach to fisheries is helpful, new approaches are most certainly required to prevent further declines [13]. Without careful attention by regulators to fisher incentives little will be accomplished.

Marketing is a process of exchanging goods and services from one person to another with reference to price. A fish market is a market place used for marketing of fish and fish products. However, fish marketing essentially consists of all the activities involved in delivering fish from the producer to the consumer, while distribution provides channels that link the marketing institutions and producers together. Fish marketing may be broadly defined as all those functions involved from the point of catching of fish, to the point of final consumption. As the fish, like any other production moves closer and closer to the ultimate consumer, the selling price increases since the margins of the various intermediaries and functionaries are added to it. The price efficiency is concerned with improving the operation of buying, selling and other connected aspects of marketing process so that it will remain responsive to consumer

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direction [2].

Marketing plays an important role in a market economy. The role of marketing as an incentive to fish production and productivity cannot be over emphasized. The marketing of agricultural commodities in Nigeria involves various markets or exchange points. The number of exchange points depends on the nature of the point of production and that of consumption. If the marketing process is efficient, it will go a long way in providing sufficient food to the populace through the process of market mechanism.

Furthermore, due to the cumbersome nature of fish distribution channel, the local fish seller is faced with the problem of profit maximization. Thus, the result is that activities in this sector are mainly dominated by private sector presence with little or no mobilization from the government. Therefore, any attempt used at improving a country's marketing system has to start with a correct analysis of the problem.

The broad objective of the study is to determine the economics of dried fish marketing in Abakaliki, Ebonyi state.

The specific objectives are to:
- Determine the costs and returns of smoked fish marketing in the study area.
- Identify the factors affecting the quality and quantity of smoked fishes marketed in the study area.

2. Materials and Methods

2.1 Study Area
Abakaliki urban, Ebonyi state is the study area. It consists of two local government areas, Abakaliki and Ebonyi local government area. Abakaliki urban is the capital of Ebonyi state, the area is bounded in the east by Izzi local government area in the West by Ezza North and Ezza South local government areas and in the South by Cross River/Benue State. Abakaliki lies between longitude 7.30° and 8.30° East and latitudes 5.40° and 6.45° North. The main occupation of the people is farming.

Geopolitically, Abakaliki urban belongs to the south-east zone but lies entirely in the cross river plains. Ebonyi State population based on the 1991 population census was estimated at1,523,000 people, which is about 2% of Nigeria's total population of 88,992,220 people in 1991 (NPC,2006). About 60% of the total population of Ebonyi State is made up of rural dwellers, while the urban population is estimated at about 40%. Abakaliki urban has many markets where fish are sold, it include; Abakpa market, Ekeaba market, Nkwegu market, Kpirikpiri market, Nwokpo market, Rice mill market, Ishieke market and other markets within the Abakaliki municipality.

2.2 Sampling Techniques
Multi-stage sampling technique was employed in sampling the respondents for the study. It is a sampling method in which the population is divided into a number of groups or primary stages from which samples are drawn; these are then divided into groups or secondary stages from which samples are drawn, and so on. The sampling was based on the number of the contact fish sellers within Abakaliki urban in Ebonyi state.

2.2. A Stage 1.
Seven major markets noted for fish markets within Abakaliki urban were selected by purposive sampling techniques.

2.2. B Stage 2.
Contact fish sellers in the selected market were identified and ten (10)

Fish sellers from each market were randomly selected. A sample size of seventy (70) respondents were selected and interviewed.

2.3 Data Collection
Primary data collection procedure was used for the study; the primary data was collected by the use of oral interview technique. The oral interviews technique was adopted because most of the fish sellers have low level of education and some did not attend school.

The following questions were asked and answered, the name of the market, sex, marital status, age, educational qualification, household size, annual income, nature of the occupation, years of experience, types of fish sales, source of fund, source of fish, amount used to buy a carton of fish, amount realized from a carton of fish, amount for a fish, number of a carton sell per day, expense made for a day, forms of fish sales, which of them are more costly, overturn of one of carton of fish, factors affecting the fish sold.

2.4 Analytical Techniques
A number of analytical tools were employed in data analysis. Objective (1) was analyzed using gross margin model, while objective (2), was analyzed using mean score in the form of a five-point Likert scales model.

2.5 Model Specification
2.5.1 Gross Margin Model
This model was used to determine the costs and returns from gross margin obtained; further analysis was done to obtain profitability of fish marketers in the study area. Matta (2004)

$$GM=TR-TVC$$

Where

Gm = Gross margin
TR = Total revenue
TVC = Total variable cost
π = GM- TFC

Where

π = profit
GM = Gross margin
TFC = Total fixed cost.

2.5.2 Mean score model
Mean score was adopted to analyze objective (2).
Five- point likert scales (Dawes & John, 2008) was used in which the decision rule is 3.0

Likert formular

Decision point < 3.0 Reject

>3.0 Accept

Decision rule. $X = \overline{\Sigma} \, ^x/n = 5+4+3+2+1 = {}^{15}/5 = 3.0$

Where x $=$ mean

Σ = summation

X = value likert

N = number of items

3. Results and Discussion
3.1 The Result of the Cost and Returns Analysis of the Survey are Presented in Tables 7-16
3.1.1. The Gross Margin for Smoked Scomber (*Scomber*

japonctatus)

Table 1: The result of the analysis of gross margin for smoked scomber (*Scomber japonctatus*) is presented below.

1. Variable Cost	Amount
Cost of fish	2,310,000
Transportation	18,200
Rent	18,000
Firewood	36,400
Miscellaneous	72,800
Total variable cost (TVC)	**2,455,400**
2. Gross revenue	
Revenue from fish selling	6,552,000
Total revenue (TR)	**6,552,000**
3. Fixed cost	
Cost of smoking kiln	1,500
Knife	1,500
Total fixed cost (TFC)	**3,000**

Source: Field survey, 2014.

The results from Table 1, shows that variable costs were computed as follows: cost of fish (N2,310,000), transportation (N18,200), rent (N18,000), firewood (N36,400), miscellaneous (72,800) and this gives a total variable cost (TVC) of (N2,455,400). The result also shows that gross revenue was computed as revenue from smoked fish sales (N6,552,000) and this gives a total revenue (TR) of (6,552,000). The result from table 1 shows that fixed cost was computed as follows: Cost of smoking kiln (1,500), cost of knife (1,500) which gives a total fixed cost (TFC) of (3,000). From the above result, gross margin (GM) was computed as follows: total revenue (TR) (N6,552,000) minus total variable cost (TVC) (N2,455,400) which gives (N4,096,600). But profit (π) were computed as follows: gross margin (GM) (N4,096,600) minus total fixed cost (TFC) (N3,000) which gives (N4,093,600). Therefore, the result obtained from table 1, shows that, the net profit (π) for selling of smoked scomber (*Scomber japonctatus*) gives (N4,093,600).

3.1.2 The Gross Margin for Smoked mackerel (*Trachurus japonicus*)

Table 2: The result of the analysis of gross margin for smoked mackerel (*Trachurus japonicus*) is presented below.

1. Variable Cost	Amount
Cost of fish	3,458,000
Transportation	18,200
Rent	18,000
Firewood	36,400
Miscellaneous	72,800
Total variable cost (TVC)	**3,603,400**
2. Gross revenue	
Revenue from the fish selling	4,459,000
Total revenue (TR)	**4,459,000**
3. Fixed cost	
Cost of smoking kiln	1,500
Cost of knife	1,500
Total fixed cost (TFC)	**3,000**

Source: Field survey, 2014.

The result from table 2, shows that variable costs were computed as follows: cost of fish (N3,458,000), transportation (N18,200), rent (N18,000), firewood (N36,400), miscellaneous (N72,800) and this gives a total variable cost (TVC) of (N3,603,400). The result also shows that gross revenue was computed as revenue from fish sales (N4,459,000). And result from the table 2 shows that fixed cost were computed as follows: cost of smoked kiln (N1,500), cost of knife (N1,500) which gives a total fixed cost (TFC) of (N3,000). From the above results, gross margin (GM) were computed as follows:

total revenue (TR) (N4,459,000) minus total variable cost (TVC) (N3,603,400) which gives (N855,600). But profit (π) were computed as follows: gross margin (GM) (N855,600) minus total fixed cost (TFC) (N3,000) which gives (N85ss2,600). Therefore, the result obtained from table 2 shows that, the net profit (π) for sales of smoked mackerel (*Tranchurus japonicus*) gives (N852,600).

3.1.3. The Gross Margin for Smoked Sardine (*Sardinella aurita*)

Table 3: The result of the analysis of gross margin for smoked sardine (*Sardinella aurita*) is presented below.

1. Variable Cost	Amount
Cost of fish	3,130,400
Transportation	18,200
Rent	18,000
Firewood	36,400
Miscellaneous	72,800
Total variable cost (TVC)	**3,275,800**
2. gross revenue	
Revenues from fish selling	3,931,200
Total revenue (TR)	**3,931,200**
3. Fixed cost	
Cost of smoking kiln	1,500
Knife	1,500
Total fixed cost (TFC)	**3,000**

Source: Field survey, 2014.

The result from the table 3 shows that variable costs were computed as follows: cost of fish (N3,130,400), transportation (N18,200), rent (N18,000), firewood (N36,400), miscellaneous (N72,800) and this gives a total variable cost (TVC) of (N3,275,800). The result also shows that gross revenue was computed as revenue from fish sales (N3,931,200) which gives a total revenue (TR) of (N3,931,200) and result from the table 3 shows that fixed cost were computed as follows: cost of smoked kiln (N1,500), cost of knife (N1,500) which gives a total fixed cost (TFC) of (N3,000). From the above result, gross margin (GM) were computed as follows: total revenue (TR) (N3,931,200) minus total variable cost (TVC) (N3,275,800) which gives (N655,400). But profit (π) were computed as follows: gross margin (GM) (N655,400) minus total fixed cost (TFC) (N3,000) which gives (N652,400). Therefore, the result obtained from table 3 shows that, the net profit (π) for sales of smoked sardine (*Sardinella aurita*) gives (N652,400).

3.1.4 The Gross Margin for Smoked Spotted

Table 4: The result of the analysis of gross margin for smoked spotted is presented below.

1. Variable Cost	Amount
Cost of fish	4,732,000
Transportation	18,200
Rent	18,000
Firewood	36,400
Miscellaneous	72,800
Total variable cost (TVC)	**4,877,400**
2. Gross revenue	
Revenue from fish selling	5,824,000
Total revenue (TR)	**5,824,000**
3. Fixed cost	
Cost of smoking kiln	1,500
Knife	1,500
Total fixed cost (TFC)	**3,000**

Source: Field survey, 2014.

The result from the Table 4 shows that variable costs were computed as follows: cost of fish (N4,732,000), transportation

(N18,200), rent (N18,000), firewood (N36,400), miscellaneous (N72,800) and this gives a total variable cost (TVC) of (N4,877,400). The result shows also that gross revenue was computed as revenue from fish sales (N5,824,000) and this gives a total revenue (TR) of (N5,824,000). And result from the table 4 shows that fixed cost were computed as follows: cost of smoking kiln (N1,500), cost of knife (N1,500) which gives a total fixed cost (TFC) (N3,000). From the above result, gross margin (GM) were computed as follows: total revenue (TR) (N5,824,000) minus total variable cost (TVC) (N4,877,400) which gives (N946,600). But profit (π) was computed as follows: gross margin (GM) (N946,600) minus total fixed cost (TFC) (N3,000) gives (N943,600). Therefore, the result obtained from table 5 shows that, the net profit (π) for sales of smoked spotted fish gives (N943,600).

4.1.5 The Net Profit Margin

Table 5: Profit margin of the different fishes sold in Abakaliki market.

Scientific name of fishes sold	Common name of fishes sold	Local name of fishes sold	Net profit
SMOKED FISHES SOLD			
Scomber japonctatus	Scomber	Ezigbo azu	N4,093,600
Trachurus japonicus	Mackerel	Shinny	N852,600
Sardinella aurita	Sardine	Chizoba	N652,400
	Spotted fish	Nwawo	N943,600
	Local catfish	Emah	N1,926,200

The information gathered shows that smoked horse has the highest net profit of N4,093,600.

Based on gross margin and net profit presented when compared it reveals that smoked fish marketing within the study area is a lucrative business, from the result it shows that selling of both smoked scomber (*Scomber japonctatus*) is more lucrative than every other fish marketing within the study area.

It is also advice based on the data presented that apart from selling either smoked scomber (*Scomber japonctatus*) is a lucrative business.

4.2 Factors Affecting the Quality and Quantity of Smoked Fish Sold by Fish Marketers in Abakaliki Urban

Table 6: Factors affecting the quality and quantity of species handled by fish marketers in Abakaliki market.

Factors	Response	Scale	Decision
Financial problem	Yes	3.8	Accepted
Consumers choice	Yes	3.7	Accepted
Inadequate fish supply	No	2.5	Rejected
Cost of fishes	Yes	3.3	Accepted
Poverty of the consumers	Yes	3.1	Accepted
Unavailability of fishes	No	2.7	Rejected
Lack of access to cold rooms	No	2.2	Rejected
Fear on the side of marketers	No	2.4	Rejected
Cost of transportation	Yes	3.0	Accepted
Inadequate storage facility	Yes	3.5	Accepted
Problems of smoking the fishes	Yes	3.5	Accepted
Epileptic power supply	Yes	3.0	Accepted
Cost of firewood	No	2.6	Rejected

Source: Field survey, 2013.

The analysis presented on the table 18 was based on 5-point likert scale in which the decision rule was 3.0 and any value below it was rejected. Based on the analysis in table 12, it was observed that financial problem 3.8 is the major factors

affecting the quality and quantity of fish marketed in Abakaliki Urban.

Other major factors include consumer's taste and preference (3.7), inadequate storage facility (3.5), problems of smoking the fishes (3.5) and cost of fishes (3.3). These are the main factors that determine the quality and quantity of fish that are sold in Abakaliki urban, other factors according tot eh respondents are poverty of the consumers (3.1), cost of transportation (3.0) and epileptic power supply affects the quality and quantity of fishes in the study area.

4.3 Recommended Solutions for Improving Smoked fish marketing in Abakaliki Urban

A number of solutions were presented and analyzed in table 13. The fish marketers in the study area has made their suggestions and agreed with some solutions presented in table13 below.

Table 7: Recommended solutions for improving fish marketing in Abakaliki Urban

Factors	Response	Scale	Decision
Government should provide more cold rooms/storage facilities	Yes	3.5	Accepted
Government should provide more cold rooms/storage facilities	Yes	3.5	Accepted
Government should provide processing places/space	Yes	3.2	Accepted
There should be subsidy in price of fish by government	Yes	3.6	Accepted
Transportation facilities should be enhanced	Yes	3.5	Accepted

Source: Field survey, 2013.

The analysis presented on table 20 was based on 5-point likert scale in which the decision rule was 3.0 and any value below it was rejected. Based on the analysis in table 13, it was observed that solutions suggested was based on government coming to their aids for ease in fish marketing and all the solutions were accepted starting from subsidy in price of fish by government (3.6), provision of more cold rooms/storage facilities by government (3.5), enhancement of transportation facilities by government (3.5) and provision of processing space/places (3.2). Were the solution presented in table 13 and was accepted.

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