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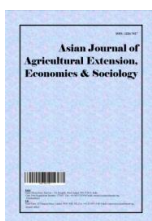
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Analysis of Fresh Catfish Marketing among Natural Fishpond Users in Ogbaru Local Government Area of Anambra State, Nigeria

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Authors' contributions

This work was carried out in collaboration between both authors. Author MNO designed the study, drafted the first manuscript and managed the literature searches while author IIN performed the statistical analysis, managed the analyses of the study and wrote the protocol. Both authors read and approved the final manuscript.

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ABSTRACT

The study analyzed fresh catfish marketing among natural fishpond users in Ogbaru Local Government Area of Anambra State, Nigeria. A structured questionnaire was used to collect data from a sample size of 120 respondents and analyzed using mean score, frequency, percentage and enterprise budgeting. The result indicated that 49.2% of the respondents fell between the age of 25 and 40 years, 65.0% were females while more than half (63.3%) of the respondents were married. The mean household size of the respondents was 6.15 persons while 57.5% of them had household size of between 6 and 10 persons. Majority (67.5%) of the respondents had secondary school education while the majority (50.8%) of the marketers had 11–20 years of marketing experience. More so, majority (75.8%) of the marketers financed their business with their personal savings. On the costs and return analysis, the total revenue realized by the marketers was ₦3,998, 200 while net return on investment was 1.3. Majority (75.8%) of the marketers identified that the

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major distribution channel for fresh catfish in the area was from the suppliers to the retailers and then to the consumers. The marketers identified inadequate credit facility ($\bar{x}=3.00$), inadequate fishpond ($\bar{x}=2.86$), high cost of fish due to high cost of feed ($\bar{x}=2.81$), unorganized market ($\bar{x}=2.75$) and price instability ($\bar{x}=2.69$) as the major constraints. Based on the findings, it was recommended that the government should make provisions for agricultural incentives such as short and long-term loans, with a single digit interest rate for the marketers.

Keywords: *Fresh catfish; marketing; natural fishpond users.*

1. INTRODUCTION

Agriculture has severally been described as the natural engine room for economic development and a reliable key to industrialization for most developing countries such as Nigeria [1]. In Nigeria, the fishery subsector occupies a unique position in the agricultural sector and has recorded the fastest growth rate in agriculture in terms of Gross Domestic Product (GDP) [2]. The availability of large coastal area and continental shelf made diverse species of fish available in different localities and affordable as well [3]. Fishes and fishery products are of great importance to the diet of people and the wide acceptability of it by all has made it an important aspect of human nutrition. It has little or no taboo attached to its production, marketing and consumption, which is not the case with some other livestock's.

Similarly, strong evidence underlines how consumption of fish and in particular oily fish, lowers the risk of Coronary Heart Disease (CHD) mortality. It is estimated that fish consumption reduces the risk of dying of coronary heart diseases by up to 36 per cent due to the long-chain omega3 fatty acids found in fish and fishery products [4]. Trials have shown that fish oil supplementation is effective in the treatment of many disorders including rheumatoid, arthritis, diabetes, ulcerative colitis and Reynard's disease [2]. Fish and fishery products are highly nutritious and marketing of such products has served as source of income and employment to many Nigerians that produce them. It is pertinent to note at this point that among other livestock products, fish and fishery products are very common, affordable and most preferred by many, especially those living in rural areas [5].

Fresh catfish rearing and aquaculture involves constructing of ponds, reservoirs, lakes and dams in which fish is reared for consumption [6]. Fresh catfish and its products get to the consumers through the process of marketing. Whereas, marketing is the process of exchanging goods and services from one person

to another with reference to price or all the processes involved from the production of a commodity until it gets to the final consumer. 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 producers to the market [7]. Some processes involved in marketing of fresh catfish include, sorting, dressing, packaging, storage, grading and freezing. According to Olubunmi and Bankole [8], 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. These market intermediaries are the whole sellers and retailers and both play important role in the marketing system.

However, fish being a perishable product has been facing lots of marketing challenges in the developing countries. According to Afolabi [9], despite the popularity of fresh catfish marketing in Nigeria, fish marketing is best described as being at the infant stage when compared to the larger market potential for its production and marketing. As such, it is justifiable to say that fresh catfish marketing in Nigeria is an untapped goldmine based on the fact that there is an ever increasing need for fish as the best alternative to meet the protein needs of the people. Similarly, Folayan et al. [2], noted that the inadequacies in the supply of animal protein in the diet of Nigerians have resulted in massive importation of frozen meat, fish and chicken with the consequent loss of scarce foreign exchange. Oyinbo and Rekwot, [10] noted that demand for fish globally and particularly in Nigeria has been on the increase with supplies not meeting up the demand and in addition, marketing problems such as high cost of transportation, insufficient funds, poor storage facilities, limited markets, and large number of intermediaries were recorded as major factors militating against fresh catfish marketing (Njoku and Offor, [3]; Akinkali and Jamabo, [11]; Madugu and Edward, [12]; Ugwumba and Obiekie, [13]). Thus, there is need for a suitable agricultural system to meet

the increasing demand for food, and maximize the utilization of the available limited resources without much wastage. In view of the foregoing, the study was conducted to assess the viability of fresh catfish marketing among natural fishpond users in Ogbaru Local Government Area of Anambra State, Nigeria. Specifically, the study

- i. Described the socioeconomic characteristics of the fresh catfish marketers;
- ii. Examined the costs and return in fresh catfish marketing in the study area;
- iii. Described the marketing channels in the study area; and
- iv. Identified the constraints to fresh catfish marketing in the study area.

2. METHODOLOGY

The study was conducted in Ogbaru Local Government Area of Anambra State. Ogbaru is one of the twenty-one (21) Local Government Areas that make up the State and the area is surrounded by the River Niger in such a way that most of the communities are located at the bank of the River. The towns that make up the study area includes Atani, Akili-Ogidi, Akili-Ozizor, Amiyi, Mputu, Obaogwe, Ohita, Odekpe, Ogbakugba, Ochuche Umuodu, Ossomala, Ogwu-aniocha, Umunankwo, Umuzu, Okpoko, and Ogwulkpele with Atani as the headquarters. To the north, the study area is bounded by Onitsha South and Idemili LGAs in Anambra state, to the south it is bounded by Imo and Rivers States, to the east it is bounded by Ekwusogo and Ihiala LGAs in Anambra and to the west, it is bounded by River Niger and Delta State.

Population of the study comprised all fresh catfish marketers in Ogbaru Local Government Area of Anambra State, Nigeria. Simple random sampling technique was used to select 120 respondents that was used for the study. Five communities, namely, Atani, Mputu, Ogbakugba, Ogwulkpele and Umuzu were purposively selected because of the large number of fresh catfish marketers and other fish economic activities prevalent in the area. The selected communities also witness the buying and selling of fresh-catfish on daily basis by marketers and consumers who either live within or visit the area from time to time from other places in order to transact business. Twenty-four (24) fresh-catfish marketers (retailers) were selected randomly from each of the selected communities, which gave a sample size of 120 respondents that was

used for the study. Data for the study were obtained from primary source through the use of structured questionnaire and were analyzed using frequency counts, percentages, mean scores and gross margin analysis.

3. RESULTS AND DISCUSSION

3.1 Socioeconomic Characteristics of the Respondents

The distribution of the respondents according to their age as shown in Table 1 indicated that 49.2% of the respondents fell between the ages of 25 and 40 years while 30.8% were between the ages of 41 and 56 years. From the result, it can be deducted that a pooled percentage (80%) of the total respondents fell between the active economic age range of 25 and 56 years and this implies that the respondents were still in their productive age and can withstand any stress arising from fresh catfish marketing. This agrees with the findings of Olubunmi and Bankole, [8] who stated that more than half of the fish marketers in Ibarapa were between the ages of 41 and 50 years. The result further indicated that 65.0%, which is more than half of the total respondents were females while 35.0% were males. Thus, the female counterparts dominated fresh catfish marketing enterprise in the study area. Female dominance and involvement in the enterprise may be attributed to the fact that women play major roles when it comes to improving the economic conditions of their households and that of the nation at large.

More so, a greater percentage (63.3%) of the total respondents were married, 20.0% were single and 15.0% were widowed while the remaining 1.7% were divorced. From the result, there was obvious dominance of married people and as such, it is expected that these set of fresh catfish marketers were into the business because of their marital responsibilities conferred unto them by marriage. These responsibilities includes catering for immediate and extended family needs such as provision of school fees for their children, shelter, food and clothing, which are the most basic needs of every man for survival. This finding is in agreement with Njoku and Offor [3] who were of the view that majority of the catfish marketers were married. According to the result (Table 1), the mean household size of the respondents was 6.15 persons while a greater proportion (57.7%) of the respondents had household size of between 6 – 10 persons.

However, 54.0% of the marketers had 1 – 5 household size. It is pertinent to note that household size of the respondents is of great value as it influences the amount of labour available for the supplies and marketing activities of the fresh catfish. As indicated in the study, it is assumed that the marketers have more available hands to help them in their fresh catfish marketing activities and as such, labour cost will be minimized.

The result (Table 1) further revealed that 81 fresh catfish marketers, which accounts for 67.5% of the total respondents had secondary school education, 15.0% had primary school education, 6.7% had tertiary education and 10.8% had no formal education. This implies that majority (89.2%) of the total respondents' attained one form of formal education or the other. The result is an indication of high educational level attainment among the marketers and this will subsequently assisted the marketers in understanding and adoption of modern

technologies that will enhance their marketing skills. The result further implies that they are in a better position to enhance their capacity and productivity. This is in line with the finding of Esiobu and Onubuofu [14] who revealed that majority of the fish marketers, had secondary education.

The result showed that majority (50.8%) of the fresh catfish marketers had between 11 and 20 years of marketing experience, 26.7% had between 1 and 10 years and the remaining 22.5% had between 21 and 30 years. This indicates that greater percentage of the marketers have been into the business for a long time and as such, must have gathered significant years of experience in marketing of fresh catfish. Hence, they can identify possible problems and are likely to proffer solutions towards the sustainability of the enterprise in the area. As such, it is expected that a high level of marketing experience should have a positive correlation with the marketers' efficiency and profitability.

Table 1. Distribution of the respondents according to socio-economic characteristics (n=120)

Socio-economic characteristics	Frequency	Percentage (%)	Mean (\bar{x})
Age			
25 – 40	59	49.2	43.4 years
41 – 56	37	30.8	
57 – 72	14	11.7	
73 – 88	10	8.3	
Gender			
Male	42	35.0	
Female	78	65.0	
Marital status			
Single	24	20.0	
Married	76	63.3	
Widowed	18	15.0	
Divorced	2	1.7	
Household size			
1 – 5	45	54.0	6.15 persons
6 – 10	69	57.5	
11 – 15	6	5.0	
Education level			
No formal education	13	10.8	
Primary education	18	15.0	
Secondary education	81	67.5	
Tertiary	8	6.7	
Marketing experience			
1 – 10	32	26.7	
11 – 20	61	50.8	
21 – 30	27	22.5	
Sources of fund			
Personal savings	91	75.8	
Friends, families and relatives	17	14.2	
Co-operative societies	12	10.0	

This result corroborates the findings of Babalola, Bajimi and Isitor [15], who revealed that majority of the respondents in his study had greater than 10 years of marketing experience. On the distribution of the respondents according to sources of fund available to them in the study area (Table 1), the result indicated that majority (75.8%) of the marketers sourced and financed their fresh catfish marketing enterprise with their personal savings, 14.2% were able to source fund through their friends, families and relative while the remaining 10.0% sourced loan from co-operative societies. This result agrees with the finding of Ayanboye, Oluwafemi and Rafiu [16], who indicated that majority of the respondents financed their business through their personal savings.

3.2 Costs and Return Analysis of Fresh Catfish Marketing

The result as presented in Table 2 indicated that the total revenue realized by the marketers was ₦3,998,200. The total variable cost constitute the major portion (64.5%) of the total cost of marketing fresh catfish in the study area, with cost of purchases (33.4%) as the major variable cost of the total cost. The result further shows that the marketers released gross margin of ₦2,883,800, net marketing income of ₦2,269,230 and net return on investment of 1.3. The value of

the net return on investment value of 1.3 implies a return of ₦1.30 kobo for every 100 kobo invested in the business by the fresh catfish marketer. Hence, by this result, fresh catfish marketing in the study area was profitable.

3.3 Fresh Catfish Marketing Channels in the Study Area

From the result of the analysis, a significant proportion (75.8%) of the marketers identified “supplier – retailers – consumers” distribution channel as the major distribution channel for fresh catfish marketing in the study area. About 10% of the marketers were of the view that the suppliers, sells directly to the consumer, 9.2% indicated “supplier – wholesaler – retailers – consumer” marketing channel, whereas, the remaining 5% were of the view that suppliers sells to the wholesalers and then, the wholesalers to the consumers. Thus, from the finding, it implies that the major distribution channel for fresh catfish marketing in the area was “supplier - retailers – consumers” and as such, one can say that fresh catfish has shorter distribution channel unlike every other livestock product and this may be attributed to its perishable nature. According to Ayanboye *et al* [16], minor intermediaries operate between producers and final consumers and this aligns with the finding in Table 3 of the study.

Table 2. Estimated cost and return for fresh-catfish marketing in the study area (n=120)

Variables	Amount (N)	Percentage %
Total revenue	₦3,998,200	
Variable Costs (VC)		
Purchases	₦577,900	33.4
Transportation	₦241,100	13.9
Loading/offloading	₦189,400	10.9
Associations' due	₦57,000	3.4
Security levy	₦49,000	2.8
Total Variable Cost (TVC)	₦1,114,400	64.5
Fixed Costs (FC)		
Machete	₦19,800	1.14
Wheelbarrow	₦36,800	2.1
Metal/plastic table	₦75,500	4.4
Wooden table	₦39,700	2.3
Interest on loan	₦250,770	14.5
L.G rate	₦32,000	1.9
Monthly store rent	₦160,000	9.3
Total Fixed Cost (TFC)	₦614,570	35.5
Total cost (TVC + TFC)	₦1,728,970	
Gross margin (TR - TVC)	₦2,883,800	
Net marketing income (TR - TC)	₦2,269,230	
Mean net marketing income (NMI/n)	₦18,910.25	
Net return on investment (NMI/TC)	1.3	

Table 3. Distribution of the respondents according to marketing channels (n = 120)

Marketing channels	Frequency	Percentage
Supplier – consumer	12	10
Supplier – retailer – consumer	91	75.8
Supplier – wholesaler – consumer	6	5
Supplier – wholesaler - retailer – consumer	11	9.2

Table 4. Constraints militating against fresh catfish marketing in the study area (n = 120)

Constraints	Means score (\bar{x})	Rank
Inadequate credit facility	3.00	1 st
Inadequate fishpond	2.86	2 nd
High cost of fish due to high cost of feed	2.81	3 rd
Unorganized market	2.75	4 th
Price instability	2.69	5 th
Flooding	2.63	6 th
High cost of stall rents	2.56	7 th
High cost of transportation	2.49	8 th
Poor storage facilities	2.28	9 th
Labour intensive	2.13	10 th
High cost of labour	2.08	11 th
Inadequate standard measuring instrument	1.91	12 th
Unfavorable weather condition	1.86	13 th
Poor sales	1.68	14 th

3.4 Constraints to Fresh Catfish Marketing in the Study Area

The result (Table 4) revealed that inadequate credit facility (\bar{x} = 3.00, 1st), inadequate fishpond (\bar{x} = 2.86, 2nd), high cost of fish due to high cost of feed (\bar{x} = 2.81, 3rd), unorganized market (\bar{x} = 2.75, 4th), price instability (\bar{x} = 2.69, 5th), flooding (\bar{x} = 2.63, 6th), high cost of stall rents (\bar{x} = 2.56, 7th), high cost of transportation (\bar{x} = 2.49, 8th), poor storage facilities (\bar{x} = 2.28, 9th), labour intensive (\bar{x} = 2.13, 10th) and high cost of labour (\bar{x} = 2.08, 11th) were the major constraints identified by the marketers. Whereas, some of the constraints such as inadequate standard measuring instrument (1.91, 12th), unfavorable weather condition (1.86, 13th) and poor sales (1.68, 14th); were not identified as the major constraints by the marketers.

4. CONCLUSION AND RECOMMENDATION

Fresh catfish marketing in Ogbaru Local Government Area of Anambra State, Nigeria was profitable having obtained a positive value of net return on investment of 1.3 from the enterprise budgeting analysis. This implies a return of ₦1.30 kobo for every 100 kobo invested into the fresh catfish marketing business. However, if accurate measures are put in place in tackling

the few identified constraints, militating against fresh catfish marketing in the area, the marketers are bound to make more profit. Based on the findings of the study, the government should make provisions for agricultural incentives such as short and long-term loans, with a single digit interest rate for the marketers in order to solve the problem of inadequate credit facility. More so, efforts should be intensified towards making fresh catfish marketing more viable and lucrative in the study area through the provision of organized markets, seed capital for the marketers and provision of subsidized fingerlings by the government.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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