

Evaluating the Socioeconomic Factors and Distribution Challenges in Retail Dried Catfish Marketing: A Case Study of Akure South Local Government Area, Ondo State, Nigeria

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ABSTRACT

This study examined the factors affecting Dried Catfish marketing in Akure South Local Government Area of Ondo State, Nigeria using Primary data. The data were sourced using a well-structured questionnaire. A multistage sampling technique was employed to randomly select 90 respondents at the final stage in the study area. The data were analyzed using descriptive statistics, gross margin, and regression analyses. The results showed that female dominated the enterprise with 100% and (83.3%) of the married respondents shows that they are still in their active and productive age. The result of the gross margin analysis shows that Catfish marketing was a profitable venture given the value of gross margin to be ₦6, 047,500 per trip. The regression analysis reveals that age, educational level and years of experience were statistically significantly for Catfish marketers in the study area. It is therefore recommended that government should assist dried Catfish marketers by making available low interest credit facilities so that marketers can have access to finance to boost their business. In lieu of external support, Catfish marketers can explore new markets and distribution channels to broaden the reach of retailed-dried catfish products, and also get involved in developing new flavors, packaging options, or introducing value-added catfish products to attract a wider consumer base.

Keywords: Retailed Dried Catfish, Marketing, Profitability, Multiple Regression, Case Study

INTRODUCTION

The marketing of agricultural products plays a crucial role in the economic development of nations, particularly in developing countries where agriculture forms a significant part of the economy (Diyzee et al., 2022). In Nigeria, the marketing of agricultural produce has been identified as a key factor in ensuring food security and improving the livelihoods of rural populations (Oluwakemi et al., 2022). Among the various agricultural products, catfish stands out as an important source of nutrition and income for millions of Nigerians (Ashley-Dejo & Adelaja, 2022; Liverpool-Tasie et al., 2021).

Catfish, a member of the vertebrate classification, is widely recognized for its nutritional value and contribution to human health (Gebremicheal et al., 2023; Olaleye et al., 2019). It serves as a vital source of dietary protein, particularly in Nigeria, where it supplements approximately 40% of the population's protein

intake (Oluwatayo & Adedeji, 2019; Olutumise et al., 2020; Egun & Oboh, 2022). Furthermore, catfish, especially in its dry form, is known for being the cheapest source of animal protein, making it accessible to a large portion of the Nigerian population (Ahmed et al., 2022; Grema et al., 2020). Its affordability and high nutritional content make it a popular food choice, thus contributing to its significant market demand (Ayuya et al., 2021; Engle et al., 2021).

The marketing of catfish involves a series of activities that occur from the point of catching or harvesting the fish to the final consumption by the end consumer (Mokhaukhau et al., 2022). These activities encompass processing, packaging, transportation, and distribution, among others (Adeosun & Adebukola, 2012; Abdel-Moemin & Abdel-Rahman, 2022). The efficiency and profitability of the catfish marketing system are influenced by several factors that operate within the market structure (Asche et al., 2022; Kabir et al., 2022).

Marketing channels play a pivotal role in the process of getting catfish from producers to consumers (Olagunju et al., 2022). According to Omosehin et al. (2021), marketing channels can be classified into centralized and decentralized. Centralized channels involve intermediaries, such as agents, who act as middlemen between producers and consumers (Omosehin et al., 2021). In the centralized framework, meticulous brand shaping and preservation are key advantages as this permits consistent presentation of catfish products across diverse markets. Additionally, the efficiency in resource allocation ensures that strategies are focused and wasteful expenditures are minimized. Economies of scale come into play, offering cost reductions through bulk purchases and centralized processing. Communication within the organization flows seamlessly, streamlining the implementation of marketing strategies. However, centralization comes with its challenges as flexibility is limited, making it difficult to adapt swiftly to local variations in catfish demand or market conditions. Decision-making processes can be slow, hindering the ability to respond promptly to price changes. Inefficiencies may arise, particularly if there is overly bureaucratic or failures to respond to local market needs (Kaleem & Sabi, 2021; Hedge et al., 2023).

On the other hand, decentralized channels involve direct transactions between consumers and agents who purchase directly from the producers. For example, In the decentralized landscape of catfish distribution, the advantage of local adaptation emerges prominently. Marketing strategies can be finely tuned to the unique characteristics of specific regions, allowing for a more personalized and culturally attuned approach. The decentralized structure fosters a nimble response to the nuanced variations in catfish demand and the ever-shifting dynamics of regional markets. Local teams, armed with an intimate understanding of regional preferences, can engage customers more effectively, cultivating a deeper connection between the product and the local consumer base. Furthermore, this environment provides fertile ground for innovation, with local teams empowered to experiment and introduce novel approaches tailored to the specificities of each market (Wilson, 2019; Jimoh, 2021).

However, decentralization in catfish distribution is not without its challenges. Inconsistent branding may pose a risk as messaging and promotional activities vary across different regions, potentially diluting the overall brand identity of the catfish products. The absence of proper coordination among decentralized teams may result in the duplication of efforts, leading to inefficiencies and increased costs. Standardization becomes a notable challenge, impacting the maintenance of consistent product quality across diverse distribution channels. Additionally, the decentralized structure may give rise to conflicts between central management and local teams, particularly concerning strategic decisions and resource allocation. In navigating the decentralized landscape of catfish distribution, a delicate balance must be struck between leveraging the advantages of local adaptation and innovation while addressing the challenges to ensure a cohesive and effective distribution strategy. (Madugu & Edward, 2011; Awuor et al., 2019; Akinsete, 2021). The choice of marketing channel affects the cost, efficiency, and profitability of catfish marketing (Akinsete, 2021; Diyee et al., 2022; Cheathman et al., 2023).

In Nigeria, a developing country with a growing agricultural and industrial sector, the improvement of the agricultural marketing system becomes crucial in meeting the expanding demand for dried catfish consumption (Iliyasu et al., 2011; Howard, 2022). However, the distribution channel for catfish in Ondo State is burdened with several intermediaries, resulting in a cumbersome marketing process (Olatunde et al., 2022). This situation poses challenges for dried fish sellers, hindering their ability to maximize profits.

Therefore, the problem statement for this study is that the retail dried catfish marketing in Akure South local government of Ondo State faces various factors that impact its efficiency and profitability. Addressing these factors is essential to ensure a continuous supply of dried catfish and optimize market performance in the study area.

The main objective of this study is to analyze the factors influencing the efficiency and profitability of retail dried catfish marketing in Akure South local government of Ondo State. To achieve this objective, the study focused on the following specific objectives:

1. Describe the socio-economic characteristics of dried catfish marketers in the study area.
2. Analyze the profitability of dried catfish marketing in Akure South local government.
3. Examine the factors that affect the revenue of dried fish marketers.
4. Identify and examine the constraints inherent in the dried catfish marketing system.

By investigating these factors and their interplay, this study aims to provide valuable insights that can lead to improvements in the market structure and enhance the efficiency and profitability of retail dried catfish marketing in Akure, Nigeria.

LITERATURE REVIEW

The marketing of agricultural products, including catfish, plays a crucial role in the economic development and food security of nations, particularly in developing countries like Nigeria. In the context of retail dried catfish marketing in Akure South Local Government of Ondo State, several factors influence its efficiency and profitability. This literature review aims to provide an overview of the existing research and knowledge related to these factors.

Importance of Catfish in Nigeria

Catfish is widely recognized for its nutritional value and contribution to human health. It serves as a vital source of dietary protein in Nigeria, supplementing approximately 40% of the population's protein intake (Madugu and Edward, 2011). Its affordability, particularly in dried form, makes it accessible to a large portion of the Nigerian population. This affordability, combined with its nutritional content, positions catfish as an important staple food and a significant contributor to the overall well-being of the Nigerian populace (Olaleye et al., 2019).

Catfish Marketing Channels

The choice of marketing channel is a critical factor in determining the efficiency and profitability of catfish marketing. Marketing channels can be categorized as either centralized or decentralized. Centralized channels involve intermediaries or middlemen who facilitate transactions between producers and consumers, adding their profit margins along the supply chain (Adeosun and Adebukola, 2012; Omosehin et al., 2021). In contrast, decentralized channels involve direct transactions between consumers and agents who purchase directly from the producers (Madugu and Edward, 2011).

The literature suggests that the distribution channel for catfish in Nigeria, including Akure South Local Government, often involves multiple intermediaries between producers and consumers (Moses, 1992). This complexity in the marketing system can lead to increased costs, longer supply chains, delays in product delivery, and potential quality deterioration. Streamlining the distribution channels and reducing the number of intermediaries could improve the efficiency and profitability of catfish marketing in the study area.

Socio-Economic Characteristics of Catfish Marketers

The socio-economic characteristics of catfish marketers play a crucial role in determining their success and profitability. Factors such as education level, experience, access to capital, market knowledge, and infrastructure influence their marketing strategies and practices. Adequate knowledge and skills related to marketing techniques, storage, and quality preservation are essential for maximizing profitability in the catfish market (Adeosun and Adebukola, 2012).

Research suggests that catfish marketers in the study area may possess varying levels of education, experience in the catfish industry, and access to financial resources. Some may have formal education and specialized training in marketing, which could contribute to their adoption of efficient marketing practices. Others may rely on traditional knowledge and experience gained through years of involvement in the catfish trade. Understanding the socio-economic characteristics of catfish marketers is crucial for identifying the specific factors that influence their efficiency and profitability.

Factors Affecting Revenue and Profitability

Several factors can impact the revenue and profitability of retail dried catfish marketing. Among the key factors to consider are market demand, pricing strategies, transportation costs, storage facilities, and market competition. Adequate market demand and effective pricing strategies are crucial for ensuring a steady flow of customers and optimizing profits (Madugu and Edward, 2011; Akinsete, 2021). Efficient transportation and storage facilities help reduce losses and maintain the quality of dried catfish, which can positively impact profitability. The level of competition within the market also affects the market share and pricing power of catfish marketers.

Furthermore, market volatility, seasonality of supply and demand, and changes in consumer preferences can significantly impact the revenue and profitability of catfish marketing. Understanding these factors and their dynamics is essential for catfish marketer.

MATERIALS AND METHODS

The Study Area

The study was conducted in Ondo State, one of the Western States of Nigeria. The State lies between longitude 5° 3' and 6° 6' East and Greenwich meridian and latitude 5° 45' and 3° 15' North of the equator. According to the analytical report of the National Population Commission (National Population Commission, 2006), the tropical climate of the State is mainly of two seasons; rainy season (April-October) and dry season (November to March). The temperature ranges between 21°C and 29°C and humidity is relatively high. The State has an annual rainfall of between 1150mm and 2000mm. The favorable climate accounts for why over 80% of the inhabitants were farmers (Omosehin et al., 2021). The farmers in the State grow food and other crops for both domestic consumption and export. These include cocoa, maize, cashew, rice, plantain, kola nut, and citrus (Fawole and Rahji, 2016).

Sampling Technique

A two-stage sampling technique was used to select respondents for this study. In the first stage, purposive sampling was used to select three communities in Akure South Local Government Area of Ondo State, Nigeria. These communities were selected due to the area's high level of dried catfish marketing activities. In the second stage, a simple random technique was used to select 30 respondents from markets in these communities. A total of 90 respondents were used for this study.

Method of Data Analysis

Descriptive statistics such as frequency distribution and percentages were used to describe the socio-economic characteristics of respondents and the inherent constraint, gross margin was used to analyze the profitability and multiple regression were used to examine the factors that affect the revenue of dried catfish marketers. Three functional forms of the model were considered: linear, semi-log and double log. The lead equation was chosen based on compliance of the result with the underlying economic theory, number of significant variables and fitness of the coefficient of determination (R^2). Among the three models, parameter estimates of the linear model had the best attributes that met these criteria and was chosen as the lead equation.

The model is implicitly specified as

$$Y_t = f = (X_t \dots X_m) \dots \dots \dots (1)$$

Where m is the total number of explanatory variables (X).

The mathematical specification of the model is

$$Y_i = \alpha_0 + \sum_{i=1}^m \beta_i X_i + \epsilon_i \dots \dots \dots (2)$$

The three functional forms are given as

$$Y_i = \alpha_0 + \sum_{i=1}^m \beta_i X_i + \epsilon_i \dots \dots \dots (3) \text{ (Linear model)}$$

$$\ln Y_i = \alpha_0 + \sum_{i=1}^m \beta_i X_i + \epsilon_i \dots \dots \dots (4) \text{ (Semi-log model)}$$

$$\ln Y_i = \alpha_0 + \sum_{i=1}^m \ln \beta_i X_i + \epsilon_i \dots \dots \dots (5) \text{ (Double Log model)}$$

The Gross Margin (GM) was represented mathematically by the equation

$$GM = GI - TVC \dots \dots (6)$$

Where GM= Gross Margin, GI= Gross Income, TVC= Total Variable Cost

Model Specification

The marketing function postulated for dried catfish marketers in the study area is implicitly presented by equation (7)

$$Y = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, X_{10}, X_{11}, +\mu)$$

Y = sales revenue

X_1 = age of respondents

X_2 = marketing experience

X_3 = educational level

X_4 = cost of purchase

X_5 = cost of transportation

X_6 = cost of labour

X_7 = unit price of 1kg

X_8 = cost of rent

X_9 = taxes

X_{10} = place of purchase

X_{11} = monthly income

μ = error term (assumed to have constant mean and constant variance)

RESULTS AND DISCUSSION

Socio-economic Characteristics of Dried Catfish Marketers

Tables 1 showed that the majority of the marketers (44.4%) were within the age range of 41 and 50 years. This indicated that the dried catfish marketers were within their economic active age (Oluwakemi et al., 2022), thus they could withstand the rigors associated with the activities of marketing. The results revealed that the marketers were mainly females (100%). This implied that dried catfish marketing is a business dominated by women in the study area. This corroborates with the findings of Lawal and Idega, (2014) & Johnson et al. (2020) who opined that fish marketing is mainly dominated by women. Again, the table showed that 83.3% of the marketers were married. This implication of these is that most of the respondents had family commitments which share part of their business activities and consequently in the profit margin. This is similar to the findings of Bobola et al. (2019) that marital status of fish marketers has a profound effect as it reflects in their social and economic commitment to their families. In addition, about 32.2% of the respondents had no formal education, 30% had secondary education while 22.2% of the respondents had tertiary education. This implies that literacy level of dried catfish marketers in the area was fairly high and this can have positive effect on the business acumen of the respondents. The result showed that 35.2% of the respondents have the household size of between 1 and 5 while 39.9% of them had a household size of between 5 and 10. It can be deduced that the respondents had a large household size which is likely to impinge on the success of the business. According to the table, majority (53.3%) of the respondents sources their funds from family and friends. It was also revealed that 42.3% of the marketers had spent between 10-20 years dried catfish marketing while 36.6% have between 1-10 years of experience. The implication of this is that there will be higher level of efficiency resulting from the expertise knowledge of marketing system acquired over the years as they have been accustomed to it. The result also showed that, 51.1 % of the respondents source their funds from family and friends, 43.3% from personal savings while 5.6% from financial institutions such as commercial banks, cooperative societies etc. The implication of these is that most of the catfish marketers tend to patronize capital sources that are easily affordable with low-interest

rate charged. This assertion is in line with the findings of Aturamu et al. (2021)

Table 1: Socio-economic Characteristics of Respondents

Variable	Frequency	Percentages (%)
Age of respondents		
≤ 30	6	6.7
31-40	6	6.7
41-50	40	44.4
51-60	28	31.1
No Response	10	11.1
Total	90	100
Sex		
Female	90	100
Marital Status		
Single	–	–
Married	75	83.3
Divorced	5	5.6
Widowed	10	11.1
Total	90	100
Educational Status		
Primary Education	27	30
Secondary Education	14	15.6
Tertiary Education	20	22.2
No Formal	29	32.2
Total	90	100
Household Size		
1-5	32	35.2
5-10	36	35.2
No Response	22	25.2
Total	90	100
Years of Experience		
1-10	33	36.6
10-20	38	42.3
20-30	10	11.1
30-40	9	10.0
Total	90	100
Source of Funds		
Personal savings	39	43.3
Relatives and friends	46	51.1
Financial institutions	90	5.6

Total	90	100
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Source: The Authors

Factors that Determines the Quantity of Dried Catfish Marketed in the Study Area

The regression model was used to determine the quantity of dried catfish that was marketed by the respondents in the study area. It was used to show the relationship between the revenue of the marketers and factors affecting their level of income. The linear, semi-log and cobb douglas functional forms were used using the ordinary least square method. The linear functional form was selected as the lead equation based on the number of significance variables and fitness of coefficient of determination (R^2). As shown in table 2, the coefficient of multiple determinants (R^2) of 0.880 implies that 88% of the variations in the marketers' sales were accounted for by the explanatory variables considered in the model. The results revealed that marketers' age, educational level and years of experience were statistically significantly. The coefficient of the educational level was positively correlated with the quantity of dried catfish marketed by the respondents in the study area. This implies that 1.0% in the educational level of dried catfish marketers will lead to a corresponding 70% increase quantity of dried catfish marketing. Obviously, educational level has a strong influence on the quantity of dried catfish marketed, this is because education affords various opportunities to promote and market their sales which n turn brings about increase in the quantity of dried catfish marketed. In the same manner the coefficient of years of experience was positive and significant. 1% increase in the experienced gained by marketers will bring about 48% increase in the quantity of dried catfish marketed. The coefficient of age is negative but significant. This implies that 1.0% decrease in age will lead to 83% increase in the quantity of dried catfish marketed. In other words, increase in the age of marketer will affect its ability to advertise and market its product as they become less economically active as result affects the quantity of sales they make.

Table 2: Regression results on determinants of quantity of dried catfish marketed

Variables	Functional forms		
	Linear function	Cob-Douglas	Semi-log
Constant	0.372 (0.366)	0.213 (0.198)	0.073 (0.374)*
Age of respondents	-0.294 -(0.083)*	-0.077 -(0.043)**	-0.540 -(0.630)
Educational levels	0.070 (0.045)**	0.058 (0.271)	0.125 (0.615)
Years of experience	1.072 (0.048)**	0.015 (0.105)	-0.068 (0.748)
Cost of purchase	2.013 (0.246)	0.943 (0.349)	9.807 (0.597)

Cost of transportation	0.145 (0.915)	0.095 (0.0066)	1.970 (0.653)
R ²	0.880	0.983	0.669
Adjusted R ²	0.867	0.980	0.264
F-value	50.235	225.935	2.348
No of Observations	90		

Source: The Authors

Profitability Analysis

Table 3 showed that acquisition cost accounted for 44.56% of the total cost while cost of transportation accounted for 8.65%. Cost of storage accounted for 44.79% of the total cost. The table also revealed that an average marketer incurred average a total variable cost of ₦52,850,000 per trip but earned average revenue of ₦113, 32,500 per trip. This implies that dried catfish marketing is a profitable venture in the study area. This result is in line with the findings of Olagunjun et al. (2022).

Table 3: Profitability Analysis of Respondents.

Items	Amount (₦)	%TVC
Cost of acquisition	2,461,000	46.56
Cost of storage	2,367,500	44.79
Transportation cost	457,000	8.65
Total Cost (TC)	5,285,000	100
Total revenue (TR)	11,332,500	
Gross margin (TR- TC)	6,047,500	

Source: The Authors

Constraints facing Dried Catfish Marketers in the Study Area

Table 4, revealed that 73.3% of the marketers are faced with the problem of lack of finance, this is due to the fact that majority of the respondents do not have access to government funds and grants to purchase more products for sale. 27.7% complaint of the problem of high transportation cost, this is as a result of bad road networks causing transporters to increase their fares. 11.1% complaint of the problem of high market dues paid to their market association.

Table 4: Constraint Faced by Marketers in the Study Area.

Constraint	Frequency	Percentage
High cost of transportation	25	27.7
Shortage or irregular supply of goods	5	5.5
Low offering price by consumers	10	11.1
Lack of finance	66	73.3
High charges paid as dues	20	22.2
Low prices offered by consumers	10	11.1

Source: The Authors

CONCLUSION

The findings from the study showed that of the marketers (44.4%) were within the age range of 41 and 50 years. The results revealed that the marketers were mainly females (100%). This study showed that literacy level of dried catfish marketers in the area was fairly high. Moreover, table revealed that majority (53.3%) of the respondents source their funds from family and friends. The table also revealed that an average marketer incurred average a total variable cost of ₦52,850,000 per trip but earned average revenue of ₦11,332,500 per trip.

RECOMMENDATIONS

From the findings in this study, government should assist marketers by making available low interest credit facilities so that marketers can have access to finance. There should be reduction in the amount paid as dues to the market associations so they can save more money. Government should ensure construction and rehabilitation of roads to make transportation of goods easier for the marketers, road networks should be made to connect remote places so as to reduce transportation cost of accessing such areas. In addition, catfish marketers in the study area are fairly educated; seminars should be held for them so as to improve their managerial ability. In lieu of external support, Catfish marketers can explore new markets and distribution channels to broaden the reach of dried catfish products, and also get involved in developing new flavors, packaging options, or introducing value-added catfish products to attract a wider consumer base.

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