# SOCIO-ECONOMIC CHARACTERISTICS AND PROFITABILTY OF FISH MARKETERS IN SELECTED FISH MARKETS IN LAGOS AND OGUN STATES

**Adeyolanu Deborah T[1]., Akinjole Adebami N[1]. And Okelola Olufemi E[2]**

[1]Department of Agriculture and Industrial Technology, Babcock University, Ilisan-Remo, Ogun State, Nigeria.
Corresponding Author's Email: adeakinjole@gmail.com. Mobile phone: +2348023776977
[2]Federal College of Fisheries and Marine Technology, Victoria Island, Lagos, Nigeria

## ABSTRACT

This research examined the socio-economic characteristics and profitability of fish marketing participants in the selected fish markets in Lagos and Ogun States. Both descriptive statistics and econometric tools were employed to analyse data collected with structured questionnaire that was administered to 327 respondents in the study area. The significant socioeconomic variables identified are sex, age, household size, access to credit, experience and education. The result of the multiple regression analysis showed that R-square was found to be 0.658 which implies that 65.8percent of the variation in the socioeconomic characteristics affecting the profitability of fish marketing was explained by the independent variables. The result also revealed that the coefficient of fish marketing experience was positively related to profitability at 1% level of significance. This implies that the more the years of experience of the respondent in fish marketing, the more profit they will realize. The coefficient of household size negatively affected the output of fish marketers at 10% level of significance. This implies that the higher the population of the fish marketers' household size, the lower the profitability of fish marketing. This is because members of the household did eat from the sales stock. The study also revealed that the coefficient of the respondents' access to credit is positively related to fish profitability at 5% level of significance. This implies that the more the marketers have access to credit, the higher the sales stock with variety of fish. The study showed that high cost of fish, inaccessibility to credit facilities and shortage of supply are most critical constraints facing fish sellers in the study area. The authors suggested that logistics to make cooperative societies to provide adequate credit support to the members should be developed. Individual fish sellers should belong to as many cooperative societies as possible. Government should make fish marketing more attractive to enable more women and youth engage in the business to reduce youth unemployment rate. Locally production of fishes should be encouraged to bridge the supply gap.

**Keywords:** Fish Marketing, Profitability, Fresh Fish, Smoked Fish, Frozen Fish.

## 1. INTRODUCTION

Fish is one of the most important sources of food and income to many people in developing countries because it is often the cheapest source of animal protein (Moruf et al., 2020). It also constitutes 40% of animal protein intake of the average Nigerian and provides employment opportunities to many rural dwellers in different fields of fisheries such as production, preservation and transportation (Adeyeye, 2016). Animal protein sources such as beef, mutton and chicken has been said to be presently beyond the reach of an average income earner (Moruf

et al., 2021). Hence, most people settle for fish as a cheap source of animal protein. Fish is a higly perishable commodity and it its marketing has many challenges and limitations in the sub-sahara African countries. Food insecurity and malnutrition are the most devastating challenges of the world poor and needy FAO (2020). About 80 to 90 million of people have been fed yearly and most reliable source of protein for many is fish, yet millions of people who depend on fish are faced daily with the fear of shortage. With the population of Nigeria on the rise, there is a corresponding demand for fish consumption. Fish is one of the most diverse groups of animals known to man with more than 20,500 species. The shortfall of fish availability has resulted in a low animal per capita consumption rate of 7.5kg against 13kg recommended by the food and agriculture organization (Oni, 2017). Apart from utilization as food, fish is used in medicinal preparation (fish oils), in fashion industry, recreation (sport fishing) and other agricultural industries; fish meals, ornamental and decorations (Oni, 2017). On the average, it is said that fish provides about 20-30 kilocalories per person per day. Fish is crucial to Nigeria economy, contributing 5.4%of the gross domestic product (GDP) (Oni, 2017)

Fish provides important health benefits and remains an essential source of protein and micronutrients(Max, et al., 2019). The demand of fish globally and particularly in Nigeria has been on the increase with supplies not meeting up the demand (FAO, 2020). The profitability of the fish marketers is reflection of their livelihood.

A number of socio-economic factors and resources at the business level as well other sources of income significantly determine households' livelihood. Resource-rich and educated marketers engage more in diversified livelihoods (Sanzidur and Shaheen, 2014).

However, majority of the unemployed population might not look in the direction of fish marketing business. Fishing is an important livelihood activity in Nigeria's Niger Delta region contributing about 40 -60% to employment generation according to Ekpo and Essien-Ibok (2013). With the level of unemployment rate projected to be 37% in 2023 according to NESG 2023 among the youths in the country, studying the profitability of fish marketing business as means of improving livelihood can be another added advantage to reduce the said unemployment. There are little information on the socioeconomic characteristics and profitability of the fish sellers in the study area, hence the need to carry out this research.

**1.2 Statement of the Problem**

Low income has necessitated fish to be an affordable animal protein source in many homes in developing countries (Bassey et al., 2015). Nigeria depends heavily on fish in meeting the animal protein requirements of its teeming populace; however, less than 50% of its demand is met by local supply, with the demand-supply gap complemented by importation (Oni, 2017). Poor handling of freshly harvested fish poses a major challenge as 30 to 50% of freshly locally harvested fish is wasted due to high ambient temperatures that encourage rapid deterioration of the fish once dead (Adeyeye, 2016). These negative factors have resulted to low profitability of fish marketing in Nigeria. It requires value addition and examination of socio economic characteristics of the fish marketers with a view to determining fish marketing profitability among fish marketers in the study area.

**1.3 Objectives of the Study**

This research aim was to determine the effect of socio-economic characteristics on profitability of fish marketers in Lagos and Ogun State

Specific Objectives were:

i.   To describe the socioeconomics characteristics of fish marketers in selected fish markets in Lagos and Ogun State.

ii.  To determine the effect of socio-economic characteristics on profitability of fish marketers in Lagos and Ogun State

iii. To identify the constraints facing fish marketers in selected fish markets in Lagos and Ogun State.

## 1.4 Research Questions

i.   What are the socio-economic characteristics of fish marketers in the selected fish markets in Lagos and Ogun State?

ii.  What is the effect of socio-economic characteristics on profitability of fish business for the fish marketers in the selected fish markets in Lagos and Ogun State?

iii. What are the constraints facing fish marketers in selected fish markets in Lagos and Ogun State?

## 1.5. Research Hypothesis

**Ho:** Socio- economics characteristics does not affect the profitability of fish marketers

## 1.6. Scope of the Study

The scope of the study is limited to socio-economic characteristics and profitability of fish marketers in the selected fish markets in Lagos and Ogun State. Three hundred and sixty fish (360) marketers were randomly selected from the fish markets and interviewed through well-structured questionnaires. These were used to evaluate the socio-economic characteristics and profitability of fish marketers in the selected states.

## 1.7 Significance of the Study

The need to examine the socio-economic characteristics and profitability of fish marketers as the middle men in fish supply chain in providing efficient protein intake for the ever increasing population at a reasonable price cannot be over-emphasized. . Series of researches have been carried out in respect to fish farmers, marketers and consumers on the efficiency of production, effects on environment and socio-economic characteristics in other areas. However, little or no effort is geared towards the assessment of the profitability of the fish marketers in Ogun and Lagos state. Also the glut experienced in some cases of agricultural commodities like in poultry eggs, as a result of cashless policy of the Nigerian government calls for a look into fish marketing as alternative protein source with a view to ascertaining its profitability and possibly proffering solutions to the attendant problem.

## 1.8 Organisation of Work

The study is divided into five parts. PartI  is the introduction  of the research report. PartII dealt with review of related literatures on the topic and this is broken down into appropriate sub-topics. PartIII contained  the methodology employed which comprises of the study area, the sample selection and the research design for the study. It also talked about the instruments used

in collecting the data and data analysis procedure. PartIV looked into the analysis and presentation of results of the study. This was done through the use of tables and figures, statistical presentation and discussion of results from the questionnaires and interviews including interpretation of the tables. Finally, PartV provided, conclusions, recommendation and suggestions for further studies.

## 2.ITERATURE REVIEW
### 2.1 Overview of Fish and Fisheries
Fish is a vital source of food for people. It is man's most important single source of high-quality protein, providing about 16% of the animal protein consumed by the world's population. Fish is a relatively cheaper source of protein especially in developing countries (Oluwatosin. and Solomon 2017; FAO, 2020). It is particularly an important protein source in regions where livestock is relatively scarce. Fish provides not only high-value protein but also represents an important source of a wide range of essential micronutrients minerals and fatty acids which benefits human health (Oluwatosin. and Solomon 2017; FAO, 2020). Fish contains the essential amino acids, considerable amounts of phosphorus and other minerals such as copper, calcium, iron, iodine and magnesium which are necessary for the healthy growth of the human body (Oluwatosin and Solomon, 2017). Fish is abundant and available in most markets as fresh, smoked, dried, canned or frozen. These fish products are highly nutritional and desirable foods, less tough and more digestible compared to beef, mutton, chicken and bush meat (Oluwatosin and Solomon, 2017).

### 2.1.1 Fisheries
According to the FAO (2020), fishery is an activity leading to harvesting of fish. It may involve capture of wild fish or raising of fish through aquaculture." It is typically defined in terms of the "people involved, species or type of fish, area of water or seabed, method of fishing, class of boats, and purpose of the activities or a combination of the foregoing features.

Marine and inland fisheries make vital contributions to food security both as a direct source of protein, essential fatty acids, and micronutrients, and indirectly via employment and income (FAO 2018). According to the FAO (2023), fisheries contribute about 3.2 percent of the agriculture GDP. Employment opportunities in fisheries come from production, processing, preservation and transportation (Ewepu, 2019; FAO, 2020).

Fisheries also have tremendous cultural and educational importance in human societies. These include longstanding representation in many religious ceremonies, archaeological artifacts and recreational. Fisheries provide a significant source of leisure, supplementary nutrition, connection to nature, and influxes to local economies (Arlinghaus et al., 2016; Hunt and McManus 2016; Cooke et al., 2018). Fisheries development is a process which is aimed at improving the economic and social well-being of producers and consumers, through the development of sustainable systems of exploitation and utilization of fisheries resources.

## 2.2 CONCEPTUAL FRAMEWORK ON FISH MARKET AND MARKETING
Availability of refrigeration in the 19th and 20th century, made rapid fish transportation readily available and fish markets can technically be established at any place. However, because modern trade logistics in general has shifted away from marketplaces and towards retail outlets, such as supermarkets, most seafood worldwide is now sold to consumers through these venues, like most

other foodstuffs. Fish market is a place where the fishes and fish products of commercially importance are marketed. Marketing of fish and fishery products gives foreign exchange to the country (Asogwa and Asogwa, 2019). Marketing and fish distribution is done through various channels which are important characteristics in the process of getting products from source to consumers and known as marketing channels. (Girei et al., 2021). Fish marketing does not usually involve the fishermen and consumers only but there are other competitive bodies in the fish distribution channels especially the middlemen. Aminu et al., (2017) categorized marketing channels into centralized and decentralized channels. A centralized channel has agents who serve as middlemen between producers and consumers while decentralized channel is a kind of channel where both consumers and agents can buy directly from the producers (Asogwa and Asogwa, 2019). The centralized marketing channel is typical to fish marketing in most developing countries including Nigeria with series of middlemen between producers and consumers. Fish marketing and distribution is an integral aspect of fish production because it is only when the fish gets to the final destination (consumers) that the chain can be completed.

## 2.3 FISH DEMAND AND SUPPLY

Fish supply in Nigeria is through captured fisheries, fish farming or by importation. Nigeria is one of the largest importers of fish and fishery products among the developing countries. The composition of the imports is largely mackerels, sardinella, hakes, herrings and croakers caught off the coasts of the Eastern Central Atlantic countries of Senegal and Mauritania and from the North Sea. The exporting countries are Spain, the Netherlands, Russia, Denmark, the Irish Republic and USA (Kikiope O. 2018). Value of imports is over US$400 million. Frozen fish is distinguished by the best distribution network within the country. The markets have access to a chain of strategically located cold stores, where retailers collect in cartons for supply to customers at daily markets. Some of it is smoked or fried at retail outlets.

Nigerians are large consumers of fish with demand estimate of 1.4 million metric tons and domestic supply of 400000 tons. Hence, a demand supply gap of about 0.7 million metric tons exists nationally with import making up the short fall FAO (2017) reported that about 580,000 tons of fish valued at about 400million US dollars is imported annually while Nigeria produces 400,000tonnes domestically.

The demand for fish in Nigeria has doubled as other sources of animal protein have become expensive due to ever increasing population and high production cost of other protein sources such as livestock (Bush et al., 2019; Lenis et al., 2021)

One of the greatest problems confronting millions of Nigerian today is lack of adequate protein intake both in quality and quantity to feed the nations ever-growing population. Demand for fish has been increasing rapidly. This is driven chiefly by population and income growth, but has also been spurred on by an increasing appreciation for the health benefits of fish consumption, as well as changes in lifestyles and preferences associated with rapid urbanization and globalization (Subasinghe et al., 2021)

The interest for fish farming has increased rapidly over the years as a result of the awareness of the importance of this practice to individuals and the economy at large, as well as the advantage attached to it. More so, government and the private sectors have shown interest in the fish farming sector  yet, the gap between the demand of fish in Nigeria and the supply of fish from domestic production have been increasing and even the importation (FAO, 2023).

### 2.4 FACTORS AFFECTING FISH MARKETING IN NIGERIA.

There are several factors in the environment, which have various impacts on fish marketing in Nigeria. These factors include:

### 2.4.1 Demographic factor:

This factor deals with the population of a given place, the increase in number of people in a place increases the demand for fish, while decrease in population decreases the demand for fish in a given place.

### 2.4.2. Economic factor:

This is a situation whereby majority of the population can meet up with their needs in terms of money. Falling incomes per head of household and unemployment has reduced the economic power, hence many people have opted to buying fish.

### 2.4.3 Political factor:

This factor deals with people in power, if majority of people who are in control can circulate money, there will be enough money to buy fish, but if money is not circulated it will be difficult to buy fish.

### 2.5 CONSTRAINTS OF FISH MARKETING IN NIGERIA

The major constraints facing fish marketing in Nigeria are pronounced in the various pre-harvesting methods. Such methods involve the usage of mainly artisanal and to an extent, commercial (trawler system). These systems are not well developed and thus prone to wastages. The post-harvest procedure which primarily involves processing, storage and preservation is in the lowest ebb. It should be noted that fishery products are extremely fragile and the type of physic-chemical techniques used in their processing and conservation have a large part to play in targeting the markets and the prices. The artisanal fishing techniques used in Nigeria, which include preparation by smoke drying, salting and sun drying do not give a guarantee to products of the quality required for International markets. The type of the refrigerating system available does not permit the preservation of all the sensorial quality of the fish. Infrastructural problems particularly transportation do militate against the development of fish marketing in Nigeria (Nwabunike, 2015).

As a perishable commodity, transporting fishery products from source to market at adequate time is very essential to enhance positive net returns and reduce wastage. Dug-up canoes and the few existing outboard engines coupled with the limited number of trawlers are not adequate to ferry the products to the marketing point. It should be noted that prices are likely to be high in areas close to large and growing urban markets with good access to transportation. Although Nigeria is well endowed with natural fishery resources, there is an increasing, inconclusive body of evidence indicating that the maximum sustainable yield (MSY) of Nigeria's primary catch fisheries is been surpassed. The MSY according to the FAO (2023) was 950,000 metric tons. The findings reveal that the sustainability and pollution issues facing Nigeria's natural fishery resources are in need of greater study. Evidence indicates that Nigeria may face limitations on natural fish supply particularly as the problem of water hyacinth and sea incursion become increasingly significant and threatens most of the coastal waters. Shifts in demand and supply are likely to increase prices for fish in the medium-term contributing to the profitability of fish

farming. Also, demand and supply in combination with the transaction costs of marketing influence the price that fish farmers can charge for their products. Increasing poverty among the rural people is also leading to increased demand for fish and fish products (Nwabunike, 2015). Food insecurity and low agricultural productivity suggests that there is potential for fish farming to improve rural livelihoods. However, studies indicate that average expenditure on fish by urban households are higher than that of rural households due to higher incomes in urban areas, though urban areas do not spend a higher proportion of their incomes on fish. Fish farmers close to main roads will have good access to potential traders and markets while those in remote locations will have to spend time transporting their catches to pick-up locations or having traders come to them, hence an increment in the transaction costs to traders and decreasing the fisherman's net returns. In the same vein, most fishermen will most likely be limited to subsistence catch and much localized marketing opportunities due to current constraints on transportation and lack of access to adequate processing facilities (Nwabunike, 2015)

## 3. RESEACH METHODOLOGY
### 3.1 STUDY AREA
#### 3.1.1 Lagos State
Four fish markets selected in Lagos state were Ijora, Makoko, Epe and Apapa fish markets. These markets were purposively selected as a result of their role in fish marketing in Lagos metropolis. Lagos state was created on May 27, 1967. It has twenty (20) Local Government Area (LGA).  It has a population of about 15,946,000 in 2023, and is bounded in the North and East by Ogun state, the Atlantic Ocean in the South and an international boundary with the Republic of Benin in the west. The state lies between latitudes 60 35N and 6.5 0N longitude 30 45'E and 3.750 E.

#### 3.1.2. Ogun State.
Two fish markets were selected from Ogun state namely Olomore and Imakun fish markets. Ogun State is in southwestern Nigeria. Created on 3 February 1976 from the former Western State. It borders Lagos State to the South, Oyo and Osun states to the North, Ondo State to the east and the republic of Benin to the west. Ogun State had a total population of 3,751,140 residents as of 2006.  Ogun State is the 24th largest State in Nigeria with land area of 16,762 kilometer square.  Nicknamed the "Gateway to Nigeria", the state is notable for having a high concentration of industrial Estates and being a major manufacturing hub in Nigeria. The state lies between Latitude: 6° 54' 35.3988". Longitude: 3° 15' 30.1068".     Latitude: N 6° 54.59'. Longitude: E 3° 15.5018'.

### 3.2 SAMPLE AREA
#### 3.2.1 IJORA FISH MARKET
Ijora is a small district in Lagos State. The area is a swampy and water logged village. The founding of a railway terminus at Iddo, a nearby hamlet boosted the status of Ijora. The fish market is a major frozen food market in Lagos.

#### 3.2.2 MAKOKO FISH MARKET
Makoko is one of many and shoreline settlement. It is a slum that is said to have being for over one hundred and three years (103yrs). The Egun people, who migrated from Badagary and the

Republic of Benin are major occupants whose primary occupation is fishing. . Many households' main source of income comes from the flourishing fish market that is located there.

### 3.2.3 EPE FISH MARKET
Epe fish market is the biggest fish market in Lagos and arguably Nigeria. Epe is a town and local government area located in the North side of the Lekki, Lagos. Epe is known for its fish market, which thrives on the toil of the men and women whose livelihood are dependents on the lagoon and the fish that dwell there.

### 3.2.4 APAPA FISH MARKET
Apapa fish market is commonly known and called Liverpool Fish Market in Lagos State, Nigeria and is situated under the Tincan-Apapa Wharf fly-over bridge along Apapa-Mile 2 Express Road. The size of the market is about 1509.2 m2 in area. .

### 3.2.5 OLOMORE FISH MARKET ABEOKUTA
This market is located along Ita-Oshin Lafenwa route and easily accessible for every buyers. It's a definition of ONE NIGERIA as you have all the major tribes in the country selling with no barrier. The market is known for its fresh fish both from wild and pond. Perishable goods like tomatoes, onions, fish, meat etc. are also available.

### 3.2.6 IMAKUN FISH MARKET, OGUN WATERSIDE
This market is located in Ogun waterside of Ogun state. This area is blessed with lagoon and the Atlantic waters in Ogun state where there are indigenous people around the coastal areas who depend on the natural resources provided by the water. The area use to have waterside sea food festival to showcase the best seafood to Africa and the world from biggest fish to crab, prawn etc.

### 3.3 SAMPLING SIZE AND SAMPLING PROCEDURE.
Multi-stage random sampling technique was employed in this study. The six fish markets were purposively selected due to fish sellers cluster in those markets. Sixty (60) respondents were randomly selected from each market. Ten respondents from each cluster of fish sellers were interviewed. A total of three hundred and sixty (360) respondents were selected from the six markets. We were able to recover a total of 343 questionnaires from the 360 administered.    327 out of the questionnaire were adequately filled.

### 3.4 RESEARCH DESIGN
Quantitative research approach was employed in this work using cross sectional survey. Data were collected through a well-structured questionnaire containing information on demographic characteristics of the respondent and other questions related to the study. The data collected were analyzed using descriptive statistics and inferential statistics. The descriptive analysis involved the use of tables, frequencies distribution and percentages and multiple regression analysis were carried out using Statistical Products and Service Solutions (SPSS) statistical package.  Multiple regression was used to determine the profitability of fish marketers in the study area. The functional model is given as;

$Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + e$

Where Y = Profitability

b0= Intercept

b(1,2,3,......, 7) = Regression coefficients

X(1,2,3,......,7) = Independent variables specified as the socio-economic characteristics of respondents,( X1 = Age, X2= Education, X3=Cost of Purchase, X4 = Selling price, X5 = Forms of sale(fresh=1,Processed=0) , X6 = Years of experience, X7 = Participation in Cooperative, e= error term.)

## 4. RESULT AND DISCUSSION

### 4.1 SOCIO-ECONOMICS CHARACTERISTICS OF THE RESPONDENT

**Table 1: Socio-Economic Characteristics of the Respondents**

| Variable | Variable | Percentage |
|---|---|---|
| **Gender** | Male | 25.08 |
| | Female | 74.9. |
| **Marital Status** | Single | 25.9 |
| | Married | 71.87 |
| | Widowed | 2.14 |
| **Age(year)** | | |
| | 20 – 30 years | 20.79 |
| | 31 – 40 years | 59.33 |
| | 41 – 50years | 14.98 |
| | 51years and Above | 4.89 |
| **Educational Level** | | |
| | Primary school | 19.8 |
| | No Formal Education | 10.70 |
| | Secondary school | 59.02 |
| | Tertiary  school | 7.34 |
| **Family size** | 1---4 | 64.22 |
| | 5---9 | 27.83 |
| | 10 and above | 7.95 |
| **Marketing Experience** | 1---3 | 18.96 |
| | 4---6 | 21.71 |
| | 7---9 | 26.61 |
| | 10 and above | 32.72 |
| **Membership of Cooperative** | Yes | 65.0 |
| | No | 35.0 |
| **Access to Credit** | Yes | 27.0 |

| | |
|---|---|
| No | 73.0 |

**Source: Field Survey, 2023**

Table 1 reveals that the majority (74.9%) of the respondents were female and 25.1% were males. The implication of female dominance may be because females have tendency to exhibit more marketing skill or people see fish marketing as female job.This result also shows that 60.28% of the respondents are between 31-40 years of age, 21.67% are between 20-30 years of age, 13.61% are between 41-50years of age, 4.44% are between 51 years and above. This result reveals that higher proportion of respondents are between 31-40 years of age. This implies that youths are majorly engaged in business of fish marketing. The table also shows that a larger percentage (64.22%) of the respondents maintained small household sizes, while 28.33% of the respondent maintained intermediate household sizes, only 6.94% maintained large household size. This result indicates higher proportion (64.22%) of the respondents have between 1-4 household size in the study area.

## 4.2 DISTRIBUTION OF RESPONDENTS BY SOURCE OF FISH SUPPLY

**Table 2: Distribution of Respondent by Source of Fish Supply**

| Source of fish supply | Frequency | Percentage% |
|---|---|---|
| Imported | 157 | 48.01 |
| Aquaculture | 78 | 28.85 |
| Wild capture | 92 | 28.13 |
| Others | 0 | 0 |
| Total | 327 | 100 |

Source: field survey 2023.

The result in Table 2 above shows that 48% of the respondents got their fish supply from importation, 28.13% got supply from wild – capture, while 28.85% of the respondent got their supply from aquaculture. This result shows that a high proportion (48.01%) of the respondent i n the study area get their supply from importation.

## 4.3 DISTRIBUTION OF RESPONDENTS BY CATEGORIES OF FISH
**Table 3: Distribution of Respondent by Categories of Fish**

| Categories of fish sold | Frequency | Percentage % |
|---|---|---|
| Smoked | 54 | 16.51 |
| Fresh | 86 | 26.29 |

| | | |
|---|---|---|
| Frozen | 124 | 37.92 |
| Dried | 63 | 19.2 |
| Total | 327 | 100 |

Source: field survey 2023.

Table 3 above shows that 37.92% of the respondents are frozen fish seller, 26.29% of the fish marketers are fresh fish seller and 16.51 % of the respondents are smoked fish seller, while 19.2% of the respondents are dried fish seller. This result indicates higher proportion (37.92%) of the respondents in the study area frozen fish marketers.

**4.4 DISTRIBUTION OF RESPONDENT BY MARKETING CHANNELS**

**Table 4: Distribution of Respondent by Marketing Channels**

| Marketing channel | Frequency | Percentage % |
|---|---|---|
| Middlemen | 43 | 13.14 |
| Wholesalers | 83 | 25.38 |
| Importers | 107 | 32.72 |
| Agents | 32 | 9.78 |
| Retailers | 62 | 18.96 |
| Total | 327 | 100 |

Source: field survey 2023.

The results from table 4 indicates that 46.67%of the respondents bought directly from the importers,25.38% bought directly from the wholesalers,13.14% of the respondent bought from the middlemen, 18.96% of the respondents sold in retail, 9.78% bought from agents. This result indicates highest proportion (32.72%) of the respondents get their goods from importers.

**4.5 SOCIO-ECONOMICS CHARACTERISTICS AFFECTING THE PROFITABILITY OF FISH MARKETING**

**Table 5: Socio-economic characteristics affecting profitability of Fish Marketing**

| Variables | Coefficient | Std. Err. | T-value |
|---|---|---|---|
| Constant | 0.623 | 0.823 | 0.769 |
| Sex | 0.146 | 0.505 | 0.288 |
| Marital status | 2.583 | 3.096 | 0.834 |
| Farming experience | 0.018 | 0.006 | 2.985*** |
| Education qualification | 0.007 | 0.009 | -0.078 |
| Access to credit | 0.363 | 0.103 | 3.536 *** |
| Household size | -0.341 | 0.119 | -1.871* |
| Membership of cooperative | -0.023 | 0.042 | - 0.562 |

R = 0.658
R adjusted = 0.586
*** $P \leq 0.01$ * $P \leq .0.10$
Source: Field Survey, 2023

The result of the multiple regression analysis on the socio-economic characteristics affecting the profitability of fish marketing in table 5 shows that R-square was found to be 0.658 which implies that 65.8percent of the variation in the socio- economic characteristics affecting the profitability of fish marketing to fish marketers was explained by variation in the independent variables. The result also reveals that the coefficient of fish marketing experience was positively related to profitability at 1% level of significance. This implies that the more the years of experience of the respondent in fish marketing, the more profit they will realized. It is assumed that continuous practice of an occupation for a long period makes a person experienced and more productive in practice.

The coefficient of household size negatively affected the output of fish marketers at 10% level of significance. This implies that the more the household members the lower the profitability of fish marketing because larger members of the household did eat from the sales stock. The study also reveals that the coefficient of the respondents' access to credit is positively related to fish profitability in the study area at 5% level of significance. This implies that the more the marketers have access to credit the more the sales stock with variety of fish.

The study reveals that the three most critical constraints facing fish marketers in the study area were; high cost of fish (27.83%), lack of access to credit facilities (19.88%) and shortage of supply (21.71%). Other constraints include: transaction error during purchase of fish (16.21%) and poor marketing outlets (14.37%). This implies that fish marketers have challenges limiting their business operation from achieving optimal profit.

## 5.1 CONCLUSION

The study established that socio-economic characteristics (year of experience, household size, access to credit) significantly affect fish marketing profitability in the study area. Fish marketing

was identified as a good business for women and youth. However, lack of access to credit and stock of fish are included in the constraints mitigating fish marketing in the study area.

## 5.2 RECOMMENDATIONS

Based on the findings of the study, the following recommendations are made with a view to improving profitability of fish marketing in the study area and Nigeria.
• Logistics to make cooperative societies to provide adequate credit support to the members should be developed. Fish marketers should be long to as many cooperative societies as possible.
• Government should make fish marketing more attractive to enable more women and youth engage in the business to reduce youth unemployment rate.
• Locally production of fishes should be encourage to bridge the supply gap

## 5.3 Suggestion for Further Studies

Further research is recommended in the area of deployment of technologies that will enhance local production and harvesting of fishes by artisanal farmers.

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