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Socioeconomic determinants of marketing margin for catfish in Port Harcourt metropolis, Rivers State, Nigeria

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ABSTRACT

The study examined the socioeconomic determinants of marketing margin for catfish in Port Harcourt metropolis in Rivers State Nigeria. Specifically, the study described the socioeconomic characteristics of the respondents, ascertained costs and return of the catfish marketers, determined the factors influencing the marketing margin and identified the factors militating against catfish marketing. Multi-stage sampling procedure was adopted in sampling 80 catfish marketers for the study. Data were collected using questionnaire and interview schedule. Data collected were analysed using descriptive statistics, gross margin and multiple regression analysis. Results showed that majority (95%) of the respondents were female with mean age of 36 years. Also, 75% of the marketers were married, and 67.5% of them had secondary education with average marketing experience of 5 years. The marketing of catfish was found to be profitable as indicated by a positive return of ₦73, 213.76 per week from an average of about 210 kg of catfish purchased. A marketing margin of ₦ 396.87 per kg was realized. The result of the regression analysis showed the linear function was the lead equation with an R-square of 0.8923 (89.23%), with age, membership of cooperative society, and quantity of catfish purchased as significant variables that contributed positively to the marketing margin of catfish. The major problems faced by the respondents were poor access to water, inadequate finance and lack of credit facilities among others. It was recommended that catfish marketers should take advantage of cooperative society to enhance their access to finance and easy access to other incentives from the government and non-governmental organization and also provision of water supply in the markets.

Keywords: Catfish marketing, marketing margin, costs and return, Port Harcourt.

INTRODUCTION

Agriculture contributes immensely to the major economic activity of developing economy in Africa. In Nigeria, it provides food for the increasing population, supplies adequate raw materials to the growing industrial sector, employment generation, generates foreign exchange earnings amongst others (Umoinyang, 2014). In Nigeria, it is dominated by the

small-scale farmers who are engaged in the production of the food requirement of the country. Despite the fact that farmers in Nigeria occupy a unique and important position, they still belong in the poorest group of the population and so cannot invest much in their farms (Omowa, 2016).

Nigeria is one of the countries in the sub-Saharan Africa with great potential to

attain sustainable fish production via aquaculture considering the extensive mangrove ecosystem available in the country (Food and Agriculture Organization (FAO), 2005). The large coastal area and continental shelf available in the country makes diverse varieties of fish available in different areas at affordable prices. Despite these rich coastal and continental resources base of the country, the demand for fish far exceeds production resulting in the importation of over 900,000 metric tonnes of fish (Federal Bureau of Statistics, 2012). In Africa, the most commonly culturable species of catfish includes (*Clarias gariepinus*, *Clarias lazera*, and *Heterobranchus sp*), tilapia and carp. Many fish farms focus on catfish, as they can have a market value of two to three times that of tilapia (Ekunwe & Emokaro, 2009).

African catfish (*Clarias gariepinus*) is the most sought. It is very popular with the farmers and commands very good commercial value (Omowa, 2016). According to Ozigbo, et al. (2014), it exhibits many qualities which makes it suitable for commercial culture. These includes; it requires less space, time and has a higher feed conserving rate, fast growth rate, ability to survive on both natural and artificial environment and can be cross-breed to enhance certain favourable traits, tolerance in regard to poor water quality condition and high survival rate under-cultured condition and readily accepts artificial feeds, high disease resistance as well as good market potentials.

Agricultural marketing plays an important role in Nigeria economy because excess production from the farm must be disposed of in order to earn some income by producers. However, the marketing system

of Nigeria's food and staple failed to address price stability from time to time due to information irregularity (Omowa, 2016). The link between the producers and the consumers is the market and it plays a central role in development.

According to Okoh, et al. (2008), marketing involves all those legal, physical and economic services, which are necessary to make produce from the farm available to the consumers. It enables producers such as farmers as well as middlemen to earn income with which they purchase other useful goods and services. The role of marketing cannot be overemphasized as production centers are down into different units in small scale (Akinrotimi, et al., 2011).

Fish marketing has become very important as it involves all activities undertaken in conveying of fish from producer to consumer. It includes processing, storage, preservation, transportation, wholesaling and retailing. The process of fish marketing is a very delicate one, because the quality and nutrition of fish has to be maintained. Marketing plays a significant function in the performance of supply chain. (Nsikan, et al., 2015). The main objective of the study is to examine the socioeconomic determinants of marketing margin for catfish in Port Harcourt Metropolis, Rivers State, Nigeria. The objectives of this study were to describe the socio-economic characteristics of catfish marketers, estimate the costs and return of catfish marketing, examine the determinants of marketing margin for catfish and identify the constraints faced by the catfish marketers in the study area.

MATERIALS AND METHODS

The study was carried out in Rivers State particularly in Port Harcourt Metropolis. The area lies between latitudes 4° 45'

North and $4^{\circ} 47'$ North of the equator and between longitude $7^{\circ} 50'$ East and $8^{\circ} 00'$ East of the Greenwich meridian (Akukwe and Ogbodo, 2015). It has an estimated land area of about 360km^2 with a projected population of 6,931,578 persons as at 2011 (National Bureau of Statistics 2012). Port Harcourt is the capital of the Rivers State and it is a

predominantly low-lying pluvial area in southern Nigeria. It is bounded on the Eastern and Western parts by the meandering creeks and to the southern lies along the bonny river and mangrove swamps and towards the north where there is availability of land. It is also bounded by Ikwerre Local Government Area (Agbedeyi, *et al.* 2015). The major occupation of the people is farming while fish farming and marketing are also practiced. Port Harcourt metropolis covers two Local Government Areas, namely Port Harcourt and Obio-Akpor (Agbedeyi, *et al.* 2015).

Multistage sampling procedure was used to select respondents from the study area. The first was the purposive selection of the two Local Government Areas (Port Harcourt City and Obio -Akpor) that makes up Port Harcourt metropolis. Secondly, 18 markets were purposively selected using the list of 66 major and minor markets from pre-survey in the study area based on the concentration of catfish marketers in these markets. A sampling frame of 163 catfish farmers was derived from the selected markets. A proportionate sampling was used to determine the number of catfish marketers who were selected for the study using simple random sampling. Finally, a total of 82 catfish marketers were selected from the sampling frame of 163 catfish marketers identified in the selected markets in Port Harcourt metropolis. However, only 80 copies of questionnaire were suitable for analysis.

Table 1. Sampling Frame and Sampled catfish marketers in the study area

LGA	Markets	Sampling frame	Sampled markets	catfish
Obio-Akpor	Ave Maria	10	5	
	Alakahia		4	
	Choba	15	8	
	Ogbogoro	2	1	
	Okimini	4	2	
	Rumualogu	2	1	
	Rumudara-Town Market	4	2	
	Rumueme	4	2	
	Rumudaolu	5	3	
	Rumuekini	10	5	
	Rumuigbo	12	6	
	Rumuokoro	20	10	
	Rumuokwuta	16	8	
	Rumuosi	11	5	
	Wimpy	10	5	
Port Harcourt	Borokiri	8	4	
	Mile 1	12	6	
	Mile 3	10	5	
	Total	163	82	

Source: Field Survey, 2018

The data for the study were collected from primary source. The primary source of the data was obtained through the use of structured questionnaire and interview schedule. Data were analysed using descriptive statistics (mean, frequency counts, and percentages), gross margin (GM) and multiple regression analysis. Marketing margin was also used to determine the difference between the selling and purchasing price. In identifying the constraints that mitigate against the marketing of catfish in the study area a 4 point Likert-type scale was used to get catfish marketers’ response.

Model Specification:

Gross Margin Analysis

Gross Margin is the difference between total revenue and total variable cost. It is expressed as

$$GM = TR - TVC \dots\dots\dots 1$$

Where:

GM = Gross Margin of the catfish marketing in the study area

TR = Total revenue generated from the sales of catfish in the study area (P.Q)

TVC = Total variable cost incurred in the marketing of catfish in the study area

P = unit price of catfish in naira

Q = quantity of catfish in kilogram

Marketing Margin

Marketing margin was expressed as;

$$MM = Sp - Pp \dots\dots\dots 2$$

Where MM= Marketing margin

Sp= selling price
 Pp= purchase Price

Multiples Regression Analysis: Four functional forms were experimented upon to determine the factors that influence the marketing margin of catfish. These were the linear, semi-log, double log and exponential forms. The linear form was the led equation base on the significant of the coefficient, highest R square, and signs of the coefficients.

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \epsilon \dots\dots\dots 3$$

Where:

Y= Marketing margin (naira)

β_0 = constant

β_1 to β_6 = coefficients

X_1 =Age (years)

X_2 = Education (Schooling years)

X_3 = Catfish marketing experience (years)

X_4 = Cooperative membership (dummy variable 1= member, 0= otherwise)

X_5 = Marital Status (dummy variable 1= married, 0= otherwise)

X_6 = quantity of catfish purchased (kg)

ϵ = error term

The Likers' 4-scale models with 2.5 as the cut off mark was adopted as an instrument to analyze the constraints of catfish marketers in the study area. From the Likert scale any mean greater than 3.0 are seen as significant or major constraint.

The Likert weight scale

1= disagree

2= strongly disagree

3= agree

4= strongly agree

RESULTS

Socioeconomic characteristics of catfish marketers

The socioeconomic variables of interest of the catfish marketers include: gender, age, educational level, marital status, marketing experience, marketers' and involvement in cooperative association. These variables are presented in Table 2. It shows the gender distribution of catfish marketers in the study area. From the total of 80 catfish marketers within the sampled area, 76 (95%) of the respondents were females while 4(5%) were males. Majority (71.3%) of the traders in catfish marketing business were within the age range of 30 – 39 years while the minimum and maximum ages were 25 and 49 years. Also, 67.5% of the respondents attempted secondary school education while 5% had no formal education. The marketing experience of catfish marketers in the study area was between the ranges of 1 - 5 years (76.3%) with average mean of five years. Majority (75%) of the marketers within the study area were married. The results presented in Table 2 also show the distribution of the respondents who are members and non-members in cooperative association. It was found that majority (86.3%) do not belong to any catfish marketing association. While only (13.8%) belong to a cooperative association.

Marketing Margin of Catfish Marketers

The results in Table 3 show the various unit price, buyer's price, seller's price and marketing margin of catfish in Port Harcourt Metropolis. The study revealed that the marketing margin of catfish sold per kg was ₦396.87

Table 2. Socio-economic Characteristics of Respondents

Variables	Frequency(n=80)	Percentage (%)	Mean
Gender			
Female	76	95	
Male	4	5	
Age			
20-29(years)	7	8.8	36 years
30-39	57	71.2	
40-49	16	20	
Minimum age 25 years			
Maximum age 49 years			
Educational level			
No formal	4	5.0	11 years
Primary	9	11.3	
Secondary	54	67.3	
Tertiary	13	16.2	
Marketing experience			
1-5(years)	61	76.3	5 years
6-10	11	13.8	
11-15	6	7.5	
16-20	1	1.2	
21-25	1	1.2	
Marital status			
Single	15	18.8	
Married	60	75.0	
Divorced	2	2.5	
Widowed	3	3.7	
Member of co-operate society			
No	69	86.2	
Yes	11	13.8	

Source: Field Data, 2018

Table 3. Marketing margin per kilogram of catfish sold in the study area

Items	Amount (₦)
Purchasing Price per kilogram of catfish	506.67
Selling Price per kilogram of catfish	903.54
Marketing margin	396.87

Source: Field data 2018

Costs and Return in Marketing Catfish per Week

The results of the costs and return of catfish marketing per week are presented in Table 4. The result shows that total revenue of catfish marketing was ₦189,414.7 for an average of 189 catfish sold

(209.63kg). This result indicates that the total marketing cost of catfish marketing in the study area was ₦116,200.95 per week. The gross margin of catfish marketing was ₦73,213.75 as profit generated from the business.

Table 4. Costs and Return in Marketing Catfish per Week

Variable	Quantity (Amount and kg)	Value (₦)
Total revenue (TR)	189 (209.63kg)	189,414.7
Cost of purchase		110,182.33
Transportation		1895.00
Packaging		753.38
Marketing levy/tax		1321.25
Labour		1003.75
Rent		1045.24
Total Cost		116,200.95
Gross margin (TR – TVC)		73,213.75

Source: Field Survey, 2018

Factors affecting marketing margin of catfish

The socioeconomic factors influencing the marketing margin of catfish are presented in Table 5. Four functional forms were experimented however, the linear form was the lead equation based on the R-

square, significant of the coefficient and the F-ratio. The result shows that age was significant at 5 % level while membership of cooperative society, marital status and quantity of purchase were significant at 1% level. The R-Square was 0.89.23

Table 5. Socioeconomic determinants of Catfish marketing in Port Harcourt Metropolis

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>
constant	-28636.5	12107.8	-2.365	0.0207
Age	860.164	332.485	2.587	0.0117
Years of Schooling	-401.591	347.983	-1.154	0.2522
Marketing Experience	-734.963	558.472	-1.316	0.1923
Membership of Cooperative	13081.9	4555.09	2.872	0.0053
Marital Status	-8248.02	3442.84	-2.396	0.0192
Quantity Purchase	236.723	15.6974	15.08	0.0001
R-squared	0.892330		Adjusted R-squared	0.883481
F(6, 73)	100.8333		P-value(F)	2.71e-33

Source: Field Data, 2018

Constraints to Catfish Marketing

The study showed that fish marketing was constrained by poor access to water, poor access to credit facilities and finance, high cost of transportation, deterioration of produce and lack of storage facilities among others. From the results in Table 6 the different constraint such as poor access to water which might be due to high cost of establishing bore hole, credit facilities mainly related to absence of collateral and high interest rate of commercial bank,

inadequate finance, high cost of transportation might be as a result of bad road network, and lack of storage facilities were the agreed constraints that had the highest rating by catfish marketers above 3.0, difficulty in disposing waste and high cost of labour were below 3.0 but higher than 2.5 hence it is agreed. The least problem encountered by the marketers was inadequate supply of fish in the market as there is always a supply of fish either from the fish farms or other marketers.

Table 6: Constraints in Marketing of Catfish

Items	Strongly Agree	Agree	Strongly Disagree	Disagree	Mean	Remark
High cost of transportation	37(46.2%)	41(51.3%)	-	2(2.5%)	3.44	Agreed
High cost of labour	5(6.2%)	49(61.3%)	-	26(32.5%)	2.74	Agreed
Inadequate supply of fish	8(10%)	18(22.5%)	5(18.7%)	39(48.8%)	2.24	Disagreed
Inadequate finance	57(71.2%)	20(25.0%)	-	3 (3.8%)	3.68	Agreed
Difficulty in disposing waste	9(11.2%)	60(75%)	1(1.3%)	10(12.5%)	2.96	Agreed
Poor access to water	61(76.1%)	17(21.3%)	1(1.3%)	1(1.3%)	3.73	Agreed
Poor access to credit facilities.	56(70%)	23(28.7%)	1(1.3%)	-	3.68	Agreed
Lack of storage facilities	37(46.2%)	39(48.8%)	-	4 (5.0%)	3.41	Agreed

Source: Field Survey, 2018

Figures in parenthesis are percentages

DISCUSSION

The results show that in the distribution, female marketers outnumber male marketers in the catfish markets, meaning that female dominate the marketing business than males in the study area. This is in agreement with the study of Omowa, (2016) who reported that 94.7% of catfish marketers were females while 5.3% were males. Also, Adebo and Toluwase, (2014) reported that females dominated the

business than male. This implies that the marketing of catfish in Port Harcourt metropolis is gender biased in favour of women.

The average age of the respondents indicated that the respondents were in their active and productive age. This agrees with the findings of Adebo and Toluwase (2014) who reported that respondents were within their active age in catfish

marketing. This implies that the marketers were in their active age and will be able to carry out their marketing activities efficiently.

The mean number of years of education was 11 years which falls within the senior secondary category. This result agrees with the findings of Offor, et al. (2016) who reported that in the performance of fish marketing in Port Harcourt, majority of the marketers had more of secondary education. This implies that majority of the marketers are literate and their educational level is moderate.

The results of the catfish marketing experience indicated that the catfish marketers have not been in the business for long. This implies that the catfish marketers in the study area are relatively new in catfish marketing and so will gain more experience with time.

The results show that majority of the catfish marketers were married women indicating that the marketers may be responsible and hard working women and contributing to the family income. This result agrees with the work of Adebo and Toluwase (2014) who reported that catfish marketing in Ekiti and Ondo state were mostly married. Also, Umoinyang, (2014) who reported that fish marketing is dominated by married women. This result implies that most of the fish marketers will be responsible and take their marketing activities seriously as the business is very beneficial to them because they are able to support their families from it and can derive sustainability from the trade.

Membership of a cooperative enables marketers to interact with other marketers, share their experiences and assist

themselves. The implication of these results is that most of the catfish marketers in the study area are not members of a cooperative association and hence, do not enjoy the assumed benefits accruing to cooperative societies through pooling of resources together for a better expansion and effective management of resources.

The result of the marketing margin showed that there is a high margin as consumers are able to buy catfish at affordable price. The difference between the producer price and the final consumer price is a measure of the total value added in the marketing process. Marketing margins are mostly governed by the demand for, and supply of, marketing services. The result of the R-square indicated that 89.23% of the variation in the marketing margin of catfish was accounted for by the combinations of the independent variables in the model. The age of the catfish marketers, quantity of catfish purchased and membership of cooperative society contributed positively to the marketing margin in the study area. This means and increase in these variables will increase marketing margin of catfish in the study area.

The results show that respondents were faced with severable identified problems which could affect the overall profit derived from the marketing of catfish. These factors were very critical to the availability, quality and nutrition of fish consumed, and also, on the efficiency and profitability of fish marketing. As such, these challenges if not addressed could serve as disincentives to fish marketers with its resultant losses in employment and income to the marketers. This result is in agreement with the findings of Umoinyang, (2014) that problems faced by

catfish marketers such as high transport cost, lack of credit facilities and among others were ranked according to their severity as stated by the respondents.

CONCLUSION AND RECOMMENDATIONS

Catfish marketing in the area was dominated by women who are in their middle and active age who are willing to take risks associated with catfish marketing in Port Harcourt metropolis in order to make a living and provide for their family. Although catfish marketing was profitable there were several problems faced by the marketers. Also, Age, membership of cooperative society, marital status and quantity of catfish purchased were significant determinants that contributed positively to catfish marketing margin in the study area.

It was therefore recommended that catfish marketers should take advantage of cooperative society to enhance their access to finance and easy access to other incentives. Catfish marketers should be effectively linked to available financial institutions in the study area as financing of catfish marketing requires access to affordable and accessible credit facilities to enable expansion in scale of operation and greater return. Thus, access to credit should be improved. The marketing infrastructure facilities like stall, storage facilities, water access and provision of good road network to reduce the cost of transportation should be made available by government and non-governmental organization to marketers.

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