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Economic analysis of fresh fish marketing in Kede-Tifin district of Mokwa local government area, Niger state, Nigeria.

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Abstract
The study examined the economic analysis of fresh fish marketing in Kede-Tifin District of Mokwa Local Government Area of Niger State, Nigeria. Multi-stage sampling technique was used to draw up 200 respondents for the survey and questionnaire were used to collect information from the respondents, however only 120 questionnaires were found usable at the end of the survey and were used for the data analysis. Data were analyzed using descriptive statistics, farm budgeting analysis, Gini coefficient, marketing margin analysis etc. The result of the analysis revealed that most players in the industry (91.67%) were males who were mostly married (69.17%) and had modern education. The result of the Gini-coefficient (0.870) shows that the market structure of fresh fish is inefficient, though the venture is highly profitable. The marketers also face a lot of constraints in their activities, but it was recommended that marketers be provided with credit facilities, infrastructures, storage and processing facilities.

Keywords: Economic Analysis, Fresh Fish, Marketing and Kede-Tifin

Introduction
Fish is one of the most important and cheapest sources of animal protein (Flake and Nzeka, 2007), and only egg protein can "rival" fish protein (Ndanitsa, 1994).Fish represent a significant proportion of animal protein in the diets of many, in developing countries, including Nigeria. Globally, fish production has grown steadily in the last five (5) decades with food fish supply increasing at an average annual rate of 3.2 percent (FAO, 2014). According to FAO (2012), fish in the world provides about 3.0 billion people with almost 20 percent of their intake of animal protein and 4.3 billion people with about 15 per cent of such protein.

Fish marketing improves the rural economy through provision of additional source of income, offering employment opportunities, development of infrastructural facilities and improving the nutritional and standard of living of both urban and rural people. Against the backdrop of the critical roles of the fish sub-sector, play and its potentials in resolving the imminent food crisis, this study was designed to focus on the marketing of fresh fish products, to to identify the socioeconomic characteristics of the marketers, determine the costs and returns as well as their profitability in Kede Tifin district of Mokwa Local Government Area (LGA) of Niger State, Nigeria. .

Methodology
Study Area:
This study was conducted in Mokwa LGA of Niger State. The LGA has a population figure of 242,858 people (N.P.C, 2006).

Sampling Technique and Method of Data Collection:
Multi-stage sampling procedure was used for this study. The first stage involves the purposive sampling of Kede-Tifin district of the state, as fishing is the principal occupation of more than 90 percent of the inhabitants of the area. The second stage involves the selection of 5 fishing communities, followed by the selection of 4 fishing locations, and finally the selection of 10 fresh fish marketers from the area, to give a sample size of 200 respondents, from whom relevant information were elicited. However, only 120 questionnaire were returned and found suitable for consideration in the analysis.

Method of Data Analysis:
The descriptive analytical tools such as percentages, tabulations, frequency distribution, means/averages, cross tabulations etc. were employed to describe the socio-economic characteristics of the respondents involved in fresh fish marketing, describe the consumer preference and to identify the constraints associated with fresh fish marketing. Gini coefficient was used to examine the market structure in the area. It is a measure of statistical dispersion most prominently used as a measure of inequality of wealth or product distribution among the key players in the industry

(Ndanitsa, 1994 Ndanitsa *et al* and Wikipedia, 2013). The model specification as adopted by Iheanacho (2005),Shuaibu (2015), is expressed as follows:

GC = 1 - $\sum X_{ab} Y_{ab}$ …… (1)

Where: GC = Gini Coefficient; X = Proportion of Sellers; Y = Cumulative Proportion of Sales; $\sum$ = Summation sign and; 1= Constant or Unity. The Gini Coefficient varies from 0 to 1. If the coefficient is equal to Zero (0), it implies perfect equality in the distribution, while if the value is one (1), it corresponds to perfect inequality. According to Ojo (2012), the closer the Gini coefficient is to zero, the greater the degree of equality, the lower the level of concentration and the more competitive the markets are. Further, as the Gini coefficient approaches unity, the degree of inequality increases. Ojo (2012) also submitted that, the higher the level of concentration, the more imperfect the markets are, and the lower the efficiency of such markets. Net Farm Income (NFI) model or sometimes known as Costs and Returns Analysis is one of the Farm Budgeting tools that were employed to measure the level of inputs realized. The tool was used to ascertain the profitability of fresh fish marketing in the study area. In analysis, when the gross income realized from the sale of fresh fish is greater than the cost, profit is made whereas, loss is made when it is the opposite. Net income is the difference between gross income realized and total costs of marketing.

Marketing Margin (MM) Analysis:

This is a measure of market performance. MM is the difference between the price paid by the consumer and that received by the producers (Ali, *et al*, 2008). Gross marketing margin of Fish Marketers is determined by the difference between the cost price of fish and the selling price (Anuebunwa, 2006). This is expressed as:

Marketing Margin = $\frac{Selling\ price - Purchase\ Price}{Selling\ Price}\ x\ 100$…… (4)

According to Olukosi *et al* (2004), a larger variation between the marketing margins of participants indicates a wide variation along the chain while a participant with higher marketing margin, is said to have a larger share of the marketing benefits. In addition to Marketing Margin Computation, Marketing Efficiency was used to determine the performance of fresh fish marketers in the study area. It is the maximization of the ratio of output to input. The marketing inputs are those costs incurred during the marketing of fresh fish, such as transport costs, commission, taxes, labour used, packaging, processing and storage financing. On the other hand, output is the value added to the commodity as it passes through the marketing system: Accordingly, ME of fresh fish marketing adopted from Inuwa *et al* (2011) is = $\frac{Value\ added\ by\ marketing}{Cost\ of\ Marketing\ Services}\ x\ 100$ …… (5)

Value added by marketing (VA) = C_{PT} - C_{PU} …… (6)

Where: V_A = Value added; C_{PF} = Cost of Purchasing Fresh Fish plus storage cost/commission charges; C_{PU} = Cost of Purchasing Fresh Fish.

Results and Discussion

Socio-economic characteristics of fresh fish markers:

Table 1 shows that, although both men and women were actively involved in fresh fish marketing in the study area, but men were more dominant in numbers (91.67%). This is an indication that fresh fish marketing in the study area was purely men's business, and it is an indication of serious gender inequality in the business, which might be due to some socio-cultural values of inhabitants. A number socio-cultural factors restricted women to access to water resources; low technical know-how and lack of credit facilities (especially Marketing loans) limit full participation of women in the small-scale fisheries sector (Williams, 2002).

Table 1 also shows the age distribution of fresh fish marketers in the study area; majority (66.67%), of the respondents were of middle age and above. The mean age was 33.25 years. This findings agrees with Yisa *et al* (2012), Ndanitsa *et al* (2013) and Shuaibu (2015) who in their separate studies on fish marketing revealed that the mean average of the marketers were 34.3 years, 37.53 years and 34.22 years respectively. The implication of this finding however, is that, the marketers were within their economically active, productive and energetic age which could translate their abundant stamina to withstand pressure and ability to accept innovations.

Table 1: Socio-Economic Characteristics of Fresh Fish Marketers (N=120)

Variable	Frequency (N=120)	Percentage	Minimum	Maximum	Mean	S.D
Age (Years)						
≤ 20	13	10.83				
21 – 40	80	66.67	17.00	60.00	33.25	10.79
41 – 60	27	22.5				
Total	120	100.00				
Gender:						
Male	110	91.67				
Female	10	8.33	0.00	1.00	0.91	0.23
Total	120	100.00				
Marital Status						
Single	37	30.83				
Married	83	69.17	1.00	2.00	1.73	0.44
Total	120	100.00				
Educational Status						
No formal Education	38	31.67				
Primary Education	26	21.67				
Secondary Education	49	40.83				
Tertiary Education	7	5.83	0.00	14.00	3.88	2.16
Total	120	100.00				
Household Size						
No Household Size	35	29.17				
1 – 10	62	51.67				
11 – 20	20	16.66				
21 – 30	2	1.66	0.00	32.00	5.88	6.75
> 30	1	0.83				
Total	120	100.00				
Marketing Experiences (years)						
1 – 20	77	64.17				
21 – 40	35	29.17				
41 – 60	8	6.66				
Total	120	100.00	1.00	48.00	16.82	11.15
Cooperative Membership Cooperativeness (Years)						
Not Belong to Any	24	20.00				
Belong	96	80.00	0.00	1.00	0.86	0.34
Total	120	100.00				

Source: Field Survey Data, 2019 Note: SD = Standard Deviation

Majority of the fish marketers in the study area were married (69.17%), as revealed in Table 1. The result of the finding is an indication that there will be high sense of responsibility on the part of the marketers, and is in line with the findings of Kainga and Adeyamo (2012) on the socio-economic characteristics of Fish marketers in Yenagoa LGA of Bayelsa State, Nigeria, where the author revealed that majority of the respondents (68.9%) were married.

Consumer preferences of fresh fish in the study area

Consumers in the study area usually buy fresh fish at the fishermen landing sites or at fresh fish markets. Table 2 shows the distribution of consumers of fresh fish products in the study area based on their preferences.

Table 2: Consumer Choice of Fresh Fish in the study area markets

Fish type	WuyaKede	Ketso	Kpambo	Kpachita	Total %
Cultured Fish	00(0)	02(10)	19(47.5)	22(55)	43(35.83)
Artisanal	20(100)	18(90)	21(52.5)	15(37.5)	74(61.67)
No Comment	00(0)	00(0)	00(0)	03(7.5)	03(2.50)
Total	20(100)	20(100)	40(100)	40(100)	120(100)

Source: Field survey data, 2019. Figures in parenthesis represents percentages of respondents for individual markets.

Determinants of choices made by the consumers of fresh fish in all the markets surveyed depends on the availability of the fish in the market, the purpose/place of usage and ease of access to the fish market. Table 2 revealed that all the consumers in Wuya Kede Market preferred artisanal fish to cultured fish (100%). This was due to the availability of the fish in the market, acceptability and ease of access to the market, as well as the socio-cultural activities in the study area. It must be noted that Wuya Kede is located along Bida – Ilorin road at the bank of river Kaduna. However, the implication of this finding is that, the effort of government and non-governmental organizations to encourage aquaculture farming to boost fresh fish production in the study area and the entire country is defeated.

Table 3: Consumers' reasons for choice of fish in the study area.

Reasons for Preference	Frequency	Percentage
Taste	71	59.17
Freshness	33	27.50
Meat quality	8	6.67
Medicinal benefit	5	4.16
Body size	3	2.50
Total	120	100.00

Source: Field survey data, 2019

Table 3 revealed that most of the respondents (59.17%) preferred artisanal fish to cultured fish, and reason advanced for this preference was that the former taste better than the later.

Market structure of fish marketers:

Table 4 reveals the measure of statistical dispersion. The computed Gini coefficient was 0.87. These results indicated a high level of concentration and consequently high inefficiency in the market structure for fresh fish in the study area.

Table 4: Market Structure: Gini-coefficient for fresh fish marketers in the study area.

Income from Sales (₦)	Number of sellers frequency	Proportion of sellers (X)	Cumulative proportion of sellers	Total sales (₦)	Proportion of sales	Cumulative proportion of sales (Y)	$\sum xy$
1 – 400,000	89	0.742	0.742	114511	0.022	0.022	0.016
400,001-800,000	11	0.092	0.834	612690	0.117	0.139	0.013
800,001-1,200,000	8	0.067	0.901	1096250	0.209	0.348	0.023
1,200,001-1,600,000	7	0.058	0.959	1464000	0.280	0.628	0.036
1,600,001-2,000,000	5	0.042	1.000	1950000	0.372	1.000	0.041
Total	120			5237451			

Source: Field survey Data, 2019 Gini – coefficient = 1 - $\sum ZY = 1 - 0.130$= 0.870.

Performance of fish marketing in the study area

The cost and returns and the Marketing Margin for all the sampled markets were computed, and the results revealed in Table 5. The results revealed that marketing tax and marketing margin wereanalyzed using the marketing margin (MM) equation; (4). The marketing margin for all the sampled markets were calculated as follows:

Marketing margin $= \frac{25455000 - 10,031,750}{25455000} \; x \; 100$ Marketing margin = 39.4097

Producer Marketing share = 60.5903

Marketing Efficiency:

The efficiency of fresh fish marketing was analyzed using the marketing efficiency computation. The result of the computation is presented in Table 6.

Table 6: Efficiency of fresh fish marketing

Sample	Value Added (₦)	Cost of Marketing (₦)	Marketing Efficiency
Kede – Tifin			
Sampled Markets	631,900	10,642,069	5.94

Source: Field Survey Data, 2019

The result in Table 6 revealed that ₦691,900 values was added to the marketing activities with the marketing efficiency of 5.94%. This value is an indication that fresh fish marketing in the study area was highly efficient. The finding is in line with the report of Obasi *et al* (2012) on the analysis of dried maize marketing in Aba South LGA of Abia State, Nigeria (17.31%).

Constraints to fresh fish marketing:

Results in Table 7 revealed that price instability ranked 1st among the myriad of factors and in decreasing magnitude of importance, as an overwhelming majority, 107 (89.16%) encountered this problem in fish marketing activities in the study area. The implication of this finding is that the price instability could erode the profit margin of the players in the industry, as lower price could constrain the realization of the goal of profit maximization. This is in line with the study of Nwabueze and Nwabueze (2010), who submitted that, instability in the price of product is one of the problems militating against the fresh fish marketing in Oshimili South LGA of Delta State, Nigeria. Inadequate capital and Lack of credit facilities (especially marketing loans) ranked 2nd on the severity of the problems confronted by the fresh fish marketers in the study area, whereby a large majority, 94(78.33%) were confronted with this problem. The implication is that, capital being the bedrock of any meaningful business, marketers with large capital have the propensity to expand their business and consequently make a large returns, whilst those with small capital make lower returns and constrained with little or no future investment/expansion.

Table 7: Constraints to Fresh fish marketing in the study area.

Constraints	*Frequency	Percentage	Ranking
Price instability	107	89.16	1st
Inadequate Capital and Lack of credit facilities	94	78.33	2nd
High cost of transportation	78	65.00	3rd
Seasonality of fish product	76	63.33	4th
Storage problems	67	55.83	5th
Inconsistency in government policy	56	46.67	6th
Inadequate power supply	50	41.67	7th
Low patronage	46	38.33	8th
Total	*574	100.00	

Source: Field Survey, 2019 (*Multiple responses)

Conclusion and Recommendations

The study had examined the Economic Analysis of fresh fish marketing in Kede Tifin district of Mokwa Local Government Area of Niger State, Nigeria, and revealed that the market is not competitive, even though the enterprise is profitable. However, it was evident that the marketers are constrained with a number of factors towards the realization of their goal of profit maximization. The need for the provision of credit facilities, has become imminent in increasing the marketer's activities. This will involve the establishment of sustainable micro-credit schemes.

Fishermen in the area should be encouraged to go into fish farming ventures in order to ensure constant supply of product to the marketers, Feeder roads linking the landing sites and major marketing centres should be constructed and storage facilities should be provided, among others. This would translate to increased capacity utilization, increased marketing activities, increased income and poverty reduction in the study area.

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