Analysis of Factors Influencing Fish Marketing and Profitability In Benue State, Nigeria
Ali Ocholi, Zacharias Ternenge Nyiatagher
Department of Agribusiness, Federal University of Agriculture, Makurdi.

ARTICLE INFO

Corresponding Author:
Ali Ocholi

Keywords:
Analysis; fish marketing; profitability; Benue State.

ABSTRACT

The study analysed the factors influencing fish marketing and profitability in Benue State, Nigeria. Multi stage random sampling techniques were used to select one hundred and eighty (180) fish traders for the study. Primary data were collected with aid of questionnaires. Data were analyzed using descriptive statistics, gross margin and marketing margin, marketing efficiency as well as ordinary least square (OLS) regression. Result showed the dominance of married marketers (77.8%), female marketers (64.4%) with high level of education. The result further showed that N143.01 and N144.25 accrued to wholesalers and retailers as gross margin per kilogram of fish sold, representing 26.51% and 24.26% of the total marketing margins, with marketing efficiencies of 621.54% and 704.99% respectively. This, together with the profitability Index (PI) of 0.23 and 0.21 and operating return (OR) of 0.77 and 0.79 for wholesalers and retailers further lend credence to the profitability of fish marketing in the study area. Among the factors which impacted significantly on fish traders’ profit were marketing experience, access to credit, storage cost, transportation cost, fish buying prices and age of marketers. Also, high transport cost, inadequate storage facilities, poor funding, high levy and other taxes were identified as the major challenges faced by fish marketers in the study area. These observations suggest the need to reduce transport and storage cost by providing access roads, rehabilitating damaged roads, providing storage facilities such as cold rooms and warehouses at affordable storage rates. Access to agricultural marketing loans should be enhanced through the provision of affordable credit. These, together with the evolution of a realistic tariff and tax structure would promote fish marketing and enhance marketing efficiency in the study area.

©2017, AAJ, All Right Reserved

Introduction:

Fish is a very important agricultural product in Nigeria as it occupies a prime place in the economy of the country. The term fish is a diverse group of animals that live and breathe in water by means of gills. Fish is one of the most diverse groups of animals known to man with over two thousand five hundred species. There are more species of fish than all other vertebrates (Eyo, 1992). Fish is largely consumed in the country especially due to its rich nutritional and medicinal values. The large coastal area and continental shelf available in the country makes diverse varieties available in different areas at affordable prices. Despite these rich coastal and continental resource base of the country, demand for fish far exceeds production, resulting in the importation of over 800,000 metric tonnes of fish annually (FBS, 2007). This trend may
not change in the near future considering the rising population of the country and the increasing distance between fish producers and consumers. Fish is the most important animal protein food available in the tropics, and this could account for its large consumption in the country. In Nigeria, fish constitutes 40% of protein intake (Eyo, 1992: Federal Department of Fishery, FDF, 2005), while, according to Adekoya and Miller (2004), fish and fish products contribute more than 60% of total protein intake in adults especially in rural areas.

Amiengheme (2005) asserts that nutrient from fish is superior to all terrestrial meats such as beef, mutton, pork and chicken. More so, it is a good source of Sulphur and essential amino acids such as lysine, leucine, valine and arginine. Fish is a good source of thiamine and polyunsaturated fatty acids, fat soluble vitamins such as vitamins A, D, E and K, and water soluble vitamins for example, B complex, and minerals, such as, calcium, phosphorous, iron, iodine and selenium. According to Ovie and Raji (2006), fish contains omega III fatty acids that are known to reduce cardiovascular diseases, hypertension and arteriosclerosis, thus becoming a preferred source of protein for those nearing 50 years and above. These fatty acids are also known to enhance good brain cell development in developing foetus, (thus vital diet for pregnant women) and intelligent quotient (IQ) in developing children (FDF, 2005). Hence it is evident that fish and fisheries are crucial to the economy and health of the nation.

The fishery sector is estimated to contribute about 3.5% to Nigeria’s Gross Domestic Product (GDP), and also provides direct and indirect employment to over six million people (Kwara State Government, 2010). The employment opportunities come from different fishing activities such as production, processing, preservation and transportation (Ali, Gaya and Jampada, 2008). The Central Bank of Nigeria, CBN (2005) report shows that the contribution of the fishery sector to the GDP of Nigeria rose from ₦76.76 billion in 2001 to ₦162.61 billion in 2005.

Fish marketing involves all activities undertaken in conveying fish from producers to consumers. It includes processing, storage, preservation, transportation, wholesaling and retailing. The process of fish marketing is a very delicate one, if the quality and nutrition of fish is to be maintained to the highest possible value. Marketing of fish has steadily changed due to urbanization. As the process of urbanization progresses in Nigeria, the share of national fish consumption increases at locations other than where fish is produced. Before this time, fish produced were locally and domestically consumed.

Fish and fish products is consumed in all parts of the country and has a good market price, yet the bulk of fish traded in Nigeria are produced by artisanal (small-scale) farmers. In the same vein, despite the nutritional and commercial values of fish and fish products, its production and marketing remains low in Nigeria when compared to other nations of the world (FAO, 2012). Research development and investment effort have often been focused primarily on production without a well-developed marketing system which leads to all possible gains from the production effort going into the drains of postharvest losses. Often times, marketers are compelled if not forced to sell their products at a very low price to avoid huge wastage or total loss and this reduces their marketing margins and marketing efficiency. As important as marketing is, most of the studies on fish have concentrated on production ( Dagtakin 2009; Zabbey 2010). Even though there have been a few scholarly investigation into fish marketing in Benue State not much in-depth research has been done on the analysis of factors influencing fish marketing and profitability in Benue State Nigeria. It is against this background that the research was carried out.

The broad objective of the study is to analyse the factors influencing fish marketing and profitability in Benue State, Nigeria.

The specific objectives are to:

- describe the socio-economic characteristics of fish marketers in the study area;
- analyze costs and returns associated with fish marketing in the study area;
- examine the marketing margin and marketing efficiency of fish marketing actors in the selected markets in the study area;
- analyze the factors influencing the profit of fish marketers in the study area;
- Identify the problems faced by fish marketers in the study area.

Methodology:

Area of study:

The area of this study is Benue State of Nigeria. Benue State was created in 1976 and is located in the
Middle Belt Region of Nigeria with the capital at Makurdi. Benue State lies approximately between latitudes 6°30’N and 8°10’N of the Equator and longitudes 6°35’E and 8°10’E of the Greenwich Meridian, [Benue State Agricultural and Rural Development Authority, (BNARDA), 2005].

Benue State is considered as one of the hottest States in Nigeria with an average minimum and maximum temperature of 21°C and 38°C respectively. It is in the Southern Guinea Savannah ecological zone, which has a typical climate with the clearly marked seasons of dry season (late October to March) and wet season (April to early October). The State annual rainfall ranges from 1700mm in the southern part to 120mm in the northern ecology of the State.

The important feature of the State is the river in which the State derived its name from (River Benue). The State share boundaries with five States, Nassarawa to the North, Taraba to the East, Cross-River to the South-East, Enugu to the South-West and Kogi to the West. The southern part of the State is also bounded with Republic of Cameroun.

Benue State has a land mass of about 33, 955km² with 23 local government areas. Geographically and agriculturally, Benue State is divided into three zones, Zone A (Katsina-Ala, Ukum, Ushongo, Vandiekywa, Logo, Kwande and Konshisha Local Government Areas), Zone B (Gboko, Tarka, Buruku, Gwer East, Gwer West, Guma and Makurdi Local Government Areas), Zone C (Ado, Agatu, Apa, Otukpo, Ohimini, Okpokwu, Ogbadibo, Obi and Oju Local Government Areas).

The state has a total population of 4,219,244 people (National Population Commissions 2006). About 80% of the state population is directly involved in agriculture. It is also called the food basket of the nation, because the state produces agricultural products in large quantities. Some farmers in the study area have taken poultry production and fish business as their source of livelihood.

Sampling Techniques:

Data for the study were primary data collected with the use of questionnaires. A multistage sampling procedure was used to select 180 fish traders. The first stage involved selecting six local government areas from the existing 23. These were: Kwande, Katsina-Ala, Guma, Makurdi, Agatu and Apa. The second stage involved the random selection of one market where fish trading is carried out intensively from each of the selected Local Government Areas making a total of six markets. Adikpo market was chosen from Kwande, Katsina Ala market from Katsina Ala, Abinsi market from Guma, Wadata market from Makurdi, Obagaji market from Agatu and Ugbokpo market from Apa. In the last stage, thirty fish traders were selected in each of the markets with the help of key informants from a compiled list of fish traders in the area in the ratio of fifteen wholesalers and fifteen retailers making a total of 180 respondents that were administered with questionnaire. All the 180 questionnaires were retrieved and used in data analysis.

Analytical Techniques:

Data collected were analysed using descriptive and inferential statistics. The descriptive statistics were frequency distribution, percentages and mean while the inferential statistics were marketing margin, marketing efficiency, gross margin and multiple regression analysis.

Model specification:

Marketing margin:

This was computed using the formula given by Kohls (1985). It is expressed as

\[
MM = \frac{USP - UBP}{USP} \times 100
\]

Where;

\(MM\) = marketing margin of fish per kilogram
\(USP\) = fish selling price per kilogram
\(UBP\) = fish buying price per kilogram

Market efficiency:

This was computed using the formula given by Olukosi and Isitor (1990). It is specified as:

\[
\text{Marketing efficiency} = \frac{\text{Value added by marketing activities}}{\text{Marketing Cost}} \times 100
\]

\[i.e \quad \text{Marketing efficiency} = \frac{\text{Net margin}}{\text{Marketing Cost}} \times 100\]

Gross margin:

It is computed as the difference between the total revenue and total variable cost

\[\text{GM} = \text{GR} - \text{TVC}\]

Where:

\(\text{GM}\) = the gross margin in naira per kilogram of fish,
GR = the gross revenue in naira per kilogram of fish
TVC = the total variable cost in naira per kilogram of fish

**Multiple Regression Analysis:**

Following the method of Obasi, Igwe and Nwaogu (2012) in their study on pig marketing, multiple regression analysis was used to identify factors influencing fish trader’s profitability.

The implicit form of the model is specified as follows:

\[ Y = f (X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, U) \] .................................................. (5)

Where:

- \( Y \) = Profit of fish traders
- \( X_1 \) = Educational level of traders (years)
- \( X_2 \) = Storage cost (₦)
- \( X_3 \) = Marketing experience (years)
- \( X_4 \) = Transportation cost (₦)
- \( X_5 \) = Fish buying price (₦)
- \( X_6 \) = Access to credit (yes= 1, no = 0)
- \( X_7 \) = Age of traders (in years)
- \( U \) = error term

The model can be stated explicitly as:

\[ Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6, \\
b_7X_7 + U \] ...............................................(6)

Where:

- \( b_1 \) . . . \( b_7 \) are coefficients to be examined
- \( X_1 \) . . . \( X_7 \) are the explanatory variables defined in equation (5) above.

A priori expectation: \( b_1, b_3, b_6 >0, b_2, b_4, b_5, b_7 <0 \)

Apart from gross margin, other profitability ratios that were used include:

- Profitability Index (PI) = NI/TR
- Operating Return (OR) = TVC/TR

Where:

- TVC = Total Variable cost in naira per kilogram of fish;
- TR = Total revenue in naira per kilogram of fish;
- NI = Net income in naira per kilogram of fish

**Results and discussion:**

**Socio-economic Characteristics of Fish Marketers:**

Table 1 showed that the dominant age group was below 45 years (55.5%), indicating that fish marketers were of youthful age and energetic. Also 64.4% of marketers were female and 35.6% male. The dominance of female marketers corroborates the findings of Lawal and Idega (2004) in Borno State and Agebi and Fagbote (2012) in Ondo State who reported 80% and 90% respectively.

For marital status, 77.8 percent were married while 22.2% were single. The predominance of married people as marketers agreed with the findings of Esiobu and Onubuogu (2014) who observed that fish marketing in Imo State is dominated by married people. The dominance of married respondents implied availability of labor for marketing activities.

Furthermore 41.7% of the respondents attended secondary school, 21.1% had no formal education, 25.0% had primary education while 12.2% had tertiary education. It is expected that the higher level of education will contribute significantly to decision making of marketers. Exposure to high level of education is an added advantage in terms of achieving huge income, efficient marketing and sustainable agribusiness all year round. This finding agrees with the findings of Nwabunike (2015) that majority of fish marketers in Ebonyi State have attended secondary school level of education.

In terms of funding, 36.1% of respondents financed their business with loans obtained from banks, 29.4% borrowed from friends and relatives while 19.4% and 15.0% borrowed from social organization and personal savings respectively. This is in line with the findings of Nsikan et al. (2015) that majority 50% of fish marketers in Akwa Ibom state sourced money from the bank for fish marketing

Experience wise, fish marketers were quite experienced, 36.7% had between 11-20 years, 29.4% had 21-30 years while 20% had 1-10 and 13.9% had above 30 years of experience. This is capable of impacting positively on fish marketing in the area. This result is slightly higher than the findings of Nsikan et al. (2015) that majority 43.8% of fish marketers in Akwa Ibom State had 6-10 years marketing experience.

**Table 1: Socio-Economic Characteristics of Fish Marketers in the Study Area:**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Number of respondents</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 25</td>
<td>15</td>
<td>8.3</td>
</tr>
</tbody>
</table>

**Table 1**
25-34 35 19.4
35-44 50 27.8
45 and above 80 44.4

Marital status
Married 140 77.8
Single 40 22.2

Sex
Male 64 35.6
Female 116 64.4

Educational level
No formal education 38 21.1
Primary education 75 41.7
Secondary education 45 25.0
Tertiary education 22 12.2

Source of funding
Friends and relative 53 29.4
Social organization 35 19.4
Personal savings 27 15.0
Loan from banks 65 36.1

Marketing experience(years)
1-10 36 20.0
11-20 66 36.7
21-30 53 29.4
Above 30 25 13.9

Table 2: Average Marketing Cost, Returns per kg and Profitability Analysis of Fish Marketing.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Wholesalers</th>
<th>Retailers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total sales (₦)</td>
<td>626.35</td>
<td>677.55</td>
</tr>
<tr>
<td>Expenses (variable cost)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fish buying price (₦)</td>
<td>460.31</td>
<td>513.18</td>
</tr>
<tr>
<td>Transport cost (₦)</td>
<td>17.85</td>
<td>13.52</td>
</tr>
<tr>
<td>Storage (₦)</td>
<td>1.89</td>
<td>3.01</td>
</tr>
<tr>
<td>Security (₦)</td>
<td>1.17</td>
<td>1.38</td>
</tr>
<tr>
<td>Handling and other charges (₦)</td>
<td>2.12</td>
<td>2.21</td>
</tr>
<tr>
<td>Total variable cost (TVC) (₦)</td>
<td>483.34</td>
<td>533.30</td>
</tr>
<tr>
<td>Gross margin (₦GM=TR-TVC)</td>
<td>143.01</td>
<td>144.25</td>
</tr>
<tr>
<td>Marketing margin (%)</td>
<td>26.51</td>
<td>24.26</td>
</tr>
<tr>
<td>Profitability index(PI) (%)</td>
<td>0.23</td>
<td>0.21</td>
</tr>
<tr>
<td>Operating returns (%)</td>
<td>0.77</td>
<td>0.79</td>
</tr>
</tbody>
</table>


Profitability of Fish Marketing in the Study Area:
Table 2 presents the average marketing costs and returns as well as the profitability ratios associated with wholesale and retail fish marketing in the study area. The average wholesale and retail revenues were ₦626.35 and ₦677.55. Fish buying prices had the highest costs of ₦460.31 and ₦513.18 between wholesale and retailers, followed by transport cost with ₦17.85 and ₦13.52. The lowest marketing cost values of ₦1.17 and ₦3.01 between wholesaler and retailer were attributed to security. The gross margins for both wholesaler and retailer were ₦143.01 and ₦144.25 with a total marketing margin of 26.51% and 24.26%. Retailers’ profits were higher than that of wholesalers because most consumers prefer to buy in smaller quantities, irrespective of cost, since it is affordable. Also, most wholesalers travel several kilometers to River Benue to buy fish from fishermen thereby increasing their variable cost, hence impact negatively on their margin. This finding contradicts that of Gaya et al. (2014) who reported a higher marketing margin for wholesalers than retailers in Adamawa State.

Wholesale Marketing Margin and Marketing Efficiency in the Selected Markets:
Table 3 shows the wholesale marketing margin and marketing efficiency. From the Table, the net marketing margin per kilogram of fish ranges from ₦136.93 in Ugbokpo market to ₦146.20 in Wadata market with the total average net margin of ₦143.01. Average handling cost was ₦23.03. Of this, Adikpo market had the highest cost (₦24.15), followed by Abinsi (₦23.64). This is possible because both markets were characterized by high levy and multiple tax structure. This finding agrees with Bassey et al. (2013) who attributed the high marketing cost in South-South Nigerian markets to...
transportation cost and illegal extortion by touts and revenue agents. The market efficiency was highest in Wadata market (666.06%) followed by Katsina–Ala (638.90%) and was the least at Ugbokpo market (598.99%). The average marketing efficiency was 621.54% implying the existence of an efficient fish pricing system in the study area.

**Table 3: Wholesale Marketing Margin and Marketing Efficiency in the selected Markets**

<table>
<thead>
<tr>
<th>Markets</th>
<th>Cost of fish (₦/kg)</th>
<th>Selling price (₦/kg)</th>
<th>Handling cost (₦/kg)</th>
<th>Marketing margin (₦/kg)</th>
<th>Net margin (₦/kg)</th>
<th>Market efficiency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adikpo</td>
<td>435.51</td>
<td>605.56</td>
<td>24.15</td>
<td>170.05</td>
<td>145.90</td>
<td>604.14</td>
</tr>
<tr>
<td>Katsina-Ala</td>
<td>463.24</td>
<td>631.34</td>
<td>22.75</td>
<td>168.10</td>
<td>145.35</td>
<td>638.90</td>
</tr>
<tr>
<td>Abinsi</td>
<td>420.43</td>
<td>586.48</td>
<td>23.64</td>
<td>166.05</td>
<td>142.41</td>
<td>602.44</td>
</tr>
<tr>
<td>Wadata</td>
<td>405.68</td>
<td>573.83</td>
<td>21.95</td>
<td>168.15</td>
<td>146.20</td>
<td>666.06</td>
</tr>
<tr>
<td>Obagaji</td>
<td>469.85</td>
<td>633.95</td>
<td>22.83</td>
<td>164.10</td>
<td>141.27</td>
<td>618.79</td>
</tr>
<tr>
<td>Ugbokpo</td>
<td>567.15</td>
<td>726.94</td>
<td>22.86</td>
<td>159.79</td>
<td>136.93</td>
<td>598.99</td>
</tr>
<tr>
<td>Average</td>
<td>460.31</td>
<td>626.35</td>
<td>23.03</td>
<td>166.04</td>
<td>143.01</td>
<td>621.54</td>
</tr>
</tbody>
</table>

Source: computed from fish marketing survey data, 2017.

**Retail Marketing Margin and Marketing Efficiency in the Selected Markets**

Table 4 presents the retail marketing margin and marketing efficiency in the study area. The net marketing margin ranges from ₦55.77 in Ugbokpo to ₦218.00 in Wadata. The high margin in Wadata and Obagaji can be attributed to location. For instance, Wadata fish market is located along River Benue in Makurdi the State capital, thereby receiving travellers’ patronage, while Obagaji is located in the hinterland close to River Benue that separates Benue State from the neighbouring Nasarawa State, Nigeria. Obagaji market enjoys patronage from the two States. The average marketing cost was ₦20.12. Obagaji market was found to be associated with the highest transaction cost (₦25.54), followed by Adikpo (₦22.14), the lowest being Ugbokpo (₦11.11). The highest marketing cost in Obagaji market was due to high rent and multiple tax structure perpetrated by Local Government revenue agents and youth leaders as well as the deplorable state of the road which resulted in high transport fares. Beyond this, the retail fish market was found to be more efficient in Wadata (1057.23%) than Abinsi (851.26%), the least being Kastina-Ala and Ugbokpo with efficiency percentages of 470.86 and 501.98 respectively.

**Table 4: Retail Marketing Margin and Marketing Efficiency in the Selected Markets**

<table>
<thead>
<tr>
<th>Markets</th>
<th>Cost of fish (₦/kg)</th>
<th>Selling price (₦/kg)</th>
<th>Handling cost (₦/kg)</th>
<th>Marketing margin (₦/kg)</th>
<th>Net margin (₦/kg)</th>
<th>Market efficiency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adikpo</td>
<td>520.20</td>
<td>680.45</td>
<td>22.14</td>
<td>160.25</td>
<td>138.11</td>
<td>623.80</td>
</tr>
<tr>
<td>Katsina-Ala</td>
<td>546.45</td>
<td>671.24</td>
<td>21.86</td>
<td>124.79</td>
<td>102.93</td>
<td>470.86</td>
</tr>
<tr>
<td>Abinsi</td>
<td>475.15</td>
<td>660.17</td>
<td>19.45</td>
<td>185.02</td>
<td>165.57</td>
<td>851.26</td>
</tr>
<tr>
<td>Wadata</td>
<td>450.64</td>
<td>689.26</td>
<td>20.62</td>
<td>238.62</td>
<td>218.00</td>
<td>1057.23</td>
</tr>
</tbody>
</table>
Factors Influencing the Profit of Fish Marketers:

Table 5 presents the factors influencing fish marketer’s profit in the study area. Of the four functional forms (linear, semi-log, exponential and double log) that were estimated, the semilog model was chosen as the lead equation due to the conformity of the estimates to a priori expectation (using signs and magnitudes of the coefficient of variables) and the statistical criteria which consist of $R^2$ value, F-statistics and t-test. The result revealed a $R^2$ value of 0.6543, implying that about 65.4% of the profit of fish marketers is explained by the explanatory variables. The coefficient of storage cost was negative and significant at the 5 percent level of significance. This implied that increasing storage cost would reduce profit of fish marketers by 14.4 percent. This is in line with a priori expectation, because fish marketing requires adequate storage to avoid spoilage. Since storage facilities are grossly inadequate in the study area, most marketers resort to smoking and home storage which is not only costly but damage prone, thereby increasing the marketing cost. This finding is in line with that of Nsikan et al. (2013), who emphasized that the cost of storage limits profitability. The coefficient for marketing experience was positive and significant at the 1 percent level. Experienced marketers are perceived to have learnt from the other marketers’ experiences due to their prolonged fraternity with them. They have also accumulated enough marketing knowledge through several years of marketing trials and errors (Bassey et al., 2013). This finding supports that of Abda et al (2010) who reported that marketers with higher years of experience would be more efficient, have better knowledge of marketing techniques and situation and thus expected to run a more efficient and profitable enterprise. Transportation cost also impacted negatively on the profit of marketers at the 5 percent level of significance. Its coefficient (-0.948) showed that increasing transportation cost would decrease fish profit by 94.8 percent. This is in line with the findings of Madhin-Gabre, (1991), who reported that transportation cost accounted for a larger portion of marketing margin in Africa and Sub-Saharan Africa respectively. The coefficient for buying price of fish and age of marketers were negative and significantly related to profit of marketers at the 10 percent levels. This showed that any increase in these variables would decrease profit of marketers. Also, aged marketers are not innovative and lack the vigor and energy to withstand the rigor of fish marketing. Obasi et al. (2012) also, reported a significant negative relationship for both cost of purchase and age of marketers. Access to credit impacted positively on the profit of marketers at the 1 percent level of significance. Its coefficient (0.9478) indicated that increasing access to credit would increase profit by 94.8 percent. This finding agrees with (Oladeebo and Oladeebo, 2008).

Table 5: Result of the Multiple Regression Analysis Identifying Factors that Influence Fish Traders Profitability.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Linear</th>
<th>Semi-log (A)</th>
<th>Double –log</th>
<th>Exponential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.5871 (1.1448)</td>
<td>0.0067***(7.3511)</td>
<td>-0.052* (-2.012)</td>
<td>0.0028***(2.984)</td>
</tr>
<tr>
<td>Educational level</td>
<td>0.2014 *(1.8734)</td>
<td>1.3981(0.9158)</td>
<td>0.0068(1.241)</td>
<td>0.3097(1.369)</td>
</tr>
<tr>
<td>Storage cost</td>
<td>0.0675***(3.914)</td>
<td>-0.1438** (-1.938)</td>
<td>0.3364(0.856)</td>
<td>0.0092***(0.295)</td>
</tr>
<tr>
<td>Marketing experience</td>
<td>0.5856 (1.0583)</td>
<td>1.1472****(3.3944)</td>
<td>0.0076* (1.812)</td>
<td>0.3633(0.147)</td>
</tr>
<tr>
<td>Transportation cost</td>
<td>0.3948 (0.9718)</td>
<td>-0.9482**(-2.5470)</td>
<td>0.0362***(2.842)</td>
<td>0.511(0.713)</td>
</tr>
<tr>
<td>Fish buying price</td>
<td>0.3001 (1.2749)</td>
<td>-0.7667* (-1.8164)</td>
<td>0.2017**(2.224)</td>
<td>0.0034****(3.012)</td>
</tr>
<tr>
<td>Access to credit</td>
<td>0.0077***(2.6097)</td>
<td>0.9478*** (3.344)</td>
<td>0.0062(1.132)</td>
<td>0.7013(0.182)</td>
</tr>
</tbody>
</table>

Source: computed from fish marketing survey data, 2017.

The study analyzed the factors influencing fish marketing and profitability in Benue State, Nigeria.

### Fish Marketing Problems in the Study Area:

Table 6 shows the fish marketing problems as given by respondents in the study area. As observed, high costs of transportation ranked first with 28.9%. This corroborates the findings of Nsikan et al. (2015) who reported that transportation accounted for a large portion of marketing margin in Akwa Ibom State. High transportation cost can be attributed to the bad roads linking the rural and urban areas in Benue State, especially Wadata and Adikpo markets that were poorly maintained. Beyond this, most fish marketers, especially wholesalers travel far distances to the river to buy fish from fishermen thereby increasing their transport cost. High cost of fishing materials was ranked second with 23.3%. This finding is in agreement with the study carried out at Lake Albert by Sarnowski (2004) who observed that appropriate gears with a large mesh size are significantly more expensive than nets of a smaller mesh size.

**Table 6: Fish Marketing Constraints Suggested by Respondents in the Study Area.**

<table>
<thead>
<tr>
<th>Constraints</th>
<th>Number of respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>High transportation cost</td>
<td>52</td>
<td>28.9</td>
</tr>
<tr>
<td>Inadequate storage facilities</td>
<td>42</td>
<td>23.3</td>
</tr>
<tr>
<td>Poor funding</td>
<td>31</td>
<td>17.2</td>
</tr>
<tr>
<td>High levy and other charges</td>
<td>29</td>
<td>16.1</td>
</tr>
<tr>
<td>Other problems</td>
<td>26</td>
<td>14.4</td>
</tr>
<tr>
<td>Total</td>
<td>180</td>
<td>99.9</td>
</tr>
</tbody>
</table>

Source: computed from fish marketing survey data, 2017.

Note: figures in brackets are t-values. *** Significant at 1%, ** significant at 5%, and * significant at 10%.

(A) Is the lead equation.

The result showed that more female (64.4%) were mainly involved in fish marketing and are mostly married. Most of them were literate with at least primary school leaving certificate and financed their business through loans obtained from banks and personal savings. The study further revealed that retailers received N144.25 as net income per kilogram of fish sold while wholesalers received N143.01, implying that retail marketing was more lucrative than wholesale. More so, wholesalers received on the average 26.51% and retailers 24.26% of the total marketing margin, with average marketing efficiency of 621.54% and 704.99% respectively. The Profitability Index (PI) of 0.23 and 0.21 and Operating return (OR) values of 0.77 and 0.79 for wholesalers and retailers all supported the fact that fish marketing is profitable in the study area. Among the factors which impacted significantly on fish trader’s profit are storage cost, marketing experience, transportation cost and access to credit. Also, high transport cost, inadequate storage facilities, poor funding, high levy and other taxes were identified as the major challenges faced by fish marketers in the study area.

**Recommendations:**

To promote fish marketing and ensure marketing efficiency in the study area, the following recommendations were made:

1. Good feeder roads should be constructed and the old ones rehabilitated either by the government or communities linking rural areas for easy transportation of fish produce since the products are perishable.

2. Fish marketers or traders should be given financial assistance. To this end micro finance institutions should be encouraged to lend more to fish marketers in order to expand their business;

3. To evade multiple tax structure that characterized the study area, a realistic tariff and tax structure should be evolved;

### Conclusion:

The study analyzed the factors influencing fish marketing and profitability in Benue State, Nigeria.
4. The marketers should be provided with improved storage/preservation facilities to avoid the deterioration of their fish;
5. Also, unemployed youths and young school leavers should be encouraged through awareness campaigns to venture into fish marketing as a profitable venture in the study area.

References:


