ECONOMICS OF FISH HARVESTING IN NIGERIA: A CASE STUDY OF YOLA NORTH LOCAL GOVERNMENT AREA OF ADAMAWA STATE

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INTRODUCTION
Importance of fisheries in Nigerian economy

- Employment and income
- 80% of animal protein
- Vital to food security
- Raw materials
- Foreign exchange earner
Importance of fisheries

- Fish accounts for 35–50% of animal protein consumption in Nigeria
- Domestic production far below the huge demand
- Leading to importation of over 60% of fish being consumed
Importance of fisheries

- Over N97 billion is being spent annually.
- Long run solution is to boost domestic production through artisanal improvement.
- Nigeria is blessed with numerous water bodies.
Nigerian Fisheries Resources

- Inland water bodies of 14m hectares
- A coastal line of about 900km
- A continental shelf area of 37,934km²
- An exclusive economic zone area of 210,900km²
Nigerian Fisheries Resources

- The fisheries industries in Nigeria divided into 3 sectors:
  - Artisanal, industrial & aquaculture
  - Sectoral % contribution shows that capture fishery provides the bulk of fish supply in Nigeria (Fig. 1)
Fig. 1: Fishery Sub-sectoral percentage contribution in Nigeria (1995–2010)
Problems of capture fishery

- Seasonal nature of the rivers and pools leading to low catch
- Poor water bodies management
- Lack of access road in most fishing communities
Problems of capture fishery

- High cost of fishing inputs
- Climate change
- Post harvest loses
Objectives of the study

- To examine the socio-economic status of fish harvesters in the study area
- To identify the determinants of fish output
- To identify the problems of harvesting in the study area
Study Area

- The study area is Yola North Local Government Area (LGA) of Adamawa State, Nigeria.
- Located at southern bank of river Benue.
- In the northern guinea savannah zone of Nigeria.
- With distinct dry and wet seasons.
Study Area

- The area has a mean annual rainfall of 960mm and
- Maximum temperature range 30–40°C.
- Fishing is common along the rivers Benue, Chouchi and in Lake Gerio
Data Collection and Analysis

- Primary data were collected with the aid of questionnaire
- From 40 fishers selected from two fishing communities

- Data were subjected to descriptive, gross margin and Multiple regression analysis
Four functional forms were tried, these include linear, semi log, exponential and double log functions.

The functions are as follows:
Data Analysis

- **Linear function:**
  \[ Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + U_i \]

- **Semi log function:**
  \[ Y = \beta_0 + \beta_1 \log X_1 + \beta_2 \log X_2 + \beta_3 \log X_3 + \beta_4 \log X_4 + \beta_5 \log X_5 + \beta_6 X_6 + \beta_7 X_7 + U_i \]

- **Exponential function:**
  \[ L Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + U_i \]

- **Double log function:**
  \[ L Y = \beta_0 + \beta_1 \log X_1 + \beta_2 \log X_2 + \beta_3 \log X_3 + \beta_4 \log X_4 + \beta_5 \log X_5 + \beta_6 \log X_6 + \beta_7 \log X_7 + U_i \]
Data Analysis

Where:

- $Y =$ Total fish harvested in Kg
- $X_1 =$ Cost of fishing gear in Naira
- $X_2 =$ Amount spent on trap food
- $X_3 =$ Labour use in man days
- $X_4 =$ Cost of transportation
- $X_5 =$ Age of fishermen
- $X_6 =$ Experience of the fishermen in years
- $X_7 =$ Household size
- $U_i =$ Error term
- $B_0 =$ Constant
- $\beta_1 - \beta_7 =$ Coefficients of independent variables
RESULTS AND DISCUSSION

The socio economic characteristics of the respondents are shown in Tables 1a–c
### Table 1 (a) Age of respondents

<table>
<thead>
<tr>
<th>Age group</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>20–29</td>
<td>27</td>
<td>67.5</td>
</tr>
<tr>
<td>30–39</td>
<td>11</td>
<td>27.5</td>
</tr>
<tr>
<td>&gt;39</td>
<td>02</td>
<td>05.0</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100</td>
</tr>
</tbody>
</table>
Table 1 (b) Educational level

<table>
<thead>
<tr>
<th>Educational Level</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No formal Education</td>
<td>14</td>
<td>35</td>
</tr>
<tr>
<td>Primary Education</td>
<td>5</td>
<td>12.5</td>
</tr>
<tr>
<td>Secondary Education</td>
<td>20</td>
<td>50</td>
</tr>
<tr>
<td>Tertiary Education</td>
<td>1</td>
<td>2.5</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100</td>
</tr>
</tbody>
</table>
Table 1 (c) Types of fishing gear

<table>
<thead>
<tr>
<th>Fishing gear</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gill net</td>
<td>36</td>
<td>90</td>
</tr>
<tr>
<td>Hook</td>
<td>03</td>
<td>7.5</td>
</tr>
<tr>
<td>Cast Net</td>
<td>10</td>
<td>2.5</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100</td>
</tr>
</tbody>
</table>
Results and Discussion

- The gross margin (GM) is the difference between the gross income and the total variable cost of an enterprise.

- For the fishermen, there is an average GM of N27,434 and a net income of about N22,367.
Results and Discussion

- Double log gave the best fit
- Three variables were significant:
  - cost of the fishing gear \((X_1)\),
  - labour use in man days \((X_3)\),
  - age of the fishers \((X_5)\).
Results and Discussion

- LY = 0.525 + 0.016X₁ - 0.004X₂ + 0.314X₃ - 0.007X₄ - 0.81X₅ - 0.02X₆ - 0.03X₇  
  ** (2.35)  *** (-0.45)  *** (4.43)  (0.85)  (3.68)  (0.29)  (0.49)

- R² = 42%
- F = 33.10

The R² indicates that 42% of the variability in fish output was accounted for by the variables included in the model.

The magnitude of the F statistics shows that the R² is significant and the function is in good fit.
Problems of fish harvesting in the study area:
- Lack of capital
- Tear and wear of the fishing gears
- Flooding & uncertainties
- High cost of fishing gears
RECOMENDATIONS

- Soft loans to fishers to purchase quality fishing gears
- Law to regulate catches and offenders should be dealt with appropriately.
Recommendations

- Lower tariff on nets to make them affordable to fishers
- Artisanal fishers to form cooperatives
- To access credits and other inputs.
THANK YOU