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Economic analysis of artisanal fisheries in some selected fishing communities of Ilaje local government area, Ondo State, Nigeria

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Abstract

The economic analysis of artisanal fisheries in some selected fishing communities in Ilaje Local Government of Ondo State, Nigeria were evaluated using structured questionnaires with the objective of identifying their fishery practices, determine their level of investments and return on investment. A total of one hundred and twenty (120) fishers from Igbokoda, Eruna-ero, Ayetoro, and Idiogba fishing communities responded to the various questions posed. Data were analysed using descriptive and budgetary analysis. The results revealed that most of the respondents were male (69.17%), 61.67% were in the active age distribution of 21- 40 years, 75% engaged in fisheries activities as their primary occupation, 9% in aquatic transport, 12% in farming while 4% were civil servant. The Cost and Return structure had a Total Fixed Cost (TFC) of ₦920, 963. 80; Total Variable Cost (TVC) of ₦537, 710. 09; Total Cost (TC) of ₦1,458,673. 92, Gross Margin (GM) of ₦608,739. 91, Profit of ₦703, 638. 30 and the Return on Investment of ₦158.90. It was evident that fishery business within the coastal waters is profitable and management of the coastal waters should be enforced for sustainability of fisheries resources.

Keywords: Profitability; Fishing Activities; Capital Investments; Ondo Coastal Waters

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1. Introduction

Fishing is an ancient human traditional activity involving the hunting and gathering of products as food from water which is an indispensible natural resource on earth (Ita, 1993). Studies have shown that fishing communities are known to be the oldest type of settlements with men as the predominant fishers on wild species. However, these have changed with children, men and women acquiring better skills and improved technology for various operations in the fishing industry resulting in improved livelihood and better survival (Williams, 1987; Olubanjo et al., 2007).

Nigeria has a coastline of 800km, maritime area of 46,300km^2 and inland waters of 125, 470.82km^2 which can accommodate over six billion small scale artisanal fishers. This can contribute to 85% of domestic fish consumption in Nigeria (Fish for All Submit, 2005). Fishers from neighboring countries migrate and depend on the fisheries resources as the main source of sustenance, assets and investment capital (Fish for All Submit, 2005). Over 98% of fishing communities depend on artisanal fishery and related services for their livelihood, supplying 75% of the animal protein intake (Akankali and Elenwo, 2015). Fishing has become a means of satisfying subsistence needs and provides sources of cash income to fishers (Ipinmoroti and Adesina, 2011).

The coastline in Nigeria, and especially of the Ondo state, is well-endowed with river networks, and a large expanse of exclusive ocean waters for commercial fishing. The Ondo people (i.e. men, women and children) are engaged predominantly or on part-time basis in one or more activities in the artisanal fisheries sub-sectors (Akegbejo, 2005). Previously, the fishers use dug- out canoes and less sophisticated equipments which has changed over time. The use of motorized crafts fitted with outboard engines are now a common sight as against the traditional methods used in the past. As expected, the fishers were prone to natural disasters arising from anthropogenic activities and climatic changes. Some of these are flooding, high cost of input and materials, access to markets e.t.c. This study will outline the profitability of the artisanal fisheries venture with respect to target species.

2. Materials and methods

2.1. Study area

The four selected coastal fishing communities are in Ilaje Local Government Area (ILGA) in the Southern part of Ondo state. The fishing communities are flooded with river tributaries all flowing into the Atlantic Ocean. ILGA has the longest coastline in Nigeria (about 78km) with long history of fishing dating back to the pre-colonial days (Akankali and Elenwo, 2015). The entire coastline is the major fish producer in Ondo state with over 80 fishing communities (Akegbejo, 2005). The communities along the coastline are the major fish producers and the inhabitants (natives) are called the Ilajes. Communities like Idiogba, Alagbon Ayetoro, Odofado, Bijimi, Oroto, Ikorigho and Oghoye are found on the eastern side while Eruna-Ero, Asisa, Orioke Iwamimo, Ereke, Ogogoro, Majofadun. Zion pepe, Araromi Seaside and lgbokoda communities are found on the western side of the coastline. Fishing activities are mostly male dominated (i.e. husband and male children) while the processing activities are handled by the females (i.e. wives and female children). Four (4) major

fishing communities, Ayetoro, Eruna-Ero, Idi-Ogba and Igbokoda were selected based on logistical characteristics and accessibility to the area for the study.

2.2. Questionnaire administration

Purposive sampling procedure was employed for administration of structured questionnaires. It was designed with open and close ended questions and administered to a total of 120 respondents within the four selected fishing communities (Ayetoro, Eruna-Ero, Idi-Ogba, and Igbokoda) at 30 questionnaires per community.

2.3. Statistical analysis

Data obtained subjected to Descriptive statistics using Statistical Package for Social Sciences (SPSS), Version 16.0 and Budgetary analysis.

2.4. Analytical techniques

A combination of various analytical tools like descriptive statistics (such as means, frequency and percentages) and budgetary analysis (such as net farm income (NFI), gross margin (GM) and profitability ratios) were employed.

Thus:

Net Farm Income (NFI): gives an overall level of profitability of a fishery enterprise by adding fixed and variable costs together and subtracting the cost from the total revenue in naira.

Hence; NFI = TR – TC (i.e. TFC+TVC)

Where: TR = Total Revenue

{P = Unit price of output (Naira) multiply by Q = Total quantity of output (Kg)}

TC = Total cost.

Gross Margin (GM)

Hence; GM = GFI – TVC

Where: GM = Gross margin

GFI = Gross farm income,

TVC = Total variable cost

3. Results

3.1. Demographic characteristics of respondents.

The selected demographic characteristics of artisanal fishermen studied are illustrated in table 1. The highest frequency (74) was between ages 21-40 with (61.67%); the area was male dominated (69.17%) and 75% carryout fishing activities as primary occupation.

Table 1. Demographic characteristics of the respondents

Age	Frequency	Percentage
1-20	33	27.5
21-40	74	61.67
41-60	13	10.83
Total	**120**	**100**
Sex		
Male	83	69.17
Female	37	30.83
Total	**120**	**100**
Primary occupation		
Fisheries activities	90	75
Farmers	14	12
Aquatic transport	11	9
Civil servant	5	4
Total	**120**	**100**

The fishing practices of the respondents are shown in table 2. Based on traps, common trap had the highest frequency (60) and percentage (50%), gillnets were predominantly used by 104 respondents with percentage 86.67%. the most targeted fish species were *Solea solea (*sole fish) and *Gymnachus niloticus.* They were targeted based on high market value (55.83%). Fish were sold mostly in smoked form (60%) and the fishing hours were between 3-5 hours.

Table 2. Fisheries practices of the respondents

VARIABLE	FREQUENCY	PERCENTAGE (%)
Common Trap Used		
Hook and line	60	50
Pots	4	3.33
Cages	12	10
Wire basket	44	36.67
Total	**120**	**100**
Common Nets Used		
Cast net	7	5.83
Gill net	104	86.67
Lift net	5	4.17
Trawl net	4	3.33
Total	**120**	**100**
Most Targeted Fish Species		
Solea solea	90	75

Gymnacus niloticus	30	25
Ethmalosa fimbriata	54	45
Pseudotolithus elongates	39	32.5
Ilisha Africana	52	43.3
Clarias spp, tilapia spp	21	17.5
Heterotis niloticus	30	25
Total number of fishermen	**120**	
Note: for most targeted fish species, individual fishers target more than one species at a time		
Basis For Targeted Fish Species		
Consumers preference	23	19.17
High market value	67	55.83
Easy to handle	1	0.83
Availability	29	24.17
Total	**120**	**100**
Forms Of Fish Sales		
Fresh	16	13.33
Smoked	60	50
Fresh and smoked	44	36.67
Total	**120**	**100**
Distance Covered When Fishing(km)		
0-1	68	56.67
1-2	46	38.33
2-above	6	5
Total	**120**	**100**
Fishing Hour		
0-2	12	10
3-5	60	50
6-8	44	36.67
9-above	4	3.33
Total	**120**	**100**

3.2. Cost and return on artisanal fishing

The annual cost and return analysis on artisanal fishing by the respondents is shown in table 3. The cost and return structure had a total fixed cost of ₦920, 963. 80 while the total variable cost is ₦537,710.09 having a total cost of ₦145,8673.92, a gross margin of ₦608,739.91, a profit of ₦703,638.30 and the rate of return on investment is ₦158.90.

Table 3. Annual Cost and Return Analysis per Respondent

S/N	Item	Amount(₦)	Scale (%)
A	**Total Revenue (TR)**	**1,146,450**	
B	**Variable cost (VC)**		**% of TVC**
	cost of repair of fishing gear	84,904.42	15.79
	cost of repair of fishing craft	382,204.33	71.08
	cost of fuel	53,771.01	10.00
	Cost of labor	16,830.33	3.13
	Total variable cost(TVC)	**537,710.09**	**100**
C.	**Gross margin (GM)(TR-TVC)**	**608,739.91**	
D.	**Fixed cost (FC)**		**% of TFC**
	Cost of fishing gear	254,978.04	27.686
	Cost of fishing craft	643937.89	69.92
	Cost of line	22,047.87	2.394
	Total fixed cost(TFC)	**920,963.80**	**100**
E.	**Total cost (TC)** (TVC+TFC)	**1,458,673.92**	
F.	**Profit**	**703,638.30**	
G.	**Rate of return on investment**	**158.90 (ROI)**	

4. Discussion

It was observed that young adults were actively involved in artisanal fisheries in the area and this conform to the findings of Olaoye et al. (2012), Adeyemo et al. (2008) and Akinleye (2006) on Nigerian fishers. Iyiola (2015) reported the extent of male dominance in fishing activities on Ogunpa River at Ibadan which was similar to results of the study area with dominance of males. The result obtained from this study based on marital status implies that the respondent will have access to family labor in their fishing activities due to high level of their marital status. The results from fishing experience was in agreement with the study of Ayotunde et al. (2012) who reported that in young people are developing interest in the artisanal fishing in the coastal town of Cross River State. Fishing experience can be an indicator of profit levels, the more the experience the better the understanding of the system, the prices, conditions e.t.c of various fishing activities (Olaoye, 2010).

The total average household value of fixed items (₦920, 963. 80) of the respondents was higher than variable cost items (₦537, 710. 80) and the rate of return on investment was ₦158.90. This implies that if each respondent invest ₦1.00 on fishing activities per year, the respondent will realize a profit of ₦158.90 and it indicates profitability of artisanal fishing. These findings are similar to reports on profitability of fish farming

in Benue state by Okwu and Acheneje (2011); Emakoro and Ekunwe (2009) in Kogi state and Ashaolu et al. (2005) in Abeokuta Metropolis of Ogun state.

5. Conclusion

The net income of fishermen was affected by cost of inputs such as the cost of fishing gear, fishing craft, fueling and labor. It was observed that the fishery practices were profitable, this was apparent from the magnitude of the gross-margin, profit and rate of return on investment. Considering the immense benefits that can be derived from sustainable exploitation of the water bodies, it is essential that the government, relevant stakeholders and agencies in the country should invest in the development of artisanal fisheries by providing easy credit and loan facilities to fishers with reduced interest rate and to enhance reduction in post harvest loss through adequate infrastructure for optimal processing of products. Government/ fishing policies should be strictly adhered to with constant monitoring and evaluation of water bodies for sustainable exploitation of fisheries resources. Sensitization through extension services should be intensified for enlightenment on the profitability of fisheries with conscious effort on rational exploitation to avoid depletion of fish stock.

References

Adeyemo, O.K., Adedokun, O.A., Yusuf, R.K. and Adeleye, E.A. (2008), "Seasonal changes in physico- chemical parameters and nutrient load of River sediments in Ibadan city, Nigeria", *Global Nest Journal,* Vol. 10 No 3, pp. 326-36.

Akankali, J.A. and Elenwo, E.I. (2015), "The Atmospheric Input of Species to the World Oceans", *Joint Experts on the Scientific Aspects of Marine Pollution,* Vol. 38 No 1, pp. 111.

Akegbejo, S.Y. (2005), "Studies on the growth, reproduction and aquaculture potential of the African bony tongue fish (*Heterotis niloticus*) in ponds and reservoirs in coastal south-west states of Nigeria", *Asset Journal Series A,* Vol. 5 No 1, pp. 65-71.

Akinleye, G.A. (2006), "The Sustenance of Democracy in a Plural Society. The contributory Roles of Guidance and Counselling for Human Development", *Journal of Social Studies Education*, Vol. 2 No. 2, pp. 121-31

Ashaolu, O.F., Akinyemi, A.A. and Nzekwe, K. (2005), "Economic Viability of homestead Fish Production in Aboekuta Metropolis of Ogun State, Nigeria", *Asset Series A,* Vol. 6 No 2, pp. 209-20.

Ayotunde, E.O., Offem, B.O. and Ada, F.B. (2012), "Assessment of Heavy Metal profile of Water, Sediment and Fresh water catfish, *Chrysichthys nigrodigitatus* (Lecepede 1802), of Cross River, River state, Nigeria", *International Rev. Biol. Trop.*,Vol. 60 No. 3, pp. 221-29.

Emakaro, C.O. and Ekunwe, P.A. (2009), "Efficiency of Resource- Use and Elasticity of production among Catfish Farmers in Kaduna, Nigeria", *Journal of Applied Science Research*, Vol. 5 No. 7, pp. 776-79.

Fish For All Summit, (2005), *Proceedings of the NEPAD: NEPAD Technical Symposium and Fish for All Summit for Africa*. Nigeria, 22-25 Aug 2005. Abuja, Nigeria.

Ipinmoroti, M.O. and Adesina, B.T. (2011), "Fisheries and Aquaculture in Rural Development", in S. F. Adedoyin (ed). *Rural Agricultural and Environmental Sociology in Nigeria*. Nigerian Rural Sociology Association (NRSA). Ibadan, Andkolad Publishers Ltd. Pp 228- 38.

Ita, E.O. (1993), *Inland Fishery Resources of Nigeria*. CIFA Occasional Paper No. 20, FAO. pp. 120.

Iyiola, A.O. (2015), "Human Impact on the Water Quality and Benthic Macro-Invertebrate Compositions in Ogunpa River, Nigeria", *Journal of Agriculture and Ecology Research International,* Vol. 2 No. 2, pp. 120-28.

Okwu, O. J. and Acheneje, S. (2011), "Socio- economic analysis of fish farming in Makurdi Local Government area, Benue State, Nigeria", *European Journal of Social Sciences*, Vol. 23 No. 4, pp. 508-19.

Olaoye, O.J. (2010), "Dynamics of the Adoption Process of Improved Fisheries Technologies in Lagos and Ogun States Nigeria". *A Ph.D thesis in the Department of Aquaculture and Fisheries Management, University of Agriculture Abeokuta*, Ogun State, Nigeria. P 367.

Olaoye, O.J., Ashley Dejo, S.S., Fakoya, E.O., Ikeweinwe, N.B., Alegbeleye, W.O., Asholu, F.O. and Adelaja, O.A. (2013), "Assessment of Socio economic Analysis of fish farming in Oyo State Nigeria", *Global Journal of Science frontier Research Agriculture and Veterinary,* Vol. 13 No. 9, pp. 230-40.

Olubanjo, O.O., Akinleye, S.O. and Adekoya, M.I. (2007), "Socio-economics of Fisher-folks in the Capture Fisheries of the Ogun Waterside Area, Nigeria", in Haruna U., Jibril S.A., Mancha Y.P. and Nasiru M. (eds) *Proceedings of the Nigerian Association of Agricultural Economics*, pp. 403-409.

Williams, G. (1987), "Primitive Accumulation: The Way to Progress?", *Development and Change,* Vol. 18 No. 4, pp. 637-59.