

ROLE OF ARTISANAL FISHERY IN POVERTY REDUCTION IN KAINJI LAKE BASIN.

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ABSTRACT

The study was conducted in Kainji lake basin of Niger state to analyse the role of artisanal fishery in poverty reduction. A total of 344 respondents were sampled. Primary data was collected with a well structured questionnaire and administered to artisanal fishers to determine socio-economic characteristics and the role of fishery in poverty reduction. Data was analysed with the aid of descriptive statistics of frequency counts, percentage and a multiple regression model. The result showed that male gender is predominant with about 88%, a mean age of 43 years with a mean year of experience of 7years. The result of the multiple regression analysis showed that male respondent contributes =N=3,871 more than the female gender while variability (R^2) shows 93.49% of household income's ability to predict saving among artisanal fishers with age, gender and years had positive significant influence on savings at 0.05%. It is recommended that government should increase savings awareness within the study area as respondent's perception of the activity's ability to contribute to economic activity ranked highest with a mean score of 4.24.

Keyword: Artisanal fishery, income generation and poverty reduction

INTRODUCTION

Global artisanal production reached about 96.4million tonnes of catches recently. Out of the estimated 59.51 million people engaged in the primary sector of fisheries and aquaculture the participation of women is on the increase in the area of value chain and provision of labour (State of World fisheries and aquaculture- SOFIA,2020).

Contributions of fisheries and aquaculture to protein intake in humans grew from 9.0kg in 1961 to 20.2kg in 2015, this represents a global food fish consumption of 3.2 percent which surpasses the global population growth rate of 1.6 percent (Food and Agriculture Organization of the United Nations - FAO, 2018).

FAO (2014) defined artisanal fishery as a small-scale, low-technology fishing activity of individual fishing unit or household with close affinity. In recent times and considering the volume of fish captured, we can define artisanal fishery as an activity which can consists of advanced and

sophisticated equipments and can span for several days of voyage for the purpose of providing economic and social power for the people involved in the activity (Landu, 2021). SOFIA (2020) statistics showed that artisanal (capture) fishery recorded an increase of about 54% which is about 96.4 million tonnes. In Africa, top five producers of capture fisheries are Morocco, Namibia, South Africa, Mauritius and Senegal.

Consumption of fish products by humans is strategic to fighting against poverty, food insecurity and increase in safety nets that provides visible sources of livelihood for the people engaged in fishery activity in the riparian areas (Ikutegebe and Sikoki, 2014). Deonandan, R. (2019) stated that poverty is a condition when any individual is unable to obtain basic tolerable major requirements to sustain his life, it is multi-dimensional which ranges from lack of finance, social and general economic well being which inhibits the ability of individuals from participating effectively in the society

(Deonandan, 2019; Gweshengwe & Hassan, 2020). Artisanal fisheries has the ability to provide not only food for the people participating in the activity but also provide income and savings. Neoclassical economist have a strong believe that, at macro level, savings in the form of mobilized capital has a strong correlation with capital and investment formation which has a direct link with poverty reduction and economic growth. Savings is defined as the income set aside for other activities other than consumption. Odoemenem, *et al.*, (2013) believes that savings will help farmers to invest in the agricultural and non-agricultural sectors, which will help to reduce poverty. Uhuegbulem, *et al.* (2016) opined that the importance of savings is important in the development of a strong rural financial system, which will help to improve the way of life of small holder farmers and could reduce poverty. Subhadip (2015) in a study on self help role of Groups (SHGs), among rural farm women observed that there is a relationship between self help (income generation) and economic empowerment helping to reduce poverty and increasing economic powers and disposable income among rural dwellers especially the riverine communities. Considering the level of poverty and inequality in Nigeria, Nigeria is in a dire situation. Statistics show that despite having positive GDP growth rate for more than 4 decades since independence, over 80 million of the population is classified poor, 72% of those classified poor is awfully deprived and they subsist in Northern Nigeria with subsistence agriculture as their major economic activity, National Bureau of Statistics - NBS, (2019, 2020). Furthermore, on poverty situation in Nigeria, Presidential Economic Advisory Council- PEAC, (2021) and Alkire and Suppa, (2021) stated that the national average poverty gap between the rich and poor is 12.85% while majority of the poor live in rural areas with oversized household families of above 4 people in a nuclear family.

The equilibrium pathway between artisanal fishery, poverty reduction is the ability of artisanal fishery to generate income and savings vis-à-vis providing livelihood sustainability for the people under the study area. Sunny, *et al.* (2021) opined that fisheries and the aquaculture sector provides the opportunity for individuals to participate in many income generating activities that could help to reduce poverty. Artisanal fisheries offer many opportunities that could help to increase savings, trim down hunger, lighten poverty, perk up nutrition, generate economic activities, increase livelihood sustainability and achieve social safety net for the people directly or indirectly. Therefore, the objective of the study is to ascertain the role of artisanal fishery in poverty reduction in Kainji lake basin, Niger State.

METHODOLOGY

Kainji lake basin is located in Niger State, North central Nigeria. It is geographically located between latitude 9°30' and 10°55'N, longitude 4°20' and 4°40' E. The basin is divided into 3 main stratum (Southern, Central and Northern). There are about 298 fishing localities within the lake basin with an estimated population of 3,297 artisanal fisher folks (Abiodun, *et al.*, 2011). A total number of 168 localities (South stratum 69, Central stratum 61 and North stratum 38) and 344 respondent (South 154, Central 136 and North stratum 85) was sampled as a representative sample size determined using Krejcie and Morgan (1970). MS Excel version 7 was used for data entering while Stata 12 statistical package was used for analysis. Perception responses were analysis using Likert scale. Ordinary least square (OLS) estimates is used to analyse the relationship between regressand and the regressor.

Model specification

The simple multiple regression model was estimated using ordinary least squares (OLS) estimation. The functional relationship between the dependant variable Savings (S) and independent variable household income (Y) and other variables age of respondent (Agr), years of experience (yep) and gender (G) is stated as:

$$S=f(Y, Ag, Yep, G,)$$

The study model is therefore specified as follows:

Linear equation for the model:

$$S = \alpha + \beta_1 Y_1 + \beta_2 Ag_2 + \beta_3 Yep_3 + \beta_4 G_4 + \mu \dots\dots\dots 1$$

Double log of the model:

$$\text{Log } S = \alpha + \beta_1 \text{log} Y_1 + \beta_2 \text{log} Ag X_2 + \beta_3 \text{log} X_3 + \beta_4 \text{log} X_4 + \mu \dots\dots\dots 2$$

Where:

S= Artisanal fishery savings

Y= Household income

Ag = Age of respondent

Yep = Years of experience

G = Gender (dummy 1 = male 0= female)

Log = logarithm

β_s = coefficients

μ = stochastic error term.

RESULTS AND DISCUSSION

Socio economic characteristics of Artisanal fisher folk in the study area

The result showed that 6% of artisanal fishers were within the age bracket of 15-25 years, 31.7 % were within the age bracket of 26-36 years, 31.9% were within the age bracket of 37-47years, 16.5% were within the age bracket of 48-58 years and 14.8% were above 58 years. The mean age of artisanal fishers showed 42years of age, the result also showed that 70% of the respondent are married and

30% are either single, separated or widowed. The report agrees with Sanni (2018) who reported a mean age of 37 years, about 77% are married. The findings of Sanni (2018) shows that majority are adults and married which is similar to the field data result of 2019 which showed that majority are married with a mean age of 42 years. The result on household size shows that 7.5% were within 1-5 household size, 11.4% were within 6-10 household size, 24.4% were within 11-15 household size, 27.8% were within 16-20 household size while 29% were above 20 member of household size. The mean household size showed 11 household size, the large number of household size agrees with the report of PEAC (2021) which stated that majority of the poor live in rural areas with oversized household families. The result on years of experience shows that 14.1% were within 1-5 years, 50.8% were within 6-10 years and 35.1%

were above 10 year and the mean years of experience is 7 years which indicate that respondent are suitable for data gathering based on years of experience. that 14.1%. The result on level of education showed that 35.5% have primary education, 18.9% had secondary education, 5.5% had tertiary education while 40.4% had informal education, the result agrees with OPHI (2021) which stated that many of the rural household only have primary education, while also the high percentage of informal education is also consistent with the survey and study of Mdaihli and Alamu (1994), Olowosegun, et al., (2017) who observed that majority of the respondents have informal education due to lack of formal education facilities and resources beyond primary educational system in the riverine communities of Kainji lake basin.

Table 1: Socio-economic attributes of respondents under the study area

Variable	Frequency	Percentage	Mean
Marital Status			
Single	103	29.94	
Married	241	70.06	
Distribution of respondents by age			
15-25	21	6.0	
26-36	109	31.7	
37-47	110	32.0	42
48-58	57	16.6	
Above 58	47	13.7	
Distribution of respondents by years of experience			
1-5	49	14.1	
6-10	175	50.8	7
Above 10	121	35.1	
Distribution of respondents by educational status			
Primary	121	35.2	4
Secondary	65	18.9	
Tertiary	19	5.5	
Informal	139	40.4	
Distribution of respondents by household size			
1-5	26	7.6	
6-10	39	11.3	
11-15	84	24.4	11
16-20	96	27.9	
Above 20	100	28.8	

Source: Field survey, 2019 with researcher's computation.

Regression analysis result

The regression result in Table 2 showed probability estimate (P-value) of 0.000 (< 0.05%) which

indicates that the regression is significant. R-square variability result shows 0.9349, which indicates 93.49% variability in predicting the dependent

variable. Household income, age of respondent, years of experience and gender all showed statistical significant P-values of less than 5% (0.005) which

showed a positive correlation between dependent and independent variables in the estimated regression.

Table 2: OLS Estimated result under study area

S	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
Y	.8661982	.0133533	64.87	0.000	.8399324	.8924641
Ag	-183.488	56.30125	-3.26	0.001	-294.2318	-72.74418
Yep	862.3345	318.8481	2.70	0.007	235.1646	1489.504
G	3871.014	1181.78	3.28	0.001	1546.468	6195.956
_cons	-4819.289	2448.056	-1.97	0.050	-9634.582	-3.997259
Number of observation	=	344				
F (4, 339)	=	1217.75				
Prob> F	=	0.0000				
R-squared (R)	=	0.9349				
Adj R-squared (R ²)	=	0.9342				
Root MSE	=	7095.8				

0.05 significance level (95% confidence level)

Source: Author's computation using Stata 12, 2022. Statistical significance = 0.05%.
Field survey data, 2019

Equation 3 implies that as the difference in the logs of expected counts of savings increase, household income increases by 0.866 holding other variables constant. Also, as the difference in the logs of expected counts of savings increases, Years of experience increases with 844.4 holding other variables constant and lastly, as the difference in the logs of expected counts of savings increases, gender increases by 3927.5 holding other variables constant in the area under the study. The difference in the expected counts of savings increases as in years of experience increases by 862.3 holding other variables constant. Implication of regression result is that with every =N= 1 saved, household income generated from artisanal activity contributed about 87kobo. In addition, the result shows that as the age of the respondents increases, saving decreased by about =N=183. This implies that the older and perhaps married gender have more household financial responsibilities. This is true if the mean age of 43 years from Table 2 is considered. As the people involved in the activity grow older, household expenditures increases and other social cultural activity increases as well (such as more wives, children, quest for respect and recognition) given the perceptions and ways of life of the rural dwellers shown in mean number of household size of 11. The mean household size of 11 indicates that the fisher folks have large family sizes also suggests that household expenditure will definitely increase on things like food, clothing, healthcare and other things to keep the home front active. However, equation 5 shows that the male gender saves =N= 3,871 naira more than the female gender engaged in the activity. This may be related to the result

presented in Table 2 which shows predominance of male gender having 88% in the study area. Years of experience was significant which means that as the years of experience increase by one year, saving increases by =N=862.3.

Implication of finding under the study area.

The perception analysis applied a 5-point Likert-type scale ranging from “strongly disagree”- scale 1 to “strongly agree” -scale 5. Respondents’ perception associated with impact on livelihood was measured using 3 scale responses ranging from low-scale 1 to high scale 3. Responses of the 5-point scales were categorized according to their mean scores, cut off mean is 3.00 scores above 3.00 was classified as not a serious constraint while those with mean scores below 3.00 was classified as serious constraint. Table 3 shows respondents perceptions on the possibility of the artisanal fisheries contribution to livelihood contribution in terms of economic activities and income generation. Respondent perception of artisanal contribution to local economic activities has a mean score of 4.24 indicating that the activity contributes to local economy. Respondent believe that artisanal activity can impacts on income generation in the area under the study with a mean score of 4.23. The mean score of 4.04 indicates that artisanal activity can contribute to food security. On rural migration, respondent believes the activity can help to reduce rural urban migration with a mean score of 3.71. On gender mainstreaming, respondent believe that more women are embracing artisanal activity with a mean score of 3.41 because women are not restricted from engaging in the activity.

Table 3: Perception table on contribution to economic activity and a possible panacea to poverty reduction

	valid number	Missing	Mean	Std. Deviation	Range	Min	Max	Rank
Artisanal contributes to economic activities	344	0	4.2419	.60381	3.00	2.00	5.00	1 st
Artisanal impact on income generation	334	10	4.2334	.51765	3.00	2.00	5.00	2 nd
Artisanal contributes to food security	337	7	4.0460	.81135	3.00	2.00	5.00	3 rd
Artisanal reduce rural urban migration	338	6	3.7189	.60800	3.00	1.00	4.00	4 th
More women are embracing Artisanal activity	332	12	3.4242	.79822	2.00	2.00	4.00	5 th

Field survey data, 2019

CONCLUSION AND RECOMMENDATION

The study established that artisanal fish farmers in Kainji lake basin, Niger State, Nigeria were mostly men, within the economic active age with large household family sizes and a high number of informal educational background and years of experience with socio-economic attributes capable of contributing positively to savings, livelihood sustainability and poverty reduction through income generation from artisanal fisheries. The study was also able to establish that artisanal farmers can save and that the male gender engaged in the activity in the area under the study have the ability of saving more than the female gender which may likely reduce rural urban drift if adequate and specific intervention are provided for artisanal fishers.

It is therefore recommend that stakeholders should encourage artisanal fishers.:

- i. Increase savings awareness among fishers,
- ii. Upscale re-educating on fishing methods and dangers of obnoxious fishing practices
- iii. Increase code of conduct awareness.
- iv. Intensify effort on re-population of fresh water bodies like Kainji lake to reduce extinction
- v. Provide sophisticated pocket friendly (affordable) fishing tools
- vi. increase training on fish value addition practices.

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