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## MICRO-CREDIT ACQUISITION AMONG SMALL-SCALE FISH FARMERS IN OBIO-AKPOR LOCAL GOVERNMENT AREA OF RIVERS STATE, NIGERIA

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### ABSTRACT

*The study examined micro-credit acquisition among small-scale fish farmers in Obio-Akpor Local Government Area of Rivers State, Nigeria. The objectives were to: describe the socio-economic characteristics of the fish farmers; identify the major sources of micro-credit amongst fish farmers; and identify the major constraints in micro-credit acquisition among the fish farmers in the study area. Data were collected using semi-structured questionnaire. A total of seventeen questionnaires were administered. Data were analyzed and presented with the use of descriptive statistics. Results showed that majority (65.0%) were male, (35.0%) were between 20 – 30 years, (71.0%) were married, 94% had formal education, part time farmers were (53.0%), household size was (65.0%) of 1-4 persons, 47% have been in fish farming between 6 - 10 years and had an income level between ₦101,000 – ₦110,000 (41.0%). Majority (47.0%) of fish farmers sourced micro-credit from cooperative societies (Esusu). The result of the multiple regression analysis showed that sex, household size, fish farming experience and incomewere determinants of micro-credit acquisition. The major constraints to micro-credit acquisition were: high interest rate charged ( $\bar{x} = 4.0$ ), delay in processing loan application and age ( $\bar{x} = 3.9$ ), farm size ( $\bar{x} = 3.8$ ), lack of awareness/proper communication ( $\bar{x} = 3.7$ ) and insufficient available credit and experience ( $\bar{x} = 3.6$ ). The study recommended single digit interest rate with financial institutions to favour the fish farmers*

**Keywords-** Acquisition, fish-farmers, Micro-credit.



## Introduction

In the recent times, the increasing human population in the face of inelastic production strategies appears to have widened the demand and supply gap of agricultural products, especially protein-based foods (Onyekuru, Ihemezie, and Chima, 2019). Fish is an aquatic animal which serves as sources of food, nutrition, income and livelihood for millions of people in the world (Michael & Fantahun, 2019). Tilahun, Alambo, & Getachew (2016) stated that fish farming has quickly grown animal-based food production sector since the ancient civilization of Egypt and China. Globally, fish accounts for about 17 percent of animal protein intake and 6.7 percent of all protein consumed by humans (Food and Agriculture Organization (FAO), 2016).

It is worthy of note that fish production in Nigeria is from three major subsectors: artisanal, aquaculture and industrial (Okeke, Mbah and Enibe, 2019). Artisanal fishing has been noted to contribute the largest proportion because the majority of the fishers in Nigeria are artisanal fishers operating with crude fishing tools and implements, little or no credit facilities, and lack of skills (Okeke, Mbah and Enibe, 2019).

According to (CBN, 2015), artisanal fish production contributed 85.5% - 89.5% while aquaculture and industrial production stood at 5.5%-12.0% of the total local fish production in Nigeria, respectively.

According to FAO (2003), small-scale fisheries activities supply up to 80% of the fish products for domestic consumption which improves nutrition for the poor and vulnerable.

Due to the fact that the rural farmers have been characterized as poor and low income group (Ekong, 2010; Ogujiuba *et al.*, 2013), therefore access to fund by rural farmers as indicated by Nelson and Nelson (2010) will empower the poor to engage in meaningful income generating activities which usually is agricultural enterprise. Therefore, availability of micro lending (being a strategy to address the issue of credit or fund), will increasingly boost rural economy, improve the socio-economic condition of rural farmers as well as instigate the sustainability of agriculture, hence, solve the problem of insufficient food which in recent times is a global trend and a challenge to the world population (Oguntola, 2008; Oriola, 2009; Attah, 2012; Nnadi *et al.*, 2012; Nwagboso, 2012).

Seibel (2000) stated that improving the micro-credit acquisition strategy among small-scale farmers and their timely access to credit facilities is a major incentive that stimulates the growth of small-scale fish farmers' enterprises. Over the years, government has been able to come up with policies, schemes and palliative measures to assist rural farmers in enhancing productivity. Some of these schemes include the Agricultural Credit Guarantee Scheme (ACGS) in 1977, the agricultural credit support scheme, commercial agriculture credit scheme and the licensing of Micro Finance Banks. The Nigerian Agricultural and Cooperative Bank (NACB) in 1973, and in 2000 became Nigerian Agricultural, Cooperative and Rural Development Bank, (NACRDB, after it was merged with Peoples' Bank), and the Nigerian Agricultural Insurance Corporation (NAIC) subsequently followed in 1993. Government also gives encouragement to these small scale fish farmers to form co-operative societies to improve their financial base but despite these efforts at both Federal and State levels, micro-credit acquisition among these small-scale fish



farmers are still not accessible. However according to Kyari (2000), this could be attributed to the complications of agricultural lending. He asserted that Nigerian banks have had to be coerced, forced, begged and encouraged to lend to agriculture. This, he said, is because agricultural finance offers less than the average return when compared with other investment opportunities. These problems need to be addressed hence the study. It is on the basis of this that the study sought to achieve the following specific objectives :

- i. describe the socio-economic characteristics of the fish farmers;
- ii. identify the major sources of micro-credit among fish farmers;
- iii. assess the determinants of micro-credit acquisition among fish farmers; and
- iv. identify the major constraints in micro-credit acquisition among the fish farmers in the study area and proffer solution to the identified problems.

## Methodology

### Study Area

This study was carried out in Obio-Akpor Local Government Area (LGA) of Rivers State, Nigeria. Obio-Akpor LGA is sharing boundary with Etche LGA on the North, Port-Harcourt LGA on the South, Ikwerre LGA and Emuoha LGA on the East, Oyigbo LGA and Eleme LGA on the West. The people are predominantly farmers, traders and artisans (Eludoyin *et al*, 2011).

The population of the study constitutes all registered fish farmers and micro-finance institutions and informal sources of credit in Obio-Akpor Local Government of Rivers State, Nigeria. The population of the LGA as at 2006 was 464,789 (National Bureau of Statistics, 2006). There are seventeen (17) registered contact fish farmers in Obio-Akpor LGA (Rivers State Ministry of Agriculture, 2020).

### Population of the Study

The entire population were used.

Data were collected by the researcher through primary source by administration of questionnaires. Data collected from the respondents were analyzed using descriptive statistics such as mean, percentage and frequency. Multiple Regressive analysis was used as well to analyze the socio-economic determinants of micro-credit acquisition. A four point likert type scales with options; strongly agreed (4), agreed (3), disagreed (2), strongly disagreed (1) was also used to evaluate the constraints in micro-credit acquisition among the fish farmers.

The explicit representation of the models were in three functional forms: the linear, double-logarithm function and semi-log form.

**The linear form of the model was explicitly specified as follow:**

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + e \quad \text{eq. (1)}$$



### The semi log form of the model is specified thus:

$$Y = \beta_0 + \beta_1 \log X_1 + \beta_2 \log X_2 + \beta_3 \log X_3 + \beta_4 \log X_4 + \beta_5 \log X_5 + \beta_6 \log X_6 + \beta_7 \log X_7 + e \quad \text{eq. (2)}$$

### The double log form of the model is specified thus:

$$\log Y = \beta_0 + \beta_1 \log X_1 + \beta_2 \log X_2 + \beta_3 \log X_3 + \beta_4 \log X_4 + \beta_5 \log X_5 + \beta_6 \log X_6 + \beta_7 \log X_7 + e \quad \text{eq. (3)}$$

The function that gives the best fit was selected as the lead equation. It also fulfils the following criteria; highest coefficient of determination ( $R^2$ ) value, highest number of significant variables, highest F-value and conformity to *a priori* expectation of coefficients.

Where;

Y = Micro-credit acquisition (Acquired = 0; otherwise = 1)

$X_1$  = Sex (female = 0; male = 1)

$X_2$  = Age (years)

$X_3$  = Marital status (married = 1. Otherwise = 0)

$X_4$  = Household size (no of persons)

$X_5$  = Educational level (years in school)

$X_6$  = Farming experience (years)

$X_7$  = Source of loan (1 = Formal, 0 = Otherwise)

$\beta_0$  = Constant

$\beta$  = Regression coefficient

e = Stochastic error term

## Results and Discussion

### Socio-economic Characteristics of Respondents

Table 1 shows that majority (65%) of the respondents were males, while 35% of them were females. Although, this study is not gender based, the result underlies the fact that males in the study area had greater access to production resources. The male dominance in fish farming could be as a result of the laborious nature of fish farming, which their female counterparts cannot easily undertake. This result can be justified by the assertion of Brummett, Youaleu, Tiani, & Kenmegne (2010) that fisheries activities were mostly dominated by men. This research finding was further supported by the assertion of Okeke et al (2019) that fish farming enable men as head of households to obtain income that will make them to be economically strong to take care of family responsibilities.

The table also shows that a fair percentage (35%) and (29%) of the fish farmers were within the age ranges of 21 - 30 years and of 31 - 40 years, respectively, while 24% and 6% of them fell within the age range of 51 - 60 years and 41 - 50 years old, respectively. The mean age of fish farmers was 45.5 years old. The implication of this result is that farming in the area was dominated by young people, who are energetic enough to withstand the stress involved in farm operations. The distribution of the respondents according to their marital status shows that 71%



of the respondents were married and therefore would have greater family responsibility, while 29% of the respondents were single. This collaborates with the finding of Ugwuja *et al.* (2017) who found that majority (55.2%) of fish farmers were married.

The table also shows that a good majority (65%) of the respondents' household size were between the ranges of 1 - 4 persons, while 35% of the fish farmers had a household size of between 5 - 8 persons. The mean household size was however 8 - persons. The result indicates that the household size is large; this will help the farmers not to spend much money hiring labourers. This result agrees with Agbamu (2000), who said that the number of persons in a family paves way for the use of family labour. Large households, whose labour is fully employed for agricultural production, would contribute to labour input for increase and sustainable production. In this case, credit obtained could be efficiently utilized. On the other hand, larger household size could lead to loan diversions resulting from increase in consumption expenses.

In relation to level of formal education attainment, the table shows that 47% of the respondents had HND/BA/Bed/B.Sc, 24% had ND/NCE, 23% had SSCE/WAEC, while only 6% of them had no formal education. Cumulatively, the table shows that majority (94%) of the respondents can marginally be classified as literate. The findings agree with Okeke *et al.* (2019) who stated that most (92.0%) fish farmers in his study area had formal education.

Table 1 further indicates that 53% of the respondents were part time farmers, while 47% were full time farmers. The need to supplement household income made some respondents diversify sources of income. This is in line with the work of Ele *et al.* (2013) on economic analysis of fish farming in Calabar, Nigeria where it was reported that 89% of the farmers who practice aquaculture were part time fish farmers.

In terms of farming experience, almost fifty percent (47%) had 6-10 years of farming experience, the mean years of farming was 13 years. This indicates that most of these fish -farmers were well grounded in the rudiments of farming and can make efficient use of credit facilities if extended to them. The table further shows that (41%) of the respondents in fish farming realize up to ₦101,000- ₦110,000 every month, 24% of them earn up to ₦91,000- ₦100,000 every month and 23% of them earn up to ₦81,000- ₦90,000 every month and 6% earn between ₦50,000 - ₦80,000 every month. The mean income for fish farming is ₦80,417. This implies that fish farming has high-income rate and therefore it is a good source of income to the farmers.



Table 1: Socio-economic characteristics (n =17)

Variables	Frequency	Percentage	Mean
<b>Age (years)</b>			
21 – 30	6	35	45.5 years
31 – 40	5	29	
41 – 50	2	12	
51 – 60	4	24	
<b>Sex</b>			
Male	11	65	
Female	6	35	
<b>Marital status</b>			
Married	12	71	
Single	5	29	
<b>Educational Level</b>			
No formal Education	1	6	
SSCE/WAEC	4	23	
ND/NCE	4	24	
HND/BA/Bed/B.Sc	8	47	
<b>Type of Farming</b>			
Full time farmer	8	47	
Part time farmer	9	53	
<b>Household (persons)</b>			
1 – 4	11	65	8.5 persons
5 – 8	6	35	
<b>Occupation</b>			
Farming	8	47	
Civil servant	4	23	
Artisan	1	6	
Business	4	24	
<b>Fish Farming Experience (Years)</b>			
1 – 5	7	41	13 years
6 – 10	8	47	
11 – 15	2	2	
<b>Monthly income (₦)</b>			
50,000 – 60,000	1	6	₦80,417
61,000 – 70,000	-	-	
71,000 – 80,000	1	6	
81,000 – 90,000	4	23	
91,000 – 100,000	4	24	
101,000 – 110,000	7	41	

Source: Field survey, 2020

#### 4.2 Sources of micro credit in the study area

Table 2 shows that the main sources of micro credit available to the farmers in the study area were co-operative societies (Esusu) (47%), friends or relatives (23%), money lenders (18%) and non - governmental organizations (NGOs) (12%). The implication is that the major sources of credit among the respondents were co-operative societies (Esusu) and friends or relatives which are non-institutional credit sources. Credit from non-institutional sources is more attractive, because there is little or no insistence on collateral security (Bolarinwa and Fakoy's (2011).

**Table 2: Percentage Distribution of sources of micro credit acquisition in the study area**

Sources of micro credit	Frequency	Percentage
Cooperative societies (Esusu)	8	47
Money lenders	3	18
Friends/Relatives	4	23
Non - Government organization	2	12

Source: Field survey, 2020

### 4.3 Determinants of micro-credit acquisition

Table 3 shows the regression estimate of determinants of micro-credit by fish farmers in Obio-Akpor local government area of Rivers State. The linear functional form was chosen as the lead equation based on the magnitude of  $R^2$ , the significant level of the  $F$ -ratio, the number of significant variables and the conformity of the variables to apriori expectations. The linear regression model has an R-square of 0.961 which implies that about 96% of the determinants of a respondent to acquire micro-credit were strongly explained by the independent variables. Only 14% was not explained, this was due to stochastic error term.

The result showed that the coefficient of sex, household size, farming experience and income were statistically significant at 1, 5 and 10 percent level respectively.

The coefficient of educational level and marital status were positive but were not significant. More specifically, the coefficients of sex, age, and annual income were negative.

The coefficient of sex (-0.284) was negative and significant at 10% level. This implies that women had low access to micro-credit compared to men. The finding is consistent with the findings of Winter-Nelson and Temu (2002) who reported a negative relationship between female headed household and liquidity constrained in Tanzania.

Household size ( $X_4$ ) had a positive coefficient (0.571), which was significant at 5% level. This means that the amount of agricultural credit acquired and household size had direct correlation. This result is also in agreement with apriori expectation. As the size of a household increases, the household needs will also increase. In a bid to satisfy the increased household needs, relatively larger amount of loans will be acquired.

Farming experience ( $X_6$ ) was also positive and significant at 1% significant level with coefficient of (1.552). This suggests that farming experience is an important determinant of micro-credit acquisition. The years of farming experience of the household head is believed to influence both access to loan and the size of loan. This is because older farmers with years of farming experience are expected to be knowledgeable about farming and the various sources of credit. They are also expected to have better credit management skills and credibility with lenders (Anang, Bäckman & Sipiläinen, 2015).

Level of income ( $X_7$ ) had a negative coefficient (-0.321) and was significant at 10%. This implies that those with low income had better chances to access micro-credit from financial



institutions. The negative coefficient was expected because most of the credit that was made available to fish farmers were targeted to the real poor (those with low income). In addition, most of the available credit schemes had eligibility criteria favouring people with relatively low income in rural areas. This result is inconsistent with those of Anyiro and Oriaku (2011), Aliero and Ibrahim (2011) who find level of income to be an important determinant of demand for credit.

**Table 3: Regression estimates of the socio-economic determinants of micro-credit acquisition**

Variables	Linear	Double log	Semi-log
Constant	.038 (.096)	.285 (6.302)	1.912 (7.431)
Sex	-.284 (-1.889)*	-.178 (-1.862)*	-1.011 (-1.862)*
Age	-.112 (-.509)	-.054 (-.329)	-.305 (-.329)
Marital Status	.189 (.562)	.083 (.445)***	.471 (.445)***
Household Size	.571 (2.771)**	.711 (3.638)**	5.001 (1.218)**
Educational Level	.178 (.954)	.798 (2.350)	4.533 (2.350)
Farming Experience	1.552 (4.495)***	.178 (1.218)	1.010 (1.218)
Annual Income	-.321 (-1.886)*	-.621 (-2.108)*	-3.526 (-2.108)*
R <sup>2</sup>	0.961	0.942	0.957
F-value	31.947	20.757	28.532

**Source:** Field survey, 2020, SPSS 23.0. figures in parenthesis are the *t*-ratio.

\*significant at 10%, \*\*significant at 5%, \*\*\*significant at 1%

#### 4.4 Constraints to micro credit acquisition

Table 4 presents the mean response of respondents according to the constraints to acquiring micro credit. The table result showed that the constraints small-scale fish farmers encountered in acquiring micro credit were high interest rate charged ( $\bar{x}=4.0$ ), delay in processing loan application ( $\bar{x}=3.9$ ), farm size ( $\bar{x}=3.8$ ), lack of awareness/proper communication ( $\bar{x}=3.7$ ), insufficient credit and experience ( $\bar{x}=3.6$ ), late disbursement and inability to provide required collateral ( $\bar{x}=3.4$ ), previous loan ( $\bar{x}=3.3$ ), difficulty in having a reputable guarantor ( $\bar{x}=3.2$ ), repayment capacity ( $\bar{x}=3.0$ ), difficulty in filling the form and cost of transportation to place of borrow ( $\bar{x}=2.8$ ) and default ( $\bar{x}=2.5$ ). Each of them were above 2.5. This is an indication that each problem had positive effect on the farmers. All these would reduce the fish farmers'



expected profit margin. The implication is that many farmers will back out from fish farming and the resultant effect is fish scarcity and lack of an essential nutrient such as protein.

**Table 4: Response on constraints to micro credit acquisition in the study area**

S/N	Constraints to Micro-credit acquisition	SA (4)	A (3)	D (2)	SD (1)	Total Score	Mean Score $\bar{x}$	Ranking
1	High interest rate charges	17	0	0	0	68	4.0	Agreed
2	Delay in processing loan application	15	2	0	0	66	3.9	Agreed
3	Difficulty in filling the form	3	8	5	0	47	2.8	Agreed
4	Late disbursement	10	5	1	1	58	3.4	Agreed
5	Cost of transportation to place of borrow	6	3	7	0	48	2.8	Agreed
6	Inability to provide required collateral	8	8	1	0	58	3.4	Agreed
7	Difficulty in having a reputable guarantor	5	10	2	0	54	3.2	Agreed
8	Lack of awareness/proper communication	15	1	0	0	64	3.7	Agreed
9	Insufficient credit	10	7	0	0	61	3.6	Agreed
10	Experience	13	2	2	0	62	3.6	Agreed
11	Age	15	2	0	0	66	3.9	Agreed
12	Farm size	15	1	1	0	65	3.8	Agreed
13	Previous loan	5	12	0	0	56	3.3	Agreed
14	Default	1	7	9	0	43	2.5	Agreed
15	Repayment capacity	8	2	7	0	52	3.0	Agreed

**Source: Field survey 2020, Multiple Responses  $\geq 2.5$ - Agreed,  $\leq 2.5$ -Disagreed  
SA= Strongly Agreed, A= Agreed, D= Disagreed, SD = Strongly Disagreed**

### Conclusions and Recommendations

The outcome of the study showed that fish farming in the study area was carried out mostly by married males who are educated with large household size and still in their productive years. They are mostly part time farmers, who sourced micro credit mainly from the informal sources (cooperative societies). Formal sources need to do something to their loan terms in order to soften it for farmers to obtain loan.

Result of the multiple regression analysis showed that sex, household size, farming experience and annual income were significant predictors at varied significant levels. The farmers encountered problems of high interest rate charged, delay in processing loan application, lack of awareness/proper communication, insufficient credit, late disbursement and inability to provide required collateral.



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Long term solutions should be provided by government at all levels to solve the recurrent problem of high interest rate and absence of collateral as farmers' constraints to production credit.

In line with the findings of this study, it was recommended that interest rate be reduced, this is because, high interest rate will scare potential fish farmers.



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