

Socio-Economic Factors Affecting Fish Farmers in Abia State, Nigeria

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Abstract— *Study of socio-economic factors affecting fish farmers in Abia state, Nigeria was carried out between January, 2017 to January, 2018 with the aim of identifying socio-economic factors affecting fish farming in the area and proffer solutions for potential government support towards aquaculture development in Abia State as well as to recommend ways fish farming can be improved and promoted. Abia State was visited through the assistance of the staffs of their various ministries of agriculture and natural resources as well as those from agricultural development programmes. Identified farmers were subsequently counted according to their fish farm circles, blocks, and agricultural zones in their respective states. The population sample comprised of sixty four (64) fish farmers that were randomly selected within the farm circles, blocks and agricultural zones of the states through Taro Yamani formula. Questionnaires, interviews, field observations, visits to some fish farms where photographs were taken were all used during data collection. Questionnaires used were divided into five sections that covered the objectives of the study. Data collected were then analyzed using descriptive statistics (frequency, percentage, mean, etc.), inferential statistics and SPSS version 2020 were all used. The study revealed that majority of the fish farmers were males (76.9%), who were married (64.1%) with an average age that ranged between 41–50 years (37.9%), with a low level of education mainly primary education (39.1%) and a household size of 4–6 persons (50.9%). They used mainly family labour (60.0%) with a relative low level of production 4–5 ponds (46.6%) and an average annual income that ranges between ₦100, 000--- ₦500, 000 (60.0%) among them. Marketing constraints was noticed to be among the most ranked major constraints faced by these fish farmers, it was also noticed that there were no government support towards fish farming activities in the state. Consequently, the study recommended that fish farmers in the States be fortified to form cooperative societies in order to gain access to credit facilities.*

Keywords— *socio-economic factors, fish farmers, credit facilities.*

I. INTRODUCTION

Aquaculture which is also known as fish farming is the husbandry of aquatic food organisms. The need arose from the decrease in supply from fresh water and marine fisheries as a result of over-fishing, habitat destruction and pollution. One of the ways to bridge the gap between the reduced fish supply and increased world food fish demand is through aquaculture. Unlike Asia, Africa has little aquaculture tradition and has been affected by a number of external problems that have prevented proper management and development of the sector despite investment (Edward, 2000; Palmquist and Danelsam, 1991).

Aquaculture has been demonstrated as a cheap source of animal protein (FAO, 2016). FAO (2016) reported that an estimated 690 million people lack adequate access to food; and about 15% of these are in sub-Saharan Africa. Tunde *et al.* (2015) asserted that as the population grows and puts more pressure on natural resources, more people will probably become food insecure, lacking access to sufficient amount of safe and nutritious food for normal growth, development, and an active and healthy life. A number of countries in sub-Saharan Africa are characterized by low agricultural production, widespread economic stagnation, persistent political instability, increasing environmental damage, and severe poverty. Given this situation, it is therefore pertinent to provide the poor and hungry with a low cost and readily available strategy to increase food production using less land per output, and less water without further damage to the environment (Tunde *et al.*, 2015). In Nigeria, aquaculture development has been driven by social and economic objectives, such as nutrition improvement in rural

areas, generation of supplementary income, diversification of income activities, and the creation of employment. This is especially true in rural communities, where opportunities for economic activities are limited. Only in recent years has aquaculture been viewed as an activity likely to meet national shortfalls in fish supplies, thereby reducing fish imports. According to Ekunwe and Emokaro (2016), statistics indicate that Nigeria is the largest African aquaculture producer, with production output of over 2.7 million metric tonnes (mmt) per annum; this is closely followed by Egypt with output of about 2.1 million tonnes. Five other countries produce: Zambia (over 70 000 tons of fish annually), Madagascar (over 12,700 tonnes per annum), Togo (28,000 tons per annum), Kenya (24,000 metric tonnes of fish annually) and Sudan (2,000 tons per annum). Ekunwe and Emokaro (2016) further showed that Nigeria imports about 560,000 tonnes of fish estimated at about \$400 million annually while annual domestic fish supply in Nigeria stands at about 400,000 tonnes. The fisheries sector accounts for about 2% of national G.D.P, 40% of the animal protein intake and a substantial proportion of employment, especially in the rural areas; the sector is a principal source of livelihood for over three million people in Nigeria.

The government research institutions and the universities have made effort in developing improved strategies and technologies so as to increase production to meet the demand of the country and even export. These technologies are new improved ideas, methods, practices, innovations and inputs which supersede the ones previously in use. It also provides the means of achieving a sustainable increase in fish farm productivity and consequently leading to an improved living standard of the people as stated by Ifejika and Ayanda (2014). But according to Bolorundu (2016) the level of adoption of these technologies by the fish farmers is very low. This is due to the combination of various constraints among which are faulty aquaculture policies, institutional framework and unfavourable socio-economic environment. Hence, this study aimed at identifying socio-economic factors affecting fish farming in the area and proffer solutions for potential government support

II. MATERIALS AND METHODS

2.1 Study Area

Abia State, which occupies about 6,320 square kilometers, the state which is approximately within latitude 4° 41' and 6° 14' North of the Equator and Longitude 7° 10' and 8° East of Greenwich meridian, is bounded on the North and North East by the states of Anambra, Enugu, and Ebonyi. To the West of Abia is Imo state, to the East and South East are cross river state and Akwa Ibom State respectively and to the South is Rivers State. Abia State is made of three agricultural zones that were made of;

- 1) Aba agricultural zone is made up of seven local government Areas; namely; Aba North , Aba South , Osisioma Ngwa, Obioma Ngwa North, Ukwa West and Ugwunagbo Local Government Areas. The zone is located between latitudes 5° and 39° N and longitude 2° and 0°E, has a total land mass of 810,160ha and with a population of 1,167,698 persons (NPC 2006).
- 2) Ohafia zone is made up of five Local Government Areas namely; Isiukwuato, Ohafia , Bende , Arochukwu and Umunneochi.
- 3) Umuahia agricultural zones covers five (5) Local Government areas of namely; Umuahia North and Umuahia South, Ikwuano, Isala Ngwa North and Isiala Ngwa South.

2.2 Sampling Size and Technique

The population sample comprise of three hundred and twenty(320) fish farmers that were randomly selected within the following circles, blocks and the agricultural zones in the state as summarized in Table 1.

TABLE 1
LISTS OF CIRCLES, BLOCKS AND AGRICULTURAL ZONES IN ABIA STATE

Sr. No.	State	Agricultural zone	Fish block	Fish circle
1	Abia	Aba	15	30
		Ohafia	9	20
		Umuahia	10	21
		Total	34	71

Source: Field survey (2019)

Then Taro Yamani formula, Yamani Taro (1967) the following number of respondents were identified.

$$n = \frac{N}{1+N(e)^2}$$

Where n = Sample size

N = population size

e = 0.05 based on research condition

III. METHOD OF DATA COLLECTION

In this study, questionnaires, interviews, field observation, visits to fish farms where photographs were taken which was used during data collection. However, questionnaire was the major tool used for gathering necessary data from fish farmers (respondents). The questionnaire was structured in such a way that it provided answers to the research questions.

1. What is the effect of socio-economic characteristics of fish farmers on aquaculture productivity within the state?
2. In what ways can aquaculture be improved and promoted within the States?
3. What are those major constraints faced by fish farmers in improving aquaculture productivity within the States?
4. What are the potential of governmental support towards aquaculture improvement and productivity within the State?

3.1 Viability of the instrument

Copies of the questionnaires were given to experts in Agricultural Economics, Fisheries Economics and Statistics and Computer Science in Nnamdi Azikiwe University for Validation.

3.2 Data Analysis

Analytical tools that was adopted in this study were descriptive statistics (frequency, percentage, mean), inferential statistics and SPSS version 2020 was used to analyse research questions, research hypothesis and objectives of the study. Multiple Regression and Z statistics was adopted to test the hypothesis of the study. The computation was done using SPSS 22 package).

IV. RESULT AND DISCUSSION

Gender respondents of fish farmers in Abia state showed that men were (73.8%) while female were (24.6%) as shown in table 2 (A). Those between the age ranges of 41-50 years had the percentage value of (52.5%) while those from 20-30 years had the least percentage (6.6%). Single Farmers hade (55.7%) married farmers had percentage (32.8%) while the least were widowers (1.5%). Fish farmers that had only primary education had (34.4%), those with tertiary education were (16.4%) respectively, while household house range of 4-6 persons had (67.2%) and the least were those above 9 persons (4.9%) as shown in tables 2 (B-E).

Farming experience showed that those who had 4 to 6years experience had (39.3%) as shown in table 2 (F), while those above 10 years had (9.0%). Farmers who had 1-5 ponds had the highest percentage (57.4%) and those with below 16 ponds (1.6%) were the least. Those who used family labour had (68.9%) while those who hired labour had the least (11.5%). In Abia state those who earned around N100,000 – N500,000 naira had the highest percentage (60.7%) while those who earned between 1,000,000 – 5,000,000 had the least percentage (6.5%) as shown in tables 2 (F-I).

TABLE 2
SOCIO-ECONOMIC FACTORS OF FISH FARMERS IN ABIA STATE.

A. Gender of respondents in Abia State					
		Frequency	Percent	Valid Percent	Cumulative Percent
	Male	45	73.8	75	75
	Female	15	24.6	25	100
	Total	60	98.4	100	
Missing	System	1	1.6		
Total		61	100		

B. Age of respondents in Abia State					
		Frequency	Percent	Valid Percent	Cumulative Percent
	21-30 Years	4	6.6	6.7	6.7
	31-40 Years	16	26.6	26.7	33.3
	41-50 Years	32	52.5	53.3	86.7
	Above 50 years	8	13.1	13.3	100
	Total	60	98.4	100	
Missing	System	1	1.6		
Total		61	100		
C. Marital Status of Respondents in Abia State					
		Frequency	Percent	Valid Percent	Cumulative Percent
	Single	34	55.7	56.7	56.7
	Married	20	32.8	33.3	90
	Divorced	3	4.9	5	95
	Widowed	2	3.3	3.3	98.3
	Widower	1	1.6	1.7	100
	Total	60	98.4	100	
Missing	System	1	1.6		
Total		61	100		
D. Educational Qualification in Abia State					
		Frequency	Percent	Valid Percent	Cumulative Percent
	Non Formal Education	10	16.4	16.7	16.7
	Primary	21	34.4	35	51.7
	Secondary	19	31.1	31.7	83.3
	Teritary	10	16.4	16.7	100
	Total	60	98.4	100	
Missing	System	1	1.6		
Total		61	100		
E. Household size in Abia State					
		Frequency	Percent	Valid Percent	Cumulative Percent
	1--3 persons	9	14.8	15	15
	4--6 persons	41	67.2	68.3	83.3
	7--8 persons	7	11.5	11.7	95
	9 persons and above	3	4.9	5	100
	Total	60	98.4	100	
Missing	System	1	1.6		
Total		61	100		
F. Farming Experiences in Abia State					
		Frequency	Percent	Valid Percent	Cumulative Percent
	1--3 yrs	20	32.8	33.3	33.3
	4--6 yrs	24	39.3	40	73.3
	7--9 yrs	10	16.4	16.7	90
	Above 10 yrs	6	9.8	10	100
	Total	60	98.4	100	
Missing	System	1	1.6		
Total		61	100		

G. Number of ponds used by fish farmers in Abia State					
		Frequency	Percent	Valid Percent	Cumulative Percent
	1--5 ponds	35	57.4	58.3	58.3
	6--10 ponds	19	31.1	31.7	90
	10--15 ponds	5	8.2	8.3	98.3
	Above 16 ponds	1	1.6	1.7	100
	Total	60	98.4	100	
Missing	System	1	1.6		
	Total	61	100		
H. Source of labour of respondents in Abia State					
		Frequency	Percent	Valid Percent	Cumulative Percent
	Hired	7	11.5	11.7	11.7
	Family	42	68.9	70	81.7
	Hired and family	11	18	18.3	100
	Total	60	98.4	100	
Missing	System	1	1.6		
	Total	61	100		
I. Annual income of respondents in Abia State					
		Frequency	Percent	Valid Percent	Cumulative Percent
	100000--500000 naira	37	60.7	61.7	61.7
	600000--1000000 naira	19	31.1	31.7	93.3
	1000000—5000000	4	6.6	6.7	100
	Total	60	98.4	100	
Missing	System	1	1.6		
	Total	61	100		

Result obtained from socio-economic data showed that there were 76.9% male fish farmers in Abia state and 23.0% females. Similar results were obtained by Osondu and Ijeoma (2014), Oguntade, (2007), and Wayep and Rapede (2018) in their various works. These results were different from results obtained by Igwe and Mgbaja (2014) on their work on the evaluation of pond fish production in Umuahia South Local Government Area of Abia State where male respondents were 37.5 percent while 62.5 percent of the respondents were female. The result of this study shows that more male fish farmers were involved in fisheries activities in Abia State. Age brackets of 41 – 50 years had the highest percentage of 52.5 percent. This gives insight into the prospects that fish farming business is viable as its operation is predominately in the hands of farmers in their productive age and no doubt of youthful vigour. This goes to emphasis that fish farming is not done by the aged in Abia state. Thus it has prospects of being an enterprise that if well-developed could become a tool in dealing with youth unemployment. Age is an important factor in determining the productive and adoption of an innovation by farmers (Kebede, 2001). At the youthful age, decision making for improved production and ability to take risk for expansion of production frontier by the farmers would not be too difficult for these fish farmers to adjust. This agrees with the findings of Eze (2002) which reported that achieve age of farmers is a positive factor for decision making, Nwaru (2004) also had opined that the ability of the farmers to bear risk, do manual work and be innovative decreases with increase in age.

Furthermore people who are single constitute greater number of the respondents, followed by the married people and the least being widowers and divorcees. This indicates that most fish farmers in Abia were singles and married. This evinced that the expected support from the spouse(s) and children of these fish farmers with a view of improving and increasing fish production and improved management of fish farming. Family members would most likely see the farm business as one that directly or indirectly contributes to the economy of the home and so would not work against the enterprise. The farm fish farmers being married are themselves assumed to be responsible.

Most respondents in South East had only primary education while the least was tertiary education.

The main education level for most fish farmers were primary school and this implies that most attend secondary school which meant that most critical decisions concerning their farming enterprise could not be taken by them as a result of lack of education. This result disagrees with the work of Nnamdi *et al.* (2017). Education of farmers is therefore necessary for farmers' adoption of improved farm land management practices and reaction to policy issues (Ebii, 2000).

Household size of fish farmers as recorded on this study was between 4 – 6 household members which is 50.9 percent. Invariably, household size of 4 – 6 persons is within the desirable range and of great importance to rural household as they rely more on their family members than hired labourers in their family activities thereby reducing production cost. This finding is consistent with the report of Palmquist (1989).

Forty percent of the farmers had been in the business of fish farming between 4 – 6 years while the least in the state were those with over 10 years of fish farming experience. The mean fish farming experience are 5 years which implies that most fish farmers are new in the fish farming business. According to Ekanem *et al.* (2015) the years of farming experience of a farmer enables him to acquire practical and relevant farming knowledge which drive his ability to efficiently utilize available resources with discretion which is lacking among most fish farmers.

The overall result from these member of ponds implies that most fish farmers in Abia state operated a small farm size which have an inverse relationship on fish productivity or output of the fish farms. This further shows that most of the farmers were operating on subsistence level. Studies have shown that most rural farmers in Nigeria operated on small scale basis (Godwin *et al.*, 2003).

Respondents from this study who used family labour were very high while fish farmers who hired labourer were very low in the state. With relatively availability family cheap labour in Abia, extensive use of human labour for fish farming especially in south east has been shown to fish farming profitable (Enete, and Okon 2008).

Result from respondents showed that most fish farmers in Abia State earned an average annual income of ₦100, 000 – ₦500, 000 are 60.7 percent, while the least were those who earned above ₦5, 000,000 who were 1.6 percent. This result showed that an average fish farmer earns between ₦5, 000 – ₦50, 000 per month. This is an indication that fish farming activity is not only affording these farmers a source of income but also provides a source of protein to them and agreed with (Sanusi *et al.*, 2015).

V. CONCLUSION

This study noticed that majority of fish farmers in Abia state were males, who were married with a low level of education. They maintained a large family size whom they use as source of cheap labourer. Output from this fish farmers are relatively small as majority of them practice subsistence fish farming. The use of new technologies like intensive system of culture, use of modified drum ovum and other new technologies assisted most of the fish farmers in their farming activities.

This study also noticed that there are lots of ways aquaculture can be improved and promoted in the zone through increased government support. Major constraints were also identified during the cause of this study. Marketing constraints were noticed to be among the major constraints. Finally, Government of the entire south east were not putting serious effort towards aquaculture developments in the region as majority of the fish farmers complained of lack of government support or assistance.

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