SOCIO-ECONOMIC ANALYSIS OF VOCATIONAL FISH-POND PRODUCTION IN ANAMBRA EAST LGA OF ANAMBRA STATE, NIGERIA

BY

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Abstract

The study was carried out in Anambra East L.G.A. of Anambra State to analyses the socio economic characteristics of farmers and their effect on vocational pond fish production. Primary data were collected from 90 fish farms using well structured questionnaire. Descriptive statistics and multiple regression analysis were used to analyse the data collected. The findings indicated that 64% were male, aged between 31 to 50 years, with 11 to 15 years experience. The regression analysis result showed that five variables, age, experience, professional status, feed cost and pond size had significant influence on pond fish production output. Recommendations among others include that pond fish producers be provided with subsidized credit to improve enable them on their production capacity.

Keywords: *Pond, fish, regression, production, farmers.*

Introduction

Agricultural sector in Nigeria contributes about 38.92 billions naira or 38.1%of the nations GDP (Central Bank of Nigeria, CBN, 2001). Animal protein is expensive and out of reach to the majority of the population. The effect of inadequate animal protein intake is felt more by a large proportion of the population especially in the rural areas where inhabitants constitute over 70% of the Nigerian population, and who constitute over 85% of the extreme poor in the country (Chukwuji, Inoni, Ogisi and Oyaide 2006).

Fish is an important protein sources especially now for a large teaming population of Nigerian citizens and provides about 40% of the dietary intake of animal protein of the average Nigerian consumer (Iheke and Nwagbara, 2012). Most animal protein contains high cholesterol which can induce some health disorders unlike the fish protein. Fish in human nutrition, is a good source of sulphur and essential amino acids, vitamins A, D, E, B, complex and minerals. A large proportion of Nigerians depends on fishing as a source of income (Tobor, 1984). People in coastal, riverine and lake areas of the country earn their living from fish processing and marketing while others engage in fisheries research (Akeredolu, 1990).

Fish farming is a profitable venture and is rapidly expanding and it will continue to be profitable if the planning and management are well taken care of (Runfin, Adepuju, Salau and Adebiyi, 2009). The fish industry still remains the most virgin investment in Nigeria. There is every need to support local production of fish in order to increase domestic production, reduce importation and attract foreign investment in the industry. When compared with other livestock, fish requires less space, time, money

and has a higher feed conserving rate. (Maidals and Dantata, 2010).

As fish supplies from open water and lagoons continue to fall and human population rises, fish farming offers an effective way of generating food, employment and income from the dwindling land resources. Fish pond farming is a new enterprise with high return on investment. Investment in fish farming in Nigeria is still growing and with the renewed awareness being created by the government on pond fish farming as a vocational and entrepreneurial opportunity for reducing the rising unemployment in the land, it will need just little more push for the industry to stand. Presently, pond fish farming has not been established as a major enterprise. Most of the practitioners only engage pond fish production as a hobby or on part time and not their major occupation. Fish pond production as a vocational enterprise will require skill acquisition on the specific areas of fish pond production and pond management. The acquisition of these requisite skills will acquaint the individual with the knowledge, ability, will and determination to engage in full time pond fish production. Fish farmers are sometimes faced with the problem of deciding whether to engage in full time pond fish production or just as a fall over enterprise. Their concern is on the ability of the returns from the enterprise being able to take care of the cost and provide adequate living for the farm family. The study focuses on the socio-economic aspect of pond fish production enterprise.

Objective of the study

The main objective was to examine the socio-economic features of vocational pond fish farmers in Anambra East Local Government Area of Anambra State. The specific objectives are:

1. Describe the socio-economic characteristics of pond fish farmers in the study area.
2. Determine the influence of socio-economic characteristic of pond fish farmers on fish production in the study area.
3. Investigate the participants' perceived constraints to pond fish production in the area.

Research Questions

In order to achieve the desired research objectives, these research questions were designed to guide the study.

1. What are the socio-economic characteristics of pond fish farmers in Anambra East L.G.A. of Anambra State?
2. What is the impact of socio-economic characteristics of pond fish farmers on fish production in the study area?
3. What are the participants perceived constraints to pond fish production in the area?

Hypothesis: Pond fish production practitioners socio-economic characteristics does not have significant influence on the output in the study area.

Methodology

The study was conducted in Anambra East LGA of Anambra State. The area was purposively selected because of the prevalence of fish farming enterprise in this riverline area of the state. The area lies 5^{o} 90^{o} and 6^{o} 12^{o} North and longitude $6^{o}.88^{o}$ and $7^{o}.80^{o}$ East. It covers an area of approximately 4,644,000 sq km and it shares common boundary with Ayamelum LGA in the East, Onitsha North LGA in the west, Oyi LGA in the south and Anambra West LGA in the North. It has an annual rainfall range from 1000mm to 2000mm. Most of the people are engaged in Agriculture cultivating major crops like yam, cassava, maize and rice. Artisanal fishing is mostly carried out in the Omabala river that transverse both Aguleri and Umuoba Anam towns, and Ezu river in Igbariam town. Pond fishing is carried out both

in the natural swamp Ponds, artificial earthen ponds and the concrete ponds. The six(6) communities in Anambra East LGA were the sampling frame while, all the pond fish farmer in the LGA formed the population from which the sample was drawn. Fifteen (15) pond fish farmers were selected randomly from each of the six(6) communities that comprised the LGA. The communities are Aguleri, Igbariam, Nando, Nsugbe, Umueri and Umuoba Anam. A total of ninety (90) respondents was therefore drawn for the study.

Both secondary and primary data were used for the study. The secondary data that complemented the primary data was sourced from journal articles, periodicals, textbooks and proceedings. The primary data was obtained through the use of questionnaires that was administered to the 90 respondents. Data were collected on the socio-economic characteristic of the farmers such as age, gender, farming experience household size, educational attainment, professional status, and also on feed cost, output quantities and prices, labour cost, farms/pond size.

Data were analysed using descriptive statistics (frequency, percentage) as well as regression analysis. Multiple regression analysis was used to ascertain the socio-economic characteristics (independent variables) of the pond fish farmers that significantly affected the output. The explicit form of the regression model is given as

$Y = \beta_0 + \beta_1 AGE + \beta_2 Exp + \beta_3 FAS + \beta_4 HOS + \beta_5 EDU + \beta_6 GEN + \beta_7 LAB + \beta_8 FEC + \beta_9 LOC + \beta_{10} STS + e_1 \; P_1AGE + \beta_2$

Where:

Y = Output kg
GEN = Gender-male, female
AGE = Age of farmer (years)
EXP = Experience – years in pond fish farming
FAS = Farm size – (M^2, No of ponds)
HOS = Household size
EDU = Educational level (no of years)
LAB = Labour Cost
FEC = Feed Cost
LOC = Length of Culture (months)
STS = Stock size (number of fish seeds in stock)
β_1 = Parameters to be estimated
e = Error term

Results and Discussion

Research Question 1: What are the socio-economic characteristics of pond fish farmers in Anambra East L.G.A.

Table 1: Summary of Socio-Economic Characteristics of the respondents (n=90)

Variable	Frequency	Percentage
Gender		
Male	58	64.44
Female	32	35.56
Age (years)		
20 to 30	10	11.11
31 to 40	18	20.00
41 to 50	39	43.33
50 and above	23	25.56

Experience (years)		
1 to 5	12	13.33
6 to 10	18	20.00
11 to 15	28	31.11
Above 15	32	35.56
Household size		

1 to 5 members	29	
6 to 10 members	51	56.67
Above 10 members	10	11.11
Education Status		
No formal education	14	15.56
Primary education	33	36.67
Secondary education	28	31.11
Tertiary education	15	16.66
Professional Status		
Full time fish farmer	19	21.11
Civil servant	8	8.89
Trading	12	13.33
Farming	37	41.11
Artesan	14	15.56
Source of capital		
Bank	13	14.44
Co-operative	6	6.67
Personal savings	49	54.45
Money lenders	11	12.22
Friends and Relatives	7	7.78
Others (esusu etc)	4	4.44

Source: Field survey, 2016

The socio-economic characteristics of the respondents were summarized in Table 1. The result showed that majority (64%) of the respondents were male, and fall within the age range of 31 to 50 years, the 34% recorded for female is an indication that pond fish production is no longer a male dominated occupation. Women are now deeply involved not only in marketing of fish but also in actual fish culture. About 67% of the practitioners had between 11 to 15 years experience in pond fish

production, have primary education (36.67%) and, secondary education (31.115) with household size of 6 to 10 (56.67%). This implies the likelihood of employing family labour for some of the routine activities in the fish pond management. 21% of the respondents were full time pond fish farmers, about 9% were civil servants, 13% and 16% were both traders and artesan respectively. Again, 41% we farmers. The implication is that majority, 79% were engaged in other enterprises. This goes to show that pond fish management is not time consuming and could be easily practiced on part time. The practitioners do not solely depend on income from the operation hence that explains why 54% of them were able to source their operating cost from private savings. Only about 14%, 7%, 12%, 8% and 4% sourced their finance through bank, cooperatives, money lenders, friends and relations and others respectively.

Influence of socio-economic characteristics of the farmers on pond fish production output.

Research Question 2: What is the impact of socio-economic characteristics of pond fish farmers on fish production in the study area?

H_0: Pond fish production practitioners socio-economic characteristics does not have significant influence in the output in the study area.

Table 2: Regression Analysis Analyses on the Effect of socio-economic characteristics of pond fish farmers on fish pond production output in Anambra East

Variables	Coefficients	Standard Error	t-value	Sig.
Constant	113387.236	1165741.438	0.86	NS
Gender	-164351.673	10347.432		

Age	3415	21845.663		
Experience	237784.168	33865.107	2.326	*
Household size	-0.836	18364.604	-0.073	NS
Educational status	33143.260	50230.516	0.136	NS
Professional status	2.847	5.374	2.140	**
Source of capital	31.043	2.348	0.478	NS
Feed cost	41.308	3.851	1.476	*
Labour cost	-7.446	0.353	-0.548	NS
Farm/pond size	1.361	2.614	1.466	**
R^2	0.813			
f-stat	23.415			
std error	2.88364			

*Significant at 1% level, **Significant at 5% level.

The regression result shows that the coefficient of determination (R^2) was 0.813 indicating that 81.3% of the variation in pond fish production output was explained by the explanatory variables included in the model. The coefficient of gender (GEN), household size (HOS) were

negatively related and not significant. This implies that they have no effect on output, that efficiency is not affected by gender. Also, as the routine management practice is not an intensive operation, the impact of family labour will not be felt, hence, the insignificant effect of labour cost on output. Again, the coefficients of Age and experience were positively related to the output and statistically significant at 5% and 1% level respectively. This implies that older practitioners have acquired more relevant experience concordance with increased efficiency. This finding is in agreement with Ezike and Nnaji (2012), who found the coefficient of farming experience positively signed and statistically significant at 5% for catfish output. It is also in line with the a priori expectation as it is well known in economic theory that efficiency increases with increase in experience. The coefficients of education, professional status and source of capital as observed from the table were positive. However, professional status was significant ($P \leq 0.05$). This implies that the more the farmer devotes time to the enterprise on full time basis, the more the likely positive effect on output. Educational status and source of capital were statistically insignificant, implying that they have no effect on pond fish production output.

The coefficient of the cost of feed and farm/pond size were positive and significant at 1% and 5% levels respectively. This implies that productivity of respondents who have larger farm sizes is most likely going to be higher than that of those with smaller farm sizes. This results is in agreement with Kudi, Bako and Atala (2008), and Ugwumba (2010), who recorded high productivity for large catfish farms with high stock sizes in Kaduna and Anambra State respectively, using intensive and semi-intensive culture systems. The larger farms will also, based on economic theory, enjoy the economics of large scale production. The positive and significant effect of feed cost on productivity implies that the high cost of supplementary feed affects productivity of the farmers in terms of quantity of output and feed efficiency under-utilization.

The result of the analysis has shown that the null hypothesis of no significant influence of farmers socio-economic variables on output is rejected with respect to such variables as farmers age, experience, professional status as well as feed cost and pond size. However, the null hypothesis is accepted for such variables like gender, size of house hold and educational status.

Constraints to Pond Fish Production in the Study Area:

Research Question 3: What are the participants perceived constraints to pond fish production in Anambra East L.G.A.

Table 3: Summary of Constrains to Pond Fish Production (n=90)

Constraints	Frequency	Percentage
High cost of feed	33	36.67
Lack of capital for expansion	14	15.56
Inadequate water supply	11	12.22
Poor quality seeds	9	10.00
Poaching by pests	8	8.89
High cost of transportation	6	6.67
Poor storage facilities	5	5.56

Labour cost	3	3.33
Disease infestation	1	1.10

Source: field survey, 2016

The result of the analysis in Table 3 presents the frequency distribution of pond fish practitioners based on the production problems. High cost of feed ranked highest with 36.67% of the rice farmers presenting it as their major production problem. This is so because the farmers are not very conversant with local production of alternative fish feed. Other major production constraints expressed by the practitioners include, lack of capital for expansion of farm 15.56%, inadequate water supply 12.22%, poor quality seeds 10%, poaching by pests 8.89%, high cost of transportation 6.67%, poor storage facilities 5.56%, labour cost and disease infestation, 3.33% and 1.10% respectively.

Conclusion

The study was carried out to examine the socio-economic variables of vocational fish pond practitioners in Anambra East LGA of Anambra State. The result indicated that majority of the respondents, 64% were of the male gender, falling within the age range of 31 to 50 years. The experience of 67% of the practitioners ranged between 11 to 15 years. The regression analysis indicated that such variables like age of the farmer, the practitioners experience, professional status, feed cost and pond size, had positive and significant impact on pond fish production. The coefficient of determination was 0.81. Pond fish production in the area was constrained by high cost of feed as a major hindrance. Others include lack of capital for expansion, inadequate water supply, poor quality seeds among others.

Recommendations

It is recommend therefore, based on the importance of fish as a major source of cheap quality protein, that the pond fish practitioners be encouraged to expand their production base through:

(i) Provision of subsidized credit by government through the Micro finance banks and Bank of Agriculture (BOA), to enable them purchase inputs readily,

(ii) Provision of adequate and reliable water supply by sinking of boreholes.

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