DETERMINANTS OF AFRICAN CAT FISH (*Clarias gariepinus*) FARMERS IN OBIO/AKPOR LOCAL GOVT. AREA OF RIVERS STATE OF NIGERIA.

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ABSTRACT

The study was carried out to assess the determinants of cat fish farmers in Obio/Akpor Local Government Area of Rivers State. A total of thirty respondents were randomly selected from three clans of the study area. Data were collected using a structured questionnaire and personal interview. Descriptive statistics and regression model were used in the assessment. Majority of cat fish farmers were men aged between 51-60 years. Age of the farmer had a positive effect on the farmers output while the level of education negatively influenced the quantity of cat fish produced in the area. Flooding in the earthen pond and irregular supply of feeds and fingerlings were the major problems encountered by the farmers. Therefore efforts should be geared towards making credit facilities available for farmers.

KEYWORDS: Determinants, Catfish, Rivers State, Nigeria

INTRODUCTION:

In the past 30 years the global appetite for fish has doubled. From 45 million metric tons in 1973, total fish consumption jumped to more than 91 million metric tons in 1997 (Delgado *et al*, 2003). The changing profile of fish consumption in around the world comes as no surprise, partly because countries with rapid population growth, rapid income growth and urbanization tend to have the greatest increases in consumption of animal products including fish products (FAO, 2000). Moreover, urbanization tends to change people diets preferences, driving increased fish consumption. Finally, as individuals become wealthier, they tend to substitute higher priced calories for lower- priced ones, once they have met their basic food needs.

With wild fish production stagnating, growth in overall fish production has come almost entirely from the global boom in aquaculture, especially in developing countries (Degado, *et al*, 2003). They also reported that aquaculture now represents more than 30 percent of total food fish production up from just 7 percent in 1973. From 1985 to 1997 developing country production of fish from aquaculture grew at an annual rate of 13.3 percent, whereas production in developed countries grew at the rate of 2.7 percent.

 Fish farming is a relatively new study in Agriculture. It is about 50 years old in Nigeria (Olukunle, 2004, Olagunju *et al*,2007), with establishment of a small experimental station at Onikan Lagos and an industrial farm about 20ha at Panyam Plateau State by Federal Government.

In the past, rural farming in Africa concentrated on tilapia, because production of tilapia is cheaper, but the returns from tilapia farming is not as much as catfish which is a fast growing fish (Olukunle, 2004). The most commonly cultured species in African include catfish (*Clarias garienpinus*), the imported *C. lazera* and *Heterobranchus sp*, tilapia and carp. The African catfish is widely distributed throughout Africa. (Viveen *et al*, 1990). They also stressed that many fish farms focus on catfish as they can have a market value of two to three times that of tilapia.

Fish are important source of protein, especially in the developing countries. Fish account for 20 percent of animal- derived protein in low- income, food deficit countries, compared with 13 percent in the industrialized countries (FAO, 2000). Protein sources from fish is better than most of its rivals like beef, poultry ,pork, sheep and goat meat, etc, because besides, that it is relatively cheaper, also it contains an anti cholesterol oxidant (Omonyinmi ,1999). Fish allows for protein improved nutrition in that it has a high biological value in terms of high protein retention in the body (Anthonio and Akinwumi, 1991), higher protein assimilation as compared to

other animal protein sources, low cholesterol content and one of the safest sources of animal protein.

Fish farming generates employment directly and indirectly in terms of people employed in the production of fishing output and allied business, it also generates income for all categories of people involved in fish farming and thus contributes to the national income (Olagunju *et al*, 2007).

The consumption of fish in the developing countries is low, despite the rapid growth of fish consumption in the developing countries; the level of per capita consumption was lower than in the developed countries in 1990 (FAO, 2000). The recommended quantity of animal protein by FAO by per person per day is 35 grams but less than 7 grams is consumed on the average in Nigeria. As a result of this, many Nigerians suffer from protein deficiency disease due to low protein intake. The shortage of the fish protein source in Nigeria may have been responsible for the importation of the product in the country. Total fish production from all sectors in Nigeria does not exceed 600,000 mt/year while fish demand is above 1.5 million mt/year. There is a demand deficit of 0.9 million /mt /year in a population growing at an estimated 2.5% annually (Ezenwa, 2006). Adamu (2007) reported that the actual total domestic fish production in Nigeria in 2005 was 579,500 tones and production from aquaculture was 56,300 tones in the same year while Fasasi (2003) stated that the demand supply gap of fish production in Nigeria is 1.0 million metric tonne while fingerlings demand- supply gap is over 500 million. It was also reported that Nigeria has become one of the largest importers of fish in the developing world, importing some 600,000 metric tons annually (FAO, 2000). It was also reported that the total annual production of fish in Nigeria in 2000 to be 537,377, metric tones with aquaculture having a meager 96000 metric tones only FAO/WHO/World bank (2001). They also estimated a demand of 1,478,308.02 metric tones, 580,932 metric tones annual yield and resultant deficits of 897,376.03 metric tones in 2020.

The rate of water pollution in the state had affected the quantity of catch and supply of fish and its products in the state. More especially the recent activities of sea pirates are now discouraging to the fishing activities in the rivers and sea.

Since there is growing demand for protein food in Nigeria, farmers have resorted to growing of culture fisheries in Nigeria and Rivers State in particular. Production of catfish in Rivers State is highly influenced by some determinants which include socio-economic characteristics. These variables are important because they seem to have great influence on the farmer productivity. It is necessary to examine the effect of some determinants of catfish farmers in the study area that affect the output of the product. It is on this background that this study is designed.

The broad objective of the study was to examine the determinants of cat fish (*Clarias gariepinus*) farmers in Obio/Akpor Local Government Area, Rivers State of Nigeria. Specifically the study was to examine the socio-economic characteristics of African Catfish (*Clarias gariepinus*) farmers in the study area; determine the effects of the determinants of catfish farmers on the quantity of catfish produced in the study area; identify the problems encountered by catfish farmers in the study area and make policy recommendations.

MATERIALS AND METHODS

African cat-fish farmers were randomly selected from Obio/Akpor Local Government Area of Rivers State. The local government area is made up Evo, Apara and Akpor clans. The local government area is bounded by Oyigbo and Tai / Eleme LGAs on the west, Ikwerre and Emohua LGAs on the east, Etche LGA on the north and Port Harcourt city LGA on the south. The inhabitants are predominantly farmers, fisher men and traders. A reasonable number of artisans and civil servants are also found in the area. The population of this area, according to 1991National Population Census, stood at 328,643 people (Obio/Akpor Handbook, 1995). Ten African cat-fish farmers were randomly selected from each of the clans making a total number of thirty respondents. Percentages table and multiply regression model were used for the analysis.

Model Specification:

$Y = f(X_1, X_2, X_3 x X_4, X_5, X_6) + e$

Where   Y   = quantity in kg/year.

X_1 = Age of the farmer in years X_4 = Household size in numbers

X_2 = Number of years spent in formal schooling X_5 = Income status (initial capital in naira)

X_3 = Farming experience in years. X_6 = Access to credit (dummy variable 1, 0 otherwise).

RESULTS AND DISCUSSION

Table 1 shows the age, years spent in schooling, farming experience, household size, income status (initial capital), and access to credit of the respondents in the study area. Analysis revealed that 50.0% of the respondents were in the age range of 51-60 years, while only 6.7% fall in the range of 61-70 years. This implies that young and energetic youths in the study area seem not to be actively involved in fish farming activities in the study area. A lot of them prefer petroleum oil products related business activities. This could be explained by high incidences of youth restiveness in the study area. This result also indicates that the category of fish farmers actively involved is mainly those who are not too strong to participate in high energy demand business activities. This study agrees with (Olagunju *et al* 2007) findings on socio- economic characteristics of catfish farmers in Oyo State which shows that (80%) of the fish farmers were male and fall within the age of 40 -60 years. The study also revealed that 43.3% of the respondents spent 6-10 years schooling. This implies that majority of the respondents were not well educated. The result on educational attainment is contrary to the findings of Olagunju *et al*, 2007) which shows that 63.3% of the fish farmers in Oyo State had tertiary education. The study further shows that 66.7% of the respondents had 3-10 years of farming experience, while 56.7% had household size of 2-5 children. The number of years spent in a particular business determines the level of experiences that an individual would likely acquire for participating in the business activity. The number of years spent by the fish farmers in the business may not be good enough to have better knowledge in the catfish farming in the study area.

50.0% of the respondents used the amount of N750, 001- N1, 050,000 as the initial capital. This initial capital requirement for the take off of the business may have been responsible for the scale of fish farm sizes in the study area. It could also be deduced from the study that the fish pond size may be responsible for the revenue generated by the farmers.

Table1: Socio-economic Characteristics of the Respondents.

	Percentage (%)
40 -50	13(43.3)
51 -60	15(50.0)
61 -70	2(6.7)
Years spent in Formal Schooling	
6 -10	13(43. 4)
11 -15	7(23.3)
16 -20	3(10.0)
21 -25	7(23.3)
Farming Experience in Years	
3 -10	20(66.7)
11 -18	3(10.0)
19 -28	7(23.3)
Household Size in Number	
2 -5	17 (56.7)
6 -9	10(33.3)
10 -13	3(10.0)

Initial capital Status in Naira

450,000 - 750,000	2(6.7)
750,001 - 1,050,000	15(50.0)
1,050,001 -1,350,000	6(20.0)
1,350,001 -1,650 ,00 0	6(20.0)
1,650 ,001 -1,950 ,000	0(0.0)
1,950,00 1-2,000 ,000	1(3.3)
Access to Credit	
No Credit	21(70.0)
Obtained Credit	9(30.0)
Total	30(100)

Source: Field Survey, 2006.

The result in Table 2 shows the effects of the socio- economic characteristics of the fish farmers on the quantity of catfish produced by the farmers. The age of the respondents was found to be statistically significant in increasing the quantity of African catfish produced in the study area. This could likely be that as farmers ages increased, they would be more prudent in managing the pond. Years spent in formal school and farming experience had a negative effect. The implication of the negative sign of the coefficient for schooling and farming experience is that there is a declining output with increase in the number of years spent in formal schooling. This is because years spent in formal schooling by the respondents could not influence the adoption of the latest technique in African cat fish production. The coefficient of multiple determinations R^2 is (0.550). This implies that only 55% of the observed variability of the quantity of African catfish produced by the respondents was explained by the explanatory variables included in the model. The implication of this is that some relevant explanatory variables were not included in the regression model. These variables include seasonal factor variation, quantity of feeds and water quality of the ponds. This will be recommended for further study as these are beyond the scope of the present study.

Table 2: Regression Analyses of Determinants

	Linear Quantity Reservoir	Quantity Semi-log	Quantity double log
Constant	706.623	-20336.71	0.805
Age	72.508	9904.614	1.693
	(48.505) NS	(5576.217) NS	(0.670)*
School	-79.021	-211.827	-0.382
	(49.817)NS	(1493.744) NS	(0.180)*
FMEXP	54.410	1050.728	-0.03447
	(49.705) NS	(1386.729)NS	(0.167) NS
HHS	109.637	1694.207	0.217
	(116.179) NS	(1562.363) NS	(0.188) NS
Income	-000.01322	1292.659	0.03027
	(0.001) NS	(2363.233) NS	(0.284) NS
ACRED	-404.844	-1065.945	-0.105
	(627.645) NS	(2058.257) NS	(0.247) NS
	$R^2 = 0.483$, SE = 1480.153	$R^2 = 0.488$, SE	$R^2 = 0.550$, SE
	F = 3.583.	= 14773.305	= 0.177
		F = 3.652	F = 4.690

Where values in parenthesis are the standard errors.
NS = Non-significant at 5% probability level.

* = significant at 5% probability level. *Source*: Field Survey, 2006.

Determinants of African Catfish Farmers

The result in Table 3 above shows that, majority of the respondents (28.6 %) claimed that flooding is their major problem, especially during rainy season. While 9.5 percent claimed that poor water quality is their problem as a result of water salinity, 16.7 percent of the respondents stated strongly that insufficient capital is their major limitation to increase their the pond size or number. This is in agreement with (Fleuren, 2006) who found that demand deficit in fish product is as a result of lack of awareness and education, rough manipulation of fish and an unquiet environment, poor water quality, bad feeding regime, badly designed system and so on.

Table 3: Problems encountered by Respondents on African catfish farming.

	Problems encountered	Freq.	Percentage
(1)	Flood problems in earthen ponds.	12	28.6
(2)	Poor water quality	4	9.5
(3)	Poor quality feeds	5	11.9
(4)	Insufficient funds	7	16.7
(5)	Irregular supply of feed and fingerlings	9	21.4
(6)	badly designed systems	5	11.9
		42	100

Source: Field survey, 2006   Multiple responses recorded

CONCLUSION

The result of effect of socio-economic characteristics of cat fish farmers on the quantity of cat fish produced showed that age of the farmers had a positive influence on the farmer's output while the level of education negatively influenced the quantity of cat fish produced in the study area.

RECOMMENDATIONS

African cat fish farmers should endeavour to adopt and apply modern techniques in the fish farming enterprise.

Government should give incentives to fish farmers, in order to bridge the gap between demand and supply of proteins in the diets of Rivers State inhabitants.

Young and energetic youths should be encouraged to participate in catfish farming in the study area.

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