

Full Length Research Paper

Impact of cooperative society on fish farming commercialization in Lagos State, Nigeria

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This study was carried out to determine the impact of cooperative society among the fish farmers in Lagos State. A multi stage purposive sampling techniques was used to select five Local Government areas notable for fish farming business. 30 fish farmers were selected from each of the Local Government areas for cooperative society and 30 farmers from non cooperative society having a total of 150 respondents each. A well structured questionnaire was used to obtain information and 130 questionnaires were retrieved each from cooperative and non-cooperative members. Analytical techniques used include descriptive statistics and Tobit regression Analyses. The results show that the mean age of the farmers is 56 and 57 for cooperative and non-cooperative fish farmers, respectively. Majority (83%) and (93%) of the cooperative and non-cooperative fish farmers respectively were males. It was discovered that both farmers have an average of 8 household members. It was revealed that larger percentage of the cooperative fish farmers (50%) used amount ₦100,000 to ₦500,000 as the initial investment while (56%) of the non cooperative used the same amount as capital investment. The result of the Tobit regression analysis indicates that gender of farmers is significant at 5%, years of formal education; membership of cooperative and the cost of inputs were significant at 1%. Since majority were producing for profit making, it is suggested in the paper that government should increase the supply of credit to cooperative farmers and embark on enlightenment campaign to increase the participation of rural farmers in cooperative activities.

Key words: Impact, cooperative society, fish farming, commercialisation, Lagos State.

INTRODUCTION

In developing countries in which Nigeria is one, agriculture dominates the economy of the nation. It has been established that about 70% of Nigeria population is engaged in agriculture while 90% of Nigeria total food production comes from small farms and 60% of the country population earn their living from these small farms. The fall in agricultural production could be

attributed to inadequate infrastructure, under mechanization and inadequate finance (Oluwatayo et al., 2008). One of the major problems of agricultural development in Nigeria is that of developing appropriate organization and institution to mobilize and induce members of the rural sector to a greater productive effort (ICA, 2010). As such rural farmers who are characterized

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by low income, low resource utilization, small farm holdings and scattered nature of farmland, finds it difficult to pool their resources together in order to raise their farm income and substantially improve their living conditions (Ibitoye, 2012).

Inadequate finance has remained the most limiting problem of agricultural production. This is because capital is the most important input in agricultural production and its availability has remain a major problem to small scale farmers who account for the bulk of agricultural produce of the nation. In Nigeria, credit has long been identified as a major factor in the development of agricultural sector (Ndifon et al., 2012). Cooperative societies in Nigeria perform multipurpose functions. They are engaged in the production, processing, marketing, distribution and financing of agricultural products. It is an established fact that many household in the country today, live below the poverty line, in fact, investigation has shown that the highest percentage of Nigeria's workforce work in the public sector and earn their monthly salary of below one dollar per day (Awotide et al., 2012). The rural community, whose main occupation is agriculture, produces the food consumed in the country, but which is hardly sufficient to feed the people, because farmers still use crude farming implements to till the land. The federal government, in a bid to fight the menace of poverty therefore, has set up some agencies essentially to provide financial assistance particularly to youths and women involved in small scale businesses. So recently, Cooperate Societies, a concept that was given birth from the traditional thrift collection, began to spread like wild fire in virtually every part of Nigeria. There is hardly any workplace in Nigeria today particularly government establishments, where a cooperative society is not operational. It is quite effective because transactions of money are carried out in conjunction with employers of labour on behalf of their staff (Godwin, 2011).

Agricultural commercialization is the share of agricultural produce that is marketed. Commercialization is the process through which increased amount of small farm resources (land, labour e.t.c) is transferred from self consumption production to market oriented production. As such commercialization can be measured along a continuum from zero (total subsistence oriented production) to unity (100% production is sold). Commercialization of agriculture involves a transition from subsistence oriented to increasingly market – oriented patterns of production and input use (Nweze, 2003).

In spite of the importance of loan in agricultural production, its acquisition is fraught with a number of problems. The small scale farmers are forced to source for capital from relations, money-lenders and contribution clubs. All of these are known to be ineffective in providing capital for substantial increase in agricultural production. The last hope for the small scale farmers then lies with the cooperative societies, the cooperative has been

identified to be better channel of credit delivery to farmers the NGO's in term of its ability to sustain the loan delivery function (Alufohai, 2006).

Adekunle and Henson (2007) studied the effect of cooperative thrift and credit societies on personal agency belief: A study of entrepreneurs in Osun State, Nigeria. He opined that little or no attention has been paid to the role of entrepreneurship and the capacity of institutions like Cooperative Thrift and Credit societies to promote entrepreneurship. Cooperatives are defined as “an autonomous association of persons who unite voluntarily to meet their common economy and social needs and aspiration through a jointly owned and democratically controlled enterprise. Cooperatives are established by like-minded persons to pursue mutually beneficial economic interest. Researchers are of the opinion that under normal circumstance cooperative play significant role in the provision of services that enhance agricultural development (Ndifon et al., 2012).

Regular and optimal performance of these roles will accelerate the transformation and sustainability of not only the cooperatives but the enhancement of agricultural and rural economic development. Cooperative embraces all type of farmers and a well organized and supportive cooperative is a pillar of strength for agriculture in Nigeria. Previous studies have shown that cooperative carryout the function of credit delivery to farmers but there is ample evidence that farmers face difficulties in obtaining credit and the problem of sourcing for capital still lingers on. Therefore, any cooperative society to be effective and successful, it must continuously achieve two inter-related goals: enhance viability and improve ability to service its members; and remain an economically viable, innovative and competitive enterprise (Dogarawa, 2005).

Fish farmers in Lagos State are generally involves in one form of self help group or cooperative organization to carry out their production activities such as improvement on fish farming practices (that is, adoption of new technology) income growth and stability, business growth, purchase of inputs like fingerlings, feed and other basic needs such as clothing, food and shelter. One of the ways to improve the lots of these fish farmers' welfare and productivities is cooperative society membership and participation. Without an iota of doubt, the cooperative society will help the farmers a lot to improve their productivities as well as their welfare. Through cooperative, fish farmers will be able to access more fund for their fish production hence engage in fish farming commercialization.

Nigeria being a coastal country has about 1,280 km marine areas and about 124,878 km of inland waterways. Lagos State with a general area of 3,577 km representing 0.4% of Nigeria territorial land mass is one of the maritime states of Nigeria and as such share a potion of the Atlantic Coast of the Gulf of Guinea which is rich in fisheries resources. In spite of this potential, domestic

fish production is grossly inadequate to meet even domestic demand (FAO, 1990). Fish is the cheapest sources of protein and because of its low cholesterol level which makes it medically acceptable to young and old people. The demand for fish protein according to Federal Department of Fisheries (FDF) was 2.6 million tonnes in 2007 while domestic production was 634,370 tonnes. The deficit was partly augmented by massive importation of frozen fish of about 740,000 tonnes valued at 94.- a big draw – down on scarce foreign exchange. This leaves a huge deficit of 1.3 million tonnes and hence the concerted efforts to ensure self sufficiency in fish production through fish farming (aquaculture). Aquaculture has been estimated to have a potential of producing 2.5 million tonnes annually which is fully harnessed can almost satisfy the demand for fish in Nigeria alone. The estimated total land available for aquaculture production is 1.7 million hectares excluding marine brackish water bodies. Unfortunately, aquaculture production was only 85,087 tonnes in 2007 despite its potential and its enormous water resources in contrast with the state fish production capacity of about 157,000 tonnes (Kareem et al., 2012).

In view of the above, this study therefore deals with the effect of cooperative society on fish farming commercialization, determined the problems faced by the artisan and identified the factors that affect participation in fish farming in Lagos State. This study is significant in the sense that the assessment of co-operative development will further serve as framework for formulating new and better policies for agricultural co-operative development in Nigeria.

MATERIALS AND METHODS

Area of study

The area of study is Lagos State which was created in 1967. Lagos State is located on the coast in the most South Western corner of Nigeria. It is the smallest but most densely populated state in the federation with land of 3,586 km² which is about 0.39% of the Nations 923,768 km² area.

Sampling procedure and sample frame

The sampling method adopted for the study was the multistage purposive random sampling; Lagos State comprises of twenty local government areas which was divided into five geographical zones namely, Ikeja, Ikorodu, Epe, Lagos Island and Badagry.

The research was carried out in five local government areas of Lagos State which represent geographical zones of the state and notable for fish farming in large production. The list of cooperative fish farmers in each local government were obtained from the Lagos State agricultural development project, Oko – Oba, Lagos since they coordinate the activities of the cooperative society.

A total of 150 cooperative fish farmers and 150 non – cooperative fish farmers were interviewed. That is, 30 cooperative fish farmers and 30 non – cooperative fish farmers from each local government. However, 130 questionnaires were retrieved each from cooperative farmers and non cooperative farmers for analyses making a total of

260 farmers.

Data collection and analytical procedures

The data used was obtained mainly from primary source through the use of structured questionnaires that was administered to fish farmers. The questionnaires contain both open and close ended questions covering the social and personal characteristics of the respondents and other related variables such as awareness and participation in cooperative activities, income and expenditure, pond size. The instrument for data collection is subjected to expert validation.

Data collected during the study was analysed using descriptive statistics and Tobit regression analysis. Descriptive Statistics – Tables was used to present frequency distribution, percentages and averages on demographic and non-demographic characteristics of the cooperative fish farmers. Tobit regression analysis – Tobit regression analysis was employed to examine the functional relationship among the variables.

The Tobit model is expressed as $Y^* = \beta X + \mu$; $Y^* = Y = \text{Income}$; β = Vector of parameter estimated; X = Set of explanatory Variables; μ = The disturbance term; X_1 = Age (years); X_2 = Gender; X_3 = Fish farming Experience (years); X_4 = Education; X_5 = Size of pond (m²); X_6 = Marital Status; X_7 = Cooperative membership (Members = 1, Non member = 0); X_8 = Cost of input in naira and X_9 = Household Size.

RESULTS AND DISCUSSION

Table 1 shows the socio economic characteristics of the fish farmers. It reveals that 43% of the cooperative fish farmers were within the age of 56 years while 46% of the non-cooperative fish farmers were in the same age range. There is no significant difference between the mean ages of the cooperative and non-cooperative farmers. About 46% of the cooperative fish farmers and 47% of the non-cooperative fish farmer have secondary school education. Majority (83%) and 93% of the cooperative and non-cooperative fish farmers were males, respectively. It was also discovered that both cooperative fish farmers and non-cooperative has an average of 8 household members.

Table 2 showed the initial capital outlay and sources of fund for both cooperative and non-cooperative fish farmers in the study areas. The result shows that higher percentage (45%) sourced their fund through personal savings, 20% sourced fund through friends while about 36% sourced fund through cooperative society. It was revealed that larger percentage of the cooperative fish farmers (50%) used amount #100,000 to #500,000 as the initial investment while (56%) of the non cooperative used the same amount as capital investment. About 53% cooperative fish farmers and 14% non cooperative fish farmers were operating with over half a million (above #500,000.00) as initial capital investment in fish commercialisation. The results revealed that the involvement in cooperative society had made great impact in fish commercialisation and the fish farmers have been able to increase their initial capital investment

Table 1. Socio-economic characteristics of respondents (Co-operatives & Non cooperative Fish farmers).

Variables	Cooperative farmers	Frequency	Percentage	Variables non cooperatives farmers	Frequency	Percentage
Mean age (Yrs)	56	56	43.08	57	60	46.15
Sex	Male	108	83.08	Male	122	93.85
	Female	22	16.92	Female	8	6.15
Marital status	Single	6	4.62	Single	4	3.08
	Married	98	75.38	Married	104	80.00
	widowed	26	20.00	widowed	22	16.92
Religion	Christianity	70	53	Christianity	62	47.69
	Islam	48	36.92	Islam	54	41.54
	Tradition	12	09.23	Tradition	14	10.77
Education	No formal edu.	8	6.15	No formal education	12	9.23
	Primary	20	15.38	Primary	24	18.46
	Secondary	60	46.15	Secondary	62	47.69
	Tertiary	42	32.31	Tertiary	32	24.62
Years of experience	1 - 5	72	55.38	1 - 5	64	49.23
	6 - 10	30	23.08	6 - 10	38	29.23
	11 - 15	18	13.85	11 - 15	22	16.92
	Above 15	4	3.08	Above 15	6	4.62
H/H size	1 - 5	46	35.38	1 - 5	44	33.85
	6 - 10	62	47.69	6 - 10	58	44.62
	11 - 15	18	13.85	11 - 15	22	16.92
	Above 15	4	3.08	Above 15	6	4.62

Source: Field survey, 2014.

in the enterprise. The larger number of the side of the cooperative fish farmers might not be unconnected to the financial assistance obtained from the cooperative society for fish farming.

Table 3 shows the purpose for engaging in fish farming in the study area. The results show that about 88% of the cooperative farmers and 98% of

the non-cooperative farmers were running the business for profit making; that is, they were fully commercialised while only 12% engaged in the fish farming for sustaining the family.

The problems encountered in the fish farming are inadequate capital, marketing problem and high cost of input (Figures 1 and 2). Tax from

government was not posturing too much problem for both cooperative and non-cooperative fish farmers in the study areas.

Table 4 shows the factors that affect farmers' participation in fish farming commercialization using Tobit regression model. Nine explanatory variables were considered in the model. However,

Table 2. Sources of fund and Initial Capital Outlay.

Variable	cooperative farmers	fish	Frequency	Percentage	Variables non-cooperative farmers	Frequency	Percentage
Sources of Fund	Own Savings		58	44.62	Own Savings	114	87.69
	Friend		26	20.00	Friend	16	12.31
	Co-operatives		46	35.38	Cooperatives	-	
Initial Capital investment (#)	Less than 100,000		27	20.77	Less than 100,000	32	24.62
	100,001 - 500,000		50	38.46	100,001 - 500,000	56	43.08
	500,001 - 1,000,000		48	36.92	500,001 - 1,000,000	12	9.23
	Above 1,000,000		5	3.85	Above 1,000,000	2	1.54
Income Group	Less than 100,000		12	9.23	Less than 100,00	25	19.23
	100,001 - 500,000		48	36.92	100,001 - 500,000	64	49.23
	500,001 - 1,000,000		66	50.77	500,001 - 1000,000	40	30.77
	Above 1,000,000		4	3.08	Above 1000,000	1	0.77

Source: Field survey, 2014.

Table 3. Purpose for engaging in fish farming in the study area.

Variable	cooperative fish farmers	Frequency	Percentage	Variables non-cooperative farmers	Frequency	Percentage
Purpose of engaging in fish farming	Profit	114	87.69	Profit	98	75.38
	To maintain family	16	12.31	To maintain family	32	24.62

Source: Field survey, 2014.

only four were significant. They are sex of farmers, years of formal education, membership of cooperative and the cost of inputs. The log likelihood ratio of - 2006 and the P - Value of 0.0001 reveals that the model as a whole is statistically significant.

Education is significant ($P < 0.029$) and positively related to fish farming commercialization. This shows that at higher level of education, fish farming commercialization is

high. This is due to the fact that formal education can improve technical know-how in fish production and marketing. Gender is significant ($P < 0.0449$) and negatively related to fish farming, this shows that female fish farmers tend to be involved more in fish farming commercialization. This may be as a result of the fact that women are producing mainly to sell and not to feed their household. Membership of cooperative is significant ($P < 0.0001$) and is positively related to fish farming

commercialization. This may be as a result of the assistance obtained from the cooperative societies to promote fish farming commercialization.

The cost of input is significant ($P < 0.0001$) and positively related to fish farming commercialization because as the input cost increases more fish will be produced and fish farming commercialization will be promoted. This will also motivate the farmers to seek for assistance when the cost of

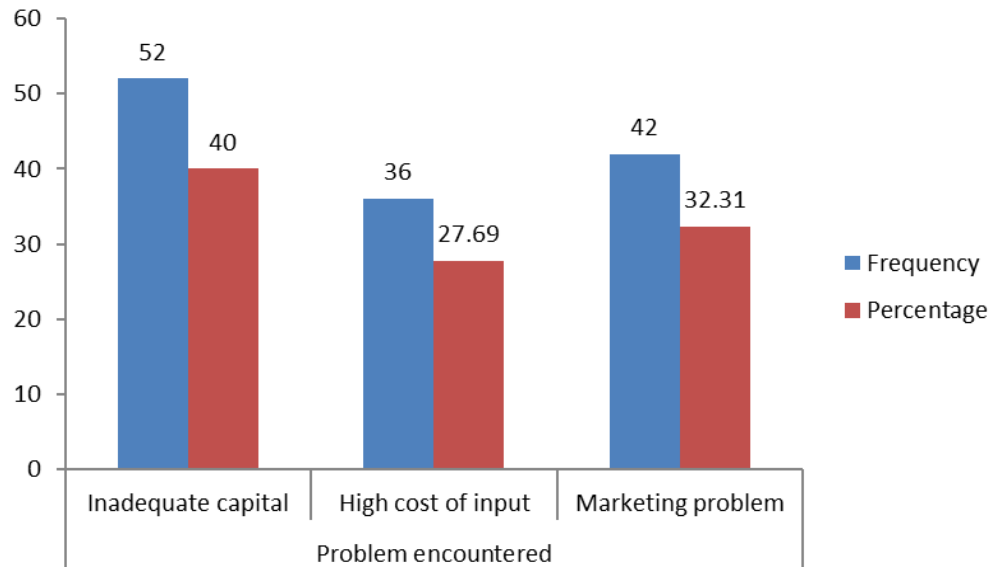


Figure 1. Problem encountered by cooperative farmers.

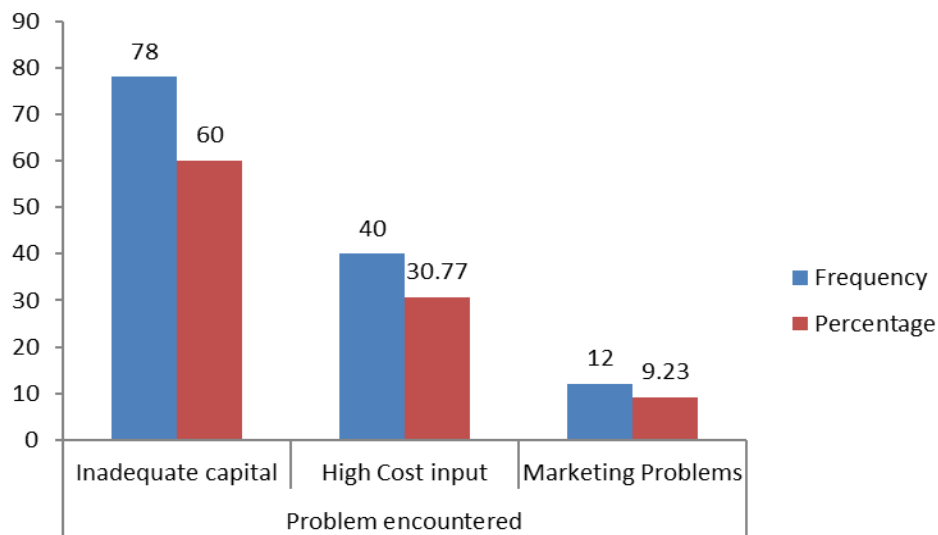


Figure 2. Problem encountered by non cooperative farmers.

production is high in which the cooperative society will be of advantage to them. The size of pond is negatively related to fish farming commercialization. This may be due to the fact that the size of pond does not determine pond stocking density and fish output. Fish output was determined by quantity of fish stocked and proper management practices.

CONCLUSION AND RECOMMENDATION

This study had shown that there is great prospect for fish

farmers in Lagos State since fish farming commercialisation is profitable. Since the respondents confirmed that their income is always higher than the capital outlay in fish farming. it was concluded that co-operative societies have effect on member's welfare and the role of co-operative society in poverty reduction and capital formation cannot be overlooked in the development process of any country particularly the less developed countries like Nigeria.

However, the findings revealed the importance of cooperative societies arises from the fact that the rural poor (farmers) are not properly served by formal

Table 4. Tobit Regression Analysis for the identification of factors that affect participation in fish farming commercialization.

Variable	Coefficient	Std error	T	9 > (t)
Age	9.24	6.96	1.33	0.184
Gender	- 151.40*	75.49	- 2.01	0.044
Fishing experience	36.97	19.90	1.86	0.063
Formal education	22.66**	7.61	2.98	0.0021
Size of pond	-56.03	87.08	-0.64	0.52
Marital status	147.86	80.05	1.85	0.064
Cooperative membership	439.68***	88.08	4.99	0.0001
Cost of input	1.40***	0.08	17.21	0.0001
Household size	4.86	15.90	0.31	0.760

Source: Field survey, 2014. Log likelihood - 2006; No of Observation 260; Schwarz Criterion 4073. *, **, *** significant at 10, 5, and 1% level respectively.

institution agencies (viz, commercial banks and other government owned financial institution). These institutions refrain advancing loan to the rural poor because of the bureaucratic procedures and high cost service involved in lending. Therefore, this study gives credence to the use of cooperative as machinery for rural transformation and agricultural development in Nigeria. The continued existence and operation of cooperative societies have to be encouraged by both individuals and government. They have been able to make impart in the area of membership enrolment, farm input procurement through loan disbursement and training of members. Based on the findings, the following recommendations were made:

- i. Fish farmers should be encouraged to join cooperative societies as this promotes fish farming commercialization.
- ii. Women should be encouraged to go into fish farming.
- iii. Fish farmer should be supported financially by the government and financial organization through provision of loans.
- iv. Government should increase the supply of credit to cooperative farmers and embark on enlightenment campaign to increase the participation of rural farmers in cooperative activities vis a vis improve fish commercialization.

Conflict of Interest

The authors have not declared any conflict of interest.

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