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Economic Implications of Farmers' Level of Participation in Local Organizations on Farm Productivity in Niger Delta Area, Nigeria

Okwuokenye G.F.
Senior Lecturer, Faculty of Agriculture, Department of Agriculture Economics & Extension
Ambrose Alli University, Edo State, Nigeria
Akintoye E.O.
Lecturer Faculty of Social Sciences, Department of Sociology
Ambrose Alli University, Edo State, Nigeria

Abstract:
The study was carried out to examine the economic implications of farmers' level of participation in local organizations in Niger Delta, Nigeria. Primary and secondary sources of data were used in conducting the study. Primary data was sourced from two categories of respondents used for the study. They were participating farmers (295) and non-participating farmers (295) in local organizations making a total of 590 respondents spread across three states of the Niger Delta region of Nigeria. Data on farmers' farm characteristics was analyzed using percentages and means, perceived reasons for farmers participation in group, and challenges facing farmers local organizations were analyzed on a four – point Likert scale. Multiple regression and Chow test were used to analyze the hypotheses of the study. Results showed that farmers participation in local organizations was high, some of their perceived reasons for participation include Increased knowledge of farming practices, The public's good perception about me, Improved income, etc (mean ≥2.5). Some of their major activities include savings and loans, provision of credit to farmers, processing of farm products and crop farming. Multiple regression result revealed that farmers' farm characteristics and participation in farmers local organization have significant influence in their farm income. It was revealed that a difference (₦187,101.64 = US$1,039.55) existed in their farm income (participant farmers had an average of ₦283,220.34 = $1,573.45, while non participants had ₦96,101.69 = $533.90) and so hypothesis one was significant (P<0.05). Results also showed that there is no significant difference in level of participation of farmers' among the local organizations of the different states. Major constraints of participating in farmers' local organization are lack of government NGOs assistance, poor access to credit and other agric inputs, lack of rules and regulations. Based on findings, the study recommends that efforts should be made by the government to help increase or improve on the assistance given to the farmers in the groups, members in leadership positions should be should ensure a proper and fair distribution of the dividends accruing from their organizations and strategies should be put in place to ensure that loans collected are paid back within the stipulated time.

Keywords: *farmer local organizations, rural sector, agricultural production, agricultural output, farm income, farm revenue, increased productivity, participation, farm characteristics farmers, group characteristics, small scale farmers, farmers, loan and savings, agricultural labour*

1. Introduction

One of the indispensible needs for human existence is food. As such, the task of ensuring its availability in adequate quality and quantity has been the preoccupation of farmers most of whom live in the rural areas (Eze *et al.,* 2006). The authors also noted that immediately after independence (1960), the agricultural sector performed creditably well. Its contribution to Gross Domestic Product (GDP) was about 64% in the 1960's declining to about 44.6% in the 1970's, further declined to 4.15% in 2012 (CBN, 2012). In order to reverse the declining contribution of the agricultural sector and the provision of adequate food and use of the food system to empower people some form of organization at the community level, which include identification, implementation and promotion of policy programmes and investments both at the private and public levels must take place (Adebayo and Okuneye, 2005). Some of these programmes and investments as pointed out by Anyaoga and Anyaoga (2009) include: River Basin Development Authorities (1977), National Grain and Food Crops Production Company, National Agricultural Land Development Authority (1995), Directorate for Food, Roads and Rural Infrastructure (1988), Marketing and Commodity Boards, Nigeria Agricultural Cooperative and Rural

Development Bank, People's Bank of Nigeria, The Nigeria Agricultural Insurance Company, Nigeria Export –Import Bank and Nigeria Economic Reconstruction Fund, just to mention a few.

The concern for the necessity to increase the quantity and quality of food production has led to a condition as to whether efforts should be targeted at either small scale or large scale farmers. In a bid to reach a compromise, Adedipe (1999) argued that an improvement of the agricultural sector is assured if the efforts and policies are targeted at the small scale famers. Eze *et al.,* (2006) as well noted that small scale famers can achieve higher farm yields and meet up with the increased demand of food quality and quantity if they adopt recommended scientific farming techniques in place of their traditional practice. These small-scale farmers are characterized by a strong dependence on agricultural labour market, little or no forms of savings or storage facilities, and the cultural practices they adopt are highly labour intensive.

The farmers' local organizations have not been able to meet up with its expected ends due to some shortcomings plaguing the small scale farmers (Damar, 2003). Through collective efforts of the poor farmers and their organizations, they can help themselves overcome the myriads of problems plaguing them and so be able to meet up with increased quantity and quality of food production. Farmers local organizations are groups of farmers mainly (but not necessarily), involved in farming who come together on community basis to find solutions to their farm problems, as well as ways and means of improving their agricultural productivity and income. These organizations are usually more "permanent" compared to groups whose formation is strongly influenced by forces external to the community (Coetzee *et al,* 2004). Sinkaiye (2005) noted that the quality of the group's impact is a function of members' commitment to group's activities, participation in organization's projects and attendance to meetings. Farmers local organizations have been in existence and operating in local communities (for decades) but in spite of their existence and operation, their effectiveness in productivity in terms of enhancing production, output and income of the farmers still remain low at least when compared to population growth rate (Oyaide, 2002).

Participation in farmers' local organization has been advocated by Mgbada (2006). He stressed that farmers' participating in social organizations is a positive factor in agricultural development and that more farmers should be encouraged to join cooperative associations. In recent time, Sherry (2006) concluded that it is very crucial to work through social groups because it has been identified as an essential ingredient for project success. Farmers' participation is informed by the fact that it is a major determinant of the success of local organizations (Adebayo and Okuneye, 2005). They also noted that whatever affects participation of farmers in their local groups or activities will affect the effectiveness of the organization and ultimately the level of farmers' productivity and income including community development.

Several studies have been carried out on participation in agricultural extension programmes, youth empowerment in agricultural programmes, Fadama programmes, etc. Amongst all, only very few focused on factors that shape farmers level of participation and its impact on farm productivity (Toyobo and Muili, 2008). To this end in view, this study hopes to bridge this research gap and findings of the study will thus be useful for further studies. This study would also help to provide literature in the activities of farmers in local organizations on farmers' productivity, income and canvass for patronage of local organizations. This situation makes this study important and timely.

2. Overview of Farmers Local Organizations in Nigeria

Abegunde (2009) defined farmers' local organizations as organizations set up by collective efforts of indigenous people of homo or heterogeneous attributes but living or working within the same environment. Some of the objectives of farmers' local organizations according to Chamala and Shingi (2006) include, reducing absolute and relative poverty among the members in particular and that of the community people in general, reduce the socio-political unrest among the community people, ensuring good health and educational facilities in rural areas, including high involvement of women in health and, agriculture, and development programmes and, avoidance of degradation of natural resources such as soil, water, flora, and fauna development programmes. Beaudoux (1995) identified the following types of farmers local organization. They include; Village groups, which are concerned with the economic viability of their projects, organizations that play a pivotal role in negotiations between private or governmental sectors and these assume a union- oriented role.

Reid (2000) identified some of the characteristics of farmers' local organizations to include; organizations in which many people are involved in group's activities, participation is open to involvement of all members, and responsibilities are divided up so that the special talents and interests of contributing persons are engaged. Power and responsibilities are decentralized. They conduct their business openly and publicize it widely. All ideas of members are treated with respect and welcomed as a source of inspiration with potential value for the entire organization. Finally, members of farmers' local organizations operate openly with an open mind.

Toyibo and Muili (2008) advanced that most of the farmers' local organizations are formed to solve the most pressing problems facing man in the urban environment. They anchored that these farmers' local organizations are formed because of government's failure to provide the needs of the people and addressing with the hope of solving the people's problems.

3. Economic Impportance of Farmers Local Organizations in Nigeria

Farmers' local organizations have critical role to play in the individual, community as well as national development. Farinde and Adisa (2005) noted farmers' local organizations are capable of developing the community through the community people themselves with their own resources and assistance of stakeholders, and can help remove the ugly socio-economic situations such as poverty, low income, etc. experienced by our community people. The importance of farmers' local organizations according to FAO (2009) are: the group offers economic gains to the members, it helps to accomplish some tasks which the individual alone may not be able to accomplish e.g. farmer's cooperative societies, it enhances individual's prestige that is when the organization is a prestigious one in

the locality, provide community people's access to friends and other persons in the community they want to identify or associate with, it may sometimes help link stakeholders of the group, or serve as stepping stone to some higher status or gains.

4. Farmers Local Organizations Policies

Policies of farmers' local organizations' as identified by Thompson (2005), are:

i. They are civil society non-profits that operate within a single local community.
ii. They are run on a voluntary basis and are self funded.
iii. The organizations vary in terms of size and organizational structures.
iv. The group is more effective in addressing local needs than larger charitable organizations.

Other policies pointed out by Farinde and Adisa (2005) include:

i. The organizations are aimed at working together to improve the quality of life within communities or neighborhoods, including residents' organizations, housing organizations and housing management and rehabilitation.
ii. Farm local organizations is a voluntary, non-profit, non-governmental and highly localized or neighbourhood institutions whose membership is placed on equal level and whose main goal is the improvement of the social and economic wellbeing of every member.

5. Overview of Farmers Participation in Farmers Local Organizations in Nigeria

Participation is defined as a process of taking part in different spheres of social life: political, economic, social, cultural and others Sidorenko (2006). A key element in participation is the process in which the poor gain greater control over their own lives in a collective effort, through likeminded groups. Community participation refers to the active process whereby beneficiaries influence the direction and execution of development projects rather than merely receive a share of projects benefits. Abegunde (2009) asserted that participation and commitment of the people is one of the surest and quickest ways to enhance sustainable rural or community development. Going by that submission, Abegunde (2009) stressed that the degree of involvement (participation) of the people therefore determines the level of development in any given area.

Vroom and Yetton (2003) stressed the factors influencing participation to include, the farmers' physical and social environment, the attributes of the participants, the organization itself, the group benefits and perception of the share of anticipated benefits which will accrue to them as individuals. Fung (2006) opined that participation is conceived as a major factor contributing to the success of community based natural resource management. Fung (2006) classified participation in groups as informal, semi-formal and formal. Sidorenko (2006) opined that participation of farmers in organizations can take place in four different forms. The forms are: direct form, representational form, political form and information based form.

With specific reference to farmers local organizations, Chamala and Shingi (2006) identified six critical factors affecting farmers' participation in farmers local organizations: the degree of farmer's dependence on the outputs of the organized activity, the degree of certainty of the availability of the outputs, the extent to which the outputs will be available only as a result of collective action, the extent to which the rewards associated with the collective action will be distributed equitably, the extent of availability of rewards within a reasonable time frame, and the extent to which the rewards are commensurate with the costs associated with continued participation.

6. Study Objectives and Hypotheses

The broad objective of the study was to examine the economic implications of farmers' level of participation in local organizations on farm productivity in Niger Delta, Nigeria. The specific objectives were to:

i. Identify the farm characteristics of farmers and non-farmers local organizations in the study area.
ii. Determine the perceived reasons why farmers like to participate in farmers local organizations in the study area.
iii. Ascertain farmers level of participation in their local organization
iv. Identify challenges limiting farmers' participation in farmers' local organizations in the Niger Delta region.

The following null hypotheses were tested:

- H_{o1}: FLO farm characteristics and level of participation in FLO activities have no significant influence on their farm income.
- H_{o2}: There is no significant difference in level of participation among the FLO farmers across the three states of study in the Niger Delta region.

7. Acronym

- FLO: Farmers local organization
- FLOs: Farmers local organizations
- CBN: Central Bank of Nigeria
- LGAs: Local government areas
- ADP: Agricultural development programme

8. Methodology

The study was carried out in three oil rich states in the Niger Delta area of Nigeria. They are Bayelsa, Delta and Edo States.

8.1. Bayelsa State

Bayelsa State is one of the Niger Delta States in Nigeria and it is rich in oil production. The State was created out of Rivers state on October 1, 1996 with its capital at Yenagoa. Geographically, the State is located within Latitudes $4^0$15' and $5^0$23'N and Longitudes $5^0$15' and $6^0$45'E. The State is bounded to the north by Delta State, to the East by Rivers State, and to the south and west by the Atlantic Ocean. The state has a population and land area size of 1.7 million people (census figure of 2006) and about 21,000Km^2 respectively. Bayelsa State has eight LGAs and major spoken languages include Ijo (Izon), Nembe, Ogbia and Epie-Atissa. (NAEC, 2008). Its major towns include Yenagoa, Akassa, Amassoma, Brass, Kaiama, Nembe, Odi, Ogbia, Oporoma and Sagbama. The people are majorly into agricultural activities like fishing, palm oil local gin making, trading, carving and weaving. Commercial and industrial activities in the State revolves around oil and gas sub-sector. (NAEC, 2008).

8.2. Delta State

Delta State is an oil rich state and one of the nine states of the Niger Delta region of Nigeria. It was created from the defunct Bendel State on 27th August, 1991 with its capital at Asaba. The state has 25 LGAs, a total land area of 17,698 Km^2 and a population of 4,170,214 based on the 2006 census figure (DSAP, 2006). Geographically, the state lies between Longitude 5^0.00" and 6^0.45" North and Latitudes $18^0$and 23^0south. The state is flanked by Edo state to the North, Ondo State to the South West, Anambra State to the East and Bayelsa State to the South-East. The Atlantic Ocean forms its southern boundary with a coastline of 160 kilometers (DSAP, 2006). Climatic and soil condition of the state favours the production of crops, fish and livestock for food and industry (DSAP, 2006). The report identified major occupations of the people to include farming, oil prospecting, civil service, trading and commerce. The major tribes of the people are Isoko, Ika, Urhobo, Itshekiri, Izon, Ukwuani and Aniocha.

The State is divided into three geo-political or senatorial zones, namely Delta North, Delta Central and Delta South. Its climate is marked by two district seasons, the dry and rainy seasons. The average rainfall in the state ranges between 252 – 254mm and the average temperature ranges from a minimum of 24^0C to a maximum of 33^0C (FOS, 2004).

8.3. Edo State

Edo State is also one of the states of the nine states of the Niger Delta area of Nigeria. The state was the remnant of the defunct Bendel State after the Delta State was carved out in August 1991and its capital is located at Benin City. The state presently has 18 local government areas, a population size of 3,218,332 people (2006 population census) and a land area of about 19,639.7$Km^{2.}$ The major towns are Benin city, Auchi, Ekpoma, Uromi, etc. (NAEC, 2008).

Their main spoken language is Edo, with its various dialects and lingua franca which is pigeon English, the official language is English Language. Edo State is rich in culture and can boast of the world best wood carvers, and bronze sculptors. The State has major industries at NIFOR, Ewu, Okomu, etc. Several mineral endowed in the State are quartzite, marble, limestone, lignite, gold. Petroleum is found in Ovia and Orhionmwon areas of the State (NAEC, 2008).

9. Sampling Technique

Due to the comparative nature of the study, the population comprised of both farmers and non-farmers of local organizations. The study adopted a multi-stage random sampling technique in selection of the respondents of the study. The first stage involved the random selection of the three states (Bayelsa, Delta and Edo States) out of the nine states (namely Abia, Akwa – Ibom, Bayelsa, Cross River, Delta, Edo, Imo, Ondo and Rivers States) of the Niger Delta region. In the case of stage two, two (2) out of the three senatorial zones were randomly selected per state, thus bringing the total number of senatorial zones used for the study to six (6). The next (stage three), involved the random selection of two (2) Local Government Areas (LGAs) from each senatorial zone making a total of twelve (12) LGAs selected for the study. Stage four (4) had to do with the random selection of three (3) farmers' local organizations per LGA (obtained from the lists of registered farmers' local organization in the relevant agency and/or LGAs secretariat). This thus brought the total number of FLOs used for the study to thirty six (36). Finally, a random sample of fifty percent (50%) of the farmers of sampled groups was administered with the question instrument. Proportional sampling was adopted since the groups had unequal membership size. Membership size in the sampled groups was five hundred and ninety five (595) out of which two hundred and ninety five (295) (approximately 50%) was used for the study. An equivalent number of farmers who are non-members of FLOs were also randomly sampled per community for comparative purposes. This thus brought the total number of respondents used for the study to five hundred and ninety (590) farmers.

Data were sourced directly from the farmers by means of a validated questionnaire (for the literate farmers) and interview schedule (for the non-literate ones). Cronbash alpha method was used to test for reliability of the instrument. The technique produced a coefficient value of 0.73, indicating the suitability of the instrument. Data collection instruments were personally administered to the respondents by the researcher. Trained enumerators were equally used for data collection purpose.

Data were analyzed using descriptive and inferential statistics. The descriptive statistics included frequency distribution, percentage, mean and standard deviation. Inferential statistics used were multiple regression, t-test, Chow test and Analysis of Variance (ANOVA) technique for testing the hypotheses of the study. Multiple regression was specifically used to analyze the influence of FLO farm characteristics and level of participation in FLO activities on farmers farm income. The variables in the farm characteristics and level of participation on farm income model are operationalized as follows:

$Y = a + b_1 X_1 + b_2 X_2 + b_3X_3, - - -, + b_nX_n + e$

Where:

Y = dependent variable (farm income)
a = he coefficient of the constant term
b_i = the coefficient of the independent variables
X_i = the independent variables
e = error term

The variables in the equation are defined below as:

Y = Farm income (₦ or $)
X_1 = Primary occupation
X_2 = Farming status (dummy: full time = 1; part time = 0)
X_3 = Farm size (ha)
X_4 = Farming experience (years).
X_5 = Participation index score (measured in percentage)

Four functional models were tested to determine the best fit model that explains the relationship between the dependent and independent variables. The functional forms are;

i. Linear : $Y = f(X_1)$
ii. Exponential: $L_n(Y) = f(X_1)$
iii. Semi-log : $Y (L_nX_i)$, and;
iv. Cobb-Douglas $L_nY = f(L_nX_i)$

The linear function was adopted as the lead function. The criteria for adoption of the function were based on the probability level that shows level of significance of the variables been tested, number of significant variables, signs of the estimated coefficients of the independent variables and the magnitude of the adjusted R^2 (Iyoha and Ekenem, 2002).

ANOVA was used to test the difference in level of participation among the FLO farmers across the three states of study in the Niger Delta region. ANOVA is used for testing significance of sample mean difference between three or more groups being compared (Madukwe, 2005). The author stated that, if $P>0.05$, we accept the null hypothesis and therefore conclude that the average of the dependent variable is the same for all groups, otherwise we reject the null hypothesis. Farm characteristics of farmers was analyzed using percentage and mean, while Likert scale was used to analyze farmers' perceived reasons for participating in FLOs, challenges and major activities engaged in by farmers in FLOs. Respondents' perception of factors limiting participation and reasons for participating in FLOs were obtained through a four – point Likert scale, scored as follows: Strongly Agree (coded 4), Agree (coded 3), Disagree (coded 2) and Strongly disagree (coded 1). The weighted mean score was used to determine the outcome. The weighted score (2.50) was obtained as follows [4 + 3 + 2 + 1] / 4 = 2.50. Perceived factors and reasons with values of 2.50 and above were considered important, while those with values less than 2.50 are regarded as not important. In the case of major activities of FLO members Likert scale, scored as follows: Every time (coded 3), Sometimes (coded 2), Not at all (coded 1). The weighted score (2.00) was obtained as follows [3 + 2 + 1] / 3 = 2.00. Activities with values of 2.00 and above were considered regular while activities with score of less than 2.00 were irregular activities carried out by the group.

10. Results and Discussions

10.1. Farm Characteristics of Respondents'

The farm characteristics of the respondents are presented in Table 1. The primary occupation of majority (58.6%) of farmers FLO members was civil service while that of non-FLO members (34.9%) was precisely crop farming. The dominance of farmers FLO members in civil service may be attributed to the fact that they are likely to possess an educational level that makes them employable to the public sector. Results of Akinbili *et al.,* (2008) supports this finding as they noted that educated people participate more in the execution of projects. Through personal communication with the respondents, the researcher observed that crops grown were arable crops like cassava, yam, maize, okro and vegetables. The findings suggest that participants in farmers FLOs were economically engaged. The respondents farming status showed that most farmers FLO participants (73.6%) and non-participants (59.7%) respectively were into part-time and full-time farming. The implication of the result is that since most of the former group participants were part-time farmers, it infers that they depend on other source(s) of livelihood like earnings from civil service job, self-employment or trading. Most non-FLO participants were full-time farmers suggesting that farming activities was their major source of livelihood.

A larger proportion of farmers FLO members (46.1%) and the non-members (51.5%) had farm size of between 2 – 4ha and less than 2ha respectively. The mean farm size for both groups were 2.97ha and 2.08ha respectively indicating that farmers FLOs members operated larger farms than their non-farmers FLOs counterparts. This could be possible since they may be able to afford and manage such larger farms using income from their non-farm livelihoods. However, both groups could be described as small-scale farmers. The result corroborates with findings of Mgbada (2006) who noted that majority of the Nigerian farmers have farm size of less than 4ha and so are small-scale farmers. The result shows that majority of farmers FLOs members (28.1%) and non-members (46.8%) had 5 – 9 years experience in farming. The mean farming experience was 11 years for farmers FLOs members and 8 years for non-members, suggesting that farmers FLOs members were more fairly more experienced in farming. Their long experience in farming puts them in good position to have first-hand knowledge of the challenges associated with farming operations in the study area.

Okwuokenye and Onemolease (2011) confirmed this finding as they indicated that having good farming experience in group's activities will enable the farmers to be better positioned to know the needs and problems associated with the farmers activities.

Characteristics	Categories	FLO Members (n = 295)		Non-Members (n = 295)	
		Freq	% $\bar{x}$	Freq	% $\bar{x}$
Primary occupation	Crop farming	43	14.6	103	34.9
	Fish farming	22	7.5	55	18.6
	Trading	27	9.2	29	9.8
	Civil servant	173	58.6	54	18.3
	Company employee	2	0.7	17	5.8
	Self-employed	28	9.5	37	12.5
Farming status	Part time	217	73.6	119	40.3
	Full -time	78	26.4	176	59.7
Farm size range (ha)	< 2	96	32.5	152	51.5
	2.1-4.0	136	46.1	126	42.7
	4.1-6.0	35	11.9	17	5.8
	> 6	28	9.5 2.97	-	- 2.08
Farming experience (years)	<5	49	16.6	77	26.1
	5-9	83	28.1	138	46.8
	10-14	71	24.1	57	19.3
	15-19	49	16.6	19	6.4
	20 & above	43	14.6 11	4	1.4 08
Income range (₦)	100,000 & below	1	0.3	188	63.7
	100,001-200,000	44	14.9	83	28.1
	200,001-300,000	149	50.5	21	7.1
	300,001-400,000	66	22.4	1	0.3
	400,001-500,000	27	9.2	2	0.7
	>500,000	8	2.7	-	-

Table 1: Farm characteristics of respondents'
Mean farm income for FLOs = ₦283,220.34 = $1,573.45, non-FLOs = ₦ 187,118.65= $1,039.55($1 =₦180)
Source: Field survey, 2015

The annual farm income of the respondents' revealed that most (50.5%) farmers FLO members earned an income of between ₦200,001 ($1,111.12) – ₦300,000 ($1,666.67), while most (63.7%) non-farmers FLO members earned ₦100,000 ($555.56) and below. The average annual earnings of both groups was ₦283,220.34 ($1,573.45) and ₦96,101.69 ($533.90) respectively. The difference (₦187,118.65 = $1,039.55) (in favour of farmers FLO members) suggest that participation in farm-based FLO projects had indeed enhanced farmers income. The findings indicate the positive role of farmers FLO. Similar results have been reported by Abegunde (2009) who noted that participating in farmers FLO would go a long way in speeding socio-economic development of members in the study area.

10.2. Perceived reasons of FLO membership

Table 2 shows the perceived benefits derived by respondents from participating in farmers FLOs, which underscores their reasons for belonging to such organizations. Some of these reasons include, improved knowledge of farming practices ($\bar{x}$ = 3.51). The result is in agreement with the study carried out by Taiye *et al.,* (2006). They found that farmers' participation in local groups or organizations improved the farmers' knowledge of farming practices which has a direct positive impact on their productivity. Participating in farmers' local organizations has equally enhanced how the farmer is being perceived by the public ($\bar{x}$ = 3.47). FAO (2009) confirms the connection, stating that the group one belongs enhances individual's prestige especially when the group is a prestigious one in the locality. Other perceived benefits of participating in farmers FLOs were improvement of farmers' income ($\bar{x}$ = 3.46) and enhancement of farm output ($\bar{x}$ = 3.32). This finding is supported by the studies of Madukwe (2005) who opined that FLOs provide the latest on agricultural information which helps farmers of the group to update their knowledge that helps improve their production and income.

Benefits	Bayelsa		Delta		Edo		Pooled	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Increased knowledge of farming practices	3.59*	0.55	3.49*	0.53	3.47*	0.53	3.51*	0.53
The public's good perception about me	3.52*	0.56	3.48*	0.56	3.38*	0.57	3.47*	0.56
Improved income	3.48*	0.65	3.45*	0.59	3.47*	0.63	3.46*	0.61
Enhanced farm output	3.28*	0.51	3.28*	0.48	3.44*	0.53	3.32*	0.50
Improved living standard	3.31*	0.52	3.32*	0.48	3.29*	0.46	3.31*	0.48
improved farming skills	3.24*	0.55	3.03*	0.67	3.21*	0.55	3.13*	0.62
Facilitated linkage to input providers	3.17*	0.53	3.06*	0.56	2.64*	0.92	2.98*	0.69

Table 2: Perceived benefits of farmers' in FLOs
**Agreed (mean ≥ 2.50)*
Source: Field survey, 2015

Another perceived benefit of participating in farmers FLOs were improvement of farmers' living standard ($\bar{x}$ = 3.31) and this agrees with the findings of Abegunde (2009) who noted that participating in FLOs can go a long way to ameliorate poverty and facilitate socio-economic development of farmers in the area of study. Improvement of farmers farming skills ($\bar{x}$ = 3.13) was also a benefit. This finding agrees with the assertions of Katungi and Akankwasa (2008) who pointed out that farmers' who participate more in FLOs are likely to engage in social learning about the farm technology which consequently helps in improving their farming skill.
Also, improving farmers' linkage to input providers was identified as a benefit ($\bar{x}$ = 2.98). Reid (2000) agrees with this result as he noted that participation in FLOs is a vehicle to developing true democratic processes among community members, high rate of resource (input) acquisition and utilization, better economic results, high levels of volunteerism and a high community spirit.

10.3. Categorization of respondents' based on level of participation
Respondents' were categorized based on their level of participation (Table 3). Results from the Table 3 shows that, most of the farmers (73.2%) were high participants in their organization's activities while few (about 27%) were average participants.

Categorization	Bayelsa		Delta		Edo		Pooled	
	Freq	%	Freq	%	Freq	%	Freq	%
High participants	58	81.7	109	72.2	49	67.1	216	73.2
Average participants	13	18.3	42	27.8	24	32.9	79	26.8
Total	71	100.0	151	100.0	73	100.0	295	100.0

Table 3: Categorization of respondents' based on participation
Source: Field survey, 2015

Having high participation in farmers FLOs is likely to produce positive and significant results in the farmers' productivity and income. Farmers' high participation in their groups is supported by the reports of Taiye *et al.,* (2006).

10.4. Activities engaged in by farm-based FLOs
Table 4 reveals the different activities carried out by the farmers FLOs. From the table, the major activities carried out were savings and loans ($\bar{x}$ = 2.63), provision of credit to members ($\bar{x}$ = 3.36), crop farming ($\bar{x}$ = 2.35) and processing of farm products e.g. garri, oil palm and fish ($\bar{x}$ = 2.22). Provision of savings and loans to farmers is a major activity carried out by the organizations. This is because lack of or inadequate capital or finance has proved to be a significant limitation to activities of farmers (Okwuokenye and Onemolease, 2010).

Activities of farmers CBOs	Bayelsa		Delta		Edo		Pooled	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Savings and loans	2.54*	0.63	2.64*	0.57	2.71*	0.54	2.63*	0.58
Provision of credits to members	2.24*	0.73	2.34*	0.69	2.51*	0.71	2.36*	0.71
Crop farming	2.34*	0.65	2.35*	0.62	2.36*	0.65	2.35*	0.64
Processing of farm products (e.g. 'garri', oilpalm, fish)	2.39*	0.60	2.13*	0.71	2.23*	0.66	2.22*	0.68
Training/skill development among members	2.13*	0.65	1.97	0.65	1.73	0.69	1.95	0.67
Livestock/poultry	1.86	0.68	1.77	0.64	1.68	0.74	1.77	0.68
Fishery	1.65	0.76	1.75	0.81	1.71	0.81	1.72	0.80
Inputs supply e.g. seed, fertilizer etc	1.59	0.69	1.80	0.77	1.58	0.64	1.69	0.73

Table 4: Activities engaged in by farmers' CBOs
Regular (mean ≥ 2.00)
Source: Field survey, 2015

Results of Abegunde (2009) showed that FLOs give out loans/credits to their members and this was identified as a major reason why farmer belong to such organizations as they see it as a means of alleviating their poverty status. Common products processed by the farmers included products like garri, oil palm and fish. Respondents explained through personal communication, that their focus on these products was because they were more profitable than other products.

10.5. Factors limiting respondents' participation in FLOs activities.

The FLOs have been known to face some constraints (see Table 5). These constraints either affect the group or the participants' directly. In either case, the participation level of the respondents in their groups is what becomes affected. The factors with means of 2.50 and above were "agreed" by the respondents to be the factors limiting their participation in FLO activities. These included poor access to credit and other agricultural inputs ($\bar{x}$ = 3.07) and lack of government/NGOs assistance ($\bar{x}$ = 2.95).

Constraints	Bayelsa		Delta		Edo		Pooled	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Poor access to credit & other agric inputs.	3.08*	0.73	3.07*	0.65	3.05*	0.57	3.07*	0.65
Lack of government/NGOs assistance.	2.94*	0.53	2.90*	0.51	3.07*	0.54	2.95*	0.53
Corrupt and dishonest leadership.	2.75*	0.79	2.84*	0.76	2.82*	0.73	2.81*	0.76
Lack of transparency by the leaders about organization's activities.	2.52*	0.50	2.66*	0.54	2.67*	0.50	2.63*	0.52
Frustration from the local environment.	2.34	0.51	2.33	0.54	2.34	0.51	2.34	0.52
High dues and levies.	2.24	0.55	2.31	0.53	2.26	0.53	2.28	0.53
Lack of rules & regulations in the organization/Club.	2.04	0.31	2.01	0.31	1.99	0.31	2.01	0.31

Table 5: Factors limiting respondents' participation in FLOs activities
**Agreed (mean ≥ 2.50);*
Source: Field survey, 2015

In addition to the factors mentioned above, corrupt and dishonest leadership ($\bar{x}$ = 2.81) as well as lack of transparency by the leaders about organization's activities ($\bar{x}$ = 2.63) were also agreed to be limiting factors. Lack of transparency by the leaders about organization's activities may not be unconnected to the level of corruption and dishonesty predominant among the leaders which they intend to hide from other members. These findings are supported by the results of Damar (2003) that reiterated poor participation in the economic affairs of their agricultural cooperatives and inadequate access to credit as some of the problems faced by the farmers in participating in FLOs. A limiting factor was hijacking of benefits and affairs by few privileged members. Sinkaiye (2005) agreed, stressing that poor participation in groups' activities can erupt from a situation when the group's goals and objectives do not align with members' needs and when the benefits of the organization are being hijacked by few progressives or executives.

10.6. Influence of FLO members' farm characteristics and participation in FLO activities on farm income.

Multiple regression was used to test FLO members' farm characteristics and participation in FLO activities on their farm income. Table 6 shows the estimated parameters of the farmers FLOs members' farm characteristics and participation in group activities as they affect their farm income level. The linear function was selected as the lead equation, because of the number of significant variables, the coefficient of determination (R^2) which shows that the variables in the model jointly account for about 57% variation in farm income of the respondents (adjusted R^2 = 57.3%) and the computed *F*-statistic (6.364) that was significant at the 5% level (critical F = 3.94), denoting that the collective influence of the variables on respondents farm income was significant at the 5% level hence the rejection of the null hypothesis and the acceptance of the alternative hypothesis. Four (4) of the five (5) explanatory variables were significant at the 5% level. The variables were farming status, farm size, farming experience and participation of members in FLO activities. The results are further discussed below:

Independent variables	Coefficient (b)	t	Prob. level
Constant	88541.956	1.500	0.135
Primary occupation	567.676	0.745	0.457
Farming status	1649.425*	2.586	0.010
Farm size	6789.326*	2.344	0.020
Farming experience	2869.043*	0.940	0.048
Participation Index score	3641.818*	1.014	0.011

Table 6: Influence of FLO farmers' farm characteristics and participation in FLO activities on farm income
F = 6.364 (p < 0.050) Adjusted R^2 = 0.568
**Significant at the 5% level (critical t – value = 1.645)*

Farming status of the respondents (b = 1649.425) was positively and significantly related to farm income. The result implies that full-time farmers' are likely to engage in higher farming activities through higher investments and thus earned higher revenue than those

involved on part-time basis. Studies of Abegunde (2004) supported this finding. The author concluded that productivity and income of the farm are bound to increase when farmers create much time for their farm activities. Farm size was positively correlated (b = 6789.326) and significant with respondents farm income. This means that farmers with larger farms tend to produce and earn more income than farmers with smaller farms. With larger farms, respondents can grow more crops, realize more output and earn higher income. The result is supported by Adeniyi (2002) who acknowledged that total output of crops will increase at an increasing rate as farm sizes increase.

Results also shows a positive and significant relationship between farming experience (b = 2869.043) and farm income. The positive result implies that farmers with longer experience of farming earned higher income than those with shorter experience, thus suggesting that higher farm experience will lead to higher farm revenue. The positive relationship between farming experience and farm revenue was reported by Madukwe (2005). He asserted that high farming experience will result to increased training and indoctrination of the farmers and from which they would learn certain skills that would enable them increase their farm productivity and revenue. Participation index score (b = 3641.818) of the respondents as well revealed a positive and significant relationship with the farmers farm income. The implication is that farmers with higher level of participation in farm activities are bound to invest more on the farm, have more knowledge of the farming activities and so have higher farm output and income.

10.7. Impart of participation in FLOs on income level of respondents (Chow-test)

Chow test was further used to test and confirm the impact of FLO membership on farmers' income (see Table 7). The result showed that F* calculated was 2.334 while F-tabulated was 1.75. For this reason, the difference in farm income (₦187,118.644 = $1,039.55) between the FLO farmers (₦283,220.34 = $1,573.45) and non-FLO farmers (₦96,101.69 = $533.90) was significant at the 5% level. Based on this, the null hypothesis was rejected while the alternative hypothesis was accepted. It was therefore inferred that membership of FLO had significant effect on the farm revenue of the farmers.

Models	RSS	Mean Income (₦/$)	n	F_{cal}	
Pooled	3784542634882.334				
FLO farmers'	2235164567476.296	₦283,220.34/$1,573.45	295		
Non-FLO Farmers'	1415312534795.528	₦96,101.69/$533.90	295	2.334*	

Table 7: Impart of participation in FLOs on income level of respondents' (Chow-test)
**Significant at the 5% level (critical F = 1.75; df (K, N – K, 9, 581),K = 9*

10.8. Difference in level of participation among the FLO farmers (ANOVA technique)

ANOVA technique was used to determine the difference in the level of participation among the groups in the three states of study. From Table 8, the group sizes were unequal hence harmonic mean was used. The result showed F* calculated was 1.465 while F-tabulated was 2.62. Since calculated F was less than tabulated F, the null hypothesis was accepted while the alternative was rejected. It was therefore concluded that there is no significant difference in level of participation among the farmers of FLOs of the different states.

State	X	Participation Score (mean)
Edo	73	21.82
Delta	151	22.11
Bayelsa	71	22.54

Table 8: Participation level in FLO activities (total)
F-cal = 1.465, P>0.050
Source: Field Survey, 2015

11. Conclusion and Recommendations

The findings of this study suggest that participation of farmers in FLOs was high and this has helped improved the participants farm output and income. Several factors played important roles in enhancing farmers' participation in FLOs. These include increased knowledge of farming practice, improved perception of the public about them, improved income, enhanced farm output, improved their living standard, improved farming skills and facilitated linkage to input providers. Despite these laudable benefits, participation

in FLOs is still constrained by some factors like poor access to credit and other agric inputs, lack of government/NGOs assistance, corrupt and dishonest leadership and lack of transparency by the leaders about organization's activities. Based on findings of the study, the following recommendations were made:

i. FLOs should encourage leadership accountability. This will help to portray the group as transparent and the leadership as being honest. Also, there should be in place a good and standard auditing practice that will help check and reduce to the barest minimum the level of corruption and dishonesty among the leadership.
ii. Strategies should be put in place by the FLO leadership to ensure that loans collected by members are paid back. It is hoped that prompt paying back of loans will help executives meet up with the demand for loans, and
iii. Non-assistance by the government/NGOs was identified as a major problem faced by farmers' FLOs and this problem was also found to have adversely affected level of participation in groups. In order to correct the situation efforts should be made by the government to help increase or improve on the assistance (both in cash and kind) given to farmers in their groups. Such assistance will enable the groups to be meeting up with the cost of running the affairs or operating the organizations, thereby improving on their participation in groups activities.

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