Assessement of Poverty Profile of Fadama III Participants in Imo State, Nigeria

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Authors' contributions

This work was carried out in collaboration between all authors. Author NCE designed the study, wrote the protocol, supervised the work, carried out all survey work and performed the statistical analysis. Authors MAYR, NNOO and SUOO contributed in search of materials and assisted in methodology. Author SUOO wrote the first draft of the manuscript. Authors NNOO and SUOO managed the literature searches and edited the manuscript. All authors read and approved the final manuscript.

Case Study

ABSTRACT

Poverty increases despite the poverty intervention programmes, hence the need to examine the poverty status of participating farmers in Fadama III programmes. Data were collected from a sample of 70 fadama farmers across 9 FCA using a multi-stage sampling technique and analyzed using both descriptive, inferential statistics and econometric tools. A cross of stages of commitment and level of involvement in the programme gave a composite count of actual participation level while the ratio of the actual participation to maximum obtainable levels expressed the intensity of participation. Tobit regression model estimated the incidence of particpation while poverty was decomposed into poverty headcount (depth), gap and severity using Foster-Greer Thorbeck (FGT). Majority of the farmers were male (68.6%) with a mean age of 49.1 years and relatively higher formal education attaiment. Sever poverty is common with passive members,

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female and old farmers. Again, relatively larger household size and low formal educational status may trigger poverty but increased social capital, farming experience as well as reduced funding and poverty status of the farmers in Imo State increased intensity of participation at $p < 0.05$ critical level. Intensity of participation is reduced by 0.461 and 4.26×10^{-7} unit each with a unit increase in poverty status and funding respectively but increased by 0.0434 and 0.0042 unit respectievly with increased social capital and farming experience. The study recommends the use of young, educated, experienced farmers with lower household sizes in poverty intervention programmes while government interest should center on poverty reduction to encourage participation.

1. INTRODUCTION

Poverty is any barrier to prosperity such as lack of resources and opportunities. It is a feeling of being disenfranchised from various life support services (i.e. educational, economic, cultural, and social), and a diminished feeling of resource empowerment [1]. According to [2], poverty is a pronounced deprivation of human well-being assets with a resultant vulnerability to adverse event outside the control of the 'very poor'. Poverty has a multi-dimentional perspective and many complexities [3]. While it denotes insuficient disposable income for basic necessities of life such as food, shelter and clothings [4] others feel that most households with the basic necessities of life still lack human well-being assets, hence vulnerable to shocks. Assets such as human capital stock (formal education attainment) and quality health services, access to land and credit facilities, capital development means, socio-political linkages and decision making abilities can expose a non-poor household to poverty in case of any shock [5]. This suggests that poverty exist among the "so called rich househould or the non poor." In fact, non-poor can still surfer some psychological and social deprivation, lack capabilities to freedom and values of life [6]. Poverty therefore, denote inadaquate consumption level due to insufficient food or inadequate disposable income as households are unable to acquire features that improves their wellbeing and assets that place makes them less vulnerable to certain events or shocks.

Poverty is wide spread and sever in Nigeria [7] with a disturbing consequences on the rural populace. [8] and [9] opined that rural poverty deepens than urban poverty in Nigeria as evidences gathered from both quantitative and qualitative measurements on poverty attest to its growing incidence and depth in [10 and 11]. [12], further streesed that an increasing number of rural farmers (between 62 and 75%) in Nigeria

are living in absolute poverty of less than a dollar per day [13]. The area is dominated with mainly primary production activities with most farmers excluded from decision making on issues that concerned them. Poverty is thus a rural phenomenom as its excruciating impact is pervasive and easily noticed among the rural populace. They lack adequate capital investment for expanded economic activities, hence the increasing dependency on small scale agriculture (which is vulnerable to external shocks such as climatic change, changes in demand and prices of crude minerals and falling standard of technology) as a basic income generating activity [14,15,16,17,18,19] and [20].

Though the role of rural households in food security is sacrosanct, [20] noted that achieving food self sufficiency and increased food supply on an average farm size of than 2.2 hectares with inadequate farm input [21] are rather unattainable. Yet it is paradoxical that the vast human and physical resources and the huge human and material resources devoted to poverty reduction by successive governments in Nigeria, have not recorded any noticeable success [21]. Even more disturbing is the fact that majority of these programmes that were instituted to either standardize land utilization, subsidize farm inputs, provide extension services and credit as well as institute market co-operative have not made any impact on farmers' welfare nor has it reduced their poverty status in Nigeria. Improved welfare for the rural farmers is imperative if poverty is to be reduced and food self surficiency is to be achieved in Nigeria.

Many food security and food self sufficiency programmes failed to reduce proverty in Nigeria. It was apparent that farmers felt needs and interest were not prioritized in the selection and implementation of such programmes and decision making network totally excluded the rural farmers [22] and [21]. These programmes did not only invoke poverty among the rural

farmers. Again, farmers are sceptical with most poverty intervention programmes, as their felt needs and interest were not put into the picture [22]. Again, various attempts by Nigerian government in initiating agricultural programmes aimed at achieving food security have failed due mainly to inadequate funding and in some cases, lack of commitment in implementing the agreement on such programmes. [23] have in this regard stated that the agricultural development programmes, for example, suffered serious setbacks due to poor funding and funding instability following the expiration of the World Bank counterpart funding arrangements.

Therefore, the involvement and participation of the rural farmers themselves in both project selection and implementations is imperative. In this regard, a demand-driven fadama project that has emphasis on community stake holdership and participation will facilitate capacity building, rural infrastuctural investment, pilot productive assets support, demand responsive advisory services and ensure project management and evaluation. The recent emphasis on strengthening the demand for agricultural service and call for a separation of responsibilities for policy making, funding and implementation have resulted to paradigm shift involving counterpart funding or cost sharing as a new financing arrangement in poverty intervention programmes such as fadama [24]. Few studies have looked at resource use efficiency of fadama farmers [25, 26] and [27] while others have examine optimal plan for fadama farming at different ecological zones with different methodologies [28], no study has dealt on poverty status of these fadama farmers especially the effect of participating in the programme on their poverty status hence the need for this study.

1.1 Fadama

An Hausa name for irrigable land, is a low-lying flood plain with underlining shallow aquifers within the Nigerian river system [28]. It is an area with seasonal flooding and alluvial deposites suitable for dry season farming [29]. The National Fadama Deveopment Programme (NFDP) which came on board in early 90's has completed 2 phases with the third phase currently runing. Fadama II was the second phase of the programme that span for six (6) years, between 2004-2010. It was funded by World Bank and African Development Bank to the tune of US $ 100 and US $30 million respectively with an effective disbursement date in May 27, 2004 to 12 benefiting states including Imo State [30] is

targeting poverty alleviation of specific group. The third fadama programme is curently running in Nigeria with Imo State as a member state. A demand driven community development project such as fadama III programme is expected attract a large number of targeted group (poor) as participants. That is, if only a commitment is made inform counterpart fund is made by the state of the targeted group. Studies have shown that the money voted for production and economic activities were converted to other purpose by the state [2], living the poor in a deplorable condition. There is a wide gap between the policy that established fadama programme and the ravaging poverty suituations of the participants in programme in the state is the central focus of this study. The study will among other things adds to the existing litereature, the poverty decompostion index across the socio-economic features of fadama farmers in the state.

2. CONCEPTUAL FRAMEWORK

The fadama III project is implemented using the Community Demand Driven (CDD) approach which strongly emphasizes stakeholders' participation at the community level to develop participatory and socially inclusive Local Development Plans (LDPs) which provide the basis for support and funding under the project [31]. This paradigm shift from the traditional public sector dominated/supply led development approaches of the past to a private sector-led, demand-driven strategy ensures full guidance of participating farmers through several institutional structures. The various fadama resource users, including crop farmers, pastoralists, fishermen and women and on and off farm entrepreneurs, operating through their respective fadama resource user groups (FRUGs) and their apex bodies, the Fadama Community Associations (FCAs), agree on a consensus on how to use the common resources for their mutual advantage. Through this process, communities decide on the advisory and infrastuctures they need to enable them attain development goals they set for themselves based on their efforts. The consensus so reached are articulated in Community Development Plans (CDPs) drawn at the level of the Fadama Community Associations (FCAs).

The poor faces pronounced deprivation of human well-being assets, vulnerable to adverse conditions outside his control, lacks the capacity to participate with dignity in society and capabilities to freedom and values of life [32 and

2]. Against this background is a poverty intervention programme that is targeted at the poor themselves. Fadama programme in Imo State is targeted at the poor, for economic productive activities. It engender increase income generation and facilitates community driven development activities (CDDP). The programme is meant to turn around the welfare of fadama user groups (FUD's) in due time. The FUG's include the vulnerable group such as widows, less dominant and marginal fadama users, facilitators and others form the fadama community association (FCA's) encouraged to develope and share a common resource pool [32] and participate in decision making on local development plans. Participation level of the poor in fadama programme is low as low utilization of the fadama resources has been observed to account partly for the poor performance of Nigeria's agricultural sector [33]. This study establishes the poverty profile of the participating farmers and isolates the factors that improves thier participation level in the state.

3. METHODOLOGY

The study was done in Imo State in South Eastern Nigeria. The state has a land area of 5289.49sqkm and a total population of 3934899 [34]. The area is within the rain forest zone with mean relative humidity, temperature and rainfall 74%, 28℃ and 2400 mm annually respectiviely. The climate of this area has made farming and games predominant.

A sample of 70 fadama farmers was drawn from the three agricultural (Okigwe, Orlu and Owerri) zones using a multi-stage sampling technique for the study. This is to represent the entire state in the study. A local government area (LGA) that benefited from fadama project was selected purposively from each zone. They are Ohaji Egbema in Owerri, Nkwerre in Orlu and Isiala Mbano from Okigwe zone. Three (3) fadama community Association (FCA's) were randomly selected from the list of FCAs in each of the selected LGA, thus giving 9 FCAs for the study. Each FCA consists of the facilitators, fadama user group (FUG) and service providers who supplied the necessary information for the study. The last stage was a random selection of 10 farmers from each FUG's. A total of 90 farmers were administered with a well structured questionaire. Data on household socio-economic characteristics, resource endowments, input used in farming and the level of output, farmers level of commitment and involvement, level of expenditure on food, utilities, services and consumer durable goods were collected. The study found only 70 responses useful for the study.

Data were analyzed using descriptive and inferential statistics as well as econometric tools. The level of farmers participation in fadama programme (P) was estimated using a composite count of their level of involvement (I) and commitment (C) as they became members of fadama user group (FUG). The involvement were in regular order or step-wise stages and each stage followed an ordinal scale of between 0 and 5. The commitment was in 3 likert scale of passive, active and stakeholdership. A cross of commitment and its corresponding involvement level in equation 1.0 falls within a corresponding $\left(I_i \otimes C_j \right)$ cell. This gives a composite count for that farmer participation level [35].

$$P = I_i \otimes C_j \qquad (1)$$

The stages of involvement (I_i) include:- Not Aware (0), Aware (1), formation of cooperative or group (2), registration of cooperative with fadama (3), formation of fadama user groups (4) and finally beneficiaries of fadama resources (5). The commitment level (C_j):- are passive (1), active (2) and stake holdership (3). A total $5 \times 3 = 15$ counts is expected from a farmer who participated completely. A non partcipant will get a zero (0) count. Thus, partcipation level is ranges between 0 and 15. It is possible that some farmers are lost in the count giving rise to a truncation and bias measurement. Such problems are only be normalized using participation intensity. Partcipation intensity (*PI*) is the actual magnitude of participation reached by ith farmers within the period of study to the maximum attainable participation level. This is expressed as the ratio of actual participation to the maximum participation level and can be expressed as;

$$PI_i = \frac{AP_i}{MP} \qquad (2)$$

Where AP_i is the actual participation and *MP* is the maximum participatory level obtainable.

It is necessary to reflect the chances of participation given some factors that induces farmers to particpate. This is because partcipation is a latent variable, which manifest based on the degree of its responsiveness to certain stimuli. Therefore, the probability that a farmer will paticipate is dependent on some

factors expressed using a tobit regression model. The tobit model was chosen for this study because particpation can be latent due to some incompletely observed variables [36]. It is expressed as:

$$PI^* \begin{cases} PI^* \; if \; PI^* > \tau \\ PI^* \; if \; PI^* \leq \tau \end{cases}$$

incompletely observed or unobserved variables τ where denoted as zero, hence τ is equal to 0.

$$PI^* \begin{cases} PI^* \; if \; PI^* > 0 \\ PI^* \; if \; PI^* \leq 0 \end{cases}$$

PI^* is therefore expressed as a latent variable that is observed for values greater than τ and censored otherwise. The relationship is expressed thus:

$$PI^* = X_i \, \beta + \in_i$$

where $\in \sim N(0, \; \delta^2)$. The observed PI^* is defined by the following measurement equation

$$PI = f \; (X_1, \; X_2, \; X_3, \; X_4, \; X_5, \; X_6, \; X_7, \; X_8, \; X_9, e) \quad (3)$$

Where;

  PI = Participation intensity of an ith farmer in fadama programme in the state.
  X_1 = Poverty level, measured as a dummy, base on poverty threashood (Poor = 1if above or equal to poverty threshood; 0 = otherwise)
  X_2 = Amount of funding by the FUG's in naira
  X_3 = Age of the farmers measured in years
  X_4 = Household size, measured as the number of people within the same catherine arrangement
  X_5 = Formal Education attainment measured in years
  X_6 = Social capital measured from the number of social organization the farmer belongs
  X_7 = Number of extension visit to the farmers
  X_8 = Farming Experience measured in years
  X_9 = Sex of the farmer (dummy 1 = male otherwise 0)
  e = Stochastic (random) error term

The tobit model estimates the probability that a change in the intensity of participation of farmers in fadama III programme was due to a unit change in any of the the included explanatory variable. The null hypothesis of this study is that the inculded explanatory variable do not have any significant explanation to the changes in the intensity of participation in fadama III programme in the state. All the included explanatory variable except poverty are expected to have a direct effect on intensity of participation in fadama III programme by farmers in the state.

Poverty is decomposed into poverty headcount (depth), gap and severity using Foster-Greer Thorbeck (FGT) model and spread across some socio-economic features of fadama farmers in the state. The Foster-Greer Thorbeck (FGT) matrix is a generalized measure of poverty within an economy [37]. The poverty profile of fadama users group is analyzed using the Forster-Greer-Thorbeck (FGT). This will reveal the characteristics of the fadama users taking their poverty status into consideration. The model as was modified by [38] has estimated the poverty headcount (depth), gap and severity across socio-economic features of fadama II users in the state. The model is expressed as:-

$$P_\alpha = \int \left\{ \frac{(Z - Y)}{Z} \right\}^\alpha f \, (d \,) \delta y \quad (4)$$

Where Z is the Poverty line, P_α is the poverty index, with α as 0,1 and 2 representing poverty headcount, gap and severity respectively. f(y) is the population density function of expenditure.

The poverty line or threshold (Z) is the minimum level of income deemed necessary to achieve adequate standard of living in a given society [39]. There is no standard poverty line [40] but most studies adopt the mean per capita household consumption expenditure (MPCE) as a relative standard for poverty line [39 and 38]. The mean *per capta* household consumption expenditure is the consumption expenditure per member of the household who share within the same catherine arrangement and it is expressed as:

$$MPCE = \frac{Total Household consumption Expenditure}{Household size} \quad (5)$$

The total household consumption expenditure is an aggregate total expenditure on utility, service, food and durable assets of the household.

4. RESULTS AND DISCUSSION

4.1 Socio-economic Characteristics of Fadama III Farmers in Imo State

The result of the socio-economic characteristics of the fadama users as shown in Table 1, reveals

that majority of the farmers are male (68.6%) with a mean age of 49.1 years. Few farmers (14.3%) are less than 30 years of age and majority of them (54.3%) are above 51 years in age. This mean that fadama users in the state are middle aged men who may likely be risk takers that can take advantage of new technologies and show increasing affinity for innovations associated with productive economic activities [41,42 and 23]. Again, there are high chances of obtaining farming input such as credits, farmland and extension services from agencies that dispose these items to the farmers. The mean period of farming experience is 15 years with majority of the farmers (58.6%) having a less than 10 years of farming experience and 20% of them having above 40 years of farming experience. The farmers have mean farmily size (of people within the same catherine arrangement) and formal education attaiment of 5 person per household and 14 years respectively. Few of the farmers (12.8%) had either no formal education attainment or maximum of adult education while a large proportion of them had at least secondary school education. The relatively moderate formal education attainment with high farming experience of the farmers is an indication that the farmers may have moderate managerial skill in productive economic activities.

The result further shows that there is a demonstration of active partcipation in fadama II programme by the respondent in the area with majority of them as livestock farmers (50%) and few others in down stream agro-services (14.4%) such as feed and food milling activities etc. Others are arable and tree crop farmers (35.5%). Other activities engaged in by the fadama farmers in the area include off-farm activities (32.9%), non-food trading activities (32.9%), schooling (8.6%), artisans (2.9%) and contractor (22.9%). This demonstrates that fadama II in Imo State is a productive economic activities.

4.2 The Poverty Profile of Fadama III Users in Imo State Nigeria

Table 2, reveals the poverty profile of fadama III users in Imo State. The result shows that poverty headcount by gender of fadama users is higer with male fadama users at 68.6% than the female fadama users in the state whose incidence is about 51.8%. However, poverty is more sever with the female fadama users at

65.8% than their male counterpart at 34.2%. This finding shows that female fadama resource users surfer sever poverty than the male probably because they still lack access to fundermental farm inputs, which they depend on their husbands or sons to acquire. The result further reveals that fadama users with age range of above 30 and 40 years have the highest proportion under poverty headcount (44.4%) while majority of above 36% of the older fadama resource users who are more than 50 years are in sever poverty. The growing poverty severity of the older fadama resource users in the state could be explained by the some incapacities due to age of the famers in the use of fadama resources to improve their welfare. Other finding attributed that development to inefficiency of the farmers in the use of inputs in production due to their advancement in age [43]. There is an indication that fadama resource users are raising more households size at the expense of sever poverty in the area. The household size classified into small, medium and large demonstrated increasing poverty headcount, gap and severity with increase in the size of the household in the state. The poverty incidence of large household is about 55.6% with severity index as high as 37.9%. This implies that most large household attracts sever poverty to themselves in the long-run, instead of the cheap household labour advantage it seems to offer them.

Interestingly, poverty profile by formal education attainment shows a contrasting result. Household heads with no formal and primary education has the least poverty incidence of 11.1 and 22.2 % respectively but with the highest sever poverty index of 36.8 and 21.7% respectively. The household heads with secondary education and beyond secondary school education though have higher poverty headcount showed less poverty gap and sever poverty index. This finding revealed some important policy statement. Poverty intervention programmes like fadama is capable removing the elites who are already technically competent and skillful in the use of fadama facilities from poverty. Fadama provides immediate employment to some of them and additional source of income to others who may be employed. Encouraging educated youths and facilitate training of non-educated farmers to bridge the gap of poverty status of the elites and non elite in the area is imperative.

Table 1. Socio-economic characteristics of fadama III farmers in imo state

Variable	Frequency	Percentages
Age (Years)		
Less than 30	10	14.3
31-40	11	15.7
41-50	11	15.7
51-60	23	32.9
Greater than 60	15	21.4
Total	70	100.0
Mean	49.1	
Farming experience (Years)		
Less than 10	41	58.6
11-20	11	15.7
21-30	4	5.7
31-40	7	10.0
41-50	6	8.6
Greater than 50	1	1.4
Total	70	100.0
Mean	15	
Household size		
Less than 4	22	51.4
4-8	41	58.6
9-12	7	10.0
Total	70	100.0
Mean	5	
Educational level		
Non formal education	4	7.1
Adult education	5	5.7
Primary education	29	41.4
Secondary education	15	21.4
Tertiary education	17	24.3
Total	70	100.0
Mean	13.9	
Marital status		
Single	22	31.4
Married	42	60.0
Widowed	6	8.6
Total	70	100.0
Sex		
Male	48	68.6
Female	22	31.4
Total	70	100.0
Other economic activities		
Off-farming activities	23	32.9
Non food trading activities	23	32.9

Variable	Frequency	Percentages
Civil service	16	22.9
Artisans	2	2.9
Schooling	6	8.6
Total	70	100.0
Fadama activity		
Crop production	25	35.5
Livestock production	35	50.0
Downstream agro-services	10	14.3
Total	70	100.0
Level of participation		
Passive participation	4	5.7
Active participation	46	65.7
Decision makers/ Stakeholdership	20	28.6
Total	70	100.0

Source: Field survey 2011

Poverty profile of fadama users according to their productive economic activities shows a high poverty depth of 55.5% with crop farmers and 33.3% with the downstream agro-services. Similarly, there is a high poverty gap and severity with crop farmers (52.5% and 47.8% respectively) than livestock farmers (34.7% and 32.1% respectively) but still lowest with agro services (22.8% and 20.1% respectively). Poverty depth is as high as 77.8% with household heads that has 10 (or less) years of farming experience and decreases with increase in farming experience and the same proportion characterizes poverty gap and severity of this group of fadama users in the state. [43], observed that fadama farmers with more years of farming experience tend to be more efficient in production. Increased farming experience in the use of fadama facilities by the farmers may trigger improved performance by fadama farmers thus reflecting a better welfare and a reduction in poverty headcount, gap and severity among them in the area. In the same way active participation in fadama activities has the ability to reduce poverty headcount, gap and severity. About 33.3, 30.4 and 22.4% active participant under poverty headcount, gap and severity is relatively smaller compare to 66.6. 58.7 and 45.3% of the passive participants who are under same poverty status. Fadama users who are highly and involved and commited to fadama activities may take better advantage of fadama facilities to improve their welfare and reduce their poverty status in the area.

4.3 Determinants of Farmers Participation in Fadama III Programme in Imo State

Table 3 are the determinants of farmers participation in fadama III programme in Imo State. The tobit model has a good fit as the functional parameters showed a psuedo R^2 of 0.5481 and negative log likelihood estimate of -21.958 with a Chi square value of 53.25. This value is greater than the tabulated value of 9.41 at $p < 0.05$ critical level. The null hypothesis that the inculded explanatory variables do not have any significant explanation to the changes in the intensity of participation in fadama III programme in the state was rejected. Therefore, the alternative hypothesis was accepted. The model showed that the variable is more left censored than right censored. This is because the partial observability favoured more of the participation intensity at zero (0) level than participation intensity that are greater than 1. This is correct with the participation model stated here as observations made about farmers who are not aware aware or who were aware but did not meet the criteria for the programme real but no observtion was made for any participation intensity that is beyond maximum level. This result to no observed value of any farmers whose actual participation was more than maximum intensity of participation of 1.0 thus the right censored observation value was close to zero in the study.

There is a significant and positive effect on intensity to participate in fadama programme due

to increased social capital acquired by farmers, farming experience and reduced funding and poverty status of the farmers in Imo State. The result reveals that co-efficient of poverty status, funding, social capital and farming experience in the intensity of participation model are significantly different from zero because their corresponding t-values are greater than the tabulated t-value of 1.98 at $p < 0.05$ critical level. The coeficient of these variables represent the marginal intensity of participate to fardama by the farmers.

Table 2. Poverty profile of fadama III user group in Imo State

Variable	Poverty Indices			
	Headcount %	Gap %	Severity %	Population %
(i) Gender				
Male	0.686	0.348	0.342	68.8
Female	0.518	0.652	0.658	31.4
(ii) Age of household head				
Less than 31	0.333	0.130	0.132	14.3
31-40	0.444	0.130	0.132	15.7
41-50	0.111	0.303	0.105	15.7
51-60	0.222	0.303	0.363	32.9
Greater than 60	0.222	0.330	0.368	21.4
(iii) Household size				
Less than 4 (Small)	0.113	0.201	0.132	31.4
4-8 (Medium)	0.444	0.252	0.240	58.7
Greater than 8 (Large)	0.556	0.387	0.379	10.0
(iv) Formal education				
No formal education	0.111	0.322	0.368	7.1
Adult Education	0.222	0.297	0.217	5.7
Primary Education	0.222	0.174	0.158	41.4
Secondary Education	0.444	0.144	0.108	21.4
Beyond Secondry Education	0.444	0.079	0.044	24.3
(v) Fadama activities				
Crop production	0.555	0.525	0.478	48.1
Livestock production	0.444	0.347	0.321	26.6
Downstream Agro-services	0.333	0.228	0.201	25.3
(vi) Other economic activities				
Civil service	0.263	0.233	0.203	1.43
Contractors	0.113	0.044	0.026	22.9
Off-farming Activities	0.113	0.044	0	1.4
Non Food Trading Activities	0.211	0.174	0.105	32.9
Schooling	0.322	0.217	0.237	8.6
Artisans	0.444	0.422	0.368	32.9
(vii) Farming experience				
Less than 11	0.778	0.609	0.526	58.6
11-20	0.411	0.174	0.157	15.7
21-30	0.223	0.087	0.053	5.7
31-40	0.113	0.044	0.158	10.0
41-50	0.211	0.087	0.079	8.6
Greater than 51	0.113	0	0.026	1.4
(viii) Paticipation level				
Passive Particpation	0.666	0.587	0.453	5.7
Active Participation	0.333	0.304	0.224	65.7
Stake holdership	0.111	0.229	0.203	28.6

Source: Field survey 2011

Table 3. Tobit Regression Factors affecting participation in Fadama III Programme in Imo State

	Parameter estimates	
	Co-efficient	t-value
Poverty status	0.4607285***	5.00
(Standard error)	(0.0921487)	
Funding	-4.62×10^{-7}**	2.08
(Standard error)	(2.22×10^{-7})	
Age of the household head	-0.0016259	0.39
(Standard error)	(0.0041946)	
Household size	-0.0016259	0.86
(Standard error)	(0.0041946)	
Formal education attainment	-.000892	0.09
(Standard error)	(0.0104824)	
Social capital	.0453792***	2.95
(Standard error)	(0.0153682)	
Extension contact	-0.0041708	0.39
(Standard error)	(0.0107662)	
Farm experience	.0328515**	2.49
(Standard error)	(0.0131744)	
Sex	0.0203602	0.28
(Standard error)	0.0729819	
Cons	-0.0149688	0.28
(Standard error)	(0.2920016)	
Sigma	0.2810827	0.05
(Standard error)	0.0285795	
LR chi2(9)	53.25***	
Log likelihood	-21.957699	
Pseudo R^2	0.5481	
Observation	70	
***	Significant @ 1.0 percent	
**	Significant @ 5.0 percent	
*	Significant @ 10.0 percent	

Source Stata result printout, Obs. summary: 14 left-censored observations at partcipatn~y<=0, 54 uncensored observations 1 right-censored observation at partcipatn~y>=.99643499

Contrastingly, the co-efficient of poverty is positive and significant at $p < 0.05$ critical level, hence, the intensity to participate in fadam programme will increase by 0.461 unit with a unit increase in poverty status of the farmers and may decline by the same value with a unit reduction in poverty status. This finding contradicts [1] that sever poverty poses a barrier to prosperity and hinders opportunities for resource acqiusation in Nigeria of the poor. According to [2], poverty is a pronounced deprivation of human well-being assets and vulnerability to adverse event outside the control of the 'poor.' Therefore, feelings of being disenfranchised from various support systems such as involvement and commitments in most poverty intervention programes like fadama as well as deprivation from social activities and decision making in issues concerning the poor themselves are usually synonymous with poverty status. The case is different with the farming households in Imo State as poverty is directly related with intensity of participation in fadama programme in the state. The model shows that the co-efficienct of funding is negative but significant effect with intensity of participation in fadama programme by 4.62×10^{-7} in the state. Funding from either the state counterpart funds or contributions by the beneficiaries increases with reduction in participation intensity in fadama programmes in the state.

In the same way intensity of participation in fadama is further increase by 0.0434 and 0.0042 units with a unit increase in social capital and farming experience respectively. Social capital

increases with the famers membership to social organization which include religious, social and economic organizations like clubs and associations, age grade and co-operatives [43]. These are usually made to facilitate the formation of FUGs. Intensity to participate is strongly accentuated by membership in social and economic organization as they can quickly facilitate FUG formation. Farming experience increases the level of farming skills and knowledge of farming among farmers. It increases the intensity of paricipation in fadama programme because it avials farmers the opportunity to showcase their ability and skills aquired over time in the business. This factors is considerd mostly when selecting competent co-operatives memebers into fadama programmes in the area.

5. CONCLUSION

Poverty intervention programme accentuates poverty reduction in Imo State and poverty reduction accounted for increase in inetnsity of participantion by farmers in the state. Intensity of participation in fadama programme increases due to increased social capital acquired by farmers, farming experience, reduced funding and poverty status of the farmers in Imo State. Increased involvement and commitment to fadama programmes offers the beneficiaries a better advantage to fadama facilities, improved their welfare and reduce the poverty among them in the area. Poverty is sever with household households low farming experience and decreases further with increaseed farming experience. Though poverty headcount is higer with male fadama users, the female fadama were under sever poverty probably because they still lack access to fundermental farm inputs and depend mostly on their husbands or sons for them. The same result were obtained for fadama farmers with relatively largers household size and low formal educational status.

The study suggested the use of experienced farmers in most poverty intervention programmes such as fadama and educate the farming household heads through extension contact. This will not only increase participation but remove poverty among the elites who are already technically competent and skillful in the use of fadama facilities. Governemt policies on poverty reduction should be followed with interest to increase poor farmers interest on poverty intervention programmes and young fadama users should be encouraged to participate while ensuring that low household size by household heads are enforces to reduce sever poverty.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Peer-review history:
The peer review history for this paper can be accessed here:
http://sciencedomain.org/review-history/18307