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INVESTIGATING THE NEXUS OF INSTITUTIONAL SOCIAL FARMERS GROUP AND MULTIDIMENSIONAL POVERTY AMONG THE SELECTED RURAL HOUSEHOLDS IN OSUN STATE

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Abstract
The study assessed the importance of participation in farmers' groups or associations by the rural farmers and the relationship that exists between institutional social farmers Groups and multidimensional poverty in the rural farming households in Osun State. *The specific objectives were to; describe the socio-economic characteristics of the rural farmers, assessed farmers' motives for belonging to farmers' groups, ascertain the number of farmers' groups the farmers belong to and identify the benefits in terms of access to agricultural inputs derived from belonging to farmers' groups.* The study investigated the relationship and the impact of farmers' groups on the poverty status of members and compared the same with the status of farmers who do not subscribe to any farmers' groups. A total number of Three Hundred questionnaires were administered and one hundred and fifty were retrieved. The unit of analysis was the household head; the period of research was the month of August 2021 to November 2021. The majority of the respondents were male (60%) while 40% were female. % of the respondents have a family size of between five and eight people. There was no significant relationship between sex, marital status, and participation in the farmers' group. There was a significant relationship between the educational level of the respondents and their participation in farmers' groups. The pseudo R^2 of the Membership of Social Groups parametersis 0.518. The implication of this is that the independent variables accounted for 51.8% variation in the dependent variable. And for the Non-Membership of Social Groups, the pseudo R^2 is 0.541, in other words, the independent variables accounted for 54.1% variation in the dependent variable. The log-likelihood of Membership in Social Groups is 52.096. That is, there is a 52.01% likelihood that there would be an increase in poverty among the farmers due to unit changes in independent variables in the equation. The log-likelihood for Non-Membership of Social Groups is 38.946. That is, there is a 38.95% likelihood that there would be an increase in poverty among the farmers due to unit changes in independent variables in the equation. The study revealed that farmers' groups can be enhanced by empowering them with requisite information and strategies on household food security, as the farmers can be reached using the groups they can repose their trust in.
Keywords: Social Group. Food Security. Rural Farmers. Household.

Introduction

Globally, agriculture provides livelihood to more people than any industry according to Food and Agriculture Organization 2015 report on social protection and agriculture.

Agricultural growth, at increasing levels, provides opportunities for many people to raise their income and escape poverty. It also provides raw materials for agricultural-dependent industries and meets the food security needs of the faster-growing urban population. Agriculture plays a critical role in reducing and preventing poverty among the teeming numbers of farming households. Akpan, Udoh, and Patrick (2016) posited that the agricultural sector is known to employ more than 70 % of the rural population and is a major absorber of labour during periods of economic crises or recession. In other words, agriculture is a veritable tool used by many economies as a buffer during economic

shocks, poverty alleviation interventions, youth empowerment, rural economic growth strategies, and food security. Agriculture is greatly essential to world economies. The populace of both developed and developing nations derive their economies from the operations within it. While agriculture accounts for 21 percent of Nigeria's GDP, the sector employs 70 percent of the labor force (World Bank 2017). Based on Nigeria's official definition of smallholders, more than 80 percent of farmers in Nigeria are considered smallholders because they own less than 5 hectares of land. Smallholders produce 99 percent of Nigeria's agricultural outputs, yet their productivity is hindered by several limitations. Major constraints to smallholder farming in Nigeria include the lack and high cost of labor and agricultural inputs in rural areas; a system that prevents the acquisition of new land; inconsistent support from local government councils, limited access to information, modern agricultural technology, and adequate financial services. (Mgbenka and Mbah 2016). Another characteristic of smallholder farming in Nigeria in the words of Anderson, Marita, Musiime, and Thiam (2017) is that smallholder farmers view farming as a family business, and labor is largely sourced from family members. And due to this, Information on agricultural activities, including financial advice, is sourced from family members and friends rather than from professionals and experts in the subject matter.

In an attempt to reduce poverty incidence in any social system, it is essential to review various factors that are contributory to poverty, especially among the economic units in the system. Poverty issue is not an isolated issue, it is a result of intertwined factors within the farming and social systems. In the submission of Yoshida, Uematsu, and Sobrado (2014), to lift the incomes of the rural poor above the extreme poverty line in sub-Saharan Africa, it would require an average increase in income of at least 60 percent above the estimated average income of the poor in 2010. In other words, it is imperative to close this income gap to achieve a reduction in poverty incidence.

The memberships of social groups and non-Memberships of social groups are types of dichotomy found within the rural areas. The differences in the poverty situations within these two have often time, escape the attention of research endeavours. And due to this fact, many of the interventions to reduce poverty incidences had always been using the same blanket approaches to solve the poverty issues among types of farming systems. These blanket approaches do not adequately deal with problems associated with poverty issues peculiar to these dichotomies. Therefore, this study aims at bridging the knowledge gap by investigating poverty differentials among farmers who belong to institutional social groups and those who are not, intending to discover if, participating in a farmer's social groups has a relationship with the multidimensional poverty status in the study areas.

The general objective of this study is to investigate the effects of membership in institutional social groups on the multidimensional poverty status of farming households in Osun state. The specific objectives are:

1. describe the socio-economic characteristics of the respondents in the study area.
2. explain the differences in the investment and production profiles of the respondents.
3. examine the factors that contribute to poverty status among the respondents.

MATERIALS AND METHODS

Study Area

The study area of the research was the Osun central senatorial district of Osun State. This comprises 13 local government areas of Osun State of Nigeria. Three local governments, namely, Ifedayo, Boluwaduro, and Odo-Otin local government areas were purposively chosen due to their degree of rurality and prevalence of smallholding farming activities. The study population is all registered farmers with the Department of Agriculture and natural resources of the local government areas for the farmers who are members of farmers' social groups. The 150 farmers were randomly selected from the list. A household visit was done to identify farmers who do not belong to any farmers' social

groups. For the farmers who do not belong to any farmers' social groups, 50 farmers were sampled per each local government. given a total of 150 farmers sampled. The total number of farmers sampled was 300.

Sample Collections

The source of data collection for the study was through primary and secondary sources. Data were collected through the administering of questionnaires to the respondents with 50 questionnaires not retrieved.

The instrument for data collection was subjected to pre-existing validation and reliability tests through face validity to determine the extent to which the instrument measures what was designed to measure, and consistency within the instruments The data was analyzed by frequency distribution, means and percentage, Chi-square, and Pearson product-moment correlation and regression analysis were used to explore the relationship between variables. The independent variables for this study are selected socioeconomic characteristics (age, education, marital status, gender)

Multi-dimensional Poverty Analysis

The MPI was created using a method developed by Alkire and Foster (2007) which builds on intuitive yet rigorous ways of using people's deprivation profiles. The **Alkire Foster** methodology is flexible and can be used with different dimensions, indicators, weights, and cutoffs to create measures specific to different societies and situations. The methodology had been developed, to assess multidimensional poverty in developing countries. Both the incidence and the intensity of these deprivations are highly relevant pieces of information for poverty measurement.

The Probit Regression Model

The probit modelis a type of regression where the dependent variable can take only two values. In this study, it was used to establish the factors influencing and determining multi-dimensional poverty among the respondents. **The** Probit Regression model was used to analyze and examine the factors that influenced multi-dimension poverty among farming households. The dependent variable was the Multi-dimension Poverty status of the farming households. It was dichotomous in measurement, in the sense that if a farming household status is multi-dimensionally poor, it was 1 otherwise, it was 0. The Multidimensional Poverty Index of farming households was determined by using three dimensions with ten indicators to measure the occurrence of poverty.

This can be expressed as:

$$\text{Prob.}(q_n=1)= \frac{e^{xit}+\beta^{xit}}{1+e^{xit}+\beta^{xit}} \quad \ldots\ldots\ldots\

income, is uniquely able to capture the multiple aspects that contribute to poverty. For this reason, since 1997, *Human Development Reports* (*HDRs*) have measured poverty in ways different than traditional income-based measures. The Human Poverty Index (HPI) was the first such measure, which was replaced by the Multidimensional Poverty Index (MPI) in 2010 (Santos and Alkire 2015)

The MPI is an index designed to measure acute poverty. Acute poverty refers to two main characteristics. First, it includes people living under conditions where they do not reach the minimum internationally agreed standards in indicators of basic functioning, such as being well nourished, being educated, or drinking clean water. Second, it refers to people living under conditions where they do not reach the minimum standards in several aspects at the same time. In other words, the MPI measures those experiencing multiple deprivations, people who, for example, are both undernourished and do not have clean drinking water, adequate sanitation, or clean fuel. The MPI combines two key pieces of information to measure acute poverty: the incidence of poverty, or the proportion of people (within a given population) who experience multiple deprivations, and the intensity of their deprivation - the average proportion of (weighted) deprivations they experience. Both the incidence and the intensity of these deprivations are highly relevant pieces of information for poverty measurement. To start with, the proportion of poor people is a necessary measure. It is intuitive and understandable by anyone. People always want to know how many poor people are in society as a proportion of the whole population. The MPI also has some important advantages. Because of its rich functional form and direct measures of acute deprivation, it allows for comparisons across countries or regions of the world, as well as within-country comparisons between regions, ethnic groups, rural and urban areas, and other key household and community characteristics. It also allows for comparison between farming operations. According to Alkire and Santos (2015), it enables analysis of patterns of poverty: that is, how much each indicator and each dimension contributes to overall poverty.

The Components of Multidimensional Poverty Index Measurement

The MPI is composed of three dimensions made up of ten indicators as depicted in Figure 1. Associated with each indicator is a minimum level of satisfaction, which is based on international consensus. This minimum level of satisfaction is called a deprivationcut-off. Two steps are then followed to calculate the MPI:

Step 1: Each person is assessed based on household achievements to determine if he/she is below the deprivation cut-off in each indicator. People below the cut-off are considered deprived in that indicator.

Step 2: The deprivation of each person is weighted by the indicator's weight. If the sum of the weighted deprivations is 33 percent or more of possible deprivations, the person is considered to be poor.

Composition of the MPI (Dimensions and Indicators according to Alkire and Foster (2007)

S/N	Three Dimensions of Poverty	
Health	**Education**	**Living Standard**
Nutrition	Years of Schooling	Cooking Fuel
Child Mortality	School Attendance	Sanitation
		Water
		Electricity
		Floor
		Assets

Source: Alkire and Foster (2009)

RESULTS AND DISCUSSION

Social-Economic Characteristics of the Respondents

Social Group Membership

The table1 indicates that 57.2 % of the respondents belong to diverse social groups. In the study areas, membership in social groups was deemed expected to play critical roles in how the respondents cope with poverty. Submission of Liverpool and Winter-Nelson (2010), opined that Social networks indirectly affect agricultural productivity by influencing farming practices and the household's propensity to adopt newer technologies via the supply of information through social networks.

Table 1: Distribution of the Respondents by Social Group Membership

Items	Frequency	Percentage
Membership in Institutional Social Groups	143	57.2
Non-Membership in Institutional Social Groups	107	42.8
Total	250	100

Source: Field Survey 2021

Table 2:Age Distribution of the Respondents

	Members of Social Groups		**Non-membership Social Groups**	
Age (years)	Frequency	Percentage (%)	Frequency	Percentage (%)
31 – 40	26	18	24	23
41 – 50	60	42	48	45
51 – 60	50	35	27	25
Above 60	7	5	8	7
Total	**143**	**100.0**	**107**	**100.0**

Source: Field Survey 221
Mean (Members of Social Groups) = 48.02 years
Mean (Non-membership Social Groups) = 47.8 years

Table 2 shows the average age of respondents who are Members of Social Groups is 48.02 years while for respondents who are not active in any membership of social Groups is 47.8 years
This finding further supports the submission of Anderson, *et al* (2017) on smallholder farming households in Nigeria. They submitted, based on their field findings, thatthe youngest generation shows the most interest in agriculture and values hard work and achievement.
Table 3 reveals that 76% of the respondents (Membership of S**ocial Groups**) were Male respondents, with 34% female respondents. For the respondents who are not **Members of Social Groups**, 69% were Male and 31% were Female. The significance of this is that the farming sector is still dominated by Male farmers. The same trend was found among the non-Membership of Social Groups. Table 3 shows that 75% of the respondents among the non-Membership of Social Groups were male farmers.

Table 3: Sex Distribution of the Respondents

	Membership in Social Groups		**Non-membership Social Groups**	
Gender	**Frequency**	**Percentage (%)**	**Frequency**	**Percentage (%)**
Male	109	76	74	69
Female	34	24	33	31
Total	**143**	**100**	**107**	**100**

Source: Field Survey 2021

Educational Level of the Respondents

Table 4 shows that, among the respondents who are **Members of Social Groups**, the largest percentage 45.5% possess primary school education, while 9.1% of the framers have no formal education. The general overview of Table 3 shows that appreciable numbers of respondents can be said to be literate. The Table further shows that 28.9% of the respondents who are not active members of social groups possess tertiary education and 31.8% possess secondary school education. The finding is in line with the submission of **Okoruwa, Obi-Egbedi, and Adeniran (2015), that** a large number of years of schooling is expected to have a positive effect on the adoption of the agricultural programme.

Table 4: Distribution of Educational Level of the Respondents.

	Membership in Social Groups		Non-membership Social Groups	
Educational Level	Frequency	Percentage	Frequency	Percentage
No Formal Education	13	9.1	4	3.7
Primary Education	65	45.5	15	14.0
Adult Education	22	15.4	23	21.5
Secondary Education	27	18.8	34	31.8
Tertiary Education	16	11.2	31	28.9
Total	143	100	107	100

Source: Field Survey 2021

Marital Status

Table 5 indicates that the largest percentage of the respondents are married. This shows that the family will work together in their quest to improve their living standard and this will enhance the utilization of innovations and the ability to discuss and make a wise decision as regards adoption. Marital seems to play a critical role in the household decision-making process.

Table 5: Distribution of the Respondents by Marital Status

	Membership in Social Groups		Non-membership Social Groups	
MaritalStatus	**Frequency**	**Percentage**	**Frequency**	**Percentage**
Single	5	3.7	9	8.4
Married	120	83.9	68	63.6
Widowed	15	10.3	27	25.2
Divorced	3	2.1	3	2.8
Total	**143**	**100**	**107**	**100**

Source: Field Survey 2021

Farming Experience of the Respondents

Tables 6 indicate the farming experiences among the respondents. The average farm experience among the respondents who are active members of the social groups is 28 years compared to those who are not active members of the social groups, which is 20 years.

Table 6: Distribution of Farming Experience of the Respondents

Experience(years)	**Membership in Social Groups**		**Non-membership Social Groups**	
	Frequency	**Percentage**	**Frequency**	**Percentage**
1 – 10	13	9.1	27	25.2
11 – 20	18	12.6	28	26.2
21 – 30	72	50.3	23	21.5
31 – 40	31	21.7	21	19.6
Above 40	9	6.3	8	7.5
Total	**143**	**100.0**	**107**	**100**

Source: Field Survey 2021
Mean farm experience for membership of social group= 28 years
Mean farm experience for non-membership of social group= 19years

House Size of the Respondents

Table 7 shows that 52.4% of the respondents in Membership of Social Groups have 5 household members. The same applies to non-Membership of Social Groups, where 55.3% of the respondents have about 6 household members. This closely follows Balogun and Obi-Egbedi's (2012) finding of an average of six persons per household in Southwest Nigeria. Among the Membership of Social Groups, 41.3% of the respondents had more than six household members, and 34% of the non-Membership of Social Groups also had more than six household members. The large household size implies the household poverty status. The large number of household members will result in more household expenditures on consumption.

Table 7: Distribution of House size of the respondents

House size	Membership of Social Groups		Non-Membership of Social Groups	
	Frequency	**Percentage**	**Frequency**	**Percentage**
1 – 3	4	2.8	4	3.9
4 – 6	75	52.4	57	55.3
7 – 9	59	41.3	35	34.0
10 – 12	5	3.5	7	6.8
Total	**143**	**100.0**	**103**	**100.0**

Source: Field Survey 2021
Mean household size for **Membership of Social Groups** = 5
Mean household size for Non- **Membership of Social Groups** = 6

Farm size of the Respondents
Table 8 shows that 45.4% of Membership of Social Groups in the study areas had farm sizes of 4.1 to 5.0 hectares, while 44.6% of the respondents who are not active members of social groups had farm sizes of 4.1 to 5.0 hectares. The average farm size among the respondents is 4.8 hectares.

Table 8: Distribution of Farm size of the Respondents

Farm Size (Hectares)	**Membership of Social Groups**		**Non-Membership of Social Groups**	
	Frequency	**Percentage**	**Frequency**	**Percentage**
1.1 – 2.0	6	4.2	8	7.8
2.1 – 3.0	3	2.1	5	4.9
3.1 – 4.0	3	2.1	3	2.9
4.1 – 5.0	65	45.4	46	44.6
5.1 – 6.0	57	39.9	33	32
6.1 – 7.0	4	2.8	4	3.9
Above 7.0	5	3.5	4	3.9
Total	**143**	**100.0**	**103**	

Source: Field Survey 2021

Respondents' motive for joining Farmers' groups.
The respondents were asked to choose the most singular reason for joining institutional social groups. A large percentage of the respondents, 98% chose access to Credit facilities as the most singular reason for joining social groups. In the other responses, table 3 shows that 70% of the respondents choose the issues of personal welfare and support as the second reason for joining social groups while market information and network ranked third (65%) as a reason to join the social group. Access to agricultural inputs was an important issue the farmers are confronted with, 54% of the respondents chose access to agricultural inputs as a reason to join social groups.
It is a common process for government agencies to relate with farmers on a group basis rather than on an individual basis. This may account for the respondent joining farmers' groups and associations to access government aid in terms of credit, training, and other benefits. The results further show that all respondents joined their farmers' group because of financial credits and assistance. Okumadewa

(1999) submitted that the majority of the poor are rural dwellers, who lack basic agricultural equipment and inputs and are subjected to a decline in productivity. In the process to adjust to their poor condition, the rural dwellers resort to joining social groups that would supply the necessary farm support services they lack.

Table 9: Distribution of respondents according to the main reason for joining a social group

Variables	Frequency	Percentage
Market information and network	2	28.5
Welfare and support	2	30
Access to Extension services	0	8.2
Political Influence	0	1.7
Agricultural Inputs	1	0
Credit facilities	245	98
Information seeking and awareness	0	10

Source: field survey 2021

Respondents' motive for abstaining from Farmers' groups.

Table 10: Distribution of respondents according to the main reason for abstaining from social group (Ranking in the percentage of responses)

Variables	Percentage (%)
Historical bad experiences (government and institutions inconsistencies)	27.2
Demands of resources, time, and commitment	21.6
Opaqueness in the style of management	15.6
Ignorance of the process and benefits	12.8
Restriction of individual rights	9.6
Internal politics	8.0
Prejudice	5.2

Source: field survey 2021

Table 10 shows that bad experiences from members of the farmers' social groups have a strong impact on the perspective of farmers who are not active members of any farmers' groups. 27.2% of the respondents agreed that the historical bad experiences with the farmers' groups shut the possibility of joining any formal farmers' group. While prejudice was not considered a main reason, the fact that 8% of the respondents felt they would be judged and deferred the possibility of joining the farmers' group. The 21.6% of respondents felt the demands from the farmers' group outweigh the benefits of joining.

The results in Table 10 are more of the perception and experiences of the respondents, who are more concerned about the constraints to joining or belonging to farmers' groups; and the absence of transparency in the process to access the intended benefits of membership of farmers' groups.

Respondents' membership of Social Group.

The results show that all respondents belong to one or the other crop farmers' association which is the umbrella body of farmers in the study areas. The umbrella farmers group has opportunities to deal directly with government agencies on behalf of their members. The respondents are well

knowledgeable about the importance of deriving strong social capital by joining farmers' associations. The largest percentage of the respondent (96%) are members of government-registered cooperative societies and while only 26.8% belong to Micro-Financed supported credit groups. The interest offered by the cooperative societies provides succor and financial safety for farmers compares to the high interest demanded by the micro-finance bank. 80% of the respondents are members of groups formed and supported by intervention agencies, Non-Governmental Agencies, these agencies provide extension services and market information to the farmers. The analysis from the table shows that the respondents belong to more than one social group.

Table 11: Distribution of respondents according to membership of social group

Variables	Membership	Percentage (%)
Institutional Cooperative society	240	96.0
Produce marketers	184	73.6
Crop farmers (FADU, AFAN)	200	80.0
Micro-credit group (micro-financed bank supported)	67	26.8
Fadama Users Group (disbanded)	145	58.0
NGO and organized group	200	80.0
Welfare Community Association	86	64.3

Source: field survey 2021

Estimation of Poverty Profile

Table 12 shows that 70% of Membership of Social Groups were deprived of electricity, which is the highest among the indicators. The issue of deprivation in electricity is unique to poverty incidence. 58.3% of non-Membership of Social Groups were deprived of electricity, which is half of the respondents; it shows that, once there is a lack of electricity supply, the economic growth in the study areas is expected to witness stunted growth. Regarding the non-Membership of Social Groups, the highest level of deprivation is the ownership assets in the area of mobility, which is 66.7%. a critical point of note is adequate sanitation that is, the availability of modern toilet facilities. Among the maize/cassava and non-Membership Social Groups, 51.7% and 35% respectively were deprived of adequate sanitation. According to Abubakar (2017), access to improved sanitation facilities is key to the socio-economic well-being and sustainable development of any society. The majority of the respondents in the study areas possessed handset phones. 6.7% of Membership of Social Groups were deprived of handset phones while 0% of the non-Membership of Social Groups were deprived of phones.

On the issue of potable water, 15% of maize/cassava was deprived, while 0% of non-Membership of Social Groups were deprived. In terms of ownership of assets, 90%, 18.3%, 76.7%, and 13.3% of Membership of Social Groups were deprived of refrigerators, radios, cars, and cemented house floors respectively. On the issues of deprivation in education, 38.3% and 11.7% of the maize/cassava households are deprived of basic education and school enrolments respectively. Among the non-Membership of Social Groups, 20% and 8.3% were deprived of basic education and school enrollment. From this finding, there is high school attendance by school-age children in households in the study areas. As reported by Udoh, Akpan, and Uko (2017), 20% of the rural farmers in their study have a primary school education and 53% have a secondary school education. There is a low deprivation indicator in the area of quality healthcare among the respondents. 6% of Membership of Social Groups were deprived of access to quality healthcare services and 5% of non-Membership of Social Groups were deprived of access to quality healthcare services.

Table 12: Differences in the Incidence of Deprivation across Indicators

	Membership of Social Groups		Non-Membership of Social Groups	
Indicators	**Frequency**	**Percentage**	**Frequency**	**Percentage**
Secondary education	23	38.3	12	20.0
School Age Enrolments	7	11.7	5	8.3
Electricity	42	70.0	35	58.3
Potable water	9	15.0	0	0.0
Adequate sanitation	31	51.7	21	35.0
House floor	8	13.3	7	11.7
Kerosene stove	27	45.0	4	6.7
Car	46	76.7	40	66.7
Quality health care	6	6.0	3	5.0
Phone	4	6.7	0	0.0
Refrigerator	54	90.0	31	51.7
Radio	11	18.3	28	46.7
Motorbike	27	45.0	19	31.7

Source: Field Survey 2021

Multidimensional Poverty Estimates

Table 13 shows the multidimensional poverty status of the respondents in the study areas. The tables show 53 % of the respondents among the farmers who are Members of Social Groups are experiencing deprivation in more than one identified dimension (education, consumption, and living standard), while 56.3% of the farmers who are not members of the farmers' group are experiencing poverty. Relatively, poverty incidence is high in the study areas.

Table 13: Distribution of Respondents by Multidimensional Poverty Status

Headcount	Membership of Social Groups		Non-Membership of Social Groups	
	Frequency	**Percentage**	**Frequency**	**Percentage**
Poor	76	53.0	58	56.3
Non- poor	67	47.0	45	43.7
Total	**143**	**100.0**	**103**	**100.0**

Source: Field Survey, 2018

Multidimensional Poverty Index (MPI) Estimate

Table 14 revealed the headcount, average poverty gap, and adjusted headcount ratio (MPI). Among the farmers who are non-members of farmers' groups, the headcount ratio is 0.570, which means 57% of the farmers who are non-members of farmers' groups in the study areas were far away from the poverty line. It also implies that; the poverty incidence is on average among the farmers who are non-members of farmers' groups. The average poverty gap ratio was 0.440, which means, that an average person who is a non-member of farmers' groups was poor in 44% of the indicators. This shows the intensity of poverty among the farmers who are non-members of farmers' groups. Also, the adjusted headcount ratio was 0.250, which means 25% of the farmers who are non-members of farmers' groups in the study experienced poverty in all indicators of the poverty dimension. One critical point of note from these findings is that the poverty among the non-member of farmers' groups is on the average rather than on the high side.

Table 14 also revealed the headcount ratio among the farmers who are members of farmers' groups. It reveals that 36% of the farmers who are members of farmers' groups in the study areas are far away from the poverty line. An average farmer who is a member of farmers' groups is poor in 40.5% of the indicators in the dimensions. 15% of the farmers who are members of farmers' groups experienced poverty in all indicators of poverty dimensions in the study areas. This is low when compared with the farmers who are non-members of farmers' groups. The poverty incidence is not high among the farmers who are members of farmers' groups in the study areas

Table 14: Multidimensional Poverty Index (MPI)

MPI	Membership of Social Groups	Non-Membership of Social Groups
Head Count	0.570	0.369
Average Gap	0.440	0.405
M_0 Adjusted Headcount	0.250	0.150

Source: Field Survey 2021

Table 15 Determinants of Multidimensional Poverty among the respondents

	Membership of Social Groups			Non-Membership of Social Groups		
Variables	**Co-Efficients**	**Standard Error**	**P-value**	**Co-efficients**	**Standard Error**	**P-value**
Constant	1.077	0.757	5.376	-14.663	3.361	0.000
Age	4.306	1.857	0.053*	-0.022	0.048	0.054*
Gender	0.052	0.050	0,035**	-0.078	0.031	0.038**
Marital	1.03	0.757	0.037**	2.350	1.795	0.012**
Household size	-3.012	0.01	0.040**	0.591	0.271	0.029**
household income	-0.22	0.258	0.042**	-0.393	0.002	0.050*
Farming experience	0.026	0.199	0.104	-0.055	0.034	0.112
Access to credit	- 1.4	1.006	0.084*	-3.755	0.239	0.036**
Farm size	-0.03	0.033	0.070*	-0.392	0.856	-0.019**
Membership of Social Groups	-1.555	0.499	0.069*			
Education	-4.11	0.205	0.026**	-8.184	0.001	0.000***
Pseudo R^2	0.518			0.541		
Log Likelihood	52.096			38.946		

The age of the farmers has an inverse relationship with multidimensional poverty at a statistically significance level of 10%. The a priori expectation is that, if the coefficient of age is positive, that is, as age increases, the probability of experiencing multidimensional poverty increases. The study corroborated this expectation. The following explanatory variables are significant, gender, marital, household size, access to credit, farm size, education, and membership of farmers' groups. The farming experience has no significant relationship with multidimensional poverty among the respondents in the study areas.

The pseudo R^2 of the Membership of Social Groups parametersis 0.518. The implication of this is that the independent variables accounted for 51.8% variation in the dependent variable. And for the Non-Membership of Social Groups, the pseudo R^2 is 0.541, in other words, the independent variables accounted for 54.1% variation in the dependent variable.

The log-likelihood for Membership in Social Groups is 52.096. That is, there is a 52.01% likelihood that there would be an increase in poverty among the farmers due to unit changes in independent variables in the equation. The log-likelihood for Non-Membership of Social Groups is 38.946. That is, there is a 38.95% likelihood that there would be an increase in poverty among the farmers due to unit changes in independent variables in the equation.

Conclusion and Summary

Agricultural innovation can contribute to rural development through both direct and indirect effects. The relative importance of each of these will be largely determined by the speed with which households adopt new technologies relative to others, by the condition of the household as net food buyer or seller, by the degree of market liberalization that conditions whether the particular products is tradable or non-tradable, and by the institutions and incentives facing farmers' adoption of innovation. The direct effects of social capital are those benefits that are captured by the farmers who implemented the information learned during the process of interaction. The main form of direct effects is higher profits from agricultural production.

New technologies can improve a farmer's income when they reduce the marginal cost of producing one unit of output. Since for a time output prices will still be driven by the prevalent (old) technology, profits will increase for those farmers who adopt the new technology.

Household food security can be further enhanced through the empowerment of various farmers' groups by exposing them to training on improved farm practices, basic home economics, and effective food storage practices.

It is therefore recommended that:

1. The farmers should deepen their participation in social groups by forming and involving in partnerships and guidelines for designing self-driven poverty alleviation strategies.
2. Policymakers should lay more emphasis on empowering local farmers' groups.
3. Agricultural extension communication strategies by the government should employ more extension agents and also disseminate information on livelihood growth and diversification among the farmers. The extension agents should be able to offer economic advice to farmers to prevent them from falling deeper into poverty and facilitate the farmers' involvement in social groups.

REFERENCES

Alkire, S. and Foster, J. (2011). Counting and multidimensional poverty measurement. *Journal of PublicEconomics*, 95(7–8), 476–487.

Alkire, S. and Santos, M. E. (2014). "Measuring acute poverty in the developing world: Robustness and scope of the Multidimensional Poverty Index." *World Development*, 59: 251–274.

Alkire, S., Roche, J. M., and Vaz, A. (2016). 'Multidimensional poverty dynamics: Methodology and results for 34 countries.' *OPHI Research in Progress* 41a, Un. Of Oxford.

Akpan, S.,and Udoh E. Patrick I (2016). Farmers' Decision to Participate in Government Agricultural Pro-grammes in a Volatile Political Environment: A Case study of Famers in the South-South region of Nigeria. *Russian Journal of Agriculture and Socio-Economic Sciences*, 5(53), 135–148. doi: 10.18551/rjoas.2016-05.18

Anderson J, Marita C, Musiime D, and Thiam M (2017) Working paper National Survey and Segmentation of Smallholder Households in Nigerian Understanding Their Demand for Financial, Agricultural, and Digital Solutions . *CGAP working paper 2017 Pp 93*

Balogun O. L and Obi-Egbedi O (2012). Resource use efficiency and productivity of cocoa farmers in Idanre LGA of Ondo state, Nigeria. Am. J. Social Manage. Sci. 3(2):60-67.

FAO. (2015). *The State of Food and Agriculture 2015. Social protection and agriculture: Breaking the cycle of rural poverty*. Rome pp 180

Mgbenka, R. N., and Mbah E. N.. (2016.) A Review of Smallholder Farming in Nigeria: Need for Transformation." *International Journal of Agricultural Extension and Rural Development Studies*, Vol. 3, No. 2, pp. 4–54, May. http://www.eajournals.org/wp-content/uploads/A-Review-of-Smallholder-Farming-In-Nigeria.pdf

Okoruwa V.O, Obi-Egbedi O and L. O. Adeniran (2015):Root and tuber expansion programme and poverty reduction among farmers in Southwest Nigeria Journal of Development and Agricultural Economics Vol. 7(10), pp. 332-343, October, 2015 http://www.academicjournals.org/JDAE

World Bank website,http://www.worldbank.org/en/country/nigeria/overview accessed on December, 20, 2021

Yoshida, N., Uematsu, H. &Sobrado,C.E. 2014 *Is extreme poverty going to end? An analytical framework to evaluate progress in ending extreme poverty*. World Bank Policy Research Paper No. 6740, Washington, DC, World Bank.