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Effect of agricultural cooperatives in poverty alleviation among farmers in Iwo local government area of Osun state

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ABSTRACT

The level of poverty in the developing countries of the world is becoming increasingly alarming given the figures consistently reported for the area. This study examined the effect of agricultural cooperatives as a means of alleviating poverty among farmers in Iwo Local Government Area of Osun state. A total of 100 questionnaires were administered out of which 90 were retrieved. 57 of the respondents were participants of cooperatives while 33 of them were non participants. The data was analysed using descriptive statistics, Foster, Greer and Thorbecke (FGT) and probit regression models. It was discovered that poverty exists among all categories of farmers (participants and non-participants of cooperatives). Though, non participants of cooperatives had the highest poverty incidence, depth and severity of 0.47, 0.17 and 0.56 respectively. The analysis of socio-economic characteristics showed that age, educational status, household size, farm size and land acquisition have relationship with incidence of poverty among participants of cooperatives and non-participants. Income and farm size significantly and positively influence the effectiveness of cooperatives on household poverty status at 0.05 and 0.01 level of significance respectively. The study therefore recommends that the farmers should engage themselves in other income generating activities to have a higher purchasing power in order for them to break out of poverty.

Introduction

Poverty is a large and growing problem in Nigeria. Poverty can be defined as that social condition characterized by the inadequacy of access to basic human needs for the maintenance of socially acceptable minimum standard of living by the majority in a given society. Poverty however, conceptualized, defined or measured has continued to escalate in Nigeria in spite of the rapid economic growth which the country has experienced since advent of petroleum wealth (World Bank, 2001). Some of these basic determinants of wellbeing include adequate food, shelter, portable water, health care, education and employment opportunities. As access to most of these needs are largely market determined, income or disposable resources available to the individual or households invariably determines who has what (Ravallion, 1992)

The ailing economy and the worsening condition of living has been much of concern for the Nigerian government. Government has introduced over the years some relief programmes in order to advent the social and political consequences of impending eruption of an overstretched and over-marginalized population. The Nigeria poverty assessment study showed that 87 percent in 1985 and 67 percent in 1992 of the core poor were in agriculture and all basically resides in the rural areas (FOS 1999).

According to Ukwu (2002), ‘’the meaning of poverty to many is diverse. It means different things to different people in contexts and circumstances. The most basic meaning refers to poverty as the quality or conditions of being poor; the condition of having little or no wealth or material possession. In the absolute term, poverty afflicts farm families whose output and income cannot produce some minimum standards of living (Clayton, 1993). As Ukwu put in 2002, the eradication of poverty is universally accepted as primary development objectives. Today Nigeria is one of the poorest nations of the world and is confronted not just with pockets of poverty disadvantaged or unorganized areas, groups and individual but with mass poverty as a situation in which most of the people live a very sub- standard lives. The reduction of poverty is the most challenge facing any country in the developing world when on the average majority of the population is considered poor.

According to Adegeye (1985), availability of credit to small scale farmers can help break the vicious cycle of low capital, low productivity, low level of output consequently low level of savings and investments etc. Farmers do have problems in getting loans from the bank because they lack collateral security and high administrative cost. Banks and other financial institutions find it difficult to give loans to small farmers but prefer to give to group of farmers or farmers’ cooperative societies because such loans are guaranteed.

Cooperatives are important in obtaining production and consumption credit for their members, as loans are obtained collectively, payments also becomes a collective responsibility as far as the lenders are concerned. The cooperative movements are sort of a form of insurance against default since the members know themselves and can hence bring pressure to bear on defaulting members to pay back. Agricultural cooperatives like many other cooperatives are needed to help members to solve their problems collectively instead of looking up to government for solutions (Ajileye, 2009). Olayide et al (1981) pointed out that one of the most effective vehicles for organizing modernized rural production is the formulation of cooperative.

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He went further to argue that only cooperatives could lead to the process of rural progress.

Okuneye (1978) in his enumeration of the benefits associated with cooperatives tends to sustain Olayide's argument. Such benefits in his views include the potentiality for improved income, as services are provided at cost to members. Secondly, farmers may also improve their bargaining strength and increase their product prices or lower factor cost. To buttress this fact, Umabili (1983) revealed that larger farms can earn higher net revenues thereby reaping the reward of economies of scale. This is however one of the advantages of being a co-operator.

The incidence of poverty among the farmers can be traced to lack of inputs such as farm size, access to credit, level of fertilizer use, types of crops grown, kind of machinery use, improved varieties of seed use, use of pesticides and fertilizers among others (FOS, 1999). From the above, the incidence of poverty can be broadly classified to lack of credit capital available to farmers. Despite all the different policies on alleviating poverty, farmers are still trapped in the vicious cycle of poverty. It becomes imperative therefore to conduct a study aimed at addressing poverty level among farmers in cooperatives and those that are not members of a cooperative society. The information gathered would help to improve our knowledge of how agricultural cooperatives can bring about additional increase in the earning of farmers and living condition of farmers. Accordingly, the study will answer the following research questions; what are the benefits farmers derived from being a co-operator? What is the poverty status of participants and non participants of cooperative society? What is the effectiveness of cooperative societies on household poverty status? This is needful to determine if participating in cooperatives has effect on the poverty status of household.

Objectives of the study

This study examined the effect of agricultural cooperatives in poverty alleviation among farmers in Iwo Local Government Area of Osun State. Specifically the study tries to:

1. Examine the socioeconomic characteristics of participants and non-participants of cooperative societies in Iwo Local Government Area.
2. Determine the benefits derived by farmers in cooperative society.
3. Profile the poverty status of participants and non-participants of cooperative society.
4. Examine the effectiveness of cooperative society on household poverty status.

Methodology

Study area: The area covered is Iwo Local Government Area of Osun State of Nigeria. Iwo is an agrarian community with vast majority of the population into farming occupation. The population of Iwo is about 275,332 (NPC 2006). Iwo town is predominantly Muslim community with Yoruba as the main language.

Sampling techniques: The sampling method used in this research was multi stage random sampling techniques. Stage 1 is the random selection of 4 villages out of a total of 42 and the villages were Papa, Ogburo, Idi-araba and Ologunebi. Stage 2 is the random selection of 25 respondents from each of the 4 villages. After the collection of data, the respondents were classified into cooperatives and non-cooperatives participants. A total of 100 questionnaires were administered out of which 90 were retrieved, 57 farmers were members of cooperatives while 33 farmers were non-members.

Method of data analysis: Descriptive statistics and quantitative tools were used for analysing data in this study. The descriptive statistics include Tables, Percentages and Frequencies, which were used to analyse the socio-economic characteristics and benefits farmers derived from cooperatives. Poverty line was constructed to know the category of the poverty level of each household. Bi-variate probit regression model was used to examine the effectiveness of cooperatives on household poverty status. Also, FGT analysis of the poverty class was done to know the incidence, depth and severity of poverty among each category of farmers.

Construction of Relative Poverty Line

Measure of poverty started with the specification of a poverty line that separates the rich from the poor (World Bank, 1992). More precisely, the value of basic need considered adequate for meeting minimum level of decent living in an area affected. Poverty lines are usually based on income or consumption (i.e. expenditure). The proportion of the population below poverty lines gives an insight into the scope of the poverty problem. In this study, total per capita expenditure will be used as a proxy for the standard of living of the households in the study area.

Total expenditure appears a broader measure of the standard of living than caloric intake and nutritional status since it reflects the assumption that households' welfare is affected by food and non food items or amenities together with nutritional variables. The approach is based on the classification of the poor and non-poor households in relation to their level of total expenditure on food and non-food items. The total expenditure is calculated for a month and then corrected for household size by dividing each household monthly expenditure by the household size.

Per capita household expenditure

$$= \frac{Total\ household\ monthly\ expenditure}{Household\ size}$$

While mean per capita expenditure

$$= \frac{Total\ per\ capital\ expenditure\ for\ all\ households}{Total\ number\ of\ household}$$

From this mean per capita household expenditure (MPCHHE) two lines are set relative the standard of living in the area.

(1) A core poverty line equivalent to one third of the mean per capita household expenditure

(2) A moderate poverty line equivalent to two third of the mean per capita household expenditure.

Based on this, households in each category of farming operation are therefore categorized into the following poverty classes;

(a) Core poor (b) Moderately poor (c) Non poor

General household

Total per capita household expenditure= N902,660, Mean per capita= N1255.4, Moderate poverty line (2/3MPCHHE)= N828.56, Core poverty line (1/3MPCHHE)=N418.47

Participants of cooperatives

Total per capita household expenditure= 300886.67, Mean per capita household expenditure= N838.12, Moderate poverty line (2/3MPCHHE)= N558.75, Core poverty line (1/3MPCHHE)= N279.37.

Non-participants of cooperatives

Total per capita household expenditure= N248886.67, Mean per capita household expenditure= N805.45, Moderate per capita household expenditure (2/3MPCHHE)= N536.97, Core poverty line (1/3MPCHHE)= N268.48

Analysis of Poverty Profile

From the poverty lines, the poverty profiles were analyzed with the use of poverty indicators; (i) the head count

ratios/incidence of poverty which is simply the ratio of the number (or percentage) of poor individuals to the number of individuals in the population i.e. it measures the percentages of populations that falls below the poverty line. The poverty head count, H or Po – q/n where q = number of people below the poverty line, n = total number of people in the population. The head count index is useful in tracking changes in the percentages of the population living in poverty. (ii) Expenditure distribution below poverty line: the severity of the poverty will depend on how the poor are distributed below the poverty line. (iii) The Pa class of measure of poverty: A class of additively decomposable measures (Pa) was proposed by foster, Greer and Thorbecke (1984). The Pa measures subsumes the head count index and provides a distributional sensitive measures through the choice of a ''poverty aversion'' parameter; the greater the weight given by the index to the severity of poverty.

The FGT measure of the pα is given as: pα = n – 1q

E(Z – Yj)a/z

F=1

Where pα is the weighted poverty index; n is the total number of households; y is the per capita expenditure of households (yj); q is the number of household in poverty; z is the poverty line. Lastly, a is the degree of concern for the depth of poverty (IFAD 1993)

a = 0 gives the incidence of poverty, a = 1 gives the depth of poverty, a = 2 gives the severity of poverty.

Probit regression analysis

Bi-variate probit regression model was used to examine the effect of cooperatives on household poverty level. The probit regression model is given as

$$Y(\beta X_i) = \int_{-\infty}^{\beta xii} 1/\sqrt{2t}\ \exp(-t^2 / t)\uparrow 2\ dt$$

Where Y is the dependent variable, which is the poverty status of the household.

0 = household in poverty and 1 = non household in poverty.

Where t is the random variable, which distributed as a standard normal deviate. β is a vector of unknown coefficients, X_i is the vector of characteristics of the i^{th} individual and is the independent variables, which defined as follows;

X_1 = Income (naira).

X_2 = Farm size (hectares).

X_3 = Membership and non-membership (1 = membership, 0 = membership).

X_4 = Educational status (Year of formal education).

X_5 = Household size (actual number).

X_6 = Gender (1 = male, 0 = female).

X_7 = Marital status (2 = married, 1 = single).

$Y(\beta X_i)$ is the probability that the i^{th} will be in poverty. Thus, the probability of poverty level is the area under the standard normal curve between $-\infty$ and βX_i. The larger the value of βX_i the more likelihood that the household will be in poverty.

Results and discussion

The socio-economic characteristics like age, sex, marital status, literacy level, household size, and farm size were examined and contribute either positively or negatively to the physical effort put to the farm. The age distribution shows that majority of the respondents are between 31-40 for both participants and non-participants of cooperatives. The result further shows that households that are members of cooperative society have the highest percentage (24.5percent) of members with household heads that are not more than 30 years when compared with those that are not members of cooperative societies that have only (12.1 percent) of them not more than 30 years of age. This implies we still have relatively young farmers on the field who can still adopt new technology and farming practices if their capital base is increased since they are still in productive age.

Table 1: Distribution of Respondents by Socio-economic Characteristics

Characteristics	participants		Non participants	
Age (years)	**Frequency**	**Percentages**	**Frequency**	**Percentages**
<31	14	24.5	4	12.1
31-50	36	63.2	21	63.7
>50	7	12.3	8	24.2
Total	57	100	33	100
Gender				
Male	48	84.2	31	93.9
Female	9	15.8	2	6.1
Total	57	100	33	100
Marital status				
Single	7	12.3	7	21.2
Married	50	87.7	26	78.8
Total	57	100	33	100
Household size				
<6	16	28.1	10	30.3
6-10	30	52.6	15	45.4
11-15	5	8.8	3	9.1
>15	6	10.5	5	15.2
Total	57	100	33	100
Literacy level				
No formal education	8	14.0	5	15.2
Primary	28	49.1	15	45.5
Secondary	18	31.6	12	36.4
Tertiary	3	5.3	1	3.0
Total	57	100	33	100
Farm size				
<1	14	24.6	8	24.2
1-5	39	68.4	24	72.7
6-10	4	7.0	1	3.03
Total	57	100	33	100

Source: Field survey, 2010

The gender distribution shows that females are not well involved in membership of cooperative societies. This implies that the males are still dominant in the farming occupation in the study area. Female participation is quite low in cooperatives which might be due to the drudgery involved in farming but female participation can still not be relegated behind.

The marital status distribution of the respondents show that greater percentages of the farmers were married and they depend on agriculture as a means of livelihood on which they sustain their family.

The mean household size for cooperative and non-cooperative members is approximately 8 and 9 respectively, although non-members of cooperative societies have higher household sizes. This implies that the farmers have large numbers of household that can help with farming activities. Although, this has a negative implication in the sense that it will reduce the mean per capita expenditure of the household members therefore reducing their purchasing power making them to be vulnerable to poverty.

The educational level distribution of the respondents implies that there is low level of literacy among the farmers in both categories although it is higher among those respondents that are non-cooperatives members. This will therefore lead to low level of adoption of new technology and innovation among the farmers.

The farm size distribution of the respondents' shows that since a greater percentage of the household have their farm size

between 1-5 hectares, their yield or output will be small thus affecting the income and profit they generate from their farm.

Table 2: Benefits derived from cooperatives.

	Frequency	Percentage
Credit facilities	39	68.4
Credit/input facilities	18	31.6
Total	57	100

Source: field survey 2010

Table 2 shows the benefits that the farmers derived from been a member of cooperative society. 68.4% of participants derive benefits of credit facilities while 31.6% derive benefit of credit and input facilities. This implies that majority of the benefits farmers derive from their respective cooperative societies is credit facilities.

Table 3: Distribution of Household According to Poverty Status.

Characteristics	Participants		Non Participants	
	Frequency	Percentage	Frequency	Percentage
Core poor	5	8.8	6	18.2
Moderate poor	17	29.8	7	21.2
Non poor	35	61.4	20	60.6

Source: Calculation from field survey, 2010

The study revealed that 18.2 percent of the farmers that do not participate in cooperatives are core poor while 8.8 percent of the farmers who are participants are core poor. About 21.2 percent of the farmers who are non-participants of cooperatives are moderately poor while 29.8 percent of the participants belong to the moderate poverty class. For non-poor category, 60.6 percent of the non-participants of cooperatives belong to the group while 61.4 percent of the participants of cooperatives belong to the non-poverty group.

Table 4: Poverty Profile among Participants and Non Participants of Cooperatives.

Poverty Profile	Participants	Non Participants
P_0	0.47	0.55
P_1	0.17	0.24
P_2	0.56	0.59

Source: Field Survey, 2010

The analysis of poverty profile indicated that farmers that participated in cooperatives had lower poverty incidence, depth and severity of 0.47, 0.17 and 0.56 respectively as compared with those non cooperatives members that had poverty incidence, depth and severity of 0.55, 0.24 and 0.59 respectively.

Table 5: Regression result showing the effectiveness of Cooperative Societies on Household Poverty Status

Variable	Coefficient	S E	T value	P(Z/>Z)
Constant	-6.220381812	2.1130734	-2.944	0.0032
Income	0.6547772746	0,23167130	2.826	0.0047**
Farm size	0.2302311472	0.94963697	2.424	0.0153*
Membership	-	0.15117915	-1.588	0.1124
Education	0.2400175415	0.78887568	1.104	0.2696
Family size	0.8709748565	0.16599923	-2.377	0.0175
Gender	-	0.20845241	0.003	0.9977
Marital status	0.3945290552	0.35490036	1.495	0.1350
	0.5938821058			
	0.5304388718			

N.B * Shows level of significant of the explanatory variables.* Significant at 0.01 **Significant at 0.05

Probit regression above was used to examine the effectiveness of cooperatives on household poverty status. A probit regression model with 7 explanatory variables was specified. The factors that influenced the probability of household poverty status were income and farm size. Income and farm size significantly and positively influence the effectiveness of cooperatives on household poverty status at 0.05 and 0.01 level of significant. This explains that if there income is high, there is more chance for them to move out of poverty and there is effectiveness of cooperatives on such farmers. If the farm size is large, there is every tendency for the farmers not to be poor because such farmers will be able to produce more and cultivate different crops. An increase in productivity of household would therefore imply enhanced income which will invariably improve household purchasing power and therefore their household welfare status. Various indicators of poverty were also identified in the study area. They are high level of illiteracy, transportation problems and poor health facilities

Conclusion and policy recommendation

Majority of the respondents had low literacy level although it was higher among non-participants of cooperatives. There is therefore the need for government and other non-cooperative members to organize adult literacy level so as to build up their human capacity.

Credit is the main benefit that the farmers get from cooperatives, therefore it should be delivered promptly and without complex procedures so as to meet timeliness of production activities of farmers so that they would not be worse off than they were before obtaining the credit.

The result shows that income is a significant variable in determining household poverty status, so the farmers should try and engage themselves in other income generating activities, this will enhance a higher purchasing power in order to break out of poverty.

From the findings, the farmers had a large household size, so government should try and strengthen the policy of birth control rate in order to reduce the farmers' per capita household expenditure.

The study indicated that poverty exists among farmers that participated in cooperatives and those that did not participate. In alleviating poverty among farmers, participation in cooperatives is not only the solution to the vicious cycle of poverty farmers are trapped in but the cooperative societies should set out measures to improve the efficiency of the farmers, make available new technologies of farming and innovation, skill development, ready market for the farmers output and supervision to ensure credit is not diverted on something else.

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