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Research article

Effects of Cooperative Credit on Farmers' Socio-Economic Welfare in Yewa South Local Government Area, Ogun State

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Abstract

This study investigated the cooperative finance and its effects on farming household in Ogun State. A total of one hundred and twenty (120) respondents were randomly selected for the study. All the respondents (120) were interviewed through structured questionnaires. Both descriptive statistics and inferential statistics were used to analyze the data collected for the study. Foster Greek Thornbeck poverty measure was used to analyse the welfare status of the farmers while Logit regression model was employed in analyzing the effect of cooperative credit on welfare of the farmers. Chi-square model was used in analyzing the hypotheses of the study. The results obtained on the socio-economic characteristics revealed that majority of the respondents were male (82.5%), married (85.9%), aged between 41-50 years (58.3%). Majority of the respondents have formal education which enhanced the well-being of their households. An average of ₦318,250 was earned per annum out of which about ₦169,500 was traceable to farm sources. 53.2% of the total household income was realized from farm sources making farming a very importance source of income in the study area. Majority (54.2%) of the farmers were found to be non-members of cooperative society. Access to cooperative credit had both insignificant and positive relationship with the probability of being poor as against a *priori* expectation. The failure of access to cooperative credit to uplift the welfare of the farmers is traceable to low investment of cooperative loan on farm. Based on the findings of this study, it is recommended that farmers spend more of credit obtained on investment (especially on farm) and less on consumption expenditure.

Keyword: Financing, Cooperative, Understanding, Credit, Union

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Introduction

The origin of co-operatives in the world may be traced to eighteen century England. The co-operative was formed as a result of human suffering. The revolution was pronounced and largely felt by the common man who needed to improve their conditions of living that had deteriorated to an inhuman standard. At that time, while employers were reaping high profits, employees were paid subsistent wages which remained very low in spite of rising cost of living (Abdullahi, *et. al,* 2009). Co-operative societies in Nigeria operate at three levels: the primary, secondary and tertiary. The primary societies operate at the level of a community, the secondary society operate at the level of the local government area, while the tertiary or apex co-operative organization operates across the local government areas but within the State (Otto and Ukpere, 2011).

Cooperatives are widely seen to have potential to impact on development and poverty reduction (Birchall, 2008). DFID (2010), for example, argue that cooperatives make an important contribution to sustained economic growth and to making markets function better for poor people (DFID, 2010). The United Nation (UN) has acknowledged important direct and indirect impacts on socio-economic development in terms of promoting and supporting entrepreneurial development, creating productive employment, raising incomes and helping to reduce poverty while enhancing social inclusion, social protection and community-building. Several studies argued cooperatives not only directly benefit their members, but also have positive effects for the rest of society (UN 2009).

Agricultural Credit in Perspective

Agricultural credit is one of the important interventions to solve rural poverty, and plays an important role in agricultural development (Meyer and Nagarajan, 2000). Expanding the availability of agricultural credit has been widely used as a policy to accelerate agricultural and rural development (World Bank, 2000). It is believed that expansion of credit programmes will have beneficial effects on agricultural production of smallholders and rural income because credit could facilitate the purchase of costly inputs and the adoption of alternative crops. Small farmers need production capital, a scarce resource, to improve their production. The provision of credit can encourage the farmers to use modern technologies, and procure inputs for farm use, thus bringing them to a higher level of productivity and increasing their incomes (Lolita, 2006). Credit is a very powerful instrument for the empowerment of the resource-poor people. It can generate "accelerated economic growth," when loans are easily available, properly utilized and repaid in time. A cumulative upward movement of "capital supply – increased productivity – higher real income – higher capital supply" is necessary for sustainable rural development (Chakraborti, 2004).

Agricultural credit enhances productivity and promotes standard of living by breaking vicious cycle of poverty of small-scale farmers (Adebayo and Adeola, 2008). Adegeye and Ditto (1985) described agricultural credit as the process of obtaining control over the use of money, goods and services in the present in exchange for a promise to repay at future date.

The provision of credit for small farmers in developing countries (including Nigeria) is cantered on two main issues: the establishment of specialised agricultural credit institutions (e.g. National Agricultural Credit and Rural Development Banks, NACRDB) and the outreach of rural credit institutions (e.g. cooperatives) (Lolita, 2006; World Bank, 2000). Specialised Agricultural Credit Institution (SACIs) have existed for decades and their establishment was on a political response from the government, which is highly supervised and

controlled. The SACIs had many operational problems, such as limited outreach of credit which was available to the wealthy and large farmers only, and a high dependence on subsidies from external donors or governments. Thus, these institutions were unable to be sustained due to capital deficit and poor loan repayment (Sahu, *et al.,* 2004). Consequent upon the aforementioned and as a result of various other factors, the majority of poor small farmers in developing countries are left out of agricultural extension and credit systems (Lal, *et al.*, 2003). Access to credit is limited in rural areas although a high demand for it exists (Sahu, *et al.,* 2004). Thus, establishing formal credit institutions (e.g. cooperatives) in rural areas for small farmers is considered an adequate financing strategy to help improve farmers' income and livelihood strategies (Rosenzweig, 2001).

Cooperatives and Agricultural Credit Provision

A cooperative is a voluntary, democratically controlled association of people with the specific purpose of conducting some kind of business. The essence of a cooperative is that is owned by its members who are its customers and it is an important element for reaching small farmers (Lolita, 2006). Agricultural credit cooperatives provide avenue for farmers to save and promote recycling of funds in the farming sector. The credit worthiness for credit cooperative is judged more on the basis of ownership and less on repayment capacity thus giving equal opportunities to members. The activities of credit cooperatives rooted in the autonomy of the farmers can be a powerful tool in fostering of the economic culture needed to remove the bottlenecks of credit in the rural sector (Lolita, 2006). Otto and Ukpere (2011) identified Cooperative Credits and Thrift Associations as a veritable source of capital formation which is required for investment purposes. Credit has also a very significant on income levels and plays a vital role in increasing income level of farmers (Government of Pakistan Food and Agriculture Division 2001).

A number of researches conducted locally revealed that cooperative societies contributed in various ways to both agricultural and national development. Cooperatives, according to Adeyemo and Bamire (2005), serve as useful instruments for marketing farmers produce and as avenues for savings and credit facilitates as these informal financial institutions (cooperatives) are mostly preferred by farmers due to easy accessibility, smallness of scale, and informal nature of the transactions. A cooperative, according to the International Cooperative Alliance (ICA) is meant to: 'embody the values of self-help, self-responsibility, democracy, equality, equity and solidarity. In the tradition of their founders, co-operative members believe in the ethical values of honesty, openness, social responsibility and caring for other' (ICA 2012). A cooperative is an autonomous association of people united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise. Cooperatives are based on the values of self-help, self-responsibility, democracy, equality, equity and solidarity (UN, 2009).

Studies have shown that over seven per cent of the African population are affiliated to primary cooperatives, and this number is increasing. Cooperatives are said to have wide-reaching, direct and indirect impacts on socio-economic development (UN, 2009). A number of researches conducted locally revealed that cooperative societies contributed in various ways to both agricultural (including arable crop farming) and national development. However, the impact of such funds (credit) on the farmers' socio-economic welfare remains a subject of discourse requiring empirical findings. This study therefore is embarked upon to provide the empirical evidence.

Objectives of the Study

The general objective of the study was to examine the effect of cooperative credit on farmers' socio-economic welfare in Yewa South Local Government Area, Ogun State. The specific objectives were to:

i. describe the sources of finance for cooperative farmers
ii. determine the farmers' level of participation in cooperative societies
iii. determine the effects of cooperative credits on the farmers' welfare.

METHODOLOGY

Study Area and Methods of Data Collection

The area of study was Yewa South Local Government Area of Ogun State. Both primary and secondary data were used for the study. Primary data were sourced through structured questionnaires. Cooperative farmers in the study area constituted the main respondents of the study. Information were sought on socio-economic characteristics, membership, access to and use of cooperative credit. The secondary data, on the other hand, were obtained from published journals, bulletins, Internet sources, articles in the newspapers among others.

Sampling Techniques

A multistage random sampling technique was employed for the study. While Ilaro I, Ilaro II, Ilaro III, Owode I and Owode II are fairly semi-urban, Iwoye, Idogo, Ilobi/Erinja, Oke-Odan and Ajilete are rural in nature (Ogun State official website, sighted July, 22nd, 2012). In the first stage, 60% or three each of the towns in semi-urban and rural towns were selected for the study. This averaged three (3) political wards drawn from each of the listed semi-urban and rural wards. In each of the 6 selected wards, 20 farmers were drawn. This brought a total number of 120 sampled households.

Methods of Data Analysis

Both descriptive and quantitative methods of data analysis were employed in achieving the objectives of the study. Descriptive statistics such as measures of central tendency, proportion and frequency counts were used to describe the socio-economic characteristics of the respondents, the respondents sources of farm finance, level of participation in cooperative societies and benefits derived from cooperative participation.

Model Specification

Foster Greek Thornbeck (FGT) model was used to measure the welfare/poverty status of the farming households. Following Idowu *et. al.* (2011), FGT poverty index developed by Foster et al. (1984) was adopted to measure the extent of poverty (welfare) among rural farming households. The FGT poverty index is given by:

$$P_{\alpha}(y,z) = \frac{1}{n}\sum_{i=1}^{q}\frac{(Z-y_i)^{\alpha}}{Z} \dots\dots\dots\dots\dots\dots\dots\dots\dots (1)$$

Where; n = total number of households in population

q = the number of poor households

Z = the poverty line for the household

yi = household income per capita

α = Poverty aversion parameter and takes on value 0, 1, 2

$\frac{(z-y_1)^{\alpha}}{z}$ = Proportion shortfall in income below the poverty line.

α takes on value 0,1, 2 to determine the type of poverty index. When α = 0 in FGT, the expression reduces to:

$$P_0 \frac{1}{n} q = \frac{1}{n} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots . (2)$$

This is called the Incidence of poverty, describing the proportion of the population that falls below the poverty line

When α =1 in FGT, the expression reduces to;

$$P_1 = \frac{1}{n}\sum_{i=1}^{q}\frac{(Z-y_1)}{Z} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$$

and this is called the Poverty depth

When α =2 in FGT, the expression becomes:

$$P_2 = \frac{1}{n}\sum_{i=1}^{q}\frac{(Z-y_1)^2}{Z} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (4)$$

This is called Poverty Severity Index. This index weighs the poverty of the poorest household more heavily than those just slightly below the poverty line. It adds to the poverty depth an element of unequal distribution of the poorest household's income below the poverty line

Logit regression model were used to analyse the effects of cooperative credit on welfare (poverty status) of the farmers.

The model is specified below:

$$Y_i = g(I_i)$$

$$I_i = b_0 + \sum_{j=1}^{n} b_j X_{ji}$$

Where Y_i = the observed response for the ith observation (i.e. the binary variable, Y_i= 1 for poor household and Y_i = 0 for non-poor household

I_i = underlying and observed stimulus index for the i^{th} observation (conceptually, there is a critical threshold (I_i^*) for an household, if

$I_i < I_i^*$, the household is observed to be poor but if $I_i \geq I_i^*$ the household is observed to be non-poor

g = is the functional relationship between the field observation (Y_i) and the stimulus index (I_i) which determines the probability of household being poor

The logit model assumes the underlying stimulus index (I_i) is a random variable, which predicts the probability of household being poor. Therefore, for the i^{th} observation (an individual household):

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$$I_i = I_n \frac{P}{1-P} b_0 + \sum_{j=1}^{n} b_j X_{ji}$$

$$\frac{dP_i}{dX_{ji}} = \left[\frac{e_i^I}{(1+e_i^I)^2}\right]\left[\frac{I_i}{X_{ji}}\right]$$

Where P_i = Probability of ith being poor

X_i = Vector of explanatory variables

X_1 = Age of respondents (year)

X_2 = Level of education of respondents (years)

X_3 = Marital status of respondents (married =1, otherwise = 0)

X_4 = Experience in farming (years)

X_5 = Farm size (hectare)

X_6 = Sex (Male = 1, Female = 0)

X_7 = Access to cooperative credit (had access= 1, Otherwise = 0)

X_8 = Income from farm sources per annum (Naira)

X_9 = Income from Non-farm sources per annum (Naira)

X_{10} = Access to extension service (Had access = 1, otherwise= 0)

RESULTS AND DISCUSSIONS

Table 1: Socio-Economic Characteristics of the Cooperators

Variables	Frequency	Percentage
Sex		
Male	99	82.5
Female	21	17.5
Marital Status		
Single	1	0.8
Married	103	85.9
Divorced	9	7.5
Widowed	4	3.3
Separated	3	2.5
Age (years)		
21-30	1	0.8
31-40	40	33.4
41-50	70	58.3
51-60	9	7.5
Household Size (person)		
1-5	8	6.7
4-6	80	66.7
7-9	30	25.0
10 or more	2	1.6
Main Occupation		
Farming	63	52.5
Trading	26	21.7
Civil service	5	4.1
Artisanship	26	21.7

Educational Level		
No formal education	23	19.2
Adult literacy	4	3.3
Primary	57	47.5
Secondary	25	20.8
Tertiary	10	8.4
Technical college	1	0.8
Farming Experience (yrs)		
1-5	19	15.8
6-10	43	35.8
11-15	18	15.0
16-20	14	11.7
>20	26	21.7
Annual Farm Income (₦)		
100,001-200,000	22	18.3
200,001-300,000	51	42.5
300,001-400,000	29	24.2
400,001-500,000	12	10.0
>500,000	6	5.0
Non-Farm Income (₦)		
200,000 or less	16	13.3
200,001-300,000	94	78.3
300,001-400,000	8	6.7
400,001-500,000	2	1.7
Farm Size (ha)		
1-3.99	74	61.7
4-6	38	31.7
7-9	4	3.3
10 or more	4	3.3
Total	**120**	**100**

Source: Field Survey, 2012

Findings revealed that Socio-Economic Status (SES) usually refers to components of economic and social status that distinguish and characterize people (Olagunju and Babatunde 2011). Indicators of SES are meant to reflect access to social and economic resources that may vary overtime (Duncan *et al.,* 2002) and by households. Sex has been found to influence access to productive resources including credit (Okwoche, *et al.,* 2012). It is therefore necessary to describe the gender of the respondents for possible inference and generalization on how it relates to participation in farming. In the Table 1, gender of the respondents was analyzed and the results showed that vast majority (82.5%) of the respondents were male while only 33.3% of the respondents were female. This implies that males still dominate farming activities in the study area. Marital status is expected to influence respondents' level of responsibilities which could have positive or negative influence on the need for credit and participation in traditional microfinance schemes. It can be seen that vast majority (85.9%) of the respondents were married while only 0.1% of them were single. This is in line with the finding of Igben (1988), Epeju (2010) and Okpara (2010) who stated that the marital status (married) of the farmers they surveyed ranged between 94 to 99.5% of the respondents. The majority of the respondents being married could influence their access to productive resources and productivity. According to Okpara (2010),

married farmers are likely to be under pressure to produce more, not only for family consumption but also for sale

Age is an important factor that affects level of productivity and level of productivity may affect credit use and participation of the respondents in cooperative societies The ability of the respondents to take advantage of emerging opportunities that could change their lives for better may have negative relationship with age baring education and experience. The distribution of respondents by age revealed that majority (58.3%) of the respondents had their age between 41-50 years with an average age of 45.5 years. This implies that the respondents are in their prime working age- an age which may translate to improved productivity. The agility that comes with youthfulness could improve the productivity of the respondents (Ajibefun and Ojo 2000). Household size may not only determine whether the respondents will use credit or not but also determine what the credit so obtained will be expended on. Majority of the respondents had between 4-6 persons as household size with an average of 6 persons per household. This can be considered a moderate household size for farming household. A household size must maintain a balance between production and consumption.

Education of respondents may influence the respondents' decision to embrace or not to embrace traditional microfinance schemes. The study revealed that majority (70.0%) of the respondents had less than secondary school education. Besides, substantial percentage (19.2%) of the respondents had no formal education. Based on this finding, the farmers cannot be said to be considerably highly educated - a factor that could also limit their productivity.

Experience is an important determinant of productivity. According to a *priori* expectation, farming experience is expected to have positive relationship with productivity. A critical look at the Table 1 revealed that the majority of the respondents possessed more than 5 years experience in farming with an average of 13.8 years per farmer. Only 15.8% of the respondents had between 1-5 years of experience in farming. This implies considerably high level of experience in farming with increased probability of higher productivity and welfare. Majority (85.0%) of the households sampled earned less than ₦400,001 per annum with an average household income of ₦318,250. This amount is considerably low given the rising cost of living in the country (partly caused by the oil subsidy removal/reduction). Since the magnitude of income available will determine to a large extent the disposable income at the disposal of a household and savings made. Low savings level occasioned by low income and rising cost of living can limit the capacity of the farmers to attract and acquire credit from external sources.

The finding also revealed that majority (61.7%) of the respondents was smallholder farmers who cultivated between 1-.3.99 hectares with an average of 3.59 hectare per farmer. A look at Table 4.13 revealed that majority (55.0%) of the respondents cultivated between 1.5-2 hectares with an average of 1.75 hectare per farmer. The small size of farmland may have serious implication on the ability of the farmers to enjoy the benefits of economies of scale.

Sources of Finance

Data in Table 2 shows the distribution of respondents by loan source and amount accessed across income groups. Cooperative societies, microfinance banks and OSAMCA were the three confirmed sources of non-personal finance embraced by the farmers. As shown in Table 2, cooperative societies are in the forefront of providing non-personal finance to farmers in the study area giving out highest loan amount (an average of

₦256,000) to the highest number of the farmers (20.8%). It is also evident that amount of loan granted by either microfinance bank or cooperative does not have linear relationship with the income group a farmer falls into. Other loan criteria might such as the 3Cs (Credit, Character and Collateral) might be stronger consideration in advancing loan to farmers in the study area. It is also worthy of note that personal savings constitute the highest source of finance for farming (46.7%) in the study area. Rotating Savings and Credit Association were other prominent sources of finance embraced by about 17.5% of the farmers in the study area.

Table 2: Distribution of respondents by loan source and amount granted

Loan source	Income group	N	% of farmers	Amount granted (N)
Cooperative	₦200,001-300,000	11		236,363
	₦300,001-400,000	6		175,000
	₦400,001-500,000	5		430,000
	>₦500,000	3		200,000
	Total	**25**	**20.8**	**256,000**
Microfinance	₦200,001-300,000	6		241,666
	₦300,001-400,000	7		157,142
	₦400,001-500,000	4		250,000
	>₦500,000	1		250,000
	Total	**18**	**15.0**	**211,111**
OSAMCA	₦100,001-200,000	21		66,666
	Total	**21**	**17.5**	**66,666**
Personal savings	₦100,001-200,000	13		46,153
	₦200,001-300,000	24		33,333
	₦300,001-400,000	19		100,000
	Total	**56**	**46.7**	**50,000**
Total	₦100,001-200,000	22		54,545
	₦200,001-300,000	51		95,098
	₦300,001-400,000	29		122,413
	₦400,001-500,000	12		262,500
	>₦500,000	6		141,666
	Total	**120**	**100.0**	**113,333**

Source: Field Survey, 2012

Poverty (Welfare) Status of the Farmers

The poverty line is that level of welfare which distinguishes poor households from non-poor households (Mukherjee and Benson 2003). There is no clear consensus in the literature about when a household or an individual should be defined as poor (Idowu *et al.*, 2011). Lipton (1983) and Levy (1991) used expenditure approach but Ruben and van den Berg (2001), Yunez-Nuade and Taylor (2001) used income approach. The poverty line set for the study follows income poverty line measure. For this study, the absolute income poverty line was used. The common international poverty line has in the past been roughly $1 a day (Sachs, 2005). In 2008, the World Bank came out with a revised figure of $1.25 at 2005 purchasing-power (PPP) (Ravallion *et al.*, 2009). At 160 per dollar, the poverty line stood at 1.25 x 160 x 365 per capita per annum. This equals to ₦73, 000 per capita per annum. Also, only 25.8% of the sampled farming households were non-poor. This is in line with the findings of Idowu *et al.*, (2011) that reported 24% non poor households in their study 74.2% of the sampled households being poor confirms long-held believe that in developing countries (Nigeria inclusive) poverty has a rural face. According to IFAD, (2002); Etim and Edet, (2009), out of total 1.2 billion poor, more than 900 million live in rural areas around the globe.

Table 3: Distribution of respondents by poverty/welfare status

Poverty (Welfare) Status	Frequency	Percentage
Poor	89	74.2
Non-poor	31	25.8
Total	120	100.0

Source: Field Survey, 2012

Logit model analysis of effect of cooperative credit on welfare of the farmers

Logit (binary) regression model was employed to analyse the effect of cooperative credit on welfare of farmers in the study area. Findings of the marginal analysis showed that one percent increase in years of formal education of the farmers will lead to decrease in the probability of the farmers being poor by 58.3%. Farm size cultivated, income from farm sources, income from non-farm sources and access to extension service all have expected signs (negative) but insignificant relationship with probability of being poor. However, farming experience, sex and access to cooperative credit had both insignificant and positive relationship with the probability of being poor as against a *priori* expectation. The failure of access to cooperative credit to uplift the welfare of the farmers might be as a result of low investment of cooperative loan on farm as shown in Table 4.

Table 4: Logit Model Estimates of effect of cooperative credit on welfare of farmers

Variable Name	Variable Code	Co-efficient	Standard Error	Marginal Effect
Constant		-0.0210	0.0429	-
Age of respondents	X_1	0.0014	0.0025	0.5709
Level of education	X_2	-0.0018*	0.0033	0.5838
Marital status	X_3	-0.0001	0.0011	0.9919
Experience in farming	X_4	0.0003	0.0012	0.7921
Farm size	X_5	-0.0004	0.0072	0.9479
Sex	X_6	0.0037	0.0128	0.7703
Access to cooperative credit	X_7	0.0125	0.0000	0.5787
Income from farm sources	X_8	-0.0000	0.0000	0.7944
Income from non-farm sources	X_9	-0.0000	0.0000	0.5764
Access to extension service	X_{10}	-0.0082	0.0164	0.6155
Log likelihood		-68.55***		
Chi-Squared		119.86***		

* significant at 10%; ***significant at 1%
Source: Field Survey, 2012

Conclusions and Recommendations

Analysis of the sources of finance by the farmers was done with the aid of simple frequency table and percentages and cross tabulation technique was employed to compare loan amount across finance sources and income groups. Cooperative societies, microfinance banks and OSAMCAs were found to be the three sources of non-personal finance embraced by the farmers. The study revealed that cooperative societies are in the forefront of providing non-personal finance to farmers in the study area giving out highest loan amount (an average of

₦256,000) to the highest number of the farmers (20.8%). Another revelation of the study is that the amount of loan granted by either microfinance bank or cooperative does not have linear relationship with the income group a farmer falls into. Other loan criteria such as the 3Cs (Credit, Character and Collateral) might be stronger consideration in advancing loan to farmers in the study area than the farmers' income.

The level of participation of farmers in cooperative societies in the study area was also analyzed using frequency distribution table and percentages. The results revealed that majority (54.2%) of the farmers were non-members of cooperative society 45.8% participation in cooperative societies by the farmers is large and plausible and could help raise their access to credit. Chi-square model was used to analysis the relationship between access to cooperative loan and income generated from farm sources. The results show that there is no significant relationship between access to credit and income generated from farm sources. Chi-square calculated score ($\chi^2 = 5.262$, $p \leq 0.05$) is more than the Chi-square score tabulated ($\chi^2 = 5.991$, $p \leq 0.05$). We therefore fail to reject the Null hypothesis (H_0). However, significant relationship exists between access to cooperative loan and income generated from farm sources. While there was significant relationship between income realized from farm sources and access to cooperative credit, the reverse is the case between access to cooperative credit and farm investments. It is recommended that farmers should be encouraged to spend more of credit obtained on investment (especially on farm) and less on consumption expenditure.

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