

Contributions of Cooperative Societies to Poverty Reduction Amongst Cassava Farmers in Delta South Agricultural Zone, Nigeria

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Abstract

The study examined the contributions of cooperative societies to poverty reduction and livelihood amongst rural farmers in Delta state Nigeria. The quest by world leaders including Nigeria to end poverty and hunger was one of the major reasons for the initiation and implementation of Millennium Development Goals. The effort to sustain the achievements recorded by this program necessitated the emergence of Sustainable Development Goals. In line with the objectives of these programs, Nigeria has continued to initiate various national programs aimed at ending poverty and hunger. This study investigates the contributions of cooperative societies in ending poverty and hunger in Nigeria, with focus on rural farmers' cooperative societies. After analyzing the generated data using binary Logistics Regression Model and simple t-test, the findings revealed that farmers' cooperative societies have the potential to end poverty and hunger among members. Because the result revealed that the income level of cooperators who have access to loan was significantly higher than those who do not access loan. Recommendations were made on how cooperative societies could be assisted to contribute more to end poverty and hunger in the rural communities in Delta state.

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Background to the Study

Poverty has been a common phenomenon that cut across nations of the world. Mukaila, Bakere, Ifaenyi and Shittu (2020). Reported that poverty and unemployment are the main problems facing many people especially the rural dwellers (Nefale, 2016). It is believed that most rural communities are living in poverty and they rely on farming for their daily food and income generation. Most people in those areas experience poverty and turn to farming as a tool to reduce poverty, while other farmers come together to improve their living standard. This is because team work can buffer crises, resist the negative effects of poverty on their livelihood (Roland, 2019) and equally cut down the widespread and pervasive nature of poverty. (Ajudua and Imoisi, 2017). Evidences (Abbas 2016, Adekola and Dokubo 2017) have shown that a substantial number of farmers in the study area are living below the poverty line in spite of the efforts made towards reducing the level of poverty by various government programs. (Ijaiya and Adesina-Uthman 2019).

Also, Obona, (2019), reported that the effect of poverty has been a universal challenge due to its complexity, influence and multi-dimensional character. Hence, there has been a persistent interest over the years as regards community-based remedies to reduce and control the existence of poverty among rural cassava farmers in the state so as to build individual and household confidence in the community. These efforts have resulted in the formation of cooperative societies among cassava farmers with the aim of improving their living standard as well as their income. The importance of these cooperative societies with regards to poverty alleviation can be likened to its avenue of income generation and job creation, Ajayi and Obisesan, (2021).

International Cooperative Alliance (ICA, 2019), defines Cooperative as people-centered enterprises jointly owned and democratically controlled by and for their members to realize their common socio-economic needs and aspirations. As enterprises based on values and principles, they put fairness and equality first allowing people to create sustainable enterprises that generate long-term jobs and prosperity. Managed by producers, users or workers, cooperatives are run according to the 'one member, one vote' rule. It is a business voluntarily owned and controlled by its member patrons and operates for them and by them on a non-profit basis. Cooperatives are seen as a medium through which services like provision of farm input, farm implements, farm mechanization, agricultural loans, agricultural extension, member's education, marketing of member's farm produce and other economic activities and services are rendered to members to better their standard of living and family. The broad objective of this study is to assess the contributions of cooperative societies on poverty reduction among cassava farmers in Delta South Agricultural Zone, Nigeria. The specific objectives of this study are to; examine the role of the socio-economic characteristics of cooperative farmers on their income; assessment of farmers' cooperatives and loan accessibility among members in the study area and to compare the income level of cooperative members that assess loan and those without loan access.

Statement of the Problem

Over the years, Nigerian government have come up with numerous policies, programs and strategies in other to reduce the level of poverty in the country with programs such as; Operation Feed the Nation, Green Revolution, Better Life for Rural Women, Family Support program, National Poverty Eradication Program, National Economic Empowerment and Development Strategy, Vision 2020, You Win Program, Subsidy Reinvestment Program (Sur-P). Despite the implementation of these programs, Elem (2018), argues that the living condition of over 70% of the citizens continues to worsen especially those in the rural communities.

Studies (Ademu, Aduku, Elesho, and Nweke 2018) showed a very high level of unemployment, high maternal and high cost of living, high level of illiteracy, lack of access to healthcare facilities and sanitation, while many die as a result of outbreak of epidemics, those willing to go into farming have no access to means of production such as land, capital, inputs, seed and seedlings among others. Many go to bed on daily basis without food. Despite all the efforts put in place to reduce poverty, it is confirmed that the rate of poverty is still on the increase; while other countries of the world especially the developed countries have made remarkable efforts in ending poverty and hunger in their countries, the problem seems not to have made any remarkable impact in developing countries especially Nigeria and the study area (Elem, 2018, Ijaiya, Dayang and Norimah, 2016; Ijaiya and Adesina-Uthman 2019). This situation however, contradicts the belief that the country is endowed with enormous human and physical resources. Most farmers in the study area has no sufficient capital to finance their farming activities as well as to obtain inputs for farming operation, hence this study.

Cooperative societies, especially the ones involved in farming, such as the cassava farmers' Cooperative Societies could be an important vehicle to end poverty and hunger in Delta South Agricultural zone, and as such, this study is focused on farmers' Cooperative Societies, in order to examine their contributions and role in the war against poverty, compare the income level of cooperative members who accessed loan and those who do not access loan.

Justification of the study

Cooperative societies have been posited as an important tool in poverty reduction. All cooperative societies, social or economic, are mechanisms that ensure the growth and prosperity of communities in the developed world. In developing and transitioning countries that lack access to capital, education, and training, cooperative structures will allow cassava farmers to pool together their resources to solve problems, identify common goals and target the causes and symptoms of poverty (Mhembwe and Dube 2017). Cooperative enterprises provide the members means whereby a significant proportion of humanity is able to take into its own hands the tasks of creating productive employment, overcoming poverty achieve social integration and continue to be an important means of acquiring self-help, self-responsibility, democratic voice, equality, equity and solidarity.

Methodology

Study Area

This study was carried out in Delta south Agricultural zone of Nigeria. Delta state lies roughly between longitude $5^{\circ}00'$ and $6^{\circ}45'$ east and latitude $5^{\circ}00'$ and $6^{\circ}30'$ north. Delta state was created in August 27, 1991. It was carved out of the former Bendel state. It has 25 local government areas. The state has its capital at Asaba. Delta state has a population of 4,098,401 (National Population commission (NPC), (2006)). The state is divided into three (3) agricultural zone which are; the Delta south Agricultural zone, Delta central agricultural zone and the Delta north agricultural zone. Delta state Household and Housing survey (2006). Delta as an agrarian State is richly endowed with land suitable for growing various tropical crops. The climate is essentially tropical humid with annual rainfall of 1500-2600mm distributed evenly throughout the wet season (April to October). A large proportion (75.0%) of the total population of Delta State engages in agricultural production (Emerole, 2004). Food crops grown are yam, cassava, plantain, cocoyam and maize.

Sampling Procedure

Descriptive and inferential statistics was used for data analysis. Frequency distribution tables was used to analyze the socio-economic characteristics of cassava farmers who were members of cooperative societies while t-test analysis was used to compare the level of income of cooperators who accessed loan and those who do not access loan. Binary Logistics regression model was used to analyze farmers' loan accessibility among members in the study area.

Data Collection

Data for this study was obtained from both primary and secondary sources. The primary data was obtained through the use of a well-structured questionnaire while other relevant information was generated through unpublished research works, internet, magazines, textbooks, journals etc. Delta South agricultural zone is made up of eight (8) local government areas which are Bomadi, Burutu, Isoko North, Isoko south, Warri North, Warri south, Warri South east and Patani. A purposive sampling procedure was adopted by selecting seven (7) cooperative societies from each of the eight (8) local government area, four (4) members from each of the cooperative societies were randomly selected bringing the total to two hundred and twenty-four (224) respondents.

Table 1: Sample Size Determination

Delta South (Purposively selected)	Cooperative Societies	Sample Frame
Isoko North		
Warri north	7	4 X 7 =28
Warri south	7	4 X 7 = 28
Warri South east	7	4 X 7 =28
Bomadi	7	4 X = 28
Burutu	7	4 X7 = 28
Isoko South	7	4 X 7 = 28
Patani	7	4 X 7 = 28
Grand Total		224

Source: Author's Compilation, 2022

Model Specifications

Binary Logistics Regression

The model is stated as:

$$\ln \left(\frac{P_i}{1-P_i} \right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + u_i \dots \dots \dots (1)$$

Where;

P_i = is the indicator of farmer's perception (P_i = access to loan; $1 - P_i$ = no access to loan).

β_0 = Intercept

$\beta_1 = (1, 2, 3, \dots 7)$ = Regression Coefficients, of the independent variables

$X_1 = (1, 2, 3, \dots 7)$ = Socio-economic characteristics of the respondents

U_i = error term.

X_1 = Income (₦)

X_2 = Level of education (None 1; Primary 2; Secondary 3; NCE/OND 4; B.Sc/HND)

X_3 = Farm size (hectares)

X_4 = Farming experience (years)

X_5 = Household size (persons)

X_6 = Gender (male = 1; female = 0)

X_7 = Age of farmer (years)

Source: Ryabko, Stognienko and Shokin (2004).

A new test for randomness and its application to some cryptographic problems

T-test

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{S_1^2}{N_1} + \frac{S_2^2}{N_2}}} \dots \dots \dots (2)$$

Where:

\bar{X}_1 = mean of first set of values

\bar{X}_2 = mean of second set of values

S_1 = standard deviation of first set of values

S_2 = standard deviation of second set of values

N_1 = total number of values in first set

N_2 = total number of values in the second set

Results and Discussions

Table 2: Socio- Economic Characteristics of Cassava Farmers in the Study Area

VARIABLES	DETAIL	FREQUENCY	PERCENTAGE
GENDER	Male	111	49.7
	Female	113	50.2
TOTAL		224	100
AGE	Less than 30 years	56	24.9
	30 - 39 years	56	24.9
	40 - 49 years	53	23.6
	50 - 59 years	41	18.2
	60 years or more	19	8.4
TOTAL		224	100
LEVEL OF EDUCATION	No formal	13	5.8
	Primary	66	29.3
	Secondary	80	35.6
	NCE/OND	62	28.0
	B.Sc/HND/M.Sc	3	1.3
TOTAL		224	100
HOUSEHOLD	1 - 3 persons	68	30.2
	4 - 6 persons	137	60.9
	7 - 9 persons	18	8.0
	10 or more persons	2	0.9
TOTAL		224	100
FARM SIZE	0.1 - 1.0 hectares	99	44.0
	1.1 - 2.0 hectares	110	48.9
	2.1 - 3.0 hectares	3	1.3
	3.1 - 4 hectares	6	2.7
	4.1 or more hectares	7	3.1
TOTAL		224	100
ACCESS TO LOAN	Yes	131	58.2

Source: Field Survey 2022

Table 2 shows the socio-economic characteristics of the respondents, age of the respondents in the study area. For instance, 2.48 % of the respondents are between the age's brackets of 30-39years. While 23.6 % were between the age of 40 and 49 years. An indication that most of the respondents under this study are in their economic active age, meaning that at this age, they are to be more efficient and productive which is likely to impact positively on their livelihood and move them out of poverty.

Also, gender of the respondents was shown in table 2, out of 224 respondents of the entire study, 49.7 % were male, while, 50.2 % were female. An indication that we have more of female than male, this can be attributed to the fact that women are actively involved in farming as their male counterpart in the study area. This situation is likely to increase the active participation in cooperative societies, which may reduce poverty and improve livelihood. This result is in agreement with Obona (2019), who also have more female than male farmers in his study. It was shown in the study that majority (35.6%) of the respondents had secondary school certification, 28.0% had NCE/OND certificate. This implies that majority of the cassava farmers in the study area are learned. Their level of education could influence their attitude toward belonging to a cooperative society. The result shown that large proportion (58.2%) of the respondents affirm that they were able to access loan from their cooperative societies. While 41.8% of them has no access to loan.

Table 3: Determinants of Loan Accessibility Among Cooperative Members

Model Summary						
-2 Log Likelihood	Cox & Snell R Square			Nagelkerke R Square		
278.002	0.106			0.143		
Variables in the Equation	B	S.E.	Wald	df	Sig.	Exp(B)
Income of Members	0.000***	0.000	7.332	1	0.007	1.000
Educational Status	0.059	0.162	0.134	1	0.714	1.061
Farm Size	0.628**	0.291	4.679	1	0.031	1.875
Farming Experience	0.031	0.028	1.252	1	0.263	1.032
Household Size	0.269***	0.108	6.159	1	0.013	1.309
Gender	-0.575	0.327	3.105	1	0.078	0.562
Age	0.001	0.011	0.002	1	0.961	1.001
Constant	-1.887	0.962	3.847	1	0.050	0.152

a. Variable(S) Entered on Step 1: Income of Members, Educational status, Farm size, Farming Experience, Household size, Gender, Age.

*** Significant at 1%, ** significant at 5%

Table 2 consists of responses gathered from respondents concerning loan accessibility among members of cooperative societies in eradicating poverty. The table specifically indicates that, income of farmers, educational status, farm size, farming experience and household size are significant determinants for loan accessibility. The binary logistic regression result shows a significant relationship between farmer's income, educational status, farm size, farm experience, household size and age to loan accessibility. This implies that members of

cooperative societies who had 2/ha farm sizes and above are more likely to access loan in their cooperative societies, the reason is to enable members pay back loan in due time and as well use the loan for farm expansion and improve their living standard. The decision to use the logistic model is justified on the ground that the dependent variable is a dummy variable. The predictor variable is a set of socio-economic characteristics of the respondents.

Similarly, Attah, Mbah and Okeke (2018) viewed cooperatives as essential instruments for raising the standard of living of rural farmers. According to him, cooperatives play vital roles for instance training farmers, identifying the needs of farmers, provide loan to farmers at low interest rates and provide input and services to farmers.

Table 3: Difference in income of members that have access to loan and those without loan access

	One-Sample Test					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Income of members without loan access	6.696	93	0.000	8372.93	5889.70	10856.15
Income of members with loan access	9.207	130	0.000	14655.15	11506.15	17804.15

The study revealed a positive significant impact of cooperative societies on poverty alleviation in Delta South agricultural zone with the mean income of cooperators with loan accessibility as significantly higher than those without loan access (#14,655.15 and #8,372.93). This in no doubt approves the significance of cooperative societies and their role in shooting up the standard of living of their members. By implication, co-operators who accessed loan had a little higher income than those who do not access loan, which means that cooperative members with loan access can improve their livelihood which has helped to reduce the level of poverty and improve their standard of living. This research work agrees with the work done by Obi 2018; Ruhul and Mohammed (2019) that cooperative societies represent no discriminatory organization as membership is open to anyone who satisfies the unbiased requirements. This further implies that members who are qualify to access loan are given the loan irrespective of their background, religion and tribal differences. The study further maintained that even those members that cannot access loan, their living standard has improved for being a member of cooperative society through thrift saving etc.

Conclusion and Recommendation

This paper investigates the Contributions of Cooperative Societies to Poverty Reduction amongst Cassava Farmers in Delta South Agricultural zone, Nigeria, using Binary Logistic model and simple t-test analysis. The findings of this study revealed positive significant impact

of cooperative societies on poverty alleviation in Delta South agricultural zone with the mean income of cooperators with loan accessibility as significantly higher than those without loan access (#14,655.15 and #7,372.93). This in no doubt approves the significance of cooperative societies and their role in shooting up the standard of living of their members. This study focused on investigating the relationship between cooperative societies and poverty using cassava farmers in Delta south zone. The result of the study showed clearly that there is a very high level of poverty and cooperative societies has reduced the rate of poverty to some extent in the study area.

The study recommends that members should be more committed and be honest with loan repayment so as to improve the effectiveness of the cooperative societies; this will go a long way in the financial status of the cooperative. The study also recommended that credit facility should be made available to members as at when due; this will go a long way in easing economic hardship of the members. Policy measure that would further improve cooperative societies in reducing the poverty status of the populace in the study area and Nigeria at large should be put in place.

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