



Performance evaluation of farmers' multipurpose cooperative societies in Enugu State, Nigeria

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ABSTRACT

There is pertinent need for group efforts (cooperation) among farmers for efficient utilisation of agricultural resources. The aim of this study was to evaluate the performance of farmers' multipurpose cooperative societies in Enugu State, Nigeria. Primary data from 250 respondents were sampled. The objectives were to assess the performance of the farmers' multipurpose cooperative societies (FMCSs); determine the factors that affect performance; and explore the constraints to effective performance. Data were analysed using descriptive statistics and logistic regression model. Results showed that all the factors affecting cooperative society's performance hypothesised in the model were statistically significant with access to credit and access to input being the most significant ($P < 0.01$) and with marginal effects of 0.1743 and 0.1205 respectively. The result also showed that cooperative societies were able to secure loans, inputs, extension services, and organised an annual general meeting for their members. The result showed insufficient capital, inadequate credit, inexperienced managers and inadequate government assistance were serious constraints to cooperatives' performances. It is recommended that cooperatives should increase their equity capital drive by up scaling their subscriptions and by reinvesting their surpluses. The government should intensify its pro-farmers' cooperatives' policies and programs.

Keywords: Evaluation; multipurpose cooperatives; performance

INTRODUCTION

Most rural farmers in developing countries, including Sub-Saharan Africa, experience poor harvests and low incomes as a result of the small scale and subsistence nature of their farming businesses (Mgbenka *et al.* 2015). Food and Agricultural Organisation (FAO), International Fund for Agricultural Development (IFAD) and World Food Program (WFP) noted that much effort is needed to put-up in other to achieve food security and eliminate hunger across all spheres (McGuire, 2015). According to FAO (2023), Nigeria's Agric sector is faced with numerous challenges which stifle productivity and adversely affect the sector's contribution to Gross Domestic Product (GDP). These problems include but are not limited

to land fragmentation, changing climate, high dependency on rainfed farming, low innovative farming, land degradation, limited financing and poor access to markets. Poor harvests and low incomes among farmers in Nigeria have devastating effects on the farmers' welfare, as well as pose threats on national food security, income generation, and development (Obianefo *et al.*, 2021; FAO, 2012).

Enugu State, which is the area of this study, is vulnerable to many agricultural challenges, vagaries and associated risks. Group efforts (self-help through mutual help) via farmers' multipurpose cooperative societies' (FMCs) approach among rural farmers are perceived to be a panacea to most of these challenges militating against agriculture, food security and rural development. FMCs is made up of voluntary farmers who have common socioeconomic interests and jointly own enterprises for the purpose of solving their problems through mutual efforts (Anigbogu *et al.*, 2016; Kyazze *et al.*, 2016). According to Attah *et al.* (2018) and Varrella (2021) governments, especially in developing nations, have embraced cooperatives as a medium for reaching the grass roots and the development of rural areas.

The main purpose of FMCs is to increase farmer members' produce and revenues by helping them to access inputs, credits, information and markets at lower rates. By effective and efficient performance, farmers' multipurpose cooperative societies (FMCs) strengthen farmers' abilities to maximise their outputs, incomes and welfare. Omotilewa *et al.* (2021) argues that policies facilitating small holders' abilities to increase the scale of their operations could contribute substantially to growth in farm productivity, agricultural commercialization and increase in food security in Nigeria. However, FMCs in Enugu State have not visibly done well in the area of mobilization of resources for robust contributions to solving members' socioeconomic problems and/or improve their socioeconomic wellbeing, as well as tackle the food insecurity challenges of the State and beyond. Hence, this study explores how FMCs in the area performed within the year 2021 in assisting members to source inputs at reasonable rates, as well as access better markets for their produce. According to FAO (2012), farmers' cooperatives assist smallholder producers' access to natural resources such as land and water; knowledge and information sharing; markets and productive assets among others. On a broader basis, a high performance on the part of FMCs would likely have a trickle-down effect to achieving poverty and hunger reduction in Nigeria as well as foster growth and development in the country. Rural farmers who are characterized by poor resource utilisation, small farm holdings, low resource utilisation and low income deem it important to gather their resources together so as to increase their farm income and substantially improve their standard of living (Ibitoye, 2012).

In this study, we examined the performance of FMCs in Enugu State based on cooperatives' ability to organise annual general meetings; secure credits for on-ward lending to members; access extension services; organise training programs for their members; and source inputs on the behalf of their members. Various programs and projects initiated by both the States and the Federal Governments of Nigeria to maximally utilise FMCs as vehicles for food production and food security in the country and Enugu State in particular, have not yielded adequate payoffs. Efforts to develop cooperatives in Nigeria ever since its introduction in 1935, to enable the sector performs optimally have not yielded enough results (Agbo & Chidebelu, 2010). Onah, *et al.* (2014), observed that members' perception of their cooperatives' performance in Nigeria showed that the cooperatives have not performed well with regards to members' satisfaction. Some authors, such as Ibitoye (2012); Onugu and Abdulahi (2012); Ogunleye *et al.* (2021); Anigbogu *et al.* (2016); Wanglin *et al.* (2021); Tamiru & Leta (2022); and Onah *et al.* (2014) used different econometric models to explore

related topics in various geographical locations, and at various periods. However, from the authors' knowledge, the current research topic has not been particularly explored in Enugu State, Nigeria, which prompted the necessity for this study so as to fill this knowledge gap.

MATERIALS AND METHODS

Study Area

This study was conducted in Enugu State, Nigeria. Enugu State lies between latitudes 5°56'N and 7°36'N and longitudes 6°53'E and 7°55'E of the Greenwich Meridian (ENADEP, 2009). The State occupies a land mass of approximately 8,022,95 km² and a population of 3,257,298 (National Population Commission, NPC, 2006).

The warmest month of the year in the area is February with an average temperature of about 29.0°C, while the coolest month of the year is August with a mean temperature of about 24.3°C whereas rainfall ranges between 9mm and 270mm annually (Climate -data.org, CDO,2021). In the urban areas, trading is the dominant occupation, followed by civil service while farming is the major occupation of the rural dwellers. Some major markets in the State are Ogbete main market, Afor Awkunanaw, Orié Emene and Aria market.

Sampling and Data Collection

Multi-stage random sampling technique was used to collect primary data for the study. In order to maintain an inclusive and balanced study, data were collected from both the members and key officers (presidents) of cooperative societies. Eight LGAs were purposively selected because of the rural nature and predominant presence of farmers and FMCs in the areas. From these LGAs, 100 active FMCs and 150 members were randomly sampled, giving a total of 250 respondents. The sampling frame of active cooperative societies was gotten from the Cooperative Division of Enugu State's Ministry of Commerce and Industry.

Data Analysis

Data collected were analysed using both descriptive (Weighted Mean Technique) and inferential (Logistic regression) statistics. Research hypothesis was tested using F-Test statistic and Pearson's Chi-Square (X^2) test.

Model Specifications

This study uses logistic regression model to estimate the effect of cooperatives' socio-institutional factors on the probability of a Cooperative Society performing or not. In line with Greene (2012), the two possible outcomes can be labeled as 'success or 'failure', which is dichotomous in nature, and restricted between "0 and 1", because the predicted values are probabilities of the outcomes.

$$Pt = \frac{1}{1+\beta_0+\beta_nXn+\epsilon n} \quad (1)$$

By applying the Logarithmic transformation, the model can be represented as

$$\ln \left[\frac{pt}{1-pt} \right] = \beta_0 + \beta_n X_n + \varepsilon_n \quad (2)$$

Where:

pt is a binary variable taking the value 1 for the probability of performing and zero otherwise

$1-pt$ represents the probability of non-performance with a value ≤ 0

X_n is a vector of the explanatory variables

β_0 is the intercept

β_n is the vector of parameters

ε_n is the stochastic error term or the unobserved variables that affect performance

$\beta_n Pt(1 - Pt)$ is the marginal effects

$$Y = \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + e$$

X_1 = Age of cooperative

X_2 = Cooperative membership size

X_3 = Level of education of members

X_4 = Access to credit

X_5 = Sex

$\beta_1 - \beta_5$ = Coefficients

e = error term

\ln = natural logarithm

Likert Type Scale Rating

Likert Type Scale Rating was used to explore members' rating of their cooperative societies' performance. Here, the cut-off limits are lower limit $MS < 2.50$; upper limit $MS \geq 2.50$. We also applied this same technique in exploring the constraints to farmers' cooperatives' performance in the study area. Any Mean Score (MS) ≥ 2.50 was adjudged serious, while those < 2.50 were considered not serious.

RESULTS AND DISCUSSION

Socioeconomic Characteristics of FMCs' Members in Enugu State, Nigeria

Table 1 presents the distribution of members' according to their socio-economic characteristics. The table shows that majority (67%) of the cooperative members were male and most of the cooperative members (73%) were married. Cooperative societies in the study area were dominated by members with family sizes of 5-10 persons (53%). Many of the cooperatives' members spent reasonable number of years in school. About 33% of the members spent 7-12 years, while 20% spent above 12 years. This could positively influence members' contributions to decision making in the group, which could eventually improve performance. Majority of the members had many years of farming experience. All things being equal, members' experience contributes significantly to cooperatives' positive performance. It was observed that most of the members (81%) were in their vibrant years which could imply active participation in the cooperative society's business.

Performance evaluation of farmers' multipurpose cooperative societies

Table 1: Socio-economic characteristics of cooperative societies' members

Variables	Frequency (n=150)	Percentage	Mean
Gender			
Male	100	67	
Female	50	33	
Marital Status			
Single	40	27	
Married	110	73	
Household size			
1- 4	40	27	
5 -10	80	53	6
>10	30	20	
Years spent in school			
No formal education	30	20	
1-6 years	50	33	
7-12 years	50	33	7.5
>12 years	20	14	
Yrs of farming experience			
1-10 years	80	53	
11-20 years	50	33	11.5
>20 years	20	14	
Age of respondents			
18-38yrs	60	40	
39-48	62	41	34
49>	28	19	

Socioeconomic/Enterprise Characteristics of FMCs in the Study Area

From the result in Table 2, most of the farmers' cooperatives (80%) were mixed societies in terms of genders. This implied inclusive membership which could positively influence performance. A reasonable percentage (71%) of the FMCs had existed for over 6 years which suggested that they had acquired good business experience. All things being equal, this would positively affect performance. Nwankwo *et al.* (2016) corroborates this result.

Membership size of FMCs in the area was high, with (40%) of the societies having membership size of over 51 persons. If resources, especially financial and social capitals, are properly harnessed, this trend would be an advantage to the FMCs. Wanglin *et al.* (2021) observed that cooperative membership improved banana farmers' financial performance; as well as affects their net returns and return on investment (ROI) positively and significantly. Majority of the FMCs had existed for 16 years and above. Average number (50%) of the FMCs managers had good educational level (above 12 years in school). With high education, the managers would be able to advice the members well, and equally make favourable business decisions. The result on age of FMCs agrees with Nwankwo *et al.* (2016) who reported that majority of the FMCs investigated have existed for about 16 years. Qiao *et al.* (2022); Tamiru and Leta, (2022); Kinyuira, (2018) and Nwankwo *et al.* (2016) corroborated the above results.

Table 2: Socioeconomic/enterprise characteristics of farmers' cooperatives in the study area

Characteristics	Frequency (n=100)	percentage	Mean
Sex of members			
Male	15	15	
Female	5	5	
Mixed	80	80	
Cooperatives' experience			
1-5 years	29	29	
6-10 years	20	20	9
11-15yr	21	21	
16 yrs & above	30	30	
Membership size			
10-50	60	60	35
No formal education			
1-6 years	22	22	
7-12 years	28	28	
≥ 12 years	50	50	7.5
Own joint business			
Yes	90	90	
No	10	10	
Business account balance			
≤ 250,000	30	30	
250,000 -500,000	45	45	425,000
> 500,000	25	25	

Performance of FMCs in Enugu State, Nigeria

Table 3: Performance of farmers' multipurpose cooperative societies in the study area

Performance indicators	Mean	Standard deviation	Decision
Secured loans for members	2.50	1.020	Accept
Organized Trainings for members	1.11	0.320	Reject
Accessed inputs for members	2.53	0.498	Accept
Had access to extension services	2.66	0.508	Accept
Organized annual general meetings (AGMs)	3.20	0.360	Accept

Mean cut off point=Mean≥2.5=serious; not serious=<2.5

FMCs in the study area were able to secure loans (MS= 2.50), access to inputs (MS = 2.53) and extension services (MS = 2.66) and organized annual general meetings (MS = 3.20) for their members within the year 2021 for their members. The implication is that the FMCs likely had the resources to perform well. The findings of Hassan and Garandi, (2018); Qiao *et al* (2022); Tamiru and Leta, (2022); Kinyuira, (2018) and Nwankwo *et al.* (2016) support these results.

Performance evaluation of farmers' multipurpose cooperative societies

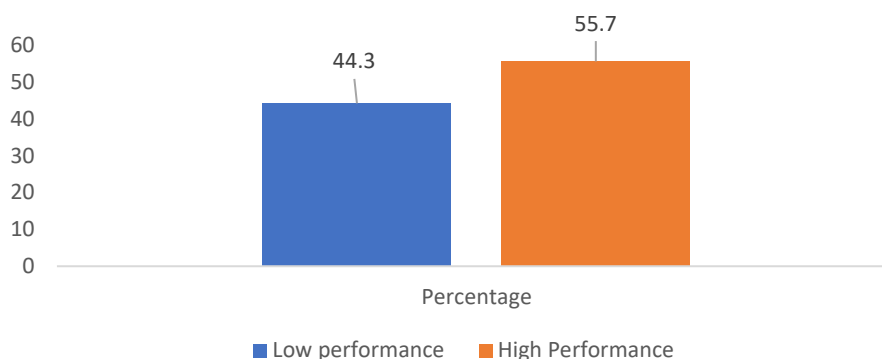


Figure1: Performance of farmers' multipurpose cooperatives in Enugu State

Figure 1 shows that about (55.7%) of the cooperative societies performed well, while 44.3% had low performance. The overall result of FMCs' performance in Enugu State was moderate.

Factors Affecting the Performance of FMCs in Enugu State, Nigeria

Table 4 shows that the number of years of cooperative existence (years of business experience) was positively significant at ($p < 0.05$), with marginal effects of 0.140, indicating that a unit increase in years of FMCs' existence in Enugu State would increase the probability of their performance by 14%. Levels of education of members was equally significant and positive at ($p < 0.05$), with marginal effects of 0.203. This implies that a unit increase in members' levels of education would increase the probability the cooperatives performance by 20%.

Table 4: Logistic regression of factors that affected performance of FMCs in Enugu State, Nigeria

Variable	M/Effects:	(dy/dx)	Std. Error	z-Statistic	P-value.
Years of cooperative existence	0.1400	1.261486	2.236	0.0135**	
Members' level of education	0.2030	0.326743	2.208	0.03188**	
Access to credit	0.1743	0.499544	3.814	0.0095***	
Access to agric inputs	0.1205	0.699312	2.936	0.0033***	
Extension visits	0.1103	2.347582	2.101	0.0439**	
Managers' level of education	0.1601	2.03328	2.143	0.0209**	
Prob > Chi2	0.014*				
Pseudo R ²	0.1053				
Constant	2.53*				

***, ** and * represent statistical significance at 1% and 5% and 10% respectively.

Number of extension visits was positively significant ($p < 0.05$) to FMCs' performance with marginal effects of 0.1103, which means that a unit increase in extension visits would increase the probability of FMCs' performance by 11%, and managers' level of

education is positively significant at ($p < 0.05$) with marginal effects of 0.1601, implying that a unit increase in managers' level of education would generate an increase of 16% in the probability of FMCs in the study area to perform. Access to credit is significantly positive at ($p < 0.01$) with 0.1743 as marginal effects, indicating a probability increase of 17% at a unit increase of access to credit, while access to agricultural inputs are also statistically and positively significant at ($p < 0.01$) with marginal effects of 0.1205 showing that a unit increase in access to inputs would lead to 12% increase in the probability to perform by the FMCs in the area. Ibitoye, (2012); Onugu and Taiwo, (2012); Ogunleye *et al.* (2015); Anigbogu *et al.* (2016); Wanglin *et al.* (2021); Tamiru & Leta, (2022); and Onah *et al.* (2014) in their various research found similar results to the above findings on factors that affect cooperative societies performance in various locations they studied.

Test of Hypothesis

The Logistic regression result gave a Log Likelihood of -39.50889 which was significant at 1% level ($p < 0.05$). Therefore, we do not accept the hypothesis which stated that socio-economic factors do not significantly influence performance of FCMs.

Problems to Farmers Cooperatives' Performance

Challenges to FMCs effective performance in the study area include inadequate capital (MS = 2.83), limited access to credit (MS = 2.57), inexperienced managers (MS = 3.80) and inadequate government intervention (MS = 2.70). Inadequacy and/or unavailability of these vital inputs would challenge the performance of the FMCs.

Table 5: Challenges Facing Farmers Cooperatives' Performance

Challenge	Mean	Stan. Dev.	Decision
Inadequate equity capital	2.830	0.909	Serious
Limited access to credit	2.570	0.997	Serious
Lack of access to extension services	1.810	0.786	Not Serious
Inexperienced managers	3.800	0.430	Serious
Inadequate government assistance	2.700	0.430	Serious

Mean cut off point = MS \geq 2.5 = Serious; MS $<$ 2.5 =Not Serious

CONCLUSION

This research explored performance of FMCs in Enugu State, Nigeria. Majority of the FMCs in Enugu State, Nigeria did not perform creditably. Farmers should pool their resources through cooperatives to increase agricultural output, which will improve economic activity in rural areas. But without being financially successful, cooperatives might not be able to provide for its members or grow their service. Based on the results of this study, the authors recommend that:

The Federal and States' governments of Nigeria should engage policies and programs that make access to credit and other necessary inputs available to FMCs in the state for adequate performance.

Performance evaluation of farmers' multipurpose cooperative societies

The cooperatives should intensify their equity capital drive by scaling up the amount payable on shares, subscriptions and dues, as well as reinvesting their cooperatives' business surpluses.

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