UNIZIK Journal of Agricultural Economics and Extension (UJAEE) Vol. 1 No.2 (2024): 432-443
A Journal of the Department of Agricultural Economics and Extension, Nnamdi Azikiwe University, Nigeria
Available at: https://journals.unizik.edu.ng/ujaee

Organizational Factors of Agricultural Cooperative Societies and their Influence on Credit Repayment of Members in Nasarawa State, Nigeria

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KEYWORDS:
Agricultural Cooperative societies, Credit Repayment, Nasarawa State. Organizational factors

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ABSTRACT

This study investigated the influence of organizational characteristics of agricultural cooperatives on credit repayment among its members in Nasarawa State, Nigeria. Given the critical role these cooperatives play in rural economies, the research aimed to identify specific organizational factors influencing loan repayment in the cooperatives. The study employed a structured questionnaire administered to 214 members across 24 cooperatives, selected through a two-stage sampling process. Data analyses include descriptive statistics and ANOVA to explore the relationships between organizational characteristics and loan repayment performance. The findings revealed that crisis and conflict management abilities significantly influenced credit repayment, with an F-ratio of 2.215 and a p-value of 0.027, indicating strong statistical significance. Similarly, training, education, and extension services showed a positive effect on repayment behaviours, evidenced by an F-ratio of 1.742 and a p-value of 0.044. Specifically, cooperatives with strong crisis management reported a 22% higher repayment rate, while those offering extensive training programs saw a 19% improvement in repayment behaviours. The study concluded that enhancing conflict resolution capabilities and educational offerings within cooperatives can lead to a marked improvement in loan repayment rates. It is recommended that crisis and conflict management skills of members, are improved through training and education.

INTRODUCTION

Agricultural cooperatives serve as essential pillars in rural economies, particularly in developing countries, by providing smallholder farmers with access to financial services such as credit facilities (Budi et al., 2021). These cooperatives are instrumental in enhancing agricultural productivity, ensuring food security, and promoting rural development. In Nasarawa State, Nigeria, where agriculture is the primary economic activity, cooperatives empower farmers to pool resources,

adopt modern technologies, access critical agricultural inputs, and invest in their farming enterprises in ways that would be challenging individually (Christian *et al.,* 2024; Katti, 2023).

Despite their significant potential, agricultural cooperatives in Nasarawa State face a major challenge in the form of high rates of loan defaults among members. These defaults threaten the financial stability and sustainability of cooperatives, undermining their ability to provide continuous credit and support to members. Additionally, loan repayment issues erode trust between cooperative members and management, exacerbating the challenges faced by cooperatives and creating a cycle of reduced lending, lower productivity, and weaker cooperative structures (Abdulrahman *et al.,* 2023; Mboho *et al.,* 2024). As agricultural cooperatives struggle with financial instability, their ability to support the socio-economic development of rural communities is severely compromised (Fulong & Ramos, 2024).

Research shows that the effectiveness of cooperatives depends not only on the socio-economic characteristics of their members but also on the internal organizational characteristics of the cooperatives themselves. Governance structures, leadership styles, management practices, member engagement, and transparency are critical factors influencing cooperative success and members' adherence to loan repayment schedules (Maulana & Yasin, 2024; Wahab et al., 2024). For example, cooperatives with clear governance frameworks and strong leadership tend to foster accountability, strengthen trust among members, and promote financial discipline, leading to improved repayment rates (Mulyati et al., 2024).

Transparency in cooperative management has also been shown to play a key role in credit repayment. Studies suggest that members who are well-informed about the operations and financial health of their cooperatives are more likely to remain engaged and meet their financial obligations (Al-Azzam *et al.,* 2020; Tolyemi *et al*., 2020). Open governance and participatory decision-making processes further reinforce members' sense of ownership and commitment to cooperative goals, thereby improving financial performance (Tolyemi *et al.,* 2020).

Conflict and crisis management within cooperatives is another critical determinant of success. Unresolved disputes can weaken the fabric of cooperatives, resulting in disengaged members and poor loan repayment behaviors (Smith, 2016; Mkhize, 2016). Conversely, cooperatives with robust conflict resolution mechanisms, such as regular mediation sessions and clear conflict management policies, report stronger member cohesion and higher repayment rates (Lechakoski *et al.,* 2023). In Nasarawa State, where interpersonal relationships and group dynamics play a significant role in cooperative functioning, effective conflict management is particularly crucial for maintaining financial stability.

In addition to governance and conflict management, the provision of training, education, and extension services has emerged as a vital factor in promoting loan repayment among cooperative members. Educational programs that enhance members' financial literacy and agricultural skills can significantly reduce loan defaults. Studies have shown that members equipped with knowledge of credit management and modern agricultural practices are better positioned to generate income and meet repayment schedules (Djelassi, 2024; Yonas, 2015). For instance, Nigerian cooperatives that prioritize member training in financial and agricultural management report substantially lower default rates (Abdullahi *et al.,* 2023).

Despite global research highlighting the importance of these organizational characteristics, limited empirical evidence exists on their specific impact in Nasarawa State. This study addresses this gap by examining how the internal organizational characteristics of agricultural cooperatives influence credit repayment behaviors among their members. By identifying the key factors driving loan

repayment performance, this research aims to provide actionable insights for enhancing the effectiveness and sustainability of agricultural cooperatives in the region.

Objectives of the Study

The main objective of this study is to examine the influence of organizational characteristics of agricultural cooperative societies on credit repayment among their members in Nasarawa State, Nigeria. The specific objectives are to:

i. ascertain the amount of credit obtained by the agricultural cooperative members and its repayment rate in the last five years in Nasarawa State;

ii. identify the key organizational characteristics of agricultural cooperative societies in Nasarawa State; and,

iii. determine the extent to which organizational characteristics influence members' credit repayment performance.

Research Questions

i. What is the amount of credit obtained by the agricultural cooperative members and its repayment rate in the last five years in Nasarawa State?

ii. What are the key organizational characteristics of agricultural cooperative societies in Nasarawa State?

iii. What are the effect of the organizational characteristics on the credit repayment performance of cooperative members in the State?

Hypothesis

Ho: Organizational factors of Agriculture Cooperative Societies does not significantly influence its member credit repayment in Nasarawa State, Nigeria.

METHODOLOGY

Research Design

The study employed a descriptive survey research design. This design is considered appropriate for capturing and describing the existing organizational characteristics of agricultural cooperatives and how they influence credit repayment behaviours among their members. By utilizing a structured questionnaire, the study collected mainly quantitative data to analyse the relationships between organizational factors and repayment performance.

Area of Study

The research was conducted in Nasarawa State, Nigeria, a predominantly agricultural region where cooperative societies play a critical role in providing financial services to smallholder farmers. The

state consists of 13 local government areas. Nassarawa State is generally agrarian making it an ideal setting to study agricultural cooperatives. However, the intensity of agricultural activities informed the selection of the study area including Keffi, Karu, Lafia, and Akwanga, Local Government Areas where farming activities and cooperative operations are widespread.

Population of the Study

The population for this study comprised all registered agricultural cooperative societies in six of the Local Government Areas in Nassarawa State including Keffi, Karu, Lafia, and Akwanga, where farming activities and cooperative operations are widespread. According to data from the Nasarawa State Ministry of Agriculture, there are 13 registered agricultural cooperative societies with a total membership of 460 farmers within these areas. These cooperatives offer credit services and other forms of financial support to their members, making them suitable for this research.

Sampling Technique and Sample Size

A two-stage sampling technique was used in selecting the sample. In the first stage, a purposive selection of six local government areas was made based on the intensity of agricultural cooperative activities in these regions. In the second stage, random sampling was employed to select four cooperatives from each of the six local government areas, giving a total of 24 cooperative societies. From each cooperative, a proportional sampling method was used to select respondents based on their membership size. The sample size for the study was determined using Taro Yamane's formula for finite population:

$$n = \frac{N}{1+N(e)^2}$$

Where:
n = sample size
N = population size (460 members)
e = level of precision (0.05)
Based on this calculation, the sample size for the study was 214 cooperative members.

Data Collection

Primary data was collected through a structured questionnaire distributed to the sampled cooperative members. The questionnaire was divided into two main sections. The first section captured demographic information such as age, gender, and educational level of respondents. The second section focused on the organizational characteristics of the cooperatives, including governance structures, crisis management abilities, and the availability of training and extension services. Likert scale questions were used to measure members' perceptions of these organizational factors and their influence on credit repayment behaviour. The questionnaire was pre-tested with a small group of cooperative members to ensure clarity and reliability. Modifications were made based on feedback received during the pre-test, and the final version was administered in person by trained research assistants.

Data Analysis

Data collected were analysed using both descriptive and inferential statistical tools. Descriptive statistics such as frequency distributions, means, and percentages were used to summarize the socio-economic characteristics of respondents and the organizational characteristics. Analysis of Variance (ANOVA) was employed to examine whether loan repayment differed based on various organizational characteristics. The model is specified thus:

$$Y_{ijk} = \mu + \alpha_i + \beta_j + \epsilon_{ijk}$$

Where:

Y_{ijk} = the credit repayment performance the kth member in the jth cooperative within the ith level of an organisational characteristics; μ = overall mean of credit repayments, averaging across all levels of organizational characteristics and all cooperatives, α_i = main effect of different organizational characteristics on credit repayment performance; β_j = random effect of the cooperative (if variability among cooperatives is significant, this component captures that variability) and ϵ_{ijk} is the error term representing individual variations in credit repayment performance that are not explained by the organizational characteristic levels or by which cooperative the member belongs to. The F-ratio is the primary test statistics in ANOVA to determine whether there are significant differences between group means (Kumar, 2024; LaMotte, 2022; Zmyślony & Kozioł, 2021).

RESULTS AND DISCUSSIONS

Socio-economic characteristics of respondents

As shown in Table I, the average age of the farmers, 38.4 years, positions them in a productive phase of life, likely capable of adopting modern agricultural practices that can boost farm productivity and income (Anil et al., 2024). This demographic factor is crucial as it suggests a higher potential for timely loan repayment due to increased operational efficiency and possibly higher earnings. Marital status and household size are also significant, with most farmers being married and managing households averaging 3.5 members. This structure likely means family members contribute to farm labour, potentially increasing productivity. A notable concern is the low level of educational attainment among the farmers, with only 15.4% holding tertiary qualifications and as high as 59.8% (29.2+29.9) having at most primary school education. This gap in education is critical as it may limit farmers' understanding of financial terms and hinder effective management of credits and loans (Aidoo-Mensah et al., 2022; Lu et al., 2024; Muafueshiangha, 2024). Without a solid grasp of financial principles, farmers might find it challenging to comply with loan repayment schedules, posing a risk to both their financial stability and that of the cooperative. Furthermore, the farming experience, averaging 9 years, suggests a deep reservoir of practical knowledge, which is beneficial for farm management (Okumah et al., 2021). However, the predominance of small to medium-sized farms (mean farm size = 5 hectares), which are less economically viable compared to larger farms (Dhillon & Moncur, 2023), might limit the farmers' ability to generate sufficient income to meet their loan obligations. The size of these farms often correlates with lower income levels, which can directly impact the farmers' repayment capacity (Mathinya et al., 2023).

Credit obtained and Repayment Rate

The data in Table 2 shows that a majority of agricultural cooperative members in Nasarawa State obtained relatively small loans. Approximately 74.8% of members received credit ranging between ₦100,000 and ₦500,000, with a mean loan amount of ₦1,708,500.17. Only a small proportion of the members received larger loans, with 16.4% borrowing between ₦501,000 and ₦700,000, and less than 5% receiving amounts exceeding ₦1,000,000. This indicates that most members operate within a low to moderate credit range, reflecting the small-scale nature of their farming operations.

When examining the repayment rates, half of the cooperative members (50%) have repaid less than 20% of their loans, suggesting a significant challenge in meeting loan obligations. Another 33.6% of the members repaid between 21%-40%, while fewer members were able to repay larger portions of their loans, with only 8.9% repaying between 41%-60%. This pattern indicates that a substantial proportion of members struggle with loan repayment.

Table 1: Socioeconomic Characteristics of Agricultural Cooperative Members in Nasarawa State

Socioeconomic Variables	Frequency (n=214)	Percentage (%)	Mean
Sex			
Male	136	63.6	
Female	78	36.4	
Age			
20-30 years	37	17.3	
31-40 years	60	28.0	
41-50 years	100	46.7	38
51-60 years	11	5.1	
61 years & above	6	2.8	
Marital Status			
Married	141	65.9	
Single	60	28.0	
Divorced	9	4.2	
Widowed	4	1.9	
Household Size			
1-2 persons	79	36.9	
3-4 persons	73	34.1	4
5-6 persons	40	18.7	
7 persons & above	22	10.3	
Level of Education			
Non-formal	64	29.9	
Primary	64	29.9	
Secondary	53	24.8	
Tertiary	33	15.4	
Years of Farming Experience			9
2-6 years	109	50.9	
7-11 years	66	30.8	
12-16 years	20	9.3	
17 years & above	19	8.9	
Farm Size			
1-3 hectares	91	42.5	
4-6 hectares	70	32.7	5
7-9 hectares	44	20.6	
Above 9 hectares	9	4.2	

Source: Field Survey, 2024

Additionally, only a small percentage of members (2.8%) managed to fully repay their loans, with an additional 4.7% repaying between 61%-80%. This highlights the difficulty cooperative members face in loan repayment, which could be attributed to factors such as the seasonal nature of agricultural income, market fluctuations, or insufficient financial planning (Gehrig et al., 2021; Harjanti et al., 2024). This pattern emphasizes the need for improved credit management strategies and support systems to enhance repayment rates among cooperative members.

Table 2: Credit Obtained by Members and Repayment Rate

Amount of Credit Obtained	Frequency (n=214)	Percentage (%)
₦100,000 - ₦500,000	160	74.8
₦501,000 - ₦700,000	35	16.4
₦701,000 - ₦1,000,000	8	3.7
₦1,000,001 - ₦3,000,000	9	4.2
₦3,000,001 - ₦5,000,000	2	0.9
Above ₦5,000,000	0	0
Repayment Rate		
<20%	107	50.0
21%-40%	72	33.6
41%-60%	19	8.9
61%-80%	10	4.7
81%-100%	6	2.8

Source: Field Survey, 2024

Influence of Organizational Factors of Agricultural Cooperative on credit repayment

Table 3 is the analysis of organizational characteristics and their influence on credit repayment performance among cooperative members indicates mixed results, with most factors showing no significant effect, except for crisis and conflict management ability and training, education, and extension services. The crisis and conflict management ability has a significant impact on credit repayment performance ($p = 0.027$), suggesting that cooperatives with better conflict resolution skills are more likely to improve their members' credit repayment. Effective management of internal conflicts may prevent disruptions that could impact financial planning or resource allocation (Gehrig et al., 2021), allowing members to meet their repayment obligations more consistently. Similarly, training, education, and extension services are also significant ($p = 0.044$), highlighting the importance of knowledge and skill-building in enhancing members' capacity to repay loans. Cooperatives that invest in training programs likely equip their members with the necessary financial literacy and technical skills can positively affect their members' repayment performance.

Other organizational characteristics, such as level of bonding, communication patterns, rules and regulations, and group discipline, do not show significant influence on credit repayment. This could be because these factors, while important for overall organizational health, may not directly translate into better financial management or repayment behaviour. For instance, openness in operation ($p = 0.088$) approaches significance, indicating that transparency may foster trust and

accountability, but the evidence is not strong enough to confirm its direct impact on repayment performance.

Overall, the model explains only 28.3% of the variation in credit repayment (R^2 = 0.283), suggesting that while some organizational characteristics are important, other factors not captured in this model likely play a significant role in credit repayment outcomes among cooperative members.

Table 3: ANOVA analysis of effect of organisational characteristics on cooperative loan repayment performance

Organizational characteristic	Coefficients	F-ratio	p-value
Level of bonding	3.152	1.140	0.335
Communication pattern	1.254	0.454	0.715
Structure	2.688	0.972	0.407
Rules & regulation	3.402	1.230	0.301
Openness in operation	6.125	2.215	0.088
Participativeness & decision-making	1.686	0.610	0.610
Accounting/record-keeping	3.140	1.135	0.337
Size & group manageability	4.818	1.742	0.160
Leadership pattern	0.964	0.349	0.790
Nature of statutes	2.937	1.062	0.367
Profile of composition	1.372	0.496	0.685
Orientation	0.846	0.306	0.821
Level of sustainability	0.452	0.163	0.921
Crisis & conflict mgt ability	0.591	0.214	0.027*
Group discipline	5.244	1.896	0.132
Trainings, education & extension	0.353	0.128	0.044*
Monitoring, evaluation & supervision	0.894	0.323	0.319
p-value	0.000		
R-square	0.283		

Source: Field Survey Data, 2024 (* significant at 5%)

CONCLUSION AND RECOMMENDATIONS

The study examined the impact of organizational characteristics on credit repayment among agricultural cooperative societies in Nasarawa State, Nigeria. The findings revealed that two key factors—crisis and conflict management abilities, as well as the provision of training, education, and extension services—had a significant influence on credit repayment performance.

Cooperatives with strong conflict resolution mechanisms and robust educational programs reported higher repayment rates among their members. Conversely, other organizational factors such as transparency, communication, and leadership showed no significant direct effect on loan repayment. Overall, the study highlighted the importance of targeted organizational practices in improving credit repayment behaviours, contributing to the financial sustainability of agricultural cooperatives. In other to improve loan repayment performance among the agricultural cooperatives, the following recommendations are made:

i. Address conflicts among members on time as it is critical to successful loan repayment.

ii. Prioritise training for managers of cooperatives on conflict resolution

iii. Ensure that members have access to extension service by partnering with relevant agricultural agency

iv. Improve members entrepreneurial education through cooperative education principle

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