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Analysis of Cooperative Societies Effectiveness in Credit Delivery to Agricultural Enterprises in Calabar Municipality of Cross River State, Nigeria

Ajah Eucharía Agom*, Itam Kingsley Okoi and Asuquo Innocent Asuquo

Department of Agricultural Economics and Extension University Of Calabar, Calabar, Nigeria.

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***Corresponding Author**

Ajah Eucharía Agom

E-mail: ajahagom@yahoo.com

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ABSTRACT

The study analyzed the effectiveness of cooperative societies in credit delivery to agricultural enterprises in Calabar Municipality of Cross River State. The specific objectives were to analyze the institutional characteristics of the cooperatives, analyzed number of loan applied and approved over a period of time, the effectiveness and constraints of cooperatives. The study used a multi-stage random sampling technique to select 30 agricultural cooperative societies in the Municipality. Primary data for the study were collected in 2013, using well-structured questionnaire. The data collected were analyzed using descriptive statistics and Queue model. The result revealed that the mean age of the cooperative societies was 5.7 years and 70% of them were more than 5 years in operation. The cooperative societies had an average approval rate of 94.5% with an average traffic intensity of 1.06 and an idle time of -0.14. This showed that cooperative societies were not very efficient in the Queue management. The major constraints militating against cooperative society's effectiveness were low loan repayment and embezzlement of funds (poor management of funds). Any policy that will improve proper management of funds and higher loan repayment will improve the managerial ability of the cooperative management and increase the approval rate to 100 percent and the idle time to zero.

INTRODUCTION

In most developing countries (Nigeria inclusive), agriculture dominates their economies. It has been established that about 70 percent of Nigeria's population is engaged in agriculture (Obasi and Agu, 2000) while 90 percent of Nigeria's total food production comes from small farms and 60 percent of the country's population earn their living from these small farms (Oluwatayo *et al.* 2008 ; Izekor and Alufohai , 2010 and Awotide *et al.*2011).

However, insufficient credit has emerged the most limiting setback of Agricultural production. This is because capital is the most important input in agricultural production and its scarcity to small scale farmers would lead to a decline in food production, because these small scale farmers account for the bulk of Agricultural produce of the nation.(Oluwatayo, 2008 and Izekor and Alufohai, 2010). The recent occurrence of food importation into the country to make up for the shortfall in food supply is a dangerous indication of the dwindling farm productivity and a warning sign that if the nation continues with business as usual; the prospect of food security will be bleak for millions of people (Nweze, 2003).

One of the major problems of Agricultural development in Nigeria is that of developing appropriate organizations and institutions to develop, mobilize and induce members of the rural sector to a greater productive effort (ICA, 2010). As such farmers who are characterized by low income, low resource utilization, small farm holdings and scattered nature of farmland, find it difficult to pull their resources in order to raise their farm income and substantially improve their living conditions. Thus, the recognition of credit as a powerful instrument for the reduction of poverty in the developing countries especially Nigeria cannot be over emphasized.

Access to credit by the rural people has the potential of making the difference between poverty and an economically secured life, as well as improving Agricultural productivity (Zeller and Sharma, 1998). Farm credits are obtainable from either the formal sources which includes banks, and other government-owned institutions or the informal sources which are self-help groups, money lenders, cooperatives and non-governmental agencies (NGO). (Quereshi, et al 1996). The informal sources of credit is more popular among small scale farmers which may be due to the relative ease in obtaining credit devoid of administrative delay, non-existence of security or collateral, flexibility built into repayment which is against what is obtained in the formal sources. Ojo (1985), observed that the institutional lending system has failed to meet the objective for which they were set up.

According to him, only 15 percent of the trading bank credit to agriculture has been covered. The major short comings of their transactions he observed were due to the inaccessibility of these funds to rural farmers

as a result of the bureaucratic procedures and high service cost, which are very difficult for the farmers to meet. The situation have attracted the attention of Nigerian government and this has led the Federal Government of Nigeria to the creation of specialised institutions such as the Nigerian Agricultural and Cooperative bank (NACB) which later translated into the Nigeria Agricultural Cooperative and Rural Development Bank (N.A.C.R.B.D) now named Bank of Agriculture (BOA), to cater for the credit need in the agricultural sector.

In spite of the importance of loan in agricultural production, its acquisition is fraught with a number of problems such as credit ineffectiveness, institutional bottlenecks, bureaucratic procedures, restriction of credit for specific purposes, lack of collateral, as well as disbursement lag (Oyenucheya and Ukoha,2007; Nwachukwu *et al* 2010 and Ajah *et al* 2013).

In such situations cooperatives represent a strong and viable economic alternative; cooperative organization offers the best machinery for reaching the masses of the small scale farmers. (Kareem *et al*, 2012).

The importance of Agricultural cooperatives as an agent of economic empowerment through the channeling of credit to economically disadvantaged persons in the society cannot be overemphasized.

COPAC (2000) has opined that cooperatives have the ability to promote and support entrepreneurial development in farms that are compatible with the principles and objectives of the World Summit for social development held in Copenhagen in 1995. Aryeetey (1996) also recommends cooperatives as a means to tackle loan default problems in farm credit delivery. Through cooperatives, farmers could pool their limited resources to improve Agricultural output and this will enhance socio-economic activities in the rural areas (Alufohai, 2006; Alufohai and Okorosobo 2013).

The increase in the credit needs of the farmers in a perforated economy of the country has made this study timely; several studies had been carried out by Izekor and Alufohai, (2010) and Awotide *et al* (2011) on the effectiveness of cooperative societies in agricultural credit delivery in Ikpoba Okha Local Government Area, Edo State and Ogun State in Nigeria respectively, studies have also been carried out by Alufohai and Okorosobo (2013) on the Assessment of beneficiaries satisfaction of the management of loan contract components by cooperative societies in Edo State Nigeria and Kareem *et al* (2012) on the impact of cooperative societies and capital formation in Ogun State Nigeria. Similarly studies have been carried out by Alufohai and Ahmadu (2005) on Queue Management by Nigerian Agricultural cooperatives and rural Development Bank (NACRDB) in farm credit delivery in Benin branch, Edo State, Nigeria.

Studies have been carried out by Ndifon (*et al* 2012) in the southern geopolitical of Nigeria on the sustainability of agricultural cooperative societies and Jiji

(1999) on the constraints of agricultural cooperatives in Cross River State; but there is still a dearth of study on cooperative societies' effectiveness in Cross River State in general and Calabar Municipality in particular.

This study intends to address the following research questions; what are the institutional characteristics of the cooperatives societies; how effective are these cooperative societies in credit delivery to farmers? What are the constraints of cooperative societies?

OBJECTIVES OF THE STUDY

The objectives of the study were to:

- Identify the institutional characteristics of cooperative societies.
- Analyze loan applied and approved over a period of time.
- Analyze the cooperative societies' effectiveness in credit delivery using service rate, idle time, traffic-intensity, and arrival rate.
- Identify the constraints of credit delivery in agricultural cooperatives

Theoretical Framework

Helmberger and Hoos (1962) can be regarded as having developed the first complete mathematical model of behavior for agricultural cooperatives. Sexton (1995) provides a brief overview of developments in the economic theory of cooperatives in the US prior to Helmberger and Hoos paper, Sexton (1984) considered their paper as "a land mark in the economic theory of cooperatives".

Helmberger and Hoos (1962) used the neoclassical theory of the firm to develop short-run and long-run models of cooperatives (including behavioural relations and position of equilibrium for a cooperative and its members under different sets of assumptions) using traditional marginal analysis. In their model, the cooperative optimization objective is to maximize benefits to members by maximizing "the per unit value or average price by distributing all earnings back to members in proportion to their patronage volume or use (Torgerson et al 1998). Sexton (1995) regards this "landmark" paper so highly because (1) the (correct) analysis of cooperative and member behaviour is based on these characteristics; the model set the stage for further advancement in cooperatives with his conception of the cooperative as a form of vertical integration, and his focus on the structural and functional relationships of members (the principals) to their cooperative marketing organization (the agent). His model was later refined by Phillips (1953) and Aresvick (1955).

STUDY AREA

The research focused on Calabar Municipality of Cross River State; the geographical location of Calabar is latitude 4⁰58N and longitude 8⁰17E. It lies on the peninsula below the Calabar and great Kwa Rivers. It is bounded to the North by Akamkpa Local Government Area, to the South by Calabar South Local Government Area, it is further bounded to the East by Akpabuyo Local Government Area and finally to the West by Odukpani Local Government Area. It has a land mass of 604km² (233sqm) and an elevation of 32m (105ft); average temperature of 26.1°C and rainfall between 2500 – 3,050mm and relative humidity 58%. It was formerly known as Atakpa; Calabar is the capital of Cross River State; it comprises of several towns like Akim, Ikot Ansa, Ikot Ishie, Kasuk Clan, etc. They speak mainly Qua language, Efik and Abakpa; with a population of 318,099 (N.P.C – 2006) and increases every year. The people are not mainly farmers but cultivate cassava, maize, plantain, banana and huge variety of vegetables; they also possess a large chunk of civil servants. Calabar Municipality is also a notable tourist destination with the Tinapa resort, Marina resort, Slave museum etc.

METHODOLOGY

Population of study

The population of the study comprises of all registered Agricultural cooperative societies in Calabar Municipality of Cross River State.

Sampling Technique and Sample Size

The first stage was the identification of all the registered agricultural cooperative societies in Calabar Municipality from the Ministry of Social Welfare and Rural Development. The second stage was the random selection of 30 (75%) agricultural cooperative societies from the total number of registered cooperatives in Calabar Municipality which was 40.

Method of data collection and analysis

Data for the study was collected using a well-structured questionnaire administered to respondents who were cooperative officials and were involved in cooperative activities.

The analysis involved the use of descriptive statistics such as, frequency count, mean percentages as well as the Queue model.

The Queue Theory

The Queue is a waiting line; it is an array of items waiting to be served. The Queue model is usually employed to determine the effectiveness of the performance of an organization (Olayemi and Onyenwaku, 1999). The Queue model was used to

determine the arrival rate of loan request, the service rate, the idle time and the traffic intensity of cooperative societies. These were computed using the formulae in equations 1 – 4 following Omotosho (2002), Alufohai and Ahmadu (2005), Izekor and Alufohai (2010). Olayemi and Onyenwaku (1999), Awotide et al (2011) and Webster (1992).

$$\text{Arrival rate} = \frac{\text{Number of arrival}}{\text{Time}} \quad (1)$$

$$\text{Service rate} = \frac{\text{Number served}}{\text{Time}} \quad (2)$$

$$\text{Traffic intensity} = \frac{\text{Arrival rate}}{\text{Service rate}} \quad (3)$$

$$\text{Idle time} = 1 - \text{Traffic intensity} \quad (4)$$

The arrival rate depicts the number of loan request per year, the service rate represent the number of application accepted, considered and loan actually provided. Idle time refers to the period when no

application was attended to, even when they had been submitted. Efficiency in Queue – management is achieved when the traffic intensity is unity that is arrival rate is equal to service rate and idle time is zero.

RESULTS AND DISCUSSION

Institutional Characteristics of the Cooperative Societies

Table 1 revealed that the mean age of the cooperative societies was 5.7 years and 70% of them were more than 5 years in operation. Average membership at inception was 14 and 80% of the cooperative societies had 10 or more members at inception. Interestingly, 30% of the cooperative membership presently has grown to 40 or more members. The results revealed that all cooperative societies have motivational packages that could entice more members. Some of the cooperatives were also gender sensitive like the “JESBIE” women, “WAELE” women and “TIRELESS” women Farmers cooperative societies (table 3).

All the Cooperatives were registered at the state level. The cooperatives were involved in crop production, livestock production, fisheries, agricultural marketing and farm inputs supply (table 2).

Table 1: Dominance Factor for Some Cooperative society Characteristics

S/N	Characteristics	Mean	Minimum	Maximum	Dominance factor
1	Age of cooperative	5.7	4	8	70% of the cooperative societies were more than 5 years old.
2	Membership at inception	14	10	23	80% of the cooperative society had 10 or more members at inception
3	Membership now	37.7	29	48	30% of the cooperative societies had 40.05 more members presently
4	Availability of motivational packages	-	-	1	All cooperative societies had motivational packages.

Source: Field Survey 2013

Table 2: Types of Agricultural Cooperatives

S/N	Type of Agric. Cooperative	Frequency	Percentage	Registration Level
1	Marketing	3	10.00	State
2	Livestock production	14	46.67	State
3	Fisheries	4	13.33	State
4	Farm input supply	4	13.33	State
5	Crop production	5	16.67	State
	Total	30	100	

Source: Field Survey 2013

Table 3 showed the minimum and maximum loan amount granted by the cooperative societies. Results

revealed that the average minimum and maximum loan amount granted were 17,933 and 333,333 Naira respectively.

Table 3: Amount of Loan Disbursement across Cooperative Societies

S/N	NAME OF COOPERATIVE	MINIMUM in ₦	MAXIMUM in ₦
1	Jesbie women farmers cooperative	20,000	200,000
2	Unicem staffs farmers MPCS	20,000	1,000,000
3	ROF- FMPCS	20,000	200,000
4	Ebek and Ebek FMPCS	10,000	2,000,000
5	Farm supplies and development MPCS	20,000	100,000
6	Gladsimo FMPCS	18,000	400,000
7	ARIYONG FMPCS	20,000	150,000
8	Tovic farmers MPCS	15,000	200,000
9	Unique love farmers cooperative society	20,000	400,000
10	Assurance FMPCS	20,000	1,000,000
11	Christian FMPCS	18000	200,000
12	Waele Women FMPCS	15000	200000
13	Charol Concepts FMPCS	20000	100000
14	Weda 10 FMPCS	20000	200000
15	Love 2kg FMPCS	20000	100000
16	Ane-Areh FMPCS	20000	100000
17	God's Favour FMPCS	10000	200000
18	ECM Terminal FMPCS	15000	100000
19	Life Expansion FMPCS	20000	200000
20	ArenaFMPCS	17000	300000
21	Cedci FMPCS	20000	100000
22	Gosi FMPCS LTD	20000	100000
23	Tireless Women FMPCS	10000	200000
24	Cash Aid FMPCS	18000	150000
25	Christian Brothers FMPCS	15000	200000
26	Expert Ethics FMPCS	20000	400000
27	Living Fountains FMPCS	20000	200000
28	Great Divine FMPCS	20000	700000
29	Archi-Foundation FMPCS	17000	100000
30	Anachi FMPCS	20000	300000
	Total	538,000	10,000,000
	Mean	17,933	333333

Source: Field Survey 2013

N/B: One US Dollar is Equivalent to One Hundred and Sixty Naira (1:160).

ANALYSIS OF LOAN APPLICATION AND APPROVAL

The study revealed that an average of 29 loan applications were received in 2006 and 27 were approved giving an approval rate of 93.15%. 355, 346, 362 and 375 loan applications were received, while 342, 326, 338 and 357 were approved for 2010, 2011, 2012 and 2013

respectively, giving an approval rate of 96.3%, 94.2%, 93.9% and 95.2% respectively. In all, the cooperative societies received a total of 1999 loan applications and approved 1891 within the period of eight years giving an overall approval rate of 94.5% (table 4). An indication that farmers had good access to cooperative loans.

Table 4: Average Number of Loan Application and Loan Approval

Year	Average number of application	Average number of approval	Approval rate
2006	29	27	93.15
2007	60	54	90%
2008	190	181	95%
2009	282	266	94.3%
2010	355	342	96.3%
2011	346	326	94.2%
2012	362	338	93.3%
2013	375	357	95.2%
Total	1999	1891	94.55%

Source: Field Survey 2013

EFFECTIVENESS OF THE COOPERATIVE SOCIETIES

The study (table 5) revealed that cooperatives had an average arrival rate of 2 and service rate of 2 for the year 2006 depicting that 2 loan requests were received and 2 of them were considered, approved and loan disbursed, showing that the service rate was the same as the arrival rate. Also, in the year 2007 the arrival rate of 5 and service rate was 5 with a traffic intensity of 1.00 and an idle time of 0.00 indicating that cooperative societies were effective in their credit delivery function in years 2006 and 2007 respectively. In years 2010, 2011, 2012 and 2013 the arrival rates were 30, 29, 30 and 31 with their corresponding service rates of 29, 27, 28, and 30 respectively. Indicating that the service rate was not

in accord with the loan request, and their traffic intensities were 1.03, 1.07, 1.07 and 1.03 respectively and their corresponding idle time were -0.03, -0.07, -0.07 and -0.03. This showed that there is need for improvement in credit delivery. The overall results showed that the cooperative were not very effective and efficient in the queue management because the idle time was not zero (-0.04) and the traffic intensity was more than one (1.04) therefore were not very efficient in credit delivery because the approval rate was less than 100%. This result is in line with the study of Awotide et al (2011), and Alufohai and Ahmadu (2005) and contrary to the work done by Izekor and Alufohai (2010) which opined that cooperative societies were effective in their credit delivery function.

Table 5: Arrival rate; Service rate, Traffic Intensity and Idle Time

Year	Arrival rate	Service rate	Traffic intensity	Idle time
2006	2	2	1.00	0.00
2007	5	5	1.00	0.00
2008	16	15	1.06	-0.06
2009	24	22	1.09	-0.09
2010	30	29	1.03	-0.03
2011	29	27	1.07	-0.07
2012	30	28	1.07	-0.07
2013	31	30	1.03	-0.03
Total	167	158	8.35	-0.35
Average	21	20	1.04	-0.04

Source: Data Analysis 2013

CONSTRAINT OF COOPERATIVE SOCIETIES IN CREDIT DELIVERY

Previous studies have shown that cooperatives carry out the function of credit delivery to farmers but there is ample evidence that farmers face difficulties in obtaining credit and problem of sourcing for capital still lingers on (Ndifon *et al*,2012). The study on table 6 revealed that 70% of the cooperative societies sited the problems of

loan repayments, embezzlement of funds and insincerity of members as being a major set-back. While 20% of them frowned that inadequate finance and government policy has been a limiting factor of cooperatives. The study further revealed that the problem of conflict of interest and illiteracy of members were some of the constraints (10%) militating against cooperative societies' effectiveness.

Table 6: Constraint of Cooperative Societies Effectiveness in Credit Delivery

Problems of cooperative	Frequency	%
Loan repayment	21	70%
Embezzlement	21	70%
Insincerity of members	21	70%
Inadequate finance	6	20%
Government policy	6	20%
Conflict of interest	3	10%
Illiteracy	3	10%

Source: Field Survey 2013

Note: Number exceeded 30 due to multiple responses

CONCLUSION AND RECOMMENDATIONS

Based on the evidence presented in this study, we concluded that cooperative societies were not very effective and efficient in credit delivery. However, there is room for improvement because the approval rate was 94.5%, the overall idle time was -0.04 and the traffic intensity was 1.04 instead of 1.

It was recommended that loan repayment problem could be avoided if the co-operatives have well-trained personnels to accurately screen prospective loan applications and subsequent loan approval.

The project that needs financial assistance must be inspected before its final appraisal and evaluation. Central banks should ensure that enough funds are made available to the cooperative societies.

Any policy geared towards improving loan repayment capacity, capital base and increasing the managerial ability of the cooperatives will go a long way to increase the approval rate to 100%.

COMPETING INTEREST

There are no competing interests in this article.

AUTHORS' CONTRIBUTION

All the authors jointly carried out the study and agree with the terms of publication

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