PERFORMANCE OF AGRICULTURAL CO-OPERATIVE SOCIETIES IN MUBI ZONE OF ADAMAWA STATE, NIGERIA

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ASBSTRACT

This study examined the performance of agricultural co-operative societies (ACS) in Mubi zone of Adamawa State of Nigeria. The objectives of the study were to: Identify and describe the socio-economic characteristics of agricultural cooperative societies, determine the impact of ACS credit on the participating former's income, and non-ACS income; and identify the major constraints of ACS in the study area. Data for this study was derived from a survey of 100 farmer in Michika and Madagali Local Government Areas of Adamawa State, Nigeria. The result shows that an average of 2.6 and 2.4 hectares were cultivated by farmers; and a net farm income of N12,720 and N11,505 were earned by co-operative and non-cooperative farmers. Impact of credit was not significant to cooperatives, even though it was significant to non-co-operative farmers. Regression result identified farm size and family labour as common factors influencing productivity of all the farmers. The study recommended a mobilization officer for grassroots level farmers, an effective extension services are required by farmers on loan delivery and repayment abilities.

KEY WORDS: Agricultural, Cooperative, Non-cooperatives, Societies

INTRODUCTION

The organization of rural agricultural production in Nigeria and in particular Adamawa State, has become one of the most political and social pre-conditions for efficient mobilization of production resources; and accelerated rural development process (Jongur, 2005). According to (Olayide, 1981; Jongur, *et al*, 1997) majority of the Nigeria agricultural producers can be classified as small-scale farmers because of the small size of their holdings. The small scale farmers in developing countries like Nigeria face a number of problems. These problems range from the use of traditional farming techniques of production, lack of improved farm practices; poor market price of their products (Jongur, *et al*, 1997).

The Nigerian Agricultural Extension and Liaison Services (NAERLS, 1983; and Jongur, 2005) defines agricultural co-operative as "when a number of farmers come together and pool their land and other resources together to ensure the inflow of more capital and better use of improved farm equipment". From this definition; it would appear that agricultural cooperative societies (ACS) effort is more restricted to agricultural production, but it may also be used in solving almost all of farmers socio-economic problems on banking, marketing of products, insurance, housing, sourcing of farm inputs and other activities (Jongur, 2005).

Agricultural Cooperative Society in Mubi Zone (old Sardauna Province) began as far back to 1950's from the available information gathered and recorded with the cooperative officer in Mubi and Michika Local

Government Areas, was co-operative credit and marketing society established on 20th July; 1965 for Michika (old Chubunawa District). The Society has the following objectives (Jongur, 1993) to:-

- (i).   Organize the sale of produce in favour of producer
- (ii). Encourage members to adopt improved varieties and adhere to experts advice on storage of produce,
- (iii). Provide saving facilities, assist members in acquiring loans at lower interest rate,
- (iv). Repay loans on time, so as to benefit other members
- (v).   Explore all avenues in other to motivate farmers on the need to be prudent, self-reliant and give mutual assistance to other members,
- (vi). Enlighten members on the essence of cooperative between and among members, and
- (vii). Organize literary campaign, mass/extensive education, so as to improve the living standard of the people within the area and Adamawa State.

Osuntogun (1973) reported that government involvement in Agricultural lending date back to 1930 in the former Northern Nigeria, when the Native Administration (NA) gave loans for mixed-farming and to

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stimulate adoption of improved technology in the region. Similar programmes were organized in former Western and Mid-Western regions, such as the finance and cooperative bank and the finance corporation which catered for credit to small farmers, Adeyomo (1984) and Jongur (1993).

It was therefore against this background and the need for a reliable and adequate source of credit to the agricultural sector, that Nigerian Agricultural Bank (NAB) was incorporated in 1972, and formally launched in March, 1973. It commenced operations in August, 1973 under the management provided by IBRD/UNDPT technical assistance. In 1977, the management of the bank was fully Nigerianized and in 1978 its name was change to Nigerian Agricultural and Cooperative Bank (NACB) and now Nigerian Agricultural Cooperative and Rural Development Bank (NACRDB), Jongur (2007).

In Adamawa State, and in particular Mubi zone farmers are yet to feel the impact of agricultural loans, and therefore, the group lending approach is an attempt at resolving the issues of credit availability to the small farmer's cooperatives (Jongur, 1993). Government agricultural policy makers formulate policies that affect not only the flow of funds, but also the dispensation of such funds (Falusi, 1974). Unfortunately, however, "such policy makers have, in almost all the cases, no idea of the extent to which credit is making the desired impact on the farmers' output and productivity, Aliyu-Auchan (1986). An impact study of this nature is justifiable because it will aid policy makers in determining the right amount to advance to farmers, for in the words of Agbo (1989) as cited by Jongur (1993)" to much of credit may be as harmful as too little of it".

Finally, it is hope that the findings of this study will enable the agricultural cooperative societies administrations and other financial institutions to know how to tie their funds to viable agricultural project in order to avoid high rate of loan default and increase the supply of loanable funds.

Study Objectives

The broad objective of the study is to examine the performance of agricultural cooperative societies in Mubi zone of Adamawa State of Nigeria. The specific objectives are to:-

1. Identify and describe the socio-economic characteristics of agricultural cooperative societies.
2. determine the impact of agricultural cooperative credits on the participating farmer income and non-agricultural cooperatives income; and
3. Identify the major constraints of ACS n the study area.

METHODOLOGY

Study Area

The study area was Michika and Madagali Local Government Areas in Mubi Zone of Adamawa State, Nigeria. The zone comprises of Michika, Madagali, Mubi North, Mubi South and Maiha among the 21 local government areas of Adamawa State. It lies between latitude 7^0 and 11^0 N and between longitude 11^0 and 14^0E and the State has a land area of about 38, 741km^2 (Adebayo and Nwagboso, 2005). Mubi zone has a population of 681,353 people based on (NPC, 2006) estimates. Mubi zone falls within the tropical climate with distinct wet and dry seasons. Dry season last for six months (November – April), while wet season spring from (May-October) and the mean annual rainfall is about 1100mm. The major crops grown in the area includes; sorghum, maize, milet, rice, sweat potatoes, cowpeas, bambara nuts, pepper, sugar cane, and a good breeding centre for cattle, sheep, goats and pigs (Jongur, 2005).

Source of Data and Sampling Procedure

Data for this study was derived from a survey of two Local Government Areas (LGAs) in Mubi Zone of Adamawa State, Nigeria. These LGAs are Michika and Madagali. A structured questionnaire was used from February, 2004 through November, 2005, a total of 100 farmers were interviewed. A breakdown shows that 50 farmers were randomly selected from agricultural cooperative societies (ACS) in the study areas; and another 50 questionnaire to non-agric co-operative farmers. All were randomly selected from a sample frame of 817 registered members of cooperative societies with the cooperative officer's in Michika (405) and Madagali (412) local government areas.

Specification of Regression Models
Model I:
This model was used to evaluate the performance of Agricultural Cooperative in supplying credit to the farmers. A regression model is given as:

$$L = a + b_1X_1 + b_2X_2 + b_3X_4 + b_4X_4 + b_5X_5 + b_6X_6 + E$$

L	=	Value of credit taken (₦)
X_1	=	Farm size (Ha)
X_2	=	Family labour (Man-hours)
X_3	=	Cost of hired labour (Man-hours)
X_4	=	Cost of agrochemicals (lit/₦)
X_5	=	Cost of seeds (kg/₦)
X_6	=	Managerial ability (years)
	a. =	Constant
	b. =	Regression coefficient
	E. =	Error term

This model was used to evaluate farm size and other variables on the amount credit taken by small farmer cooperators.

Model II
This model was used to explain credit and other factors which might influence the amount of the net farm income of cooperatives in the study areas. The production function is given as:

$$NFI = a + b_1X_1 + b_2X_2 + b_3X_{3} + b_4X_4 + X_5b_5 + b_6X_6 + b_7X_7 + b_8X_8 + E$$

Where:

NFI	=	Net farm income (₦)
X_1	=	Value of credit taken (₦)
X_2	=	Farm size (Ha)
X_3	=	Family labour input (Man-hours)
X_4	=	Cost of Hired Labour (man-hours)
X_5	=	Cost of agrochemicals (lit/₦)
X_6	=	Cost of Capital equipment (₦)
X_7	=	Cost of seeds (kg/₦)
X_8	=	Managerial Ability (Years)
	a. =	Constant
	b. =	Regression Coefficient
	E. =	Error term

Net farm income (NFI) = Gross farm income (GFI) – Total cost (TC)
Current market prices were used in the analysis of the study.

RESULTS AND DISCUSSIONS
    It is generally accepted by many experts that a good proportion of agricultural in Nigeria comes from the unorganized peasant farmers (Olayide, 1981, Ijere, 1985 Jongur, 1993; and Jongur, 2005). The problem remains that, these peasants output is so small that economics of scale in cooperative credit and farm input cannot be derived without one form of cooperation (Jongur, 1993).
    The impact that a particular co-operative organization has on its members is a very useful criteria for evaluating the performance of its organization. This study tends to examine the activities of Agricultural Co-operative Societies in Michika and Madagali LGAs of

Socio-Economic Characteristics and Cropping System of Respondents
Over 86% of the respondents in all the co-operative and non-cooperative farmers were males and about 14% were females. The average age of farmers was 46 years (Tables 1 and 5). Suggesting that the farmers were in their productive age. Average house hold size was 14 and 8 for co-operative and non-cooperative farmers. This consist of an average of 2 wives, 9 children and 3 dependants; suggesting culture and Islamic religion to married up to 4 wives (Osuntogun, 1980; Jongur, 2005).
    The average farm size was 2.6 and 2.4 hectares

N8,520.65 and N6,561.15 for co-operative and non-cooperative farmers respectively (Table 1). Thus in Mubi Zone, farmers were married with large household, low literacy level and limited access to credit and operating small and fragmented farms, all these are due to lack of collateral and security for loans. An average of 143.1 and 136.73 man-hours were used by cooperators and non-co-operators (i.e. a daily rated labour of N400 was paid per day or 8 hours works).

Evaluation of farm size and other variables on the amount of loan received
A multiple regression analysis was carried out to show the relationships on farm size, cost of agro-chemicals, cost of capital equipment, and costs of seeds, and managerial performance which were significant (Table 2). The coefficient of determination was 67.6 percent (0.676) which shows that the model I explains 68 percent of the variation for the loans received. The F-value which measures the overall significance of the regression models is 80.3 with 59.2 percent (adjusted R-Square). This is lower than the tabular value and significant at 99 percent (model 1).

Model 1: (Estimated regression coefficients for co-operators use of credits)

$L = 21 + 181X_1{*}{*}{*} - 0.43X_2 + 0.99X_3 + 2.66X_4{*}{*} - 0.84X5{*}{*} - 7.18X_6{*}{*}{*} + 118X_7$

t-values =   (0.33) (3.98)   (-1.80)   (1.43)   (3.79)   (-2.34)   (-2.94)   (1.93)

$R^2 = 67.61$ R^2 (adj) = 59.2, F – Value = 8.03

Where: ** = Significant at 95 percent level

*** = Significant at 99 percent level

Impact of Cooperative
The impact or performance of co-operative and non-cooperatives on the net farm income of farmers were examined. The average net farm income of cooperators was N12,720 and N11,505 for non-co-operators (Table 2). An average 2.6 and 2.4 hectares of land were cultivated. This shows a scarcity of fertile land in the study area and less management techniques on smaller farms.

It was hypothesized that there is no relationship between the loans received by the beneficiaries (ACS) income and input used. This was not true since the net farm income of cooperators is higher than the non-cooperators. In terms of seed planted all the cooperators and non cooperators used carry over seeds. Also the cost of labour; hired and family was higher in cooperators (Table 2).

Comparison between the income of cooperators and non-cooperators farmer
The elements examined are the differences between the net farm income of cooperators and non cooperators farmers. The result shows about 19 farmers (38 percent) of the cooperators and 26 farmers (52 percent) of the non-cooperators earned net farm income less than N2,500 respectively (Table 3). Also about 74 percent and 72 percent of cooperators and non-cooperators farmers earned less than N3000; and only about 6 percent and 5 percent of the farmers in cooperative and non-cooperatives earned between N6,000 and above farm income.

The result of the analysis shows a difference in the distribution of incomes even though there is no

significance in the distribution of incomes. The inference shows that cooperative credit would have an impact on the net farm incomes of Michika and Madagali small farmers.

Strategies for effective administration of credit and repayment abilities of cooperators
The study had hypothesized that cooperative organization was not efficient in supplying credit to farmers. This was not true since the amount disbursed to cooperators was significantly higher than non-cooperatives (Table 2). An average sum of N8,520.65 and N6,561.15 were received as loans to cooperative and non cooperatives farmers respectively. This shows that cooperative is an efficient organization of loan delivery to the grassroots/rural farmers.

Relationship between credit, net farm income and farm inputs of cooperators.
The cardinal objective of a farmer's is to increase his output and higher income. Regression and correlation analysis were carried out to show the relationship between the value of credit in cooperatives and other variables and net farm income. The (NFI). The Pearson correlation analysis was conducted. The cooperation coefficient was given for the dependent variable (NFI). The coefficient of determination (R) was 68 percent, which shows that the equation explains 68 percent of the variation in the farmer's income. The F-table which measures the overall significance of the equation was 5.37 and insignificant at 99 percent probability level (Model II).

Model II: (Regression Statistics on the Net Farm Income using log-lineal function for cooperators).

NFI   = $1357 + 0.05X_1 - 51.3X_2^{**} + 0.09X_3 - 0.01X_4 + 0.01X_5 - 0.58X_6^{**} + 0.08X_7^{**} + 40.7X_8.$

t-value =   (3.48) (0.81) (-2.73)   (0.85)   (-0.04)   (0.02) (-2.72)   (0.13)   (1.23)

R^2 =   68.2, R^2 (adj) = 55.5, F – value = 5.37

The correlation result (Model III) shows that cooperative credit had a negative impact on the farm size of cooperators; and insignificant at 99 percent probability level. The inference drawn shows that cooperative credits were not only used in farm development per se. Also, there in high labour cost small amount of loan disbursed these cannot significantly increase the small farmer cooperator. It was assumed that in the absence of the cooperative credit, the farmers resolve to other source of funds.

Model III. (Regression statistics of Net Farm Income using log-lineal function for non-co-operators)

NFI   = $1251 + 0.14X_1^{***} - 82.1X_2 + 0.07x_3^{**} - 0.39X_4^{**} - 0.01X_5 + 0.35X_6^{**} - 0.21X_7 - 2.33X_8$

t-value =   (3.91) (7.33)   (-1.40) (1.11)   (-1.54)   (0.02)   (1.89)   (-3.57)   (-0.24)

R^2 =   97.2, R^2 (adj) = 92.7, F – value = 21.98.

Where:** 90 percent level of significance
      *** 99 percent level of significance
       $X_1, X_2, X_3, X_4, X_5, X_6, X_7,$ and X_8 as defined earlier

Constraints of Agricultural Cooperatives

Agricultural Cooperatives in Michika and Madagali LGAs has some basic constraints and this range from the low level of Technology adoption by farmers in the cooperative society, other constraint includes:

1. Poor leadership and management of their elected official in running the cooperative society
2. Low patronage by members
3. Low capital base of the associations,
4. Lack of adequate extension services staff to cooperative societies; and
5. Lack of adequate storage and marketing facilities in some rural areas.

Summary and Conclusions

The result of the analysis shows that cooperative credit has not impact on the net farm income of cooperators. Even though there was no significant difference in the cost of production for cooperators and non-cooperators farmers. This insignificant impact of cooperative credit on its members is not unconnected with the fact that the cost of production tenDs to be increased coupled with the low output prices, especially the 2004 and 2005 bumper harvest in the state. The result shows an even distribution of the net farm income of cooperators and non-cooperators.

The result of the study recommend for the need of agricultural planners, cooperative officers to ensure proper design and implementation of agricultural cooperative programmes, and efficient mobilization of members through effective extension services in Mubi zone and the state.

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Appendix

Table 1: Mean values of age, household size, years of formal education, farm size, labour and amount of loan received in cooperative and non cooperative farmers.

Variables	Mean Values of Cooperative	Mean values of Non Cooperatives
Age (Years)	46	46
Household size	14	8
Years of formal education	8	7
Farm size (ha)	2.6	2.4
Labour use (man-Hours)	51.63	48.15
Amount of loan received(₦)	8520.65	6561.15

Source: Survey Data, 2005

Table2: Average costs and returns of respondents

Variables	Cooperators	Non-Cooperators
Farm size (ha)	2.6	2.4
Cost of seed (kg/₦)	1175	904.15
Family labour (man-hours)	91.47	88.58
Hired labour (man-hours)	51.63	48.15
Cost of Agro Chemicals (lit/₦)	1700	2886.85
Cost of equipment (₦)	6523.35	6879.4
Cost of production/ha (₦)	3280	2310
Loan amount received (₦)	8520.65	6561.15
Net farm income/ha	12720	11505
No. of respondents	50	50

Source: Survey Data, 2005

Table 3: Net farm income of respondents

Net farm income	Cooperators		Non-Co-operators	
	No of farmers	Percent	No of farmer	Percent
Less than 2000-2500	19	38	26	52
2501-3000	18	36	10	20
3001-3500	7	14	5	10
3501-4000	3	6	4	8
4001-4500	2	4	2	4
4501 and above	1	2	3	6
Total	50	100	50	100

Source: Survey Data, 2005

Table 4: Constraints of Agricultural Cooperatives

Variables	Agric-Cooperators		Non-Agric-Cooperators	
	No. of Farmers	Percent (%)	No. Farmers	Percent (%)
(a). Poor leadership And Management	32	24.43	-	-
(b). Lack of patronage	18	13.74	-	-
(c). Lack of Capital	36	27.74	46	48.94
(d). Lack of Adequate Extension Staff	14	10.69	22	23.40
(e). Lack of Storage And Marketing facilities	31	23.66	26	27.66
Total	131*	100	94*	100

Source: Survey Data, 2005.
       *Multiple responses

Table 5: Age of Agricultural cooperatives and non-agric cooperatives

Age (Years)	Agric-Cooperators		Non-Agric-Cooperators	
	No. of Farmers	Percent (%)	No. Farmers	Percent (%)
Less than-20	2	4	3	6
21 – 30	9	18	7	14
31 – 40	13	26	16	32
41 – 50	22	44	19	38
51 and above	4	8	5	10
Total	50	100	50	100

Source: Survey Data, 2005.