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## Accelerating Rural Growth Through Collective Action: Groups' Activities and Determinants of Participation in Southwestern Nigeria

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**ACCELERATING RURAL GROWTH THROUGH COLLECTIVE  
ACTION: GROUPS' ACTIVITIES AND DETERMINANTS OF  
PARTICIPATION IN SOUTHWESTERN NIGERIA**

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ABSTRACT

This study was conducted to investigate the types of activities promoted by cooperative groups and the determinants of participation intensity of members in cooperative activities in southwestern Nigeria. A multistage sampling approach was used to select 326 cooperators (45 groups). Data collected were analyzed using descriptive statistics, difference of means test, and Tobit regression. Cooperative groups engaged in farm and off-farm activities such as arable crop production, fish farming, agricultural products processing, and produce marketing, among others. Farm input procurements and access to market information (74 percent), cooperative credits and thrift (53 percent), social networking (37 percent), multipurpose commercial activities (21.6 percent), and political influence (17 percent) were given as reasons for interest and participation in groups= activities. Income realized by cooperators was significantly and consistently higher than income of non-cooperators who engaged in the same economic activity. Participation intensity was influenced by gender, farm size cultivated, and the social status of members.

Though Nigeria is often cited as one of the largest oil-exporting countries, agriculture and the agrarian sector remain the mainstay of the economy. Agriculture employs more than 70 percent of the active labor force and contributed about 42 percent to the GDP in 2009 (NBS 2010). However, the rural sector that supports agricultural production is home to more than 60 percent of the over 140 million people; and houses more than 73 percent of the poorest of the poor families

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(NBS 2010). Consequently, the importance of the rural sector in accelerating growth and development cannot be overemphasized. Against this backdrop, development economists are of the view that increased resource productivity of the rural sector and the concomitant rural development gains are necessary preconditions to fast-track the attainment of the United Nations' Millennium Development Goals (MDGs) in the country. This also suggests that programs that target rural poverty reduction and accelerate development should be emphasized and promoted.

A cooperative is a group of people with common interests, organized to promote the social welfare of its members. It offers various social and economic solutions to most rural problems; the synergized effect of group activities and influences affords benefits that may not be individually feasible for most of the rural poor. Marshall (1998:14) defines a cooperative as "an institution or voluntary action taken by a group to achieve common interest(s)." Cooperatives are a livelihood-strengthening model that offers significant potential if planners focus on results in which cooperatives are a means, not an end in themselves and use cooperatives to promote strategies for social and economic change. Cooperative action leads to the creation of people's organizations that bring together individuals with common problems and aspirations and who cannot, as individuals, meet certain goals as effectively, if at all (Barham 2006; Carter and Weibe 1990; Putnam 2000).

Cooperative action plays a significant role in many facets of human interaction that include, among others, income generation, risk reduction, social networking, education, information sharing, and public service provision. By pooling capital, labor, goodwill, and other resources, members can carry out profitable activities, which, if undertaken by individuals, would involve greater transaction cost, risk, and efforts. It, therefore, implies commonality in purpose, objectives, and means of how to achieve them (Banks 1997; Grazhdaninova and Lerman 2005; Ukaga 1992; USDA 2004). As reported by Ostrom (1990), Bardhan (1993), and Scoones and Thompson (1994), rural cooperatives are a natural launch pad for rural transformation and accelerating development in largely agrarian economies. They function in diverse ways including organization of labor resources for production, mobilization of material resources (savings and credit) to help produce more, influencing of policy institutions that affect them, and cementing of social relationships, among other functions.

In recent years, there has been a resurgence of interest in the cooperative movement by rural dwellers, policy makers, and funding agencies, as an option for accelerating rural development. Evidence suggests that group projects are

increasingly relied upon by national governments, foreign development agencies, and Non-Governmental Organizations (NGOs) as the preferred model for rural development project implementation and poverty alleviation (Basu, Blavy and Yulek 2004; Grootaert 1998). Although there are strong indications that cooperative action typically arises in instances where there are incentives to cooperate, the peculiarities of the rural areas in Nigeria (often seen as areas bypassed by development) make this obvious. The expectations of cooperatives are numerous and varied, yet several common themes embodied in the concept of social capital emerge: participation, empowerment, poverty alleviation, and collective action. The return to cooperatives as instruments of rural development can in part be attributed to the recently-popularized concept of social capital. Social capital has quickly arisen as a mainstream concept in development project and policy design. The theory captures the importance of social bonds and networks in shaping livelihood outcomes. Barham (2006) reported that the social benefits associated with cooperatives include human-capital development, political recognition and relevance, and the development of informal network gains, which are robust requisites for harnessing economic advantages, and promoting personal as well as community development agendas. Therefore, in most rural communities, cooperatives play important roles as the economic engine for members' motivation, social inclusion and development, education, and general improvement in economic outcomes.

The origin of rural cooperative movements in Nigeria dates from the early 1950s. The earlier forms of rural cooperative societies were facilitated and controlled by the divisional government and registration/membership was made compulsory for all farmers (Chidebelu 1986). However, over the years, three types of groups have emerged. In the early form, members owned and operated a communal project (e.g., a farm or water pump) as a group; the second category includes groups that facilitate the business of members who remain independent; and the third category is a variant of the two, mainly multi-purpose/development groups. This third group has metamorphosed into a large group that cuts across different communities, activities, and targets. Onuoha (1986) submitted that the types of cooperative societies in Nigeria include multipurpose, marketing, consumer, processing, industrial, supply/purchasing, and credit and thrift cooperative societies. Rural cooperatives in Nigeria are groups involved in marketing farmers' produce. They also serve as avenues for saving and credit facilities as these informal financial institutions are mostly preferred by farmers due to easy accessibility,

smallness of scale, and the informal nature of transactions (Adeyemo 1994; Adeyemo and Bamire 2005; Onyenwaku and Ozoh 1992).

The proponents of the cooperative movement in Nigeria view cooperatives as a means of progress through social network benefits, especially among rural dwellers. Most cooperative activities are therefore guided by the principles of democratic member control (generally “one member, one vote”); voluntary and open membership; member economic participation (based on equity provided by members, with limitations on individually-held equity); distribution of surpluses or profits as patronage refunds; and social consciousness through providing necessary training and information for members (Ravenborg et al. 2000; Ukaga 1992). These guiding principles are to discourage class exclusion, and to help in focusing development initiatives into a common problem area. An efficiently-functioning cooperative organization inculcates in members a sense of security that encourages a majority to support and participate in developmental programs (Ellis and Biggs 2001). The study of cooperatives’ activities and members’ participation are relevant in the assessment of community and household/individual poverty outcomes. This is because participation in networks of trust is used as a platform to generate social and economic capital to members (Grootaert 2001; IFPRI 2002; UNDP 2005). It becomes imperative to analyze factors that affect participation in such groups, to identify the activities of individual members, as well as group activities and community-specific factors that can favor participation and support.

As democratic networks, cooperatives require large participation and support to be effective as an engine for rural change. Cooperative theory asserts that where individuals have a common purpose, and will benefit from cooperation, a group will be formed to cooperate for the common good of all. Investigations into factors that influence participation in group activities have highlighted an array of varied factors such as the size of groups, shared norms and group focus, previous successes in cooperation, effective leadership, the social status of members, and interdependence among group members, among others (Agrawal 2001; Lyon 2003). Rural cooperatives are strategically positioned (principles and focus) to systematically raise the social and economic status of members and make them less vulnerable to food and access-to-assets poverty. However, gains of cooperation mostly would bypass most of the “book” members due to their non-participation in groups’ activities. Many studies have defined the situations under which collective action occurs, and the characteristics that allow sustainable cooperation (Agrawal 2001; Baland and Platteau 1999; Baulch and Davis 2008; Fabiyi 2004; Fafchamps 1999; Onouha 2002; Panda 2006; Wade 1987, 1988). A review of these studies shows that

none of them focused on participation or the determinants of participation intensity in groups' activities. Membership in a group is an important factor in the assessment of social and economic welfare of rural people. The focus on rural groups as avenues for mass mobilization and development interventions has made them attractive to rural people.

The key question in group activity goes beyond membership to examine how members will actively support, by participating in, the activities to benefit from membership. The benefits of cooperation have more broad-based development relevance when members support and participate in the programs implemented to promote social welfare among members. However, the type of program, among other factors, affects participation by members (Agrawal 2001; Barham 2006; Davis 2008; Molinas 1998). The voluntary nature of membership suggests that the development gains from cooperation can be optimized when programs and activities are designed to meet specific needs of members. The need for this study is also driven by the recent reawakening of interests in cooperative movements for accelerating rural growth in developing countries.

Specifically, the study objectives are to:

1. describe the typologies of rural cooperatives in rural southwestern Nigeria
2. describe and classify the various activities and benefits of the cooperatives to members
3. determine the factors that influence members' participation in cooperatives
4. evaluate the impact of cooperative membership on members' income.

## METHODOLOGY

### *The Study Area*

Our study was conducted in three states of the six states in southwestern Nigeria. The states of Ogun, Oyo, and Osun were purposively selected due to their dominant rural sector and the relatively large number of registered cooperatives. Geographically, the states are located in the forest vegetation belt, where arable food crop production is the dominant agricultural enterprise. It is estimated that more than 70 percent of the total land area in the zone is suitable for arable crop production. The estimated human population is 11,228,570 and more than 78 percent of the labor force is engaged in agricultural production in rural communities (CBN 2007; NBS 2010). Arable food crops such as cassava, maize, yam, and vegetables are grown on small (less than 2ha) holdings using largely manual

and rudimentary farm implements. The largely rural communities in the zone are also characterized by high poverty levels associated with a dearth of infrastructure (NBS, 2010).

#### *Sampling and Analytical Techniques*

The technique of multistage sampling was adopted in selecting the respondents for the study. The first stage involved the random selection of five Local Government Areas (LGA) from the list of rural LGAs from each state. The list of registered cooperative groups from each selected LGA was obtained from the Cooperative Department at the LGA headquarters. Three groups<sup>1</sup> were randomly selected from each of the 15 LGAs to make a total of 45 groups covering 63 communities. Based on membership (sampling by proportion), simple random sampling was then used to select a total of 326 cooperative members from the zone. For the non-cooperative members, 10 respondents were selected from each LGA. The non-cooperators were selected from community members involved in same economic activities and operating at the same scale. Primary data were collected using interview guides administered in a sample survey and key informants<sup>2</sup> interviews. The survey elicited information on the sociodemographic characteristics of cooperators, their groups' activities in the past two years (2008 and 2009), and their participation in their cooperative groups. Data from the key informant interviews and the secondary data from the secretariat records were used as triangulation tools to verify responses to activities, members' participation, and contributions.

The data were analyzed using both descriptive and inferential statistics. Descriptive statistics were used to describe the personal characteristics of members as well as the groups' structure, conduct, and activities. Tobit regression was used to determine the significant factors that influence participation in group activities. The Tobit coefficient was decomposed into elasticities components to assess the causal relationship between the probability and the intensity of participation in cooperative activities. The t-test of the difference between two means was used to determine the relative impact of group' activities (based on differences) on cooperators' and non-cooperators' incomes.

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<sup>1</sup>Only registered groups with more than 20 members were considered.

<sup>2</sup>The secretary or chair/president of the groups were interviewed.

*The Tobit Model*

The Tobit model was used to evaluate participation and intensity of participation of cooperators in cooperative activities. The model, which was first proposed by James Tobin (Tobin 1958), involves aspects of probit analysis, and it is suitable when the response (dependent) variable is censored. Stewart (2009) reported that the Tobit model is the predominant and, seemingly, sensible approach to use as it is developed specifically for situations where the dependent variable is truncated at zero or another cutoff. Although the Tobit estimation is a regression model, it is different from the Ordinary Least Squares (OLS) regression model, as it provides one coefficient for each of the explanatory variables despite the fact that there are two distinct types of response variables (censored and uncensored). Using OLS yield asymptotically biased estimates. Estimating a model that omits the limit observations would create a bias and ignoring them would be discarding relevant information, yet including these observations as though they were ordinary observations also creates a bias. These limitations are overcome by using a censored sample Tobit model. The Tobit model has been used in studies to determine not only use/exploitation, but also the extent of use or expenditures. The Tobit procedure is a logical extension of the probit analysis model based on accumulative normal distribution. Sigelman and Zeng (1999) posited that, theoretically, the standard Tobit model is applicable only if the underlying dependent variable contains negative values censored to zero in the empirical realization of the variable.

In practice, though, the Tobit model is routinely employed when the values of the observed dependent variable are exclusively nonnegative and are clustered at zero, irrespective of whether any censoring has occurred. In economic models, this corresponds to a corner solution in the utility maximization program where the individual's optimal value of the dependent variable is negative, but non-negativity constraints force the value to be zero (Stewart 2009). The partial derivative obtained from estimation describes two effects that the explanatory variable has on the response variable. The first effect implies that a marginal change in the explanatory variable would change the response variable for those cases closer to the limit (threshold), while the second effect indicates that a marginal change in the explanatory variable would change the probability of being below the threshold. Changes in explanatory variables also lead to changes in the cumulative standard normal distribution function, and the response variable also changes accordingly (Adesina and Zinnah, 1993; McDonald and Moffit 2002). In considering cooperative activities, members have only two options: to participate or not to participate in some or all of the activities. This gives the dependent variables a special feature:



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that it is either equal to zero or it is positive; since participation cannot be negative (censored in the lower tail). The Tobit model assumes that the observed dependent variable  $Y_j$  for observations  $j=1, \dots, n$  satisfies the expression in the equation:

$$Y_j = \max(Y^{*j}, 0)$$

Where the  $Y^{*j}$ s are latent variables observed only when positive.

$$Y^{*j} = X_j(\beta) + \mu_j \text{ where } \mu_j \sim N(0, \delta^2)$$

$$Y_j = Y^{*j} \text{ if } Y^{*j} > 0; Y^{*j} = 0 \text{ otherwise}$$

$X_j$  is a vector of independent variables;  $\beta$  is a set of parameters to be estimated and  $\mu_j$  represents the normally and independently distributed error terms, with a mean value of zero, and constant variance. The explicit model estimated is expressed as:

$$partic = \gamma_0 + \gamma_1 age + \gamma_2 farm + \gamma_3 income + \gamma_4 sex + \gamma_5 marital + \gamma_6 years + \gamma_7 educ + \gamma_8 lando + \gamma_9 remit + \gamma_{10} pfproj + \mu$$

The definitions of variables used in the model and the a priori expectations are presented in Table 1.

TABLE 1. SUMMARY OF VARIABLES USED, DEFINITIONS, AND *A PRIORI* EXPECTATION.

VARIABLE	DEFINITION/OPERATIONALIZATION	<i>A PRIORI</i> SIGNS
partic. . . .	Dependent variable for participation in group activities (Proportion of total groups' activities participated in per year)	
age. . . . .	Age of respondent (years)	0
farm. . . . .	Farm occupation dummy (farmer=1, others=0)	0
income. . . .	Income from major occupation (naira/month)	±
sex. . . . .	Sex dummy (male=1, female=0)	0
marital. . . .	Marital status dummy (married =1, others =0)	0
years. . . . .	Years as an active cooperator (years)	0
educ. . . . .	Educational qualification (years spent in school)	±
lando. . . . .	Land ownership dummy (land owner=1, non owner=0)	0
remit. . . . .	Non-labor/wage income received (naira/month)	±
pfproj. . . . .	Public projects in community dummy (present=1, otherwise=0)	±

*Test of Difference of Means*

The study adopted the t-test to compare the mean income of cooperative members and non-cooperative members who are involves in the same activities. The analysis was done separately for both genders.

## RESULTS AND DISCUSSION

*Socioeconomic Characteristics of Cooperative Members*

The analysis of cooperative members' characteristics in Table 2 shows that the majority (65.1 percent) of the members were male, while the remaining 34.9 percent were female. Both socio-cultural and economic reasons can be responsible for this distribution. In most rural communities, women are seen either as daughters- to be protected and kept at home—or as housewives—a private property of the husband and extended family members.

Due to this, fathers/husbands would hardly approve of their daughters/wives participating in group activities; either among themselves or with male members, no matter how laudable the objectives. The age distribution revealed that most of the members were in the economically productive age bracket, and as such their activities have a substantial economic relevance to the rural and national economy at large. Most of them (about 46.8 percent) were between 40-49 years of age with a mean age of 44.8 years. The distribution based on formal education attained shows that most (42.1 percent) of the members had no formal education. Primary education (38.8 percent) was the most common formal education received by most of the cooperators.

Agricultural production is still largely subsistent among cooperative members as the majority (84.1 percent) of them reported that they cultivate fewer than 1.5ha of land. The average farm size cultivated was estimated to be 0.9ha. In terms of the main occupational distribution of cooperators, the majority (51.6 percent) engaged in farming as the major occupation. This is followed by processing and trading of agricultural produce, which accounted for 23.8 percent. This is an indication of pride in the place that farming, marketing, and processing occupy in the livelihoods of rural cooperators. The results also show further that a majority (62.4 percent) of cooperators owned land while the remaining 37.6 percent did not own land. Direct ownership of land for agricultural purposes is expected to affect positively on the farmland cultivated and where the farming environment is conducive; this should result in an increase in farm production.

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TABLE 2. SOCIODEMOGRAPHIC CHARACTERISTICS OF COOPERATORS.

	FREQ.	PCT.	MEAN	MIN.	MAX.	SD
<b>Sex</b>						
Male. ....	212	65.1	N/A	N/A	N/A	N/A
Female. ....	114	34.9				
<b>Age</b>						
30-39 years.....	103	31.7				
40-49 years.....	152	46.8	44.8	34	67	12.5
50-59 years.....	36	11.1				
>59 years. ....	35	10.4				
<b>Education</b>						
No formal education. ...	137	42.1				
Primary education only.	126	38.8	N/A	N/A	N/A	N/A
Secondary education. ...	41	12.7				
Post secondary education. ....	22	6.4				
<b>Farm size (ha)</b>						
<1.00.....	160	49.2				
1.00-1.50.....	114	34.9	0.92	0.13	3.21	5.23
1.51-2.00.....	41	12.7				
>2.00.....	11	3.2				
<b>Major occupation</b>						
Farming. ....	168	51.6				
Trading and processing.	78	23.8	N/A	N/A	N/A	N/A
Artisanship.....	54	16.6				
Paid employment.....	26	7.0				
<b>Land ownership status</b>						
Land owner. ....	204	62.4				
Nonland owner. ....	122	37.6	N/A	N/A	N/A	N/A

SOURCE: Field Survey (2010).

Distribution Based on Cooperative Types and Membership by Gender

The distribution of cooperators based on type of cooperative association and gender is presented in Table 3. The results show that involvement in activities is greatly influenced by gender. While multipurpose, crop production and fish farmers' cooperatives were dominated by men, produce marketing and processing groups were mainly composed of women. As pointed out by Agrawal (2001), the motivation to join or participate in groups' (cooperatives) activities is influenced, *inter alia*, by the social characteristics of members, especially gender. Beard (2005) and Lind (1997) have similarly argued that women become most involved in activities linked to the gendered division of labor. But other studies indicate that factors such as security and even non-economic returns (prestige, spiritual enrichment, or friendship) motivate group participation, and these factors may differ for men and women (Abdulwahid 2006; Godquin and Quisumbing 2006; Kariuki and Place 2005).

TABLE 3. COOPERATIVE TYPES AND MEMBERSHIP BY SEX.

TYPES OF COOPERATIVE	MEMBERSHIP			
	MALE		FEMALE	
	N	%	N	%
Arable crop production.	114	52.38	8	7.14
Fish farming. . . . .	20	9.52	1	2.38
Produce marketing. . .	12	5.95	54	50.00
Processing. . . . .	20	9.52	39	35.71
Multi-purpose. . . . .	51	22.62	7	4.76
Total. . . . .	217	100.00	109	100.00

SOURCE: Field survey (2010).

*Reasons for Joining Cooperatives*

Male and female members have different motives and priorities for joining a group. Access to farm inputs, procurement of group guaranteed credit from formal lenders, and benefits from multipurpose ventures were important drivers of reason for men to join a cooperative. On the other hand, it was found that women joined groups that could assure their access to produce markets, households' durable assets as well as those that promote development of social and religious ties among

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members. It is obvious from the study that economic, rather than social motives are the most important considerations for men to join a group.

TABLE 4. MAJOR REASONS FOR JOINING GROUP.

REASONS FOR JOINING GROUP*	MALE		FEMALE	
	N	%	N	%
Access to farm inputs. . . . .	174	27.97	51	10.97
Credit guarantee. . . . .	154	24.76	71	15.27
Access to markets. . . . .	53	8.52	89	19.14
Acquisition of household assets. . . . .	46	7.40	80	17.20
Access to loans from group savings. . . . .	62	9.97	61	13.12
Benefit from income earning ventures (multipurpose). . . . .	98	15.76	21	4.52
Informal social and religious networking. . . . .	47	7.56	92	19.78

SOURCE: Field survey (2010); \*multiple responses computed.

This could explain the reason the male-preferred economic activities have enjoyed pride of place in the activity profile of rural cooperative groups. Agbo (2009) had observed that, in eastern Nigeria, more than 85 percent of the male cooperative members reported that government assistance on farm inputs and credits was the major reason for joining a group. Also, in a study on farmers' groups in western Nigeria, Adeyemo (1994) reported that male farmers join cooperatives to obtain needed inputs for their farm work, especially credit. However, loan assurance was the major driver for female cooperative members to patronize their groups. This gendered difference in reasons for joining a group suggests the need for gender mainstreaming, that is, to target groups' activities and encourage general participation, especially, in mixed groups. This is more pertinent considering the findings of Fabiyi (2004) that female cooperators obtain greater economic benefits by participating in mixed groups, rather than in women only groups.

*Satisfaction with Groups' Activities*

Table 5 shows members' (by gender) satisfaction with their group's achievement of their objectives for joining. It is obvious that the rural groups have not satisfied most of the members' personal economic objectives for joining the group in the first place. Access to loans from members' savings is the only economic benefit/activity assessed as satisfactory by both male and female members.

TABLE 5. MEMBERS' SATISFACTION WITH GROUPS' ACHIEVEMENT OF OBJECTIVES.

REASONS	MEN				WOMEN			
	SATISFIED		NOT SATISFIED		SATISFIED		NOT SATISFIED	
	N	%	N	%	N	%	N	%
Access to farm inputs.	53	24.4	164	75.6	21	19.3	88	80.7
Credit guarantee. . . . .	71	33.0	146	67.0	37	33.9	72	66.1
Access to markets. . . . .	11	5.1	206	94.9	33	30.3	76	69.7
Acquisition of household markets.	19	8.8	198	91.2	21	19.3	88	80.7
Access to loans from group savings. . . . .	105	48.4	112	51.6	89	81.6	20	18.7
Earnings from joint venture. . . . .	66	30.4	151	69.6	35	32.1	74	67.9
Informal social and religious networking. . . . .	63	29.0	154	71.0	80	73.4	29	26.6

Source: Field Survey 2010.

Female cooperators also rated as satisfactory the social benefits associated with membership. The promotion of strong social and religious ties and the associated fraternity bonds of brotherhood economics is more of interest to women than to men. In mixed groups, more male-preferred activities are promoted compared with female-preferred activities. However, assessment of members' satisfaction with reasons for joining the group shows that female cooperators are more satisfied than

their male counterparts, though the activities they rated as satisfactory were those with no direct economic benefits.

*Result of Tobit regression analysis*

The generalized Tobit model was significant ( $p \leq 0.01$ ) as shown by the log likelihood ratio and the chi-square probability (Table 6). The implication of this is that the estimated coefficients were significantly different from zero. The pseudo  $R^2$  indicates that the explanatory variables account for about 56.5 percent of the variance in participation in groups' activities. The likelihood ratio chi-square of 247.9 with a  $p$ -value of 0.0001 tells us that our model as a whole fits significantly better than an empty model (i.e., a model with no predictors). The results show that income of members, years of formal education, gender, marital status, land ownership status, presence of a public project, and value of remittances received were significant determinants of participation intensity in the groups' activities. Based on the signs of the coefficients, the relationship between participation intensity and income, educational qualification, gender, and value of remittances received was negative. Married members, locals, and landowners in communities that have benefited from public projects were more highly motivated to participate intensely in the groups' activities, as the variables were significant and positively related to participation. Higher income for women is negatively correlated with participation in groups' activities. The implication is that women who receive relatively higher incomes (above N6500/month), who are better educated, and are located in communities that have benefited from public development projects are less likely to participate intensely in groups' activities. The educated members are attracted to the urban areas in search of paid employment. Even when they reside in the rural areas, their commitment to group activities is often shallow as they often perceive their stay in the rural community as temporary.

*Decomposition of Elasticity Components of Coefficients*

The decomposed elasticity components of coefficients are presented in Table 7. Unlike the Ordinary Least Squares (OLS) regression, the value of the Tobit coefficient does not represent the expected change in the dependent variable given a unit of change in an explanatory variable. Rather, the Tobit estimates a vector of normalized coefficients that can be transformed into the vector of the first derivative. The results presented in Table 6 indicate only significance and signs of the coefficients and as such, do not give the expected probability of participating and intensification of participation. While the directions of such parameter

TABLE 6. GENERALIZED TOBIT ESTIMATES OF DETERMINANTS OF GROUP PARTICIPATION INTENSITIES.

	IDENTIFIER	COEFFICIENT	T-STATISTICS
Age (years). . . . .	age	0.00150	0.893
Income from major activity (N/month). . . . .	income	-0.63458 <sup>***</sup>	-4.120
Marital status. . . . .	marit	0.02835 <sup>**</sup>	2.062
Remittances (amount). . . . .	remit	-0.0122 <sup>**</sup>	-3.119
Education (years). . . . .	educ	-0.0037 <sup>**</sup>	-3.081
Sex (male = 1, female = 0). . . . .	sex	-0.04583 <sup>**</sup>	-2.938
Years in cooperative movement. . . . .	native	0.00815	0.323
Presence of project in community. . . . .	pfproj	0.0712 <sup>**</sup>	3.324
Land ownership (land owner = 1, non-owner = 0). . . . .	lando	0.2104 <sup>**</sup>	3.714
Major occupation (farmer = 1, other = 0). . . . .	farm	0.37201	0.195

Number of observations = 326; LR chi square = 247.9,  $p > .001$ ; Log likelihood = -1181.9441; Psuedo  $R^2 = 56.5461$ ; left-censored Tobit ( $L1 = 0$ )

NOTES: <sup>\*\*</sup> $p > .05$ ; <sup>\*\*\*</sup> $p > .01$

estimates may be informative, interpretation of the size of the effect for the independent variables can be difficult. To address this issue, statisticians have developed a procedure to decompose estimates from the Tobit model to obtain more informative parameters. Since the results of this study are of interest in terms of policy implications for participating in cooperative activities, the elasticity decomposition is a valuable component. As proposed by McDonald and Moffitt (1980), the elasticity calculated at the means of the variables can be decomposed into two parts. The elasticity of the probability of being above the limit (elasticity of joining a group) and the elasticity of the conditional expected value of the estimate (intensity of participation). Hence, decomposition of the Tobit predicted



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response indicates two effects: the change in participation in groups' activities, weighted by the probability of joining a group.

TABLE 7. DECOMPOSED ELASTICITY COMPONENTS OF COEFFICIENTS

	ELASTICITY OF BEING A COOPERATOR	ELASTICITY OF EXPECTED PARTICIPATION INTENSITY	TOTAL ELASTICITY
age. . . . .	0.053	0.062	0.115
income. . . . .	-0.011	-0.148	-0.159
marit. . . . .	0.312	0.042	0.354
remit. . . . .	-0.271	-0.122	-0.393
educ. . . . .	-0.089	-0.077	-0.166
sex. . . . .	-0.072	-0.072	-0.144
native. . . . .	0.076	0.187	0.263
pfproj. . . . .	0.081	0.042	0.123
lando. . . . .	0.320	0.106	0.426
farm. . . . .	0.083	0.126	0.209

The decomposed coefficients are presented in Table 7. For the continuous variables, marginal effects are evaluated at the mean. For dichotomous variables, the effect is evaluated for the shift from 0 to 1. For example, a 1-percent increase in income realized will reduce the probability of joining a cooperative by 0.011 percent and would also reduce the probability of a member participating in a group's activities by 0.148 percent, while total participation would be reduced by 0.159 percent. Likewise, a 1-percent increase in the age of the member (at the mean) would increase the probability of joining a cooperative group by 0.053 percent, while members would be expected to increase their participation in groups' activities by 0.062 percent; and total participation intensity would increase by 0.115 percent. The effect of remittances shows that a 1-percent increase (at the mean) in the value of remittance received would decrease the probability of joining a group by 0.271 percent, and for members it would decrease their participation intensity by 0.122 percent. The relative sizes of the total elasticities were found to vary considerably

over the variables investigated. Ownership of land had the largest total effect on rural cooperative membership. The effect it had on joining the group was over twice its impact on members' interest in participation. The total effect of remittances was over twice as large as either farm size or educational status effects. Although farm size has very little effect on the decision to join a cooperative, it has a large impact on participation. In addition, while being a native of the town is not a strong driver to join a group, it nonetheless has a strong effect in stimulating members' participation in the group's activities.

*Comparison of Income of Cooperative and Non-cooperative Members by Activities and Gender*

The income of members was compared with non-members in the same community for similar enterprises (Table 8). The results revealed a significant difference in income realized between cooperators and non-cooperators across all of the activities.

TABLE 8. TEST OF SIGNIFICANT DIFFERENCE IN TOTAL INCOME REALIZED IN NAIRA PER MONTH.

ACTIVITY	MALE			FEMALE		
	CO-OP	NON CO-OP	T-VALUE	CO-OP	NON CO-OP	T-VALUE
Crop production.	22,123.1	17,492.2	7.79	15,002.6	13,220.5	3.93
Processing.	5,092.6	2,762.2	3.51	4,203.8	3,100.3	3.66
Produce marketing.	14,827.9	14,099.2	3.72	16,288.2	14,270.9	4.92

This shows that cooperative association has contributed significantly by improving members' income and, by extension, improving the economic well-being and living conditions of the people. The difference in income between members and non-members has shown the economic advantages of membership, and a possible source of social inequality between members and non-members. The gains from the association are, therefore, better appreciated when members are compared with non-members in the same economic activity. Wanyama, Develtere, and Pollet (2008) reported that cooperatives are an important channel for mobilization and

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distribution of financial capital, creation of employment, and income generation and social welfare, among others. The mobilization and distribution of financial capital in the form of credit borrowing is a major activity promoted by the rural groups. Its impact in facilitating rural growth, agricultural development, and livelihood sustainability cannot be overemphasized. The potential of cooperatives to stimulate rural growth is bound to increase, against the backdrop that the horizontal solidarities that constitute their “niche” are being accentuated by the inadequacy of public policies in Nigeria.

### CONCLUSION

This study has revealed the important roles of collective action in improving rural livelihoods (accelerating rural growth). Cooperatives are widely accepted by rural people as an engine for growth and economic improvement. The wide acceptance is buttressed by the relatively large number of economically active rural dwellers that are members of the groups. Although Putnam (2000) observed that, largely, membership is driven by the need not to be left out (band wagon effect). The rural groups were also largely amorphous; a mosaic of different activities and foci. There are no clear demarcation lines on the activity focus of the groups. This diverse activity portfolio was a strategy used by the groups to diversify members’ benefits and to attract potential cooperators. It is, therefore, common for a processing cooperative to invest on truck rental investments, for example. This diverse activity profile is also indicative of the lack of understanding of the tenets of modern cooperatives and unclear group objectives. This is connected to the fact that most of the rural groups emerged to take advantage of public interventions. Our research has indicated that rural cooperative membership is determined by both socioeconomic as well as community-related variables. Income, marital, educational, and land ownership status, gender and presence of a public project in the community were specific factors that influence membership and participation. The drivers of cooperative participation differ between male and female cooperators. Our study shows that, while the men prefer activities with direct economic gains, the women emphasized activities that cement social and interpersonal networks among members.

The study, therefore, recommends that development practitioners integrate relevant models of collective action into programs designed to address issues of rural food security, poverty alleviation, infrastructural development, and gender equality. Governments (federal, state, and local council levels) should encourage and patronize community groups as important focal points for taking development

interventions to households and communities, and to facilitate a people-centered development agenda. To achieve these, governments need to put in place policies that encourage the formation and effective management of cooperatives. This will ensure that development benefits arising from group advocacies; economics of scale; entrenchment of democratic ideals, and infrastructural development accrue to a wide segment of the community.

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