



EFFECTS OF COOPERATIVE MEMBERSHIP ON RURAL HOUSEHOLDS' SAVINGS MOBILIZATION IN IJEBU ZONE OF OGUN STATE, NIGERIA



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Abstract: The need for rural households to save is justified in their daily lives and activities as they often sacrifice current needs in order to meet future needs. This study assessed the effects of cooperative membership on rural households' savings mobilization in Ijebu Zone of Ogun State, Nigeria. Both primary and secondary data were collected and used for the study. 180 household heads were sampled through well-structured questionnaire and interview schedule using the multi stage sampling technique to selected the respondents. Double hurdle model was used to analyse the data. The probit results showed the respondent's age ($p < 0.1$); size of household ($p < 0.1$); belonging to a social peer group ($p < 0.1$); and dependency ratio ($p < 0.05$) as significantly affecting household members' decision to join cooperative groups. As for the Tobit model, sex of respondents ($p < 0.1$); size of household ($p < 0.1$); annual farm income of the household head ($p < 0.1$); membership of a social peer group ($p < 0.1$); household dependency ratio ($p < 0.05$); and nature of household head's occupation ($p < 0.1$) significantly affected the extent of households' cooperative participation. Result of the ordinary least square regression revealed that annual farm income ($p < 0.1$) and non-farm income ($p < 0.01$); value of household income generating asset ($p < 0.01$); annual spouse income ($p < 0.1$); and credit obtainable ($p < 0.1$) significantly influenced the volume of household savings mobilized through cooperative membership. Further accesses of cooperative members to income generating assets, as well as a continuous upward review of the total credit obtainable by cooperative members were recommended as means of further enhancing households' savings ability towards improved rural sector investment opportunities.

Keywords: Cooperative membership, household savings, Double hurdle regression model

Introduction

International organizations have come in terms that Cooperative Institutions are genuine and efficient ways to ensure efficient implementation of programme mainly poverty alleviation schemes (projects) as well as seeking direct information on the needs and the interest of the poor across developing countries (Mohammed & Farouq, 2018). It is widely seen to have potential to impact on development and poverty reduction (Birchall, 2008). For example, DFID (2010) argue that cooperatives make an important contribution to sustained economic growth and to making markets function better for poor people. The United Nation (UN) has acknowledged important direct and indirect impacts on socio-economic development in terms of promoting and supporting entrepreneurial development, creating productive employment, raising incomes and helping to reduce poverty while enhancing social inclusion, social protection and community-building. Several studies argued cooperatives not only directly benefit their members, but also have positive effects for the rest of society (UN, 2009). Cooperative societies generate their income or revenue through savings. Hence, savings by member-patrons is very important for sustenance of cooperative society, and also, the individual members' households. In addition, savings are also a critical low cost source of funding for cooperatives. The cooperatives should therefore have a savings policy so that they can be able to establish and formalize the savings products that they can offer to their members. The savings policy outlines the terms and conditions for each savings product and the procedures by which the liquidity, pricing and transactions for each savings product is managed.

Savings therefore enable the member-patrons' households to insure themselves against future difficulties. The savings at the rural communities are either in cash with informal groups or physical products like agricultural produce or domestic animals. The savers therefore need a partner who can help them keep and properly manage their savings which are then accessed when needed. The savings can also be used to finance investment which will then act as an engine for the economic development of the community. Household's need

for a secure and easily accessible place to keep their savings while at the same time earning interest on their savings can be achieved by equipping cooperative societies with the necessary skills to mobilize savings from their communities, and also to properly manage the savings. The savings will then be used for investment purposes by the cooperative societies particularly to stimulate economic development. In recent years, economists, international organizations, and governments in developing countries have placed increasing emphasis on the mobilization of deposits, not only to increase domestic savings, to achieve sustained economic growth and development but also to strengthen domestic financial intermediaries. Baharumshah *et al.* (2003) argues on the existence of positive effects of household savings on economic growth more so with the recent financial crisis, which has led to serious repercussions in the global economy due to deep economic and moral losses of investors. These events revealed the relevance of saving and especially its allocation in the nation economy (Bernhiem and Shoven, 1991). Indeed, saving is very important in the development of industrial and financial systems (Attanasio, 1998; Baharumshah *et al.*, 2003) as well as the only means to accumulate assets in the absence of credit and insurance markets to households. Although there is controversy regarding the relation between savings and economic growth, it is generally agreed that once savings start to rise-perhaps due to increases in income they enhance the potential to finance investment, and lead to the creation of more opportunities in the economy (Attanasio, 1998; Bernhiem and Shoven, 1991).

Economists have established the functional relationship between income and savings. Cooperative movements have played a significant economic and social role and demonstrate their relevancy to the economic and social development. This helps to trace the role of cooperatives to ownership of household assets, enterprise assets, enterprise profitability and increase in household income to determine changes in members' standard of living. This is important because it enhances our understanding of the role of cooperative societies in rural finance to be concerned with improving

standards of living of the members rather than quality of life such as health and family planning which rural cooperatives may not be financially adequately empowered to do. Enete (2008), Wanyama *et al.* (2008) considered the impact of participation in cooperatives on members' ability to acquire enterprise asset.

In addition to the previous studies on household savings, this study will provide more information on the contribution of cooperative towards household savings mobilization which will be useful for designing intervention programs that will benefit Co-operators' and increase their household financial security. It will also equip policymakers aiming at formulating policies to help cooperative societies at increasing household welfare through savings mobilizations. The broad objective of the study is to examine the effect of cooperative membership on rural households' savings mobilization in Ijebu Zone of Ogun State.

Materials and Methods

The study area and collection of data

The study was carried out in Ogun State, Nigeria. Ogun State was created in February 1976 divided into four divisions which are Egba zone, Ijebu zone, Yewa zone and Remo zone with twenty local governments' areas. Some of the crops cultivated in the State include cassava, maize, yam rice, cowpea, plantain, banana, citrus, vegetables, kola nuts, cocoa, oil palm, rubber, sugarcane and many more. Some farmers in the State also engage in livestock production raising poultry, goats, sheep, cattle and rabbits (Ambali, 2012). The climate condition favours the production of timbers, arable and tree crops and the forest reserve as well as livestock. Both primary and secondary data were used for this study. Primary data were obtained through the administration of structured questionnaire on selected household heads within the study area. Supplementary secondary data were gathered from relevant journal publications and websites. Multistage sampling technique was adopted in this study. The sampling frame was households in Ijebu Zone of Ogun State while the sampling procedure was based on the six Local Government areas in the zone. The choice of samples in each stage of the sampling procedure was based on the population size and cost of data collection among others factors.

The first stage of the sampling process entailed a random selection of four (4) Local Government Areas (LGAs) out of the six (6) Local Governments in the zone; while the second stage involved selection of five (5) villages/communities in the four (4) LGAs selected. The final stage involved the selection of nine (9) households from each of the twenty villages/communities selected in the study area. These procedures led to the selection of 180 households for the study.

Method of data analysis

The double-hurdle model was used to determine the level of rural households' involvement in cooperative activities in the study area. Firstly, the possibility that zeros are due to non-members of cooperative societies for non-economic reasons is accounted for in the double-hurdle model. Secondly, membership of cooperative societies allows for zeros.

$$y_{i1}^* = w_i \alpha + V_i \text{-----Decision to join cooperative society.}$$

$$y_{i2}^* = x_i \beta + \mu_i \text{--Extent of cooperative membership Equ. (1)}$$

The decision to join cooperative society relates to actual participation following (Blundell and Meghir, 1987).

$$y_i = x_i \beta + \mu_i \text{ if } y_{i1}^* > 0 \text{ and } y_{i2}^* > 0$$

$$y_i = 0 \text{ otherwise Equ. (2)}$$

Where y_{i1}^* is a latent variable describing the household decision to participate; y_{i2}^* is the households that participated; w_i is a vector of explanatory variables accounting for the participation decision; x_i is a vector of explanatory variables accounting for households that participated, and V_i and μ_i are respective error terms assumed to be independent and distributed as $V_i \sim N(0, 1)$ and $\mu_i \sim N(0, \sigma^2)$. A different latent variable is used to model each decision process, with a probit model to determine the decision of household member to join cooperative societies and a Tobit model to determine the extent of cooperative participation by household members following (Blundell and Meghir, 1987). The probit model is specified thus:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \dots + \beta_{10} X_{10} + \epsilon_i$$

Where: Y= Membership of cooperative society (1 if the ith respondent is a co-operator; 0 otherwise); X₁ = Age (years); X₂ = Marital Status (1 if married; 0 otherwise); X₃ = Sex (1 male; 0 otherwise); X₄ = Years of formal education; X₅ = Household size (number); X₆ = Total farm income of household head (₦/annum); X₇ = Total non-farm income of household head (₦/annum); X₈ = Belonging to a social peer group (1 if yes; 0 otherwise); X₉ = Dependency ratio (i.e. ratio of working members of the household to total household size); X₁₀ = Nature of main occupation (1 if employed in the informal sector; 0 otherwise); X₁₁ = Years of cooperative membership; ϵ_i = Random error term

The second stage of the double hurdle model examines the extent of cooperative participation by the household head using the Tobit model. The Tobit model assumes that the observed dependent variable Y_i for observations i = 1... n satisfies the expression in the equation:

$$Y_i = \max(Y_i^*, 0)$$

Where the Y^{*i}s are latent variables observed only when positive

$$Y_i^* = X_i \beta + \mu_i \text{ where } \mu_i \sim N(0, \sigma^2)$$

$$Y_i = Y_i^* \text{ if } Y_i^* > 0; Y_i^* = 0 \text{ otherwise}$$

X_i is a vector of independent variables; β is a set of parameters to be estimated and μ_i represents the normally and independently distributed error terms, with a mean value of zero, and constant variance

Y = Level of cooperative participation (Index of attendance at cooperative monthly meetings was used as a proxy). The extent of cooperative members' attendance at monthly cooperative meetings was determined by proposing a model for the attendance index as follows:

$$Sci = \sum MiPi/5$$

Where: Sci = Cooperative attendance index; M_i = Respondent's membership of the *i*th cooperative society (1 if member; 0 if not a member); P_i = Level of participation at monthly meetings of the *i*th cooperative society. This takes on the value from 0-4 as highlighted below;

- 0 = if member does not attend cooperative monthly meetings at all.
- 1= if member attends <30% of cooperative monthly meetings.
- 2= if member attends between 30 - <50% of cooperative monthly meetings.
- 3= if member attends between 50 - <70% of cooperative monthly meetings.
- 4= if member attends between 70% and above of cooperative activities.

The explanatory factors hypothesized to influence the respondent's level of cooperative participation are: X₁ = Age (years); X₂ = Marital Status (1 if married; 0 otherwise); X₃ = Sex (1 female; 0 otherwise); X₄ = Years of formal education; X₅ = Household size (number); X₆ = Total farm income of household head (₦/annum); X₇ = Total non-farm income of household head (₦/annum); X₈ = Belonging to a social peer group (1 if Yes, 0 otherwise); X₉ = Dependency ratio (i.e. ratio of working members of the household to total household size); X₁₀ = Nature of main occupation (1 if employed in the informal sector; 0 otherwise); X₁₁ = Years of cooperative membership; ε_i = Random error term

Results and Discussion

Probit regression model of the decision of household members to join cooperative society

The probit regression model was used to determine the decision of household member to join cooperative society. The regression parameters and diagnostic statistics were estimated using maximum likelihood estimation (MLE) technique. Table 1, presents the determinants of household members to join cooperative society. The findings show that

four of the eleven included regressors had significant influence on the decision to join cooperative society. The co-efficient of the age of respondents is positive and statistically significant at 1% level of probability. This shows a direct relationship with the decision to join a cooperative society which implies that increase in age of the respondent will increase the interest of the respondent to join cooperative society by 12%. This is in agreement with the work of Mugabekazi (2014) that an increase in the age of household head by one year increases probability of joining a cooperative society. The co-efficient of the household size was statistically significant at 1% level of probability and it is positive. Further, the co-efficient of the dependency ratio was statistically significant at 5% level of probability and it is positive. The co-efficient of belonging to a social peer group was statistically significant at 1% level of probability and it is negative. This shows an indirect relationship with decision to join cooperative society which implies that an increase in belonging to a social peer group will lead to 93% decrease in decision to join cooperative society.

Table 2: Results of the probit regression model of household membership of cooperative society

Variable	Co-efficient	t-value
(Constant)		
Age (X ₁)	0.117*** (0.300)	3.896
Marital status (X ₂)	-0.292 (0.462)	-0.633
Sex of respondent (X ₃)	0.932 (0.725)	1.285
Years of formal education (X ₄)	0.133 (0.178)	0.749
Household size (X ₅)	0.470*** (0.112)	4.211
Total annual farm income of the household head (X ₆)	0.573 (0.453)	1.266
Total annual non-farm income of the household head (X ₇)	0.159 (0.278)	0.572
Belonging to a social peer group (X ₈)	-0.562*** (0.106)	-5.302
Dependency ratio (X ₉)	0.934** (0.455)	-2.053
Nature of main occupation (X ₁₀)	0.131 (0.251)	0.520
Years of membership (X ₁₁)	-0.342 (0.316)	-1.082

Source: Field survey, 2015.

***, **, and * denotes 1%, 5%, and 10% levels of probability. Figures in parentheses are the standard errors

Table 2: Results of Tobit regression model of the extent of household's cooperative participation

Variable	Co-efficient	t-value
(Constant)		
Age (X ₁)	0.712 (0.818)	0.870
Marital status (X ₂)	0.396 (0.101)	0.392
Sex (X ₃)	0.519*** (0.164)	3.172
Years of formal education (X ₄)	-0.388 (0.407)	-0.953
Household size (X ₅)	1.558*** (0.258)	6.044
Total annual farm income of household head (X ₆)	0.288*** (0.987)	2.922
Total annual non-farm income of household head (X ₇)	-0.552 (0.604)	-0.915
Belonging to a social peer group (X ₈)	-2.162*** (0.312)	-6.936
Dependency ratio (X ₉)	-0.225** (0.102)	-2.196
Nature of main occupation (X ₁₀)	0.142*** (0.555)	2.554
Years of membership (X ₁₁)	0.241 (0.168)	1.433
R-Square value	0.280117	
Adjusted R-Square value	0.23298	
Log likelihood function	-257.5472	

Source: Field survey, 2015; ***, **, and * denotes 1%, 5%, and 10% levels of probability. Figures in parentheses are the standard errors

Tobit regression model of the extent of cooperative participation by household members

The Tobit regression model was used to determine the extent of cooperative participation of household member (Table 2). The variables that had significant co-efficient were sex of respondent (X₃), household size (X₅), total annual farm income of the household head (X₆), member of cooperative society (X₈), dependency ratio (X₉) and nature of main

occupation (X₁₀). It should be noted that a positive sign on a parameter indicated that higher values of the variables tend to increase the likelihood of extent of cooperative participation. Similarly, a negative value of a co-efficient implied that higher values of the variables would reduce the probability of the extent of cooperative participation. Specifically seven of eleven variables were positive while four variables were negative.

The co-efficient of the sex of respondents is positive and statistically significant at 1% level of probability. This shows that female members of the household are more disposed towards taking active roles in cooperative participation. This is at variance with the study of Woldu *et al.* (2013) that due to unequal gender, norms and relations, women have a lower socio-economic status, limiting their opportunities to access and participate in cooperative society compared with their male counterparts. Household size co-efficient was statistically significant at 1% level of probability and it is positive. This shows a direct relationship with the extent of participation in cooperative society which implies that an increase in household size will increase household's participation in cooperative societies. The co-efficient of total annual farm income of household head was statistically significant at 1% level of probability and it is positive. This shows a direct relationship with the extent of cooperative participation which implies that an increase in the total annual farm income of the household head will lead to a 29% increase in the extent households will participate in cooperative society. This follows the work of Wener and Earnst (2003) who found that the farm income of the household head is positively related to the magnitude of cooperative participation. A household head belonging to a social peer group will significantly decrease the participation in cooperative activities at the 1% level of significance. That is, a unit increase in household head belonging to a social peer group will lead to a decrease in cooperative participation.

Dependency ratio co-efficient was statistically significant at 5% level of probability and it is positive. This shows a direct relationship with the extent of participation in cooperative society which implies that an increase in the number of household dependants will positively influence the participation of the household head in cooperative activities. This is in agreement with the findings of Mpiira *et al.* (2013) who affirm the participation of households with dependants in cooperative society than those who do not. The co-efficient of nature of main occupation of household head was statistically significant at 1% level of probability and it is positive. This shows a direct relationship with the extent of cooperative participation which implies that employment in the informal sector will improve households' participating in cooperative society.

Conclusion and Recommendations

The relevance of household savings as a means of financing rural investment has been discussed by economist the world over. This study had added to the discuss by empirically examining the effect of cooperative membership on rural household savings mobilization in Ijebu Zone of Ogun State, Nigeria, using primary data obtained from surveyed rural households in 2015. Based on the result obtained, the following recommendations were made, that:

1. Cooperative organizations should facilitate the assess of household members to income generating assets in order to further enhance their savings capability towards socio-economic advancement.
2. A continuous upward review of the total credit obtainable by cooperative members will act as a catalyst to boost beneficiary's savings ability which has positive implication for rural sector investment.

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