

Effects of Membership Homogeneity on the Performance of Agricultural Micro-Credit Groups in Rural Credit Markets, Nigeria

M. Mkpado, M.A. Idu and C.J. Arene

Department of Agricultural Economics, University of Nigeria, Nsukka, Nigeria

Abstract: The study was conducted in nine Local Government Areas selected from Enugu State. About 6, five micro Credit Groups from each Area were randomly selected. This gave a total of 45 micro-credit groups. This was done using multi-stage sampling techniques. Sources of data were primary and secondary. Structured questioners were used to interview respondents to generate primary data while secondary data were sourced from relevant publications. Descriptive statistics and Ordinary Least Square Econometric techniques were used in data analysis. Majority of the group members, 31.4% belong to the age bracket of 40-49 years (middle age). Majority of the groups, 40% were composed of 10 individuals. Majority of the respondents, 64.4% travel about 200 m to attend meetings. Factors determining repayment were homogeneity in gender, occupation, distance and residency as well as social cohesion. Based on the findings, it was recommended that micro credit groups should be homogenous with respect to gender, members should be encouraged to attend group meetings which should be made regular in order to build strong social cohesion and groups should be composed of individuals living close to each other in order to enjoy information advantage.

Key words: Local techniques, respondents, composed, advantage, cohesion, information

INTRODUCTION

Agriculture in Nigeria, a developing economy has suffered serious setbacks due to: under capitalization, poor credit disbursement procedures, inadequacy of credit institutions to cater for the needs of the teeming population of farmers and poor loan repayment possibilities among farmers (Ugo, 1973; Osuntogun, 1973). Micro credit is about providing services to the poor who are traditionally not served by the conventional financial institutions (Upton, 1997). Credit agencies are frequently classified into two groups: formal and informal (Upton, 1997). Formal institutions include banks and co-operative credit unions while the informal agencies include Non-Governmental Organizations (NGOs), money lenders, friends, relatives and micro credit unions.

The formal financial system in Nigeria traditionally lend to medium and large entrepreneurs which are judged to be creditworthy and who can provide tangible collateral. They avoid doing business with the micro entrepreneurs and their micro enterprises because the associated cost and risk due inability to provide collateral are considered to be relatively high.

Informal credit institutions are characterized by flexible small operations and they operate mostly in a circumscribed area or a specific niche of the market. They tend to deliver personal services very close to the

location of the 1 corresponding author borrower. They also tend to be non-bureaucratic and much more flexible in respect of loan purpose interest rates, collateral requirements, maturity periods and debt rescheduling (Ghatak and Guinnane, 1999).

Formal financial system in Nigeria despite the government intervention by providing a multiplicity of credit institutions over the years, have proven to be inefficient and costly in the provision of financial services to the micro entrepreneurs. However, several types of informal institutions have efficiently serviced a wide variety of micro credit entrepreneurs. Micro credit institutions are mainly, Self-Help-Group (SHGs) Rotating Savings and Credit Associations (ROSCAs) and Savings/Thrift Co-operative societies (Olomola, 2000).

Micro credit is one of the major tools used to extend credit with a view to alleviating poverty of many entrepreneurs in low-income countries. In an era of global economic liberalization, micro credit is widely viewed as an intervention that address important deficiencies of financial markets in terms of serving specific needs of the poor, by providing them with credit without collateral (Stiglitz and Weiss, 1981). The provision of micro credit services improves the latent capacity of the poor for entrepreneurship which enables them to be more self-reliant, increase in employment opportunities, enhance household income and create wealth.

Many micro credit agencies have sought borrowers to work together in small peer groups and these peer groups are also required by the lenders to assume responsibility for the repayment of their members loan in time of default, consequently, future credits to all member (Soren, 2002). The joint liability systems employed by peer groups can improve financial sustainability, by inducing group members to use their mutual interest, familiarity and understanding in performing the following roles: screening of fellow borrowers to retain creditworthiness, monitoring their use of borrowed funds and pressuring them to repay as well as providing mutual insurance (Ghatak, 1999).

The formal credit lending institutions always insist on collateral for the disbursement of loans. However, the German Bank experience demonstrated that collateral requirement should not be a limiting factor to accessing credit by small holder farmers. Instead, substitutes such as group lending can be used (Hossain, 1988). Group lending involves administration of credit among group whose individuals differ in character and reaction but possess a common interest of benefiting from the group (Hulme and Mosely, 1996). In countries such as Bangladesh, Thailand and Malawi where groups lending thrived very well, the key determinants of the success were homogeneity especially with respect to group social cohesion, intra-group risk pooling and repayment performance (Huppi and Feder, 1989).

The nature of membership composition is thus important for improved performance of groups, not only in terms of repayment but also in terms of savings mobilization and building up social cohesion through attendance at regular meeting (Mkpado, 2006). Group(s) tend to be more successful when members share one or several socio-economic conditions and are therefore relatively homogenous. Devereux and Fishe (1993) wrote that in the formation of membership group, some members may misrepresent their economic status, claiming what they are not, thereby resulting in the formation of a group with non-homogenous members. Consequently, the potential for default or delinquency is high and the chance that the group will remain together over time becomes remote. Group homogeneity is therefore a group quality, highly valued by members themselves. Consequently, group homogeneity has the greatest potential for influencing outcome at the individual member level. This makes sense because the probability of members behaving in conformity with group objectives is likely to be greater in a homogenous group where individual members have similar interests and share similar problems.

Statement of the problem: In Nigeria, Government interventions through a multiplicity of credit institutions over the years have not resulted in significant improvement in rural financial intermediation. Loan able funds from government sources, have dwindled considerably. The cost of borrowing has increased tremendously and the financial outlay for business enterprises has multiplied several folds irrespective of the scale of operation due to inflation bites. The private sector, consequently is bracing up for the challenges through the formation of Finance Groups (FGs) and the participation of Non-Governmental Organizations (NGOs) including donor agencies (Olomola, 2002).

Over the years, government have attempted to circumvent the inadequacies of the informal sources of fund to small scale entrepreneurs, especially the farmers who are the primary producers in every economy, by creating certain formal financial institutions. Though these institutions have been blamed and accused of inefficiency in meeting up with the demand of the small holders, some of the factors that has hindered the financial institutions from performing up to expectation have been emphasized by Ohaka (2005) in his observation he lamented over the attitude of local farmers to institutional credit as one of the factors. He remarked that they regard such credit as a share of the National cake/Bounties.

Organizations are recently placing much emphasis on the group approach in extending credit to the low-income producers (Olomola, 2002). Nevertheless, the expectation that the approach will eliminate or mitigate the problems of loan delinquency/default has not materialized and to date a large number of small scale entrepreneurs have no access to credit. This raises the question as to whether the existing Finance Group (FGs) holds some potential in terms of engendering improved repayment performance. Specifically, to what extent does this potential depend on homogeneity of micro credit groups?

The inability of some loan beneficiaries to repay their loan makes it impossible for the lenders to meet the demands of their clients that are genuinely in need. So for efficient working of the credit system it is important that default in repayment is as low as possible because viability of the agencies is highly dependent on the amount of loan recovered. Thus the main aim of this research work is focused on the performance of group members which is measured by group social cohesion, intra-group risk pooling and loan repayment rate.

Homogeneity of groups has been shown as an important element of high repayment rates (Devereux and Fishe, 1993). Using the example of small farmers Development Programme in Nepal, they suggested that

groups homogeneity helps to reduce the potential for cross-subsidizing between groups. They further noted that if groups are organized with non-homogeneity members, then the potential for default/delinquency will be high and the chances that the group will remain together over time will be low. Studies of homogeneity still report different facts on effects of homogeneity on performance. For instance, Okeke (2006) reported that homogeneity in age and genders have not affected loan repayment in South eastern Nigeria.

However, the importance of homogeneity in explaining the results of collective action probably differs according to the factor (s) under consideration. Some researchers also question whether the success of group based credit repayment is actually, due to homogeneity in membership or to the other features of the group (Jain, 1996). Consequently, the study aims at establishing or refuting the position of membership of homogeneity on the performance of micro credit groups.

Objectives of the study: The broad objective of the study is to examine the effects of membership homogeneity on the performance of Agricultural micro credit groups in Enugu State of Nigeria. The specific objectives are to:

- Describe the socio-economic characteristics of the groups with respect to age, gender, literacy, occupation, ethnicity and residency
- Describe the characteristics of the groups on the basis of homogeneity or otherwise heterogeneity
- Determine the effects of membership homogeneity on social cohesion
- Determine the effects of membership homogeneity on intra-group risk pooling
- Determine the effects of membership homogeneity on loan payment
- Analyse the effects of social cohesion and intra-group risk pooling on loan repayment
- Identify the various problems of agricultural micro credit group administration in the state
- Make recommendations based on results

Study hypothesis: The null hypotheses to be tested are:

- Membership homogeneity has no significant effect on social cohesion
- Membership homogeneity has no significant effect on intra-group risk pooling
- Membership homogeneity has no significant effect on loan repayment
- Social cohesion and intra-group risk pooling have no significant effect on loan repayment

Justification of the study: The nature of membership composition is crucial for improved performance of groups, not only in terms of homogeneity but also in terms of inherent social capital which can be of great benefit to both lenders and borrowers (Olomola, 2002). It is therefore possible to employ the concept of social capital to enhance the understanding of the performance of the micro credit groups on the basis of the available social homogeneous characteristics.

The capacity to enforce rules in groups where members are homogenous is higher than in groups with membership heterogeneity (Olomola, 2002). Such characteristics which can enhance trust building include regularity of operations, religion, membership of the same community, belonging to the same ethnic group, cultural affinity, common neighborhood and consanguinity. These factors can strengthen the social cohesion and moral bands required for effective enforcement of the loan contractual agreement.

A high degree of connection is appropriate to lead to better peer monitoring and lower faults rate. Groups with such characteristics can be said to possess high endowment of social integration which constitutes an important source of social capital which enhances their access to micro credit.

The more homogeneous the group members are the more intensive the social ties and the trust within the groups and the higher is the groups endowment of social capital (Woolcock, 1998). Consequently, the need for the study of the effect of membership homogeneity on social cohesion, intra-group risk pooling and loan repayment among agricultural micro credit groups in Enugu state of Nigeria, to examine the effect and nature of membership composition which is important for effective performance of groups.

This study will be of benefit to both the federal and state ministries of agriculture and also to the Federal and state Governments in the formulation of credit policies and programmes that is group oriented as it will encourage finance and policy makers in formulating policies on how to improve access and repayment of loan in the study area. The study will also present a platform for groups formation for improved performance. Other groups to benefit are the (NGOs) and private participants in micro credit business.

Membership homogeneity concept: The nature of membership composition is crucial for improved performance of groups not only in terms of homogeneity, but also in terms of inherent social linkages which can be of great advantage to both lenders and beneficiaries (Olomola, 2002). Members of a group can be homogenous in age, gender, religion, literacy level, location, marital status, income level and tribal groupings. Nagarajan *et al.* (1999) in their membership homogeneity study in the

Gambia did summarize that the majority of the groups formed by the Non-Government Organizations (NGOs) have fairly homogenous members, which they assumed was responsible for the sustainability of the group.

In countries such as Thailand, Malawi, Bangladesh where membership homogeneity thrived very well, the key determinants of the success were as follows: membership size, fund size and fund allocation method (Hossain, 1988; Huppi and Feder, 1989). These design characteristics of membership homogeneity affects the group performance. Also, the efficiency of financial intermediation of a group is synonymous with the measures of group performance such as social cohesion, intra-group risk pooling and loan repayment performance.

Membership size or group size is a crucial factor in the effective performance of a group. Small size group allows for closer interaction among members which invariably reduces costs of information. It also facilitates loan monitoring and encourages repayment. Both the informal and formal micro-credit institutions allow a membership size of between 5-30 persons per group. Group membership homogeneity functions effectively with a small homogenous group which is designed to achieve better screening of intending members, contend with adverse selection, encourage peer monitoring, reduce moral hazards, reduce lenders audit cost as well as boost group members incentive to enforce their social obligation programmes as social cohesion increase (Ghatak and Ghuinnane, 1999; Olomola, 2002). On the other hand, though large membership size makes for greater fund mobilization and reduces the fixed costs of a member in a group, it also increases membership congestion and peer monitoring cost which will invariably reduce the net gains of services a member will receive and lead to reduced group cohesion. Information and communication advantages which makes group formation worthwhile for lenders and borrowers is lacking in large group size (Huppi and Feder, 1989).

The major reason for keeping group members relatively small is to limit the chances of intra-group conflict which if not checked will occur among members and reduce performance.

According to Jeffery, Laurie and William, intra-group conflict is divided into relationship conflict and task conflict. Relationship conflict which is negatively related to group performance, is interpersonal incompatibility amongst members which is accompanied by tension, annoyance and frustrations. Consequently, members are engulfed in quarrels which results to members being unreceptive to others ideas.

This situation if not checked will lead to total break down and physical disengagement of members will ensue. Task conflict is the conflict made up of accepting what to do and how to do it.

Fund size is the quantity of financial services that a member obtains from participating in a group. In the informal credit groups like the ROSCAs, all the members contribute a set amount to a common pool which is randomly or non-randomly received by each member in turn or shared among members proportionally at the end of the risk-pooling period. Under the formal micro-credit institutions, the fund size a member gets depends on the percentage initial financial deposit made by the member as requested by the institution. The repayment performance can be positive or negative with respect to fund volume. Arene (1992) report a direct significant relationship between fund size and repayment. Small loans can adversely affect projects by under funding while large loans may stimulate project expansion, increase income and encourage repayment.

Fund Allocation Method is the method used in accessing loan (s) to members in a group. It could be randomly or non-randomly. The randomized or serial method of fund allocation is mostly found in the Rotating Savings and Credit Associations (ROSCAs). Using the serial method, each member of a ROSCAs receives the pot or fund once and is excluded from receiving the fund again even in the case of plurality of membership until every member has serially or randomly received (Besley *et al.*, 1993). Randomized method does not follow the turn-by-turn method of serial fund allocation. It brings about misunderstanding and misinterpretation of information for such groups that does not believe in lotteries which affect performance adversely.

Group homogeneity is a group quality, highly valued by members themselves. Consequently, group homogeneity has the greatest potential for influencing outcome at the individual member level. This makes sense because the probability of members behaving in conformity with group objectives is likely to be greater in a homogenous group where individual members have similar interests and share similar problems. Membership homogeneity has been shown as an important element of high repayment rates. Devereux and Fishe (1993) wrote that in the formation of membership group, some members may misrepresent their economic status, claiming what they are not thereby resulting in the formation of a group with non-homogenous members. Consequently, the potential for default or delinquency is high and the chance that the group will remain together over time becomes remote.

Group(s) tends to be more successful when members share one or several socio-economic conditions and are therefore, relatively homogenous. It has also been commonly noted that the benefits of group membership are not limited to the members themselves. The economic

and social betterment of women group promoted through the Tamil Nadu women development project in India helped the members to improve the welfare of their families and their status both within the family and in the community (IFAD, 2000).

The study area: The study was conducted in Enugu State of Nigeria. Enugu State is in the South Eastern Nigeria and is one of the 36 states constituting the Nigeria Federation. The state came into existence on 27th August 1991 when it was carved out of the old Anambra State. Enugu State comprises 17 local government areas and is located between latitudes 5°61'N and 7°05'N and longitudes 6°53'E and 7°55'E (Ezike, 1998). The state, Enugu, is bounded on the North East by Ebonyi State; North by Benue and Kogi States; South by Abia State and West by anambra State. Enugu State has a total land mass of about 8,022.96 km². It has a population of about 2,452,996 people (NPC, 1992).

The State is divided into three agricultural zones in line with the political zonal structure (ENADEP, 2004). The zones are Enugu East (formally Enugu zone), Enugu West (formally Udi zone) and Enugu North (formally Nsukka zone). Enugu East agricultural zone comprises Enugu North, Enugu East, Enugu South, Nkanu West, Nkanu East and Isi-Uzo Local Government Areas, Enugu West Agricultural zone consists of Oji-River, Awgu, Aninri, Ezeagu and Udi Local Government Areas while Enugu North is made up of Nsukka, Igbo-Eze North, Igbo-Eze South, Igbo-Etiti, Udenu and Uzo-Uwani Local Government Areas.

Enugu State is purposely selected to provide empirical information on the performance of agricultural micro-credit groups with reference to their homogenous membership as the state has many formal and informal micro-credit institutions and other programmes sponsored by the Federal/State Governments and Non-Governmental Organizations (NGOs) which are geared towards the eradication of poverty through micro-credit lending. Such institutions and programmes are the Nigerian Agricultural Co-operative and Rural Development Bank, (NACRDB), Development Education Center (DEC) Enugu, Lions Micro-credit Society Nsukka, Nsukka Area Leaders of Thought, United Self-help Organizations (NLTNUSHO), Nsukka and National Poverty Eradication Programme (NAPEP).

MATERIALS AND METHODS

Sampling procedure: To make for a good coverage of respondents in this study, purposive and stratified random sampling technique will be used for the study.

Stage 1: This stage involved purposive selection of the three agricultural zones in Enugu State namely; Enugu East Agricultural zone, Enugu West Agricultural zone and Enugu North Agricultural zone.

Stage 2: This involved using the random sampling method in which three Local Government Areas (LGAs) from each of the agricultural zone were selected and this gave up nine LGA. This will give a total of nine Local Government areas.

Stage 3: In each of the nine Local Government Areas, six micro Credit Groups were selected. This gave a total of forty-five micro-credit groups.

Stage 4: This stage involved the purposive selection of the secretary of each micro credit group to investigate the problems of the groups. This gave also a total of forty-five respondents.

Data collection: Primary and secondary data were used for the purpose of this study. Two sets of structured questionnaires were prepared and used, one for the Agricultural Micro credit groups and the other for the officials of the micro credit institutions. The information gathered, using the primary data source included social cohesion, intra-group risk pooling, repayment performance, membership composition in terms of, age, gender, literacy, sex, occupation, residency and ethnicity of group members, as well as functions and problems of the group. The second set of structured questionnaires was administered to the officials of the micro-finance institutions. This enabled the researcher obtain information on the relationship between the micro-credit groups and the financial institutions. Sources of secondary data included information from available records of the groups and records from previous researches and materials in other areas that will be covered by this study.

The model: The intra-group risk pooling in agricultural micro-credit groups is in anticipation of some benefits. Let us assume that members of a group, maximize their utility function with respect to the expected net benefits Y derived from participating in the group. These net benefits include micro-credit advances, through access to group funds and co-insurance through reciprocity, since cohesive group members with moral ties will through joint liability system reciprocate obligations in times of need. Therefore Y consists of elements inherent in the group that ensures allocation of financial services to members in

terms of Fund size, (F), Membership size (M) and fund Allocation method (A), (Schreiner and Nagarajan, 1997). The fund size (F) determines the quantity of loan amount that a member obtains from participating in a group while the fund Allocation method (A) determines the way used in accessing loan to members. Also, the Membership size (M), shows the magnitude of the group. A larger membership size may reduce average fixed costs in the group but it can also lead to congestion, clustering and peer monitoring costs, hence the net value of services received by members is reduced. Let the value of the group services be R and the costs incurred in participating in a group which includes fixed costs and variable costs, incurred for group formation and peer monitoring be C. All things being equal both value R and cost C are affected by membership composition H and availability of membership information I. Let other factors affecting R and C be a constant K, then the utility maximization function of net benefit can be specified as follows:

$$\begin{aligned} & \text{Maximize } E \{U[Y(F,M,A)]\} & (1) \\ & \text{Subject to } R(H, I, K) - C(H, I, K) \geq 0 \end{aligned}$$

The group performance is also affected by membership composition which influences the availability of information and risks due to covariance in member income or preferences. Let the probability of member delinquency/default be P. It then follows that members repay their loan obligations on time with a probability of (I-P). Thus, the model can be expressed as follows:

$$\begin{aligned} \text{Max } L = & P(U[Y(F,M,A)] - \lambda [R(H,I,K) - C(H,I,K)] + \\ & (I-P) (U\{Y(F, M, A) - \lambda [R(H, I, K) - C(H, I, K)]\}) \end{aligned} \quad (2)$$

It has been shown by implicit function theorem, (Meyer *et al.*, 1995) that maximization of Eq. 2 with respect to F, M, A and P yields:

$$\begin{aligned} F &= f(H,I); M = f(H,I); A = F(H,I); \\ P &= f(F,M,A) = f(H,I) \end{aligned} \quad (3)$$

According to Meyer *et al.* (1995), membership composition can be homogeneous or heterogeneous but homogeneity of members significantly influence the information needed to reduce cost; thus $I = f(H)$. It can be stated therefore that repayment performance may depend significantly on membership composition. This specification is an extension of the models proposed by Cornes and Sandler (1986) and Slover (1991) and has been

successfully applied in the Gambia by Meyer *et al.* (1995) and in Nigeria by Olomola (1991), Mkpado (2006) and Okeke (2006).

Data analysis: Objectives were achieved, using descriptive statistics, such as means, averages, frequencies, percentages, etc. while objectives (iii-vi) as well as the hypotheses will be realized using multiple regression analysis. The relationship between membership Homogeneity (H) and group performance elements such as, Social Cohesion (SC) intra-group Risk Pooling (RP) and Loan Repayment (LR) were specified implicitly as follows:

$$\text{Social Cohesion } SC = f(H_A, H_G, H_L, H_O, H_E, H_R) \quad (4)$$

$$\begin{aligned} \text{Intra-group Risk Pooling } RP = & f(H_A, H_G, H_L, \\ & H_O, H_E, H_R) \end{aligned} \quad (5)$$

$$\text{Loan Repayment } LR = f(H_A, H_G, H_L, H_O, H_E, H_R) \quad (6)$$

Measurement of variables:

- Social Cohesion (SC) was measured as the average number of membership attendance at regular meetings
- Intra-group Risk Pooling (RP) was measured as the average volume of savings mobilized by each group for purposes of securing loans
- Loan Repayment (LR) was measured as the average percentage of loan repaid by each group

Further analysis using LR as a function of SC and RP was performed to ascertain whether repayment performance is directly influenced by SC and RP instead of H. The model specification for the analysis is specified implicitly as:

$$LR = f(SC, RP) \quad (7)$$

The explanatory variables $H_A, H_G, H_L, H_O, H_E, H_R$ etc. are respectively variables for homogeneity in age, gender, literacy, occupation, ethnicity and residence of micro-credit group members. In a particular group, age of individual member is measured in years, literacy level is measured in terms of number of years of schooling while residency was denoted as the distance between where the individual member resides and the micro-credit group meeting venue measured in kilometer. Each variable takes a value of one in the presence of homogeneity and zero otherwise.

Homogeneity in Age (HA) if the age difference of 70% of the group does not exceed ten, the group is homogenous in age and the modal age bracket for the

70% is used as homogenous for the 70% while for the remaining 30% their individual age brackets are used thus showing heterogeneity. Homogeneity in Gender, (HG) if the gender difference of 70% of the individual groups does not 10%; the members are assumed to belong to the same sex and their gender is rated one otherwise zero.

Homogeneity in Literacy (HL) if 70% of the members have the same level of educational attainment [F.S.L.C.; W.A.S.C., G.C.E.; A-level, OND, TCH and NCE; HND, Degree, above]; the group is homogenous in literacy and the modal literacy level for the 70% is used as homogenous for the 70% while for the remaining 30% their individual literacy levels are used thus showing heterogeneity.

Homogeneity in Occupation (HO) if 70% of group members engage in the same type of agricultural enterprise the groups was homogenous in occupation and rated one for occupation for the 70% while for the remaining 30% their individual occupation was rated zero.

The occupations are crop production, animal production and agricultural products marketing. Homogeneity in ethnicity (HM) will be rated 1 if 70% of the group members belong to the same ethnic group (tribe) and zero otherwise. Homogeneity in residency (HD) was rated 1 if 70% of the members have a mean distance of 1 km from the group meeting venue and zero otherwise.

The existence of homogeneity presupposes that there is a high concentration of the values of each variable in a particular group. Indeed if all values of each variable are highly concentrated, the point of concentration is most likely to be the mean. Thus the variables are obtained for all members of a particular group and their means computed for inclusion in the analysis which is performed on group basis. All the equations will be estimated using the Ordinary Least Squares (OLS) regression procedure.

Linear form is represented:

$$\begin{aligned}
 SC &= A_0 + A_1H_A + A_2H_G + A_3H_L \\
 &\quad + A_4H_O + A_5H_{M+} + A_6H_D + e \\
 RP &= B_0 + B_1H_A + B_2H_G + B_3H_L \\
 &\quad + B_4H_O + B_5H_{M+} + B_6H_D + e \\
 LR &= C_0 + C_1H_A + C_2H_G + C_3H_L \\
 &\quad + C_4H_O + C_5H_{M+} + C_6H_D + e
 \end{aligned}$$

The equation for determining the relationship between the performance indicators are:

$$LR = D_0 + D_1SC + D_2RP$$

where, AO, BO, CO, DO, EO, FO and KO are intercepts. AIS, BIS, CIS, DIS, ISO, FO and KIS are coefficients. E is sample error term with OLS properties.

The model that gave the best fit for each test was reported. The choice of the best fit was based on its low standard error of estimate, high R-Squared, absence of multicollinearity and conformity of the relationship between the independent variable and dependent variables with basic economic concepts. Ordinary Least Square was used because the dependent variables are quantitative in nature, besides the study is not aimed at documenting the equilibrium state at which the dependent variables and independent variable are equal because of qualitative nature of the independent variables. It is qualitative when the the dependent variable is dichotomous in nature, thus exhibiting binary outcome. Hence, the models do not satisfy the condition for adoption of simultaneous equation techniques.

RESULTS AND DISCUSSION

Socio-economic characteristics of group members: The socio-economic characteristics of group members were computed from their group secretaries. The facts were examined with respect to age, gender marital status educational qualification, occupation and family size.

Age of group members: One of the factors that may be used in group formation is age. Age may be a reflection of life experiences. It essentially indicates strength, productivity and willingness to work; when examined in the context of life cycle hypothesis. Table 1 is frequency distribution of group members based on their age. Majority of the group members belong to the age bracket of 40-49 years (middle age). A holistic view of the age indicates that >75% of the group members belong to the age groups of middle and old age. The result supports the fact that the middle aged is the most economic active group. Chidebelu reported that the average age of smallholder farmers in Southern Nigeriawas 40 years. Similarly, Ikeme observed that financial and economic efficiency in most cases was found among the middle-aged men and women who represent the active economic force.

Gender: Gender can be used to allocate resources, categorizing farm labour, farm groups, classify households and so on. Gender is mainly used to indicate socially assigned roles to males and females. Table 2 is

Table 1: Frequency distribution of group members based on age

Age group	Frequency	Percentage
20-29	100	9.20
30-39	221	20.40
40-49	341	31.40
50-59	301	27.80
60-69	80	7.40
>69	40	3.70
Total	1083	100.00

Field data 2007

Table 2: Frequency distribution of group members based on gender

Gender	Frequency	Percentage
Males	642	52.3
Females	441	40.7
Total	1083	100.0

Field data, 2007

Table 3: Frequency distribution of respondents according to their marital status

Marital status	Frequency	Percentage
Married	670	61.9
Single	370	34.1
Divorced/Widowed	43	4.0
Total	1083	100.0

Field data, 2007

frequency distribution of group members based on gender. It shows that males dominate females generally. The majority of the group members are males. This is in consonance with Mojiola (1994) observation that although males and females access micro credit services but males slightly outnumber females. The study found that 52% were males while 48% were females accessing micro-credit services from a branch of the defunct peoples' bank of Nigeria. On the contrary, Okeke (2006) reported 70.7% of males and 29.3% females in a random survey of Micro credit beneficiaries in Southeastern Nigeria.

Marital status: Marital status is a social variable that can be used to classify level of responsibility or dependability. While most married couples can be viewed as responsible, most single individuals are not. The marital status of group members is shown in Table 3. The result indicates that married couple access micro-credit services more than single individuals. The least access is gained by single parent families (Widowed/Divorced). This group constitutes a minority in the middle-aged group in southeastern Nigeria which may be a reason for their low sample size.

It may be pertinent to note that Bresciani stated that single-headed households which are poor find it difficult to participate in group activities especially if it involves funds because they would rather remain insolvent and poor than to be humiliated for being found wanting in the

discharge of their financial obligations such as loan repayment and default in savings contribution within a group.

Education qualification: Education makes one aware of programmes and policies around him. It can improve ones ability to discern the benefits of government development programmes and interest to participate. Educational qualification could be criteria for selection of group members. Table 4 shows frequency distribution of group members based on their educational qualification. All the members had the minimum education, so they can easily understand and process their loan application forms.

Occupation of group members: Occupation is the economic activity in which group members gain income to sustain their life. Occupation was categorized into farming, trading and artisanal activities. Farming comprises all forms of animal and crop husbandry practices. Trading was used to designate buying and selling other papers other than farm output produced by the individual. Artisanal activities were used to designate engagement in blacksmith, pottery, bunting, cobbler, etc. (Table 5).

Family size: This refers to number of individuals in a family; the members of a household. Family size could be an indication of the magnitude of financial obligation on the family head. It could also indicate availability of labour to utilize the credit. The majority of family heads had a family size of 5-8 persons (Table 6).

Group features: The micro-credit groups can be classified based on their age, fund size, social cohesion, percentage of females, loan repayment, membership size, type of settlement of group members and duration of residency of group members.

Age of micro-credit groups: This is used to designate how many years the micro-credit groups have been in existence. It is a reflection of experiences in group lending. Table 7 shows that 53% of the micro-credit groups have existed for about 5 years while only 3% had existed for about 15 years. Hence sustainability of the groups is a serious need. The majority of Micro-credit groups are relatively new. The mean, median and standard deviation of their age are 6.2, 5.0 and 3.3, respectively. This result has serious implication for consideration as there has been lack of continuity over the years in the micro credit group. This could be due to lack of consideration of the homogeneity factor in their formation over the years.

Table 4: Frequency distribution of group members according to their educational qualification

Educational qualification	Frequency	Percentage
F.S.L.C.	440	40.6
WSC/GCE	360	33.2
A-Level NCE, OND	223	20.6
HND, B.Sc. M.Sc.	60	5.5
Total	1083	100.0

Field Data, 2007

Table 5: Distribution of group members according to their occupation

Occupation	Frequency	Percentage
Farming only	600	55.4
Farming plus trading	343	31.7
Farming plus artisan	140	12.9
Total	1083	100.0

Field Data, 2007

Table 6: Frequency distribution of respondents according to family size

Family size	Frequency	Percentage
1-4	401	37.0
5-8	562	91.9
9-10	120	11.1
Total	1083	100.0

Field Data, 2007

Table 7: Distribution of micro-credit groups based on age

Age	Frequency	Percentage
1-5	24	53.3
6-10	18	40.0
11-15	3	6.7
Total	45	100.0

Field Data, 2007

Membership size of the groups: This is used to describe the size of the groups. Majority of the groups were composed of 10-15 individuals. Table 8 shows the frequency distribution of the groups according to their size. Table 8 Distribution of the Groups According to Size The mean, median, maximum and standard deviation of group size are 20, 13, 30 and 16.69, respectively. The result shows that the membership sizes of the groups is relatively small which.

This is good as it will make for better cohesion and homogeneity. The result of the standard deviation which is relatively large shows that there exist large variation in the sizes of the groups.

Gender factor of the groups: This is expressed as percentage of women in the group. The mean, median, standard deviation and maximum of percentage of women in the groups are 50.49, 53.0, 21.37 and 71, respectively. Table 9 is the frequency distribution of the gender factor. The result of the women distribution in the study shows a good distribution of women in the different groups, this is a welcome development as this will ensure for a good participation of women in the groups.

Table 8: Distribution of the groups according to size

Group size	Frequency	Percentage
10-15	18	40.0
16-20	12	26.7
21-25	10	22.2
>25	5	11.1
Total	45	100.0

Field Data, 2007

Table 9: Frequency distribution of the percentage of women in the groups

Percentage of women	Frequency	Percentage
30-40	12	26.7
41-50	9	20.1
51-60	14	31.1
>60	5	11.1
Total	45	100.0

Field Data, 2007.

Table 10: Distribution of the groups according to mileage

Mileage in meters	Frequency	Percentage
1-200	29	64.4
201-400	12	26.7
401-500	2	4.4
>500	2	4.4
Total	45	100.0

Field Data, 2007

Mileage: This is calculated as the average distance group members travel from their residence to place of meeting. It essentially designates settlement type- whether they are nucleated or dispersed. The mean, median and standard deviation of the mileage are 168.96, 100.00 and 189.90 respectively. Majority of the respondents travel about 200 meters to attend meetings. These group members live in close range. Agbo (2006) noted that majority cooperative groups in Nigeria were located at about 60 km away from cooperative development agencies and none was located less than 20 km away from any cooperative development agency. The group members are much closer to themselves than the groups are to cooperative agency. This result shows that there is great cohesion among the members and which is a positive sign of homogenous groups. This could foster competition and sharing of ideas among members (Table 10).

Social cohesion: Meeting attendance and positive participation in peer discussion help to generate trust and provide solutions for solving problems. Social cohesion is expressed as percentage of attendance at regular meetings. According to Mkpado and Arene, attendance and positive participation in meetings are used to build up social cohesion. The essence of meetings is to carry every member along and build a formidable intra-group cohesion; thus encouraging democratization instead of dictatorship (Table 11). The mean, median, maximum and standard deviation of social cohesion are 89.18, 90.00, 99 and 9.61, respectively. The majority of the groups are doing well in meeting attendance. This could impact positively on performance.

Loan repayment: This refers to the average amount of loan repaid by each group in percentage credit repayment is critical to sustainability of micro-finance services.

The mean, median, maximum and standard deviation of the peer loan repayment are 89.9, 97.00, 99.00 and 8.04 respectively. Table 12 shows the frequency distribution. The majority of the groups are doing well in loan repayment. But a few of them are performing poorly. Loan repayment is a critical factor that determines group sustainability and future access to credit.

Risk pooling: This is expressed as savings mobilized by each group. The mean, median, maximum and standard deviation of groups risk pooling are N10423.33, N9000.00, N26700 and N6072.15 respectively. The frequency distribution is shown in Table 13.

Homogeneity of group features: The comparison of the groups based on homogeneity and otherwise heterogeneity of certain factors are shown in Table 14. The majority of the groups are homogeneous in education qualification, occupation and age; while the members are heterogeneous with respect to residency, gender and mileage.

Estimation of the effects of membership homogeneity on social cohesion: The linear OLS econometric result is shown in Table 15.

The explanatory variables

Homogeneity in Age (HA): Its Coefficient is 7.222 while its t-value is 2.190 which is significant at five percent probability level. It implies that members of the same age strive to build social cohesion by regularly involving in group meetings. Okeke (2006) also documented a positive relationship between homogeneity in age and meeting attendance.

Homogeneity in Gender (HG): Its Coefficient is -6.745 while its t-value is 2.170 which is significant at five percent probability level. It means that homogeneity in gender has inverse relationship with social cohesion. This is in contrast with Okeke (2006) report. But Mkpado (2006) reported that mixed sex groups can perform better than single sex groups because each sex can strive to avoid blame in the group.

Estimation of the effects membership homogeneity on intra-group risk pooling: The linear OLS econometric result is shown in Table 16.

Homogeneity in Occupation (HO): Its Coefficient is 4.343 while its t-value is 1.741 which is significant at 10%

Table 11: Distribution of the groups according to their social cohesion

Social cohesion	Frequency	Percentage
60-70	2	4.4
71-80	8	17.8
81-90	13	28.9
91-100	22	48.9
Total	45	100.0

Field Data, 2007

Table 12: Distribution of the groups according to their percentage loan repayment

Percentage of loan repaid	Frequency	Percentage
70-80	6	13.3
1-90	16	35.6
1-100	23	51.1
Total	45	100.0

Computed from Field Data, 2007

Table 13: Distribution of the groups according to their risk pooling

Risk Pooling (N)'000	Frequency	Percentage
1-5	9	20.0
6-10	18	40.1
11-20	15	33.3
21- 30	3	6.6
Total	45	100.0

Computed from Field Data, 2007

Table 14: Distribution of the groups based on homogeneity of certain factors

Factors	Homogeneity		Heterogeneity	
	Frequency	Percentage	Frequency	Percentage
Age of group members (HA)	25	55.6	20	44.4
Gender of group members (HG)	14	31.1	31	68.9
Education qualification of group members (HL)	27	60	18	40.0
Occupation of group members (HO)	26	57.8	19	42.2
Mileage of group members (HM)	22	48.9	23	51.1
Duration of group members in the community of residence (HD)	15	33.3	30	66.7

Computed from Field Data, 2007

probability level. The time requirement for performance of activities of certain similar business can be identical, thus making it possible for such group members to somewhat uniform schedule. This will afford opportunities to participate in group activities.

Homogeneity in residency (HD): Its Coefficient is 4.668 while its t-value is 1.698 which is significant at 10% probability level. It means that people who have spent equal number of time (years) in a place tend to build social cohesion in their group.

The group can be a source of social security since such members are aliens. Table 16 mainly shows that intra-group risk pooling (savings mobilization) is a factor determined by institutional policy.

Table 15: Estimation of the effects of membership homogeneity on social cohesion

Variables	Coefficients	SE	t-value	Level of sig.
Constant	82.783	3.756	22.042	0.000
HA	7.222	3.298	2.190	0.035
HG	-6.745	3.108	2.170	0.036
HL	1.842	2.243	0.821	0.417
Ho	4.343	2.494	1.741	0.090
HM	-1.411	2.746	0.514	0.610
HD	4.668	2.754	1.695	0.098

F-ratio, 8.303, R² = .567, R² = 0.499 Std. Error of estimate = 6.80; Computed from Field Data, 2007

Table 16: Estimation of the effects membership homogeneity on intra-group risk pooling

Variables	Coefficients	SE	t-value	Level of sig.
Constant	8196.180	3270.067	2.506	0.017
HA	1334.425	2871.201	0.465	0.645
HG	-2261.001	2706.055	0.836	0.409
HL	222.210	1953.199	0.114	0.910
Ho	3210.001	2171.920	1.478	0.148
HM	-790.070	2390.748	0.305	0.762
HD	1674.477	2397.842	1.698	0.089

F-ratio = 1.372, 0.251, R² = 0.178, R² = 0.048, Std. Error of Estimate = 5923.62, Computed from Field Data, 2007; Homogeneity in literacy level (HL): is not significant

Table 17: Estimation of the effects of social cohesion and intra-group risk pooling on loan repayment

Variables	Coefficients	SE	t-value	Level of sig.
Constant	43.39100	9.2490	4.692	0.000
Sc	0.51200	0.1110	4.634	0.000
Risk Pooling	0.00075	0.0001	0.437	0.665

F-ratio = 14.589, 0.000, Computed from Field Data, 2007

The minimum savings mobilization is a fraction of anticipated loan size and other savings are mainly for settlement of the actual loan. Hence, Mkpado (2006) documented that fund size is a major determinant of savings mobilization.

Estimation of the effects of social cohesion and intra-group risk pooling on loan repayment: The linear OLS econometric result is shown in Table 17.

Explanatory variables Social cohesion (SC): The Coefficient is 0.512 while its t-value is 4.6345 which is significant at zero percent probability level. This illustrates that members' participation in the meetings and building of social cohesion constitute a major determinant of willingness to repay loans.

It is this social cohesion that represent sound interest in the group which is validated by actual loan repayment. The risk pooling (savings) is not significant. This shows that members who use the minimum savings requirement as means to the end (Loan) instead of using the group as means to the end will soon default.

Estimation of the effects of membership homogeneity on loan repayment

The explanatory variables: Homogeneity on Age (HA) is not significant.

Homogeneity in Gender (HG): Its coefficient is 10.751 while its t-value is 5.018 which is significant at zero percent probability level. It may be informative to note that the positive effect of homogeneity in gender on repayment has been one of the bases for advocating gender specific groups. The result is constant with those of Meyer *et al.* (1995), Nagarajan *et al.* (1999) and Okeke (2006) (Table 18).

Homogeneity in literacy Level (HL): This is not significant.

Homogeneity in occupation (HO): This is not significant.

Homogeneity in Mileage (HM): Its coefficient is 3.310 while its t-value is 1.749 which is significant at 10% probability level. Since majority of the group members live within 400 km², it is possible for group members to be aware of one another's business success or failures. Hence, truancy can be checked through members' interaction on day to day activities. Since members live within a community, they may not want to spoil their reputation by loan default. Hence, this variable can be taken seriously.

Homogeneity in residency (HD): Its coefficient is 3.794 and its t-value is 1.998 which is significant at 5% probability level. Membership of Micro-credit group(s) is a social asset which the poor will not like to loose due to the loss of future prospects of obtaining credit.

Major problems encountered in repayment of group loans:

Table 4 shows that 70, 74 and eighty 1% of the group identified high interest, insufficient funding and short loan duration respectively as part of the problem; while 90, 74 and 55% opined that misuse of loan, low market prices, crop failure and late disbursement of loan are also part of the problems of loan repayment (Table 16).

Late application of loan can aid misuse of agricultural loan because many small scale farmers are practicing rain fed agriculture. Short loan duration does not favour livestock farming and planting of permanent crops.

This may lead farmers to concentrate on cultivation of arable crops and such intensification can lead to crop

Table 18: Estimation of the effects of membership homogeneity on loan repayment

Variables	Coefficients	SE	t-value	Level of sig.
Constant	92.358	2.589	35.675	0.000
HA	-0.624	2.273	0.275	0.785
HG	10.751	2.142	5.018	0.000
HL	-2.177	1.546	1.408	0.167
Ho	-0.613	1.719	0.357	0.723
HM	3.310	1.893	1.749	0.088
HD	3.794	1.898	1.998	0.053

F-ratio = 15.223, 0.000, R² = 0.706; R² = 0.660, Std. Error of Estimate = 4.69, Computed from Field Data, 2007

Table 19: Problems of the group

Problems	Frequency*	Percentage
Shot loan duration	44	97.0
Insufficient funding of projects	40	88.8
Late disbursement of loan	30	66.6
Low market prices	40	88.8
Crop failure	32	71.0
Misuse of loan	45	100.0
Death of debtor	15	33.0
High interest rate	38	84.0
Maximum responding unit	45	-

*Multiple responses were recorded; Field Data 2007

failure if not well managed. The need for micro finance institutions to encourage small-scale farmers to take up insurance policy against disintegration of the groups, crop failure and death of debtors with Nigerian Agricultural Insurance Company is underscored by the fact that these problems are among the ones encountered by the officials in repayment of peer loan (Table 19).

CONCLUSION

There is a general consensus among scholars that group(s) tends to be more successful when members share one or several socio-economic conditions and are therefore relatively homogenous. This study was conducted in nine Local Government Areas selected from Enugu State. It examined the effects of membership homogeneity on the performance of Agricultural micro credit groups in the State. About 6 micro Credit Groups from each Area. This gave a total of 45 micro-credit groups. This was done using multi-stage sampling techniques.

Sources of data were structured questioners. Descriptive statistics and Ordinary Least Econometric techniques were used in data analysis. Majority of the group members belong to the age bracket of 40-49 years (middle age). A holistic view of the age indicates that >75% of the group members belong to the age groups of middle and old age. With respect to gender, males dominated the females by counting for over 52% of group members.

With respect to age, 53% of the have existed for about 5 years; while only 3% had existed for about 15 years.

Majority of the groups were composed of 10-15 individuals. Majority of the respondents travel about 200 m to attend meetings. With respect to social cohesion, 48% of the groups record at least 91% attendance in meetings regularly. The mean, median, maximum and standard deviations of the peer loan repayment were 89.9, 97.00, 99.00 and 8.04, respectively.

The mean, median, maximum and standard deviation of groups risk pooling were N10423.33, N9000.00, N26700 and N6072.15, respectively. The majority of the groups are homogeneous in education qualification, occupation and age; while the members are heterogeneous with respect to residency, gender and mileage.

The estimated results show that homogeneity in age, gender, occupation and residency are positively and significantly related to social cohesion Social cohesion is more important that risk-pooling because social cohesion significantly affects repayment while risk-pooling did not. This illustrates that members' participation in the meetings and building of social cohesion constitute a major determinant of willingness to repay loans.

However, other factors determining repayment were homogeneity in gender, occupation, mileage and residency.

RECOMMENDATIONS

The following recommendations were made:

- Micro credit groups should be composed of individual of the same age group since this helps in building social cohesion
- Regularity in meeting attendance to build social cohesion should be taken seriously more than minimum savings requirement (risk-pooling) because it denoted invested sustainable interest in the group. Hence, loan should be given to groups with good track record of social cohesion
- Groups should be composed of individuals who have the same type of occupation since this can bring uniformity in operation and hence predictable time of repayment
- Groups should be composed of individuals who live close to each other since this can help transfer of ideas and impact favorably on performance

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