

**PARETO SUPERIOR DIMENSION OF ROTATING SAVINGS AND
CREDIT ASSOCIATIONS (ROSCAs) IN GHANA.**

BY

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**THIS THESIS IS SUBMITTED TO THE UNIVERSITY OF GHANA,
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AWARD OF MASTER OF PHILOSOPHY DEGREE IN ECONOMICS**

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DECLARATION

I, AMANKWAH ERNEST, hereby declare that apart from the references which have been properly quoted, the work presented in this thesis “PARETO SUPERIOR DIMENSION OF ROTATING SAVINGS AND CREDIT ASSOCIATION (ROSCAs) IN GHANA” was conducted fully by me under the supervision of Dr. Fritz Augustine Gockel and Dr. Eric Osei Assibey in the Department of Economics, school of social sciences, University of Ghana, Legon. There has not been any presentation of this work in full or in part for any degree at this University or elsewhere.

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DEDICATION

I dedicate this thesis work to my parents Mr. B.K Narh and Mrs. Agatha Asare Bediako Narh and to my Late Grandfather Mr. J.K Bediako Asare.



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Abstract

This thesis investigates characteristics of Rotating savings and credit associations (ROSCAs) participants who join the association due to its Pareto superior allocation in Ghana. Some scholars like Dejene and Van den Brink have hypothesized that people join ROSCAs because of its Pareto superior allocation. GLSS6 dataset was employed to look at the relationship between accounts held in formal financial and accounts held in informal financial institutions (Susu schemes was used as a proxy for ROSCA whereas commercial banks and rural banks were used as proxies for formal financial institutions with savings accounts and fixed deposits accounts as accounts held in these formal financial institutions). It was found that formal financial institutions are inversely related to informal financial institutions, hence they are substitutes. Savings accounts were also found to have a positive relationship with savings held in ROSCAs. The thesis also employed primary data analysis in achieving its main objective. Out of the 400 ROSCA participants sampled for the study from Asunafo North Municipality, 71.75% joined the association because of its Pareto superior allocation. A Probit model was used to predict the probability of joining the association due to its superior allocation. The dependent variable took the value of one when respondents join the association due to its superior allocation and zero if otherwise. Married participants, participants with no or low level of education, participants who are unemployed and participants who save more of their income are more likely to join ROSCA due to its Pareto superior allocation. It was recommended that that ROSCA participants who have access (participants living in urban sectors) to formal financial institutions, participants who have accounts at formal financial institutions, participants who are rich and aged participants should be educated on how ROSCA constitutes its Pareto superior allocation.

TABLE OF CONTENT

DECLARATION.....	i
DEDICATION.....	ii
ACKNOWLEDGEMENT.....	iii
ABSTRACT.....	iv
TABLE OF CONTENT.....	v
LIST OF TABLES.....	xi
LIST OF FIGURES.....	xii
LIST OF ACRONYMS.....	xiii
CHAPTER ONE.....	1
INTRODUCTION.....	1
1.2 Problem Statement.....	7
1.3 Objective of the Study.....	8
1.4 Research Questions.....	8
1.5 Significance of the Study.....	8
1.6 Organization of the Study.....	9
CHAPTER TWO.....	10

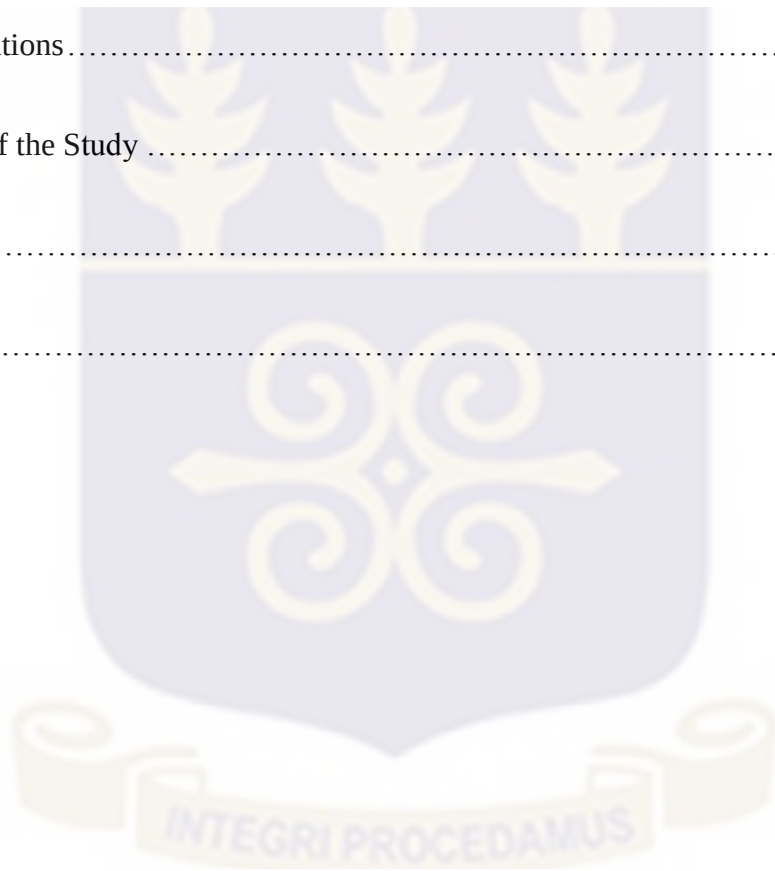
LITERATURE REVIEW.....	10
2.1 Introduction.....	10
2.2 Theoretical Literature.....	10
2.2.1 Contending Hypothesis about the Motives for joining ROSCA.....	10
2.2.2 Net Present Value Analysis and ROSCA Participation.....	11
2.2.3 Transaction Cost Theory and ROSCA Participation.....	14
2.2.4 Other Theories of ROSCAs.....	16
2.3 EMPIRICAL REVIEW.....	18
CHAPTER THREE.....	33
OVERVIEW OF ROTATION SAVINGS AND CREDIT ASSOCIATIONS IN GHANA	33
3.1 INTRODUCTION.....	33
3.2 Types of ROSCAs that are found in the Ghanaian Economy.....	33
3.2.1 Office ROSCA.....	33
3.2.2 Neighborhood ROSCA	34
3.2.3 Ethnicity and Religious ROSCA.....	35
3.2.4 Market ROSCA	35
3.3 Operations of Rotating Savings and Credit Associations (ROSCA) in Ghana.....	35

3.3.1 Membership.....	36
3.3.2 Transferability.....	36
3.3.3 Contribution.....	37
3.3.4 The Fund.....	37
3.3.4 Cycle Period.....	37
3.3.5 Basic Characteristics of ROSCA Participants and ROSCA formations in Ghana.....	38
3.3.6 ROSCA Performing a Function of Assessing Financial Risk.....	38
3.3.7 Lower Transaction Cost.....	39
3.3.8 Mode of Selecting Winner.....	39
3.4 ROSCA as an Economic Institution.....	40
3.4.1 Savings and Credit.....	40
3.4.1.1 Savings Strategy.....	41
3.4.1.2 Saving Up Strategy.....	42
3.4.1.3 Saving Down Strategy.....	42
3.4.1.4 Saving through Strategy.....	42
3.4.2 ROSCA as Insurance.....	42
3.5 ROSCA as a Social and Cultural Institution.....	44

3.6 Sustainability, Enforcement and Organizational Design of ROSCA.....	46
3.7 ROSCA and its Impact on Economic Development and Poverty Reduction.....	47
3.8 Problems Associated with ROSCAs.....	49
CHAPTER FOUR.....	50
METHODOLOGY.....	50
4.1 Introduction.....	50
4.1.1 Data Source.....	50
4.1.2 Research Approach.....	50
4.1.3 Target Population.....	51
4.1.4 Sample Size.....	51
4.1.5 Sample Methods.....	52
4.1.6 Data Collection Instruments.....	52
4.1.7 Location and Size of the Municipality.....	53
4.1.8 Climate and Vegetation.....	55
4.1.9 Population Size, Structure, and Composition.....	55
4.1.10 Economic Potentials.....	55
4.2 The Estimated Model and Econometric approach.....	56

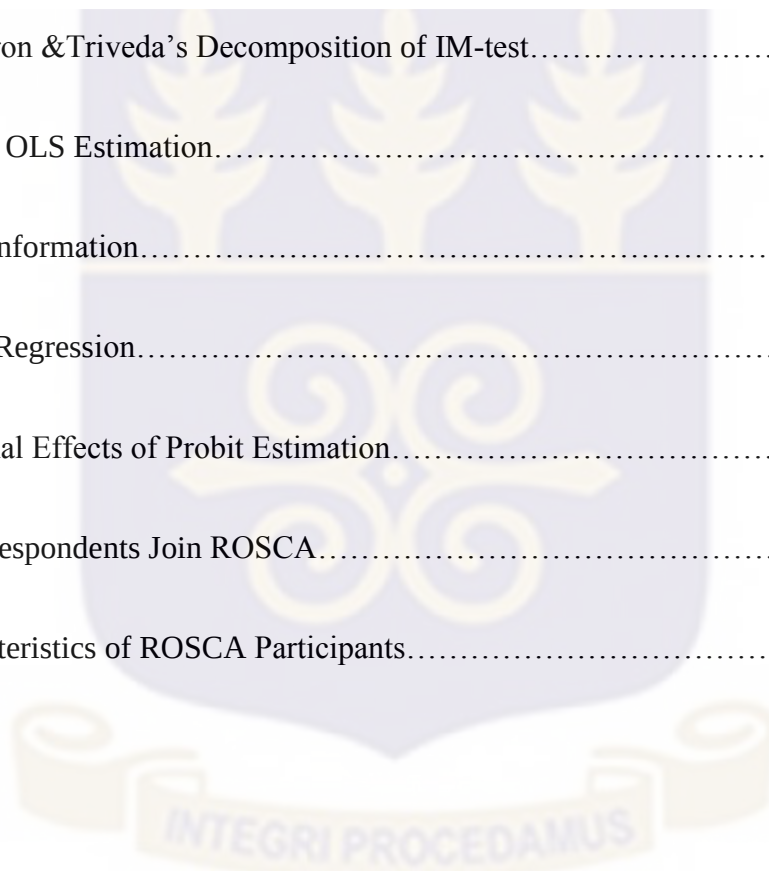
4.2.1 The GLSS 6 Estimation.....	56
4.2.2 The Primary Data Estimation.....	59
CHAPTER FIVE.....	64
ANALYSIS OF EMPIRICAL RESULTS.....	64
5.1 INTRODUCTION.....	64
5.2 GLSS6 ANALYSIS.....	65
5.2.1 The Data.....	64
5.2.2 Diagnostics Tests.....	67
5.2.2.1 Test for Multicollinearity.....	67
5.2.2.2 Test for Heteroskedasticity.....	67
5.3 PRIMARY DATA ANALYSIS	71
5.3.1 Summary Statistics Primary Data Set Used.....	71
5.3.2 Probit Estimation.....	73
5.3.3 Qualitative Analysis of ROSCA Participants.....	77
5.3.3.1 Why Respondents joined the Association.....	78
5.3.3.2 Characteristics of ROSCA Participants.....	79
5.4 Conclusion.....	87

CHAPTER SIX.....	88
FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS.....	88
6.1 Introduction.....	88
6.2 Findings.....	88
6.3 Conclusion.....	90
6.4 Recommendations.....	91
6.5 Limitations of the Study	92
Reference.....	93
APPENDIX.....	100



LIST OF TABLES

Table 4.1 A Priori Expectation of the GLSS6 Variables.....	58
Table 4.2 A priori Expectation of the variables.....	62
Table 5.1 Summary Statistics of Data Used.....	65
Table 5.2: Variance Inflation Factor table.....	67
Table 5.3: Cameron & Trivedi's Decomposition of IM-test.....	68
Table 5.4 Robust OLS Estimation.....	69
Table 5.5 Basic Information.....	71
Table 5.6 Probit Regression.....	73
Table 5.7 Marginal Effects of Probit Estimation.....	74
Table 5.8 Why Respondents Join ROSCA.....	78
Table 5.9 Characteristics of ROSCA Participants.....	79



LIST OF FIGURES

Figure 4.1 Map of Asunafo North Municipality.....	54
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LIST OF ACRONYMS

ROSCA	Rotating Savings and Credit Associations.
ASCRA	Accumulating Savings and Credit Associations.
SMEs	Small and Medium Scale Enterprises.
OLS	Ordinary Least Square.
NIE	New Institutional Economist
VIF	Variance Inflation Factor
GLSS	Ghana Living Standard Survey
RS	Remote Sensing
GIS	Geographic Information system



CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Informal financial sectors dominate in developing countries than formal financial sectors (Aryeetey & Hyuha, 1990). Formal financial sectors consist of categories of stocks containing firms that offer financial services to commercial and retail customers. Examples include banks, investment fund, insurance companies and real estate. Informal financial sectors, on the other hand, consist of those, often unrecorded, activities that take place outside official financial institutions. It must be noted that these sectors are legal but unregulated. Among money-lending, Susu collection, Accumulated savings and credit associations (ASCRA) etc., rotating savings and credit associations (ROSCA) are one of the major informal financial sectors one can think of. A more general definition of ROSCA was given by Shirley Ardener as "an association formed upon a core of participants who agree to make regular contributions to a fund which is given, in whole or in part, to each contributor in a rotation" (Ardener, 1964).

Rotating savings and credit association (ROSCA) is the most popular informal financial sector in Ghana (Owusu et al 2013). The root of Rotating savings and credit association (ROSCA) was traced by Geertz (1962) from the regions of West Africa countries that were economically developed during the slave trade era into the Caribbean and the southern part of the United States. According to Ardener, ROSCA operated in Japan as far back as the thirteenth century (1275 AD). Handa and Kirton (1999) on the other hand reported that ROSCAs in Jamaica also called 'Jamaica partner' rooted from the slaves from Africa who used it as a device to purchase their freedom. Poole and Grant (2006) indicated that, during the slave trade era, slaves from West Africa were

found using a type of financial savings mechanism called Susu, which is a form of Rotating savings and credit association (ROSCA).

The term rotating savings and credit association was coined by Geertz (Geertz, 1962). According to him, earlier scholars have used many terms to describe the association. Among which include, contribution clubs, slates, mutual lending societies, pooling clubs, thrift groups, and friendly societies. ROSCA is the most dominant form of informal financial institution in most developing economies (Besley et al., 1993). It is called Susu in Ghana, esusu in Liberia and Nigeria, osusu in Gambia, asusu in Sierra Leone, and ndjonu in Benin, arisan in Indonesia, yao hui in China, tontine in Cameroon and Senegal, equbs in Ethiopia, huis in Vietnam, and finally, keh in Korea (Bouman, 1995).

There is a slight distinction between the general term Susu and ROSCA as used in Ghana. Susu is a term used for informal financial activities such as Susu collection scheme, ROSCAs, ASCRAs etc. Susu is one of the oldest traditional way of banking in Ghana. The term Susu in the Akan language means “small small”. This indicates savings made on daily, weekly or monthly basis by those economically active poor people. Particularly Susu collection scheme is a form of “small small” saving up whereby a person decides to contribute on daily basis to another person (the Susu collector) for an agreed period of time usually a month. Here the collector is remunerated with a fee. ROSCA, on the other hand, is a form or a subset of the general term “Susu” used in Ghana.

ROSCAs are found almost in every part of the world, but research shows that they are highly dominated in the rural areas of developing economies where citizens do not have enough access to formal financial institutions such as Banks (Besley et al., 1990). Besley et al. (1990) proposed

that the main aim of these institutions is to save up for the purpose of buying durable indivisible goods such as bicycles or to provide financial support to major events such as weddings.

Basically, there are two forms of ROSCAs. These are the random ROSCAs and the bidding ROSCAs. Besley et al. (1990), defined random ROSCAs by saying that "In a random ROSCA, members commit to putting a fixed sum of money into a 'pot' for each period of the life of the ROSCA. Lots are being drawn and the pot is randomly allocated to one member in the group. In the next period, the process repeats itself, except the previous winner is excluded from the draw for the pot. The process continues, with every past winner excluded, until each member of the ROSCA has received the pot once. At this point, the ROSCA is either disbanded or begins again Besley et al. (1990)". They went ahead and defined bidding ROSCA as one that allocates the pot by using bidding procedures. Thus the participant who obtains the pot in the current period does so by bidding higher. For instance, pledging higher future contributions to the ROSCA or one-time payment to the other members.

The most common form of ROSCA in Ghana is the random ROSCA. ROSCAs are the source of fund and capital formation for most of the small-scale enterprises and especially market women and petty traders in Ghana. It can play an active role in the development of the Ghanaian economy if the government gives the necessary avenue for the operation of the sector (Owusu et al, 2013). 'This is because the Ghanaian economy is highly dominated by small and medium scale enterprises and therefore can develop the economy through import substitution industrialization strategies' (Owusu et al. 2013). According to Aryeetey and Steel (1995), rotating savings and credit associations are mostly practiced by petty traders. "Many traders and market women in Ghana use ROSCAs to expand their businesses" (Aryeetey & Gockel, 1991). Also, some office workers in the urban areas of Ghana have developed an interest in ROSCA participation.

SMEs ability to access funding within the formal sectors in Ghana has become a challenge. The challenge affects the smooth running of businesses in the SMEs. The challenge stems from the fact that access to services of formal financial institutions requires documented rules such as valid collateral security, residential documents etc. For instance, many formal financial institutions require that any of its clients who come for a loan must have a collateral security, which ensures excludability of these petty traders from the operations of formal financial services.

Although there has been an introduction of savings and loans companies and microfinance companies, these companies fail to deliver effectively in an attempt of helping these petty traders. Some of the factors that cause their breakdown in their attempt of delivery, especially microfinance institutions include the high rate of interest on their investment packages which eventually collapse the institutions. Owners are being forced to escape with the available fund in their coffers and also overtrading by the microfinance institutions collapse the microfinance institutions (Antwi, 2015). As an alternative, rotating savings and credit associations has become an instrument for these SMEs in raising funds to support their operations.

According to the round six of the Ghana living standards survey (GLSS6) main report, the proportion of urban households which save through Susu (which is a form of ROSCA, Poole and Grant (2006)) in Ghana are 54.91% with Accra having only 9.1% and 45.8% goes to the other urban centres in Ghana. 45.1% of those in the rural areas save through Susu. Those in the rural coastal constitute 4.2%, whereas 30.9% of people in rural forest saves through Susu and finally, 10.0% of people in rural Savannah save through Susu. This gives clear evidence that people in urban areas are more likely to save through Susu (ROSCA included) in Ghana. In Accra, 3.8% had their loans from Susu and 23.4% in other urban centres had their loans from Susu. In rural coastal, 23.4% had their loans from Susu whereas 10.4% of the rural forest had their loan from Susu and

finally, 14.7% of the rural savannah had their loan from Susu. With regards to sex, 4.5% of males obtain their loans from Susu and 11.3% of females obtain their loan from Susu.

Let's take for instance a group of five school teachers who have agreed to enter into a ROSCA, with the aim of buying bicycles to help them reduce their lateness to school. The cost of their choices of the bicycle is Five Hundred Ghana Cedis. Let's assume further that, the monthly salary of each teacher is one hundred Ghana cedis. So, it means for a teacher to own a bicycle, it will take him/her five months of saving his/her salary(saving alone), deposit his/her monthly income at a bank against an interest and going for an interest-bearing loan from a bank. But if they enter into a ROSCA, all the teachers except the last person on the rank would receive their bicycle before the end of the fifth month. At least four of these teachers will prefer ROSCA to the other forms of financial intermediation except the last person who will be indifferent between saving alone and joining the ROSCA. Also with reference to the formal intermediation, they will prefer ROSCA since it does not come with any interest on credit.

In the above example, it can be seen clearly that ROSCA enables each of its members to acquire his/her indivisible good (bicycle) within the shortest possible time. Besley et al., (1990) postulated that ROSCA sequentially gives solutions to the lumpy problems of each individual in the association. It also shortens the time period each individual would wait in case they were to save alone, except the last person on the rotation. Since all the ROSCA participants with the exception of the last person on the rank are liable in receiving the pot sooner, the average cost of ROSCA fund may be competitive even for people who have access to credit from formal financial institutions (Brink & Chavas, 1991). Hence all these participants will be strictly better off for being a member of the association with the exception of the last person, who will be indifferent between

joining the association and saving alone. Hence ROSCA constitutes a Pareto superior allocation (Besley et al., 1990).

If we take a critical look at the ROSCA carefully, we realize that all the ROSCA participants (with the exception of the last one on the rotation) obtain advance money that they will repay through their contributions during the circle. The first person to receive the contributions (rank one in the order of rotation) receives the maximum credit that he/she pays back in the subsequent contributions. The last person in the other of rotation receives no credit and saves throughout the circle.

The basic principle of ROSCA is the same on every continent. “It exists in at least three continents (Africa, Asia, and Latin America) and within very different communities” (Bouman, 1977). Despite the manifest importance of ROSCA, there has been little literature on ROSCA in the economics field. Reason being that the importance of such institution is not well understood. Microeconomist sees ROSCA as an informal credit market that is not competitive. On the other hand, among macroeconomists, they are sometimes assumed to be perfectly competitive. Also since the entire institution is governed by mutual trust, in a situation where a member is not so credit-worthy, his/her participation is discouraged. Again, “arrangement used by associations that have bearing on defaults is a provision by which members can contribute less to the fund of members they consider to be relatively poor risks”(Miracle et al., 1980).

There is a hypothesis that ROSCA as an institution gives Pareto superior allocation in a society where there exist fragmentation in the capital market (Dejene, 1993). The superiority comes in as the waiting time to buy durable indivisible good reduces. So many people will join the association because of its Pareto superior allocation. This thesis develops a new argument on the

characteristics of ROSCAs participants who join the association due to its Pareto superior allocation.

1.2 Problem Statement

There have been a series of arguments about the superiority of rotating savings and credit associations (ROSCAs) as the main motive for joining the association the association. Scholars like Dejene and Van den Brink have hypothesized that ROSCA constitute Pareto superior allocation and hence people join these associations due to its superiority in nature. Gugerty on the other hand argued that, if joining ROSCA is due to its superiority, then the last person on the rotation will not be better off by joining the association and will therefore leave the association. The second last person on the rotation who now becomes the last person will decide the same and also leave the association. This will continue until no one is left in the association. This thesis investigates whether participants join the association due to its Pareto superior allocation and also the characteristics of participants who join the association due to its Pareto superior allocation.

ROSCA is a phenomenon which is widely known in the rural and urban economies of much of sub-Saharan Africa (Ardener, 1953; Geertz, 1962; Miracle et al., 1980) and has manifest importance in money creation, capital formation, and monetary policies. But it has received very little attention in the economics literature. Although it is generally suspected that it is superior as compared to other formal financial intermediation (Brink & Chavas, 1991), accurate estimate of ROSCA in relation to formal financial intermediations has not been given much attention in Ghana. “This has sometimes led to the notion that weak linkages exist between them (Ghatak, 1981). If only weak linkages exist between them, then orthodox monetary policy becomes ineffective as an instrument for directing the economy in view of a relatively large size of the informal sector” Aryeetey and Gockel (1991). Under such a situation, monetary policy will be effective either through

improvement in the linkages between ROSCA and formal institutions (banks) or the amount of credit supplied in the economy by the central bank. The second approach seems inflationary and finding solutions to such an inflationary measure may be beyond the ability of the Central Bank. Hence an effort that strengthens the link between the two becomes a necessity. Thus a work which will improve the available literature of ROSCA in relation to the formal institution cannot be overemphasized.

1.3 Objective of the Study

The main objective of the study is to examine the characteristics of ROSCA participants who join the association due to its Pareto superior allocation. This thesis will specifically seek to:

1. Examine the relationship between ROSCAs and savings accounts held by formal financial institutions in Ghana.
2. Examine whether formal financial institutions and ROSCAs are substitutes or complements in Ghana.

1.4 Research Questions

1. What is the relationship between accounts that are held in ROSCA and accounts that are held by formal financial institutions?
2. Are savings in formal financial institutions and ROSCA complements or substitutes in Ghana?
3. Which category of people enters ROSCA due to its Pareto-superior allocation in Ghana?

1.5 Significance of the Study

This thesis will enable monetary policy body to know that, apart from the fact that people join ROSCA due to ignorance of what is going on in the interest rate market or transparency on the

part of the central bank about the lending and deposit rate, inadequate formal financial sectors, highly in need of durable goods, etc., there are some participants who join the association, because it gives Pareto-superior allocation. So, policy makers should find a way of capturing the activities of ROSCAs into the monetary policy system. By so doing, a direction of economic policies will consider the likely impacts that these institutions can have on the policies.

Also, policy makers will know which characteristics of people join ROSCAs due to its Pareto-superior allocation.

And finally, this thesis will alert decision-making body on the correct linkages between ROSCAs and formal financial intermediations in terms of savings and credit.

1.6 Organization of the Study

The remaining chapters of the study are organized as follows: Chapter Two presents theoretical and empirical literature on rotating savings and credit associations (ROSCAs). Chapter Three looks at the general overview of rotating savings and credit associations in Ghana. Chapter Four focuses on the methodology, econometric issues, data description and sample used in the Pareto superior analysis of ROSCA. Chapter Five analyses the empirical results of the estimated equations. Finally, Chapter Six presents the findings, conclusion, recommendations and limitations of the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of the theoretical and empirical literature on Rotating savings and credit associations (ROSCAs). The chapter is divided into two main sections. The first section denotes a review of the theoretical literature on rotating savings and credit associations (ROSCAs). Existing empirical literature on rotating savings and credit associations is reviewed in the second subsection of the chapter.

2.2 Theoretical Review

2.2.1 Contending Hypothesis about the Motives for joining ROSCA.

Dejene (1993) hypothesized that ROSCA as an institution gives Pareto superior allocation in a society where there is fragmentation in the capital market. The superiority comes in as the waiting time to buy an indivisible good reduces. Anderson et al., (2009) used the term ‘early pot motive’ as the motive for joining ROSCA for the early purchase of indivisible goods. Theoretically, models that explain the great abundance of rotating savings and credit associations were developed by Besley, Coate, and Loury (1992, 1993). These economists demonstrated that participation in ROSCA was not efficient as compare to saving alone and a random ROSCA gives the individual a higher ex-ante expected utility than formal financial sectors. What this means is that the association gives each of its participants except the last person on the rotation, the pot for the purpose of their participation sooner than they would save alone. However, some participants enjoy their purpose periods after, before others. And almost all the participants with the exception of the last one on the random rotation enjoy it earlier than they would have saved. These

participants would be strictly better off with the association and hence the association becomes inefficient.

Besley et al. (1993) presented an economic framework for the analysis of ROSCA, which has become the required recommendation for economic analysis of ROSCA. This model developed by Besley et al. (1993) explain individuals' decision to participate in the ROSCA and provide guidelines for choosing the duration and type of ROSCA. In the model developed by Besley et al., series of assumptions were made which include ROSCA members being risk averse, having identical preferences, perfect and complete information about the type of the other bidders. In addition, the size of the pool is assumed constant throughout the ROSCA and members are excluded from obtaining credit from other sources. In the setup of Besley et al., the pool of the ROSCA is equal to the price of an unspecified durable good and nondurables are assumed to be complementary.

While arguing against the early pot motive, Gugerty (2007) argued that if the main motive for joining the ROSCA is due to its superior, then the last person on the rotation will not be better off by joining the association. He will leave the association. The second last person who now becomes the last person will decide the same and also leave the association since him/her will not be better off in joining the association. In his study, Gugerty (2007) shows ROSCA is for the purpose of buying divisible goods rather than indivisible goods.

2.2.2 Net Present Value Analysis and ROSCA Participation

Brink and Chavas (1991) used net present benefit analysis in choosing between ROSCA and saving against an interest and going for an interest-bearing loan from a formal financial institution. Their illustrations are as follows:

Let's assume we have M individuals who wish to obtain an indivisible good A. The options open to them include joining a ROSCA group, borrowing an interest-bearing loan from the bank and saving alone (Autarky). In the ROSCA, M will be equivalent to the number of periods in the rotation and also the number of individuals in the rotation. We assume further that the indivisible good (B) yields benefit (b) in every period once it has been obtained by each individual (j). Therefore the net benefit of the ROSCA in period t for individual j will be given by:

$$Y_{jt} \begin{cases} = w - c & t < j \\ = w - c + b & t \leq j \end{cases}$$

Where c is the contribution one makes to the ROSCA whereas w is the overall income one obtain in each period. We will assume zero discount rate.

The benefit to the first individual (J=1) will be obtained by adding:

$$\sum_{t=1}^M Y_{1t} = \sum_{t=1}^M (w - c + b)$$

$$M (w - c + b) = M (w - c) + Mb.$$

The last person on the rotation only benefits from b in the last period. Therefore the total benefit of the last person on the circle is given by:

$$\sum_{t=1}^M Y_{Mt} = M (w - c) + b$$

If j is the individual's rank in the rotation such that, $1 \leq J \leq M$, Then generalizing net benefit of an individual with rank J is given by:

$$M (w - c) + (M - J + 1) b.$$

Now, the per-capita benefit one will obtain from the ROSCA will be given by:

$$\frac{1}{M} \sum_{j=1}^M M (w - c) + (M - j + 1)b$$

Which will reduce to $Mw - B + \frac{(M+1)}{2} b$

Since $\sum_{j=1}^M j = \frac{M(M+1)}{2}$ and $c = \frac{B}{M}$

Now let's consider saving against an interest being an alternative to ROSCA. Interest is assumed to be paid each period (that is no compound interest) so the total benefit of such savings for an individual j will be given by:

$$M (w - c) + \sum_{j=1}^M jrc = M (w - c) + \frac{M(M+1)}{2} rc$$

Where r is the interest rate and c is the amount each individual saves at a particular point in time.

The individual will prefer ROSCA to saving with an interest when

$$M (w - c) + \frac{(M+1)}{2} b > M (w - c) + \frac{M(M+1)}{2} rc \quad \text{but } c = \frac{B}{M}$$

That is

$$b > rB$$

Thus the benefit an individual in the ROSCA group obtain periodically after the indivisible good is attained needs to be sufficiently higher in relation to the interest on savings. If $b > rB$, it will imply that there are positive returns in joining the ROSCA. Thus ROSCA will be considered as Pareto superior to saving with the bank against interest.

Let's assume the next alternative of borrowing against an interest rate from the bank. So here the total repayment amount equals $B + i (M-1) B$, where i is the interest rate on credit. So the net benefit of an individual who goes in for such a loan will be $M (w + b) - B - i (m-1) B$. An average individual will prefer the ROSCA to the contracting of loan when;

$$M (w - c) + \frac{(M+1)}{2} b > M (w + b) - B - i (M -1) B$$

Given $B = Mc$, reduces to the following condition:

$$b < 2iB$$

Thus ROSCA will be preferred to borrowing against an interest if and only if the benefit obtained from acquiring the good is less than $2ib$ or the individual will go in for the loan if otherwise.

In conclusion, we have established that an average individual in the ROSCA will choose ROSCA due to its profitability when the benefit he/she obtains after owning the indivisible good lies between rB and $2iB$. That is, $rB < b < 2iB$.

2.2.3 Transaction Cost Theory and ROSCA Participation

Adam Smith, in the classical school of thought, explained specialization, to be the determinant of the productivity level in an economy. Specialization, on the other hand, can be realized when there is an exchange which involves its own expense – a transaction cost (Coase, 1998). There is an inverse relationship between transaction cost and specialization or division of labour alongside productivity in an economy. Transaction cost depends positively on the existing institutions which include the legal, political, education and social system.

According to the neoclassical economists, the efficient market works only when transaction costs are zero. Whenever there are transaction costs, then institution matters. This confirms the reason

for the argument by New Institutional Economists (NIE) that institution matters in the world where much of the national income goes into transaction cost.

The formation of the institution is underpinned by the transaction cost which in turn is dependent on the level of information completeness and the capacity of human beings to undergo the information processing. According to North (1995:2), “the cost of transaction arises because information is costly and asymmetrically held by the parties to exchange. The way of measuring the multiple valuable dimensions of the goods or services exchanged or of the performance of agents and the cost of enforcing agreement determines transaction cost”. Hence institutions are built to reduce the level of uncertainty in an exchange.

The individuals and the institution as a whole with a bargaining power as a result of the institutional framework have a crucial responsibility in perpetuating the system. According to game theory, the probability of obtaining a cooperative solution will be high when there is a repetition of the game many times. This gives complete information about the performance of each player. If the game is not repeated by the players, then the gain from cooperation will be outweighed by the gain from defection. Hence it is the repetitive nature of ROSCA that renders its default rate to be low as well as its exchange cost (Gugerty, 2007).

Institutions are made up “formal rules, informal norms, and the enforcement of characteristics of both” (North 1995). And the combination of these three determines the performance of the economy. Sandsør (2010) states that low transaction cost, including low traveling cost and distance as well as low bureaucratic cost, are the basic characteristics of ROSCA. According to Geertz (1962) ROSCAs are institutions that show the transformation of a society from agrarian to commercial.

Besley et al. (1993) in their seminal contribution developed a ROSCA theory by saying that, there is an inverse relationship between the size of ROSCA contribution and the size of ROSCA. Thus when the size of ROSCA is large (a lot of members in the association), the size of ROSCA contribution is small (members contribute small amount) and the opposite is also true.

2.2.4 Other Theories of ROSCAs

According to Besley et al. (1992) individuals who participate in ROSCA are credit constrained. Thus people who join ROSCA are mostly people who do not have access to the formal credit market. This may be as a result of lack of collateral security or inadequate availability of formal financial sectors.

Ardener (1995) argues that where incomes are very low, where there is no formal social security network, where ill health stalks and a variety of calamities, however, a system of low cost, ROSCA helps to meet the challenges for all. She also believed that ROSCAs are informal finance mechanism that is predominantly used by the poor.

Handa and Kirton (1999) disputed the fact that ROSCA participants are credit constrained as proposed by Besley et al. In trying to explain why wealthier individuals are members of ROSCA, they observed individuals who are unlikely to be credit constrained in the formal financial market and found out that, these individuals also part-take in ROSCA. Moreover, lack of assets for collateral is given as a reason why people should choose an informal finance mechanism (such as the ROSCA) over a formal financial institution.

A theory that has also gone through viral empirical studies is the theory that, women are more likely to participate in ROSCA than men.

At a theoretical level, Anderson and Baland (2002), rely on an intra-household conflict in consumption decision and of the existence of asymmetric preferences for household goods between men and women.

A theory regarding the link between ROSCA participation and durable goods acquisition was developed by Besley et al (1993, 1994), they confirmed that, in a world where a number of individuals have an aim of acquiring an indivisible durable consumable good and has no access to external help or formal financial intermediation, ROSCA provide a good means of realising gains from inter-temporal trade.

Gugerty (2007) postulated that what lures an individual in joining a ROSCA is the ability to save in an effective way rather than impatience. "Savings require self-discipline and ROSCA provides a collective mechanism for individual self-control in the presence of time-inconsistent preference and in the absence of alternative commitment technologies"

Kedir et al. (2011) on theoretical grounds postulated that savings and deposits from an interest paying oriented bank provide a relatively lower yield, but a relative safer instrument of investment for poor people. On the other hand, random ROSCA is quite riskier. The basic form of its riskiness is its lottery nature of given out pots to the lucky participants. Since no rate of interest is attached to savings associated with ROSCA, a late receipt of pot implies a loss of guaranteed interest income that a bank deposit would have granted. Also given borrowing constraint, an early ROSCA pay-out gives a major source of finance to a lumpy investment of capital goods, notwithstanding consumer durables. Thus ROSCA participation is riskier but gives higher yield, whereas investment in bank deposits is safe but its yields are lower.

Adams and de Sahonero (1989), Handa and Kirton (1999) made a theoretical postulation that, married women of middle age who have acquired at least basic education are more likely to be ROSCA participants.

Anderson and Baland (2002), Rutherford (2000), Vetrivel and Chandrakumaramangalam (2010) hypothesized that credit-constrained individuals are banned from the credit market because they lack a minimum starting budget. On the same line, Besley et al. (1993), Levenson and Besley (1996), hypothesized that poor people are banned from formal credit market since they don't have collateral security to start with. So they should be motivated to participate in ROSCA than wealthier people.

Recent studies by Kimuyu (1999) and Varadharajan (2004) suggest that the very poor people are less motivated to participate in ROSCA because they lack minimum starting budget.

2.3 Empirical Literature

This subsection talks about the empirical literature conducted on Rotating savings and credit associations (ROSCAs). It emphasized on the characteristics of ROSCA participants and motives for joining ROSCA

2.3.1 Motives for joining ROSCA

Agegnehu (2012) conducted a study whether there exists a financial benefit in joining ROSCA. They took their evidence from equb in Ethiopia. They found out from their survey that, financial motives for joining ROSCA exceeds all other motives in large ROSCA whereas social motives for joining ROSCA are greater for small equbs. They also found out that participants who join large equbs do so to avoid higher operational cost in the form of transaction cost. Whereas with middle

equally most of the participants join because they wish to own an indivisible durable good. Participants under this form of ROSCA cannot be enrolled under what they called saving down strategy due to high-interest rate attached to such saving strategy. What prevents most of the participants from the saving down strategy in Banks are lack of committing future and high transaction cost. They went ahead and postulated that, net payment for participants who wish to receive the last pot as compared to saving in a bank equal the interest rate forego plus transaction cost incurred in ROSCA minus the transaction cost in case they transact with the bank. Normally transaction costs associated with activities of formal financial institutions are higher than those of informal institutions.

In their assessment of the operations of rotational savings and credit associations in the Kumasi metropolis of Ghana, Owusu et al. (2013), found that capital expansion is the major reason that influences the individuals to participate in ROSCA. Out of the 200 respondents, about 80% of the respondents reported capital expansion as their main motive for joining the association. It was again reported that 75% of the respondents had ten members in their various associations as their maximum number while those associations with 15 members' represented 17.5% with the remaining 7.5% representing the associations with 20 members. Their per period contributions, on the other hand, ranged from GHC20 to GHC50 with only a few of the association contributing between GHC100 to GHC150 per period. Balloting was also found to be the mode of allocating the pot to the lucky individuals.

Kedir et al. (2011) went ahead and reported that, for urban Ethiopia, 60 to 80% of the participants reported their main aim of joining the ROSCA include: investing in capital assets and investing in other business ventures. 55% to 60% of the participants chose the purchase of consumer durables as their main aim of joining the ROSCA. Close to 20% of the participants reported that they joined

the ROSCA in order to obtain capital to start a small business. They found out that ROSCA in urban Ethiopia meet and contribute to the pot monthly and roughly it takes two years for the circle to last, implying that, on average a minimum of 24 people form the membership of the ROSCA. The minimum contribution was also found to be 30 Ethiopia birr. They found a positive correlation between ROSCA savings and bank savings. This implies that the propensity to save in ROSCA is dependent on savings in banks. They drew their final conclusion by saying that, ROSCA participation and bank savings rise as individual wealth rises at an intermediate level.

Ambec and Treich (2007) considered self-control problem on the part of people as another motive for joining ROSCA. They stressed on the view that ROSCA is a committed device that helps people to cope with their self-control problems. They employed a model whereby people wish to avoid too much spending on future purchases of superfluous goods. And they noted that one best way to escape such future purchases is to be committed in advance to contribute a fixed amount. ROSCA being the commitment device for such an adverse contribution enables its participants to decrease the available income at their disposal for those purchases. They went ahead and provided an evidence to show that random ROSCA is sometimes better than organizing a credit market. In their model, ROSCA turns out to be efficient, in the absence of motive of savings. They concluded by saying that the durable good motive postulated by Besley et al (1993) and the self-control hypothesis may not be mutually exclusive but complement each other.

Chamlee-Wright (2002) conducted a research on ROSCA in Senegal and observed that Senegal ROSCA helped in the equitable distribution of income and raw materials. Credit from ROSCA by

participants is mainly used to finance income-generating activity among the low-income group and hence reduce poverty among people.

Gugerty (2000) in his evidence from western Kenya obtained an evidence against the durable good explanation by Besley et al. she concluded that, among the participants of ROSCA, more than half uses their winning pot for more than one purposes and one-fifth use their winnings for more than two purposes. Again, in her analysis, most of the ROSCA participants reported that they do not necessarily prefer to receive the pot sooner than later. Gugerty came across reports from participants, which include "you can't save alone, it is easy to misuse money", "sitting with other people will help you to save", "and it is difficult to keep money at home as demand is high".

Klonner (2000) introduces a model whereby individuals recognize ROSCA as an insurance against their future incomes. He demonstrated that an individual will choose bidding ROSCA instead of random ROSCA if the temporal risk aversion is less than the static risk aversion. He concluded by saying that, ROSCA can serve as a source of insurance for homogeneous risk averse individuals whose income level are stochastic and do not have access to credit. It was based on this assumption that bidding ROSCA was regarded as the form of ROSCA that gives more advantages to participants.

Mushuku and Mayisa (2014), conducted a research on how contributing to ROSCA improves the livelihood of people living in rural areas. Data was collected from ward 14 of Gatu district in Zimbabwe. They used stratified random sampling technique and considered 30 ROSCA groups. Their tools for their data collection were questionnaires, interview, and target discussions. They found out that people living in rural Gatu district, are engaged in three main forms of ROSCAs namely, random ROSCAs, consumer durable ROSCAs, and bidding or discounting ROSCAs.

They went ahead and demonstrated that ROSCAs have enabled its participants in Gatu district to set up new businesses, to be able to pay their wards school fees, to improve the livelihood of the members, and finally building both the physical and financial capital. They concluded by saying that, participants encounter series of problems as they move along with the association. Some of the problems they outlined include, defaulting of participants, mismanagement, and fraud of funds on the side of the organizers.

Kedir and Ibrahim (2011) conducted a study on the Economics of ROSCA with evidence from Ethiopia by using probit model. He used data on equb from seven major urban centres in Ethiopia. They concluded by saying that, an inverse relationship exists between equb contribution and size of equb (Besley et al 1993; Handa and Kirton, 1999). That is the larger the proportion of ROSCA members the lower the ROSCA contribution. And finally, rich households tend to join equb. His study demonstrated some econometric evidence using data on equbs (Ethiopian ROSCA). They also find out that, most of the participants of equb join the association for the purpose of buying consumer durables. They also found that females constitute the higher percentage of equb participation and finally they found out that rich households are more likely to be equb participants

Levenson and Besley (1996) using evidence from Taiwan conducted a research on the role of informal finance in household capital accumulation. Their work supported the idea that, ROSCA is an important way for a household to reduce their cost of durable acquisition. They indicated that Taiwanese ROSCA meet once every month which lasts for approximately two to four years. They concluded that there exists a positive association between ROSCA participation and durable goods acquisition. According to their results, every coefficient is positive. Moreover, the coefficients are highly significant at better than 5% for around half the durables and about one-third are significant at 1%.

3.2.2 Characteristics of ROSCA participants

Gugerty (2007) studied how ROSCA supports individual's self-commitment in Kenya. Data were collected from 70 ROSCAs located in Busia and Teso districts situated in Western Kenya. The main occupation of the people in these two districts is subsistence farming based on very small scale. The two districts are regarded as poor in the Kenyans' history. She reported that the major participants of ROSCA in the study area are women. She went ahead and postulated that, with the overall women's group of about 80 in the sample, 77 groups operated in ROSCAs. According to his sample, the average ROSCAs had operated for 6.5 years and have completed their fifth round of rotation. The longest ROSCA in his sample has existed for 19 years. Out of the 77 ROSCA groups, 22 have existed and operated fully for ten or more years. Some members were found to be leaving the association after a complete circle. Out of 1066 participants, 64 participants left the association after a complete circle with new members joining. She stimulated that, married women are more likely to be ROSCA participants as compared to unmarried women. Women participation, on the other hand, was reported to be higher than men participation. Women who had access to formal sectors were reported to have a higher rate of ROSCA participation than women without access to formal sectors. Gugerty estimated a probit model to predict the probability that, a women's group member is a participant of a ROSCA group. She derived from the analysis that, married women who live under the same roof with their husbands are less likely to be ROSCA participants.

According to Dagnelie and Lemay-Boucher (2012), empirical analysis by Handa and Kirton (1999) and Brink and Chavas (1991) agree with their evidence collected from a sample of 496 households in Cotonou, Benin that: ROSCA participants are mainly poor individuals who do not have enough access to formal institutions. Finally, they drew a conclusion that women are less

likely to be a member of ROSCA than men in Cotonou: while men constitute 51% of all adult population, women being the minority constitute 45% of all ROSCA members. The likelihood for a woman to participate in ROSCA in Cotonou is 15%, this increases to 21% when she is married and 22% if she works (24% if she does both). Men have an overall probability of 19% of participating in ROSCA, 32% when they live as couples and 31% if working (35% if both). Their analysis also disagrees with the fact that, ROSCA participants are mainly women. 18% of all ROSCA surveyed were exclusively made up of women, whereas 26% were made up of men. And the remaining of the groups was made up of both men and women with 63% having a majority of male members.

With his evidence from Indonesian Family Life Survey (IFLS), Varadharajan (2004) in finding solutions to his two important questions, who participate in ROSCA and why do individuals participate in more than one ROSCA. He found that, out of a sample of 19811 individuals, 5841 participate in at least one arisan (ROSCA). Out of the overall participants, 75% participate in only one arisan whilst the rest participate in more than one. A significant proportion of the sample was found to participate in two or more arisan. He found that eight individuals participate in at least six arisan. Among the participating samples, about 24% were heads of households with 47% being spouses of the household heads. He went ahead and analysed the situation where household heads and spouses are in arisan and found that they predominantly choose different arisans. He also found that about 71% of the participants were women. Which confirms the saying that, female are more likely to participate in ROSCA. Again, his urban dummy was positive and highly significant, meaning samples in the urban centres are more likely to participate in ROSCA. According to his work, the age of the household head significantly affects the participation of arisan. Thus as the initial age of the household increases, other people are less likely to participate in arisan. But as

the household becomes older, household members become more likely to participate in arisan. Female headship was reported to have a positive significant correlation with arisan participation. This met expectation since female households are both likely to be seriously in need of financial services and social capital by arisan. Gender also constituted a highly significant and negative effect on arisan participation. After he controlled for other factors like income, education etc., and men were reported to be less likely to participate in arisan than women.

Vradharajan (2004) went ahead and added to his conclusion that, individuals who are not married have a lower probability of being an arisan participant than individuals who have been married before (divorced, separated or widowed). Whiles married individuals are more likely to participate in arisan. Highly educated individuals, on the other hand, had a significant and positive correlation with the arisan participation as compared to individuals with no education. In conclusion, he found that in Indonesia ROSCA are not necessarily meant for poor people, rather the rich have a higher probability of participating in ROSCA.

With their new evidence on ROSCA participation in Indonesia, Lasagni and Lollo (2011) used Indonesia family life Survey (IFLS) for their analysis. Their sample size consisted of about 30000 individuals which represent 83% of their population. IFLS3 which was collected in 2000 and IFLS4 which was collected in 2007 were used for the study. The model they used was Probit model with the dependent variable being a dummy, which is equal to 1 if respondents indicate that he/she has participated in Arisan in the previous 12months and 0 if otherwise. They found that, over 32% of the IFLS3 respondents' participant in at least one ROSCA. On average, ROSCA participants are old (33 years versus 31 years of age), single and educated. They reported that ROSCA participants are from wealthy families. Participation in ROSCA in urban villages is higher than participation in ROSCA in rural villages. Their analysis signaled that about 53% of individuals live in urban

areas, but 61% of ROSCA participants do. According to their analysis, men are less likely to participate in ROSCA in Indonesia. In their analysis, their coefficient for marital status was reported to be negative and highly significant, implying that, married couples have a lower probability of joining ROSCA. They also observed that household expenditure per capita has a positive and significant correlation with ROSCA participation. Their findings support the existing literature that, rich people are more likely to join ROSCA. Andrea Lasagni and Eleonora Lolle in their analysis of Indonesia ROSCA found out that ROSCAs are neither complement nor substitute for formal credit. They saw ROSCA participation to have a positive correlation with household expenditures and education.

Kedir et al. (2011) used evidence from Ethiopia to demonstrate how ROSCA participation and bank savings work simultaneously. According to them, how these institutions are going to work simultaneously depends on the wealth position of the household and their attitude towards risk. Their empirical analysis used household panel data that were collected from seven urban centres in Ethiopia from 1994 to 2004. Their analysis was supported by a theory which states that there is a co-existence of saving in banks and in ROSCA for intermediate wealth levels. Thus, savings in banks and in ROSCAs both rises when there is an increase in wealth in the intermediate levels. They found the errors associated with the two regressions to be highly significant and positively correlated, which depicts that, the two savings schemes demonstrates substitutes. They found out with their evidence that, moderately poor people participate in ROSCAs and bank savings than extremely poor people. They concluded that participation in ROSCA type of savings is not just due to the absence of formal credit per se, but rather, some benefits such as risk sharing, insurance, social capital give more incentive for ROSCA participate.

Anderson and Baland (2002) conducted an interview on citizens living in the poor slum in Kenya and they concluded that people who participate in ROSCA have a higher probability of having a higher income. That is to say, ROSCA participants in poor slums in Kenya are not poor if income is a measure of wealth. They went ahead and reported that people who have permanent residential acquisition and who have lived longer in a slum have a higher probability of joining a ROSCA. Again, they went ahead and said that people who have a relatively more stable occupation and a stable place to live are more likely to be pressed to share their income. They may think of a device that will enable them to avoid this social pressure. By so doing, these people may join ROSCA as a means of saving.

Aliber (2001) noticed that types of the occupation of participants explain most of the differences in the frequency of the ROSCA meetings in his evidence from South Africa. He went ahead and distinguished between daily, weekly, and monthly ROSCA. He added that all the people who work in the formal sectors prefer meetings on monthly basis. He also provided compelling evidence that some ROSCA exist mainly because of discipline assistance it gives to participants in terms of liquidity.

Sandsør (2010), in his master's thesis on the topic: the rotating savings and credit association as an economic, social and cultural institution classified ROSCA as an economic institution, as a social institution, and as a cultural institution. He went ahead and conducted empirical studies using data from Kibera slum. Among the 16 and older individuals in 511 households, resulting 1270 observations, the percentage of the groups that have registered were reported to be only 10%. This means that majority of the ROSCA groups operate under illegal sense. About 98% of the leaders of the association were elected and most of the association (about 91%) meets on a regular basis. 74% had penalties associated with not attending meetings. It was also reported that the probability

of a ROSCA participant being a couple is high. And participants are also less likely to have completed primary school. Furthermore, it was reported that there exists a higher probability that a ROSCA participant is having a job.

According to Anderson and Baland (2002), in Kibera, Nairobi married women are more likely to participant in ROSCA. Based on their data collected, a majority of ROSCA members 72.1% are in couples. 85.3% of the ROSCA participants were found to be women, where 60.9% were reported to be women in couple with 49.3% being working women, compared to respectively 43%, 18.2%, and 8.6% of non-participants. Also, the category of women who work and are in couple constituted 33% of the ROSCA participants as compared to only 3.4% of non-participants.

The work of Hoddinott and Haddad (1995) especially supported the idea that, in relation to women, Africa household men use a greater portion of their incomes on commodities such as cigarettes and alcohol, whereas women use more of their income to purchase goods for children and for the general consumption of the household. In agreement with this, Thomas (1990) finds that unearned income in the hands of a mother has a bigger effect on the family health than when under fathers' control.

Pitt and Khandker (1998) estimated the impact of participation by gender in micro credit in Bangladesh. They found that credit has a larger positive effect on schooling and households' expenditure and assets when women are participants.

World Bank (1989) report shows that, in Bolivia, one-third or half of the adult population in the urban centres participate in ROSCA which constitutes about one-sixth of their salary. In Niger, about 398 households in the rural villages indicated that ROSCA accounted for 84% of total loans collected, representing 17% of their agricultural income.

Bouman (1995) found out that, the overall adult population in Congo, about 50% (male and female) participates in ROSCA and 50-59% in many rural areas in Liberia, Ivory Coast, Togo, Nigeria, and Cameroon participate in ROSCA. He also found out that among the adult population of many Africa countries, ROSCA involves between 50% and 95% and specifically in Cameroon, ROSCA mobilizes about one-half of their national savings. He reported that among the staff of agriculture bank in Egypt, about 75% are members of ROSCA.

Nagarajan, Meyer, and Graham (1999) studied osusu (the traditional name for ROSCA in Gambia) in Gambia and they postulated that "while three fourth of the sampled osusu were composed of occupationally homogenous members, about two third was composed of members homogeneous in age and gender. About half of the sampled osusu were simultaneously homogenous gender, age, and employment type"

Kimuyu (1999), in his empirical analysis on rotating savings and credit associations in rural East Africa. Data were collected from two rural areas in Kenya and Tanzania. The two communities were chosen as the sample area so as to control for climate, culture and general prospect. About 25% of the households in each of the communities were randomly selected for the research. The data made it clear that there exist greater ROSCA participation in Kenya than in Tanzania as evidence of a difference in market penetration and relative rural development. ROSCA in Kenya attracts households with a greater need for alternative sources of liquidity and accumulation, headed by persons with better human capital attributes and therefore better able to perceive and exploit opportunities for self-improvement. Econometric analysis indicated a positive impact of expenditure, females' headship, and household heads on ROSCA participation. They interpreted a positive expenditure coefficient as suggesting that ROSCA participation is partly consumer driven but it is also for raising additional liquidity for meeting unusually high expenses. Total household

expenditure exhibit a positive impact on the level of contribution to ROSCA, while amount collected hinge on the frequency of turns. He again postulated that, out of the 49 Kenyans' who participated in ROSCA, 27% use their pot to purchase food, 20% uses it to settle school fees and 10.2% uses it to purchase consumer durables. Other small portion used their fund to promote small business, improve homes, buy dairy cattle, meet medical expenses and repay earlier debts.

Adams and de Sahonero (1989) conducted a survey on ROSCA in Bolivia and made it clear that 60% of the total ROSCA (Pasanakus) was found out to be females and about 19% of the groups were made up of friends and colleague workers. Three percent of the groups consisted of families with 5% being neighbours. 83% of the ROSCA under study collected and distributed only cash. Almost six in ten of all the ROSCA surveyed permits the leader to take the pot. Among the findings, the most surprising one was that the participants were contributing a huge sum of money into the pot periodically. The average person in terms of US dollars contributed \$17.80 each period of the ROSCA. According to them the most popular form of allocating the pot to the lucky one was casting of lots at the time the pot is ready. About 70% of the groups under study used this method. Fifth teen (15%) percent drew their lots immediately after the pot has been out so that the lucky person will receive it at the next meeting. About 10% assigned the rotation following the orders of its member's. None of the ROSCA under study used bidding procedure in allocating the pot. They concluded by saying that, ROSCA member are widespread and that their periodical contribution constitutes a huge portion of their income. The widespread in Bolivia signified that majority of Bolivians in the urban environment are willing to save in any financial form. They found out six reasons for the widespread of ROSCA in Bolivia. Firstly, they found out that borrowers transaction cost in ROSCA is nil. This cost is high with formal financial sectors. Secondly, they found out that ROSCA is flexible and gives a direct solution to the needs of its

participants. Thirdly, saving in ROSCA is tied to the mirror image of building a credit rating and borrowing. Fourth, for many of the participants, the value of the service that ROSCA renders exceeds the value of saving alone. Fifth, transaction cost in ROSCA is low due to innovations. Finally, they participate in ROSCA because of its gamble in nature. They also found out that in Bolivia "ROSCA were common among employees of most formal financial intermediaries: commercial banks, the central banks and the apex organization of credit unions". They concluded that "this raises interesting questions about the benefits that employees realize from participating in ROSCA that they cannot realize from the financial institution in which they work".

Besley et al. (1993) illustrated that ROSCA is relatively more efficient than autarky savings and improves the welfare of those who do not have access to the formal credit market. They conducted a follow-up study (Besley et al., 1994), whereby random ROSCA was compared to the formal credit market and they concluded by saying that, the ROSCA were more efficient and gives a higher ex-ante expected utility.

Besley and Levenson (1996) and Handa and Kirton (1999), with empirical evidence, concluded that participants of ROSCA are not necessarily poor. Their results showed that ROSCA participation has a positive significant correlation with an income, thus richer individuals have a higher probability of participating in ROSCA. T. Besley and Levenson (1996) saw a problem of endogeneity existing between ROSCA participation and income but did not address it specifically due to the lack of proper instruments. Handa and Kirton (1999) considered income as exogenous to participation.

Handa and Kirton (1999) conducted an econometric research on the economics of rotating savings and credit associations, where they took their evidence from Jamaica. They concluded that bankers

of ROSCA in Jamaica are old, rich and have enough experience on the smooth running of the association. And payment to these bankers has a significant relation with the sustainability of the partner. Their analysis supported the theory that was postulated by T. Besley et al. (1993) that, there exists an inverse relationship between the size of the ROSCA and the periodic contribution of the association. 71% of their sample reported using their ROSCA winnings for the purchase of consumer durables. A significant proportion (14%) reported using their pot for precautionary savings for unplanned expenses. They indicated that ROSCA consist of two main broad categories from their Jamaican panel analysis. The first and most common type is a type of ROSCA with a lot of members and little contribution. The second and less frequent type of ROSCA is the one with fewer and richer members which meet at a longer interval and has a larger contribution size. Earlier studies by Ardener (1964), Jellicoe (1968), and Bouman (1977) predicted a high rate of participation of rotating savings and credit associations by men and women. Recent data, however, gives confirmation to this clause. According to Schrieder and Cuevas (1992), participants of ROSCA in Cameroon were almost 80%. In Gambia, ROSCA participants embraced 70% of the adult village population (Nagarajan et al., 1994).

2.4 Research Gap

Many scholars have indicated that people join ROSCA due to its Pareto superior allocation, but it was found out that no literature has gone to the extent of finding the characteristics of ROSCA participants who join the association due to its Pareto superior allocation. The thesis go ahead and find the relationship between ROSCAs and formal financial institutions in Ghana. This study is the first of its kind.

CHAPTER THREE

OVERVIEW OF ROTATION SAVINGS AND CREDIT ASSOCIATIONS IN GHANA

3.1 Introduction

This chapter presents the general overview of rotating savings and credit associations in Ghana. This entails, the types of ROSCAs that are commonly found in the Ghanaian economy, operations of the rotating savings and credit associations in Ghana, ways ROSCAs are formed in the Ghanaian economy, the basic characteristics of ROSCA participants in Ghana, ROSCA as an economic institution in the Ghanaian economy, ROSCA as a cooperative strategy in the Ghanaian economy, ROSCA as insurance in the Ghanaian economy, ROSCA as a social and cultural institution, ROSCA and its impact on economic development and finally, the impact of ROSCA on poverty

3.2 Types of ROSCAs that are found in the Ghanaian Economy.

There are numerous forms of ROSCAs in the Ghanaian economy, namely, office ROSCA, neighbourhood ROSCA, ethnicity and religion ROSCA and finally the market ROSCA. These forms of ROSCAs play their economic, social and cultural roles perfectly in the economy. Participants can join more than one form of ROSCA at the same time and can also hold more than one share in any of the form(s). The forms of ROSCAs in Ghana are explained below:

3.2.1 Office ROSCA

This form of ROSCA can be formed in two main ways. Firstly, a group of people who work in the same office can come together and form such an association. Secondly, authorities of governmental bodies or official welfare programs can program this form of ROSCA. For instance, the family welfare program. In Ghana, a lot of people who do administrative work for various

companies and even workers of several formal financial institutions do come together and set up a rotating savings and credit associations. They do that for the purpose of buying an indivisible good or money they set aside to cater for their unforeseen circumstances. Participants of office ROSCAs at times use their membership of the association as an insurance against risks. Those in the formal financial institutions form such associations because credit from ROSCAs requires no interest. As the researcher was a witness to an office ROSCA which happened at the Electricity Company of Ghana in the ash-east regional office, where five service personnel (Ernest, Jessie, Tawia, Abigail, and Daniel) in the year 2014, came up and formed a rotation savings and credit association in order to help each other as they wait for their national service allowances. With the office ROSCA, participants mostly meet on monthly basis especially immediately after their payday. This type of ROSCA mainly consists of few participants who contribute quite a huge amount as compared to other forms of ROSCA. These participants really know each other and the problem of defaults are minimized under this type of ROSCA.

3.2.2 Neighbourhood ROSCA

This is one of the most popular forms of ROSCAs in the Ghanaian economy. Neighbourhood ROSCA consists of mainly individuals who have lived in the same neighbourhood for quite some time and have agreed to come together and form a savings and credit rotational association. It mostly consists of a lot of people and everybody in the neighbourhood is eligible to be a participant provided no criminal act is tag against his/her name. They are mainly organized by the youth of the neighbourhood and mainly females constitute a higher percentage of participation. The default of participants is more likely since it consists of a lot of the youth in the neighbourhood. Their periodic contributions are quite low as compare to office ROSCA. At times too, the entire adults in the neighbourhood find themselves in such association.

3.2.3 Ethnicity and Religious ROSCA

Another form of ROSCA that is very common in the Ghanaian society is the ethnicity and religion ROSCA. A group of people from the same ethnic group or perhaps that speaks the same language, who are living outside their place of origin often come together and form ROSCA. On the other hand, religious ROSCAs are also forms of ROSCA in which members from the same religious communities come together and form ROSCA. They, first of all, come together to sing and pray verses and then carried on with the ROSCA meeting. In Ghana, religious ROSCAs have a relatively low contribution rate because their main aim was to establish the association to first render religious services. With this form of ROSCA, their periodic meetings are conducted on weekly basis, rather than monthly. The number of participants of these forms of ROSCA is dependent on the number of people who are from the same ethnic group or religions who are located at the place outside their origin and interact with each other.

03.2.4 Market ROSCA

The final type of ROSCA which dominates in the Ghanaian economy is the market ROSCA. This form of ROSCA is mainly organized by traders in the marketplace. Under this form of ROSCA, there are no meetings that are actually held. Rather an agent is selected to move around in collecting their periodic contribution and the pot is being assigned to the agreed winner. Their contribution is done on daily basis.

3.3 Operations of Rotating Savings and Credit Associations (ROSCA) in Ghana

As it has been indicated in the previous chapters, ROSCA members contribute a lump sum of money into a pot which is given to one individual at every period of the association. After an individual participant has received the pot, it becomes his/her obligation to fulfill the payment of his/her contribution until every individual in the association has received the pot. There is an

alternation of being a lender or a borrower depending on the time a member receives the pot. There are also some factors that make ROSCA in Ghana unique as compare to ROSCAs in other countries. These factors include:

3.3.1 Membership

Ardener (1964), stimulated that the number of participants in ROSCA can range from a handful to hundred. However, the number of participants and the motivation to participate has an inverse relationship. This is due to the fact that people perceive the monetary value of participation and the actual value of participants' voice to be insignificant as participants increases (Birchall & Simmons, 2004; Jones, Jussila, & Kalmi, 2009). Participants may be selected on the basis of age, educational level, sex, ethnic affiliation, occupation etc. (Sandsør, 2010). Some ROSCAs are established based on political affiliation (Ardener, 1964).

In Ghana, participants of rotating savings and credit association (ROSCA) are mainly selected by organizers or leaders. These organizers based their selections on ethnicity and geographical limitations. ROSCA in Ghana mainly consists of people from the same ethnic group, people who come from the same place and have lived in the area for a long period of time, people who speak the same native language and finally people who work in the same organization. Organizers select people in the society who are not socially deviant so that at least the association will be assured of a minimal default.

3.3.2 Transferability

In Ghana, the pot could be or could not be transferred. The transferability of the pot depends on the laid down procedures at the time of the establishment of the association.

3.3.3 Contribution

The amount each participant contributes in each period is determined by the number of participants. ROSCAs with few participants contribute a huge sum of money and those with many participants have less contribution. Looking at the number of participants they project the total amount that each individual participant can get. And therefore, endorses an amount valuable enough to pursue their purposes. They also permit an individual who wishes to have more than one share or contribution in a particular circle thereby increasing his chances of winning the lump sum.

3.3.4 The Fund

In Ghana, despite the fact that all participants contribute the same amount throughout the lifetime of the association, the benefits accrued to the participants are not the same. At a given point in time, all the members will move from being net savers to net debtors with the exception of the last person who becomes net debtor throughout the circle (Dejene, 1993). In other words, “all members but the last to receive the fund get interest free loans of decreasing magnitude for decreasing periods, and all but the first give interest free loans of increasing magnitude” (S. Ardener, 1964).

3.3.4 Cycle period

Cycle period refers to the frequency with which the association meets and makes the contribution. Cycle period is found in the Ghanaian economy to be mostly daily, weekly, monthly and yearly. But monthly circle periods are reported to be the most frequent period cycle. Also how frequent the cycle is are at times dependent on the amount to be contributed. The smaller the amount, the shorter the cycle and the bigger the amount, the larger the circle.

3.3.5 Basic Characteristics of ROSCA Participants and ROSCA Formations in Ghana

In Ghana, ROSCA participants are more likely to be women who are married and are also less likely to obtain higher education. They are on the other hand less likely to have a job. Job acquisition of participants ranges from working in the informal financial sectors, working in the market, administrators of various companies also have a higher probability of being a ROSCA participant. Many office ROSCAs in Ghana is made up of commercial bankers. ROSCA participants in Ghana are more likely to have stayed in the area of residence for quite a long period of time and more likely to speak the same language. ROSCA is mainly practiced by people who are engaged in petty trading and the total amount collected is given to each member of the association to be spent alone. Poor people in Ghana are more likely to participate in ROSCA. In Ghana, the association has become a great alternative through which most of the petty traders raise funds to establish their business.

ROSCA in Ghana are mainly form in two main ways. Firstly, ROSCAs are formed when two or three people come together and start the association and later invite other peoples to join. The invitation of other people decreases the ability of a participant to default since people who will be invited will be honoured with some degree of trust. Secondly, existing groups can also mature and undertake savings and credit association. Such a natural collection of people encourages ROSCA participation. The truth is that participants are already known to each other.

3.3.6 ROSCA Performing a Function of Assessing Financial Risk

Organizers of ROSCAs based on social capital to embark on recruiting new participants from their own points of view. They recruit participants whom they can depend on to meet the commitment in terms of finance. In the same vein, participants will agree to join the association as long as they see the organizers to be trustworthy and credible. Organizers being regarded as credible must be

able to select from the Society default free individuals to join the association, notwithstanding their ability to perform all the administrative work which includes, ensuring payment, collecting funds, scheduling meetings etc. participants, on the other hand, must also put some level of trust in organizers which will ensure that organizers will not use or evade with funds after the first contribution. In many cases, new members join the association based on recommendations by existing members. At times, for new members to show their level of trustworthiness, they are pegged against receiving the last pot

3.3.7 Lower Transaction Cost

The transaction cost associated with ROSCA is quite lower as compared to banks. Since participants are aware of each other's creditworthiness, transaction cost attached to formal credit market such as running history on credit, collateral inquiry, pre-loan and post-loan monitoring are not required under ROSCA. Due to the fact that transaction cost is lower, ROSCA participants are able to receive loans as quickly as possible. Whilst clients with inadequate or no credit history may encounter some difficulty or delay in obtaining funds from formal financial institutions. Finally where meetings are held may be homes of some of the participants which come without any cost.

3.3.8 Mode of Selecting Winner

In Ghana, the mode of selecting a winner of the pot is mostly classified into two main categories namely,

1. By agreement with all the participants, the pot is given to people who are usually in need of financial support.
2. Lots are being cast and the lucky winners are being given the pots. Here members who have received the pot before do not participate in the subsequent lotteries but do not forfeit their contribution.

3.4 ROSCA as an Economic Institution

Individuals have an abundance of economic needs which include, saving in a reliable way, borrowing money at a low cost and finally being able to insure themselves against unexpected expenditure. ROSCA as an economic institution helps in given out solutions to these economic needs. Once an individual participant has received the pot, it becomes his obligation to continue with his/her contribution into the pot. On the other hand, the other members are saving as they await their winnings of the pot. In this manner, ROSCA has served as both credit and savings institution. Also, the fact that, orders of rotation are changed assures individual participants a certain degree of insurance.

The various ways in which ROSCA act as an economic institution includes:

3.4.1 Savings and Credit

"The most obvious function of these associations is that they assist in the small-scale capital formation, or more simply, they create savings. Members could save their contribution themselves at home and accumulate their own funds but this would withdraw money from circulation. In rotating, credit association capital need never be idle" (S. Ardener, 1964). In chapter one, we cited an example of five school teachers who wish to obtain a bicycle to help them reduce their lateness to school. And we discussed how they could use ROSCA to pool their resources in other to help each of them to attain the bicycle before the end of the fifth period. To clearly illustrate the gains that each teacher obtains from joining the ROSCA we characterize their savings strategy assuming an absence of credit and compare it to the cooperative strategy where they form a random order ROSCA. In general, let's assume the teachers are referred to as individuals, and the bicycles are also referred to as an indivisible good. Five individuals $i=1,2,3,4,5$, wish to obtain an indivisible good which cost 500 Ghana Cedis. Each of the individuals earns 100gh every month and the good

must be purchased within the time periods $t=1,2,3,4,5$. M represents the individual's income with C being the benefit he/she obtains when he owns the indivisible good in period t .

ROSCA under this content can also be regarded as having a cooperative strategy, in the sense that, each of the participants has an incentive to cooperate. The first exhibition of cooperation is the use of the lottery to decide who receives the pot first. Looking at the scenario, before the draw, each of the participants has a positive chance of winning the pot for an extra period compared to the non-cooperative strategy given an expected utility gain from cooperation.

Also considering our scenario in chapter one. Let's now assume that, there are n participants who wish to save for an indivisible good x . Hence the cost of the indivisible good is nx . Now, if participants save alone at home, they could save one hundred Ghana cedis at each period and would have to wait for n periods. However, if they join a ROSCA, every member will be strictly better off except the last person on the rank. This makes it clear that participants are better off ex-ante when saving in a ROSCA than saving on their own. This is referred to as the early pot motive.

3.4.1.1 Savings Strategy

Rutherford (2000) explained the importance of money as the difference between those who have money and those who don't have. He went ahead and postulated that the main aim of financial service is to help individuals on how to manage their savings. Financial services provide this source of help in two folds. Firstly, they provide access to previous incomes saved in different forms. Secondary, they provide a saving strategy.

3.4.1.2 Saving Up Strategy

This is a strategy whereby individuals keep part of their regular incomes as a form of savings and accumulate the savings into a huge sum for serving a huge expenditure. The net savers for every period of the life of the association are regarded as practicing saving up strategy.

3.4.1.3 Saving Down Strategy

This strategy is sometimes called “borrowing and repaying loan”. In saving down strategy the individual receives the amount he/she will need for his/her huge expenditure and repay it gradually until the full loan is repaid. The difference between saving up and saving down strategy is the availability of huge sum of money before savings in the latter while it will be ready after savings in the former. Net debtors in the association are classified as performing saving down strategy.

3.4.1.4 Saving Through Strategy

Saving through strategy is the strategy that combines both saving up strategy and saving down strategy. Here the lump sum becomes available to the individual at the mid or some point in his/her series of savings.

ROSCAs on the other hand act as a vehicle for savings in poor households where there is a conflict between preferences over immediate consumption and savings. According to Anderson and Baland (2002), ROSCAs are commitment devices, whereby people can keep their money to be used in the future. Participants use their savings for the purchase of durable goods.

3.4.2 ROSCA as Insurance

Another great motivation of an individual joining ROSCA is because of its ability to give some level of insurance. Sandsør (2010), stated that ROSCA participants at times do not want to take the pot early since they consider ROSCA as an insurance scheme. Ambec and Treich in their

analysis of ROSCA also saw ROSCA to be a substitute for insurance. Again people who come together and form ROSCA are basically from the same village and have similar jobs and revenue. This is not different from risk-sharing activity (Ambec & Treich, 2003). ROSCA can also act as an insurance package for members who are yet to receive the pot and suddenly needs money to address unforeseen circumstances (Sandsør, 2010). Thus if a participant has not yet got to the turn of receiving the pot and he/she needs money suddenly in order to cater for funeral or health expenditures. The participant can be permitted to receive an early pot order in the rotation with the agreement of all the participants being willing to change the order of rotation in favour of the participant who is in need. In this case, a conflict of interest occurs when one member has an unexpected income loss and wish to obtain the next period's pot, but the member in line to receive the pot wish to receive it sooner rather than later. The member who is dying in need of the pot will have to put reliance on the strength of cooperation in the association in order to convince the other members to change the order of rotation. Here, ROSCA helps in pooling of resources in order to help the participant who has an unexpected income loss or the participant who needs money to cater for a sudden funeral or health expenditure, should all the participants agree with the change in the order of giving out the pot.

Thus ROSCA helps in pooling of scarce resources to help each other especially when a participant who his/her turn is not due and has encounter loss of income or a funeral, based on the cooperative strategy of the participants, ROSCA helps in giving financial assistance to such people. For ROSCA to serve such a purpose, the recipient who is in need must be waiting for his/her receipt date.

ROSCAs serve as a source of insurance to its participants even in the presence of formal credit market enabling all the participants to share shocks among themselves. ROSCA gives a source of

insurance against illness, accident or death. Many petty traders who participate in ROSCA may use their pot to protect themselves against contingencies such as sickness and death. Many participants use their winning pots from ROSCAs to cover such expenses.

3.5 ROSCA as a Social and Cultural Institution

Geertz 1962:260, states that “ROSCA is a socialization mechanism, in that broad sense in which ‘socialization’ refers to not simply the process by which the child learn to be an adult, but the learning of a new patterns of behaviour which are of functional importance in a society, even but adults”. ROSCA helps in enhancing social status of its participants (Ardener, 1964).

Giving social capital to its participants is one of the major roles of ROSCA to its members. Friendship is not the only gain from joining ROSCA. It contributes to the reputation and networking of its members as well as performing a function as a source of information to its members. The purpose of many ROSCAs is basically to meet the financial needs of its participants. Especially those in the marketplace (market ROSCA), where collections are done every day from each participant, many ROSCAs have a social purpose and a large gathering of its members at each period of the existence of the association. In some extreme cases, the contributions are used for the purpose of paying for social events organized by winners of the pot. Bortei-Doku Aryeetey and Aryeetey (1996), identified two main types of ROSCAs in Ghana. “First, is the single purpose Susu savings club and secondly, mutual aid Susu saving club with multifunction” (Bortei-Doku Aryeetey & Aryeetey, 1996). The main purpose of the first type of ROSCA is strictly savings and has no or minimal quantum of specialization. In the second type of ROSCA, gathering and socializing of its members is very much essential.

It can be testified that, in the Ghanaian economy where there exist similar economic equivalence alternative or even superior alternative, many people choose ROSCA. This can be an indication that, the social benefit attached to this form of association is of high value to an extent that members refuse to choose the formal alternative. If this holds, then there should be a higher expectation of a greater shift away from economic ROSCA than social ROSCA when the formal alternative is introduced.

Thus ROSCA, on the other hand, performs its function as a social institution by serving as a social meeting place for participants and provision of social aid, thereby overcoming some vital societal problems in savings such as not being able to save due to time inconsistency, procrastination, weakness in savings, high demand by other family members and colleagues. ROSCA helps people who find it cumbersome in pursuing autarky savings to join hands and make savings.

Social capital gained as a result of being a participant of ROSCA measures self-discipline which gives easy access to credit acquisition. ROSCA participants join the association as a means of making payment weekly, daily, or monthly but in the long run, they save against their future. Hence defaulting ROSCA members endanger their future against future credit. ROSCAs give participants the opportunity to network that provides financial support to help each other in their economic endeavours. Organizers and participants based on social capital to enforce all members to continually commit to the payment of their contributions. Participants are forced to oblige to their contribution for the fear of social consequence. At times, the organizer or a member may visit the home of a default participant and alert him/her to comply with his/her obligation of contributing to the pot. When the default participant refuses to oblige, the organizer or the member now tells all the other members what the defaulting participant is up to.

If we consider the fact that people cannot wait for a longer period to obtain their indivisible good as the main aim of joining ROSCA, then, there becomes a conflict of interest as to who should be the first recipient in the rotation. The utility of each participant increases as they receive the pot earlier. So as normal consumers, each of the participants has the incentive to argue in order to be the first recipient of the pot. Also, if the rotation is reversed after all the participants have received the pot once, the participant who received the pot last has a greater incentive to argue for the first pot allocation this time. For ROSCA to function well, its participants must clearly understand its organizational structure. And this is where fairness comes in. ROSCA becomes fair to its participants when all the participants have the same expected receipt date. In which case the ROSCA should be organized so that the dates that each participant receives the pot are decided by a lottery at the beginning of each rotation. The fact that many ROSCAs in Ghana use lottery as their way of allocating their pots makes it fair since all the participants have an equal chance of winning the pot. In a random ROSCA, the fairness norm is to equalize expected dates.

3.6 Sustainability, Enforcement and Organizational design of ROSCA

Before ROSCA can serve its function as an economic, social and cultural institution, sustainability in itself and as an institution among others is a prerequisite. For its internal sustainability, each participant of the association is required to continue with his/her contribution to the pot once he has received the pot. ROSCA, on the other hand, will be externally sustainable if it is able to perform its economic, social and cultural functions even if the existence of other formal and informal institutions becomes rampant.

For ROSCA to perform its functions well, each member must commit to his/her obligation of paying to the pot once they have received the pot. But if members are not willing to continue with their contribution to the ROSCA once they have received the pot, then the ROSCA is not internally

sustainable. In sustaining the random ROSCA which is the most common form of ROSCA in Ghana, the organizational structure of the random ROSCA must be obeyed. In the random ROSCA, the order of allocating the pot is decided randomly at the beginning of each cycle. The participants, who encounter the enforcement problem the more in random ROSCA, are the participant who receives the pot first. These participants know that at least there exist n periods in other for him/her to receive the pot again. Considering fixed ROSCA whereby the order of allocating the pots to all the participants are known in advance, the enforcement problem is greater for both the first recipient and the last recipient. Whereas with bidding ROSCA, whereby recipient does so by bidding more and therefore there is more to gain when participant defaults. The conclusion here is that enforcement problem is greater in the random ROSCA than in fixed and bidding ROSCA.

In an attempt of preventing default, membership fees can be initiated which will be repaid at the end of the rotation. But another disadvantage is that this fee cannot be too large to ensure enforcement. Because the level at which it would ensure enforcement is when the first recipient finds it unprofitable to participate. Another way of preventing participants from defaulting is initiating a punishment against default which will be so large that the first recipient will not find it profitable to default or to deviate from the cooperative strategy.

3.7 ROSCA and its Impact on Economic Development and Poverty Reduction

Rotation savings and credit associations (ROSCAs) have a great role to play in the development of the economy. ROSCA playing its role as an economic, social and cultural institution also helps the very poor households to meet their basic human needs and also improve the welfare of households. It goes ahead and protects participants against future loss of income and finally, it helps in women empowerment. Aryeetey and Udry (1997) illustrated that the main reason why

people join ROSCA is due to capital expansion. Capital expansion, on the other hand, implies more returns and reduction in unemployment.

Expansion in capital recorded as the motive of joining ROSCA helps in combating poverty on the individual level. ROSCA helps in economic development by seeking to create an institution that channels financial support to the poor and needy, who may not meet the requirement to transact with formal financial sectors.

ROSCA plays an important role in achieving the millennium development goals since it is a system that meets the needs of the poorest people. ROSCA has also played a major role in eradicating poverty, promoting education, improving health care and women empowerment in the economy of Ghana.

Poverty goes beyond lack of income or money in people's pocket. There is a significant difference between increasing income and reducing poverty. If the income of the poor increases, they are more likely to participate in ROSCA according to literature. But this does not necessary means ROSCA will reduce poverty of the participants. But the impact of ROSCA on poverty, under this content, will be dependent on how the poor use the ROSCA winnings. For instance, when the poor, after winning the pot, use it for gambling or on alcohol, it wouldn't have any effect on poverty reduction. However, ROSCA performs its function of poverty reduction by helping its participants to be sustained at a certain level of well-being by giving them a financial service that helps to quarantine their basic needs which improve their welfare. Hence, ROSCA serves as a tool for poverty reduction.

3.8 Problems Associated with ROSCAs

Looking at the circle, there is always a last person on the rotation to enjoy the benefit. And this person could have saved individually to enjoy the same benefit. This person does not enjoy any interest on his/her savings. Earlier winners get interest free loans. The period in which the money is save being short or long doesn't matter. The point here is that the last participants on the rotation do not receive any interest on their savings whereas earlier winners too enjoy loans without any interest.

Timing, on the other hand, has become another problem for participants. Participants may receive the pot in either the first or second round then later encounter a problem that requires finance. At this point, he/she has received his/her pot already and has absolutely zero probability of obtaining the pot again.

Mismanagement and fraud on the part of the leaders or organizers can also lead to a breakdown of the rotation. Some organizers easily abscond with the ROSCA contributions. ROSCA, as it stands, is not bound by any legal authority so organizers can easily misuse the pot and will not face any legality.

The impact of ROSCA is very minimal since it consists of few members in the villages that are slightly active economically and are able to contribute to the pot at every period. The children and the aged who are not economically described as active do not most at times participate in ROSCA.

CHAPTER FOUR

METHODOLOGY

4.1 Introduction

This chapter focuses primarily on the methods that were used in the study, target population, data source, research approach, sample size, sampling technique, data collection instruments, instruments used in the analysis of data, profile of the study area and finally the econometric models used in the analysis of the data.

4.1.1 Data Source

Both primary and secondary data were used for the study. The primary source of the data was obtained from administering questionnaires to respondents and conducting interviews. The questionnaire was administered to ROSCA participants, whereas in some cases, interviews were conducted. The secondary source of the data was also obtained from the round six of the Ghana living standards survey (GLSS6).

4.1.2 Research Approach

Apart from using the GLSS 6 data and report, a case study of the Asunafo North Municipality of Ghana was used separately prior to the achievement of the main objective. This is because the approach intensively studies the individual participant by making it available their characteristics, savings behaviour, expenditure and finally the reasons why each of the participants joins the association. This detailed information was obtained from respondents. The approach was adopted to support the GLSS 6 analysis because multiple evidence sources were seen as important.

4.1.3 Target Population

The population of interest in relation to the primary data comprises of the total number of people living in the Asunafo North Municipality. According to population and housing census, the total population of the municipality is about 124,685. The population consist of people living in the areas of Goaso, Mim, Akrodie, Fawohyeden, Ayomso and their remote villages.

4.1.4 Sample Size

The sample of the study was based on the residents of the municipality who were participants of ROSCAs. And the sample size was based on the formula

$$n = \frac{N}{1 + N(\alpha)^2}$$

Where,

n= sample size

N= Population

α = 95% confidence interval.

$$n = \frac{124685}{1 + 124685(0.05)^2}$$

$$= 398.72$$

This is approximately 400

4.1.5 Sample Methods

Both purposive and convenient sampling techniques were used in the study since the research was being constrained with time and resources. Purposive sampling technique is a non-random sampling technique which was used to select ROSCA participants for the study whereas the convenient sampling technique was also used to select respondents who were ready and in the position to respond to the questionnaire. With regards to the purposive and convenient sampling technique, the questionnaire was administered approximately for a period of 3 weeks to participants of ROSCA.

4.1.6 Data Collection Instruments

The instruments that were used in the primary data collection were questionnaires. Primarily, collection of data for the study was through administered questionnaire to ROSCA participants. But due to factors such as high illiteracy rate and the research being constrained with time, interviews and observations were somehow used at some point in time. The questionnaires administered were both open and closed ended questions. With the data collection, the researcher started from Goaso (the Municipal capital) to Akrodie, Fawohyeden, Ayomso and finally to Mim.

The questionnaire was made up three sections, the first section considers the basic characteristics of the individual participant. The second section considers the savings behaviour of the individual participants. And the final section considers the other questions which include the expenditure behaviour of the participants.

The questions comprise of both structured and unstructured questions. The structured questions were straight forward with plausible answers in which respondents were asked to choose from and also dichotomous questions with two answers, yes or No. On the other hand, unstructured questions were used to acknowledge the genuine opinions of respondents on certain issues.

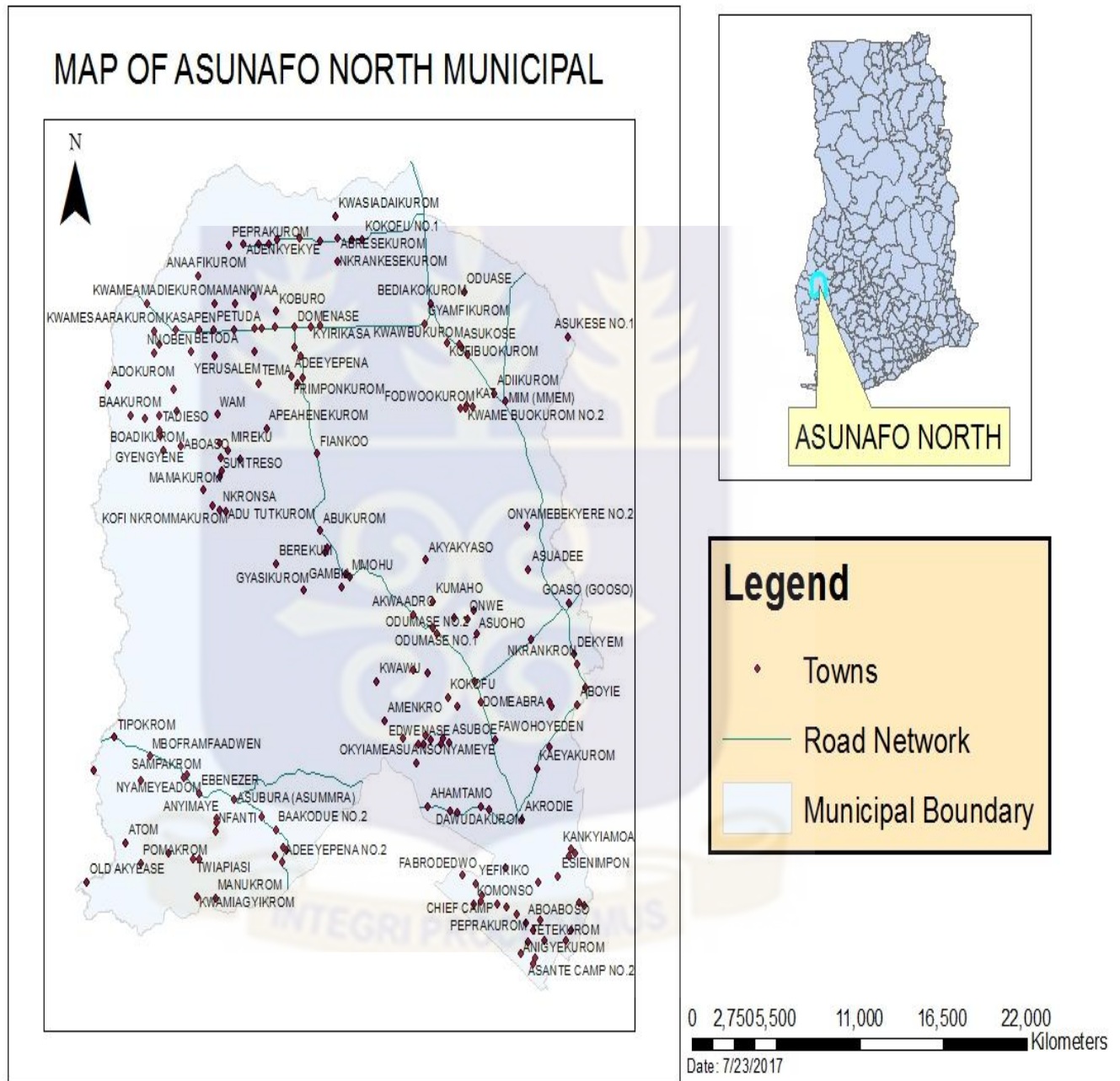
4.1.7 Location and Size of the Municipality

Asunafo North municipal is among the twenty-seven (27) districts in the Brong Ahafo region of Ghana. The Municipal is one of the municipals which came into existence when the asunafo district was divided into two in 2004. The legislation instrument guiding the establishment of the municipal assembly is LI 1873 of 2008.

On the north east border of the municipality, it shares a boundary with the Asutifi District, on the boundary of North West is Dormaa District, on the southwest are Juaboso Bia and Sefwi wiaso district. Finally, Asunafo South district is on the southeast border of the Municipality.

The municipality has a total land of 1412.0 km square with 578.63km square being covered by forest reserves. The rolling landscape of the municipality ranges between 500 feet and a little above 1000 feet. The topography of the municipal is geared towards the north-eastern (Mim area) and south western (Abuom area). The soil type of the municipality is rich in food crops productions. Some of the food crops that are mostly grown on the land include plantain, cocoyam, and cassava. Cocoa, cashew and oil palm are the main cash crops that are planted on the land. Different types of rocks exist in the municipality; these include pre cambrianbirrimian and tarumian formations. Two major rivers exist in the municipality namely, the Goa and the Ayum. Numerous forms of smaller streams also exist.

Figure 4.1 Map of Asunafo North Municipality



Source: RS/GIS LAB, University of Ghana

4.1.8 Climate and Vegetation

The municipality has a wet semi-deciduous climatic condition. The municipality experiences a substantial amount of rainfall. Their annual rainfall experience is between 1250mm and 1750mm. They experience major rainfall in April and July with minor rainfall occurring between September and October. 25.5 degree Celsius is the mean monthly temperature that the municipal experiences.

The vegetation in the municipality is characterized by tall trees with evergreen undergrowth and has an abundance of economic trees. There are also scattered patches of broken forest, this is due to the activities of the farmers, Lumbers, and settling in the forest by peasant farmers.

4.1.9 Population Size, Structure, and Composition

According to 2010 population and housing census, the total population of Asunafo North municipality is 124,685, which represents about 5.4% of the overall Brong Ahafo population. Males constitute 50.4% and females constitute 49.6%. About 60% of the total population lives in rural areas of the municipality. The youth has a higher population in the municipality which constitutes 41.8%.

4.1.10 Economic Potentials

The main occupation in the municipality is farming. Crop production is the main agriculture activity in the municipal. The type of farming in the municipal is mainly mixed cropping with maize, cassava, plantain, cocoyam, yam, and vegetables being the main crops cultivated whilst Cocoa and Cashew are the cash crops that are produced in the municipal. There also exist numerous industries in the municipality which include Mim cashew processing factory, small-scale palm oil extraction, soap making, Batik tie and dye industries etc. The main market day in the municipality which gives the assembly a huge sum of revenue is the Wednesday market.

4.2 The estimated model and econometric approach

4.2.1 The GLSS 6 Estimation

The secondary data used in the analysis was obtained from the round six of Ghana living standards survey. The round six of the Ghana living standard survey (GLSS 6) is a nationwide household survey design to generate information on living conditions in the country. The survey covered a period of twelve months from 18th October 2012 to 17th October 2013. Data on Susu (a general term for “small small” savings, which ROSCA is part) was used as a proxy for ROSCA.

A linear probability model (LPM) estimation was run. This approach was employed to demonstrate the relationship between accounts that are held in ROSCA and accounts that are held by the formal financial institutions. Notwithstanding the types of formal financial institutions (banks), these accounts are held. Data on commercial banks and rural banks were used as proxies to represent the formal financial institutions that the accounts are held. Savings accounts and fixed deposit accounts, on the other hand, were also used as proxies for the accounts held in these institutions. Individual characteristics such as sex, age, marital status, education were controlled for.

Apart from the individual characteristics, the linear probability model (LPM) estimation combines three major questions. First, respondents were asked “In what financial institution is (NAME) account or contribution being held?” secondary, what type of account is (NAME) account being held?

A diagnostic test was run to check and control for heteroskedasticity and multicollinearity in the ordinary least squares estimation. And checking for heteroskedasticity both the white' test and the Breusch pagan test were run. Vif command in stata was also used in checking the multicollinearity.

The Linear probability model specification which is similar to what Kurtz (1973) used in his analysis of ROSCA is given below:

$$\text{HROSCA} = \alpha_0 + \alpha_1 \text{sex} + \alpha_2 \text{age} + \alpha_3 \text{marital_} + \alpha_4 \text{educ} + \alpha_5 \text{com_bank} + \alpha_6 \text{rur_bank} + \alpha_7 \text{sav_acc} + \alpha_8 \text{fixed_dep} + \varepsilon_t \dots \dots \dots (1)$$

Where

α_0 Is the general intercept, $\alpha_1 \dots \dots \alpha_8$ are coefficients. ε_t is the white noise error term. The dependent variable HROSCA is a dummy variable which represents accounts held in Susu scheme (a general term for “small small” saving up in which ROSCA is part). HROSCA equals one (1) when respondent’s account is held in Susu scheme and zero (0) if otherwise. This variable was obtained when respondents were asked: “in what financial institution is (NAME) account or contribution being held?”

- Sex is a dummy variable which represents either the respondent is a Male or Female (sex equals one if the individual respondent is a male and zero if female).
- Age is a continuous variable which represents the age (in years) of respondents.
- Marital_ is a dummy variable which represents the marital status of individual respondents (marital status equal one if the individual is married and zero if otherwise).
- Educ is a dummy variable which represents the educational qualification of the individual respondents (educ equals one if individual has acquired no formal education and zero if otherwise)
- Com_bank represents respondents who held their accounts or contribution in a commercial bank.

- Rur_bank represents respondents who held their accounts or contributions in the rural banks.
- Sav_acc represents respondents who held savings accounts in these banks.
- Fixed dep represents respondents who held fixed deposit accounts in these banks.

Table 4.1 A Priori Expectations of the GLSS6 Variables

Variable	Description	A priori Expectation
Sex	Sex of respondents (Dummy; 1=male, 0= female)	+/-
Age	Age of respondents (Number of years)	+
Marital_	marital status of respondents (Dummy; 1=married, 0=otherwise)	+
Educ	educational background (Dummy;1= no formal educ0=otherwise)+	
Com_bank	accounts held in commercial banks	-
Rur_bank	accounts held in rural banks	-
Sav_acc	savings accounts held in formal institutions	-
Fixed dep	fixed deposit accounts held in formal institutions	-

The expected signs of sex, age and education were based on the theoretical postulations by Adams and de Sahonero (1989) and Handa and Kirton (1999). And also the expected signs of accounts held in formal financial institutions and accounts held in ROSCA were based on the theoretical postulations by kedir et al. (2005).

4.2.2 The Primary Data Estimation

The researcher also supported the GLSS 6 analysis with the primary data by employing a binary probit model. The dependent variable (Y) was obtained when respondents were asked “why did you join the association?” the dependent variable (Y) took the value of one (1) if an individual participant joined the association because it shortens the time period he/she could have wait in case he was to save alone thereby making him/her better-off and zero if otherwise. The model specification is given by

$$\Pr (Y= 1) = \Phi (\beta_0 + \beta_1 sex + \beta_2 age + \beta_3 Marital_ + \beta_4 educ_lev + \beta_5 emp_stat + \beta_6 income + \beta_7 amount_s + \beta_8 access + \beta_9 account + \beta_{10} valuable) \dots\dots\dots (2)$$

Where,

- Φ is the commutative distribution function for the standard normal.
- Sex is a dummy variable which represents either the person is a male or female (sex equals one if the participant is a female and zero if otherwise).
- Age is the age of individual participants.
- Marital_ is a dummy variable which represents the marital status of the participant (marital_ equals to one if the individual participant is married and zero if otherwise).
- Educ_lev is a dummy variable which represents the educational level of individual participants (educ_lev equals one if individual participants' level of education is low or if participants have no formal education and zero if otherwise).

- Emp_stat is a dummy variable which represents the employment status of individual participant (emp_stat equals one if the individual participant is unemployed and zero if otherwise).
- Income represents the income status of the participants.
- Amount_s represents the amount saved out of income.
- Access is a dummy variable which represents individual's access to the formal financial institution.
- Account is a dummy variable which represents whether the individual participant has an account with a formal financial institution or not (account equals one if the individual has an account with a formal financial institution and zero if otherwise).
- Valuable is a dummy which represents whether the individual has a valuable asset or not. This is also to tell us if the participant is rich or poor. Those with valuable assets were regarded as rich since assets measure permanent income and those without valuable assets were regarded as being poor. (Valuable equals one if respondents has valuable assets and zero if otherwise).

Therefore,

$$Z = \beta_0 + \beta_1 \text{sex} + \beta_2 \text{age} + \beta_3 \text{Marital_} + \beta_4 \text{educ_lev} + \beta_5 \text{emp_stat} + \beta_6 \text{income} + \beta_7 \text{amount_s} + \beta_8 \text{access} + \beta_9 \text{account} + \beta_{10} \text{valuable} \dots\dots\dots (3)$$

- β_1 is the change in Z-value as a result of the ROSCA participant being a female, holding all other factors constant and thus increasing or decreasing the Pr (Y=1) depending on the sign.

- β_2 is the change in Z-value as a result of a unit change in the age of participants, holding all other factors constant and thus increasing or decreasing the Pr (Y= 1) depending on the sign.
- β_3 is the change in Z-value as a result of ROSCA participant being married, holding all other factors constant and thus increasing or decreasing the Pr (Y=1) depending on the sign.
- β_4 is the change in z-value as a result of ROSCA participant having a low or no level of education, holding all other factors constant and thus increasing or decreasing the Pr (Y=1) depending on the sign.
- β_5 is the change in z-value as a result of a ROSCA participant being unemployed, holding all other factors constant and thus increasing or decreasing the Pr (Y=1) depending on the sign.
- β_6 is the change in z-value as a result of a unit change in the income of ROSCA participants, holding all other factors constant and thus increasing or decreasing the Pr (Y=1) depending on the sign.
- β_7 is the change in z-value as a result of a change in amount save out of participants income, holding all other factors constant and thus increasing or decreasing the Pr (Y=1) depending on the sign.
- β_8 is the change in z-value as a result of a ROSCA participant having access to formal financial institutions, holding all other factors constant and thus increasing or decreasing the Pr (Y=1) depending on the sign.
- β_9 is the change in z-value as a result of a participant having an account with a formal financial institution, holding all other factors constant and thus increasing or decreasing the Pr (Y=1) depending on the sign.

- β_{10} is the change in z-value as a result of a participant having valuable asset(s), holding all other factors constant and thus increasing or decreasing the Pr (Y=1) depending on the sign.

Table 4.2 A priori expectation of the variables

Variable	A priori expectation
Sex	+
Age	-
Marital_	+
Educ_lev	+
Emp_stat	-
Income	-
Amount	+
Access	-
Account	-
Valuable	-

There was a qualitative analysis on people who are more likely to participate in ROSCA. This was based on the individual characteristics of the participants such as sex, marital status, educational background, employment status, access to formal financial institutions, participants who have valuable assets, participants who receive financial assistance from elsewhere with their respective frequencies and percentages.

There was also a qualitative analysis regarding operations of ROSCA. This was based on questions that participants were asked based on the organizational structure and the degree of formality. which include the criterion for allocating the pot, how often they meet, whether the rotation changes after first round, whether money collected are spent by participants, whether the association is registered, whether the association has written rules, whether the governing body is elected, whether penalties are associated with not attending meetings, whether participants have bank accounts, the type of account held by the participants with other formal financial institutions, whether there can be a change in the order of rotation when participants are in need and finally the major problem facing the association.

Marginal Effects Estimations

Marginal effects is a measure of the instantaneous effect that a change in a particular explanatory variable has on the probability when the other covariates are held constant. Marginal effects show the change in probability when the predictor or independent variable increases by a unit. Thus in order to give proper interpretation of the effect of explanatory variables on the dependent variable, marginal effect was computed using STATA version 13.

CHAPTER FIVE

ANALYSIS OF EMPIRICAL RESULTS

5.1 Introduction

The results of the study are analysed in this chapter. This includes the relationship between accounts held in ROSCA and the various forms of accounts held in the informal financial institutions, the relationship between savings that are held in ROSCA and savings that are held in formal financial institutions in Ghana. It also includes a probit model that predicts the probability that ROSCA constitute a Pareto superior allocation as a determinant of ROSCA participation in Ghana. A qualitative analysis based on formality and characteristics of ROSCA participants was also considered.

5.2 GLSS6 analysis

The thesis employed the Ghana living standards survey (GLSS) 6 in its analysis. The GLSS6 is a nationwide household survey designed to generate information on living conditions in the country.

5.2.1 The Data

The data set used for the study is the 2012/2013 Ghana Living Standards Survey (GLSS 6). The variables of interest of the study are found in the GLSS 6. The summary is done by cross-tabulating the variables with the residence dummy to examine the presence of rural and urban differences.

The GLSS 6 captures 1,200 enumeration areas and 18,000 households which are a nationally representative sample. 16,772 out of the 18,000 households were enumerated successfully which represents a response rate of 93.2 percent.

Information was collected in details on the demographic characteristics of households, education, health, employment, housing conditions, household agriculture, income, expenditure among others.

Table 5.1 Summary Statistics of Data Used

Variables	Frequencies	Percentages
Sex		
Male	35,055	48.56
Female	37,317	51.56
Marital status		
Married	20,171	41.10
Consensual union	3,064	6.24
Separated	918	1.87
Divorced	1,410	2.87
Widowed	2,855	5.82
Never married	20,660	42.10
Educational background		
No formal education	24,213	47.89
Attain formal education	26,345	52.11
Is account held in Sus scheme(proxy for ROSCA)		
Yes	1,408	51.31
No	1,336	48.69
Is account in Commercial Bank?		

Yes	5,407	88.09
No	731	11.91
Is account in rural bank?		
Yes	2,959	72.10
No	1,132	27.90
Does name have savings account?		
Yes	7147	94.76
No	395	5.24
Does name have fixed deposit account?		
Yes	58	3.91
No	96.09	96.09

Source: GLSS 6 data set

In respect of the demographic characteristics of the GLSS data set used, females constituted 51.56% (n=37,317) and males constituted 48.56% (n=35,055). Respondents who were in couple or married constituted 41.10% (n=20,171), 6.24% (n=3,064) were in consensual union, separated constituted 1.87% (n=918), with divorce and widowed being 2.87% (n=1,410) and 5.82% (n=2,855) respectively. Respondents who have never married constituted 42.10% (n=20,660). Out of the participants who answered the question associated with the highest level of education attained, 52.11% (n=26,345) have attained some portion of formal education with 47.89% (24,213) being Respondents who have not receive any form of formal education. Again respondents were asked whether their accounts are held in Susu scheme (a proxy for ROSCA). Those who held their account in Susu scheme constituted 51.31% (n=1,408). Those who had their accounts held in commercial banks constituted 88.09% (n=5,407) whereas those who held their account in rural

banks constituted 72.10% (n=2,959). Those who hold savings accounts and fixed deposit accounts constituted to 94.76% (n=7,147) and 3.91% (n=58) respectively.

5.2.2 Diagnostics Tests

5.2.2.1 Test for Multicollinearity

The table 5.2 below shows the variance inflation factor which is used to diagnose multicollinearity in the model. As the rule of thumb says, a variable whose VIF values are greater than ten (10) may merit further investigation. From the table, since VIF values for all the variables are less than ten (10) or since $1/\text{VIF}$ values are less than 0.1, the model is said to be free from collinearity. Thus none of the independent variables relate to each other.

Table 5.2 : Variance Inflation Factor Table

Variable	VIF	1/VIF
1.sex	1.05	0.954554
Age	1.21	0.824235
1.marital_	1.19	0.838855
1.educ	1.05	0.953546
com_bank	1.91	0.524514
rur_bank	1.84	0.544578
sav_acc	1.28	0.77962
fixed_dep	1.02	0.981519
Mean VIF	1.32	

5.2.2.2 Test for Heteroskedasticity

The tests below show White's test and the Bruech pagan test for heteroskedasticity respectively. The tests are against the null hypothesis that, there is no heteroskedasticity (That is the variance of the error term is constant) in the model and the alternative hypothesis of heterogeneity. According

to the White's test, since the p-value for the heterogeneity is highly significant we reject the null hypothesis of no heteroskedasticity and accept the alternative hypothesis of the presence of heteroskedasticity. Also, with the Breuch pagan test since the prob value is 0.0000 and is highly significant, we reject the null hypothesis and conclude that the variance of the model is not constant. Therefore we estimate a robust standard error OLS to correct the heteroskedasticity content in the model.

Table 5.3: Cameron & Trivedi's decomposition of IM-test

Source	chi2	df	p
Heteroskedasticity	547.93	36	0.0000
Skewness	170.68	8	0.0000
Kurtosis	41.64	1	0.0000
Total	760.26	45	0.0000

Breusch-Pagan/ Cook-Weiberg test for heteroskedasticity

Ho: constant variance

Chi2(1) = 1475.00

Prob > chi2 = 0.000

Since both the white test and the Bruech pagan test for heteroskedasticity depicts that the model doesn't have constant variance, the best estimation to cater for the heteroskedasticity is to run a robust standard error OLS.

Table 5.4 depicts the robust standard OLS showing the relationship between accounts held in Susu scheme (a proxy for ROSCA) and accounts held in formal financial institutions.

Table 5.4 robust OLS estimation.

VARIABLES	(1) HROSCA
1.sex	0.0284** (0.0124)
Age	0.000287 (0.000466)
1.marital_	-0.0208 (0.0138)
1.educ	-0.0884** (0.0362)
com_bank	-0.217*** (0.0234)
rur_bank	-0.193*** (0.0232)
sav_acc	0.120*** (0.0155)
fixed_dep	-0.0815*** (0.0292)
Constant	2.634*** (0.0892)
Observations	1,320
R-squared	0.271

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The constant term (2.634) is statistically significant and signifies the value of accounts held in ROSCA when all the independent variables are zero.

Sex, with males being the reference variable is significant at 5% in explaining accounts held in ROSCA in Ghana. Thus as the number of males increases, the number of accounts that are held in ROSCA increases holding all the other variables constant. Ages and marital status, on the other hand, are not statistically significant in predicting accounts that are held in ROSCA.

Education is statistically significant at 5% in explaining accounts held in ROSCA. A unit increase in illiterates in Ghana will cause the probability of accounts held in ROSCA to reduce by 0.0884. Thus people with no educational background reduce accounts held in ROSCA.

Accounts held by commercial banks and rural banks are statistically significant in explaining the probability of accounts held in ROSCA. Accounts held in these two financial institutions are inversely related to accounts held in ROSCA in the informal sector. A unit increase in an account held in commercial banks will lead to (0.217) decrease the probability of accounts held in ROSCA. And a unit increase in accounts held in rural banks will lead to (0.193) decrease in accounts held in ROSCA. Hence these two institutions are substitutes to ROSCA due to the inverse relationship. This confirms the assertion by Kedir (2005) that ROSCA savings and bank savings (meaning the two are substitutes) and also violates the proposition by Lasagni and Lolle (2011) that ROSCAs are neither substitute nor complement with formal financial institutions.

Savings accounts and fixed deposit accounts held by the formal financial institutions significantly explain accounts held in ROSCA. A unit increase in savings accounts held by the formal financial institutions will lead to an increase in the probability of accounts held in ROSCA by (0.120) and

a unit increase in fixed deposit accounts held in the formal financial institution will lead to a decrease in the probability of account held in ROSCA by (0.0815).

5.3 PRIMARY DATA ANALYSIS

Apart from using the Ghana living standards survey (GLSS) 6, the thesis employed primary data in its attempt of achieving its main objective.

5.3.1 Summary Statistics Primary Data Set used.

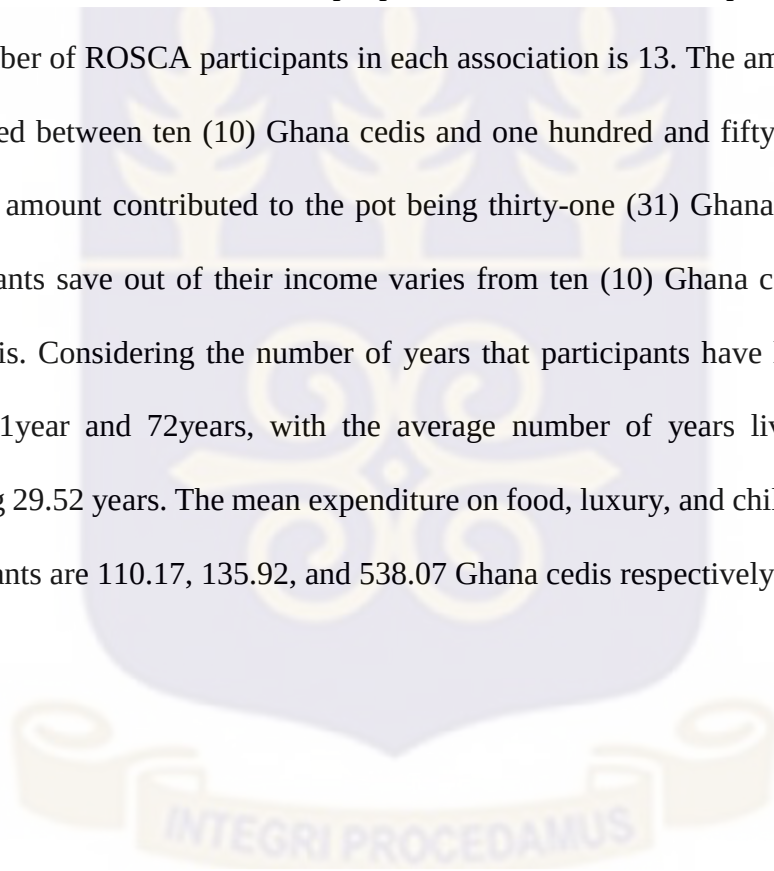
Table 5.5 Basic information

Variable	Obs	Mean	Std. Dev.	Min	Max
Age	400	36.7175	11.15319	17	80
no_child	400	4.2375	2.071672	1	10
Income	400	526.175	485.1314	40	2000
amount_s	400	104.665	115.7117	10	600
no_respo	400	25.0125	13.81247	5	52
amount_c	400	43.875	31.09706	10	150
Distance	213	7.171362	6.427203	1	40
years_li	400	29.52	15.07025	1	72
food_exp	400	110.1725	57.38768	20	400
luxury_e	373	135.9249	119.6405	10	780
sch_fees	311	538.074	807.5209	10	5000

Source: field survey, 2017

Table 5.5 reports the summary statistics of some basic characteristics of ROSCA participants. Out of the 400 participants that were interviewed, the minimum age of the respondents was 17 years with the maximum age being 80 years. The mean age was reported to be 36.72 years with a standard deviation of 11.15 years. The number of children of participants/number of people in

participants household range between one (1) and ten (10), with the average number of children and standard deviation being 4 people and 2 people respectively. The minimum monthly income that ROSCA participants receive is 40 Ghana cedis with 2000 Ghana cedis being the maximum monthly income received by ROSCA participants. The average income of the 400 participants was recorded to be 526 Ghana cedis with the standard deviation of 485 Ghana cedis. The 400 ROSCA participants were asked what their total number was in their association. Upon answering, it was observed that the minimum number was 5 people and the maximum is reported to be 52 people. The average number of ROSCA participants in each association is 13. The amount contributed at each period ranged between ten (10) Ghana cedis and one hundred and fifty (150) Ghana cedis with the average amount contributed to the pot being thirty-one (31) Ghana cedis. The amount ROSCA participants save out of their income varies from ten (10) Ghana cedis to six hundred (600) Ghana cedis. Considering the number of years that participants have lived in the area, it ranges between 1year and 72years, with the average number of years lived in the area by participants being 29.52 years. The mean expenditure on food, luxury, and children school fees by ROSCA participants are 110.17, 135.92, and 538.07 Ghana cedis respectively.



5.3.2 probit estimation

A probit model which is similar to what Varadharajan (2004) used in his analysis of ROSCA.

The dependent variable took the value of one (1) if respondents join the association due to its Pareto superior allocation and zero if otherwise.

Table 5.6 probit regression

Why ROSC	Coef	std. Err	p>z
Age	0.0131938	0.0270168	0.625
Sex	-0.343009	0.6285642	0.956
Marital_	2.929124	0.8540669	0.001
Educ_lev	5.003173	1.049289	0.000
Emp_stat	3.641996	0.9019385	0.000
Income	-0.002045	0.0006618	0.002
Amount_s	0.010330	0.0026165	0.000
Access	0.294524	0.6356313	0.643
Account	-0.419420	0.5876568	0.475
Valuable	-0.631783	0.5160093	0.221
_cons	-11.4809	2.887353	0.000

Source: field survey

Table 5.7 Marginal Effect from the Probit Estimates

VARIABLES	(1) y1
Age	0.000396 (0.000808)
Sex	-0.00102 (0.0189)
marital_	0.0878*** (0.0219)
educ_lev	0.150*** (0.0169)
emp_stat	0.109*** (0.0192)
Income	-6.13e-05*** (1.71e-05)
amount_s	0.000310*** (6.05e-05)
Access	0.00883 (0.0190)
Account	-0.0126 (0.0175)
Valuable	-0.0189 (0.0149)
Observations	400

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: Field survey, 2017

Table 5.6 above shows the results of the Probit model. The Probit model was used to analyse why respondents participate in ROSCA. The dependent variable took the value of one if respondents join the association because it shortens the time period they would have wait in case they were to

save alone thereby making each of them better off with the exception of the last one in the rotation who will be indifferent and zero if otherwise.

Participants' access to formal financial institutions was used as a measure of whether the participant lives in a rural area or an urban area in the municipality. Those who had access to formal financial institutions were classified as living in the urban areas in the municipality and those who don't have access to formal financial institutions were classified as participants who live in the rural areas of the municipality. Again, participants were asked whether they have valuable assets or not. Since assets measure one's permanent income level, respondents who answered yes were regarded as not being poor and those who answered no were regarded as being poor. With educational level, respondents were asked what their highest level of education was. Those with secondary/vocational, HND/diploma, university, and professional qualification were classified as highly educated participants and those with no education and primary/JHS/middle were regarded as no or low level of education.

Age, sex, whether participants have valuable assets and whether participants have accounts with formal financial institutions were not statistically significant, however, marital status, educational level, employment status, income levels, the amount saved out of income were statistically significant.

Marital status, educational level, employment status, the amount saved out of income have a positive influence on the probability of predicting the superiority of ROSCA as a determinant of ROSCA participation. Income, on the other hand, has a negative influence in predicting Pareto superiority of ROSCA as a determinant of ROSCA participation. The Pseudo R^2 of 0.9093 implies

that about 90.93% of the variation in the decision to join ROSCA because of its Pareto superior allocation is jointly explained by the explanatory variables.

Marital status is significant at 1% and it indicates that, when ROSCA participant is married, the probability that he/she joins ROSCA due to the fact that the association shortens the time period he/she could have wait in case they were to save alone thereby making each of them better off with the exception of the last one in the rotation who will be indifferent is explained by marital status. The marginal effect of marital status indicates that 1% increase in participants who are married will increase the probability of joining ROSCA due to its Pareto superior allocation by 8.78%.

Educational level is also significant at 1% and it indicates that, ROSCA participants who have no or low level of education are more likely to join the association due to its Pareto superior allocation. The marginal effect of educational level on the other hand indicates that 1% increase in ROSCA participants who have acquire low or no level of formal education will increase the probability of joining ROSCA due to its Pareto superior allocation by 15%.

Employment status and amount saved out of participants' income are all significant at 1%. The marginal effect of employment status and amount saved out of participants' income indicates that when ROSCA participant is unemployed and the amount he/she saves out of his/her income increases by 1%, the probability that he/she joins ROSCA due to its superior allocation will increase by 10.9% and 0.031% respectively.

Finally, incomes of ROSCA participants are also significant at 1% and have a negative influence on predicting the superiority of ROSCA as a determinant of ROSCA participation. The marginal effect of income indicates that a unit increase in ROSCA participant's income will decrease the decrease the probability of joining ROSCA due to its superior allocation by 3.72.

Sex, age, whether individual participants have account with formal financial institutions or not, whether participants have valuable assets or not (rich or poor) and the probability that they join the association due to the fact that it shortens the time period they would have to wait in case they were to save alone, thereby making all of them better off with the exception of the last person on the rotation are independent. Thus whether the individual participant is a child, youth or aged doesn't predict his/her vulnerability of joining the association because it gives Pareto superior allocation. Again, either the individual is a male or female doesn't predict his vulnerability of joining the association because it gives Pareto superior allocation. Finally, living in the rural or urban area and being rich or poor doesn't predict your vulnerability of joining the association due to its Pareto superior allocation.

5.3.3 Qualitative analysis of ROSCA participants

One of the qualitative analysis was based on why people join ROSCA. Respondents were given options to choose from which include; because it shortens the time period they would wait in case they were to save alone, because there is no formal financial in their community, because it serves as insurance, because they don't have collateral to secure loan from formal financial institution and others.

Table 5.8 Reasons Why Respondants Join ROSCA

Variable	Frequency	Percentage
Why did you join the Association		
Because it shortens the time period I would wait in case I was to save alone	287	71.75
Because there is no formal financial institution in my community	41	10.25
Because anytime I am in need and it's not even my turn in the rotation, I can be given the pot	54	13.50
Because I don't have collateral to secure loan from the formal financial institution	16	4
Others	2	0.50
Total	400	100

Source: field survey 2017

In Table 5.8 above, respondents were asked: “Why did you join the association”. The options open to them were, because it shorten the time period the respondent would wait in case he/she was to save alone, because there is no formal financial institution in respondent’s community, because anytime they are in need and it’s not even their turn in the rotation they can be given the pot, because they do not have collateral security to secure loan from the formal financial institutions. Finally, respondents who did not see any of the reasons to be their prime reason for joining the association were to select the “others” and indicate their main reason if others.

Out of the 400 respondents interviewed 71.75% (n=287) joined the association because it shortens the time period they would wait in case they were to save alone. 10.25% (n=41) joined the association because they do not have any formal financial institutions in their community. Also, 54 respondents representing 13.50% joined the association because anytime they are in need and it's not even their turn in the rotation, they can be given the pot. Sixteen (16) participants representing 4% joined because they don't have collateral security to secure a loan from the formal financial institution, with two (2) participants having other reasons apart from the four reasons.

5.3.3.2 Characteristics of ROSCA participants

In achieving one of the specific objectives, the characteristics of ROSCA participants were reviewed.

Table 5.9 Characteristics of ROSCA Participants

Variables	Frequency	Percentage
Sex of respondents		
Male	107	26.75
Female	293	73.25
TOTAL	400	100
Marital status of respondents		
Married	301	75.25
Single	86	21.5
Divorce	8	2
Widow	5	1.25

TOTAL	400	100
Highest level of education of respondents		
Highly education	86	21.5
Low or no level of education	314	78.5
TOTAL	400	100
Employment status of respondents		
Employed	65	16.25
Unemployed	335	83.75
TOTAL	400	100
Criterion for allocating the pot		
Balloting	281	70.25
Lottery	117	29.25
Bidding	2	0.5
TOTAL	400	100
How often respondents meet		
Weekly	309	77.25
Monthly	91	22.75
TOTAL	400	100
Respondents access to formal financial institution		
Yes	269	67.25
No	131	32.75
TOTAL	400	100
Do you have valuable assets		

Yes	173	42.25
No	227	56.75
TOTAL	400	100

Do you receive financial assistance elsewhere

Yes	233	58.25
No	167	41.75
TOTAL	400	100

Relationship with the person

Husband	124	53.22
Wife	10	4.29
Friend	22	9.44
Relative	77	33.05
TOTAL	233	100

Do you have account with formal financial institution

Yes	215	53.75
No	185	46.25
TOTAL	400	100

Can there be change of order in time of need

Yes	386	96.5
No	14	3.5
TOTAL	400	100

Change of order of rotation after each round

Yes	343	85.75
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No	57	14.25
TOTAL	400	100

Registration of the Association

Yes	77	19.25
No	323	80.75
TOTAL	400	100

Are there any written rules governing your association

Yes	250	62.5
No	150	37.5
TOTAL	400	100

Are there any penalties associated with not attending ROSCA meeting

Yes	388	97
No	12	3
TOTAL	400	100

Source: field survey 2017

It can be discerned from 5.9 that, females constitute a greater portion of ROSCA participation. The results demonstrate that majority of the respondents 73.25% (n=293) are females whilst 26.75% (n=107) are males. This indicates that indeed females are more likely to participate in ROSCA than males. This confirms the assertion made by Gugerty (2007) and Varadharajan (2004) that females are more likely to participate in ROSCA than males and disagrees with the assertion by Dagnelie and Lemay (2005) that, males are more likely to participate in ROSCA than females.

In Table 5.9 above also gives the marital status of the 400 ROSCA participants interviewed. The majority of the participants are married. The percentage of participants who are married constituted

75.25% (n=301), those who are single constitute 21.5% (n=86) whilst 2% (n=8) and 1.25% (n=5) goes for divorce and widowed respectively. This confirms the findings by Varadharajan (2004) and Sandsør (2010) that married individuals are more likely to participate in ROSCA.

Respondents were asked what their highest level of education was. It can be ascertained in Table 5.9 that, those with no level of education and primary/middle/JHS were regarded as having low or no level of education. On the other hand, participants with secondary/vocational, HND/diploma, university and professional education were regarded as being highly educated. From the table, those with no or low level of education constitute the majority 78.5% (n=314) of ROSCA participation whilst those with high level constituted 21.5% (n=86). This confirms the conclusion made by Sandsør (2010) that, ROSCA participants are less likely to acquire higher education. However, it disagrees with the findings by Lasagni and Lollo (2011) that ROSCA participants are highly educated.

Table 5.9 above also shows the employment status of the ROSCA participants. Participants who are unemployed constitute the greater proportion of ROSCA participation. Out of 400 ROSCA participants, 83.75% (n=335) are unemployed and do not receive any fixed amount of salary every month. But they are into farming, learning a trade, petty trading, and store keeping. However, those who had white colour jobs constituted 16.25% (n=65).

Table 5.9 above also depicts the criterion used in the disbursement of ROSCA funds to its members. 70.25% (n=281) indicated that the criterion for their disbursement of fund to its members is through balloting, whilst 29.25 (n=117) indicated that they used lottery as their major criterion for disbursement. 0.5% (n=2) indicated they use bidding as their criterion for disbursement of the fund. Based on the available data, it was found out that most of the rotating savings and credit

associations' use balloting as their main criterion of disbursement of the fund as claimed by Owusu et al. (2013).

Respondents were asked how often they carried out their ROSCA meetings. The closed-ended options included daily, weekly, bi-weekly and monthly. It can be ascertained from Table 5.9 that, out of the 400 respondents, 77.25% (n=309) indicated that their ROSCA meetings are carried out on weekly basis whilst 22.75% (n=91) indicated that their meetings are carried out on monthly basis. No respondent indicated their meetings to be daily and bi-weekly. This is to conclude that most of the rotating savings and credit associations meet on weekly basis to contribute to the pot.

Table 5.9 also shows individual participants access to formal financial institutions. Those who have access to these institutions were classified as participants who live in the urban centres of the municipality and those without access were classified as those who live in the rural areas of the municipality. From the table, it can be seen that out of the 400 ROSCA participants, 67.25% (n=269) lived in the urban areas of the municipality whilst 32.75% (n=131) lived in the rural areas of the municipality. This gives an indication that people living in urban areas are also more likely to participate in ROSCA as indicated in the GLSS 6 report. It also confirms the assertion by Lasagni and Lollo (2011) that, ROSCA participation in urban villages are higher than ROSCA participation in rural villages and also confirms the postulation by Handa and Kirton (1999) that, ROSCA participants are not credit constrained as postulated by Besley et al.,(1993,1994).

Table 5.9 above also depicts the results when ROSCA participants were asked whether they have valuable assets. Assets as a measure of permanent income were used to measure the wealth of the participants. Those who answered yes are classified as not being poor and those who answered no are classified as being poor. Poor participants constitute the majority 56.75% (n=227) whilst rich

participants constitute 43.25% (n=173). This confirms the assertion by Dagnelie and Lemay (2012), and Varadharajan (2004) that, poor people are more likely to participate in ROSCA.

In Table 5.9, out the 400 ROSCA participants interviewed, the majority 58.25% (n=233) receive financial assistance elsewhere. Whilst 41.75% (n=167) receive no financial assistance from anybody. This is to say that, people who participate in ROSCA receive extra financial support from other sources.

Table 5.9 above also shows the relationship that exists between the 233 ROSCA participants who receives financial assistance elsewhere. Greater proportion 53.22% (n=124) receive the financial assistance from their husbands, 33.05% (n=77) receive their financial support from their close relatives whilst 4.29% (n=10) and 9.44% (n=22) receive their financial supports from wife and friends respectively. This confirms the assertion by Gugerty (2007) that, married women are more likely to participate in ROSCA.

Table 5.9 again demonstrates that a greater proportion of the ROSCA participants have an account with formal financial institutions. Out the 400 participants interviewed, 53.75% (n=215) have an account with formal financial institutions, whilst 46.25% (n=185) do not have an account with any formal financial institutions. This is an indication that most of the people who have an account with formal financial institutions are also ROSCA participants. This confirms the claim by Handa and Kirton (1999) that ROSCA participants are not credit constrained.

In Table 5.9, 96.5% (n=368) answered yes to the question, "in the case of need, can a participant change his/her order of rotation". Whilst the remaining 3.5% (n=14) answered no. This supports the insurance motive of joining ROSCA postulated by Besley et al. (1992) and confirms the

conclusion by Sandsør (2010) that, ROSCA helps in pooling resources to help participants who are in need.

Respondents were also asked whether their association changes the order of rotation after each round. Table 5.9 also shows clearly the response of the respondents. Out of the 400 ROSCA participants, 85.75% (n=343) of the people answered yes whilst the remaining 14.25% (n=57) answered no. This is an indication that most of the ROSCA groups reverse their order of rotation after each round. This confirms the assertion by Sandsør (2010) that most of the ROSCA groups change their order of rotation after each round of the life of the association.

It can be observed from Table 5.9 that, out of the 400 respondent interviewed, 80.75% (n=323) ROSCA participants reported that their association is not registered, whilst 19.25% (n=77) also reported that their association has been registered. This means that majority of the ROSCA groups operate in the illegal sense as concluded by Sandsør (2010).

Respondents were asked whether they have written rules governing the association. Table 5.9 depicts the response of respondents. Out of the overall ROSCA participants, 62.5% (n=250) answered yes, whilst 37.5% (n=150) responded no. This is an indication that, most ROSCA groups have written rules governing their association.

According to Table 5.9, out of the 400 ROSCA participants, 97% (n=388) answered yes to the question "Are there any penalties associated with not attending meetings", whilst 3% (n=12) answered no. this gives an indication that most of the ROSCA groups have penalties associated with not attending meetings which confirm the findings by Sandsør (2010).

5.4 Conclusion

It can be ascertained from the analysis that, accounts held by formal financial institutions (commercial and rural banks) are substitutes to accounts held in Sus schemes (a proxy for ROSCA) in the informal sector. As savings accounts held in these formal institutions increase, accounts held in ROSCA also increase. So, this is to say two are complements. From the field survey analysis, the majority of ROSCA participants join the association because the association shortens the time period they would wait in case they were to save alone.



CHAPTER SIX

SUMMARY OF FINDINGS

6.1 Introduction

This chapter presents the summary of results discussed in chapter five, conclusion and recommendations of rotating savings and credit associations in Ghana.

6.2 Findings

The Pareto superior dimension of rotating savings and credit associations in Ghana have been investigated under the following objectives; (i) examine the relationship between accounts that are held in ROSCA and savings accounts held in formal financial institutions in Ghana (ii) examine whether formal financial institutions and ROSCAs are substitutes or compliments in Ghana (iii) examine the various characteristics of participants who join ROSCA due to its Pareto superior allocation in Ghana.

A linear probability model was used to estimate the relationship between accounts held in ROSCA, accounts held in formal financial institutions (savings and fixed deposit accounts) and formal financial institutions (commercial banks and rural banks). Sex, age, marital status, and education background were controlled for. It was found that sex and education statistically explain accounts held in ROSCA. It was also found that commercial banks and rural banks are all substitutes to accounts held in ROSCA. Savings accounts held in formal institutions were seen to have a positive relationship with ROSCA in the informal financial institution and finally, fixed deposit accounts had a negative relationship with accounts held in ROSCA in the informal institution.

A probit model was used to predict the probability that an individual joins ROSCA due to its Pareto superior allocation. There was a pseudo R^2 of 0.9093, which implies that about 90.93% of the

variation in the decision to join ROSCA due to its Pareto superior allocation was jointly explained the explanatory variables.

Marital status, educational level, employment status, and the amount saved out of income were significant at 5%, 1%, 1%, and 1% respectively. They also exhibited a positive relationship with the probability of joining ROSCA due to its Pareto superior allocation. This is to say that ROSCA participant who are married, who have low or no level of education, who are unemployed and participants who save more of their income are more likely to join ROSCA due to its Pareto superior allocation. Income of ROSCA participants was also significant at 5% significance level but have a negative influence on the probability of joining the association due to its Pareto superior allocation. However, age sex, participants who have access to formal financial institutions and participants who have valuables assets are independent in predicting the probability of joining ROSCA due to its Pareto superior allocation.

Out of the 400 participants, the youngest participant was recorded to be 17years old with aged being 80years. The minimum number of children/number of people in participants household was one (1) and the maximum was ten (10). The monthly income that participants receive ranges between 40 Ghana cedis and 2000 Ghana cedis and the amount they save out of their income ranges between 10 Ghana cedis and 600 Ghana cedis. The minimum number of ROSCA participants recorded was 5 with 52 participants being the maximum number of people in one ROSCA group. The number of years one has lived in the community was between 1year and 72years.

Out of the 400 participants, females constituted 73.25% whilst males constituted 26.75%. Married participants in the overall participation were 301 out of 400 (i.e. 75.25%) whilst the rest were

shared among singles, divorced and widowed. Participants with low levels of education constituted 78.5% and those that are highly educated constituted 21.5%. among the participants, those that are unemployed constituted (83.75%). 70.25% of the participants interviewed use balloting as their criterion for disbursement of the pot, 29.25% use lottery and 0.5% uses bidding. weekly ROSCA constituted 77.25% whilst the rest goes for monthly ROSCA. None of the contributions were carried out on weekly basis. 67.25% among the 400 ROSCA participants have access to formal financial institutions whilst 32.75% don't have access to formal financial institutions. 56.75% of the participants reported that they do not have valuable assets, whilst 43.25% reported that they have valuable assets. 53.75% recorded that they have accounts with formal financial institutions. 96.5% of the 400 participants responded that there can be a change of order in time of need and 85.75% also responded that there is a change of order after every successful round. 97% responded yes to the question "Are there any penalties associated with not attending meeting"

6.3 Conclusion

There is an inverse relationship between accounts that are held in Susu in the informal sector (a proxy for ROSCA) and fixed deposit accounts held in Ghana and a positive relationship with savings accounts. Again, savings that are held in ROSCA have an inverse relationship with savings held in commercial banks and rural banks. That is to say, savings in ROSCA and savings in formal financial institutions are substitutes. This confirms the assertion by Kedir (2005) that a positive relationship exist between ROSCA savings and bank savings (meaning the two are substitutes).

Married participants, no or low educational level ROSCA participants, unemployed participants, low-income participants and participants who save more out of their income are more likely to participate in ROSCA due to its Pareto superior allocation.

Females are more likely to participate in ROSCA in Ghana. Married couples, on the other hand, are also more likely to be ROSCA participants than singles, divorced and widows. People who are less educated are prone to joining ROSCA than highly educated people in Ghana. People who are unemployed and do not have regular sources of income are more likely to be ROSCA participants. In Ghana the main criterion for disbursement of ROSCA fund is balloting. Most of the ROSCA participants in Ghana have accounts with formal financial institutions. Poor people in Ghana are also more likely to participate in ROSCA. Participants who fail to attend ROSCA meetings receive fund punishment and most of the rotation is being reversed after a successful completion of each round. The problem of default is on the other hand on a minimal pace.

6.4 Recommendations

It was observed from the findings that majority join the association because it shortens the time period they would wait in case they were to save alone and also, ROSCAs are substitutes to formal financial institutions. ROSCA serves as a source of insurance for its participants and it also improves the well-being of the poor. The major problems that ROSCA participants face include defaults of participants and irregular meeting attendance.

It is recommended that ROSCA participants who have access (participants living in urban sectors) to formal financial institutions, participants who have accounts at formal financial institutions, participants who are rich and aged participants should be educated on how ROSCA constitutes its Pareto superior allocation.

6.5 limitations of the Study

This thesis does not include a test for endogeneity in its diagnostics test due to unavailability of proper instrumental variables for the study. Also with the GLSS6 analysis actual data on ROSCA were not captured and finally, due to financial, time constraint, non-response, prevalence rate and design effect, only 400 ROSCA participants were interviewed for the study in support of the GLSS6 analysis.



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APPENDIX

INDIVIDUAL QUESTIONNAIRE

Code:

Name of respondent:

Date of interview:

Checked by:

Dear Sir/Madam,

I am doing a survey on the fact that, ROSCA shortens the time period individuals would have waited in case they were to save alone thereby making them strictly better off, as the main motive for joining ROSCA in Ghana, as part of my academic research work. The data I collect will be only used for research purposes and will help come up with policy recommendations to improve benefits from ROSCA in the country. I hope that you will be free to provide me with true and accurate data and information. Please feel free to ask any questions or raise any issues you might have. I hope that I can come back to give the results of these surveys to your group, both for your information and your further inputs. Thank you for your participation.

INSTRUCTION: PLEASE TICK THE APPROPRIATE RESPONSE TO EACH OF THE QUESTIONS BELOW.

A. PERSONAL DETAILS OF RESPONDENT

1. Age of respondent

.....

2. Sex : ☐ Male ☐ Female

3. Marital status

☐ married ☐ Widowed

☐ single

☐ Divorced

4. What is your highest level of education?

- ☐ No education
- ☐ primary/Middle/JHS
- ☐ Secondary/vocational
- ☐ HND/Diploma
- ☐ university
- ☐ professional qualification

5. Ethnicity affiliation

- ☐ Ashanti ☐ Ga-Adangbe
- ☐ Fanti ☐ Ewe
- ☐ Bono
- ☐ Other

Other, please specify.....

6. Religious Affiliation

- ☐ Christianity
- ☐ Islamic
- ☐ Traditional
- ☐ others

Specify if others.....

7. Are you the head of your household?? ☐ Yes ☐ No

8. Number of children/persons in the family?

.....

9. Are you employed?

- ☐ Yes
- ☐ No

10. If No to question (9), what do you do for a living?

- ☐ farming
- ☐ learn a trade
- ☐ petty trading
- ☐ store keeper

☐ work in the wood industry

☐ others

Specify if others.....

B. SAVINGS BEHAVIOR

11. How much do you approximately earn a month?

.....

12. Do you save out of your income?

☐ Yes

☐ No

13. What proportion of your income do you save?

.....

14. Are you a member of a rotating savings and credit association?(If no, answer question 15 and skip to question 33)

☐ Yes

☐ No

15. If no to question (14), why is that the case?

.....
.....
.....

16. Why did you join the association?

☐ because it shortens the time period I would have wait in case I was to save alone for my purpose.

☐ because there is no formal financial institution in my community

☐ because anytime I am in need and it's even not my turn on the rotation, I can be given the pot.

☐ because I don't have collateral security to secure loan from formal financial institutions

☐ other

Other, please

specify.....
.....

17. How many are you in this association?

.....

18. What is the criterion for allocating the pot?

☐ balloting ☐ Bidding

☐ lottery ☐ others

If others, specify.....

19. How often do you meet?

☐ Daily ☐ weekly

☐ monthly ☐ yearly

☐ Others

Specify, if others.....

20. How much do you contribute to the pot in each period?

.....

21. Have you ever experienced defaulting of a participant?

☐ Yes

☐ No

22. If yes to question (21), what measures have you put in place to avoid default?

☐ initiating membership fee which will be repaid after the rotation.

☐ initiating punishment against participants who defaults.

☐ sanction defaulters from future ROSCAs

☐ others

Specify if others.....

23. Do you have access to formal financial institution?

☐ yes

☐ no

24. In the case of need, can a participant change his/her order of rotation?

☐ yes ☐ No

25. Does the order of rotation change after the first round?

☐ Yes

☐ No

26. Is your association registered?

☐ yes

☐ No

27. Do you have written rules governing the association?

☐ Yes

☐ No

28. Do you have a governing body?

☐ Yes

☐ No

29. Are there any penalties associated with not attending meetings?

☐ Yes

☐ No

30. Does your association have any major problem(s)?

☐ Yes

☐ No

31. If question (30) is yes, what is the major problem facing your association?

☐ leadership and rivalry

☐ money and theft

☐ irregular meeting attendance

☐ some members do not obey the rules

☐ others

Specify if others.....

32. How did you know about the association?

- ☐ through friends
- ☐ through neighbours
- ☐ through relatives
- ☐ others

Specify if others.....

33. Do you have an account with any formal financial institution? (if No, answer question 35 and skip to the next section)

- ☐ yes
- ☐ No

34. If yes to question (33), why is that the case?

- ☐ because it is more convenient to have an account with formal financial institution
- ☐ because money saved in formal financial institutions attract interest.
- ☐ holding an account with formal institutions is safer.
- ☐ others

Specify if

others.....
.....
.....

35. If No to question (33), why is that the case?

- ☐ because I have not acquired any formal education
- ☐ because I don't have enough money to be keeping some in the bank
- ☐ due to high transaction cost associated with bank transactions
- ☐ others

Specify if

others.....
.....
.....

36. Specify the form of financial institution?

- ☐ commercial Bank
- ☐ Rural Bank
- ☐ credit union

☐ savings and loans

☐ others

Specify if others.....

37. How easy do you get access to your formal financial institution?

☐ very easy

☐ Easy

☐ don't get easy access at all

☐ Difficult

☐ very difficult

38. What is the distance from your house to your formal financial institution? (state in kilometers)

.....

39. What type of account do you hold with this institution?

☐ savings account

☐ current account

☐ susu account

☐ fixed deposit account

C. OTHER QUESTIONS

40. Do you have any valuable asset?

☐ Yes

☐ No

41. If yes to question (40), what is the value of your assets? (state in figures)

.....

42. How long have you been living here? (state in years)

.....

43. Do you receive any financial assistance from anybody? (if No skip to question 46)

☐ Yes

☐ No

44. How do you relate to this person?

☐ husband

☐ wife

☐ friend

☐ relative

☐ others

Specify, if others

45. Is the person employed?

☐ Yes

☐ No

46. How much do you spend on food every week? (state in figures)

.....

47. How much do you approximately spend on luxury every month? (state in figures)

.....

48. How much do you approximately spend on you children school fees every term?

(If participants have kids)

.....

Answer question 49 to 52 if you are a ROSCA participant and you also have an account with a bank.

49. Where do you mostly take your loans from?

☐ From ROSCA

☐ from my bank

☐ others

Specify if others.....

50. If you take your loans from ROSCA, why is that the case?

☐ because there is no interest attached to credits from ROSCAs.

☐ because I don't need to present any collateral before obtaining the loan

☐ because no legal documentation is required.

☐ because I bare low transaction cost.

☐ because it is easy to acquire loans from ROSCA.

☐ Others

Specify if
others.....
.....

51. If you take your loans from the bank, why is that the case?

- ☐ because ROSCA cannot provide the required amount I need
- ☐ because it is difficult to change the order of rotation in my association.
- ☐ because loans from banks can be spread out over a long period of time.
- ☐ others

Specify if others.....

52. Why do you hold account in both ROSCA and bank?

.....
.....
.....
.....



SOME ROSCA GROUPS IN THEIR VARIOUS MEETINGS.







