

# **An Analysis of the Profitability of Savings Groups in South Africa**

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## **ABSTRACT**

This research investigated the factors that determine the profitability of Savings Groups in South Africa using the Ordinary Least Squares model (OLS). Over the years, savings groups have increased their reach within the rural poor in South Africa who are often not reached by financial services. Financial inclusion has been a topical issue in South Africa over the past two decades due to the legacy created by apartheid, which deliberately excluded much of the population from economic participation.

Specifically, the research analysed savings groups specific factors such as number of members in a group, savings as a percentage of loans outstanding, average annualised savings per member, total savings among others and how they affect profitability which is proxied by, return on assets (ROA) and return on savings (ROS). The sample data was made up of purely of secondary data from 31 projects representing 3477 Savings Groups in South Africa, that with a total membership of approximately 66 911 and was extracted from the Savings Groups International Exchange (SAVIX), an international data platform. The data used was annualised cross-sectional data.

The main findings were that, total number of members (TNM) and total assets (TA), are positive and significant in explaining return on assets (ROA), while total number of groups (TNG), and total savings (TS) are negative and significant in explaining return on assets (ROA). When return on savings (ROS) was used instead as a dependent variable, total number of members, and total assets remained positive and significant in explaining return on savings. Total number of groups, total savings, total value of outstanding loans, dropout rate and average number of members per group were all significant but negative in explaining return on savings. All other variables were insignificant for both dependent variables.

Return on assets and return on savings were both adopted as profitability measures in the study to cater for the possible differences in constitution of the two variables. Also considering that the research was based on savings groups, it was deemed suitable to see if the independent variables posed any significant effect on the core business of the groups, which is savings. The study contributes to the currently limited literature on profitability of savings groups. The results show that there could be some factors that can be manipulated to enhance the profitability of savings groups hence the results can inform policy formulation and regulation. The results also give an indication that some of the factors that affect the profitability of banks may also be the same for savings groups.

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## **GLOSSARY OF TERMS**

AASPM	Average Annualised Savings per Member
AASPM_GNI	Average Annualised Savings per Member as a Percentage of GNI per Capita
ANPG	Annual Number of Members per Group
AOLS_GNI	Annualised Outstanding Loan Size
AR	Attendance Rate
AVLOPM	Average Loans Outstanding per Member
ANMPG	Average Number of Members per Group
ANMWLO	Average Number of Members with Loans Outstanding
CARE	Cooperative for Assistance and Relief Everywhere
DR	Dropout Rate
LFUR	Loan Fund Utilisation Rate
OLS	Ordinary Least Squares
PLO	Percentage of Loans Outstanding
PMLO	Percentage Members with Loans Outstanding
POWM	Percentage of Women Members
ROA	Return on Assets
ROS	Return on Savings
ROSCA	Rotating Savings and Credit Associations
SARB	South African Reserve Bank
SAVIX	Savings Groups Information Exchange
SEEP	Small Enterprise Education and Promotion Network
SPLO	Savings as a Percentage of Loans Outstanding
SE	Standard Error
SG	Savings Groups

TA	Total Assets
TNG	Total Number of Groups
TNM	Total Number of Members
TVLO	Total Value of Loans Outstanding
TS	Total Savings
VIF	Variance Inflation Factor
VSLA	Village Savings and Loan Association

Age Refers to the number of months a Savings Group has been in operation.

Field Officer This refers to a paid field agent

Village Agent refers to community-based trainers.

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## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background of the Study Research Area

Many of the people living in developing countries are categorised as poor and are often excluded from mainstream financial services. This is because there is a low number of financial institutions that are available to serve them effectively, and where the institutions do exist, they have a suite of products that does not necessarily address the needs of the poor (Hendricks & Chidiac, 2011). In efforts to ensure that financial inclusion does not remain a pipe dream for those at the bottom of pyramid, various state and non-state actors across the world have initiated programmes to ensure that the poor can access financial services. A notable example of such is CARE International's Savings Groups development programme which was initiated in remote Niger in 1991. The formation of these Village Savings and Loan Associations is premised upon the fact that households, particularly women-led households, find avenues to not only borrow, but more importantly, save (Hendricks & Chidiac, 2011).

Due to being financially excluded, the poor do not have access to banks, loans, mortgages, insurance or other pertinent financial services (Finscope, 2016). The extent of this financial exclusion is estimated at 88% for Sub Saharan Africa. The case of South Africa is, however, different in that about 77% of its population is said to be banked. Existing research indicates that most bank account holders in South Africa keep them for transactional purposes, either withdrawing all their funds as soon as their grants are paid in, or transferring their salaries in the case of those that are employed (Finscope, 2016).

In South Africa, some of the factors that have led to the exclusion of the poor from formal financial services include high transaction costs, the need for documentation, distance from financial institutions and low-income levels. The poor have thus often resorted to "omatshonisa", loan sharks who lend money at unbearably high interest rates, thereby putting their lives and that of their families at stake because the debts become difficult to pay back (Kessler et al., 2016.).

This research report is designed to analyse the profitability of Savings Groups in South Africa and the factors that determine their profitability. Understanding the performance and profitability of savings groups is important because of the following reasons (King & Levine 1993):

- It helps ensure that institutions live or exist for a long time and effectively provide long-term services to the poor;
- It is a critical indicator to regulators, researchers, policy-makers and shareholders in steering the industry in the desired direction;
- The ability to access finance is said to play a critical role in contributing to economic development and growth by channelling resources from those in surplus to those in deficit in an efficient manner;
- Above all, access to finance is critical to ensuring that the much-needed capital for starting and growing businesses, as well as the reduction of unnecessary transaction costs, is available.

Similar studies have been conducted in Mali, Zanzibar, Rwanda and Kenya among other African countries (Karlan, Savonitto, Thuysbaert, & Udry, 2017; Ksoll, Bie, Helth, & Dahl, 2016; Malkam, 2015; Rasmussen, 2012). Other research has also been conducted to analyse the sustainability, performance and profitability of Savings and Credit Cooperatives and this research will replicate that. The report begins by giving an overview of Savings Groups in South Africa, followed by the objectives of the study, research questions, an overview of the methodology, significance of the study, definition of terms and finally, an outline of the chapters that follow the introduction chapter.

## **1.2. Context of the Study**

Savings Groups are said to be key to economic and social development as they provide a means through which financial resources are channelled between savers and borrowers (Burlando & Canidio, 2017). Over the years, Savings Groups have increased their reach within the rural poor in South Africa who are often not reached by financial services. The model of Savings Groups follows that of CARE International which was pioneered in Niger in the 1990s (Ashe & Neilan, 2014).

Financial inclusion has been a topical issue in South Africa over the past two decades due to the legacy created by the apartheid system, which deliberately excluded much of the population from economic participation, and the attendant need to reverse and/or remedy what was in essence an institutionalised form of exclusion. Despite this, South Africa prides itself on having a well-organised and established financial system, with financial inclusion estimated to be about 77% (Finscope 2016). This is because many people in South Africa own bank accounts, even though these are mainly used for transactional purposes. The Boston Consulting Group report of 2017 shows that informal channels, such as loan sharks, stokvels and funds from friends and family, constitute a bigger share of the credit market compared to formal credit channels. Unsecured personal credit is reported to be growing faster than GDP, with credit in South Africa often aimed at consumption and immediate gratification rather than productivity (Kessler et al., 2017). It is therefore imperative to have profitable savings groups which can provide an alternative intermediary role between savers and borrowers, thus increasing sources of finance for the most vulnerable. Savings groups have emerged as a powerful tool for bridging the financial gap and poverty alleviation by increasing financial access to the poor.

### **1.3 Problem Statement**

South Africa boasts a well-developed financial system, with financial inclusion estimated to be 77%. This accounts for the adult population that has some form of a bank account. However, approximately 60% of transactions in South Africa are conducted in cash as people tend to withdraw all their funds from the bank, thus maintaining the accounts for formal payments such as salaries, grants and income from relatives. The rural population in South Africa remains under-served and excluded from mainstream banking. This is due to:

- the distances one must travel to access a formal banking facility
- the potentially exorbitant cost of establishing financial institutions in outlying areas.

Savings Groups can therefore play a crucial role between savers and borrowers for such financially excluded populations.

Savings Groups are crucial to economic growth and development (Ashe & Neilan, 2014). Evidence from randomised Savings Group research suggests that savings groups lead to improved standards of living and ensure a proper balance between spending and saving during the different phases of life. The groups also improve food security, livestock holding and increase the culture of saving and borrowing (Ksoll, Lilleor, Lonborg, & Rasmussen, (2015); Beaman, Karlan, & Thuysbaert, (2014); Gash & Odell, (2013).

This research seeks to assess the profitability of Savings Groups in South Africa. Given the potential that lies in financially excluded masses at the bottom of the pyramid, it is essential to determine if Savings Groups are, indeed, profitable. This information may be useful to development agencies, the private sector, impact investors, banks and other financial institutions, as well as the government. The study will interrogate and inform whether Savings Groups are a model of financial inclusion that should be encouraged in South Africa and provide insight into how governments and funders can partner with them for the development of not only South Africa but other countries as well.

Unsustainable microfinance institutions might bring short-term solutions to the poor but not necessarily help them in the long-term as they will be non-existent in the future (Schreiner, 2000). It may be the same case with Savings Groups. It is, therefore, imperative to have profitable Savings Groups because profitability contributes to sustainability. If Savings Groups are not profitable then there may be no need for them to continue hence bringing about need for other sustainable solutions.

## **1.4 Research Questions, Objectives**

### **1.4.1 Research Questions**

- How profitable are Savings Groups in South Africa?
- What are the factors that determine the profitability of Savings Groups in South Africa?

### **1.4.2 Research Objectives**

- To estimate the profitability of Savings Groups in South Africa.

- To examine the factors that influence the profitability of Savings Groups in South Africa

## **1.5 Significance of the Study**

In South Africa, various studies have been done focusing on the social impact of Savings Groups. However, there are no studies which specifically look at the profitability of Savings Groups and the factors that contribute to their profitability. This study focused on identifying the factors that determine Savings Group profitability as well as analysing how profitable the groups are.

Economic strategists view microfinance as an important tool in improving access to finance and tackling micro-level financial exclusion. Savings groups are increasingly becoming a key economic tool for those who, ordinarily, may be excluded from the mainstream financial system (Ashe, Jeffrey; Neilan & Jagger, 2014). Over the years, Savings Groups have increased their reach in South Africa, particularly among the rural poor who are often not reached by financial services. Tackling the problem of financial exclusion has also been a topical issue for South Africa, with one way in which this problem can be remedied being through savings groups.

The study findings may provide insight to policy makers on the current landscape of Savings Groups in South Africa. It is hoped that development agencies, non-profit making organisations and government, as well as other support institutions, may get ideas on how Savings Groups can be made more efficient, profitable, sustainable and attractive within the country. Analysing the profitability of Savings Groups is also important in helping to monitor and control their performance and improve productivity and profitability.

The study will address the literature gap on whether Savings Groups are profitable and sustainable in Africa and South Africa, as well as the factors that contribute to their profitability; and be a stepping stone for further studies related to Savings Groups profitability.

## **1.6 Assumptions of the Research**

**In conducting the study, it is assumed that:**

- i. The data provided on the SAVIX platform is accurate
- ii. The definition of Savings Groups is the same
- iii. Reporting and Accounting standards for Savings Groups in South Africa are uniform and the definition and composition of revenue is the same.

## **1.7 Organisation of the Research**

The research is made up of five chapters. Chapter 1 introduces the study, gives the context of the study, outlines the problem statement and research questions, lays out the study objectives and research justification, and outlines the assumptions on which the study is based. Chapter 2 reviews literature on the study and contributes to existing knowledge in the area. Chapter 3 outlines the research methodology, highlighting the method employed, the data choice, the study sample, validity and reliability of the data, and also spelling out the study limitations. Chapter 4 discusses the research results and, finally, Chapter 5 concludes the study and outlines recommendations for future research.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter begins by explaining financial inclusion based on the understanding that Savings Groups are a tool to ensure financial inclusion, with any discussion on these groups being incomplete without mentioning it. The explanation also highlights the nature of financial inclusion in South Africa. This is followed by an overview of the informal financial system in the country of research, as well as a background on Savings Groups and their operations thereof. A brief explanation of SaveAct's Savings Group model is provided based on the understanding that SaveAct is one of the main promoters of Savings Groups in South Africa. A discussion of profitability theories as well as determinants of Savings Group profitability then follow as related to commercial bank, microfinance institutions and savings and credit cooperatives findings.

#### **2.2 Financial Inclusion**

Financial inclusion is defined as the process through which formalised, and quality financial services can be obtainable and reachable to the poor at minimal cost (Demirgüç – Kunt, Klapper, Signe & Van Oudheusden, 2015; Hanning & Jansen 2010; Triki & Faye 2013). Formal financial services are defined as those provided by formal financial institutions like banks or insurance companies. Financial inclusion has been a topical subject over the years because of the successful financial inclusion models implemented across the globe. Of note is the Bangladesh Grameen Bank success story. The bank was founded by Mohammed Yunus in 1976, who was awarded the Nobel Peace Prize of 2016 owing to his great work on ensuring financial inclusion (Grameen Bank, 2016). Yunus effectively developed the microfinance concept with his Grameen Bank throughout Indonesia and the concept spread to the whole world (Yunus, 1999).

### **2.2.1 Financial Exclusion**

Financial exclusion has been classified into four broad categories; banking, saving, credit and insurance exclusion (European Commission, 2008)

- Banking exclusion is the incapacity of people to make transactions through formal banking institutions;
- Savings exclusion is about people not having access to opportunities to save for retirement;
- Credit exclusion is when market conditions restrict ordinary citizens from accessing formal credit services;
- Insurance exclusion refers to the inability and lack of capacity for people to access risk management related services because of selection criteria that does not allow a certain demography of people to access them, or other issues that may prevent access to insurance.

Hanning & Jansen (2010) classify exclusion into two broad categories i.e. voluntary and non-voluntary exclusion. They postulate that voluntary exclusion is out of people's free will because of several reasons, while non-voluntary exclusion is a result of systemic and cultural challenges that create a barrier for a certain group of people to access formal financial services.

Financial inclusion aims to reduce or remove the barriers that lead to non-voluntary financial exclusion. Triki & Fake (2013) as well as Demirgüç-Kunt et al (2015) assert that financial inclusion contributes to both financial inclusion and ensuring inclusive growth as well as reducing income inequality. They purport that if people can access credit, they are able to better their circumstances financially, which leads to poverty reduction. Further, the literature shows that access to financial services can lead to improved household welfare due to increased capacity to purchase assets, increased potential to be productive and increased capacity to manage risks (Akpanjar, Quartey & Abor (2013); Wongwe (2004).

Savings Groups are an important tool for ensuring financial inclusion. In some cases, rural access to financial services is difficult and savings groups enable people in these outlying areas access to some financial products and services. Savings Groups also have the potential of serving those that may be left out and not served by formal financial institutions owing to their credit history and sources of income (Department of Trade and Industry, 2012).

### **2.2.2 Financial Inclusion in South Africa**

At a glance, South Africa seems to be more financially inclusive compared to other emerging markets. Approximately 77 % of adults in South Africa have transaction accounts despite the gaps that prevent financial inclusion (Finscope, 2017). The Boston Consulting Group report of 2016 highlights that South Africa is mainly a cash society, with 60% of transactions made in cash. Of the people with bank accounts, only 24% make more than three monthly transactions such as withdrawals, transfers or card purchases (Kessler et al., 2017) .

Those at the bottom of the pyramid are cautious of bank charges and, as a result, still shy away from financial services. There is, therefore, a need for radical changes to operating models for financial institutions in South Africa in order to make more progress towards inclusion. Savings Groups provide an innovative way in which this can be achieved.

Poor households lack access to formal credit because of a lack of knowledge about the financial sector, as well as the high cost of short-term borrowing and the inevitable lack of collateral due to their limited asset base. The high cost associated with establishing formal financial institutions in rural areas thus automatically excludes the poor rural people from the formal financial services market. The risk associated with poor households also makes it impossible for them to access credit as financial institutions usually prefer fewer and large high-return loan disbursements as these tend to be more profitable for them and less risky (Mashigo & Schoeman , 2012). Informal channels are more prevalent in South Africa as people resort to loan sharks (omatshonisa), grassroots credit unions (stokvels)family and friends for credit than formal institutions (Finscope, 2016).

South Africa was ranked 149<sup>th</sup> out of 162 countries in its ability to convert wealth into wellbeing in the 2016 Sustainable Economic Development Assessment. Basic financial services including general transactions, credit, insurance and savings are essential elements to prosperity at household and national level. There is need for adoption of services to be coupled with the usage thereof for sustainability for both consumers and service providers (Kessler et al., 2017).

The property and casualty insurance market is still underdeveloped, while most people have some form of burial and funeral cover (Kessler et al., 2017). There is also a very poor saving culture in South Africa, with the long-term savings rate estimated to be the lowest in Africa, and even less than half that of India (WOCCU, 2016), a damning indictment for arguably Africa's most industrialised nation.

### **2.3 The Nature of the Informal Finance Sector in South Africa**

The most popular form of savings groups in South Africa is *Stokvel* or '*mohodisanas*'. The term "Stokvel" denotes various common benefit or savings societies which are structured more like rotating savings and credit associations (ROSCAs), which are common all over the world, their system usually country specific. Stokvels emerge mostly in areas where there is limited or no access to formal financial services, just like various community-based self-help organisations that develop in societies that are economically disadvantaged (Lukhele, 2018). There are over 800 000 stokvels in South Africa, with an estimated market value of about R45billion and a combined membership of over 11 million people. Research also shows that the majority of stokvels in South Africa spend collected funds on consumables, the most common type being grocery clubs, birthday clubs as well as funeral and money clubs (Lukhele, 2018).

Verhoef (1999) classifies stokvels as informal rotating and savings associations or ROSCAs. Schulze (1997) explains that the word "stokvel" was derived from cattle auctions or stock fairs that used to be held by English settlers in the nineteenth century. Black farmers and workers would attend these stock fairs to exchange produce and news. As the get-togethers became more frequent in some black communities, they ceased to be linked to stock fairs and transformed into general informal social gatherings called stokvels.

The South African Reserve Bank defines a stokvel as a formal or informal rotating credit scheme with entertainment, social and economic functions which (South African Reserve Bank, 2010);

- i. Is basically comprised of members who have sworn mutual support to each other with an aim of achieving specific set goals;
- ii. Creates a constant pool of capital by mobilising funds through subscriptions from its members;

- iii. Extends credit to its members and on their behalf;
- iv. Allows members to nominate their own management as well as share profits from their operations;
- v. Depends on self - constructed rules to guard the interests of members;
- vi. The South African Reserve Bank stipulates that stokvels are not financial institutions. What makes them different is the communal tie between members thereby ensuring requisites for accomplishment are upheld namely discipline, a high level of trust and a low rate of default on their agreed contributions.

Besides stokvels, other forms of informal financial institutions in South Africa include Savings Groups which are also known as Village Savings and Loan Associations (VSLAs).

## **2.4 The Theory of Savings Groups**

Savings Groups are community based financial institutions that pool together member funds and operate over a stipulated period, usually nine to twelve months, which is called a cycle. Village Savings and Loan Associations are the most common type of Savings Groups and these were pioneered by CARE International in 1991 (Burlando, Canidio, & Selby, 2016).

Savings Groups date back to 1991 when Moira Ekenes and her team at CARE International developed the first Savings Group in remote Niger (Ashe & Jagger, 2014). The Bill and Melinda Gates Foundation helped boost the growth of these groups several decades later when they invested in the initiative. The growth in the Savings Groups field attracted more funders like the Mastercard Foundation and the United State Government Development Agency (USAID). Leading International organisations such as Oxfam America, Catholic Relief Services, Freedom from Hunger, Plan International, Pact, The Aga Khan Foundation among others, have prioritised the development and promotion of Savings Groups in their development strategies. The growth in Savings Groups has been phenomenal, with over 10 million members located in over 100,000 villages in about 65 nations served by these (Ashe & Jagger, 2014).

Microfinance programmes which are savings-oriented work in poor and marginalised rural communities in developing countries to start groups that save within themselves as well as transfer funds from excess units to deficit units for a return on their savings. Savings Groups are presently enabling financial access to over 10 million households across the globe. Evidence from a randomised sample of three African countries - Ghana, Malawi and Uganda - shows that savings groups promotion results in improved household outcomes and the empowerment of women (Karlan et al, 2017). Many non-governmental organisations have adopted the savings group model to ensure financial access to the poor improving on the model of ROSCAs, working parallel to efforts to develop formal micro savings and microcredit products for the poor (Karlan et al., 2017)

Savings Groups are made up of 15 to 40 members who meet weekly, to save with and borrow from the group during a period of nine to twelve months which is referred to as a cycle (Burlando et al., 2016). Savings Groups resemble savings, credit and capital generating clubs as well as funeral associations (Nkonyane & van Wyk, 2012; Verhoef 2002). They avail a variety of financial services to poor households thereby contributing to survival and meeting of needs as they arise. According to Ashe & Jagger (2014) Savings Groups are a game-changing financial innovation tool that easily reaches the poor, especially considering that formal financial institutions find it difficult to profitably reach the poor.

Burlando et al (2016) also noted that there is a high risk, with Savings Groups, of the supply of funds not meeting the demand, which may lead to loan rationing that in turn can compromise a group's potential to generate profit. After randomly assigning to varied groups constituting of people from various backgrounds demographically and financially, it was found that wealthier groups have the capacity to raise more loanable funds which are then loaned out to poor group members compared to poorer groups.

#### **2.4.1 Savings Groups Operations**

##### **Formation**

Savings groups are usually established through a trainer or field officer-led process. They gather possible participants in the community then explain the Savings Group's function and then allow any members of the community who may be keen on forming a Savings Group to go through a period of training, after which a group list is drawn and operation begin. The

minimum number of participants a group can have is 15, while the maximum is 40 participants. Community based organisations and non-governmental organisations that specialise in financial intermediation are usually the ones that employ trainers. In some cases, experienced members become trainers and form groups in nearby communities (Burlando et al., 2016).

### **Governance and Management**

Group operations are usually administered through a constitution which is formulated and accepted at the first group meeting after the completion of training. The constitution outlines the rules, savings cycle length, the rate of interest to be charged on loans, acceptable savings amounts, the sizes and likely uses of the insurance fund. Groups also usually implement a wide range of policies and procedures that direct the running of meetings, decision making, voting processes, meeting attendance rules, and set penalties and fines that sanction those that may violate the rules. A chairperson, treasurer and other officials that can get up to five are selected to lead the groups' operation (Burlando et al., 2016).

### **Savings**

Each member saves with the group by way of purchasing shares at the beginning of each weekly meeting. A member can purchase up to five shares at any meeting and the value of shares indirectly enforces the maximum amount that an individual can save in a group. Therefore, unlike with Rotating Savings and Credit Associations (ROSCAs) where contributions are fixed, in Village Savings and Credit Associations (VSLAs), members have the liberty to decide how much they can save a week. Savings deposits are recorded in a group ledger and in an individual savings booklet. A metal safe box is used to keep all cash collections and is only opened during group meetings for transparency and accountability purposes. Group members are not allowed to withdraw their savings before the end of a cycle which is usually nine to 12 months. (Burlando et al., 2016).

### **Borrowing**

All collected funds are kept in a safe box and are extended to group members as interest bearing loans. Loans to individuals are extended based on three conditions: first, the group must be agreeable to the proposed use of the loan; second, the maximum size of the loan is pegged at three times the savings accumulated by the borrower at the time of requesting the loan; and lastly, the total loan issued should not exceed the cash available in the safe box. As

such, given these conditions, savings groups have the capacity to give various loan amounts to several group participants at the same time. Interest on the principal amount is compounded monthly and the maximum loan period is three months so as to allow other group members who may desire to borrow funds to do so. Once one has paid back their loan amount, they are eligible to borrow again. To enable accumulation of funds, borrowing only begins three months into the cycle and ends three months before the end of the cycle. All outstanding loans are also repaid three months before the end of the cycle in preparation for share-out (Burlando et al., 2016).

The last meeting is devoted to the share-out; the content of the safe box is emptied and divided among members of the group in a way that is proportional to the amount each person saved. A new cycle is eventually started and at the beginning of the new cycle the group composition may change (Burlando & Canidio, 2017).

## **2.5 Comparison to other Financial Institutions**

Savings Groups are similar to several financial institutions in both developing and developed countries (Burlando et al., 2016). Savings and Credit Cooperatives (SACCOs) and Rotating Savings and Credit Associations (ROSCAs) are examples of such.

### **2.5.1 SACCOs**

Savings Groups are more like Savings and Credit Cooperatives in that they enable formal lending among the membership (Burlando et al., 2016). Savings Groups are, however, less flexible than SACCOs. They also operate on short a cycle which limits capital accumulation. Memberships for Savings Groups are quite small, ranging between 15 and 40, and with Savings Groups, members cannot withdraw their accumulated savings before the end of the cycle. Savings Groups also have predetermined interest rates for all loans to be made during a cycle (Burlando et al., 2016). Despite the limitations presented by Savings Groups, SACCOs in South Africa constitute a very small share of the market with a current membership of about 30,000 (WOCCU, 2016), compared to Savings Groups that have a representation of over 3,400 groups and over 60,000 members (SAVIX, 2018).

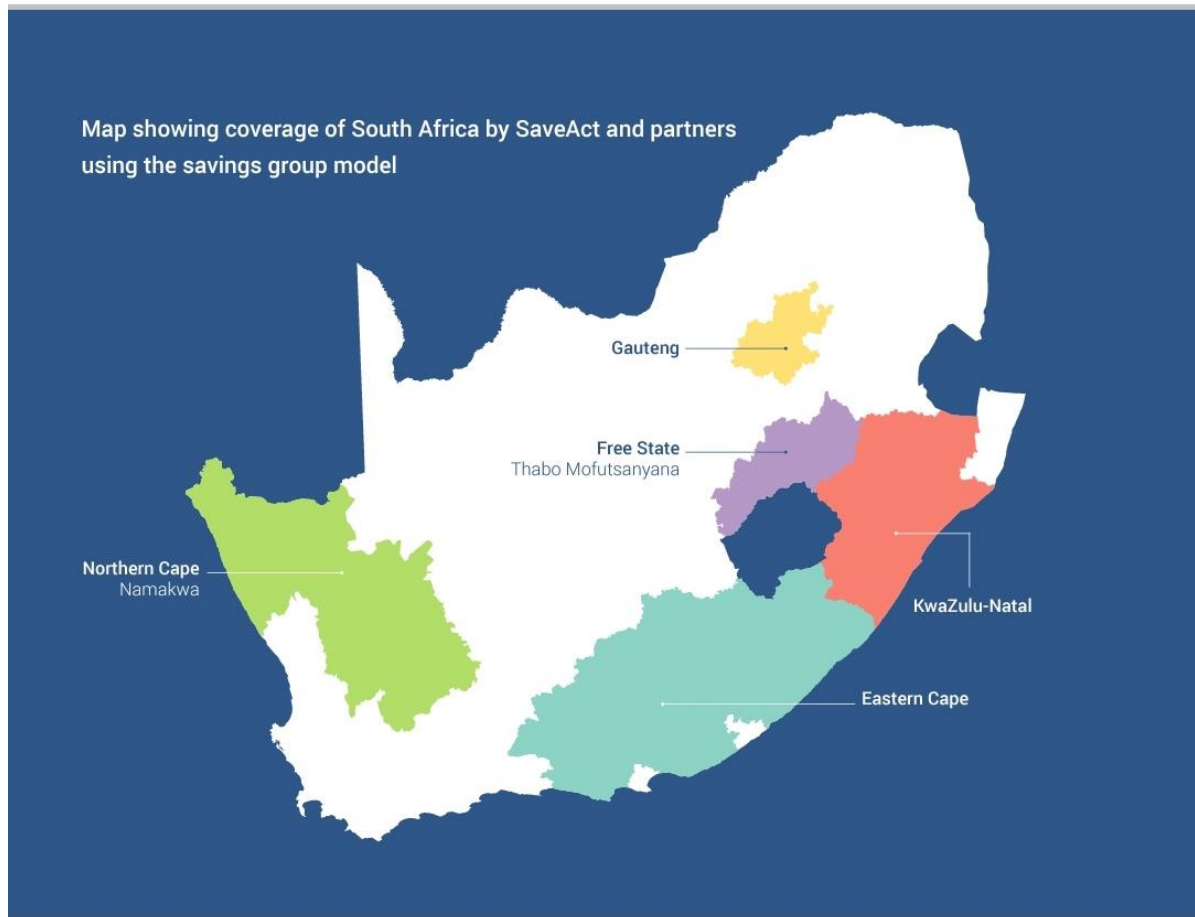
### **2.5.2 ROSCAs**

Besides credit unions, Savings Groups are often compared to Rotating Savings and Credit Associations (ROSCAs) and self-help groups. Just like Savings Groups, ROSCAs collect member savings on a weekly or monthly basis and avail the savings to be borrowed by the participant. Rotating Savings and Credit Associations (ROSCAs), however, do not have the metal safe for storage of funds or books for bookkeeping purposes. Savings Groups also tend to be more flexible in their accumulation and usage of funds - they do not insist on consistent amounts being saved always, and they also allow for various members to borrow at the same time without fixing amounts to be loaned out (Burlando et al., 2016).

### **2.6 SaveAct's Savings Group Model**

SaveAct, a Non-Profit Organisation based in Pietermaritzburg, South Africa, is one example of a group which has pioneered a savings drive in the rural communities of South Africa. It is one of the few local organisations which has made strides in promoting Savings Groups in South Africa for over a decade now (BankSETA, 2013). The model has enabled over 70,000 members in five provinces of South Africa to reduce debt and build their enterprises (SaveAct, 2017). As of 2017, annual savings were estimated at R391million. Most of the participants are women, while men make up a minute component in group participation. About 50% of group members are youth. Savings group members are assisted to manage their finances, reduce debt and make loans to each other, while at the same time earning high returns to boost their investment; this is all realised without the involvement of an official organised financial system or microfinance institutions (BankSETA, 2013).

The SaveAct operating model is borrowed from CARE International's lessons and experiences in Africa over the years, from having its original operations based on Niger's traditional savings practises in the 1990s. Since then, it has experienced improvements, while some adaptation has been made to local conditions. SaveAct's premise is that there is less risk in accumulating savings before taking a loan (SaveAct, 2017).



**Figure 1: SaveAct’s Coverage in South Africa - Source:** (SaveAct, 2017)

The SaveAct model has brought some form of financial inclusion to over 15,000 Savings Group members in Gauteng, Northern Cape, Eastern Cape, Free State and Kwazulu Natal, and facilitated debt reduction while improving economic resistance. This has capacitated the rural poor to graduate to being able to manage their own finances by saving, extending credit to their group members and earning good returns on their capital. The performance of SaveAct’s Savings Groups has been phenomenal to the extent that organisations like Finmark Trust (FMT) have conducted studies that revealed the immense impact the groups have on the lives of people (BankSETA, 2013).

## **2.7 Theories of Profitability and Profitability Measures**

Profitability is a crucial measure of business success because businesses that do not make profit cannot survive (Hofstrand, 2009). The economic perspective or the accounting perspective can be used in measuring profitability. The accounting view measures profit as the surplus of revenue over costs for any transaction (Stickney & Weil 2000). The accounting

view of profit can also be articulated as the net income realised from a specific transaction. Profitability can also be presented as the ratio of net income to financial revenue. Some studies have employed more comprehensive methods by computing a ratio of net income over total assets, which is referred to as Return on Assets. In other instances, the ratio of net income to equity which is return on equity is utilised as a profitability measure (Nyamsogoro, 2010).

According to the economic view, profit is net income generated after transactions added to the opportunity cost of the resources utilised in generating the income (Bodie, Merton & Cleeton, 2009). When utilising the accounting approach, one could choose to use either return on assets or return on equity, or use both measures. Theoretically though, financial institutions, which include microfinance institutions, generate revenue from loans, non-interest fees and other services like insurance, money transmission, money transmission, investing as well as factoring services (Nyamsogoro, 2010). Major sources of income for Savings Groups are interest income on funds loaned out. Services like insurance, money transfer, money market investment are very limited, or they do not exist at all. Understanding the profitability of Savings Groups is critical from a management perspective as it is a critical determinant of the survival of the industry into the future. Information on profitability is also important for developing agencies, facilitating organisations, as well as governments for appraisal of the sector's performance, possible investment in the industry and policy formulation.

### **Return on Assets**

Using return on assets as a measure of overall profitability as done by Marwa and Aziakpono (2015), who estimated both the effectiveness of an institution in using their total assets to generate revenue and the institution's profit margin. ROA reflects an institution's capacity to generate profits from its assets, though this could be biased due to off balance sheet activities.

Marwa and Aziakpono (2015) indicated that Savings and Credit Cooperatives found to have negative Return on Asset ratios also had low scores for financial sustainability. In their research, they also found that Savings and Credit Cooperatives which struggled to absorb all their costs were not profitable and their performance was quite poor, and this revealed the institutions' lack of capacity to transform member deposits to profitability in an efficient manner. Nyamsogoro (2010), however, noted that return on assets may also be affected by the life cycle stage of the savings and credit cooperatives. Return on assets is expected to be low

when savings and credit cooperatives are at inception or recently started up. During this phase, they might have invested excessively in long-term investments that may take longer to realise return. It is to be noted that as soon as return on assets turns positive, the corresponding values of financial sustainability increase sharply (Marwa, 2015).

The Savings Groups Information Exchange (SAVIX) calculates Annualised Return on Assets as follows:

$$(\text{Total Profits/Total Assets}) \times (52/\text{Average age of groups in months}) * 100$$

Return on Assets is the most popular profitability ratio which is used for relative comparison within a firm over time across firms (Joo, Nixon & Cook, 2011). Return on Assets is a more comprehensive measure than Return on Equity as it captures overall performance of the institutions intermediations of total loanable funds including borrowed funds (Muriu, 2011).

#### **Return on Assets = Net Income/ Total Assets**

Return on Assets measures how well groups use assets to generate returns. It factors: interest rate, property versus loans and size of assets relative to non-cash earning assets (SAVIX, 2018).

#### **Return on Savings**

Return on Savings is one of the performance metrics the Savings Groups Information Exchange (SAVIX) uses to determine the performance of Savings Groups. Return on Savings (ROS) is the profit of the whole group. Savings Group promoters use the following formula to derive net profit:

$$\text{Net Profit} = \text{cash at hand} - \text{groups savings before calculating ROS.}$$

$$\text{Return on Savings} = \text{Net Profit/Cumulative Value of Savings (Malkam, 2015).}$$

According to the savings groups methodology, return on savings (ROS) can only be computed after all the outstanding loans have been paid (Malkam, 2015)

## 2.8 Determinants of Savings Groups Profitability<sup>1</sup>

It has been noted that to reduce poverty and ensure financial inclusion by expanding outreach, Savings Groups should be profitable. Profitability is important because it is a suitable mechanism for ensuring viability in the long term as well as sustainability of the Savings Groups, just as it is for Microfinance Institutions as well as formal banks. At a micro scale, profitability is a necessary condition for a competitive microfinance industry and cheap capital, without which firms cannot attract additional external capital (Gitman, 2007).

High profits are a form of assurance for stakeholders. Financial intermediary profitability has been defined as its return on assets (ROA) or return on equity (ROE). This study uses Return on Assets as a measure of profitability and also employs Return on Savings to measure profitability as most income is earned on savings that are extended as loans to those requiring them. According to Sufian (2009) profitability is measured as a function of both internal and external factors. Internal factors are those that can be influenced by management decisions, or those an organisation's management can control such as size, capital adequacy, credit risk provisioning and effective operating expense management. External determinants, on the other hand, are beyond management control and are influenced by the external environment within which an organisation operates. The factors can be industry specific and macroeconomic reflecting economic, legal and business orientation.

A more recent study focused on internal factors affecting savings groups. Greaney, Kabiski & Van Leemput (2016) focus on the method of forming groups and compares the performance of independent community member-formed groups against the performance of groups that are formed by officers from non-governmental organisations. A study on capital allocation within groups found that because of the endogenous membership process for groups, capital moves from those who want to save to those who require credit (Cassidy & Fafchamps, 2015). Burnando & Canidio (2015), after randomly assigning members to groups with varying composition, found that groups that are wealthier have more capacity to generate loanable funds, which are then lent to their poorest members and this contributes to profitability.

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<sup>1</sup> Profitability here refers to either returns on assets or returns on savings.

Another school of thought also suggested that the growing size of banks may only positively affect their profitability to a certain limit, beyond which the effect could be negative because of bureaucracy and other reasons. As such, the relationship between size and profitability may be expected to be non-linear (Eichengreen & Gibson, 2001). This, therefore, could be the case with Savings Groups, where beyond a certain number of members in a group there ceases to be any effect on group profitability.

Dermiguc-Kunt and Huizinga (2000) and Bikker & Hu (2002) identified possible cyclic variations in the profitability of banks, which refers to the degree to which bank profits are correlated with the business cycle. The research findings showed that correlations exist, even though the variables they used were not direct measures of the business cycle. This could also be related to Savings Groups composed of farmers who, for instance, may have more funds to save during the harvest season and less in other seasons.

Bennaceur and Goaid (2008) examined the impact of bank characteristics, financial structure, and macroeconomic conditions on Tunisian banks' net-interest margin and profitability during the period 1980 - 2000. They found that the impact of size on Tunisian banks' profitability is negative.

Kosmidou (2008) examined the determinants of the performance by running a regression analysis for Greek commercial banks for the period 1990 - 2002. Using the generalised least square effects, an investigation into how various factors like size, capitalisation and credit risk affect the profitability of the commercial banks. The empirical results suggested that the more profitable banks are better capitalised and have lower cost to income ratios.

## **2.9 Profitability of Savings Groups and Empirical Studies**

Studies on Savings Groups profitability are scant even though there is a pool of literature evaluating their impact, successes and failures. Most of the applied economics literature available in this area addresses the social impact of Savings Groups like the impact of Savings

Groups on the lives of the poor (Karlan, 2017), the value of Savings Groups and Stokvels for Financial inclusion (Finmark Trust, 2018), the impact of Village Savings and Loan Associations on the Lives of the poor (Ksoll et al, 2012), and the Village Savings and Loans a pathway to financial inclusion (Hendricks & Chidiac, 2011)

Other studies which are operation-specific/firm-level specific have also been conducted and these include, An Analysis of Savings Groups institutional development using evidence from Kenya (Rasmussen, 2012).

(Malkam, 2015) finds that Savings Groups that follow rules/regulations and are transparent as stipulated by CARE International have higher loan repayments rates than those that default. This shows that rule-following, as in regulation for banks and microfinance institutions, has an impact of the profitability of Savings Groups. Where there is regulation, profits tend to be higher than unregulated systems which expose the operations to abuse through misappropriation of funds and loan defaulting. It was noted that over 50% of the share out was conducted before loans had been paid out and this negatively affects return on savings (Malkam, 2015).

Because of the scarcity of literature on Savings Groups profitability, this study borrows more from studies done for banks, microfinance institutions and savings and credit cooperatives by assuming Savings Groups also provide financial services to the poor. Literature on microfinance profitability and sustainability is also scarce and there are varying conclusions to the subject. For example, Adongo & and Stork (2007) found that, in Namibia, most microfinance institutions are unsustainable, while Nyamsogoro (2010) found that Tanzania's microfinance institutions have a sustainability level of 80.2% and Kenyan MFIs with a sustainability level of 98%.

The forerunner empirical study on determinants of profitability of African microfinance institutions (MFIs) was done by Muriu (2011) who, in their study, tried to explore factors that determine the profitability of microfinance institutions (MFIs). The Generalised Method of Moments was employed in analysing an unbalanced data set from 210 microfinance institutions across 32 countries operating from 1997 to 2008. Return on assets and return on equity were both used as profitability proxies. Muriu (2011) classified the factors into three categories namely:

- microfinance institution specific factors including capital, credit risk, size, age efficiency and gearing ratio
- macro-economic factors including Gross National Income (GNI) per capita and inflation
- institutional developments proxied by freedom from corruption. The study concluded that profitability of micro finance institutions is not significantly determined by micro finance institution specific factors and the institutional environment of the host country.

Jorgensen (2012) also studied microfinance profitability in connection with yield on gross profit using a sample of 879 microfinance institutions from across the world. The study aimed at identifying factors that determine profitability for microfinance institutions and to examine whether high interest rates are linked to high profits for such institutions. Factors such as outreach, financing structure, expenses, revenue, efficiency, quality of portfolio and different group comparisons such as age, deposit taking, legal status, and profit status were the focus areas for the study. Data for the year 2009 was obtained from the Microfinance Information Exchange (MIX) (Jorgensen, 2012). Return on Assets was used as a proxy for profitability while profit margin was used as a proxy for gross yield portfolio. The study results revealed that the number of active borrowers, cost per borrower, deposit and legal status have a negative significant relationship with return on assets. Gross loan portfolio, capital to asset ratio, gross loan portfolio to asset and operating expenses were found to have a significant positive impact on return on assets.

Marwa (2015) in studying savings and credit cooperatives in Tanzania found that effective management and good governance were performance drivers for cooperatives and that diversification plays a significant role in fostering financial stability. He also highlights that capital constraints, agency problems and financial literacy were some of the factors that negatively affect sustainability of SACCOs.

Cull, Demirgüç-Kunt and Morduch (2007) in their empirical investigation of whether there is a trade-off between depth of outreach and profitability of microfinance institutions, found that microfinance institutions which focus on individual loan provision are more profitable

although female and poor borrowers' constitution is lower for other institutions as this group of individuals are considered high risk.

In another study, Dermiguc-Kunt & Makasimovic (1998) found that size of the bank and profitability are positively correlated. Their research revealed that the relationship between availability of funds and profit is positive as the latter translates to more loans. Havrylchuk & Jurzyk, (2006) further find a positive and direct relationship between capital and profits of banks. This implies that more efficient banks should generate high levels of profit since they have the capacity to maximise interest income.

Molineux (1978) was the first researcher who linked bank size with profitability and efficiency and he found that bank size had a significant relationship with profitability and bigger banks were more profitable than smaller banks. Kwast and Rose (1982) also used total assets as one of the independent variables in their profitability study after dividing their samples into two groups, high-profit and low-profit banks. They found that total assets had no significant impact on profitability for both groups of banks. Smirlock (1985) also used total assets as the independent variable in his study. He purported that large banks had a higher likelihood of having greater product and loan diversification and that the increased diversification implied less risk which translated to a lower required rate of return. The study also revealed that total assets had an insignificant impact on profitability and thus confirmed the findings of Kwast and Rose (1982).

Marwa (2015) utilised secondary financial data which was extracted from the audited financial statements of 103 SACCOs from four regions in Tanzania and employed the data envelopment analysis technique as a method of analysis. His study showed that major sources of inefficiency among Tanzania SACCOs were because of managerial inefficiencies and incompetence. The study recommended public private partnerships (PPPs) between government, commercial banks and other private providers of finance products to benefit from affordable interest rates.

In a study to determine the drivers of SACCOs financial sustainability in Tanzania, Nyamsogoro (2010) makes use of a survey research design involving the collection of longitudinal data for four years from 98 SACCOs. Using the Ordinary Least Squares multiple

regression analysis, he concluded that, “microfinance capital structure, interest rates charged, differences in lending type, cost per borrower, product type, microfinance institution size, number of borrowers, yield on gross loan portfolio, level of portfolio at risk, liquidity level, staff productivity and operating efficiency affect the financial sustainability of rural microfinance institutions in Tanzania”. He recommended that SACCOs assist in the operational set-up of the start-up/early stage ventures they finance, in order to ensure operational efficiency and reduce their credit risk exposure.

In another study, Wanjiru and Willy (2016) employed a linear regression model to determine key factors that influence financial performance of Savings and Cooperatives by using a sample of two licensed SACCOs in Kiambu Country. Their results showed that membership size and growth have a direct effect on deposits available for on lending and the capital of an organisation. They further recommended that to mitigate credit risk, SACCOs should get their credit book insured and introduce a collateral requirement in cases where loans required were greater than a member’s salary.

A recent study by Ashenafi (2018), after employing linear regression and correlation analysis, concluded that age and capital structure microfinance institutions has a significant positive relationship with profitability. Operating efficiency with respect to management of expenses was seen to have an insignificant negative relationship with the profitability of microfinance institutions. They recommended that management at any institution pay special attention to the lending and borrowing policies of their institutions as well as endeavour to manage challenges from past experiences.

## **2.10 Literature Review Conclusion and Knowledge Gap**

The literature review reveals that there are many knowledge gaps with regard to the factors that influence the profitability of savings groups, particularly in the South African context. There is more research and literature on the social and economic impact of savings groups globally than research which investigates whether these groups are profitable and the factors which influence their profitability. Some of the existing literature is derived from retail banking theories such as Muriu (2011), Sufian (2009) and Jorgensen (2012). As per review of the literature, most of the empirical studies have been conducted with the aim of measuring

the performance of microfinance institutions by using internal factors without paying much attention to external factors, which can possibly have an effect of profitability.

## CHAPTER 3

### RESEARCH METHODOLOGY

#### 3.1 Introduction

The chapter explains the methodology used in conducting the study. It starts by introducing the research approach and strategy and then describes the data used, the sample chosen for the study as well as the technique used to analyse the data. It also highlights the limitations of the study and comments on the reliability and validity aspects of the study.

#### 3.2 Research Methodology and Data

Research design is the conceptual structure within which research is conducted (Gujarati, 2004). This study uses quantitative data analysis, obtained from secondary data, to analyse the profitability of Savings Groups in South Africa. The quantitative research approach is suitable where quantitative data are generated from large samples to test applicability of the existing theory using statistical analysis (Collis & Hussey, 2009).

The ordinary least squares model was used for both return on assets and return on savings as done by Ashenafi (2018) and Wanjiru & Willy (2016). The assumptions underlying the ordinary least squares model were all checked to ensure consistency of the results. The ordinary least squares model was the most appropriate to analyse the annualised cross-sectional data.

#### 3.3 Data Collection, Frequency and Choice of Data`

The study analyses the profitability of Savings Groups in South Africa using return on assets and return on savings as profitability proxies. The data used was purely secondary data from the Savings Group Information Exchange (SAVIX) data platform which reports on about 276,000 Savings Groups in 44 countries, representing 1,200 projects for just over 6 million members across the globe (SAVIX, 2018). The data used was annualised cross sectional data which is what constitutes a cycle for Savings Groups. The Savings Groups included in the study were from the Free State, Gauteng, Northern Cape and Eastern Cape provinces of South

Africa, data representing 3,477 Savings Groups (with a total membership of 66,911) covered under 31 projects which upload their data on the Savings Groups Information Exchange platform. The data was collected based on the Savings Groups Information Exchange metrics which include; project totals, membership profile, service utilisation and financial performance. The following information required for the study was obtained from the Savings Groups Information Exchange:

- Return on assets
- Return on savings
- Annualised average savings per member
- Average value of loans outstanding per member
- Average number of members in a group
- Savings as a percentage of loans outstanding
- Percentage of members with loans outstanding
- Total number of members
- Total number of groups
- Attendance rate
- Dropout rate
- Percentage of women members
- Average number of members per group
- Average outstanding loan size as a percentage of GNI per capita
- Average savings per member as a percentage of GNI per capita
- Loan fund utilisation rate

From a practicality point of view, this study required to balance the need for a representative data sample with the limitations of the available data. As such, a population of 31 projects located in Kwazulu Natal, Eastern Cape, Northern Cape and Grahams town, South Africa, were utilised for the study. This represented 3,477 Savings Groups with a total membership of 66,911 in South Africa whose data is uploaded on the Savings Groups Information Exchange. This limited the study findings as it did not give a full presentation of the various areas that may have Savings Groups in South Africa's 9 provinces. The data obtained was annualised cross sectional data.

Other metrics selected to support the research were total number of members, total number of groups and percentage of women, among others. Key variables such as level of member education, age group, employment status, financial literacy, corporate governance, use of technology, interest rate charges and others could have a significant contribution to Savings Groups profitability and sustainability. However, these were not included in the study because of limited data.

### **3.4 Data Analysis Methods**

Quantitative research is a method in which the researcher employs positivist claims for developing knowledge (Creswell, 2009). Post positivism on which quantitative research design is founded on deterministic philosophy in which causes probably determine effects and outcomes. Thus, the research questions studied by post positivists require an identification and assessment of the causes that influence outcomes. Therefore, quantitative research is a means of testing objective theories by examining the relationship among variables. Such variables in turn can be measured, typically on instruments, so that numbered data can be analysed using statistical procedures (Creswell, 2009). The result is to measure and analyse casual relationships between variables within a value free framework.

In line with this, Creswell (2009) also noted that researchers who indulge in a quantitative research form of inquiry have assumptions about testing theories deductively, building in protections against bias, controlling for alternative explanations and being able to generalise and replicate findings. The purpose of quantitative studies is for the researcher to project findings onto the larger population through an objective process.

Regression analysis using the least squares model, correlation analysis as well as summary statistics performed on continuous variables were conducted using the Stata data analysis tool to explain the effects of the explanatory variables and the relationships that exist among them.

#### **3.4.1 Regression Analysis and Empirical Model**

The regression analysis statistical tool is used to analyse the relationship between variables. It is used to determine the value of a variable based on two or variables. The value to be

predicted is termed the dependent variable and the variables used to determine dependent variables are independent variables. The researcher regresses variables that could be factors determining the profitability of Savings Groups. Multiple regression analysis allows for analysis of relationships between many variables that influence savings group profitability.

Before running the regression, the data is collected and plotted on a graph to help reveal any outliers. If there be any outliers, the data is smoothed out and then tested for multicollinearity using a correlation matrix to ensure that independent variables do not have strong correlations among themselves, which may necessitate leaving out the variables to the model fitness as perfect.

The deployment of the regression technique is usually preceded by the formation of a mathematical model, which indicates a priori relations between variables. For this study, return on assets and return on savings are used as measures of profitability. Further, for this study, adopted factors affecting the profitability of savings groups included explanatory variables, total number of members, total number of groups, total savings, total assets, total value of loan outstanding, attendance rate, dropout rate, percentage of women members, average number of member per group, average value of loan outstanding per member, average outstanding loan size as a percentage of GNI per capita, average savings per member as a percentage of GNI per capita, average annualised savings per member, return on assets, return on savings, loan fund utilisation rate, percentage members with loan outstanding and savings as a percentage of loans outstanding.

As in Ashenafi (2018) and Wangiru & Willy (2016) when they analysed factors affecting the profitability of microfinance institutions, multiple linear regression was utilised, analysing the factors affecting the profitability of Savings Groups. (Ashenafi, 2018) specify their regression model as follows:

$$\begin{aligned}
 Y_i = & \alpha + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + \beta_6 X_{6i} + \beta_7 X_{7i} + \beta_8 X_{8i} + \beta_9 X_{9i} \\
 & + \beta_{10} X_{10i} + \beta_{11} X_{11i} + \beta_{12} X_{12i} + \beta_{13} X_{13i} + \beta_{14} X_{14i} + \beta_{15} X_{15i} + \beta_{16} X_{16i} \\
 & + e_i
 \end{aligned}$$

Where Y represents the dependent variables proxied as return on assets (ROA) and Return on Savings (ROS)

$x_i$  represents a vector of explanatory variables,

$\alpha$  = Constant,

$e_i$  = *Error term*

$\beta_1$  to  $\beta_{16}$  represent the = regression coefficients of the explanatory variables to be estimated.

In the case of this study only size is denoted by number of members in a group, liquidity (measured by percentage of loans outstanding), deposits (measured by Average Annualised Savings per Member) and gender constitution was utilised (measured by Percentage of Women in a Group).

### **3.4.3 Correlation Analysis**

Correlation analysis is used to explain the magnitude and direction of a linear relationship between two continuous variables. The direction is indicated by either a negative or a positive sign in front of the correlation coefficient. Correlation coefficient ranges from -1 to 1, with a correlation coefficient of 0 showing that there are no relationship and a correlation of 1 indicating a perfect positive correlation, while that of -1 showing a perfect negative correlation. Cohen (1988) suggests that if the value is between 0.1 and 0.29 then the correlation is weak., 0.30 to 0.49 shows a moderate relationship and 0.5 to 1 shows a strong relationship between the variables Correlation results were used to gauge which variables were appropriate to be included in the regression analysis. One needs to keep in mind that correlation often is state of nature, so unless there is severe collinearity one may still use the variables which are weakly correlated as regressors in the model.

Regression is usually the most appropriate tool for use if the analysis contains more than two variables. A pairwise correlation analysis is run on the explanatory variables to test for multicollinearity problems that may arise in the regression tests.

### 3.5 Description of Variables

#### 3.5.1 Dependent Variables

Return on Assets and Return on Savings are used as proxies for savings group profitability for the purposes of this study. Return on assets net income to total assets ratio is used as a measure of profitability. The main constraint of using return on assets as a sole measure of profitability is that Savings Groups have a twofold objective of achieving social and economic development as well as ensuring financial viability. They may impact the lives of people, facilitate improved living conditions which may not necessarily be quantified as profit generated.

The Savings Groups Information Exchange (SAVIX) calculates Annualised Return on Assets as follows:

$$(\text{Total Profits/Total Assets}) \times (52/\text{Average age of groups in months}) * 100$$

Return on Savings is one of the performance metrics the Savings Groups Information Exchange (SAVIX) uses to determine the performance of Savings Groups. Return on Savings is the profit of the whole group. Savings group promoters use the following formula to derive net profit:

$$\text{Net Profit} = \text{cash at hand} - \text{groups savings before calculating ROS.}$$

$$\text{Return on Savings} = \text{Net Profit/Cumulative Value of Savings (Malkam, 2015).}$$

#### 3.5.2 Independent Variables

Group Size - This is measured by the number of members in a group in this study. The economic theory purports that large firms are supposed to perform better than small firms because of the benefit of economies of scale. Logically it is expected that savings groups with more people are more inclined to pull more savings and generate more profits than smaller groups (Goddard, Mckllilop & Wilson, 2008).

Bogan (2012). also found significant relationship between economies and scale and size. However, the results of a study by Nyamsogoro 2010 showed a significant negative relationship between size and financial instability as there may be management inefficiencies because of the exponential growth of borrowers. Another school of thought by Goddard et al

(2008) suggests that financial sustainability and size complement each other. The conclusion was based on the premise that as SACCOs grow they begin to enjoy economies of scale which results in reduced costs thereby contributing to financial sustainability.

**Table 3.5 Expected Outcomes of the Independent Variables**

Variables	Measurement	Symbol	Expectations
Total Assets	Total value of loans outstanding +Total cash in loan fund +Total value of property	TA	+
Total Savings	Total value of members' savings	TS	+
Average Number of Members in a Group	Registered number of members/Total number of groups	NMIG	+
Percentage of members with loans outstanding	(Number of current borrowers /Number of loans outstanding) *100	PMLO	-
Total Value of Loans Outstanding	Total balances of Outstanding Loans	TVLO	+/-
Average Savings per Member	Total Savings/ Number of Members	ASPM	+
Savings as a Percentage of Loans Outstanding		SPLO	+/-
Percentage of Women in a Group	Number of women in a group/ Total number members *100	PWIG	+
Average Value of Loans Outstanding per Member		AVLOPM	-
Average number of members in a group		ANMPG	+
Savings as a percentage of loans outstanding		SPLO	-
Total Number of Members		TNM	+
Total Number of Groups		TNG	+
Attendance rate		AR	+
Dropout rate		DR	-
Average outstanding loan size as a percentage of GNI per capita		AOLS_GNI	-
Average Savings per member as a percentage of GNI per capita		ASPM_GNI	+
Loan fund utilisation rate		LFUR	+

### **3.6 Research Reliability and Validity**

Construct validity is considered for the overall intention of the study. This is, however, logical consideration and not empirical. The use of data available on an international platform enhances the reliability and validity of the statistics obtained, and in turn the generalisations made from the study. The use of a statistical analysis package like Stata also reduces the likelihood of the researcher making errors in conducting the analysis. The R-squared is also used to determine the validity of the regression model. The same process utilised in Stata to analyse the data can be replicated using another statistical package.

### **3.7 Limitations**

The study made use of 31 projects that constitute the over 3,000 savings groups representing a total of about 65,000 members which upload their reports on the Savings Groups Information Exchange (SAVIX) platform for South Africa. For all the Savings Group information exchange metrics used, only annualised data for a cycle was obtained. Data which shows consistent records for several years was not obtainable by the researcher. Because of the unavailability of consistent data captured on the platform for savings groups in South Africa, the study looked at general information on savings groups without focusing on the number of years of operation for the specific groups which could be a determining factor for profit levels. Annualised cross-section data was utilised, and this is prone to heterogeneity problems (Gujarati, 2004). The other limitation was the lack of related and published literature on profitability of Savings Groups in the South African context and even in other countries.

## CHAPTER 4

### PRESENTATION OF RESULTS

#### 4.1 Introduction

This chapter presents and outlines the findings of Savings Groups' data analysis. The empirical analysis results are based on financial data from 31 projects which represent about 3,477 Savings Groups which constitute over 65,000 members that have all information under the Savings Group Information Exchange (SAVIX) performance metrics. The data was extracted from Savings Group Information Exchange (SAVIX), an international data platform for Savings Groups across the globe. Section 4.2 begins with outlining the descriptive summary statistics and a presentation of the multicollinearity test results. Section 4.3 presents the results of the correlation analysis. Section 4.4 covers regression analysis and hypothesis specification. Section 4.5 summarises the findings and finally, section 4.6 gives a conclusion to the findings.

#### 4.2 Descriptive Statistics

##### Descriptive Analysis and Multicollinearity Tests

Table 4.1 outlines the outcomes of the descriptive statistics for all the variables used in the analysis. Key figures, including maximum, minimum, mean, standard deviation, are reported on.

Both the dependent variables return on assets and return on savings have positive mean values of 10.04 and 16.53 respectively. The sample includes Savings Groups with different number of members in a group, with the mean number of members in a group being 17. The group with the lowest number of people has seven members, while the group with the highest number is comprised of 23 members. Standard deviation for Return on Savings is 19.17 which depicts that return on savings is not very consistent. This is because of the varied amounts in accumulated savings and loans given out which varies their interest income as well. The standard deviation for Return on Assets is higher, at 26.07. Total savings, total assets and total value of loans outstanding per member have a high standard deviation level which shows

the inconsistency of the data set. The relationships between the study variables presented in the model were tested using correlation analysis.

**Table 4.1 shows summary statistics (Source: Stata) Data source: www.savix.org**

VARIABLES	(1) N	(2) Mean	(3) sd	(4) Min	(5) max
TNM	31	2,158	3,076	13	12,098
TNG	31	112.2	152.5	1	668
TS	31	249,700	386,232	619	1.533e+06
TA	31	299,716	501,007	696	2.079e+06
TVLO	31	186,069	323,952	507	1.333e+06
AR	31	79.78	9.851	63.02	100
DR	28	9.382	14.30	0.383	61.54
POWM	31	87.65	9.912	47.80	100
ANMPG	31	17.18	3.560	7.333	23.17
AVLOPM	31	93.94	50.31	21.14	290.1
AOLS_GNI	31	1.543	0.826	0.347	4.763
ASPM_GNI	31	4.940	3.166	0.490	14.35
AASPM	31	301.2	192.8	30.27	874.3
ROA	31	10.04	26.07	-116.6	29.08
ROS	31	16.53	19.17	-54.23	41.21
LFUR	31	56.77	19.36	21.02	94.82
PMLO	31	74.57	14.68	28.13	92.76
SPLO	31	132.4	44.16	79.93	240.3

<sup>2</sup> Note : TNM represents, total number of members, TNG-total number of groups, TS-Total savings, TA-Total Assets, TVLO-Total value of Loan outstanding, AR-Attendance rate, DR-Dropout rate, POWM-% of women Members, ANMPG-average number of member per Group, AVLOPM-Average value of loan outstanding per member, AOLS\_GNI- Average outstanding loan size as % of GNI per capita, ASPM\_GNI- Average savings per member as % of GNI per capita, AASPM-Average annualised savings per member, ROA- return on Assets, ROS-return on Savings, LFUR-Loan fund utilisation rate, PMLO-% members with loan outstanding, SPLO-Savings as % of loans outstanding.

The average composition of women in the Savings Groups is 87%, which shows that women constitute most of savings group membership. This in line with Hugh & Panetta (2010) who suggested that women constitute the majority of Savings Groups membership. The minimum

rate of attendance to group meetings is 63%. while the maximum is 100%, which indicated that group meetings are generally well attended by over 50% of the members. The average savings per member is estimated as USD301.20, the least amount saved in a cycle being USD30.27, while the maximum annualised savings per member is USD874.30. The average loan fund utilisation rate is just above 50%. There is a difference of approximately USD50,000 between the average total assets and total savings, with the former being higher. This may be an indicator that the savings groups could be owning some fixed assets or there is some form of double counting where cash savings are recorded as assets when they have been loaned out.

**Table 4.2: Multicollinearity Results**

<b>Variable</b>	<b>VIF</b>	<b>1/VIF</b>
<b>AOLS_GNI</b>	6.91E+08	0.000000
<b>AVLOPM</b>	6.91E+08	0.000000
<b>ASPM_GNI</b>	4.82E+07	0.000000
<b>AASPM</b>	4.82E+07	0.000000
<b>TA</b>	1155.31	0.000866
<b>TS</b>	744.02	0.001344
<b>TVLO</b>	686.38	0.001457
<b>TNM</b>	351.93	0.002841
<b>TNG</b>	133.95	0.007465
<b>LFUR</b>	9.95	0.100464
<b>SPLO</b>	6.70	0.149351
<b>DR</b>	6.56	0.152475
<b>ANMPG</b>	6.16	0.162328
<b>PMLO</b>	3.74	0.267431
<b>POWM</b>	2.04	0.490856
<b>AR</b>	1.57	0.638487

Note : TNM represents, total number of members, TNG-total number of groups, TS-Total savings, TA-Total Assets, TVLO-Total value of Loan outstanding, AR-Attendance rate, DR-Dropout rate, POWM-% of women Members, ANMPG-average number of member per Group, AVLOPM-Average value of loan outstanding per member, AOLS\_GNI- Average outstanding loan size as % of GNI per capita, ASPM\_GNI- Average savings per member as % of GNI per capita, AASPM- Average annualised savings per member, ROA- return on Assets, ROS-return on Savings, LFUR-Loan fund utilisation rate, PMLO-% members with loan outstanding, SPLO-Savings as % of loans outstanding.

A variance inflation factor (VIF) above 10 signifies extreme multicollinearity between variables, therefore average outstanding loan size as a percentage of GNI, average value of loans outstanding per member, average savings per member as a percentage of GNI, average annualised savings per member, total assets, total savings, total value of loans outstanding, total number of members, and total number of groups have extreme collinearity between them. Inclusion of the above variables in the model may distort the results and lead to incorrect inferences being drawn.

### 4.3 Correlation Analysis

**Table 4.3 Independent Variables Correlations**

	AVLOPM	TNM	TNG	TS	TA	TVLO	AR	DR	POWM	ANMPG	AOLS_GNI	ASPM_GNI	AASPM	LFUR	PMLO	SPLO
<b>AVLOPM</b>	1.0000															
<b>TNM</b>	0.5386	1.0000														
<b>TNG</b>	0.5426	0.9884	1.0000													
<b>TS</b>	0.5572	0.9930	0.9881	1.0000												
<b>TA</b>	0.5603	0.9795	0.9863	0.9932	1.0000											
<b>TVLO</b>	0.5801	0.9794	0.9824	0.9906	0.9962	1.0000										
<b>AR</b>	0.0557	0.2007	0.1939	0.1955	-0.1926	-0.1907	1.0000									
<b>DR</b>	-0.4055	0.1653	0.1719	0.1534	-0.1414	-0.1327	-0.1420	1.0000								
<b>POWM</b>	-0.0973	0.1806	0.1590	0.1577	0.1179	0.1024	-0.2685	-0.2749	1.0000							
<b>ANMPG</b>	0.4725	0.4901	0.4278	0.4611	0.4051	0.4154	-0.0309	-0.5857	0.3240	1.0000						
<b>AOLS_GNI</b>	1.0000	0.5386	0.5426	0.5572	0.5603	0.5801	0.0557	-0.4055	-0.0973	0.4725	1.0000					
<b>ASPM_GNI</b>	0.6181	0.5420	0.5228	0.5407	0.5240	0.5279	0.0945	-0.4300	-0.0563	0.3236	0.6180	1.0000				
<b>AASPM</b>	0.6181	0.5420	0.5228	0.5407	0.5240	0.5280	0.0945	-0.4299	-0.0563	0.3236	0.6180	1.0000	1.0000			
<b>LFUR</b>	0.4679	0.1793	0.1603	0.1563	0.1458	0.2152	-0.0151	0.0099	-0.0914	0.2624	0.4679	0.2357	0.2358	1.0000		
<b>PMLO</b>	0.4882	0.3256	0.3409	0.3260	0.3373	0.3730	-0.0059	-0.1264	-0.1036	0.2790	0.4882	0.2517	0.2517	0.6845	1.0000	
<b>SPLO</b>	-0.5783	0.2803	0.2974	0.2621	-0.2803	-0.3122	-0.1887	0.3611	-0.0202	-0.3672	-0.5783	-0.2868	-0.2867	-0.6578	-0.7583	1.0000

Table 4.3 presents correlation analysis between the independent variables. Correlation analysis is used to explain the magnitude and direction of the linear relationship between two continuous variables (Pallant, 2013). Various interpretations are suggested by different authors for values between 0 and 1 and in this study, Cohen's suggestions which are outlined as follows were adopted: **Small (Weak):  $r = 0.10$  to  $0.29$ , Medium (Moderate):  $r = 0.30$  to  $0.49$ , Large (Strong):  $r = 0.50$  to  $1.0$**  (Cohen, 1988)

The correlation matrix shows that total assets are highly correlated with the total number of members and the total number of groups as shown by the values, 0.993 and 0.988 respectively. This confirms the assertion by Kwast and Rose (1982) who used total assets as one of the independent variables in their profitability study after dividing their samples into two groups, high-profit and low-profit banks, found that total assets had no significant impact on profitability for both groups of banks.

The total number of groups, total savings, total assets, total value of loans outstanding, average savings per member as a percentage of GNI and average annualised savings per member all have a positive strong correlation with average loans outstanding per member. There is also a strong positive correlation between total members and the total number of groups.

Total assets and total value of loans outstanding also have a significant positive relationship with total number of members, total number of groups and total assets. Attendance rate and dropout rate have a weak negative relationship with total number of groups, total number of members, total assets and total value of loans outstanding meaning attendance rate and dropout rate have not much of an effect on the afore mentioned variables. Annualised outstanding loan size as a percentage of GNI has a positive strong correlation with all the variables except for dropout rate, attendance rate, percentage of women and average number of members per group, this is the same for average savings per member as a percentage of GNI and average annualised savings per member.

Loan fund utilisation rate presents a weak positive relationship with most of the explanatory variables. Of note is the weak negative relationship between attendance rate and percentage of women in the groups. The correlation between loan fund utilisation is a strong positive one

with average value of loans outstanding per member. Savings as a percentage of loans outstanding has a weak negative relationship with most of the variables except for average value of loans outstanding per member, percentage members with loans outstanding and loan fund utilisation rate where the negative relationship is strong. Percentage of members with loans outstanding had a moderate positive relationship with most of the explanatory variables.

The diagonal of ones shows that the independent variables are perfectly correlated. The results in Table 4.3 show that the relationship for each of the variables and itself is exactly as depicted by the ones across the auxiliary diagonal. The relationships between the dependent variables and the independent variables vary. Again, multicollinearity is often state of nature and only become problematic when it is severe.

#### **4.4 Regression Results**

The results were obtained by using ordinary least squares model for both return on assets and return on savings respectively as done by Ashenafi (2018 and Wanjiru & Willy, (2016). The assumptions underlying the ordinary least squares model were all checked to ensure consistency of the results. A normality test was also performed for all variables and the results reported. Other important assumptions of the ordinary least squares model were checked and results reported for consistency. Stepwise regression was finally used for robustness check and the results presented.

**Table: 4.4 Regression Results including all variables**

VARIABLES	(1) OLS_ROA	(2) OLS_ROS
AVLOPM	678.071 (2.468e+03)	-43.919 (1.243e+03)
TNM	0.069*** (1.885e-02)	0.053*** (9.498e-03)
TNG	-0.733*** (2.351e-01)	-0.641*** (1.184e-01)
TS	-0.001*** (2.176e-04)	-0.001*** (1.096e-04)
TA	0.001** (2.084e-04)	0.000*** (1.050e-04)
TVLO	-0.000 (2.482e-04)	-0.000** (1.250e-04)
AR	0.130 (4.042e-01)	0.179 (2.036e-01)
DR	0.036 (5.688e-01)	-0.621* (2.865e-01)
POWM	-0.114 (6.865e-01)	-0.392 (3.458e-01)
ANMPG	-2.470 (2.186e+00)	-3.948*** (1.101e+00)
AOLS_GNI	-41266.562 (1.503e+05)	2692.179 (7.572e+04)
ASPM_GNI	-1080.822 (6.892e+03)	-1392.976 (3.472e+03)
AASPM	17.705 (1.132e+02)	22.821 (5.701e+01)
LFUR	-0.431 (5.405e-01)	0.184 (2.723e-01)
PMLO	-0.251 (5.789e-01)	-0.000 (2.916e-01)
SPLO	-0.323 (2.404e-01)	-0.088 (1.211e-01)
Constant	106.526 (1.253e+02)	94.408 (6.311e+01)
Observations	28	28
R-squared	0.850	0.928
F	3.888	8.847
r2_a	0.631	0.823

Standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

Note : TNM represents, total number of members, TNG-total number of groups, TS-Total savings, TA-Total Assets, TVLO-Total value of Loan outstanding, AR-Attendance rate, DR-Dropout rate, POWM-% of women Members, ANMPG-average number of member per Group, AVLOPM-Average value of loan outstanding per member, AOLS\_GNI- Average outstanding loan size as % of GNI per capita, ASPM\_GNI- Average savings per member as % of GNI per capita, AASPM- Average annualised savings per member, ROA- return on Assets, ROS-return on Savings, LFUR-Loan fund utilisation rate, PMLO-% members with loan outstanding, SPLO-Savings as % of loans outstanding.

Table 4.4 presents results when return on assets was used as a regressing factor and when a return on savings was used as a regressing factor against the explanatory variables. When Return on Assets (ROA) was used as a dependent variable, only total number of members and total assets are positive and significant in explaining return on assets, while total number of groups (TNG) and total assets (TS) were found to be negative and significant at explaining return on assets. For every one-unit increase in the total number of members, return on assets (ROA) increased by 0.069, which is significant at 1% level. A one-unit increase in total number of groups (TNG) led to a 0.733-unit increase in return in assets. Furthermore, a unit increase in total assets (TA) led to a 0.001-unit increase in return on assets, and unit increase in total savings (TS) led to a 0.001-unit increase in return on assets.

The goodness of fit of the model depicted using R-square is 0.85, implying that 85% of the variation in the model is explained by the variables included in the model. The overall significance of the model is captured by F-statistics. In this instance F-values is 3.888 which is greater than 2.04, therefore we reject the null and conclude that the overall model is significant in explaining return on assets. All other explanatory variables are insignificant in explaining return on assets.

Notably attendance rate, dropout rate and average annualised savings per member were found to be positive but insignificant in explaining return on assets, while percentage of women members, average savings per member as a percentage of GNI per capita, loan fund utilisation rate, percentage of members with loans outstanding and savings as a percentage of loans outstanding were found to be negative and insignificant in explaining return on assets. The constant coefficient merely signifies what the return on assets will be in the absences of all the other variables.

When return on savings was used instead as a dependent variable to estimate the model, total number of members, total number of groups, total savings, total assets, total value of loans outstanding, drop-out rate and average number of members per group were significant in predicting the return on savings.

Each unit increase in total number of members, resulted in Return on Savings increasing by 0.053, which was significant at 1% level of significance. A unit increase in total number of groups resulted in a decrease of 0.641 units in Return on Savings, which is significant at a 1% significance level. ROS decreases by 0.006 units for each unit increase in total savings, while one-unit increase in TA resulted in a 0.005 increase in Return on Savings. A unit increase in total value of loans outstanding led to a 0.003-unit decrease in Return on Savings. Furthermore, a one-unit increase in dropout rate (DR) led to a 0.621 decrease in Return on Savings. Each unit increase in average number of members per group resulted in a decrease of 3.95 units in Return on Assets. Intuitively, Return on Savings is explained better by the explanatory variables than Return on Assets.

On the goodness of fit model, the adjusted R-square is 0.82, which means that 82% of variation in return on savings is explained by the explanatory variables in the model. The overall significance of the model is captured by the F-value, which in our case is 8.85 is greater than the critical value of 2.04, thus, the overall model is significant.

The relationship between number of members in a group and savings as a percentage of loans outstanding and ROA was negative, meaning that an increasing number of members in a group can result in a corresponding decrease in profitability as asserted by Nyamsongoro (2010) who suggests that large numbers do not necessarily qualify profitability and sustainability as they may lead to some diseconomies of scale.

Total Savings and Return on Savings have a more significant positive relationship. This shows that Savings have a more significant contribution to the profitability of Savings Groups.

**Table 4.5 Results when variables with severe collinearity are omitted**

VARIABLES	(1) OLS_ROA	(2) OLS_ROS
TNM	0.053*** (1.689e-02)	0.038*** (1.067e-02)
TNG	-0.618** (2.310e-01)	-0.482*** (1.459e-01)
TS	-0.001*** (2.027e-04)	-0.001*** (1.281e-04)
TA	0.00048** (2.086e-04)	0.00043*** (1.318e-04)
TVLO	-0.000 (2.422e-04)	-0.000 (1.530e-04)
AR	0.006 (4.258e-01)	0.035 (2.690e-01)
DR	0.180 (3.794e-01)	-0.225 (2.397e-01)
POWM	-0.352 (6.455e-01)	-0.319 (4.079e-01)
ANMPG	-1.027 (1.869e+00)	-1.985 (1.181e+00)
LFUR	-0.384 (4.911e-01)	0.035 (3.103e-01)
PMLO	-0.502 (6.054e-01)	-0.164 (3.825e-01)
SPLO	-0.505** (2.369e-01)	-0.231 (1.497e-01)
Constant	186.444 (1.245e+02)	121.203 (7.865e+01)
Observations	28	28
R-squared	0.750	0.812
F	3.759	5.384
r <sup>2</sup> <sub>a</sub>	0.551	0.661

Standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

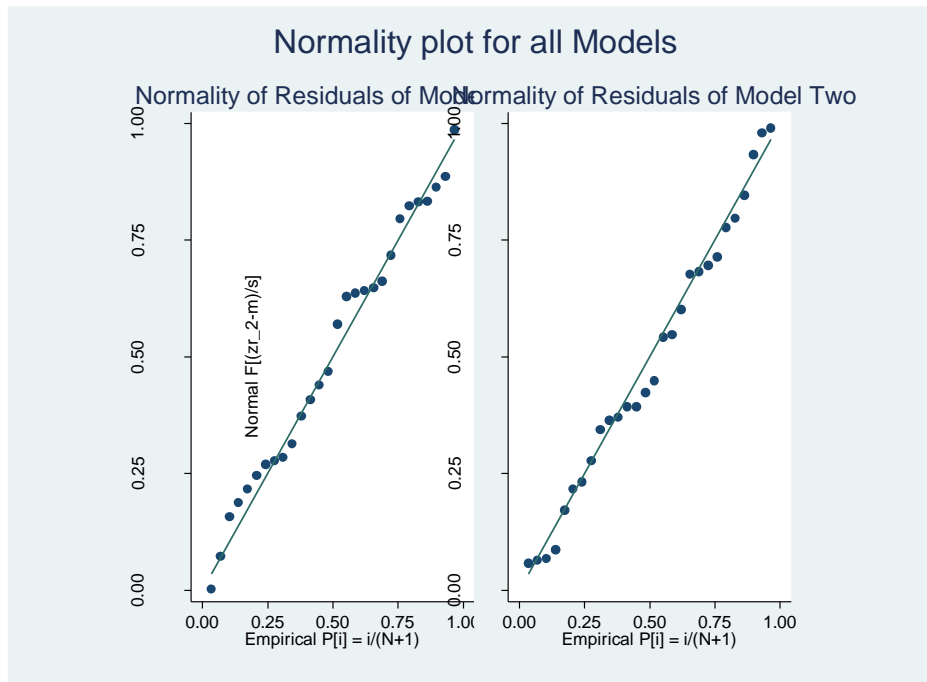
When regressors with severe collinearity were omitted, the total number of members, total number of groups, total savings, total assets and savings as a percentage of loans outstanding were significant in explaining return on assets. At the same time, for return on savings (ROS), only total number of members, total number of groups, total savings and total assets were significant in explaining return on savings, the sign of the coefficient remains the same as in Table 4.5

**Table 4.6: Normality distribution table for all variables.**

	<b>Obs</b>	<b>Pr (skewness)</b>	<b>Pr (Kurtosis)</b>	<b>Adj chi 2(2)</b>	<b>Prof&gt;chi2</b>
<b>ROA</b>	31	0.0000	0.0000	38.57	0.0000
<b>AVLOPM</b>	31	0.0001	0.0004	20.25	0.0000
<b>TNM</b>	31	0.0000	0.0018	19.76	0.0001
<b>TNG</b>	31	0.0000	0.0008	21.14	0.0000
<b>TS</b>	31	0.0000	0.0019	19.95	0.0000
<b>TA</b>	31	0.0000	0.0008	22.09	0.0000
<b>TVLO</b>	31	0.0000	0.0008	22.02	0.0000
<b>AR</b>	31	0.5521	0.2518	1.80	0.4068
<b>DR</b>	31	0.0000	0.0001	27.00	0.0000
<b>POWM</b>	31	0.0000	0.0002	23.75	0.0000
<b>ANMPG</b>	31	0.0528	0.2054	5.20	0.0742
<b>AOLS_GNI</b>	31	0.0001	0.0004	20.35	0.0000
<b>ASPM_GNI</b>	31	0.0007	0.0106	13.91	0.0010
<b>AASPM</b>	31	0.0007	0.0106	13.91	0.0010
<b>LFUR</b>	31	0.6506	0.1744	2.22	0.3289
<b>PMLO</b>	31	0.0015	0.0266	11.84	0.0027
<b>SPLO</b>	31	0.0066	0.2974	7.43	0.0243

Note : TNM represents, total number of members, TNG-total number of groups, TS-Total savings, TA-Total Assets, TVLO-Total value of Loan outstanding, AR-Attendance rate, DR-Dropout rate, POWM-% of women Members, ANMPG-average number of member per Group, AVLOPM-Average value of loan outstanding per member, AOLS\_GNI- Average outstanding loan size as % of GNI per capita, ASPM\_GNI- Average savings per member as % of GNI per capita, AASPM- Average annualised savings per member, ROA- return on Assets, ROS-return on Savings, LFUR-Loan fund utilisation rate, PMLO-% members with loan outstanding, SPLO-Savings as % of loans outstanding.

Table 4.6 above shows that both p-values for Skewness and Kurtosis are less than 5%, therefore it can be concluded that all variables are normally distributed with exception of attendance rate and loan fund utilisation rate which have Chi-square values above 5%.



**Figure 2: Normality plot for all models**

Note : TMS represents, total number of members, TNG-total number of groups, TS-Total savings, TA-Total Assets, TVLO-Total value of Loan outstanding, AR-Attendance rate, DR-Dropout rate, POWM-% of women Members, ANMPG-average number of member per Group, AVLOPM-Average value of loan outstanding per member, AOLS\_GNI- Average outstanding loan size as % of GNI per capita, ASPM\_GNI- Average savings per member as % of GNI per capita, AASPM- Average annualised savings per member, ROA- return on Assets, ROS- return on Savings, LFUR-Loan fund utilisation rate, PMLO-% members with loan outstanding, SPLO-Savings as % of loans outstanding.

The residuals plot confirms the normal distribution of variables. The residuals are relatively normally distributed, signalling absence of heteroscedasticity problem in the model and further confirming normality.

### **Robustness Check Results from Stepwise Regression**

By using a unidirectional forward method which starts with variables that are required to be in our model, then selecting first the variables with the lowest p-value (largest t-ratio) if it were included, then the variable with the second lowest p-value conditional upon the first already being included and so on., the procedure continues until the next lowest p-value relative to those already included is larger than some specific threshold value, then the selection stops, with no more variables being incorporated into the model. After estimating the model, the following results were obtained.

**Table: 4.7: Stepwise Regression results.**<sup>3</sup>

VARIABLES	(1) OLS_ROA_2	(2) OLS_ROS_2
SPLO	-0.718*** (1.981e-01)	-0.388*** (1.289e-01)
ANMPG		-2.952*** (9.555e-01)
LFUR	-0.934** (3.408e-01)	-0.467** (2.178e-01)
AVLOPM		0.193 (1.173e-01)
DR	0.699* (3.568e-01)	
Constant	146.287*** (4.013e+01)	124.731*** (3.263e+01)
Observations	28	28
R-squared	0.356	0.466
F	4.414	5.028
r <sup>2</sup> <sub>a</sub>	0.275	0.374

Standard errors in parentheses

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

Note : TNM represents, total number of members, TNG-total number of groups, TS-Total savings, TA-Total Assets, TVLO-Total value of Loan outstanding, AR-Attendance rate, DR-Dropout rate, POWM-% of women Members, ANMPG-average number of member per Group, AVLOPM-Average value of loan outstanding per member, AOLS\_GNI- Average outstanding loan size as % of GNI per capita, ASPM\_GNI- Average savings per member as % of GNI per capita, AASPM- Average annualised savings per member, ROA- return on Assets, ROS-return on Savings, LFUR-Loan fund utilisation rate, PMLO-% members with loan outstanding, SPLO-Savings as % of loans outstanding.

Stepwise regression shows that for return on assets, only savings as a percentage of loans outstanding, loan fund utilisation rate and the dropout rate are significant in explaining Return on assets (ROA) in the model, while for return on savings (ROS), it is only savings as a percentage of loans outstanding, average number of members per group, loan fund utilisation rate and average loans outstanding per member are useful in explaining Return on Savings.

<sup>3</sup> The only values included in the model were those that were significant at the 15% level.

#### **4.5 Summary of Results and Conclusion**

When return on assets or return on savings are estimated using Ordinary Least Squares, we find that total number of members, total number of groups, total savings and total assets are significant in explaining either return on assets or return on savings, while dropout rate is only significant in explaining return on savings. Using stepwise regression only savings as a percentage of loans outstanding, loan fund utilisation rate and dropout rate are significant predictors of return on assets, while savings as a percentage of loans outstanding, average number of members per group, loan fund utilisation rate and average value of loans outstanding per member are significant predictors of return on savings. The results from stepwise regression are obtained when the p-value is set at 15% thus it could skew the outcome, different p-values were set as an experiment before arriving to p-value of 15% which gave superior results compared to the previous sets.

Number of members in a group, which is indicative of group size, is a significant indicator of return on Savings according to this study. This is consistent with the economic theory by Smirlock (1985) and Kwast and Roses (1982) which purports that large firms are supposed to perform better than small firms because of the benefit of economies of scale. Logically it is expected that savings groups with more people are more susceptible to pulling more savings and generating more profits than smaller groups (Goddard, Mckllilop & Wilson, 2008). This was in line with the positive outcome that was set as an expectation in Chapter 3. Bogan (2012). also find significant relationship between economies and scale and size however, the results of Nyamsogoro 2010' s research shows a significant negative relationship between size and financial stability as they may result in management inefficiencies because of the exponential growth of borrowers. Another school of thought by suggests that financial sustainability and size complement each other (Nyamsongoro, 2010).

Possible explanation for different results obtained in this study can be attributed to sample size and the period of the study. Small sample problem is a viable challenge in this study. The lack of enough data could have distorted the results. Availability of large data samples can address issues such as heterogeneity between variables using panel data analysis.

## **CHAPTER 5**

### **RECOMMENDATIONS AND CONCLUSIONS**

#### **5.1 Introduction**

This chapter outlines conclusions and recommendations on the analysis executed in Chapter 4. The main aim was to identify the determinants of Savings Groups profitability and to ascertain how profitable they are in South Africa, based on the analysis made in previous chapters and issues for further study. Although studies in relation to the profitability of Savings Groups are scant, this study reviewed available studies and borrowed literature from commercial bank and microfinance profitability studies, as well as studies done for Savings and Credit Cooperations (SACCOs).

#### **5.2 Summary and Conclusion**

Chapter 4 analysed the data and discussed the results thereof. The analysis shows that Savings Groups are profitable as depicted by the positive Return on Savings and Return on Assets. This chapter has presented empirical analysis of the quantitative data with the aim of answering the research question as to how profitable Savings Groups in South Africa are and what determines the profitability of the groups. To the best of the author's knowledge, this is the first empirical study on Savings group profitability in South Africa. The results were based on the data collected from 31 projects (representing over 3,000 savings groups) that post their information on the Savings Groups Information Exchange (SAVIX) database and have enough data to cover all the chosen dependent variables. As explained in Chapter 3, the data was extracted from the Savings Groups Information Exchange platform (SAVIX) website and is not for a specific period. The data sample did not align with the over 15,000 members that the SaveAct reports in its 2017 annual report (SaveAct, 2017) . The data used also did not allow factoring in group age as this was not accessible on the Savings Group Information Exchange (SAVIX) website.

Financial performance was analysed using mainly Return on Assets and Return on Savings. These were found to be positive, showing that Savings Groups are generally profitable. They have minimal expenses owing to their social nature which allows for very little administrative

costs. The maximum Return on Assets and Return on Savings were 10.04 and 16.55 respectively and this positive return shows that savings groups are generally profitable.

One other component that the research was not able to measure was compliance with Savings Group rules. Noncompliance was seen to have a negative effect on the profitability of Savings Groups in a study conducted in Kenya (Malkam, 2015).

From the literature reviewed, it was noted that profitability is highly dependent on internal factors, which are controllable. However, external factors can also contribute to an organisation's profitability. Internal factors include capital adequacy, portfolio quality, size, age among other factors for banks. For Savings Groups, these can be age of group, size of group, savings as a percentage of loans, total assets, number of members in a group. External factors can include socio-economic factors like level of education of members, seasons – particularly in cases where a group is composed of farmers, Gross Domestic Product and inflation.

The savings groups specific factors analysed included, total number of members, total number of groups, Total savings, total assets, total value of loan outstanding, attendance rate, dropout rate, percentage of women members, average number of member per group, Average value of loan outstanding per member, average outstanding loan size as a percentage of GNI per capita, Average savings per member as a percentage of GNI per capita, average annualised savings per member, return on assets, return on Savings, loan fund utilisation rate, percentage members with loan outstanding and savings as a percentage of loans outstanding. Based on the quantitative data, correlation analysis was run to determine the multicollinearity between the explanatory variables.

For the utilised population, the following conclusions were made from the results.

- First, group size (ANMPG) did not have significant effect on profitability
- Secondly, there is a non-statistically significant relationship between gender composition and profitability
- Also, the total number of members, total number of groups, total savings and total assets are significant in explaining either return on assets while dropout rate is only significant in explaining return on savings

- Finally, when stepwise regression was used, only savings as a percentage of loans outstanding, loan fund utilisation rate and dropout rate are significant predictors of return on assets, while savings as a percentage of loans outstanding, average number of members per group, loan fund utilisation rate and average value of loans outstanding per member are significant predictors of return on savings. Total Savings and Return on Savings have a more significant positive relationship. This shows that Savings have a more significant contribution to the profitability of Savings Groups.

### **5.3 Policy Implications**

Savings Groups in South Africa have proved to be resilient and sustainable instruments that can help the government in ensuring financial inclusion and driving economic growth.

Banks could partner with Savings Groups to collect deposits on a regular basis and facilitate zero (0) charges account opening and ownership given the volumes of cash that are handled by Savings Groups. Partnerships with the banks affords the savings groups with high levels of security compared to the current situation where funds are kept in cash boxes.

The government needs to channel resources towards supporting policies and legislation to enable Savings Groups to thrive. Regular monitoring and evaluation as well as performance appraisals will be required to ensure effectiveness of the initiatives of supporting Savings Groups for financial inclusion and economic growth.

Investment companies can also offer some short-term investment packages to the groups thereby building their portfolios in the medium term, allowing for diversification and increased Return on Savings.

The Central Bank could recognise the Savings Groups, as has been done with stokvels, and introduce some form of regulation and support systems to boost people's confidence in dealing with Savings Groups. Legislation could also be adjusted to consider Savings Groups.

### **5.4 Recommendations**

Research on Savings Groups in South Africa and the world over is growing though limited empirical studies exist on the profitability of Savings Groups. Based on the findings of the study the following areas are recommended for future research:

- Profitability analysis of a larger number of savings groups focusing on the effects of age of group and the socio-economic characteristics of members
- Qualitative research could also be coupled with quantitative research to better understand the participants and their saving and borrowing behaviour

The findings of the study highlight several prospects for further study on the determinants of savings group profitability that can be explored in South Africa and the world over. The study can further explore to the following:

- Establishing whether Savings Groups in South Africa are sustainable.
- Establishing whether the age (as denoted by number of years of existence/operation) of Savings Groups influences profitability. In a research to determine the factors affecting microfinance profitability, it was concluded that one of the key factors affecting profitability was age as good lending and development policies could be developed over time; age was seen to contribute to experience as well efficiency in operation management (Ashenafi, 2018). This might also be a contributing factor for Savings Groups.
- Future research could also utilise panel data for savings groups and compare using the ordinary least squares model.
- Establishing whether socio-economic factors like education level, income status, geographical location, following, group management status (whether field officer managed or self-managed) influence profitability. Previous studies show that women-dominated groups have higher return on savings and are more compliant to Savings Groups rules than those that are male-dominated. Rural areas have challenges that are unique to their location.
- Establishing whether corporate governance influences the profitability of Savings Groups in South Africa. Corporate governance has been identified as a push factor for ensuring effectiveness and integrity and reinforces market confidence of organisations across the globe.
- Further research could also explore the effect of key variables such as level of education, age group, employment status, financial literacy, interest rate charges among others on the profitability of savings groups and assess the effect of training on the performance and profitability of the groups.

## **5.5 Research Limitations**

The main limitation of this study was the lack of published literature related to savings group performance in South Africa and other countries hence the research relied mostly on commercial bank profitability studies as well as microfinance institutions and savings and credit cooperative studies.

In conducting the study, only a quantitative research method was employed. Future research may consider both qualitative and quantitative to capture some details which may not be necessarily numerical. It would also be worth exploring whether field officer-managed savings groups are more profitable than self-managed groups.

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Savings Groups Information Exchange		
Performance Metrics		
Metric	Formula	Details
<b>Outreach Indicators</b>		
Total Number of Groups	Number of supervised groups + Number of graduated groups	
Total Number of Members	Registered members of supervised groups + Registered members of graduated groups, at time of graduation	
<b>Membership Data</b>		
Women Members (%)	Registered women / Total number of members	
Average Number of Members per Group	Total number of members / Total number of groups	
Average Age of Groups (months)	Average age of all groups, in months	
<b>Portfolio Indicators</b>		
Total Assets	Total value of loans outstanding + Total cash in loan fund + Total cash in other funds + Total value of property	
Total Debt	Total value of outstanding debts to external financial institutions or individuals	
Total Equity	Total assets - Total debt	
Total Member Investment	Total savings + Total cash in other funds	
Total Savings	Total value of member savings	
Total Savings, as % of Loans Outstanding	(Total savings / Total value of loans outstanding) X 100	
Total Cash in Other Funds	Total cash in other funds	The balance of all funds other than the group's main loan fund; may include insurance, education, festival or other funds.
Total Value of Loans Outstanding	Total value of balances of outstanding loans	
Loans Outstanding, as a % of total assets	(Total value of loans outstanding / Total assets) X 100	
Loan Losses, as % of loans outstanding	(Total value of loan write-offs / Total value of loans outstanding) X 100	
Loans Past Due, as % of loans outstanding	(Total value of balances of late loans / Total value of loans outstanding) X 100	
Average Savings per Group	Total savings / Total number of groups	
Average Savings per Member	Total savings / Total number of members	
Savings per Member, as % of GNI/capita	(Average savings per member / Gross national income per capita) X 100	GNI/capita data source: GNI/capita (Atlas method), World Development Indicators, World Bank
Percentage of Members with Loans Outstanding	(Number of current borrowers / Number of loans outstanding) X 100	
Average Outstanding Loan Size	(Total value of loans outstanding / Number of loans outstanding) X 100	
Average Outstanding Loan Size, as % of GNI/capita	(Average outstanding loan size / Gross national income per capita) X 100	GNI/capita data source: GNI/capita (Atlas method), World Development Indicators, World Bank
<b>Performance Ratios</b>		
Group Survival Rate	(Total number of active groups in the research sample / Original number of groups in the research sample) X 100	This metric refers to the SAVIX five-year panel study of 332 groups initiated in 2009
Annualised Return on Assets	(Total profits / Total assets) X (52 / Average age of groups in months) X 100	Profit is measured using a balance-sheet approach and based on the imputed profits if the group were to be liquidated, repaying its total debt, collecting all outstanding loans across its members and returning all investments (including savings and physical assets) to its members.
Annualised Return on Equity	(Total profits / Total equity) X (52 / Average age of groups in months) X 100	Profit is measured using a balance-sheet approach and based on the imputed profits if the group were to be liquidated, repaying its total debt, collecting all outstanding loans across its members and returning all investments (including savings and physical assets) to its members.
Field Officer Caseload	Total number of supervised groups / Number of Field Officers	
Percentage of Groups Formed by Village Agents	(Total number of groups formed by Village Agents / Total number of groups) X 100	
Cost per Member Assisted	Total project expenditures to date / Total number of members	
Quarterly Cost per Member Supervised	Project expenditures this quarter / Number of supervised members	

Project	_id	TNM	TNG	TS	TA	TVLO	AR	DR	PWM	ANMPG	AVLOPM	AOLS_GNI	ASPM_GNI	AASPM	ROA	ROS	LFUR
African HoneyBee	3560	182	10	2173	2861	761	89,011		47,8021978	18,2	21,140175	0,3471	3,085	188,2313	18,0939	23,824	33,671
Bergville KZN	1837	11609	501	1360824	1618311	1051442	79,7312	7,3219	94,0304936	23,1716567	124,063919	2,0371	14,1422	861,5652	15,0764	17,929	65,929
Bizana EC	2633	1862	111	91484	111175	84841	67,4006	4,189	88,1310419	16,7747748	65,8194027	1,0807	5,281	321,9023	16,6948	20,288	77,429
Create	3130	58	4	4073	5517	2710	89,6552	3,4483	81,0344828	14,5	79,6946647	1,3086	3,0466	185,6745	24,8562	33,671	5,929
CSA	2028	44	6	2022	2553	949	70,4545	54,545	79,5454545	7,33333333	29,6520563	0,4868	0,9633	58,9549	11,8497	14,959	4,929
Escourt KZN	1993	411	25	29511	35618	15084	63,017	0,9732	92,9440389	16,44	56,7053549	0,9311	3,6086	220,0654	15,904	19,195	43,929
Eshowe KZN	2029	738	40	90508	102160	20746	74,6612	4,607	93,0894309	18,45	95,6022235	1,5698	3,855	235,0839	10,7068	12,085	21,929
Grahamstown	2682	78	5	6328	8205	2633	69,2308		83,3333333	15,6	62,6855786	1,0293	2,008	122,6065	20,9205	27,126	33,671
Grahamstown RUC	2793	49	4	14267	19028	5801	89,7959		79,5918367	12,25	290,063405	4,7629	8,4275	513,5315	24,6394	32,861	30,929
Hillcrest KZN	2556	680	37	77472	82923	27561	100	5	90,8823529	18,3783784	78,5210886	1,2893	4,264	259,9509	5,7528	6,1575	3,929
Jabulani	3123	79	4	6603	9077	4960	97,4684	5,0633	68,3544304	19,75	84,0746373	1,3805	4,4666	272,3078	20,7685	28,55	58,929
Khululeka EC	1836	1056	67	84984	119857	99840	88,2576	13,447	91,7613636	15,761194	108,168733	1,7761	1,9532	119,2479	27,6454	38,99	84,929
Limehill KZN	1838	1069	66	136879	157949	45997	73,5267	5,4256	93,4518241	16,1969697	77,6977743	1,2758	5,3043	323,3138	12,5711	14,506	29,929
Manguzi KZN	1839	889	48	71602	66703	33969	89,7638	1,3498	89,3138358	18,5208333	50,7751749	0,8337	6,5865	401,391	-8,698	8,1029	52,929
Margate KZN	1840	1734	138	184104	241221	54896	82,699	7,1511	87,9469435	12,5652174	66,4597891	1,0912	4,9623	302,51	22,6469	29,673	23,929
Matatiele EC	1835	12098	668	1532547	2078586	1332675	75,8224	6,0175	89,3701438	18,1107784	133,614929	2,194	9,2503	563,6356	24,3099	32,972	65,929
Melmoth KZN	1841	1947	97	220823	186160	129901	76,528	3,3898	93,9393939	20,0721649	96,8687984	1,5906	7,0108	427,2032	-21,9206	-18,48	72,929
Mount Fletcher EC	2030	6669	356	978070	1366243	859269	70,0105	5,2482	87,614335	18,7331461	149,802902	2,4598	6,6355	404,3982	26,4461	36,942	64,929
Mount Frere EC	2031	1827	104	198045	253123	115455	85,0575	1,7515	92,2276957	17,5673077	95,9725095	1,5759	5,4611	332,8648	21,2643	27,178	46,929
Mpendulo EC	1842	511	34	69535	88904	83502	84,3444	0,7828	77,2994129	15,0294118	180,739647	2,9678	14,3512	874,2828	21,7869	27,856	94,929
Mpumalanga Tholuwazi Tholimpilo	2838	13	1	619	696	507	76,9231	61,538	84,6153846	13	50,73641	0,8331	0,49	30,2665	8,4521	9,5068	75,929
Msinga KZN	1843	3181	156	373262	344472	195295	87,7083	7,4191	98,176674	20,3910256	97,1615861	1,5954	5,2138	317,8262	-9,3306	8,6109	57,929
Mt Ayliffe EC	2632	522	30	40170	56927	38073	80,0766	0,3831	93,6781609	17,4	88,3355095	1,4505	3,813	232,4722	29,0762	41,205	67,929
Northern Cape	3127	117	12	5845	7803	2905	78,6325	18,803	92,3076923	9,75	48,422635	0,7951	2,799	170,7805	17,8702	23,859	41,929
Qwa FS	1844	1358	73	171922	79969	51402	74,2268	4,4183	94,1826215	18,6027397	63,616392	1,0446	5,5541	338,5625	-116,597	54,235	66,929
Richmond KZN	1845	2970	148	340596	367974	224059	69,1919	7,7441	92,7272727	20,0675676	109,779083	1,8026	3,2678	199,3246	5,4623	5,9014	62,929
Table Mountain KZN	1846	5435	240	608173	680947	427016	72,2907	6,2925	92,3643054	22,6458333	102,598658	1,6847	2,7575	168,2415	9,6936	10,854	63,929
Ubunye EC	1834	2741	159	291369	339882	267537	94,9653	9,1937	86,610726	17,2389937	129,683333	2,1294	4,0081	244,4171	12,5555	14,646	80,929
Underberg N&S KZN	1847	4683	226	536624	608711	402389	72,603	8,7551	87,080931	20,7212389	112,903715	1,8539	4,4254	269,828	10,8303	12,285	67,929

<b>Underberg W KZN</b>	1848	2093	95	200079	234850	176736	63,6885	5,5423	93,8365982	22,0315789	101,455685	1,6659	2,5735	157,0157	13,781	16,176	76
<b>Valley Trust KZN</b>	1849	208	12	10185	12793	9216	86,5385	2,8846	100	17,3333333	59,4595181	0,9763	3,5854	218,6689	18,0739	22,701	74
<b>Total</b>		66911															

**ANNEXURE 2 SAVIX RAW DATA – 31 PROJECTS IN SOUTH AFRICA (3477 SAVINGS GROUPS WITH A TOTAL MEMBERSHIP OF 66 911**