SAVINGS PATTERNS OF SMALL-SCALE FARMERS IN A PERI-URBAN AREA (MORETELE DISTRICT: NORTH WEST PROVINCE)

by

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ABSTRACT

The study uses the conventional economic approaches to savings behaviour as a point of departure. In the past, agricultural programmes and policies overlooked the importance of savings mobilization in favour of credit extension programmes. This line of economic development approach arose from the assumption that poor rural people cannot save and will not respond to opportunities to save. The latest research results clearly demonstrate that rural people do mobilise significant voluntary savings, even at their low levels of income.

The thrust of the study was to research savings behaviour and motivation to save by resource poor farmers, with specific reference to farmers in Moretele District, Northwest Province. The study tested the hypothesis that poor people cannot save, and went further to analyse determinants of savings behaviour, motivations to save, sources of savings mobilization, savings accounts used and motivations to use a specific savings product. The application of the life cycle hypothesis was also analysed.

Linear multiple regression, Ordinary Least Squares (OLS) technique, analysis of variance (ANOVA), and factor analysis (FA) were used to analyse the data pertinent to the study. The findings of the study confirmed income as a major determinant of savings mobilization in the district. The extent of dependency, defined as the proportion of the population of a country falling in the age groups of 0-15 and 64 years and older, considered economically unproductive and therefore not counted as part of the country's labour force was found to have a negative effect on the ability of farmers to save. This is due to large family sizes and high levels of dependency in households. Age was also discovered to influence savings behaviour, but not in accordance with the application of the life cycle hypothesis. With regards to motivations to save, it was found that farmers in the district mainly save to cater for emergencies and for grandchildren's education, and not for accumulation/investment purposes. In addition to the abovementioned savings motives, farmers were however found to consider an investment imperative as reflected by an interaction between savings for accumulation and emergency purposes. The low investment imperative may change if other emergency management structures are considered.

The main sources of savings mobilization for the farmers were income from livestock sales and government social security grant (government old age pension). These farmers were discovered to prefer ordinary savings plans. The rationale for this choice was found to be motivated by ease of quick access to savings and the liquidity provided by this savings product. The liquidity requirement is regarded as a strategy to address emergencies and any other financial need that might arise.

The findings of the study calls for policy instruments that will expedite the implementation of outreach programmes and strategies for voluntary savings mobilization that will cater for investment imperative and emergency needs. Critical to this will be the development of savings products that respond to the various needs of resource poor farmers as well as to serve different categories of rural savers. The decentralization of savings institutions and linking of formal and informal financial institutions will enhance access to financial services by the rural population. Policies intended to discourage large families would help reduce the high rates of dependencies and relieve pressure on household income, which could be used for savings.

SPAAR PATRONE VAN KLEIN SKAAL BOERE IN DIE SEMI-STEDELIKE GEBIED (MORETELE DISTRIK: NOORDWES PROVINSIE)

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UITTREKSEL

Die studie gebruik die konvensionele ekonomiese benadering tot besparings gedrag as 'n vertrek punt. In die verlede, het landbou programme en landbou beleid die belangrikheid van besparings mobilisasie ten behoewe van krediet uitbreidings programme oor die hoof gesien. Hierdie benadering tot ekonomiese ontwikkelings het ontstaan aan uit die veronderstelling dat arm landelike bevolkings nie in 'n posissie is om te spaar nie en ook nie ontvantlik is vir geleenthede om te spaar nie. Nuutste navorsings resultate bewys egter dat landelike bevolkings wel vrywillige besparings mobiliseer, selfs op hul lae inkomste vlakke.

Die klem van die studie is om besparings gedrag en die motivering om te spaar te bestudeer in die geval van arm boere, met spesifieke verwysing na boere in die Moretele Distrik, Noordwes Provinsie. Die studie toets die hipotese dat arm mense nie kan spaar nie, en gaan verder deur 'n analise te doen oor die vasstelling van besparings gedrag, die motivering om te spaar, bronne van besparings mobilisasie, gebruik van spaar rekeninge en motivering vir die gebruik van 'n spesifieke spaar rekeninge. Die toepassing van die lewensiklus hipotese was ook geanaliseer. Lineêr veelvoudige regressie, Gewone Kleinste Vierkant (OLS) tegniek, analise van variansie (ANOVA), en factor analise (FA)was gebruik om die data te analiseer soos dit op die studie van teopassing is. Die bevindinge van die studie bevestig dat inkomste die grootste bepaler van besparings mobilisasie in die distrik is. Die omvang van afhanklikheid, gedefinieer as die

proporsie van die bevolking van 'n land wat binne die ouderdoms groep 0-15 jare en 64 jaar en ouer, word as ekonomies onproduktief beskou en word nie in berekening geneem as deel van die land se arbeidsmag nie, is uitgewys as 'n negatiewe invloed op die vermoe van arm boere om te spaar. Dit word veroorsaak deur groot families en 'n hoevlak van afhanklikheid op huishoudings. Dit was ook bevind dat ouderdom 'n invloed op besparings gedrag het, maar dit is nie in ooreenstemming met die toepassing van die lewensiklus hipotese nie. In de geval van die motiverings om te spaar, was die bevindinge gewees dat boere in die distrik hoofsaaklik spaar om voorsiening te maak vir noodgevalle en om kleinkinders se opvoeding te voorsien, en nie vir ophoping vir investering doeleindes nie. Die lae investering imperatief/noodsaaklikheid mag verander as ander nood bestuur strukture in ag geneem kan word.

Die hoof bron van besparing mobilisasie vir boere was inkomste wat verdien was uit lewende hawe verkope en staatsouderdomspensioene. Verder was bevind dat die boere gewone spaar planne verkies. Die rasionaal grond vir die keuse was gemotiveer deur maklike en vinnige toegang tot besparings en die likiditeit wat voorsien word deur die besparings rekening. Die likiditeit vereiste word in ag geneem as 'n strategie ten opsigte van die voorsiening in noodgevalle en enige ander finansiële verpligtinge wat mag ontstaan.

Die bevindinge van die studie vereis dat beleidsinstrumente in plek gebring moet word wat die implementering van ui reikings programme vir vrywillige besparing mobilisasie bespoedig wat voorsiening maak vir investerings imperatiewe in noodgeval behoeftes. Verder is die ontwikkeling van besparings produkte wat reageer op die verskillende hulpbron behoeftes van arme boere sowel as die behoeftes van verskillende katogorieë van plattelands spaarders. Die desentralisasie van besparings instellings en die skakeling met formele en informele instellings sal die toeganglikheid tot finansiele dienste deur die plattlandse bevolking verhoog. Beleid wat daarop gemik is om groot families te verhoed sal help om die hoe mate van afhanklikheid te verminder en sodoende minder druk uitoefen op huishoudelike inkomste, wat vir besparing aangewend kan word.

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LPD	Lembaga Perkreditan Desa
KURK	Kredit Usaha Rakyat Kecil
BKK	Badan Kredit Kecamatan (Central Java)
LPN	Lunbung Pitih Nagari
BKPD	Bank Karya Produksi Desa
LPK	Lembaga Perkreditan Kecamatan
BRI	Bank Rukyat Indonesia
BKD	Badan Kredit Desa.

CHAPTER 1

INTRODUCTION

1.1. Background

Almost all models of economic development incorporate a critical role for savings and capital accumulation. Several theorists of the low-level-equilibrium trap adopt the simplification that all income is consumed until a critical level is reached, while a fixed proportion of income above this level is saved (Gersovitz, 1983). Yusuf *et al* (1984) argue that Keynesian economists regard the level of current income as the very first rung in a theory of savings. How much an individual, a family, a region, and a nation might save, depends, quite appropriately, on total earnings. This formulation is the fundamental building block of most aggregate saving functions.

The level of income is however but one of the many variables impinging on the decision to save. The "ratchet" theories of spending, which have proven to be fruitful, assume that by virtue of habit, or out of sense of caution, individuals are slow to increase their consumption as their incomes increase. Therefore, the more swiftly incomes expand, the greater will be the volume of savings in the economy. What is spent or saved is determined by reference to permanent income. An unexpected increase in income is treated as transitory and is frequently saved.

However, decisions to save are not guided only by income, but also by stock of assets and family characteristics. As people become wealthier, the utility from postponing consumption in the current period for the sake of higher consumption in later years is likely to diminish, with the result that savings is cut back. Individuals might also have a target level of savings, which once achieved, discourages them from further accumulation. This line of thinking posits a negative relationship between savings and wealth. According to Hefferan (1982), savings begets savings. Insufficient income constrains family budget decisions, but motivation and experience may also be important constraints on the savings levels of families. According to Bautista *et al* (1990), savings is a means not only of reducing fluctuations in income and smoothing consumption over time but also of earning interest. Given the inter-temporal nature of the saving process, it is hypothesised that it is the lifetime income of the individual that influences savings, not just the current income, which is the sum of permanent and transitory incomes, the former reflecting the individuals' life-time earnings.

1.2 Problem statement

Agricultural programmes and policies have in the past generally ignored rural deposit mobilisation (Meyer, 1989). According to Adams *et al* (1978), people assumed that the rural poor cannot save, and therefore will not respond to incentives or opportunities to save. Miracle *et al* (1980) noted that the great bulk of the African population makes little or no use of formal savings and lending institutions. There are few banks in most areas and those that exist are either not available to, or if available not used by the majority of the population. In most tropical African countries, over 70 per cent of the population is rural, and banks are almost exclusively situated in the larger urban centres. Location is however only part of the problem. Even the portion of the population that lives near urban centres makes strikingly limited use of formal financial institutions.

According to Ellis (1992), the main feature of the rural poor is that their income is uneven, their potential to save often involves very small amounts, they cannot afford 'costs' associated with saving (including time and distance costs), and they are concerned about the security aspect of saving. For peasants who are not-so-poor, lack of saving is much more to do with lack of opportunity, or distrust of the alternatives available, than to do with low savings capacity. Households keep their assets in goats or cattle, rather than in the bank, especially when the transaction costs associated with savings mobilization are high. According to Kasekende (1998), higher anticipated inflation normally leads to lower real interest rate and causes adjustments in portfolio changes. Due to the underdeveloped capital and financial markets in many less developed countries, portfolio adjustments in investments would move from real money to real assets such as livestock, buildings, land, etc. The traditional view that small farmers and poor rural people are unable to save is wrong as has been proved by the success achieved by, for example, the Grameen Bank in Bangladesh and the existence of other informal savings mechanisms found throughout the world.

The success achieved by the Grameen bank and other informal financial institutions shows that there is potential and ability of formal financial institutions to mobilize rural savings. However the full weight of the role commercial banks are supposed to play in mobilising rural savings has often not been felt as a result of certain features of the formal banking industry. Most of these commercial banks are located in the urban areas, whereas the majority of the country's population live in the rural areas (Onyenwaku *et al*, 1992). The limitations in accessing appropriate deposit facilities contribute to poor households using informal savings instruments such as holding cash, in kind savings (animals, grains,

raw materials, etc), Rotating Savings Credit Associations (ROSCAS) and other forms of monetary and non-monetary savings and loan associations (CGAP, 1998). Spio *et al* (1994) maintain that rural savings mobilisation is essential for development and sustainability of rural financial markets. It contributes to post project sustainability of financial intermediaries which, in their turn, are vital for economic development. For decades, donors, and policy-makers have, however, embarked on supply-led credit (extension of credit) at the expense and neglect of rural savings mobilisation.

Rural deposit mobilisation was ignored because of the assumptions that poor rural households cannot and will not save. Subsidised lending rates were cornerstones of many programs, justified either as a means to encourage farmers to borrow to make socially desirable investments or as an attempt to improve the rural income distribution. Since interest rates were set low for loans, interest rates paid on deposits also had to be low unless subsidies were provided to savers or financial institutions. Low deposit interest rates discouraged rural deposits. Large amounts of foreign grants and loans were available to finance agricultural credit at subsidised rates. As these funds were available to lenders at low interest rates, there was little incentive for them to mobilise rural deposits, especially if they expected rural deposit accounts to be small and expensive to administer.

Banking regulations normally forbid some specialised rural agencies, such as agricultural development banks to accept deposits from the public, even if they had wide networks of branches (Meyer, 1989). Coetzee (1998) reflecting on the South African Banking regulations argues that although the main objective of the Banking Act is to create a common regulatory framework for deposit taking to safeguard the investments of depositors and protect the integrity of the banking system, the disadvantage attached to application of the Act is that the current regulatory conditions created barriers to entry that has led to the emergence of a few powerful banking groups who dominate the industry. The main Banking groups operating under the Act generally do not cater to the demands of low-income communities for financial services. The Act introduced a general prohibition on taking deposits from the general public unless the entity is registered as a bank. Another argument used to justify the neglect of savings mobilisation in rural areas is that if financial institutions were encouraged to mobilise savings aggressively, savings would simply be diverted from one institution in a rural area to another in an urban area or from rural to urban areas (Spio, 1994, citing Wague, 1988). Most conventional credit schemes were supply driven and envisaged no role for savings mobilisation (Ellis, 1992). Some formal credit institutions deliberately discouraged saving by imposing high transaction

costs upon savers (inconvenient hours, standing in line, red tape, etc.) Ellis (1992, citing Adams *et al* 1979). Spio (1994, citing Adams *et al* 1984) argues that financial institutions that neglect rural savings mobilisation are incomplete institutions. They do not only fail to provide adequate services to the rural savers, but they also render themselves less viable because of high rates of loan delinquency.

According to Coetzee (1998), the South African formal financial sector is well developed and compares favourably with those of the industrialised countries. This sector however has an element of urban bias implying that access to commercial banks by rural people is stunted. The study revealed that in South Africa, one commercial bank services about 15 000 people compared with one commercial bank that serves from 100 000 to 450 000 people in the rest of Africa. However, this positive outlook does not translate into enhanced access to the commercial banks by the rural population as 70 percent of the commercial bank outlets are based in urban areas, and service the commercial sector and urban people only.

The automation of banking services in South Africa is well developed in urban and peri-urban areas than in rural areas. The absence of commercial bank networks in rural is largely because commercial banks perceive the transaction costs of operating in rural areas to exceed the income that may be generated and therefore decide not to open branches or automated service centres in those areas. However, a study conducted by Coetzee (1997) revealed a high level of savings propensities with commercial banks among rural households in South Africa. Coetzee (1988) discovered that 55 per cent of respondents in a survey in Kangwane saved regularly and that self-financing was more important than financing by credit.

According to CGAP (1998 citing Roux *et al*, 1992), the efficiency of the financial system is normally gauged by its ability and willingness to mobilise savings and channel them to the most efficient application in the economy. This element of inflexibility was found lacking in the South African banks as they do not lend enough to small business or small-scale farmers because of perceived high transaction costs and risk. Coetzee (1998) compared access to commercial bank between urban and rural households in South Africa. He found that one branch serves about 9500 in urban areas as opposed to 22000 people per branch in rural areas. This limitation or lack of interaction between commercial with rural people deprives the rural people the opportunity to transact, either through savings or borrowing. The study aims to identify and analyse the effects of specific socioeconomic

factors on small-scale farmers' savings behaviour in a peri-urban rural area of Moretele district in the North West Province. The outcomes of this study will shed light on the validity of certain assumptions on savings behaviour, theories on savings and the impact of determinants of savings in influencing savings behaviour of small-scale farmers in South Africa. The following specific set of subproblems will be addressed:

i) which socioeconomic factors contribute to a small-scale farmers' savings behaviour,
ii) what impact do these factors have on savings,
iii) what are their main sources of savings for this group of farmers,
iv) what influences farmers' savings behaviour,
v) what is the impact of agricultural income on total savings, and
vi) test the validity of the assertion that small scale farmers cannot save due to their low levels of income.

1.3. Hypotheses

It is generally perceived that the low level of small-scale farmers' savings is a direct result of their low levels of disposable income. The marginal propensity to save by small-scale farmers is low due to the following hypothesised reasons: low levels of household 's disposable incomes; large family sizes and high dependency levels, small farming units; farmers are old, low levels of formal education, limited access to financial institutions; low levels of interest rates and lack of knowledge on interest rates earnings on savings.

1.4. Purpose of the study

The broad objective of the study is to test the validity of the hypothesis that poor people do not save with specific reference to small-scale farmers in a peri-urban rural area in Moretele district, North West Province. The study will analyse the impact of family size (dependency ratio), age of the of household head, farm size, farming experience, distance to commercial banks, interest incentive (investment) and the level of farmers' education on small scale farmers savings behaviour. The study will further analyse different motivations for savings as well as savings accounts used for savings mobilization. Relevant literature on savings behaviour by small-scale farmers will also be reviewed in

the process. Finally, the study will propose policy recommendations on measures which could be implemented to stimulate savings.

1.5. Motivation

Relatively little is known about rural household savings in low-income countries. Exacting data requirements, the large number of heterogeneous decision-making units involved, the complexity of the household decision-making process, and inadequate theoretical models of household saving behaviour has hindered analysis and the development of an understanding of savings behaviour of rural households. In most studies, household savings are ignored, and emphasis is placed on government, corporate, and aggregate savings performance. It is easy to overlook the fact that households savings makes up the largest part of aggregate savings in market-oriented economies. A study of seven countries in Asia, for example, showed that household savings made up one-half to two thirds of total savings. Several economists have argued that household savings, as well as aggregate savings, may be closely related to financial market policies. They argue that financial markets influence the forms in which savings are expressed, as well as the total amount of potential consumption which is diverted to savings (Adams, 1978).

The past lack of the recognition of deposit mobilisation has recently created an urgent recognition of the need for and benefits of mobilising more rural deposits for use in agricultural lending. In the view of Onyenwaku (1992) rural development cannot be achieved if capital is not accumulated through savings. For the agricultural sector to develop, proper policy instruments will need to be put in place to create opportunities for agricultural advancement. Development can, in synergy with other factors, be sustained by good financial support via the rural financial markets. Farmers' savings therefore form the cornerstone of rural financial markets. An attempt will be made in this study to contribute to the development of instruments that will empower small farmers to take their rightful place in the financial sector of the economy. The basic reasons for studying savings behaviour in developing countries are the following, (Deaton, 1989):

- At the micro-economic level, developing country households tend to be large and poor; they have a different demographic structure than the developed countries; more of them are likely to be engaged in agriculture; and their income prospects are much more uncertain.

- At the macroeconomic level, both developing and developed countries are concerned with saving and growth, with the possible distortion of aggregate saving, and with saving as a measure of economic performance. But few developing countries possess the sort of fiscal system that permits deliberate manipulation of personal disposable income to help stabilise output and employment.

- Much literature expresses the belief that savings in developing countries is too low, and that development and growth are impeded by the shortfall. The problem is sometimes blamed on the lack of government policy, sometimes on misguided policy.

- Saving is even more difficult to measure in developing than in advanced economies, whether at the household level or as a macroeconomic aggregate. The resulting data inadequacies are pervasive and have seriously hampered progress in answering basic questions.

The conclusion of this study will contribute to a more integral approach in micro-finance by raising the awareness of small and micro-savings services as an important financial instrument to reach the poor and contribute to financial self-sustainability of rural financial intermediaries. According to the Sunday Times (21/02/1999), South Africans are generally heavily indebted and therefore display no culture of savings. According to the report, gross domestic savings in South Arica declined to 13 percent of GDP from well over 20 per cent a decade ago. People save on average just 0.5 per cent of their disposable income while the ratio of debt to disposable income is over 66 per cent. This, according to the report, is a direct result of lack of government policy to encourage savings from the broad population.

1.6. A priori expectations

On a priori grounds, it would be expected that the coefficients of income, loan volume, education, farm size, farming experience, proximity to a bank, rate of interest, occupation of household head and membership of cooperative societies to be positive indicating direct relationship with savings and the propensity to save while the coefficients of age and household size would be negative showing inverse relationships with savings and the propensity to save, thus:

(i) The higher the level of income, the higher the level of savings *ceteris paribus*. This is in consonance with economic theory.

(ii) Education improves the quality of labour, and the ability of the farmer/rural resident to derive, decode and evaluate information. It also exposes the farmer to more investment opportunities and is therefore expected to be positively related to savings.

(iii) The more experienced farmers are expected to be more efficient in their farm operations and thus to have more income and savings, as well as the willingness to save.

(iv) The existence of a bank in the rural area is supposed to have a salutary effect on rural savings habits. Thus, nearness (proximity) to a bank is expected to have a positive relationship with the household's average propensity to save and the actual amount saved.

(v) The larger the size of the farm, the higher its output and income and consequently the larger its level of saving and the propensity to save.

(vi) Membership of cooperative societies improves farmers' access to sources of knowledge and information, thereby reducing risks and uncertainty in farming. It also improves farmers' access to cheaper sources of credit and other important factors of production. Moreover, cooperative societies inculcate a sense of thrift in their members and hence the positive relationship postulated to exist between it and savings.

(vii) Age of the farmer is expected to be negatively related to savings. This is because as the farmer grows old, his horizon shortens and he might start consuming all that he produces. According to the life-cycle hypothesis of savings, a person would be expected to save up to a point and then start dissaving as he grows older.

(viii) The larger the household size, the larger the expenditure of the household and thus the lower the level of savings and the propensity to save of the household (Onyenwaku, *et al*, 1992).

(ix) Savings rates are higher for th[boilerplate: UNIVERSITEIT VAN PRETORIA / UNIVERSITY OF PRETORIA / YUNIBESITHI YA PRETORIA] in less riskier ones (Skinner, 1988).

(x) The real rate of interest has a positive effect on savings (Deaton, 1993).

1.7. Limitations of the study

- The first limitation of the study is the unavailability of time-series data. Thus the analysis of the savings function will be restricted to cross-section analysis and cannot account for cyclical changes which cause the sample to deviate uniformly from expectations.

- The accuracy of the data is not perfect due to its non-experimental nature and possible observational errors. Problems of approximations, aggregation and rounding off further dilute accuracy of the data.

- Because of the surveying techniques used, household income is probably under-reported. The ratios used in this study are, therefore, conservative estimates of actual household savings capacities.

1.8 Outline of the study

Chapter 1 gives an overview of the theoretical arguments on the importance of savings mobilization. The problem statement and objectives pertinent to the savings behaviour of resource poor farmers in the study area are also formulated and presented in this chapter. The hypotheses underlying the theoretical foundation of the study are presented followed by an exposition of the broad purpose and motivation for the study.

Chapter 2 presents a comprehensive literature review on savings behaviour. The chapter is divided into the following areas of focus: an outline of the background information on the historical development of savings and credit policies as instruments to stimulate agricultural production in rural areas; alternative theories to saving behaviour such as permanent income hypothesis, absolute income hypothesis, relative income hypothesis and the life-cycle hypothesis;

review on determinants of savings; role of savings on rural households and financial market; and finally, a review on the dichotomy of formal and informal finance.

Chapter 3 concentrate on the description of the socioeconomic characteristics of the study area, research procedure, methodology of data collection and analysis. The statistical analysis of the data and results are presented in chapter 4. Chapter 5 outlines the summary of the findings, conclusions and policy recommendations.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

The chapter on literature review is divided into six sections. The second section after the introduction outlines the background on the historical development of savings and credit policies as instruments to stimulate agricultural production in rural areas. The debate was finally synthesised by Adams *et al* (1980) into two distinct schools of thought on rural finance, namely, credit project view and the market performance view. Theories on alternative approaches to saving behaviour are captured in section three. These theories include permanent income hypothesis, absolute income hypothesis, relative income hypothesis and the life-cycle hypothesis.

Section four concentrate on various determinants of savings which covers the following, terms and conditions for saving, cost of saving operation, transaction costs, inflation tax, influence of taxation policy on savings, returns from savings, interest rates, safe keeping, term transformation, income, wealth, farm size, household size and dependency ratio, level of education and finally, proximity to the bank. The role of savings mobilization on rural households and financial markets is attended to in section five. Section six concentrates on the importance of deposit mobilization in rural financial markets. The dichotomy of formal and informal finance is presented in section seven.

2.2 Background

Savings behaviour has traditionally occupied the centre stage in many areas of macroeconomic research. Recently, problems and issues related to savings have assumed added importance. Some stylised facts, particularly the fairly general decline in household saving rates in the 1980s, their large differences across countries and variations in the sectoral breakdown of savings among countries, seems to call for an explanation (Koskela *et al*, 1992). Many lending institutions in developing countries have depended upon government or donor funds for expanding lending to priority sectors including agriculture. They are now being pressured, however, to rely less on these traditional sources of funds, and become more self-sufficient

through deposit mobilisation (Meyer *et al*, 1990). In the past several decades aid agencies have spent in excess of $5 billion on rural financial markets (RFM) projects. These projects have accompanied substantial increases in the number of institutions providing formal loans in low income countries (LICs), as well as increases in amounts spent by local governments for agricultural credit. Currently the volume of new agricultural loans is declining since the 1980's. In several countries, especially Brazil and Thailand, agricultural credit programs make up a very large part of the efforts aimed at agricultural development.

In part, this intense interest in agricultural credit projects results from the ease with which they can be carried out and the feeling that loans are a vital part of a package of inputs needed to stimulate change in agriculture. Some policy makers have also regarded cheap credit as an effective way of offsetting policies that penalise agriculture, and at the same time a convenient way to treat rural poverty. This emphasis on loans to stimulate production and to help the poor has unfortunately diverted attention from the essential properties of finance, the process of financial intermediation, and the basic role that rural financial markets ought to play in rural development.

While some attention has been given to overall resource mis-allocation caused by rural financial market's policies, little attention is paid to how RFMs intermediate between borrowers and savers. There are two schools of thought on how success should be measured in rural finance activities: the traditional credit-project view and the newer market performance view (Adams,1991and Adams *et al*, 1980).

According to Durojaiye (1991; citing Snyder 1974; Alamgir, 1976; Hyun *et al* 1979), household characteristics other than income also affect consumption-saving behaviour and thus the marginal propensity to consume (MPC) out of permanent income. Following the works of these researchers, he hypothesised that the household characteristics that influence MPC out of permanent income study includes dependency ratio, family size, the level of educational attainment, age and occupation of the head of the household, the stage of the household in the family life cycle, and the rate of growth of income of the household. Kotlikoff (1989) contends that economists have for long been interested in savings for several reasons. A detailed discussion of saving reasons are covered in sections 2.6 and 2.7 in chapter 2.

Savings constitute the supply of capital, which with labour constitute the two primary inputs to production. Savings, or non-human wealth, together with human wealth, determine which individuals or families, regions, and nations are rich and which are poor. Savings, which equal the sum of past savings (non-human wealth accumulation), influence current savings on both human and non-human wealth; indeed, savings constitute the central economic link connecting the past, the present and the future.

The study of savings brings together analysis of consumption choice, labour supply, demographics, economic growth and government policy. This joint analysis raises other issues in its turn such as the nature of preferences, the rationality of expectations, the degree of economic risks, the completeness of insurance markets, and the role of credit institutions. While it would be convenient if each of these influences on savings could be understood one at a time and in partial equilibrium, such is typically not the case.

Savings are used for productive investment, consumption, and social welfare (e.g. old-age security, expenses connected with rites of passage, religious festivals, and enhancement of status). It is commonly assumed that poor people principally use savings for consumption and social welfare and that high-income earners invest their surplus funds in productive activities to increase income and hence future consumption. This implies that the poor are not interested in improving their economic and financial position (Boumann, 1984).

According to Bautista *et al* (1990), savings, both domestic and foreign, finance the (physical and human) capital formation needed to increase output; this is of particular importance to typically capital-scarce Less Developed Countries (LDC's). Apart from its direct contribution to output growth, capital accumulation also makes possible the employment of complementary production inputs in abundant supply, for example, unskilled labour in most developing countries, and serves as a vehicle for the adoption of improved technologies embodied in new investments. Household savings are always the largest component of domestic savings in developing countries, especially the lower income, predominantly agricultural LDC's. The ability, willingness, and opportunity of households to save over time can significantly influence the rate and sustainability of capital. Onyenwaku *et al* (1992) hold the view that adequate integration of savings programmes into development strategies offers a number of important benefits in terms of improvements in

resource allocation, establishment of viable financial institutions, reduction in credit delivery and recovery costs, controlling inflation and promoting equitable distribution of income.

Savings (Deaton, 1993), is regarded as the mainspring of economic development as it generates investment, without which there would be no economic growth. In the literature of economic development, much of the interest in saving has been focussed on the relationship between saving and growth. But saving is not only about accumulation. It is about smoothing consumption in the face of volatile and unpredictable income, and helping to ensure the living standards of poor people whose lives are difficult and uncertain Deaton (1989).

Ellis (1992) argues that the generation of funds from savers is a key feature of self-sustaining credit institutions. First, a strong savings base reduces the reliance on external funding. Second, savers and borrowers are often the same people at different points in time in the community, reducing the information costs of transactions. Third, people tied to an institution for both borrowing and saving are less likely to default on loans. Fourth, farmers with savings can often self-finance small outlays so that loans become orientated to bigger outlays with lower transaction costs per unit of money.

2.2.1 Credit project view

The basic assumptions underlying the credit project view are as follows:

- that the rural poor cannot save and therefore will not respond to incentives or opportunities to save,
- that most farmers need cheap loans and supervision before they will adopt new technologies and make major farm investments, and
- that loans in kind are used in the form granted.

Many designers and evaluators of rural credit projects view loans as part of a package of productive inputs. The success of these projects is usually measured by number of loans made to target group members, inputs purchased with loans, output increased through borrowing, and changes in levels of income or employment among borrowers. These measures concentrate on borrowers to the neglect of savers. In general, the durability of the credit activity, the welfare of

depositors, and the well-being of the financial system are largely ignored by individuals who support the credit project view.

Vogel (1984), argues that if financial institutions were encouraged to mobilise savings aggressively in rural areas, savings would simply be diverted from one institution to another or from rural to urban areas, and higher interest payments to depositors would drive the institutions towards bankruptcy or force them to lend outside of rural areas where higher returns can be obtained. A more basic explanation for the neglect of savings mobilisation may be that it is inconsistent with policies of low-interest-rate lending.

2.2.2 Market performance view

Spio (1994, citing Gonzalez-Vega,1989) argues that the deficiencies of the credit project view have led to a change of approach in the analysis and promotion of rural financial markets. This newer approach involves increased attention to deposit mobilisation, intermediary behaviour, reduction in transaction costs, cost-reducing financial innovations, the building of sustainable financial services, and policies designed to protect the performance of rural financial markets. Criteria suggested for measuring overall performance include loan recovery, transaction costs of lending and deposit mobilisation, number of people with sustained access to formal financial services, and the portion of lending that comes from deposits.

Proponents of this view argue that too little attention has been given to the benefits depositors realise from access to efficient financial markets. They suggest that the markets must be depositor dominated as opposed to borrower focussed. Coetzee *et al* (1994) argue that the provision of deposit-taking (savings) facilities should be encouraged and all legal barriers preventing institutions from taking up deposits should be reviewed. This criterion is based on the negative effects of ignoring the provision of saving facilities in conventional credit programmes. Local experience shows that the majority of rural entrepreneurs finance themselves out of savings, indicating a greater need for savings facilities than for credit facilities. In addition, there is evident lack of other financial services in rural areas. On the international front, especially Indonesia, Chaves *et al* (1991) contend that in comparison with other developing countries, the number of institutions, units, and clients reached in Indonesia are large and the funds mobilised

substantial. Indonesia emphasised savings mobilisation as an important strategy and as means of mobilising funds for loans. Whole rural financial systems have been established, not just pilot projects. Table 1 shows selected indicators of size for the Rural Financial Institutions (RFI's). At the end of 1991, the largest system, Bank Rakyat Indonesia (BRI) had a loan portfolio equivalent to US$738 million. In comparison, the other systems are small, but still large relative to programs for poor borrowers elsewhere. The BRI had mobilised an impressive US$1.3 billion of voluntary deposits as well. Although less substantial, the savings mobilised by the other systems are significant compared to their loan portfolios.

Table 2.1. Indonesia: Indicators of Size for Selected Rural Financial Intermediaries. December 1991

Type	Loans Outstanding (Billion Rp.)	Deposits Outstanding (Billion Rp.)	Number of Borrowers (000)	Number of Depositors (000)
LPD	18.8	14.7	94	204
KURK	10.3	2.6	171	177
BKK-CJ	43.6	7.7	564	496
BKK-SK	1.3	0.6	14	n.a
LPN	3.7	2.0	19	57
BKPD-LPK	74.0	44.9	218	405
BRI	1476.0	2542.0	1900	8500
BKD	56.0	2.0	1073	235
TOTAL	**1680**	**2616.5**	**4053**	**10074**

Source: Compiled by Gonzalez-Vega and Chaves (1991) from reports of the Financial Institutions Development (FID) Project and the Bank Rakyat Indonesia.

These rural financial intermediaries (RFIs) altogether serve over four million people with credit services, and very important, over ten million savers use their deposit services. A critical observation is that deposit services are more important, in terms of both the number of customers (about two-and-a-half times) and the absolute amounts involved, than credit services. In the aggregate, the deposit balances (equivalent to US$1.4 billion) were larger than loans outstanding

(one billion in US dollars). While this result is influenced by the voluntary savings mobilised by BRI system, it certainly reflects a substantial demand for deposit facilities in the rural areas of Indonesia. According to Meyer (1989, citing Jetha *et al*, 1984; Meyer *et al*,1984; Von Pischke, 1983; Bouman, 1979; and Mellor,1973), there are at least five reasons to believe that past assumptions about the amount of savings that are available in rural areas have been far too pessimistic:

i) All households save, no matter how poor, even if in small amounts for short periods of time. Abstention from consumption is normal and necessary for survival even if the interval before consumption is fairly short.

ii) Farmers save automatically. When production and consumption cycles are not synchronised, farmers regularly store some produce for consumption until the next harvest. Alternatively, they may choose to sell their harvest, pay past debts or expand consumption, and borrow before the next harvest.

iii) Rural households are heterogeneous. Rich households exist alongside poor ones; some households experience surpluses just when others face deficits, so the possibility exists for financial intermediaries to mobilise short and long-term deposits.

iv) While some rural areas are growing at slow rates and barely keep up with population growth, other areas are experiencing rapid changes in enterprises and technology. Rapid income growth due to technological change can increase rural consumption, savings and investment.

v) Foreign remittances offer new savings potentials in several countries. Many offshore workers come from rural areas, show a propensity for low consumption levels and large scale transfers of liquidity to their country of origin.

According to the findings of the Strauss Commission (1996), rural surveys in the past revealed a positive savings attitude by rural households but this desire is often frustrated due to locational inaccessibility of formal financial institutions. The survey also discovered that the Post Office as

a proxy for a bank is usually situated far from the potential savers thus further limiting the ability of rural savers to mobilise savings. A study undertaken in KwaZulu Natal revealed that people prefer to deposit their savings with the local post office rather than the commercial banks as these institutions are perceived as being unfriendly to rural savers (Strauss Commission, 1996). Unfriendliness of this institutions could be characterised by their inaccessibility, high transaction costs associated with mobilising savings, and other socioeconomic constraints felt by rural savers.

Rural savers, according to the findings of the commission, find the commercial banks' style of "glass and swinging doors impersonal and overwhelming" and hence prefer to deal with savings institutions at a more local level. The study also revealed that the surveyed people indicated an array of reasons influencing their savings patterns. The primary rationale for savings was found to be for education of children and insurance purposes, with no intention to reinvest savings in farm operations. The conclusion drawn from the study was that rural people will not switch their savings to alternative institutions unless those institutions provide better access, perceived as financially sound, and offer competitive interest rates.

2.3 Theories on saving and consumption expenditure

The role of savings in economic growth has been an issue of long standing concern to development economists and has again been brought into the fore by the current spirited attempts at rural development in many countries. The question arises whether self-sustaining economic growth in the rural areas can be achieved through massive capital influx and concessionary policies or whether well designed programmes to mobilise rural savings are essential and necessary condition for rural development.

Some development economists maintain that government policies influencing rural household incomes such as concessionary interest rate policies, controlled and subsidised product and input prices, tax holidays, etc., result in weak incentives to save in rural areas. These development economists consider the saving rate as the determinant of self-sustaining economic growth. Thus they advise low income countries and rural areas to increase their saving effort as a means of generating investment funds and contributing to satisfactory rate of economic growth (Durojaije,

1991). Schrieder *et al,* (1991, citing Mauri,1983) that the savings threshold in developing countries is much lower than in developed countries. The savings threshold specifies the minimum income level above which savings can occur. The lower savings rate is due to a number of reasons, in addition to low levels of income, first, different consumption patterns and opportunities and second, socio-cultural settings and risk averse attitudes influence the savings threshold. The rural poor can no longer be considered unable to save.

According to Bronfenbrenner *et al* (1984) and Todaro (1985, citing Keynes, 1936), planned consumption spending and planned savings are determined to an important extent by income itself, by the amount of income received and by changes in this amount. If income rises, the theory proposes that a predictable part of the increase will be for planned consumption and that a predictable part will be saved. If income falls, there will be predictable decreases in both planned consumption spending and planned saving.

Keynes refer to the fraction or percentage of a change in income that will appear as a change in planned consumption spending as the marginal propensity to consume (MPC). Likewise, the percentage or fraction of an income change that will be planned saving is called the marginal propensity to save (MPS). Keynes further uses the concept of disposable personal income (DPI) to clarify MPC and MPS. The two important concepts in the Keynesian model are:

1. The marginal propensity to consume (MPC) is the change in planned consumption spending (C) that results from a change in disposable personal income, (Y).
   $MPC = \Delta C/\Delta Y$ (1)

2. The marginal propensity to save (MPS) is the change in planned saving, S, resulting from a given change in disposable personal income, Y, That is the ratio of change in saving to the change in income so that $MPS = \Delta S/\Delta Y$ or dS/dY. By definition,
   $MPC + MPS = 1$ (2)

The actual level of savings (Truu *et al*, 1987) during a given period of time (e.g. one year) may well depend on the actual level of disposable income earned during the same period of time. But savings may also be determined, to a greater or lesser extent, by income levels experienced in the recent past, or those expected to prevail in the foreseeable future, as well as by the net worth of

the households, measured by their assets and liabilities at different points in time. These alternative approaches to saving behaviour broadly correspond to four distinctive savings theories, known as the permanent income, absolute income, the relative income, and the life-cycle hypothesis, respectively.

2.3.1 Permanent income hypothesis

Friedman's permanent income hypothesis rests on several doctrines, one of which presumes that a consumer's measured (observed) income (Y) and consumption (C) in a particular period may be separated into transitory and permanent components, and that marginal and average propensities to consume out of permanent income are independent of the level of permanent income. A number of empirical tests of this hypothesis have shown that the marginal propensity to consume (MPC) out of transitory income is greater than zero, but less than MPC out of permanent income. Current income is viewed as the sum of permanent and transitory incomes, the former reflecting the individual's lifetime earnings. In its extreme form, the permanent income approach postulates equality between an individual's current consumption and permanent income. Friedman has proposed that permanent consumption be assumed equal to measured consumption (C). The permanent income hypothesis can be formulated as:

$$C = b_1 + b_2 Y_p + e \qquad (3)$$

Where b_1 is the MPC out of transitory income (Y_{tr}), the MPC out of permanent income (Y_p) is ($b_1 + b_2$), and *e* is the random error (Hyun *et al*, 1979) and Bautista *et al* (1990). According to Spio, (1994, citing Snyder,1974, and Friedman, 1957), the permanent income hypothesis is frequently used to explain aberrations in relations between saving (consumption) and absolute income. Consumption by households is an inter-temporal decision-making process.

Families allocate their receipts (income) to a flow of consumption expenditures over time. If in any period the consumption flow exceeds the receipts, the family dis-saves. If consumption is less than receipts, the family saves. The theoretical problem was to explain how families determine their sequence of consumption expenditures from the sequence of receipts. Friedman (1957) resolved this problem by postulating that observed income Y and consumption C are composed

of permanent (p) and transitory (t) components which are uncorrelated and that transitory elements have zero expected values.

$$Y = Yp + Yt \quad \text{..... (4)}$$

$$C = Cp + Ct \quad \text{..... (5)}$$

$$E(Ct) = E(Yt) = 0 \quad \text{..... (6)}$$

$$E(Cp\ Ct) = E(Yp\ Yt) = 0 \quad \text{.....(7)}$$

The following is a Keynesian version of the aggregate savings function :

$$C_0 =. Y \qquad (8)$$

$$S_0 = Y - C_0 \qquad (9)$$

Hence $S_0 = (1 - C_0).\ Y - C_0 \qquad (10)$

Where Y, C_0 and S_0 are respectively income, consumption and savings. C_0 is the marginal propensity to consume which is positive but less than unity, and $(1 - C_0)$ is the marginal propensity to save (Chauhan *et al*, 1972). Truu *et al* (1987, citing Friedman,1957) argue that consumption at the present time does not directly depend on current income, but rather on expected normal or permanent income. If the actual income of individuals is less than their permanent income, they will borrow to make up the difference; if more, they will use the opportunity to save. The estimation of permanent income is based on the hypothesis of adaptive expectations, which effectively means that values of current and past incomes with declining statistical weights are used. Friedman points out that the concept of permanent income is closely related to that of wealth, which is the ultimate constraint on an individual's consumption. The wealthier an individual is on the whole, the more will that individual consume, and vice versa.

A study undertaken by Durojaije (1991) on rural households consumption-savings behaviour in low income nations, in this case, Nigeria, revealed that households saved, on the margin, about one-fifth of their permanent income and about one-third to the whole of their transitory incomes. According to a study undertaken by Onyenwaku *et al* (1992) to determine savings mobilization among rural households in Nigeria, the results showed that the marginal propensity of the rural households to save was calculated as 0.62. The income elasticity of savings of the rural

households in the state was computed as 2.53, which implies that there is a high level of responsiveness of rural household savings to changes in rural income.

According to Wang (1995), rural household permanent income consists of income from household-based activities (agriculture, manufacture, construction, and other activities) and income from other sources (gifts and remittances from relatives and transfer payments from collective or state funds). According to the results of the survey undertaken (Wang, 1995) of the Chinese urban and rural households, as shown in figure 2, rural incomes show a hump shape over the life-cycle of a household. Of all rural Chinese households, 98.6 per cent have agricultural incomes that account for 67 per cent of the total income; 71.7 per cent of the households have non-agricultural income, but it accounts for only 15.4 per cent of the total income. In China, income from non-agricultural activities is highly uncertain due to the lack of employment security in the township and village enterprises.

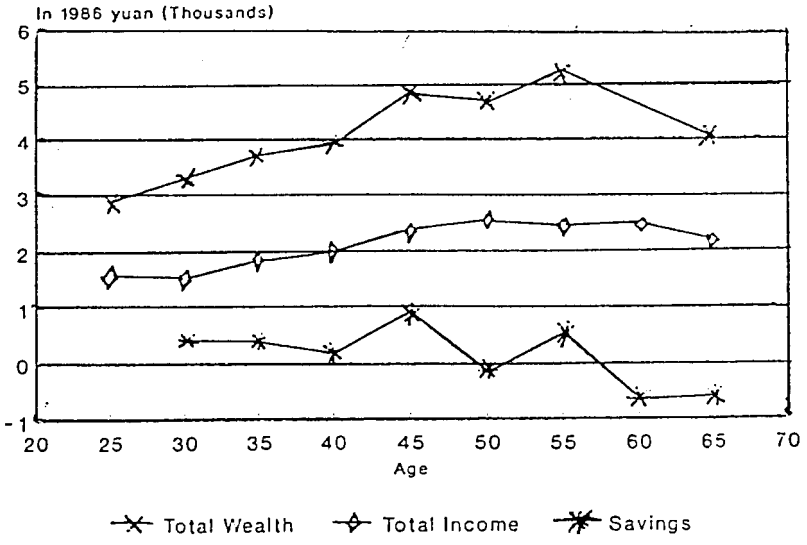


Figure 2: Wealth, income, and savings for rural households in China

2.3.2 Absolute income hypothesis

According to the short-term (or cyclical) theory of the consumption function, based on the absolute income hypothesis, the level of current consumption expenditure depends mainly on the actual level of the disposable income during a given time period, and partly on the phase of the

business cycle when the income is received. Keynes stated the following basic proposition about the absolute income hypothesis:

- Real expenditure on consumption can be expressed as a stable function of real income,
- the MPC obeys the restriction: 0<MPC<1,
- the average propensity to consume is greater than marginal propensity to consume, which implies that the relation of consumption expenditure and income is non-proportional, and
- the marginal propensity to consume decreases as income increases (Truu *et al,* 1987).

According to Spio (1994 citing Snyder, 1974) the absolute income hypothesis posits that savings is a stable, linear function of current income. The hypothesis postulates that household expenditure level is determined by its present income. Spio (1994) argues that contemporary research on income - consumption is mainly concerned with the application of permanent income and the life-cycle hypothesis.

2.3.3 Relative income hypothesis

Two broad meanings may be attached to the term relative income. On the one hand, it can refer to income that is received relative to the incomes of one's neighbours and associates. The basic idea here is that the consumption, savings habits and aspirations of a household are dependent on the living standards manifested by other households in its environment (the so-called demonstration effect). On the other hand, the expression may also refer to income that is received relative to one's own peak income reached in the past. The implication here is that a so-called ratchet effect is thus introduced into the consumption function.

According to this view, individuals will modify their consumption to a greater extent when their income rises than when it falls. This asymmetric behaviour can be explained in several ways. For example, it may be due to consumers' reluctance to cut back on their expenditures when income falls, because they have become accustomed to a high standard of living, while there is no similar resistance to increasing their consumption following an increase in income (Truu *et al,* 1987 and Bronfenbrenner *et al,* 1984).

2.3.4 The Life-cycle hypothesis

The basic idea underlying life-cycle hypothesis is that individuals and households tend to compensate for the fluctuations in income and prices over the life-cycle by saving and dissaving (Wang, 1995). Truu *et al* (1987, citing Ando, Brumberg, and Modigliani, 1963)) argued that an individual would spread his lifetime earnings in such a way as to enjoy an optimal lifetime pattern of consumption. Typically, income is comparatively low during ones' earlier and later years of life, and high in the middle of it. The individual would, however, attempts to smooth out his consumption path over his life span, even though disposable income itself varies. This is illustrated in Figure 3 below, where T represents the expected length of life.

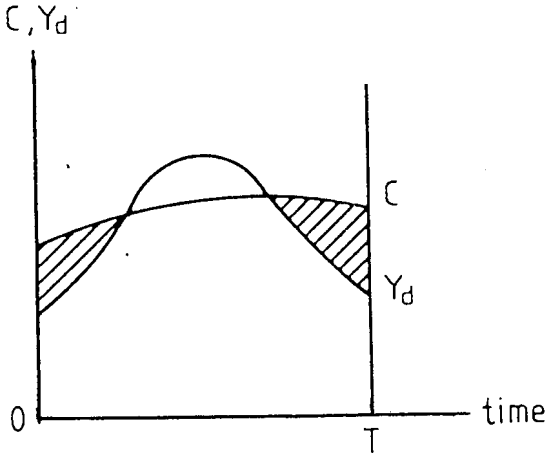


Figure 3: Income/life-cycle hypothesis

Source: Macroeconomics, Truu *et al* (1987).

This model suggests that the individual is a net borrower during his early years, corresponding to the first shaded area in the diagram. During the middle years of life, he saves in order to repay debt and to provide for his eventual retirement. During his advanced years, corresponding to the second shaded area in the diagram, he again dissaves. According to Spio (1994 citing Ando *et al* (1992), the life-cycle hypothesis presents a well defined linkage between the consumption plans of an individual and his income and expectations as to income, as he passes from childhood, through the work participating years, into retirement and eventual decease. It starts with the notion that the temporal distribution of resources is different from the optimal allocation of consumption over the life span, and that savings are needed to reallocate resources over time.

In its original version, it emphasised the features that, by and large, earnings are less than the optimal level of consumption after retirement and that they tend to be more than the optimal level of consumption during the middle range of family life. Burney *et al* (1992) discovered in a study commissioned in Pakistan that saving increases with age but tends to decline when age crosses a certain limit. Bautista *et al* (1990) argue that it is the life-time income of the individual, and not just the current income as implied in the Keynesian consumption function, that should influence current saving. The life-cycle model also suggests a higher rate of saving during certain periods, e.g., in pre-retirement years in order to provide for consumption in old age. The age of the individual would therefore be an appropriate determinant of savings. The strong retirement motive for saving in the life-cycle hypothesis can also be called into question in the context of the strong family ties that characterise many LDC households. Especially in the rural areas where the extended family system is more prevalent, there is a sense of obligation to care for the older, economically inactive household members. This also reduces the need for the younger members to save since their future consumption is expected to be provided for (at least partly) and weakens the expected relationship between age (of household head) and saving.

Deaton (1993) argues that in many poor countries, people do not need to save very much for retirement. They have a relatively large number of children, and cannot expect to live very long after the youngest child leaves home, if indeed he or she ever does. Even in developed countries, the reality of life-cycle saving is very different from the theory; there is very little evidence of dissaving among the old, and the life-cycle saving that does exist is modest in amount, confined to a relatively small number of households, and takes place in late middle-age, when incomes have risen above the consumption needs of the family. In countries such as Taiwan, where there is a great deal of saving, everyone seems to do it, irrespective of age or household composition. Old households are saving as large a percentage of income as are young households. The same behaviour was seen in Japan, Britain, and in Germany.

This section is intended to build a theoretical understanding of the main theories on savings behaviour, with special emphasis on permanent income and life-cycle hypotheses. Analysis of the data will only concentrate on the impact of permanent income hypothesis and the life-cycle hypothesis on small scale farmers' saving behaviour. In this study, permanent income of the small scale farmers consist of income from household based activities (agriculture, and other activities)

and income from other sources (gifts and remittances from relatives and transfer payments from collective or state funds) as defined by Wang (1995). The permanent income only reflects household income from a cross-section data for one year. The absolute and relative income hypotheses will not be tested in this study. They are merely mentioned for theoretical comparative purposes only.

2.4 Determinants of savings.

According to Kasekende (1998, citing Aghevli *et al*, 1995; Hadjimichael *et al*, 1995; Ando *et al*, 1963; Friedman, 1957, and Duesenberry, 1949), a number of studies have investigated the determinants of savings and came up with different conclusions. The Ando and Modigliani model assumes that individuals save mainly to smooth their consumption path over time in accordance with their expected lifetime income. According to the model, household savings depend on lifetime income, wealth and the expected returns on savings. According to this analysis, policies intended to affect savings had to affect households' incomes, wealth and expected returns on savings. In line with this argument, the buoyancy of economic activities, positive real interest rate policy, and other supporting macro and microeconomic policies are regarded as important stimulants of savings. The age structure of the population is also regarded as one of the major traditional determinants of savings. The contribution of the age structure of the population is discussed comprehensively under dependency ratios.

CGAP (1997, citing Vogel *et al*, 1986; Bouman, 1994, and Robinson, 1994) went further and identified the following factors as the main determinants of an economic actor's savings portfolio decision: the transaction costs incurred on transforming available surplus into a specific savings option or on liquidating it; the liquidity of the savings option; the real rate of return on specific savings option; the divisibility and safety of savings; and the trustworthiness of the institution with which savings are kept. These determinants are normally determined by various motives for saving such as insurance against retirement; disease; sudden income losses and other contingencies, consumption smoothing, wealth accumulation, etc.

These demand for savings by rural households is influenced by a variety of economic and non-economic factors. The political and economic instability that has existed in many countries has

obviously discouraged many economic activities. The degree of concentration of the rural economy affects the choice of assets held by a household. Lack of confidence in institutions generally and banks specifically thwart all types of financial activities. Literacy and economic sophistication will have an effect on how rural people obtain and utilise new information. There is a general consensus among development economists that an increase in income should lead to a rise in demand for savings generally and deposits specifically. The discrimination that exists against agriculture in many countries reduces income and, therefore the ability of rural households to hold deposits (Meyer, 1989)

Schrieder *et al* (1991) mentioned several constraints to the drive for financial savings mobilization, namely, savings capacity, motivation, the economic framework (interest rates, economic stability), convenient accessibility to financial institutions, and the availability of appropriate investment opportunities. The above discussion is assimilated into a set of distinctive variables that are assumed to influence savings. The specific determinants of savings are discussed in the section below. Two widely used theories, the permanent income and life-cycle hypotheses will be applied to the data to test their significance on the savings behaviour of small-scale farmers in the research area.

2.4.1 Terms and conditions

The rate of voluntary and compulsory savings mobilisation depends on numerous economic, social, and demographic variables. On the micro-level, these are the rates of income growth, attitudes towards thrift, and age composition. Macro-economic and political stability as well as governmental services and taxes further influence the drive to save. Therefore, the explanatory variables for savings mobilisation ought to be optimised on the saver and collector level (Schreider *et al*, 1991 citing World Bank, 1989)

2.4.2 Cost of savings operation

The cost to save financially and to collect savings influence savers attitudes to deposit money on the one hand and financial intermediaries' attitude to collect deposits on the other. Transaction-costs in the form of cumbersome administrative procedures keep small savers away from

accessing the formal financial market. Central bank refinancing facilities at preferential interest rates deprive rural banks of the financial interest to mobilise small savings. This is because the cost of rural savings mobilisation frequently exceeds the cost of refinancing at central institutions to preferential interest rates. Rural financial outlets offer savings services only if they can identify a comparative advantage of savings mobilisation over preferential central bank refinancing. Therefore, financial development projects must seek to advance economies of scale, specialisation, and financial scope regarding savings mobilisation. Such qualities lower the costs of mobilising and extending financial resources, and thus reduce the interest rate spread between deposits and loans (Burkett,1988).

2.4.2.1 Transaction cost

Transaction costs are defined as the costs of transferring resources between markets or between participants in the same market. In finance, transaction costs are the resources required to transfer (lend, borrow or save) funds from a saver to a borrower, and recover the same (Coetzee, 1991 citing Meyer *et al,* 1990). These costs have been identified as the major influence on the viability of financial institutions as well as the decision and situation of the borrower and saver. Transaction costs have been identified as the major influence on the viability of financial institutions as well as the decision and situation of borrowers. The reduction of transaction costs of financial intermediation in developing countries requires improving the information systems, reducing financial regulations, and implementing risk reducing mechanisms so that procedures and practices in financial transactions can be streamlined and simplified, Coetzee *et al* (1991 citing Meyer *et al,* 1990). Financial savings deploy transaction costs for depositors and savings institutions. Transaction costs include all non-interest costs that are associated with financial transactions.

Transaction costs for rural savers include the explicit costs of photographs, passbooks, travel costs and other cash costs of depositing and withdrawing savings. Implicit costs include travelling and waiting time to make transactions. The implicit costs are often high, and the proximity of deposit-taking institutions may be the most important factor affecting access and transaction costs. Saver transaction costs comprise the opportunity cost of time for depositing funds which arises from inconvenient opening hours, slow service, and excessive paper work at the bank level.

Because of women's diversified workload in household and business, women often experience even higher opportunity costs of forgone labour than men. These transaction costs and frequent minimum deposit obligations act as access barriers for small savers (Meyer, 1989, and Adams *et al*, 1986).

Savings collectors' transaction costs derive from the costs associated with deposit mobilisation and savings account administration. The cost to maintain rural branches and savings campaigns contribute to the cost of rural savings collection. Excessive transaction costs on the saver and collector level can be defeated through various measures. Saver and savings collector transaction costs are inversely proportional to the amount saved and deposited respectively. Thus, deposit mobilisation from savings and credit societies reduces transaction costs through economies of scale and financial scope. Economies of specialisation must be improved through more efficient management of the savings portfolio at the collector level. Thus, preferential re-discount rates applicable to the agricultural sector ought to be adjusted to the real market value of capital. This adjustment would increase the banking institutions' affinity to mobilise rural savings (Von Pischke *et al*, 1983). Rural financial intermediaries can reduce their costs by improving information systems, reducing financial regulations, and implementing risk reducing mechanisms so that procedures and practices in financial transaction can be streamlined and simplified (Coetzee 1991 citing Meyer *et al*, 1990).

2.4.2.2 Inflation tax

Other things remaining the same, the higher the rate of inflation, the lower the proportion of income that people would want to hold in the form of money (Gujarati, 1988). High inflation rates discourage people from holding financial assets. This is because the tax of inflation punishes assets holders by losing purchasing power on their funds. Inflation encourages financial market participants to hold non-monetary savings and little money in their portfolios. For this reason, savings and credit programs must seek to remunerate deposits with a positive real interest rate. According to Meyer (1989), the management of financial institutions in highly inflationary environments faces a serious challenge in developing interest rate policies that will provide depositors with expectations of attractive returns on their savings while at the same time setting lending interest rates that will cover costs and that borrowers can pay.

2.4.2.3 Influence of taxation policy on savings

A favourable taxation policy is expected to stimulate savings depending on the marginal propensity of an economic agent to save. This expectation will only materialise if government expenditure increases and private expenditure declines leaving savings to increase (Kasekende, 1998). Taxation policy aspects such as tax structure, design of individual taxes, and taxation administration can in many ways directly influence the allocation of resources, the stability of the economy, and distribution of income, and thus affect growth. Finally, almost every tax provokes a change of behaviour of the economic entity, which leads to wrong allocations and can result in a loss of social services. Switching from income tax to tax on consumption, for example can impact positively on saving behaviour, and thus trigger greater accumulation of capital.

Whereas using income as the tax base rewards consumption and penalises saving (deferred consumption), this does not apply to tax on personal spending. Empirical studies, however, do not make clear whether the savings level depends on taxation, and if so, in what form. Rather, it can be assumed that taxation merely influences the savings structure. Besides that, it must be seen that greater savings do not automatically lead to growth. Using the savings for investments calls for complementary factors like functioning financial markets (Giwer, 1997).

2.4.3. Returns from savings operations

The predominant task of financial intermediation is to enhance economic development. This, according to Schreider *et al* (1991, citing Mckinnon *et al*,1973) can be achieved through efficient mobilisation and allocation of funds. The provision of funds to financial agents with more productive uses raises the income of saver and borrower alike. Thus the growth rate of productive capacities in developing economies is, in the long run, proportional to their financial savings rates. Therefore, the macro-economic contribution of efficient savings operations consists in the generation of resources and promotion of efficient resource allocation. On the micro-level, depositors improve their private investment and debt capacity Schreider *et al* (1991, citing World Bank, 1989 and Burkett,1988).

2.4.3.1 Interest rate

In the development economics literature, the theory of high interest rates was popularised by Mckinnon *et al* in 1973 who argued that, countries characterised by "Financial Repression" raising nominal interest rates relative to inflation would increase saving and the supply of investable resources in an economy. The productivity of investment also raises as these resources are channelled to projects that have higher rates of return than hitherto. According to the McKinnon *et al's* doctrine, financial repression arises mostly when a country imposes ceilings on nominal deposits and lending rates at a low level relative to inflation. The resulting low or negative real interest rates discourage savings mobilisation and the channelling of the mobilised savings through the financial system. This has a negative impact on the quality of investment and hence on economic growth (Mwega *et al*, 1994).

Many policy makers, technicians, and writers on development do not think of interest rates as incentives or prices, and they fail to recognise the importance of these prices in affecting the behaviour of participants in financial markets. The importance of interest rates as incentives is often clouded by religious and/or political dogmas and stereotypes about lenders, savers, and borrowers. It is too often overlooked that in most moderately advanced economies, interest rates are the second most important price after the foreign exchange rate (Adams, *et al*, 1984).

The rate of interest on savings is one of the major determinants of the decision to save. Policy makers who insist on sustaining low and, especially, negative real rates of interest on formal financial transactions condemn a formal financial system to perform poorly. Low interest rates discourage savers from making deposits and the channelling of credit through the financial system, make it more difficult for lenders to carefully screen borrowers, encourage rent-seeking behaviour in financial markets, undermine the sustainability of financial institutions, and create a system that must continually seek handouts. If financial markets are to be efficient, perform equitably, continue to expand, and provide sustained services, positive real rates of interest on loans and deposits are critical.

In countries experiencing inflation, nominal interest rates must be flexible and rise and fall with inflation to maintain real rates most of the time (Adams, 1992). The hypothesis that private

saving has a significant positive real interest elasticity is not a theoretical truism. In economic theory, high real interest rates have two effects on private saving that work in opposite directions, an economic agent's response to a variation in the interest rate is not clearly determined due to these two opposing effects. Changes in interest rates have both income and substitution effects, and can increase or decrease current consumption depending on the balance between the two. An increase in interest rates may stimulate savings by making current consumption expensive in terms of future consumption (substitution effect), or may lower savings by reducing the amount of present savings necessary for a given level of future consumption (income effect). The impact of real interest rates on private saving is therefore ambiguous and can only be established empirically.

The net outcome of these two effects depends on the magnitude of the elasticity of substitution between present and future consumption and the marginal propensity to save out of permanent income. The size of these parameters is an empirical issue. Empirical studies at the aggregate level fail to provide strong and unequivocal evidence that interest rates provide an efficient incentive to save. In contrast, with deposit interest rates, the safety of deposits appears to be a significant factor in inducing greater savings. The rationale for this behaviour might be the concern for preservation of principal, given the relatively lower income levels of rural depositors. The implication is that given moderately positive (in real terms) deposit interest rates, RFI's may be more successful at inducing savings through the provision of deposit insurance (or similar guarantees) and improving access to deposit services (Gurgand *et al*, 1994 and Mwega; *et al*, 1990)

The available evidence, based largely on Asian and Latin American experience, suggests the substitution effect is more important, but not overwhelmingly so. The important issue for financial intermediation in LDC's is the relationship between rates of interest paid on deposits and savings in monetary forms. Advocates of higher rates argue that peasants are economically rational in their economic affairs, and even poor households need and benefit from attractive deposits and saving services. They point out that countries (such as Taiwan and South Korea) have mobilised surprisingly large of rural savings when deposits rates were changed substantially, while rural deposits have been depressed in other countries because real deposit rates have been highly negative due to high inflation rates (Meyer, 1989).

Higher real interest rates do indeed increase the incentive to postpone consumption and tend to make the planned consumption profile grow more rapidly over time, but the current starting point of that profile can move either up or down. Poor people, just like their rich counterparts are concerned with saving for retirement and liquidity, and will save even at negative rates of interest as also confirmed by the study of savings and loan co-operatives in Rwanda where interest rates paid on savings deposits (the highest nominal rate was reportedly 3.5 per cent). In real terms, these rates have sometimes even been negative. This leads to the question as to what role the rates of interest play in attracting deposits. A study undertaken by Okorie (1990) on rural banking in Nigeria revealed that the interest rate paid on savings accounts was not important in determining savings behaviour in rural areas.

The central point is that low deposit interest rates are not likely to impede significant growth of deposits, while increases in deposit rates may not be an efficient means of stimulating additional growth. Rich people will allocate their portfolios in relation to rates of return on different assets (Gurgand, 1994, citing Vogel, 1984 and Deaton, 1989). In Indonesia a resetting of savings interest rates to 15 per cent and a credit interest rate of 30 per cent, plus a proactive stance towards liquidity, permitting an unlimited withdrawal system, led to a 6,5 times increase in the number of savers compared to borrowers and dramatically changed the balance sheet. This indicates the importance of keeping rates of interest on savings positive (Strauss Commission, 1996).

Some interesting features of development policy in Korea are the changes in nominal interest rates in formal financial markets. Before 1965, nominal interest rates were quite low. Formal agricultural loans, for example, carried interest rates of approximately 8 to 15 per cent a year; rates on financial savings deposits ranged from 9 to 15 per cent. In 1965, many of the interest rates on formal loans and deposits were almost doubled (see table 1). Time deposits of more than two years carried interest rates of approximately 30 per cent, for example. Since 1965 interest rates policies, especially on deposits, have been more flexible, with rates moving up and down depending on inflationary pressure. According to Mwega *et al* (1990), the bulk of national savings in Kenya was mobilised by the private sector. While the public sector is normally an important source of savings, it has played a relatively minor role, thus contributing very little to investment finance. In the 1970's, saving by the public sector constituted less than 3% of the

GNP. It was a net dissaver in the 1960's and in the first half of the 1980's. One of the policy measures adopted by the Kenya government to raise private saving was a liberalisation of the financial system, mainly by raising interest rates. For example, in the first half of the 1980's, nominal deposit rates were increased by about 100 per cent and lending rates by 50 per cent from relatively low levels.

The objective was to make and maintain them positive in real terms as the upsurge in inflation in the 1970's following the first oil shock of 1973 had rendered them negative. Before this period, the government followed a low-interest-rate policy whose main objective was to promote investment. In the early 1970's, the Central Bank of Korea maintained that it had not hitherto felt that official changes in interest rates would be useful instruments to influence economic activity and the flow of credit n the economy. From the time the Central Bank was established in 1966 until 1980 interest rates were only adjusted upwards once in 1974 by 1-2 per cent points .as reflected in table 2.2 below.

Table 2.2. Interest Rates and Financial Deposits in Korea, 1963-74

Year	Contractual Interest Rates on Lon-term Deposits (percent) [a]	Real Changes In Wholesale Price Index (Percent)	Rates of Interest on Long-term Savings Deposits (Percent)	Financial deposits (Thousand million of 1970 won)[c]		Savings deposits[b] (Thousands million of 1970 won)[c]	
				Total	Percentage in Agricultural Cooperatives	Total	Percentage in Agricultural Cooperatives
1963	15.0	20.6	- 5.6	84.2	14	27.7	5
1964	15.0	34.6	-19.6	69.2	15	23.3	5
1965	18.0	10.1	7.9	114.4	14	44.6	9
1966	26.8	8.7	18.1	162.1	17	93.9	16
1967	26.8	6.4	20.4	259.3	14	162.3	12
1968	26.1	8.1	18.0	434.8	13	297.9	10
1969	23.8	6.8	17.0	676.0	12	492.9	9
1970	22.8	9.2	13.6	789.7	12	576.3	10
1971	22.1	8.6	13.5	900.2	11	652.6	9
1972	15.4	14.0	1.4	1069.4	10	736.3	8
1973	12.6	6.9	5.7	1324.5	10	917.0	8
1974	15.0	42.1	-27.1	1119.8	10	770.8	8

a) These rates are for twelve months deposits. When interest rates were changed during the year, a simple weighted average of months covered by the interest rate was used in the calculation.

b) Excludes checking deposits, other demand deposits, and short-term passbook deposits.

c) The price index used to convert to 1970 prices was the wholesale price index for the Republic of Korea. The exchange rate of won for dollars in 1970 was 316.

Source: Bureau of Statistics, Economic Planning Board, Korean Statistical Yearbook, vol. 16 (1969) and vol. 22 (1975). Lee et al (1977)

As can be seen in the above table, these changes in nominal interest rates have resulted in positive real rates of interest in most years after 1964, of over 10 per cent during 1966-71 on long-term deposits. The interest rates reform in the mid-1960's increased the average rate of interest charged on agricultural loans. In 1964, none of the agricultural loans made by the co-operatives carried interest rates of more than 25 per cent a year. In 1966 about 9 per cent of the value of cooperative loans carried rates of 25 per cent or more, and by 1968 almost 30 per cent of the value of loans carried these higher interest rates.

After 1968, however, interest rates were steadily lowered until 1973 when inflation induced policy makers to raise interest rates again. Unlike many developing countries, rather heavy emphasis has been placed on mobilising rural financial savings in Korea, and significant amounts of national savings have been deposited in agricultural co-operatives. As noted in table 2.2, after interest rate reform in late 1965, financial deposits in agricultural co-operatives increased from 14 to 17 per cent of total financial deposits in the country. The proportion of total savings deposits in the country held by agricultural co-operatives also jumped from 9 per cent in 1965 to 16 per cent in 1966. Because of the very rapid growth in non-agricultural economic activities thereafter, the percentage of total financial deposits in the country held in agricultural co-operatives declined from 1966 to 1974.

In part, the increases in real amounts of financial savings deposits in agricultural co-operatives in this period were due to ambitious efforts by the government. Three financial institutions in rural areas, agricultural co-operative, the fishery's co-operative, and the Post Offices are heavily involved in mobilising savings. A nation-wide campaign to promote rural savings has been carried out almost every year during the harvest season from September to December (Lee *et al,* 1977). Deaton (1993) argues that both poor and rich people save because of precautionary and insurance motives, not because of high yields from their investments. Poor people will even save at negative real rates, for example, in stocks of foods, or in jewellery and gold. Their primary need is for liquidity, not return, and they must be able to access their assets when their incomes are low. This does not mean that saving is unimportant for poor households.

The relevance of this finding in South Africa was highlighted by Coetzee (1997, citing Makgetla, 1995 and Deaton, 1993) where he discovered that people' s savings patterns are influenced by precautionary, insurance and liquidity motives, rather than expected yield on savings. A CGAP study (1998) found that although there is evidence of rural savings at negative real returns offered by the informal sector, it was found in other countries that the demand for savings products by all savers, including the poor increasing as interest rates increased. Deaton (1993) argues that poor people are concerned with the protection of their living standards against disaster, and not much with the rate of return, while rich people, who are accumulating anyway, will allocate their portfolios in response to relative rates of return on different assets, but are unlikely to cut or increase their consumption in response to a general increase in rates. Following

the above argument on the contribution of interest rates on savings behaviour, it could be concluded that people save for different motives other than earning interest on their savings. The contribution of interest earnings can, however, not be used in a strict sense on its influence on savings behaviour.

2.4.3.2 Safe Keeping

Reliable savings institutions simultaneously represent safe keeping and liquidity instruments for depositors. The safe keeping and liquidity aspect of savings institutions is especially important in rural areas. The customary socio-economic context in most of rural Africa requires well-off family members to support indigent relatives. This may lead to unintended consumption of savings. This aspect and the fear of theft leads the rural population to accord a high degree of emphasis on the safe keeping function of financial institutions. The need for liquidity is interesting because spending needs and income generation lacks synchronisation among rural households. A strict need for liquidity may constrain spending needs of households and conversely, household spending may compromise the accumulation of liquid funds (Schreider *et al* 1991, citing World Bank, 1989; Schreider, 1989; and Desai, 1980b).

The saver may also decide to hold funds in the custody of a trustee. This could be a bank, a co-operative, a post office, or a credit union. However, the rural poor rarely feel inclined to approach and confide in an institution with which they normally have few dealings. Despite attractive interest rates offered by commercial banks in Sri Lanka to rural depositors of between 14 and 22 percent in 1980, there still was preference for traditional custodians: the shopkeeper, pawnbroker, merchant, and moneylender; the village priest, a teacher; or someone of equal status. These deposits with trustees seldom carry any interest, but they often do have the function of entitling the depositor to a line of credit. By saving with a group or with persons of a firm financial standing, the saver buys security (Boumann, 1984).

A study undertaken by Shanmugan (1990) on financial institutions and saving habits in rural Malaysia revealed that 80 percent of savers saved with banks as they are seen as the most secure institutions. A similar finding on the need for security of savings and confidence and trust in the repository of savings, "*the trust factor*" was revealed by CGAP (1998).

2.4.3.3 Term transformation

The financial markets are mediums to channel excess savings from surplus to deficit units with productive investment opportunities. Financial systems frequently act as intermediaries between many small depositors and few large borrowers. Small depositors prefer short term deposits, borrowers may solicit long term loans. This situation reveals opposing financial needs of savers and borrowers. Financial intermediaries resolve this term conflict through term transformation. Term transformation reflects the use of small, short term deposits for larger, longer term loans. Term transformation allows small savers to hold liquid assets and large borrowers to finance long term investments. Thus, both types of financial agents are able to satisfy their financial needs. In addition, term transformation improves financial intermediaries' independence of donors and governmental refinancing facilities as small domestic savings can be added to the pool of loanable funds (Schreider *et al*, 1991; citing World Bank, 1989; and Burkett, 1988).

2.4.4 Influence of credit policy on savings

Meyer (1989) argues that an important factor expected to affect rural deposits is the linkage between savings and lending. Many analysts believe that an important reason for rural household saving is the possibility of eventually getting a loan. This implies that institutions should link savings mobilisation with lending, but in practice many rural financial institutions are single function. Kasekende (1998) argues that in countries where the financial sector is well developed, credit policy affects savings through the following two broad channels, firstly, by increasing the money supply which affects aggregate income levels and, therefore savings; and secondly by affecting interest rates directly. A restrictive credit policy would restrain aggregate demand for money and negatively affect the level of income which in turn reduces the level of savings. The restrictive credit policy would also directly raise interest rates and stimulate savings, although the relationship between savings and interest rate is ambagious, particularly in developing countries. Indirectly, restrictive credit policy may affect savings by raising interest rates and making borrowing for investment costly. Because capital would become expensive, its demand would fall, leading to declining incomes and subsequent fall in savings.

2.4.5 Income

Income is generally acknowledged as the principal determinant of saving. Many households in developing countries are observed to have low, or even negative saving rates at low income levels. The low or negative saving rates may reflect rational household responses to current, transitory low incomes, or to the high consumption needs of the poor (Bautista *et al*, 1990). By virtue of habit or out of sense of caution, individuals are slow to increase their consumption as their income grows. Therefore, the more swiftly income expands, the greater will be the volume of savings.

A positive relationship between savings rate and income in developing countries, at least within certain ranges of income levels, has been obtained in past empirical studies using household survey data or cross country national income accounts for Philippines. The higher the level of income, the higher the propensity to save and the amount actually saved (Spio, 1994, Onyenwaku *et al*, 1992; *Bautista et al*,1990; Okorie, 1990; Yusuf *et al*, 1984; Bhalla, 1980; and Duesenberry, 1967). Remi *et al* (1992) also found a positive correlation between income and the level of savings.

A positive relationship between the savings rate and income in the developing countries, at least within certain ranges of income level, has also been obtained in past empirical studies using household survey data (e.g., Bhalla 1980 for India) or cross-country national income accounts (e.g., Moore 1981) for Asian countries. Bhalla (1980) estimated a non-linear saving function for rural households in India in which the average propensity to save was zero at the subsistence level and increased at an accelerating rate in the low income range, followed by a deceleration and eventual tapering off to an asymptotic value.

However, as in the formulation of other non-linear saving functions (e.g., quadratic or semi-logarithmic), the process or mechanism that leads to the non-linear relation between the saving rate and income level is not spelled out. Due to the deficiencies in the data used, the view has been expressed that "hypotheses about behavioural non-linearities in savings" cannot be disentangled from "problems in measuring the variables". An alternative approach for estimating

a linear saving function for (homogeneous) households is to differentiate them by income group and then compare their estimated saving propensities.

An observed lower average saving rate for rural households (relative to urban households) may then be explained simply by their lower average income. However, rural household incomes can increase rapidly in the course of agriculture-based development, which may prevent a decline in the aggregate saving rate or even raise it. Furthermore, the improvement of investment opportunities in the rural areas associated with agricultural development strategy provides an additional stimulus to increased savings. However, if the thesis is followed, poor people save for liquidity reasons, rather than for accumulation, one would expect that rural people, being poor on average than urban people, would have high savings propensities.

Empirical evidence on the relative size of the marginal saving rates for rural and urban households is thin and contradictory. In a study using 1962-72 survey data on South Korean households, farmers were found to have been more thrifty, with their marginal propensity to consume being almost half that of urban consumers. Based on a similar analytical framework, estimates of the marginal propensity to save (MPS) for Mexico show averages of 0.11 for rural households compared to 0.25 for urban households. Using data from household surveys in Bangladesh for each year from 1976/77 to 1978-79, the MPS out of transitory income was estimated to be "consistently and slightly higher" among rural households Bautista *et al* (1990 citing Chowdhury, 1987; Llunch, *et al* 1977).

According to Hyun *et al* (1979), the substantial increase in Korean household incomes from 1962 to 1976 resulted in a simultaneous increase in average propensity to save from 0.15 in 1962 to 0.33 in 1976. Despite relatively low absolute levels of income, rural households in Korea have saved large proportions of their incomes (see table 2.3) As can be noted in the table, average net household increased two and one-half times from 1962 to 1972. In 1962, average rural farm household income was less than $600 per year. This substantial increase in income by 1976 raised household incomes to about $1460 and per capita income to $260.

Table 2.3. Average household Income, Consumption Expenditure, and Propensity to Save of Farm Economy Survey Households in Korea, 1962-76

Year	Households (Number)	Net Household Income (1)	Household Consumption Expenditures (2)	Gross Savings (3)=(1)-(2)	Average Propensity to Save (4)=(3)/(1)
		(In Korean 1,000 Won)[a]			
1962	1.163	177	150	27	0.15
1963	1.161	201	177	24	0.12
1964	1.172	204	173	31	0.15
1965	1.173	166	157	09	0.05
1966	1.180	177	157	20	0.12
1967	1.176	190	170	20	0.11
1968	1.181	212	176	36	0.17
1969	1.180	241	197	44	0.18
1970	1.180	259	218	41	0.16
1971	1.180	333	235	98	0.29
1972	1.182	352	263	89	0.25
1973	1.170	369	270	99	0.27
1974	2.515	366	242	124	0.34
1975	2.517	373	721	102	0.27
1976	2.516	444	298	146	0.33

Source: Republic of Korea, Ministry of Agriculture and Fisheries. In Rural Household Savings Behaviour in South Korea !962 - 76, By Hyun et al 1979.

Adjusted in 1970 prices using index of wholesale prices of Korea. In 1970 the average exchange rate of won for a U.S. dollar was 304.

The phenomenon that many households in developing countries have low, or even negative savings rates at low income levels is sometimes interpreted to indicate problems of survey data reliability. Alternatively, however, the low or negative saving rates may reflect rational household responses to current, transitorily low incomes, or to the high consumption needs of the poor since "current consumption is more likely to influence survival and efficiency at work at low levels of consumption, Bautista *et al* (1990 citing Gersovitz,1988). It could be concluded that there is a general positive relationship between income (permanent and/or transitory) and the ability to save. However, how much of the proportion of the permanent and transitory incomes are saved between urban and rural households is beyond the scope of this study.

2.4.6 Wealth

Household wealth is defined as the household non-human wealth, measured by the summation of total financial assets (cash, bank deposits), current value of consumer durables and value of farm tools and private housing. Consumer durables, farm tools, and housing are evaluated at current market value to determine their economic worth, however, the evaluation would suffer from measurement errors owing to the market imperfections (Wang, 1995).

According to Spio (1994, citing Yusuf, *et al* 1984, and Snyder, 1974) wealth has long been thought to affect household consumption and saving. Empirical evidence generally supports the hypothesis that wealth is a statistically significant determinant of household saving behaviour. Its influence on savings per time period is most often found to be negative, which is consistent with a 'target or normal wealth' theory of savings (the theory that postulates that savings depend on the difference between actual wealth and normal wealth). Theories of this type have been tried for the LDCs, and they have generally met with success. As people become wealthier, the utility from postponing consumption in the current period for the sake of higher consumption in later years is likely to diminish, with the result that savings are cut back. Individuals might also have a target level of savings, which once achieved discourages them from accumulating further.

According to Anandajayasekeram *et al* (1996), wealthier farmers are more able to take risk, have better access to information and technology, have more resources and are more commercially orientated. All these attributes positively contribute to their ability to save financially. Deaton (1993) holds a view that wealth is held, neither for accumulation purposes, nor for saving for retirement, but for precautionary or insurance purposes.

2.4.7 Farm size.

Farm size is defined as the total hectares of cultivated land included in the farm enterprise (Hyun, *et al*, 1979). Savings performance among households may vary considerably with farm size (often used as a proxy for income) and source of income. Ong, *et al* (1976, citing Mizoguchi, 1967) and Noda (1970) divided Taiwan households into three categories: those with less than one hectare, one to two hectares, and more than two hectares. A second classification of the households was

based on the ratio of income derived from on-farm agricultural activities to total household income. Average and marginal propensities to save were calculated for these different subgroups for 1960-70 (Table 2.4).

Table 2.4. Average and Marginal propensity to save by farm size and income source in Taiwan 1960-70.

Group	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
					Average propensity to save [a]						
Farm size in hectares											
0-1	0.15	0.14	0.16	0.21	0.17	0.18	0.19	0.19	0.23	0.07	0.13
1.01-2	0.16	0.21	0.22	0.21	0.25	0.26	0.28	0.25	0.27	0.10	0.23
2+	0.28	0.19	0.26	0.30	0.32	0.30	0.39	0.29	0.34	0.19	0.24
Ratio of farm income to total household income											
0-0.7	0.09	0.18	0.24	0.14	0.16	0.22	0.22	0.30	0.23	0.07	0.14
0.7+	0.19	0.19	0.21	0.25	0.26	0.24	0.30	0.36	0.29	0.15	0.24
					Marginal propensity to save [b]						
Farm size in hectares											
0-1	0.60	0.42	0.49	0.68	0.40	0.46	0.50	0.46	0.44	0.48	0.34
1.01-2	0.26	0.45	0.54	0.49	0.43	0.40	0.68	0.45	0.48	0.40	0.56
2+	0.78	0.51	0.50	0.50	0.61	0.40	0.77	0.46	0.63	0.21	0.46
Ratio of farm income to total household income											
0-0.7	0.32	0.53	0.60	0.34	0.28	0.36	0.60	0.27	0.41	0.15	0.26
0.7+	0.39	0.45	0.49	0.59	0.56	0.45	0.70	0.56	0.58	0.52	0.56

a) Average propensity to save equals 1-household expenditure/household income

b) Marginal propensity to save is calculated at the arithmetic mean income and expenditure levels for each year

The average propensity to save almost always increases with farm size. In part, this reflects the favourable impact on savings of higher incomes, which in turn are associated with farm size. The generally higher APS and MPS among the larger farms also suggest that households with more farm land may have had more profitable on-farm investment alternatives for their savings than

did smaller landowners. Nevertheless, there are relatively high APS and MPS among households in the smallest farm-size groups, and the marginal savings behaviour of households with small farms was not vastly different from that of households with larger land areas.

Also shown in the table is a breakdown of APS and MPS by income source ratios: households with the highest ratios received a larger part of their total income from on-farm agricultural activities than households with low ratios. These APS and MPS fairly consistently showed better savings performance among high ratio households. These results tend to confirm Noda's findings in Japan that households close to farming full-time tend to have larger savings propensities than do those with higher proportions of outside income (Ong *et al*, 1976). In similar studies undertaken by (Adams, 1978) on savings behaviour in relation to farm size in Japan; Korea; Malaysia; and India, the results show that rural farm households experienced high average propensity to save. A study undertaken by Onyenwaku *et al* (1992) in Nigeria also revealed a positive relationship between savings and farm size. Following the above argument to its logical conclusion, one would normally expect households with larger farm sizes and farming full time to save more than households with smaller farms.

2.4.8. Household size and dependency ratio

Household size is measured as number of persons in the household. Spio (1994, citing Snyder,1971) examined the relationship between saving and household size among a sample of Sierra Leone households. He found that the probability of positive savings was not affected by household size. However, a study carried out by Onyenwaku *et al* (1992) yielded a negative coefficient for household size. This is consistent with economic theory that as the expenditure of household is expected to increase with the size of the household, thus lowering the household's level of savings and the propensity to save. A similar finding was made by Okorie (1990) in rural Malaysia where household size impacted negatively on the ability of the households to save.

According to Kelly (1988), the impact of family size on household savings can be positive, negative, or negligible; the issue is an empirical one. A positive impact of children on saving could result if their presence increases family income more than their impact on consumption, if the bequest motive is strong (e.g., the desire to leave improved land to surviving sons), and/or if

the definition of saving includes human capital (e.g., education). Since imperfect capital markets and economic and social institutions in the Third World encourage the amassing of assets in human rather than physical form, children may represent a means by which saving can take place.

A study using Kenyan household data shows that children have a negligible impact on household saving when the induced impact of children on household income is considered. And if the concept of accumulation is expanded to include human as well as financial forms, children have a positive impact on household saving. In another study of nineteenth century labourers in the iron, steel, glass, and textile industries, the results are similar: children have a negligible or positive impact on household saving. The empirical literature relating to the age-dependency effects on saving and investment at the household level is not extensive or broad enough to reveal the impacts of children on saving. Those few studies which do exist show this impact to be weak, or even positive (Kelly, 1988 citing Easterlin, 1980)

Bautista *et al* (1990) argue that other things the same, the higher the proportion of household members that consume more than they produce, the lower will be the household saving. Family size as such would not be the relevant explanatory variable. Among rural families in particular, even children can contribute significantly to the household's production and income. Some measure of "dependency" reflecting the unemployment of household members would be more appropriate.

The argument on household size on savings behaviour is stretched further to determine the impact of household dependency ratios on savings behaviour. For decades, economists have debated the impact of dependency rates on the rates of savings. Theoretical models yield ambiguous predictions concerning the effects of an increase in the percentage of the population that is very young (typically under 15 years of age) and very old (typically over 64 years old) on the saving rate (Shumaker *et al,* 1992). Dependency burden (ratio) is defined as that proportion of the population of a country falling in the ages of 0-15 and 64+, which is considered economically unproductive and therefore not counted in the labour force. Theoretically, the smaller this ratio is in the country, the larger the aggregate life-cycle income and, therefore, the larger the savings and vice-versa (Kasekende, 1998). In the LDC's, the population under the age of 15 account for almost as much as half of the total population, thus posing a burden to the

generally small productive labour force and to the government, which has to allocate resources on such things as education, public health, housing for the consumption of people who don't contribute to production (Todaro, 1985).

The age-dependency effect formulation recognises that an additional child or pensioner has an incremental claim on household consumption, and asserts that, ceteris paribus, this claim is financed by drawing down household saving. Empirical representations of this framework have typically relied on the "adult equivalency" idea whereby each child's consumption is taken as a fixed proportion of an adult's. Given household income, the impact of additional children is unequivocal: they reduce household savings and the household saving rate.

The problem with this formulation is that it is narrow. Families may, in fact, be so poor that they accumulate little or nothing, making the options for financing additional children virtually non-existent, they must be financed out of existing household consumption. However, the assumption of "ceteris paribus" and the fixed-coefficient adult equivalency impact on consumption may not constitute a realistic representation of household behaviour. The impact of children on the household may be more complex:

- children may substitute for other forms of consumption;
- children may contribute directly to household market and nonmarket income;
- children may encourage parents to work more (or less) and/ or harder;
- children may encourage the accumulation of certain types of investments and assets (e.g., education); and,
- children may stimulate the amassing (or reduction) of assets (Kelly, 1988).

A hypothesis relating to household saving and dependency ratios (proportion of household members under age fifteen or over age sixty four) have been put forward by Leff (1969). He argued that the higher the proportion of household members who consume more than they produce, the lower the household's average saving. Testing this on a seventy-four-country cross-section sample, Leff (1969, cited by Spio, 1994); Bautista *et al* (1990); and Burney *et al* (1992) found in independent studies in Sierra Leone, Phillippines, and Pakistan respectively that the dependency ratio has a significant, negative effects on savings behaviour among rural households. A possible explanation to this phenomenon is that, compared to urban households,

there are greater opportunities for farm work among the very young and very old members of rural households, but less opportunity for spending the additional income.

2.4.9 Farmer's level of education

The farmer's level of education is measured by the number of years of schooling. Human capital theory postulates that the distribution of labour incomes is a function of training and experience. Individuals invest in education with the expectation of increased future earnings. From the perception of the individual, the discounted expected future income stream should give a satisfactory return to the discounted lifetime investment in education (Byron *et al*, 1990). Phillips (1994 citing Lockheed *et al*, 1987) argues that there is a general consensus that education has a positive effect on agricultural productivity. The results of the survey conducted by the authors cited by Philips conclude that on average, 4 years of schooling resulted in a 7.4 per cent improvement in output, giving a measure of evidence to support the conventional wisdom. In a study conducted by Okorie (1990) on rural banking in Nigeria, level of education emerged as a significant determinant of saving.

2.4.10 Proximity to the bank

According to Okorie (1990), ten years after the establishment of the Rural Banking Scheme in Nigeria, there was still low level of savings mobilization, inadequate use of banking services, and the lack of credit for rural people. The author wanted to examine the central assumption of the Rural Banking Scheme that increasing the physical proximity of banks to rural people enhances rural savings mobilization, and in turn, increases the flow of funds to the rural sector. Rural residents and rural bank branches were surveyed to determine which variables played a factor in determining rural bank use.

Discriminant analysis determined that the following four variables were significant in discriminating between rural bank users and non-users: household income, years of formal education, gender of respondents, and the awareness of the existence of the rural bank branch. Proximity of the bank to the respondent's residence was found not to be a significant determining variable. Proximity of rural banks to residential homes played a positive role to savers as

opposed to the general public (non savers). A possible explanation to this could be that households are not located far from the bank' which makes access not an issue. According to Coetzee *et al* (1991), greater accessibility of institutions to (savers) is one of the prerequisites to decrease transaction costs. The use of mobile banking units, to increase accessibility of the financial institutions were tested in several less developed areas with mixed successes. A study by Bornman (1994) identified accessibility of the financial institution to savers as a determinant of at which financial institutions small-scale farmers will save. Proximity to the bank is supposed to play a leading role in savings mobilization among rural households. The variable will not be important only if the willingness and ability to save in a particular area is dormant.

2.5 Savings mobilisation: roles to rural households and financial institutions.

According to Adams (1978), rural financial markets may influence household saving behaviour in several ways. They may augment the household's liquidity pool by providing credit. This additional liquidity allows the firm-household to use more inputs in production and may increase the net income of the household from these activities. Rural financial markets may also stimulate households to save more by offering various types of financial savings instruments; if these instruments provide positive real returns to the household, they may induce the household to convert some of its liquidity into monetary savings. The rate of return realised by the household on its savings portfolio may thus induce the household to divert still more of its income to savings.

According to CGAP (1998), a larger number of rural people prefer savings to credit services. Rural people were found to rely on savings before they could resort to credit. In addition, deposits from the public were found to be less volatile sources than from alternative sources such as Central Banks or donor funds. This stable funding source can expand lending operations, and therefore, also benefit poor borrowers. Schreider *et al* (1991) argues that the sustainability of rural financial systems strongly depends on the availability of savings facilities and schemes at rural level. Financial intermediaries that solely extent credit to rural dwellers do not attempt to satisfy the full range of their financial needs. Ong, *et al* (1976) have identified the following as necessary elements for savings mobilisation at household level:

(i) People must have sufficient resources or income to be able to save,

(ii) They must have secure and dependable opportunities to save,

(iii) They must have an incentive to save, i.e., the expectation that their savings will result in substantial future satisfaction.

Bornmann (1994), and CGAP (1997), were identified the following factors as determinants of where and at which financial institutions small-scale farmers and other economic agents will save:

(i) The type of financial services offered by the institution,

(ii) Accessibility of the institution to the savers,

(iii) Possible interest rates paid by the institution (real interest rates),

(iv) Availability of savings at short notice (liquidity).

(v) The safety of the savings option,

(vi) The divisibility of savings,

(vii) The transaction costs incurred in transforming available surplus into a specific savings option or on liquidating it,

(viii) The possibility of using savings to gain access to credit (financial reciprocity), and

(ix) Trustworthiness and confidence, especially when formal savings accounts are considered.

According to CGAP (1998), savings mobilization has also critical role to play in expanding and deepening the outreach of rural financial institutions. The following arguments in support of the importance of deposit mobilisation in rural financial institutions were justified by various authors:

(i) The supposedly cheap funds available from the central bank refinance window and international agencies may not be as cheap as they appear to be because of the heavy documentation and reporting requirements for such funds. For example, a private bank in Honduras experienced lending costs of 3.13 per cent using own funds versus 7.82 per cent for similar loans made through a World Bank credit project (Meyer, 1989 citing Cuevas *et al*, 1984).

(ii) Financial institutions may achieve economies of scale when they engage in multiple functions of lending and deposit mobilisation rather than just lending alone. The reasons

may be twofold. Firstly, there may be some efficiencies to be exploited when a financial institution has a branch network for lending but mobilises no deposits. Secondly, there may be informational economies when an institution has previous deposit history with a loan applicant. The deposit experience may provide information on an applicant's financial management, cash flow, savings habits and wealth, which contribute to better lending decisions.

(iii) When financial institutions rely on external funds and only participate in targeted lending programs, they must follow the rules and regulations provided on authorised sizes and types of loans, amount to lend each borrower, disbursement and repayment schedules and collateral requirements. When lenders mobilise their own resources, they can develop loan programs that conform more closely to their own lending standards and that more adequately supply the needs of local farmers and communities. They may be able more easily to reject poor credit risks and resist the political pressures that often enter into loan allocation when credit is rationed due to excess demand.

(iv) Repayment performance may be superior on loans made through mobilised funds for several additional reasons. If loans are drawn from savings made by members of the community, the willingness of the borrowers to repay is often dramatically increased. The use of local savings thus promotes borrowers' responsibility (Meyer, 1989 citing Deguefe, 1984). Savings mobilisation is an antidote to asymmetric information and incentive problems because it adds value to the relationship between intermediaries and clients. It helps rural financial institutions to make sound creditworthiness decisions. Deposit records provide valuable information on the savings history and solvency of potential borrowers. Empirical evidence shows that debtors are less negligent to honour loan obligations when they hold deposits at the lending institution. This information reduces the risks, and thus the costs of lending (Spio *et al,* 1994; Gurgand *et al,* 1994 and Schreider *et al*, 1991).

(v) Voluntary rural savings mobilisation is important to the overall strengthening of rural financial markets (Schreider *et al,*1991, citing Vogel,1987). According to Fernando

(1991) and Gurgand *et al* (1994), mobilisation of voluntary savings by institutions enables them to improve their financial viability and overall performance.

(vi) Mobilisation of financial savings could also play an important role in strengthening local farm credit and service organisations. For years, many developing countries have tried to bridge the "institution gap" in rural areas between national service organisations and individual farmers by building co-operatives and farmers' associations. Despite some success in few countries, the experience with building these intermediate credit organisations has been disappointing. Typically, their loans have been offered to members at low rates of interest.

Mobilisation of rural savings by formal institutions would result in an improvement in rural distribution of income provided that such institutions pay real rates of interest on deposits and keep transaction costs at low levels (Fernando, 1991). Such savings and hoarded money are often subjected to negative real rates of interest, due to inflation. Therefore, formal sector involvement is likely to provide better returns to the rural savers and thereby improve rural income distribution.

These concessionary interest rates weaken the intermediate organisation in several ways. Low interest rates force intermediate organisations to ration their "bargain credit" and these nonmarket rationing decisions are highly vulnerable to various types of personal influence, political persuasion, and outright corruption. In addition, concessionary interest rates on credit almost always force an intermediate organisation to concentrate its loans in the hands of relatively few borrowers in order to minimise lending costs. Mobilisation of voluntary savings, however, could allow the intermediate organisations to develop a much larger degree of independence and self-sufficiency.

(vii) Mobilisation of savings could discourage household consumption. The incentive to save provided by financial markets offering attractive returns on their assets can be strong inducements for households to defer consumption (Adams, 1978).

(viii) Savings collection benefit the rural population as more clients seek saving services rather than credit (Gurgand *et al*, 1994). The combination of savings and credit schemes is advantageous to the financial intermediary and customer in several ways. First, deposit mobilisation creates resources for loans. Second, borrowers are more convinced to repay if the funds for their loans are build on neighbours' savings. And finally, savings schemes allow small farmers to increase their creditworthiness through the accumulation of financial assets. This latter aspect is important insofar as small-farmers in Sub-Saharan Africa generally lack land title deeds for loan security purposes (Schreider *et al*, 1991).

According to Robinson (1994), a well-designed and well-delivered deposit services can simultaneously benefit households, enterprises, groups, the participating financial institutions, and the government. Good savings programs can contribute to local, regional, and national economic development and can help improve equity. The benefits from institutional savings at local levels are discussed in the next section.

2.6. Benefits of savings mobilization to households

A greater part of loans disbursed by informal financial institutions is mobilized informally, indicating the role informal financial institutions can play in rural areas (Kasekende, 1998). However, specific benefits derived from households' deposit mobilization can be summarised as follows.

- **Liquidity**. Rapid access to at least some financial savings is considered essential by many households in monetized or partially monetized economies. Liquidity is crucial for mobilising household savings. The demand for deposit instruments permitting an unlimited number of withdrawals is high because people save for emergencies and for investment opportunities, which may arise at any time.

- **Returns on deposits**. Positive real returns on deposits are typically not available at low risk outside financial institutions. When such institutions offer appropriate deposit instruments, the interest can be used by the household as an income flow or as savings. Fixed-deposit accounts featuring lower liquidity and higher returns, especially when held in conjunction with liquid accounts, are suitable in various ways for the types of savings mentioned below.

- **Savings for consumption**. Households with uneven income streams (from agriculture, fishing, and enterprises with seasonal variations) can save for consumption during low income periods.

- **Savings for social and religious purposes and for consumer durables**. Social ceremonies (births, weddings, and funerals) and religious donations or pilgrimages are some of the long term goals for which people frequently save. Others are consumer durables; depending on household income level, these vary from cooking pots to automobiles.

- **Savings for retirement, ill health, or disability**. Saving for old age may take the form of building retirement savings or helping to establish junior members of the household who will then have the responsibility of caring for their elders.

- **Savings instead of or in addition to credit**. Households save in order to self-finance investments and to avoid paying what is often very high interest rates in the informal commercial credit markets. Self-financed investments are particularly important for middle and lower income households, which often do not have access to institutional credit. The interest rates charged by informal commercial lenders, typically flat rates charged on the original balance, are widely reported to range from 2 per cent to over 35 per cent per month, with rates between 2 per cent and 10 per cent per month common.

  In general, the poorer the borrower, the higher the interest rate, since lower-income borrowers normally have fewer credit options. Many households hold savings accounts and loans simultaneously, especially if institutional loans are available to them. This strategy permits for some savings to be held for emergencies, while loans, used for working and investment capital and in some cases for consumption, are repaid from income flows.

- **Savings to build credit rating and as collateral**. Savings allow small farmers to improve their credit worthiness through the accumulation of financial assets. This aspect is important as small farmers in the sub-Saharan Africa generally lack land title deeds for loan security purposes Schreider *et al* (1991).

- **Outreach of micro-savings facilities can be higher than in micro-lending**. From the client's perspective, access to micro-saving is less restrictive than access to micro-credit (CGAP, 1998).

2.7. The dichotomy of formal and informal finance

If financial markets are to play a meaningful role in resolving rural poverty, fundamental changes in policies in most low-income countries will be a prerequisite. Current financial institutions' policies are resulting in badly fragmented financial markets, in concentration of concessionary priced credit in the hands of relatively few people, in unprofitable financial operations in many rural cooperatives, and in little or no incentive for rural households to defer consumption in favour of savings mobilization. Overall, the financial policies are generally regressive. Policies results in the relatively well-off members of society benefiting from concessionary priced credit, and the poor are denied access to production credit as well as remunerative savings instruments. The perpetuation of fragmented financial markets results in too little honest competition between formal and informal financial markets. Under these conditions, some informal credit sources are able to continue to extract monopoly profits from small borrowers who are denied access to formal markets (Adams, 1978).

Within the policy constraints imposed on the development of active financial markets in rural areas, rural households, enterprises, and group savings associations were found to be mobilizing savings either in informal, quasi-formal, or formal ways. Informal financial markets are normally found everywhere in rural areas. Although they are unregulated and unreported, it has for long been recognised that these markets are unorganised. They form part of the local political economy; financial channels and market shares of lenders are inextricably related to the local distribution of wealth and power, market inter-linkages, political alliances, information flows and so forth (Robinson, 1994).

Chandavarkar (1992) argues that economists who consistently emphasise the fungibility of finance seem to regard informal finance as a virtual enclave, overlooking the fact that the "unorganised sector is at best a loose way to describe a wide range of activities by small firms, households, and individuals, which are to various degrees integrated with organised sector

markets". Robinson (1994) and Chandavarkar (1992) further argue that there are in fact close borrowing and lending links which are not always explicit or visible, between formal and informal finance notably through concurrent participation of different economic entities. Informal financial markets are not licensed and generally unsupervised, but operate under particular laws and regulations (for example, credit co-operatives and credit unions).

Likewise, most of the discussion on informal finance blurs the critical distinction between its two constituents, the "autonomous" and "reactive" sectors, which raise wholly different policy issues. The core of informal finance is the spontaneous sector comprising mutual and proprietary units like ROSCAS (rotating savings and credit associations), indigenous bankers, pawnbrokers, which historically predates formal finance. The other constituent of informal finance is "reactive" since it develops primarily as a reaction to deficiencies in and controls over formal finance and typically assumes the form of urban curb markets, private finance companies, and such other fringe entities. In contrast to the autonomous sector whose size is unrelated to the degree of control over formal finance, the reactive sector expands and contracts contra cyclically to repression and liberalisation of formal finance and serves as a conduit for financial dis-intermediation.

The formal-informal distinction is a continuum because various kinds of financial intermediaries (for example, pawnshops, small-scale finance companies, co-operatives, village banks and credit unions) occupy positions on the formal-informal axis or frontier. The extent and character of the interactions among formal, quasi-formal, and informal financial markets in rural areas can vary considerably, depending on the degree of regulation in the formal sector; the extent of monetization in the rural areas; the public's confidence in the government in general and in the available financial institutions in particular; the ease of customer access to formal financial services; the activities of parallel and black markets; and a variety of geographic, economic, cultural, and other factors.

Informal financial savings may be held in ROSCAS or in non-rotating or regular savings and credit associations, or they may be places for safekeeping with local patrons. Savings are also held in quasi-formal bodies such as some credit co-operatives, credit unions, and various forms of credit societies (Robinson, 1994).

Many informal savings cooperative groups exist in Africa, in fact most rural people have membership in at least one group. These groups exist for a variety of reasons, but mainly for purposes of self-help. Rotating savings and credit associations are common in Africa. These Rosca's are known by many names, in Southern Africa one of the more familiar being the 'stokvel'. Members of such clubs contribute on a regular basis to a central fund. This fund is paid out at the same rate as contributions are made. Payments are made to each person in turn so that members who receive payments early in the rotation are recipients of credit, while those who receive contributions later use the club as a savings institution (hence the name Rosca). The main feature distinguishing savings clubs from Roscas is that there is no borrowing or lending in any of their activities (Swanepoel *et al*, 1990).

Dessing (1990), citing Siebel (1989) identified the following types of informal financial institutions:

(i) Rotating Savings Associations (RSA). In these associations, members contribute fixed contributions at fixed intervals. The sum collected is disbursed in rotating order to one member at a time. Its shortcoming is lack of a permanent loan fund available in times of need to all members.

(ii) Rotating Savings and Credit Associations. These operate like RSA, except that part of the sum is put into a general fund for loans, insurance, emergency fund, and social services.

(iii) Non-rotating Savings Associations. In this case, the regular contributions of members are deposited, possibly with a bank, and paid back at the end of a stipulated period.

(iv) Non-rotating Savings and Credit Associations. Regular members' contributions plus revenues from fees, penalties, and joint business are put into a loan fund. Usually different interest rates are charged on loans for members and non-members. Contributions may or may not be paid back at the end of a stipulated period. Bornman (1994 citing Coetzee,1993, Meyer *et al* 1992, Coetzee *et al*, 1991, Schreider *et al*, 1991, Coetzee,1988b, Braverman *et al*, 1986, and Saito *et al*, 1981) that financial institutions in the Sub-Saharan Africa can be divided into three main categories: viz, Formal financial institutions, informal financial institutions, and the semi-

formal financial institutions, which according to Bolnick (1992), refer to grassroots financial networks supported by a formal institutional structure.

Kasekende (1998), revealed that there is a link between formal and informal financial sectors, but the relationship was found to be weak. The study further revealed that there is a significant role played by informal financial institutions in savings mobilization. It was however discovered that informal financial institutions were restricted by law to mobilise deposits from the public, and those that are able to mobilise savings can only do so from members. Bornmann (1994) classified the different financial institutions as follows:

Table 2.5: Important financial institutions of the financial sector in Sub-Sahara Africa.

Formal Institutions	Semi-formal Institutions	Informal Institutions
*Regional and Provincial Banks *Treasury *Other regulated financial Institutions *Land and Agricultural Bank Of South Africa *Financial Intermediaries - Commercial banks - Development banks - Savings banks - Post office savings bank - Cooperative banks - Finance corporations - Building Societies	*Agricultural Corporations *Department of Agriculture *Credit Unions *Integrated development Projects *Local /village banks *Savings Clubs *Self-help groups	*Rotating and non-rotating Savings clubs *Moneylenders *Mobile bankers *Production input suppliers *Shopkeepers/ Traders *Retail-lenders *Agricultural lenders *Friends *Family members *Neighbours * ROSCAS

Source: Die Finansiering van kleinboere deur informele finansiele instellings in Suid Afrika, Bornman (1994).

Onyenwaku (1992) argues that rural people prefer the informal financial institutions characterised by ease of entry and exit, informality of transactions and smallness of scale. Coetzee *et al* (1991) argue that in many parts of the developing world, informal financial services provided by money lenders, community traders and landlords have been perceived at best as inefficient and unproductive, and at worst as usurious, monopolistic, and prejudicial to rapid, broad-based development. Savings groups and ROSCAS have been seen as mere precursors to formal credit unions. Pawnshops have been seen viewed simply as sources of high-priced consumer credit for the urban poor.

The negative view of informal finance is being replaced by a more positive interpretation, especially in the light of major problems experienced by formal financial institutions in developing countries. There is recognition of the fact that the practices and technologies that contribute to strengths and advantages of informal finance, often in spite of many efforts to replace it, may provide suggestions on how to improve formal finance. There is also greater recognition for the need to tap the strengths of informal finance by linking it with formal finance.

By linking informal with formal finance, all the participants in the financial transactions may experience a reduction in transaction costs, and/or there may be a transfer in transaction costs from the participant less able to absorb them (usually the financial institution) to the one more able to do so (usually the borrower or saver). Linking savings clubs with financial institutions such as is being done in Zimbabwe with great success represents an example largely oriented towards savings. These clubs are formed mostly by small groups of peasant farmers from the same village or cluster of villages. Similar arrangements are popular in South Africa, and are usually called stokvels. In 1992, it was estimated that these stokvels mobilise about R 80 million per month in the urban areas alone (Markinor, 1992). Many of these stokvels keep their deposits in specially structured deposits accounts for stokvels at a major local building society and a commercial bank. According to Adams (1978), a major rationalization of financial markets policies combined with aggressive savings mobilization programs at rural level would eliminate part of the formal and informal financial institutions divide prevalent in many low income economies.

2.8. Summary and conclusions

The purpose of this chapter was to explore relevant literature on savings behaviour by rural people, including small-scale farmers. It also served to provide background information on the historical evolution of savings with more emphasis on various explanatory elements that influence savings. The chapter broached on two approaches to rural finance and their implications on savings mobilization. Alternative theories on consumption and savings were also revisited to lay a solid foundation on the overall understanding and approach of savings behaviour by small-scale farmers.

In the process, a comprehensive literature review of various determinants of savings was undertaken to determine their impact on savings. According to various authors, there is no strict positive correlation between the level of interest rates and savings as studies revealed that people saved even at negative interest rates. This is because people might be saving for other purposes such as insurance, other than earning interest on their deposits. There is however a general expectation that as interest rates raises, so will the rate of savings. Income was unanimously found to be positively correlated to savings. The studies showed that people even saved at low levels of incomes, with savings increasing as income increases. The impact of household size on savings was also explored. The studies undertaken revealed that the impact of household size and dependency ratios on savings could either be negative, negligent or positive, depending on whether children or dependents contribute to family income, in which case the impact will be positive, or vice-versa.

Another determinant that was found to be a significant factor was the level of education of the farmer. It is assumed that the more a farmer acquires formal education, the more conscious he becomes about savings with the results that he saves. Proximity to the bank was found not to have an influence on the savings behaviour by small-scale farmers. Findings by Spio (1994) confirms the assertion that rural households have relatively high propensities to save despite their low and uncertain incomes. A study conducted by Coetzee (1997) revealed a high propensity to save among the rural poor. The study covered that these rural people deposited their savings in the commercial banks even though the commercial institutions provided these group of savers with limited services, i.e., savings facilities only.

The role of savings on rural financial markets was reviewed with a purpose of understanding their influence on household savings patterns. A number of advantages were established around the critical role savings play in ensuring the sustainability of rural financial markets and the provision of other services that are contingent upon a strong savings base. That would range from providing households with a liquid pool of money that could be used for a variety of purposes. The importance of deposit mobilization on the development of rural financial institutions was also explored. Almost all authors are unanimous on the advantages of the development and implementation of deposit mobilization campaigns. The chapter was concluded with the distinction between formal and informal financial markets and their classification within the South African context.

The central theme that runs through the informal-formal financial market continuum is that a wide range of services is offered by the informal financial markets which complement the role of formal institutions. In fact, the two sectors should be seen to be playing a symbiotic role along the financial intermediation frontier. The next chapter will give an exposition of the socioeconomic dynamics of the study area in terms of institutional boundaries, population, land ownership patterns, topography, hydrology, vegetation, data collection methods and will be concluded with some statistical techniques that will be used for data analyses. The findings of this literature survey will be tested against South Africa in chapter four when the data is analysed. Chapter five will spell out the overall considerations and recommendations from the study and finally outline specific policy proposals and areas of future research in line with the general findings

CHAPTER 3

STUDY AREA AND RESEARCH METHODOLOGY.

3.1 Introduction

This chapter gives an overview of the mean values of socioeconomic and demographics characteristics of the farmers in the study area, and a brief summary of farmers natural and agricultural environments. It covers a brief discussion of the research methodology; sources of data for the study and a review of statistical techniques to be used for data analysis. The broad objective of this chapter is to lay a general statistical framework in preparation for the data analysis and testing of hypotheses formulated in chapter 1.

3.2 Institutional Boundaries

The study was conducted in North West Province, and in the Eastern District Council. The Eastern District Council is one of the five District Councils in North West Province. The Moretele magisterial district covers an area of 1723 km^2. The district has 73 towns and villages which are divided into Transitional Local Councils (TLC's), Transitional Representative Councils (TRC's), and villages. The TLC's and TRC are governing authorities in the districts. The district has a total population of 351600 of which 79 per cent is not economically active and only 21 per cent of the total population is economically active. Four per cent of the economically active portion of the population is engaged in farming and related occupations. The average population density in the district is 204 people per km^2 (Africon, 1996). The area is sparsely populated with the majority of economically active migrating to Nothwest/Gauteng boarder such as Soshanguve, Mabopane and Garankuwa.

This migratory pattern relieves pressure on available land for agricultural use. The district is peri-urban in nature and has the largest average farm sizes (4.38 ha) for small-scale farmers around Pretoria when compared to Soshanguve, Mabopane, Mamelodi and Atteridgeville. The small-scale farmers in the district are registered with the then Boputhatswana Agricultural Development Corporation (Agricor), currently the Provincial Department of Agriculture. All the registered

farmers benefit from the targeted extension services offered by the department. Table 3.1 below portrays the socioeconomic profile of the respondents: The district map is reflected in map 1 below.

Table. 3.1. Mean values of farmers socioeconomic characteristics (1996/97)

Variables	Mean Value	Standard Deviation
Household size	6.17	3.25
Dependency ratio	0.45	0.25
Household annual income (R)	32746	27249.6
Household annual expenditure (R)	10242.5	6173
Household annual disposable income (R)	22877.88	26281.22
Years of schooling of household heads	5.27	4.37
Savers (%)	65	
Non savers (%)	35	
Sex distribution (% males)	65.5	0.74
Age of household head	64.33	7.62
Farming experience in years	23.97	7.83
Farm size in hectares	4.38	2.52
Annual Farm Income (R)	5020	10027.28
Annual Non-Farm Income (R)	27758	22374.6
Pensioners (%)	63	0.483
Annual pension (R)	5173.00	4556.66
Household members involved in agriculture	1.87	1.05
Income from crop sales (R)	1595	4383.15
Income from livestock sales (R)	3425	6957.21

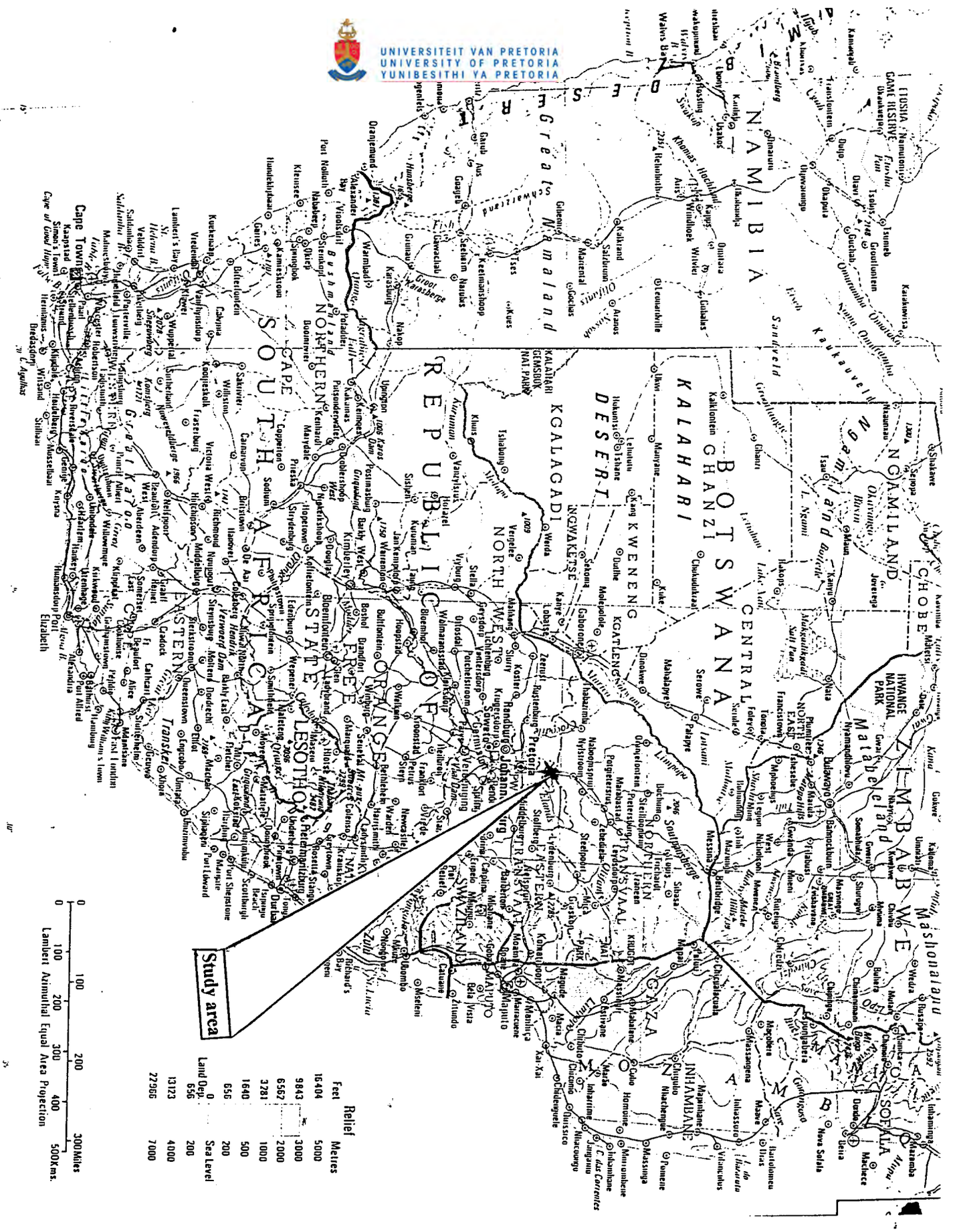
Table 3.1 presents some important demographic and socioeconomic characteristics of the sample households. The characteristics provide a summary descriptive profile of the surveyed households. As indicated in the table above, the average household size is large with six persons. The average household dependency ratio, which measures the proportion of household members falling in the age groups of 0 - 15 and 64 years and older, who are considered economically inactive, is moderate at 0.45 per household. Households in the area are dominated by male household heads who are on average fairly old (64 years). Sixty three per cent of household heads are pensioners. The literacy level, measured as number of years of schooling for household heads in the district was found to be very low, averaging 5 years (equivalence of standard 3 or grade 5). The average farm size in the district is 4.38 hectares with farmers having

a remarkable farming experience of 24 years. The households earned more non-farm income in relation to farm income. Farm income constituted 15 per cent while non-farm income constituted 85 per cent of the total annual household income when expressing both sources of incomes as percentages of the total annual household income. Farm income was derived from livestock and crop sales while non-farm income was derived from formal and informal jobs. Income from livestock sales (R 3425) was found to be more than twice the income generated from crop sales (R 1595).

On average, two household members were found to be engaged in agricultural activities. Sixty five per cent of the studied households were found to have active savings accounts with commercial banks whereas the other 35 per cent were found not to be having savings accounts. On average, households displayed high levels of disposable incomes (69%) in relation to household annual expenditure (31%) when expressing income and expenditure as percentages of total annual household income.

From the table above, the calculated ratio of average households savings to average income, expressed as the average propensity to save (APS)[1] is about 0.68. This ratio implies that for every R 1.00 that the household generate, about 68 cents is saved on average. The APS ratio displays a higher level of average savings per household.

1. Average Propensity to Save (APS) is calculated as 1 - household expenditure/household income.



Map 1: South African Map: Moretele district is around the area depicted by a star, between Pretoria and Nylstroom, along N1.

3.3 Land ownership

Land ownership is a very important element in the district as it has a direct influence on the availability of land for agricultural production. State owned land may be readily available for development and private land may be available with the co-operation of the owner but the availability of tribal land needs tribal decisions and consent which is not easy to accomplish. Land ownership in the district is divided into the following seven spatial distribution with percentage distribution of each category:

Table 3.2: Land distribution in Moretele district

Land ownership category	Percentage distribution
Privately owned land	37
Privately owned land under control of a tribe	4
State owned land	34
State owned land under control of a tribe	6
Tribal land	18
Town land	0.8
Game reserve	0.2

Source: Africon, 1996

In the case of privately owned land, such land is available for development according to normal market principles. The owner thereof might be interested and have the financial means to it himself, or a development company or government authority may be interested in buying the land for development. Private ownership of land is therefore not seen as an obstacle to development.

Where land is owned by the State, such land should be available for development, unless the land is held specifically for other purposes. If it is not developed by the State, a private or other government body can come to an agreement with the State to establish a township thereon and, develop that piece of land and put it up for sale to the public. Development of land under tribal control has certain complications and the district under review is seriously affected.

Tribal land has been declared as such in terms of the Natives Land Act, 1913 (Act 27 of 1913) and the Native Administration Act, 1927 (Act 38 of 1927)[2]. According to section 3 of the Native Administration Act, 1927, which appears to be still in force in the old Bophuthatswana area, all contracts entered into by a chief is subject to approval by the Minister[3] after a majority decision by the male members of the tribe. In terms of the Republic of Boputhatswana Constitution Act, 1977, chiefs retained their status and the designation of chiefs and headmen is vested in the State President.

Section 87 of the former Bophuthatswana Constitution (which was still in force at the time of this study) stipulates that all state land which is reserved for occupation by tribes or communities shall:

- continue to be used and administered for the settlement, support, benefit and material and moral welfare of such tribes or communities; and
- not be alienated or in any way diverted from the purpose for which such land is reserved except under authority of an act of Parliament generally or specially adopted in this regard, subject to consultation with the tribe or community concerned.

Some land is registered in the name of the tribe or its chief. In such cases consent from one or both parties may be necessary to develop land and to transfer such land to the public. The State President is the Trustee of the tribe in all cases and will only act on recommendations by the tribal authority (Africon, 1996).

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2 It should be noted that although Land Acts of 1913 and 1927 may no longer be applicable today as a result of constitutional reforms that took place since 1994, application of such Acts is still enforced by the application of land rights attached to them. The application of these Acts will only become invalid once the province promulgates new dispensations on land reform, restitution, and redistribution. However, the racial provision "Natives" was amended in 1991.

3. The role of the Minister of Land Affairs under the old Bophuthatswana has now been taken over by the Ministers of Land Affairs and Public Works since 1994. No radical changes in land ownership took place since 1994.

3.4 Natural environment

3.4.1. Topography

The most prominent topographic feature in the area is the Magaliesburg mountain which runs through the southern part thereof n an east-west direction. Parallel south of the Magaliesburg mountain runs the Witwaters mountain which is not as prominent as the former. The rest of the study area is a fairly flat landscape characterized by very even slopes (Africon, 1996).

3.4.2. Hydrology

There is one drainage system (Crocodile River) in the area consisting of three sub drainage systems. The first is the Moretele River which runs through the northern part of the area, the second is the Tolwane River which flows from Ga-Rankuwa, Mabopane and Winterveld in a north westerly direction up to where it links to the Moretele River. The third and most prominent sub system is the Crocodile River which flows from south to north through the study area. The Moretele/Tolwane River eventually links up with the Crocodile River after which the three sub systems flow into the Northern Province as the Crocodile River system (Africon, 1996).

3.4.3. Vegetation

There are six distinct vegetation districts covering the area. The largest portion is covered by Mixed Bushveld. The area is surrounded by Sourish mixed Bushveld which also covers large tracts of land (Africon, 1996).

3.4.4. Climate

The area has a very moderate climate with an average summer daily temperature of 30^0 Celsius and an average minimum winter night temperature of 2^0 Celsius. The area has an average annual rainfall of 648 mm and the predominant wind direction (very moderate) is north east (Africon, 1996).

3.5. Agriculture

Agriculture use represents about 82 % of all land in the study area and is subdivided into the following four categories:dry land agriculture which constitutes areas where large tracts of land is intensively utilized for farming e.g., crop farming, citrus orchards etc. with no signs of irrigated farming systems in the study area; another farming pattern is community agriculture, which differs from dry land agriculture in that it is not as extensive as dry land agriculture. The land under this farming system has been divided into several small portions and different individuals are responsible for each of these plots. This land use represents about 2 % of the district. There is generally no irrigated agriculture in the district; extensive agricultural production is the largest land use category and it covers about 64 % of the study area. It mainly consists of livestock farming. The land under this farming system is intensively utilized (Africon, 1996).

3.6. Research procedure

Savings are defined as total net household income minus total household consumption. Consumption includes the value of all purchased goods and services for the household as well as products produced and consumed on the farm. These include costs for household operations, education, and health, and purchases of consumer durables (Ong *et al* 1976). The primary source of data for this study is a household income and expenditure survey for 1997. As savings can be split into two parts, i.e., monetary and non-monetary savings, this study will mainly focus on household financial (monetary) savings.

3.6.1 Data and its sources

The survey was carried out in Moretele district, North West Province using a standard structured questionnaire that was pretested before data collection. In addition to the questionnaire, supplementary information was gathered through observations, informal discussions and meetings with respondents and extension officers. The questionnaire is divided into three main sections, namely, Household Information for household profiles; Agricultural Information for farming activities and Financial Information for collection of household expenditures, incomes and savings information. Secondary information on the study area mainly consist of data sourced from the

"Eastern District Council (North West): Regional Perspective" report prepared by Africon (1996). The following villages were targeted for the survey: Maubane, Sespond, Thulwe, Opperman, Greenside, One-Ten, Denhouse, Stinkwater, Suurman, and New Stand.

The survey was conducted by the researcher himself to ensure a high degree of accuracy of the data and also because of limiting financial resources to hire additional enumerators. The data was collected from the villages identified above. The survey was targeted to the small-scale farmers in the district. Fortunately, all small-scale farmers in the district are registered with the Regional Department of Agriculture. A list of all farmers was provided by the Regional Department of Agriculture for sampling. As mentioned earlier, a total of 108 farmers were registered by the time of the survey. The small-scale farmers population was found to be homogenous in structure, with low levels of variability of socioeconomic characteristics such as for example, age, level of education, family size, thus ensuring a high degree of precision. Because of the homogenous nature and the smallness of the population, limiting human and financial resources, a smaller sample was chosen. Thirty seven percent of the farmers (forty farmers) were isolated for interviewing using a random sampling technique. The farmers are operating at either semi or sub-commercial basis earning insufficient and erratic income from various agricultural sources. Many of the are full-time while a small percentage is made up of part-time farmers. The latter group is made up of either professionals or workers who engage in farming not as a primary activity, but as an extramural economic activity. The emphasis on this study is mainly on small-scale farmers who farm under communal arrangements with permission to occupy the piece of land on which they farm.

According to Morokolo (1993), communal land tenure has negative effects on the ability and willingness of farmers to adopt improved technology. Land is communally owned and farmers only posses usufractuary rights to the piece of land they farm on. Communal land tenure places difficulties in the way of improved farming and land use and militates against individual initiative to develop the land. A farmer does not have the same interest in the care and development of rented land than he would if it were his own property. This situation partially explains why returns from farming under communal systems are so low.

A stratified two stage cluster sampling technique, which divides the heterogeneous population into mutually exclusive homogeneous subgroups was used and each agricultural ward represents a strata. In addition, a systematic selection procedure was used to randomly select respondents in each strata or agricultural zone. Extension agents from the Moretele Ministry of Agriculture and Forestry in the Northwest Province were used to facilitate appointments for interviews with the farmers.

A drawback on the data set is that it only has information on single year stock of savings but not on the increment of savings in the year. Thus, it is impossible to observe household annual saving, defined as the changes in household wealth between two years or as income minus consumption Multiple regression analysis, discriminant analysis and factor analysis were used to identify factors which influence farmers' savings behavior, motivations to save and savings accounts used for savings mobilization. The savings function and the life-cycle hypothesis were also tested to determine the savings pattern of small scale farmers in the identified areas.

3.6.2 Data analysis methods.

The data collected from the study area was coded into a list of variables that are assumed to determine savings behavior of small-scale farmers. The data was logically captured into a spreadsheet in preparation for descriptive and statistical analyses. A descriptive statistical analysis was done to display the general socioeconomic characteristics of the respondents. The data was then transferred to a Statistical Package for Social Sciences (SPSS) programme for statistical analyses. The following issues were statistically analyzed: determinants of savings; reasons for savings mobilization; sources of savings; and savings accounts used for savings mobilization. The following multivariate analytical tools were used for data analysis:

3.6.2.1 Multiple regression analysis.

A linear multiple regression analysis model was employed to analyze the data on determinants of savings behavior. This statistical technique is generally applied to analyze the relationship between a single dependent variable and several independent variables (Gujarati, 1988). The independent variables assumed to determine savings behavior are age, dependency levels, farm

income, non farm income, farm size, farmers' level of education, distance to the bank, years of farming experience, and investment motive, while the dependent variable, savings, is defined as the difference between annual household income and expenditure. Multiple regression analysis was further used to analyze specific reasons advanced for savings mobilization and also for the analysis of different sources of savings. The basic general linear formulation of the model is as follows:

$$Y_1 = X_1 + X_2 + \ldots\ldots\ldots\ldots + X_n$$

Where: Y_1 = dependent variable and X_1 to X_n are independent variables (Hair *et al*, 1995). The formulation depicts a one way linear relationship where the behavior of the dependent variable is influenced by changes in the independent variables.

The following general approach (Gujarati, 1988) will be adopted in analyzing and interpreting the data using the ordinary least squares multiple regression analysis:

- determine whether the signs of the estimated coefficients are in consonant with theoretical or prior expectations as dictated by economic theory,

- determine if theory or prior experience confirms that a particular coefficient is statistically significantly different from zero. If the actual results are significant, it would then be argued that the results are consistent with theory. A t-test will be used to test the significance of the partial correlation of the variables reflected in the regression coefficients. The partial correlation test is used to determine whether a variable(s) should be dropped from the equation or not. The levels of significance used are 1 and 10 percent respectively.

- the r^2, coefficient of determination, which measures the overall goodness of fit or the explanatory power of the estimated regression model will be used. The model will be judged satisfactory if the coefficient of determination is sufficiently high. However, the importance of using r^2 in judging the strength of the model will not sacrifice other criteria as mentioned above.

3.6.2.2 Analysis of variance

Analysis of variance (ANOVA), a statistical technique used to determine, on the basis of one dependent measure, whether samples were drawn from populations with equal means. Analysis of variance is called a univariate procedure because it is used to assess group differences on a single dependent variable. This technique is generally used to test the null hypothesis that all group means are equal because they were drawn from populations with equal means os alternatively whether the sample sets measured in a research, are part of the same population. When a statistical difference is found between the variance of one or more of the groups and that of the total sample, the hypothesis is proven false and it can be proven that the sample sets were sampled from different populations. It is used to determine whether an observed difference in groups is due to a treatment (responses/independent categorical variables) effect or random sampling variability. The technique uses a *t*- statistic to assess the statistical significance between the two groups on a single dependent variable. The *t*-test is used to determine whether differences in means across groups are due solely to sampling errors. Large values of the *t*-statistic lead to the rejection of the null hypothesis of no differences between means across groups.

Levels of acceptance or rejection of a variable are based on the critical values of the *f*-statistics. If the value of the calculated *f* is greater than the critical value on the F-distribution, it could be conclude that the means across all are not all equal (Hair *et al*, 1995). This is used to test the null hypothesis that small scale farmers' savings behavior is not influenced by specific motivations to save, i.e., whether specific motivations to save have no influence on farmers' savings behavior. The tool will further be used to determine whether there are group differences on different savings accounts used by small scale farmers.

3.6.2.3 Factor Analysis

A Factor analysis technique (FA), (Hair *et al*, 1995) is a statistical technique used to analyze the interrelationships among a large number of variables in terms of their common underlying dimensions or factors. The objective of this tool is to find a way of condensing the information contained in a number of original variables into a smaller set of variates or factors with minimum loss of information. The technique allows data to be analyzed and understood in a much smaller

number of items than the original individual variables. Factor analysis is an interdependence technique in which all variables are considered simultaneously, with each related to all others. In factor analysis, the variates (factors) are used to maximize their explanation of the entire variable set. Each variable is predicted by all other variables. This procedure is good because its outcomes are not based on the researcher's priori expectations reasons. According to this analysis, allowance is made for some degree of multicollinearity among variables because the objective is to identify intercorrelation or interrelations among sets of variables. Assumptions about normality, homoscedasticity and linearity apply only to the extend that they diminish observed correlations among variables.

Application of this technique entails arranging variables to be analyzed in a computerized factor matrix. The matrix contains unrotated factors preliminary factors for further extraction. The factor matrix is then rotated electronically by means of a computer to get rotated factor matrix. The objective of rotating factor matrix is to redistribute the variance among variables to achieve a simple and theoretically meaningful factor pattern for extraction. When identifying factors to be extracted from the matrix for analysis, an eigenvalue criteria is used. According to this criteria, variables with eigenvalue of less than 1 are considered insignificant and dropped from the model. This criteria is important because any individual factor should account for the variance of at least a single variable to be retained for interpretation. Once a satisfactory factor matrix has been arrived at, interrelationships among variables must be established on the basis of the highest absolute value of the factors according to the eigenvalues criteria. The interrelated factors or variates are the given a label.

This technique will be used to further analyze reasons advanced for savings mobilization to determine whether the reasons can be summarized in a smaller set of factors by describing their covariance (correlation) relationship in terms of their common underlying dimensions or factors. The objective of factor analysis is to consolidate an array of reasons into smaller set of variates or factors with minimum loss of information (Hair *et al*, 1995). Detailed application of the tools will be explored in chapter 4 under statistical data analysis.

CHAPTER 4

DATA ANALYSIS AND RESULTS

4.1 Introduction

The objective of this chapter is to fit the data collected onto the statistical techniques outlined in chapter3 for analytical purposes and for hypothesis testing. Data analysis for this study will be divided into two main sections. The first section will concentrate on the descriptive analysis of the socioeconomic characteristics of the studied households which covers sources of household income; distribution of disposable income between savers and non savers; savings versus gender, age and education; reasons for savings mobilization; savings accounts used; sources of savings; frequency of savings; interest rate awareness; and dependency levels between savers and non savers. The descriptive statistics distinguishes between savers and non savers with a purpose of defining a general profile of the two categories for empirical analysis.

The second section will focus on. statistical data analyses which will focus on the determinants of savings; reasons for savings mobilization; sources of savings, and savings accounts used will be presented in the next section. Multiple regression analysis, Analysis of variance and factor analysis will also be used to undertake the statistical data analysis. The chapter will be concluded with a short summary of main findings.

4.2 Socioeconomic dynamics of the district population

4.2.1 Profile of the economically active by sector

The population of the district is divided into two parts, namely the economically active population and the not economically active population. The economically active population consists of employees (in both the formal and informal sectors) and unemployed persons. On the other hand, the not economically active population includes children, students, retired persons and all other persons that cannot be classified as employees or unemployed persons. Table 4.1 below depicts the composition of the economically active population members by economic sectors.

Table 4.1. Percentage composition of the economically active population.		
Variable	**Number**	**%**
Professional, Semi-professional, and technical occupations	6136	8.41
Managerial, Executive, and Administrative occupations	121	0.17
Clerical and Sales occupations	9672	13.3
Service occupations	16496	22.6
Farming and related occupations	2986	4
Production supervisor, Miner, Quarry and related worker	30112	41.3
Occupation unspecified	7433	10.2
Total	**72956**	**100**

From the preceding table above, it is clear that agriculture absorbs a minuscule percentage of the economically active members of the district population. Out of the seven occupational groups prevalent in the district, agriculture occupies the second last position, which means that its labour absorption capacity is low. In line with world-wide tendencies more and more people find work in the informal sector. Although definitions and measurements are complicated due to, inter alia, overlaps with formal and unemployed sectors as well as the lack of records. In 1994, 53 per cent of the economically active population in Northwest was formally employed, 10 per cent informally employed and 37 per cent unemployed. No comparable figures are available for the district, but it is expected to be of the same order as the rest of the province.

4.2.2. Age distribution

The percentage age distribution of the district is presented in table 4.2 below. From the table, it is clear that the district has a large number of economically active members than inactive members.

Table 4.2. Percentage age distribution		
Age distribution	Number	%
0-19	158220	45
20-64	179316	51
64+	14064	4
	351600	100

4.2.3 Sources of income for farmers.

Sources of income for farmers are depicted in table 4.3 below. The average farm income and non-farm income for savers is R 1428.85 and R 37135.38 respectively. The farm income and non-farm income for non-savers is R 787.14 and R 10344.29 respectively. From the table, it is clear that income plays a major role in determining the ability and willingness to save. Savers have more income from both the farm and non-farm sources than savers. The total contribution of farm income to total income is very little. Farm income contributes only 4 per cent of savers' total income and 7 per cent of non-savers incomes. The reason for this salient low income contribution of agriculture to total income is due to low level of commercialization by farmers. Farmers want to be food secure before selling any extra production.

Table. 4.3. Distribution of sources of income

Income source	Savers	%	Non-savers	%
Average Farm Income (R)	1428.85	4.00	787.14	7.00
Average Non-Farm Income (R)	37135.38	96.00	10344.29	93.00
Total	**38564.23**	**100.00**	**11131.43**	**100.00**

4.2.4 Distribution of disposable income of farmers.

The average annual disposable income of all farmers is R 34867. The average disposable income of savers is R 34105.19 while that of non-savers is R 2048.57. Savers have more disposable income than non-savers. The reason for the low level of disposable income among non savers is partly due to the fact that 64 per cent of them experience a negative residual between total annual income and annual expenditure, meaning that they are deficit households.

Table. 4.4. Farmers disposable income.

Category	Average annual disposable income
Savers	R 34105.19
Non-savers	R 2048.57

4.2.5 Savings versus gender

Savings distribution by sex of household head is depicted in table 4.5 below. From the table, 69 per cent of male farmers save while only 31 per cent of female farmers saved. In general, there are more males than female savers in the district. The percentage of male savers exceeds that of non-savers while the percentage of female savers is less than the percentage of non savers. The reason for the disparity in savings behaviour between males and female farmers could be a result of the fact that male farmers usually have alternative sources of income their female counterparts. Most of the interviewed male farmers had worked before and that gave them an opportunity to open savings accounts. The other reason is that males are generally responsible for making household financial decisions rather than their female counterparts.

Table 4.5. Percentage distribution of savings versus gender

Gender	Savers	%
Males	18	69
Females	8	31
Total	**26**	**100**

4.2.6. Savings versus age distribution

The life-cycle hypothesis posits that savings are low during one's early years, rises during the middle age and finally declines at retirement. The theory generally posits a negative relationship between savings mobilization and retirement. According to table 4.6, there is a positive relationship between age and savings mobilization. Two and half per cent of farmers aged between 40-49 years saved. The savings rate climaxed in the age categories of 60-69 and 70 years plus. The finding negates the strict application of the life-cycle hypothesis theory due to the fact that farmers continued to save even at retirement.

Table 4.6. Percentage distribution of savings by age.

Age distribution	Savers	%
40-49	1	3.8
50-59	7	27
60-69	9	34.6
70+	9	34.6
Total	26	100

4.2.7. Savings versus educational level of household head

From table 4.7. below, there appears to be a positive relationship between saving and the educational level of household heads. The majority of savers who constitute 50 per cent of the sampled population have secondary education. Savers with tertiary education only constitute 8 per cent while savers with no formal education constitute 19 per cent. The reason for the low percentage of savers with tertiary education is that most professionals are not engaged in agriculture, their quantitative participation in the sector in the region is very low. In a sense, the level of education was not found to play a leading role in influencing savings mobilization in the area.

Table 4.7. Percentage composition of savers and non-savers versus their educational level

Education level	Savers	%	Non-savers	%
No formal education	5	19	5	36
Primary education	6	23	9	64
Secondary education	13	50	0	0
Tertiary education	2	8	0	0
Total	**26**	**100**	**14**	**100**

4.2.8 Reasons for saving mobilization

The most important determinant for savings mobilization in the district is provision for education of grand children. Forty six per cent of respondents cited provision for grand children's education as a major reason for their saving. The second most important reason for saving is to cater for emergencies like funerals and any other unexpected financial need. Twenty seven per cent of savers cited provision for emergencies as their main reason for saving. The least important reason for saving is provision for old age, which represents zero per cent. This makes sense as the majority of farmers are pensioners. However, savings motives for investment purposes (accumulation) and for farming expenses do feature on the farmers' savings frontier, but appear to be weak

Table.4.8. Percentage distribution of saving reasons		
Reasons for saving	**No. Responses**	**%**
Interest incentive (investment)	5	19
Old age	0	0
Grand children education	12	46
Emergencies (funerals)	7	27
Finance farming expenses	2	8
Total	**26**	**100**

4.2.9 Reasons for not saving

From the sampled population, 86 per cent of non-savers cited low levels of disposable income as an explanatory factor for not saving. Distance to the banks and lack of confidence in the commercial banks constituted 7 per cent of the respondents' inability to save respectively. It appears that lack of surplus funds is a major contributor to non-savings mobilization. This category of farmers experiences, in general low levels of income, and this could be one of the major determinants of their ability to save.

Table. 4.9. Percentage distribution of reasons for not saving		
Variable	**Number**	**Percentage**
Low income	12	86
Distance to bank	1	7
No confidence in banks	1	7
Total	**14**	**100**

4.2.10 Types of accounts used for savings

The savers in the district mainly used three types of accounts, viz., Savings account, Fixed deposit account and Unit Trust accounts. The majority of farmers, 84.61 per cent used the savings account and users of fixed deposit and unit trust account constituted 7.69 per cent respectively. Although farmers know different savings account, they mostly preferred the savings account for reasons divulged in table 4.10. below.

Table 4.10. Percentage distribution of savings account used.		
Accounts used	**Number**	**%**
Ordinary saving account	22	84.61
Fixed deposit account	2	7.69
Unit trusts	2	7.69
Total	**26**	**100**

4.2.11 Reasons for using a particular savings account

A number of reasons were advanced for the utilization of a particular savings account. Easy of access to savings was quoted as the main reason for using a specific savings plan. The percentage composition of savers whose main motivation for using a particular savings plan because of easy of access to savings is 65 followed by 19 per cent who cited interest incentive as a major reason for using a particular plan. Twelve per cent of respondents did not have a particular reason for using a specific savings account. The above mentioned percentage contributions can be seen in table 4.11

Table 4.11. Percentage distribution of reasons for using a particular account.		
Reasons	**Number**	**%**
Interest incentive	5	19
Easy access to savings	17	65
Only savings plan known	1	4
Do not know	3	12
Total	**26**	**100**

4.2.12 Sources of savings.

According to table 4.12 below, the major source of savings for farmers in the district is old age pension followed by incomes from livestock and crop sales respectively. Sales of agricultural commodities especially livestock contributed a significant percentage to total sources. Sales of crops constitute a smaller contribution because crops, especially maize is normally not sold, but exchanged at local shops or cooperatives for maize meal for household consumption to alleviate food insecurity.

The finding is in consonant with the results of the study commissioned by the Development Bank of Southern Africa in the district in 1995 (Africon, 1996). They compared the different sectors of the economy within the district in terms of their Gross Geographic Product Location Quotients by kind of Economic Activity. A location quotient of larger (smaller) than 1 indicates a comparative advantage (disadvantage) in the production of a specific commodity. The district under review scored an agricultural location quotient of 0.9 and 0.3 in 1980 and 1991 respectively. The declining quotient indicates the declining role of agriculture as an important economic activity in the district. The most important sector according to their analysis is manufacturing.

Table 4.12. Percentage distribution of sources of savings.

Source of savings	Number
Formal job	0
Informal sources	4
Remittances from family members	6
Old age pension	15
Livestock sales	9
Crop sales	2
Crop and livestock sales	5
Crops, livestock sales and pension	3
Crop and livestock sales, pension and informal sources	2

4.2.13 Frequency of savings.

On average, 62 per cent of farmers who save, save monthly. This is because most farmers are pensioners and depend on monthly pension pay-outs for savings. Thirty eight per cent of farmers are occasional savers. There are no weekly savers from the sampled population.

Table 4.13. Percentage savings frequencies

Frequency	Number	%
Weekly	0	0.0
Monthly	16	62
Occasionally	10	38
Total	**26**	**100**

4.2.14 Awareness of interest earnings on savings

Farmers were interviewed to test their knowledge and understanding of interest rates. From the sample, 80 per cent of farmers knew what rate of interest is and the rest did not know what it is. A further analysis was undertaken to apply the same test between savers and non savers. It emerged that 85 per cent of savers understand what rate of interest is and the rest did not know. Only seventy-one per cent of non savers also knew what rate of interest is. It can be concluded that the farmers in the area are aware and understand what rate of interest means.

Table 4.14. Percentage distribution on knowledge of interest rate

Variable	Total	%	Savers	%	Non savers	%
Aware	32	80	22	85	10	71
Unaware	8	20	4	15	4	29
Total	**40**	**100**	**26**	**100**	**14**	**100**

4.2.15 Households' dependency ratios

There appeared to be a positive correlation between savings and dependency in terms of ratios. The average dependency ratio in the district is 0.45. The dependency ratios among savers and non-savers were discovered to be 0.36 and 0.54 respectively. This means that savers have fewer dependents than non-savers. The high dependency rates among non-savers leaves them with no extra disposable income to save. Dependency levels play a major role in savings mobilization among rural households in general and farmers in particular in the district.

Table. 4.15. Dependency ratios between savers and non-savers

Category	Ratio
Savers	0.36
Non-Savers	0.54
Average	**0.45**

4.3. STATISTICAL DATA ANALYSIS

This section is composed of five subsections concentrating on statistical data analyses for the following areas of interest: determinants of savings, reasons for savings mobilization, reasons for lack of savings mobilization, types of savings accounts used, sources of savings and finally, reasons advanced for using a particular account are explored. This section will be concluded with a summary of major findings.

4.3.1 Determinants of savings mobilization.

Multiple regression analysis is used to analyse factors that influence savings mobilization among the resource poor farmers in the target district. This technique is used to measure the significance of the economic relationship between the dependent variable (savings), defined as the difference between household annual income and expenditure and a set of independent variables. Data was fitted to the savings function using the ordinary least squares (OLS) linear multiple regression technique.

Following from the literature survey in chapter two, the following hypothesised independent variables assumed to determine savings behaviours were fitted to the model: farmers' age, educational level, non farm income, farm income, dependency ratio, farm size, family size, farming experience in years, distance to the bank, and interest rate sensitivity (investment/accumulation motive).

The multiple linear regression model is specified as follows:

HHADI = *F* (Age, Educ, Farminc, Nonfi, Dep, Fs, Fexp, Dtfi, Ininc)

Where:

HHADI	=	Household annual disposable income measured as the difference between household income and expenditure.
Age	=	Age of the household head in years.
Educ	=	Number of years of schooling of household head.
Farminc	=	Household annual farm income from crops and livestock sales
Nonfi	=	Household annual non-farm income from formal and informal sources.
Dep	=	Dependency ratios per household calculated as a proportion of household members who do not contribute to household income.
Fs	=	Farm size of household in hectares.
Fexp	=	Household head's years of farming experience.
Dtfi	=	Distance to the nearest commercial bank, and
Ininc	=	Interest rate sensitivity as a proxy for accumulation (investment imperative).

The independent variables isolated for determining savings behaviour were selected on the basis of economic theory and assumptions on household savings. A partial correlation procedure was undertaken to detect the presence of correlation among independent variables and between independent and dependent variables. As variables are added to the regression equation, a possibility of intercorrelation among independent variables exist. Partial correlation analysis is used to identify such hidden intercorrelations among independent variables. The problem with intercorrelation is that if two or more variables are intercorrelated, they tend to share some of their predicting power. Partial correlation coefficient is used to measure the strength of the relationship between the independent variables and the dependent variable when the effects of other independent variables in the model are held constant. The degree of intercorrelation between independent variables is either positive or negative,

This procedure is used in sequential variable selection methods of regression models estimation to identify the independent variable with the greatest incremental predictive power beyond the independent variables already in the regression model (Hair, *et al*, 1995; Gujarati, 1988). Independent variables that displayed smaller correlation coefficient at acceptable levels of significance, not more than 10 per cent, were selected as potential candidates to go into the model for explaining savings behaviour. The computerised forward selection, backward elimination and stepwise selection were also used as a contingency approach for confirming variable that should be included in the model. Table 4.16 below depicts the results of the partial correlation matrix.

Table 4.16: Partial correlation matrix among independent variables influencing savings mobilization									
Variables	**Accum**	**Age**	**Dep**	**Dtfi**	**Educ**	**Farminc**	**Fexp**	**Fs**	**Nonfi**
Accum	1								
Age	-0.05	1							
Dep	-0.202	0.1651	1						
Dtfi	-0.06	-0.144	0.054	1					
Educ	0.204	-0.23	-0.194	0.0747	1				
Farminc	0.2446	-0.455	0.2062	0.0256	0.3157	1			
Fexp	0.1747	0.1952	0.2581	-0.061	-0.069	0.0247	1		
Fs	-0.213	-0.141	0.2459	0.1844	-0.1078	0.2861	-0.119	1	
Nonfi	-0.01	0	-0.173	0.1135	0.0332	-0.5846	-0.1	-0.019	1

Note: Variables are defined as above, Accum is used for accumulation, a proxy for interest incentive.

Table 4.16 above depicts a significant negative linear correlation between farm income and non farm income in relation to their contribution to household savings. The inverse relationship between the two variables implies that as the contribution of farm income to household savings increases, the contribution of non farm income decreases and vice-versa. In simple terms, households that do not have formal sources of income tend to participate in agricultural activities as the only means of generating income, part of which is saved, while families with formal sources of income use a portion of it for savings, with agricultural income serving as an incidental source of saving

The two variables are strongly affected by the third variable, age, which has a major impact on household's ability to earn income. According to Gujarati (1988), variables would be considered to be highly correlated if their pair-wise or zero-order correlation coefficient between the two regressors is in excess of 0.8. The high zero-order correlations are a sufficient but not a necessary condition for the existence of multicollinearity because it can exist even though the zero-order or simple correlations are comparatively low, for example less than 0.5. Correlation between two variable do not always imply cause-and effect relationship between them

Age and farm income were also found to be significantly negatively correlated. The rationale behind the relationship stems from the fact that as people gets older, their energy to meaningfully participate in agricultural activities gradually diminishes. On the basis of the theoretical economic relationship and signs of the correlated variables, they were considered for inclusion in the model for regression analysis.

The above procedures isolated non-farm income, farm income, age and dependency as major determinants of savings behaviour among limited resource farmers in the study area. Total annual income was decomposed into farm income and non-farm income in order to discern the separate effect of each source on savings. Based on a priori expectations, the coefficients of income, education, farm size, farming experience, proximity to a bank, the rate of interest, should be positive indicating a direct relationship with savings. The coefficients of age, household size and dependency ratio to be negative, showing inverse relationships with savings (Deaton, 1993 Onyenwaku *et al*, 1992, and Skinner, 1988,). The null hypothesis tested is that the decision to

save does not depend on the magnitude of each independent variable specified above. The results of the analysis in this regard are summarised in Table 4.17.

Table 4.17: Multiple Regression results on determinants of savings.

Variable	Hypothesised relationship with savings	Household annual savings	Standard Errors
Age	Negative	408.55**	(145.06)
Dependency ratio	Negative	-18524.95**	(6377.1)
Farm income	Positive	0.8526***	(0.1478)
Non-farm income	Positive	0.8867***	(0.0877)
Farm size	Positive	-107.18 ^{NS}	(776.12)
Education	Positive	-393.71 ^{NS}	(279.23)
Distance to bank	Negative	199.35 ^{NS}	(910.65)
Farming experience	Positive	85.09	(128.46)
Interest incentive	Positive	-4162.18 *	(2428.69)
Constant		-17897.79*	
R^2		0.96368	
Adjusted R Square		0.95279	
F Ratio		88.45***	

Notes: * Significant at p = 0.1 ** Significant at p = 0.01 *** Significant at p = 0.0001, NS Not significant

Farm and non farm incomes emerged as the most significant determinants of savings behaviour in the study area. These two variable are significant at p = 0,0001 level with positive coefficients. The interpretation of the intercepts of farm and non farm income is that as annual farm and non farm incomes increase by a R1.00, estimated annual savings increase by 86 and 89 cents respectively. Farm income is composed of crops and livestock sales while non-farm income consist of income from formal and informal jobs. Income from pension was dropped from the model as it is highly correlated with age. The finding is in agreement with economic theory on the influence of income on savings.

The second significant variable explaining savings behaviour is dependency ratio level. This

variable is significant at p = 0,01 level. According to the results above, households spend on average R 18524.59 per annum to maintain each additional member of the household. This amount represents an opportunity cost of savings. The finding confirms the high rate of dependency in the area caused by high levels of unemployment compounded by a high proportion of economically inactive members of the population in the area. The average dependency ratio in the area is 0.51 per cent. The average dependency ratio for savers and non savers is 0.33 and 0.68 per cent respectively. The high dependency levels for non savers put pressure on the income of working members of the household and works against savings mobilization. The study area is characterised by a high percentage of household members who consume more than they produce, hence a negative impact on household ability to save. The sign of the coefficient is also negative confirming the postulation of economic theory.

The other significant variable that was found to influence savings behaviour is age. The coefficient of age was unexpectedly found to be positively related to savings and hence does not conform to the life-cycle approach in economic theory. The age variable is however significant at p = 0.01 level. Although it is not always possible to attach physical meaning to the coefficient, the mechanical interpretation of the age coefficient implies that for every additional year added to a household heads' age, average annual savings is estimated to increase by R 408.55. The reason divulged for this relationship is that older people save to cater for emergencies and their grand children's educational financial needs due to high levels of unemployment among the economically active members of the community. Deaton (1993) supported this finding that poor people would go into the behaviour of saving irrespective of age.

The variable for investment denoted by accumulation was also found to be significant at p = 0.1 level but negative. The investment motive is primarily driven by the guaranteed safety of principal, with no speculation of earning interest on deposited funds, hence the negative sign of the coefficient. In essence, the interpretation of the coefficient is that as annual interest rate increases by 1 per cent, annual savings decline by R4162.18, which does not make economic sense. The results show that there is a high level of interest on liquidity on deposited funds rather than return on savings. The intercept of the model is negatively related to savings, assuming that when all the determinants of savings are set at zero, the level of savings would be negative, at R17897.79 which agrees with economic postulation that when income is zero, households will

dissave. The constant is also significant at p = 0.1 level. The model's coefficient of determination, denoted R^2, measures the proportion of the variance of the dependent variable about its mean that is explained by the independent variables. The coefficient varies between 0 and 1. The model is generally assumed to have a strong explanatory power when the coefficient of determination has a higher value (Hair *et al*, 1995). The regression model's coefficient of determination implies that about 96 per cent variation in annual savings is explained by the independent variables specified, thus indicating a strong explanatory power of the model. Variables such as level of education, farm size, farming experience and distance to the commercial bank were all found to be insignificant determinants of savings. The insignificant contribution of education to savings behaviour was also confirmed by a study by Hyun *et al* (1979) where the education variable was found to have a negative coefficient that was not significantly different from zero.

The calculated marginal propensities to save (MPS)[4] from farm and non-farm incomes is 0.15 and 0.11 respectively. This implies that for any additional rand earned from farm and non-farm activities, 15 cents and 11 cents are respectively saved. The ratio displays higher levels of MPS from farming activities than non-farming activities. The high MPS from agriculture highlights the importance of farming as the major contributor to household savings.

4.3.2 Reasons for savings mobilization

Analysis of variance (ANOVA) was used to identify statistically significant reasons that motivate small-scale farmers to save. Hypothesised motivations for savings mobilization are, investment purposes, catering for emergencies, farm expenditures, retirement, future consumption, education for grandchildren, and transformed variables defined by interaction between grandchildren education and investment, and interaction between investment and emergency needs. Interaction in this analysis is an analytical technique that transforms two or more variables into one variable through multiplication. This procedure is normally used to correct undesirable characteristics such as non-normality, that detracts from the ability of the correlation coefficient to represent the relationship between it and another variable. Variable transformation, such as taking the logarithm, square root and multiplication of the variable(s) is normally done to create a better

4. Marginal Propensity to Save (MPS) is calculated as 1 - coefficient of income. In this case, the farm and non farm coefficients from table 4.17 were used respectively.

measure of the relationship between the dependent and independent variables. Transformations may either may be applied to the dependent or independent variable or both (Hair, *et al*, 1995).

According to Gujarati (1988), interaction of variables could be used to determine whether the mean values of independent variables' effect on the dependent variable may be additive or multiplicative. The tool could also be used to establish whether the presence of simultaneous (joint) effect of two independent variables could reinforce the individual effects of the independent variables. The purpose of including transformed variables in the analysis is to determine their combined effect on the dependent variable. The results of the Analysis of variance are presented in Table 4.18. Two interacted variables were introduced into the analysis. The first variable is derived from multiplying emergency needs and accumulation motives to create a transformed variable. The second variable is created by multiplying grandchildren' educational needs with accumulation motive. The rationale behind this analysis is to test the joint effects of the transformed variable on motivation to save, i.e., whether the mean effects of interacted variables on savings motive is simply additive or multiplicative. ANOVA is used to test the null hypothesis that savings mobilization is not influenced by a specific motivation.

Table 4.18: Analysis of variance of reasons for savings mobilization.

Variable	Group means		Level of significance
	Yes	No	
Emergency	41608	2175	51.5852***
Consumption	30862	20881	0.9212 ns
Farming expenditure	36311	18400	3.7270*
Grand children education	45116	95348	29.9324***
Accumulation	33472	14209	6.0001**
Grandchildren education*Accumulation	40583	16976	6.9790**
Emergency * Accumulation	40931	13156	13.3934***
Retire	41160	22409	0.4898 ns

* Significance at p = 0,1 ** Significance at p = 0.01 *** Significant at p = 0.0001 Ns Not significant

According to the analysis presented in table 4.18, the most significant motives for savings mobilization among resource poor farmers are catering for emergencies and grandchildren's education, and a transformed variable, emergency * accumulation, which are all significant at p = 0.0001 level. The results of ANOVA indicates that catering for emergencies; grandchildren's education, and a transformed variable emergency * accumulation contributed significantly to savings mobilization. A study undertaken by Johnson *et al* (1985) found that the amount of money set aside by families for emergencies constituted about 30 percent of total income, retirement (16%), purchase of durable goods (6%), and to get ahead (6%). This finding confirms the results from the study area.

The investment incentive was found to be significant at p = 0.01 level. Provision for farming expenditure was also discovered to be significant at 0.1 level. An interaction between grand children's educational needs and accumulation motives was discovered to be significant at p = 0.01 level. The above analysis clearly rejects the null hypothesis that saving mobilization is not influenced by specific motivations. Savings mobilization is found to be determined by specific motivations as indicated by significant variable in the table above. In summary, investment for meeting emergencies was discovered to be more significant than investment for grand children's educational needs as shown by interacted variables. However, both investment motives are significant and reinforced by the findings in table 4.20. Provision for future consumption and retirement were discovered to be insignificant motivation for savings mobilization.

The factor analysis (FA) procedure was used to further analyse motivations for savings mobilization. The principal axis factor extraction (PAF) method, which is a computational procedure to simplify rows and columns of a factor matrix to facilitate interpretation of the rotated factors was used. The PAF was further used to select matrix factors due to its ability to avoid inflation of factor loadings. The eigenvalue criterion was used to isolate factors greater than unity for factors that would define motivations for savings mobilization. The objective of this analysis is to determine whether farmers' saving motivations can be grouped in terms of their common underlying, but unobservable dimensions or factors with a minimum loss of information.

Factor analysis model is organised in such a way that all variables within a particular group are highly correlated among themselves but have relatively small correlations with variables in

another group (Hair, *et al,* 1995). The following six motivations for savings mobilization were included in the preliminary unrotated factor matrix, which will further be rotated in preparation for the selection of interrelated (covariant) variables after rotation: investment purposes, catering for emergencies, farm expenditures, retirement, future consumption, education for grandchildren Four variables making two factors were selected by the procedure and two variables, retirement and provision for farm expenditures were excluded from the factor analysis because they had low loadings and/or loaded on multiple factors.

According to this procedure, as was applied by Makhura *et al*, (1997), the excluded variables are, by application of this technique, not influential reasons motivating small-scale farmers to save. The finding is true as more than 63 per cent of respondents are pensioners already, and therefore, there is no reason for them to save for retirement purposes. Saving for farm expenditure is also not regarded as crucial as farmers are concerned about saving for emergencies and grandchildren's education. At their age, they do not have incentives to further invest in agricultural production. The two variables were excluded and the factor analysis was rerun with only four variables. The factor loadings from the quartimax rotation are presented in table 4.19 below. The two factors explain 70.7 per cent of the variance in the four savings mobilization reasons. The two factors are represented as indices for savings motivation. Factor 1 (a combination of emergency needs and catering for grandchildren's education) is named precautionary motive (liquidity) and factor 2 is named food security motive with an option of mobilising investments.

Table 4.19: Rotated factor matrix for savings mobilization reasons

Reasons for savings	**Factor 1**	**Factor 2**
Emergencies	**0.90955**	-0.10349
Grandchildren education	**0.80618**	-0.46349
Consumption	0.35212	**0.68435**
Accumulation	0.35574	**0.63760**
Percentage Variance Explained	**43.2**	**27.5**

Further regression analysis was used to test the influence and significance of specific set of reasons motivating small scale farmers to save. The results of the regression analysis are presented in table 4.20 below.

Table 4.20: Regression results on reasons for savings mobilization

Variables (reasons)	Parameters	Standard Errors
Emergencies	27727.79**	-7766.48
Consumption	2086.56 ^{ns}	-7411.63
Farming expenditure	2323.50 ^{ns}	-7059.87
Grandchildren education	17130.78*	-7530.16
Accumulation	2101.20 ^{ns}	-6626.54
Retirement	-4176.23 ^{ns}	-18301.97
Constant		477.65 ^{ns}
R^2		0.63659
F-Ratio		9.63457***

Notes: * Significant at p = 0.1; ** Significant at p = 0.01; *** Significant at p = 0.001; NS Not significant

According to the three techniques used, the most significant reasons driving farmers in the study area to mobilise savings are provision for emergencies and saving for grandchildren's education. Investment motives, provision for future consumption, saving for farm operations and saving for retirement are insignificant reasons. The retirement motive is also negatively related to saving as older people do not save for retirement purposes as most of them are already in retirement.

According to CGAP (1998), the liquidity of savings is one of the critical factors savers consider in their decision to save. CGAP (1998), found that if the primary motive for savings mobilization is insurance (emergency), liquidity and safety of deposits will be of particular importance to the depositor. However, if the motive is wealth accumulation, safety of deposit and interest rate earned become critical while motives for future investment require security and immediate access to funds in the event that an investment opportunity would suddenly arise. The finding confirms that people normally save for a variety of reasons other than for investment purposes.

Robinson (1994) argues that in the context of micro-finance, the demand for deposit facilities is determined by a mix of motives and determinants and can therefore be met with a mix of savings products offering different levels of liquidity and return. He gave an example of BRI that mobilised savings from different strata of rural societies with a mix of liquid and non-liquid savings products and various levels of return, based on deposit amounts.

4.3.3 Sources of savings

This section is intended to isolate specific agricultural and non-agricultural sources of savings that farmers use to mobilise savings. The importance of this analysis is to identify potential sources of income around which savings mobilization campaigns and policies could revolve. It further helps to shed light on whether farmers save from either agricultural or non-agricultural income, and if they save from farm income, determine whether such income is derived from crops or livestock sales. A multiple regression analysis technique was used to determine significant sources of savings for farmers in the study area. According to the data collected from the study area, the regression results of savings sources are presented in table 4.21 below.

Table 4.21: Regression results on sources of savings

Variables (reasons)	Parameters	Standard Errors
Income from crop sales	-6527.28 ^{ns}	-13978
Income from formal employment	-30518.95 ^{ns}	-26085
Income from livestock sales	32307.34**	-11352
Income from informal employment	13561.63 ^{ns}	-11870
Pension (government social security grant)	20097.51*	-8440
Unexpected income	-12446.41 ^{ns}	-17807
Constant		8238.89 ^{ns}
R^2		0.33422
F-Ratio		2.7609*

Notes: * Significant at p = 0.1; ** Significant at p = 0.01; *** Significant at p = 0.001; NS Not significant

The results of the regression analysis isolated two sources of income as major contributors to savings. According to the analysis, income from livestock sale was established to be one of the

sources of savings by farmers in the study area. The source was discovered to be significant at p = 0.01 level. According to African custom, livestock is normally kept as a symbol of wealth among the majority of African farmers. Farmers would keep large livestock heads without any degree of commercialization. The situation is however changing and livestock is gradually regarded as a product that is highly liquid and tradeable. Farmers would normally sell their livestock if they need to raise money urgently. There are a number of factors that force farmers to sell their livestock for cash that is subsequently saved. The factors are high stocking rates and overgrazing that result from the communal nature of grazing rights arrangements; sporadic droughts; and stock thefts. These factors, separately or combined usually force farmers to reduce their herd sizes involuntarily. The proceeds of stock size reduction exercise are, according to respondents, normally saved with commercial banks. The findings of the study confirm the argument. Livestock is also being used in some instances as an alternative source of investment.

Income from crop sales was discovered to be an insignificant contributor to savings in the study area. The coefficient of crop sales is also negative, emphasising the lack of contribution of this source to savings mobilization. The rationale for this phenomenon is that crops were produced to enhance household food security with no intention to sell. Thus many households would store any surplus crop production or exchange it for processed products as strategies to overcome food insecurity, even when opportunities to sell are explicit. Crops are traditionally not regarded as saleable commodities, as many households are annual deficit producers of food. Stored food is used as a strategy to smooth consumption as a result of low and/or uneven income of households. The findings of the study affirm the argument for food security.

Income from formal employment was discovered to be negative and an insignificant contributor to household savings. The finding confirms the fact that almost all the respondents are pensioners outside formal employment. It is therefore not expected that income from formal employment would play a leading role in savings mobilization by this group of resource poor farmers. Income from formal employment is therefore not considered as one of the explanatory variables that influence small-scale farmers saving behaviour

The coefficient of income from informal sources is positive but insignificant. The most common informal source of income is generated from selling water for household use as water provision

in the area is very poor. Commercialization of water for household use formed part of a repertoire of economic activities undertaken to generate income.

A government social security pension was also discovered to be a significant source of savings for farmers in the area. The source was also discovered to be significant at $p = 0.1$ level. This finding is accentuated by the fact that the majority of farmers are pensioners, making pension earnings their only regular source of income. Although the pension contribution is supposed to oversee their daily financial needs, the high levels of dependency and unemployment in the district puts pressure on this source of income such that it does not serve its intended purposes, but serve to absorb financial shocks experienced by households. This reason explains why government social security grant plays a role in savings mobilization.

Respondents were tested on the importance of unexpected income on savings mobilization. This is income derived from inheritances, donations, transfer, etc. According to the findings, such sources contribute negatively to savings and were discovered to be insignificant. The explanation to this is that unexpected income is either consumed or it does not constitute a significant source of income for respondents to identify it as an alternative. The intercept of the model is positively related to sources of savings, assuming that household would still save even when there are no sources. This finding might be difficult to comprehend, but it implies that households attach high importance to saving.

In summary, farming households in the study area mobilise savings from a limited range of sources in pursuit to primarily cater for emergencies and grandchildren's education and secondarily for investment purposes if there appears to be income surpluses above primary needs. Prominent in the sources of savings are incomes from livestock sales and from government's social security pension. It is clear from the results that households do not commercialise crops as a means of raising income, but use it as a safety net to overcome food insecurity. Surplus crop production in good years is also not sold, but stored for smoothing future consumption. Livestock sales is the only significant agricultural source of savings mobilization among the resource poor farmers in the district.

A further regression technique was used to analyse reasons militating against savings mobilization. The test discovered that the main constraint affecting the ability of farmers to save was no or low level of income. The variable was significant at p = 0.01 level. Factors such as distance to the bank, low interest on deposits, and standing in queues were discovered not to have influence. It is assumed that distance would have been a significant determinant if banks were located too far from households. This confirms the finding that income is the major determinant of savings behaviour.

4.3.4 Savings accounts used

An Analysis of variance technique (ANOVA) was used to test the significance of specific identified savings accounts used by resource poor farmers in the district. The results of the analysis are reflected in table 4.22 below. The dummy variables' technique as outlined by Kennedy (1979) was used to distinguish between users and non users of specific savings accounts. The dummy variables were used to provide estimates of the magnitude of class variation influences on the dependent variable. The *F*-test was used to test the hypothesis that the between class variation is large relative to within class variation, which implies that the classification is meaningful, confirming that there is a significant variation in the dependent variables between classes.

Table 4.22: Analysis of variance on savings accounts used.

Variable	Group means		Level of significance
	Yes	No	
Ordinary savings account	36470.63	2488.75	26.575***
Use cheque account	45183.33	21069.32	2.4213 ^{ns}
Use fixed deposit savings plan	36086	18475.17	3.5914*
Use unit trust savings plan	33510	22318.29	0.3387 ^{ns}

* Significance at p = 0,1 ** Significance at p = 0.01 *** Significant at p = 0.0001 Ns Not significant

The results of the analysis show that the most significantly used deposit plan is the ordinary savings plan account, which is significant at p = 0.0001 level, followed by a fixed deposit

account, which is significant at p = 0.1 level. The cheque account and unit trusts were discovered to be insignificantly used, although farmers knew. A multiple regression analysis identified ordinary savings plans as the most significantly used savings plan by the identified group of farmers at p = 0.0001 level. In conclusion, farmers mainly use ordinary savings plan for savings mobilization. The reason often cited in support for using the savings plan is easy access to savings. This supports the savings motivation for emergency needs.

4.4 Summary and conclusions

The purpose of this chapter was to give a descriptive analysis of the socioeconomic characteristics of resource poor farmers in the study area. In addition, statistical analysis was undertaken to analyse determinants of savings behaviour, motivations to savings mobilization, sources of savings, savings accounts used and finally an analysis of reasons behind using a particular savings plan. The analysis is intended to shed light on the understanding of savings behaviour and motivation to save by the target group.

An analysis on the determinants of savings revealed income as the major source of savings mobilization by this group of farmers. The findings tally with the general economic theory on the relationship between income and savings. The findings of this study however do not correspond with the application of the life-cycle hypothesis on savings behaviour. The study discovered a positive relationship between age and savings mobilization, implying that the marginal propensity to save increases with age. In this instance, one can conclude that saving is regarded as a habit that people get engaged in, irrespective of their age.

The level of dependency was also found to play an instrumental role in savings mobilization. The findings of the study revealed a negative relationship between savings and the level of dependency, which is in consonant with an economic postulation. The ability to earn interest was used as a proxy for investment or accumulation purposes. This variable was also found to be a significant determinant of savings, but with a lower level of significance than the other factors. The accumulation variable has a lower priority among the target group as there appear to be more pressing financial needs that override accumulation.

The study went further to explore different reasons/motivations that drive farmers to mobilise savings. According to the study, the main factors motivating farmers to save are mainly for liquidity to cover for emergencies and provision for grandchildren education. At a secondary level, farmers were however found to intend to save for provision of farming expenditure and for investment purposes. But these last two savings motivations were found to be weak. It could only be argued that farmers will only consider saving for farming operations and investment purposes only when savings needs for emergencies and grandchildren's education have been provided for.

An analysis on sources of savings identified income from livestock sales as the main source of savings mobilization, followed by income from the government social security grants. The analysis findings concur with economic theory that income is the main determinant of savings levels. The study went further and identified explanatory variables regarding the motivation to save. In the case of these farmers, it is clear that they are not primarily saving for accumulation. They would rather ensure liquid funds for emergencies and invest in grandchildren's education. At a secondary level, they do consider the investment imperative as indicated by the interaction between investment and emergency needs. This analysis of the findings of the study in Moretele district and echoes the work of Deaton (1993) who published widely on the different motivations to save by different income groups.

The results of the study further indicate the need for the introduction of policies regarding the implementation of safety nets for these farmers that could release accumulated funds for investment in other high return areas, for example, the farming enterprise and possible asset accumulation. The findings further indicate that investment has a lower priority in the motivation to save.

CHAPTER 5

SUMMARY, CONCLUSIONS AND POLICY RECOMMENDATIONS

5.1 Introduction

The study was intended to confirm or negate the validity of the view that there is no demand from the poor for savings facilities and that the poor people cannot save and will not respond to opportunities to save and analyse the savings behaviour of resource poor farmers with specific reference to resource poor farmers in Moretele district, Northwest Province. The outcome of the study is intended to generate information that would add to knowledge and understanding of savings behaviour of resource poor farmers on communal land. The study used the conventional economic approach to savings behaviour as a departure point. It further analysed savings motivation and behaviour of the resource poor farmers in a specific district in the North West Province of South Africa. Numerous theories on savings behaviour were explored with an express purpose to structure an empirical basis for the study. A review and analysis of the influence of specified determinants on savings behaviour with specific reference to the target farmers was also undertaken.

The role of savings on rural financial markets was reviewed with a purpose of understanding the potential socioeconomic impact locally mobilised savings to households. Identified advantage accruing from locally mobilised savings to households is providing households with some liquid assets that could be used for a variety of purposes. The importance of deposit mobilization on the development of rural financial institutions in relation to credit extension was explored. Almost all authors were found to be unanimous on the importance of savings mobilization and the need for the development and implementation of deposit mobilization campaigns.

The literature survey (chapter two) was concluded with the distinction between formal and informal financial markets and the complementary role each should play on the financial intermediation continuum within the South African context. The central theme that runs through the informal-formal financial market continuum is that a wide range of services are offered by the informal financial markets which complement the role of formal institutions. In fact, the two

sectors should be seen to be playing a symbiotic role rather than a competing one along the financial intermediation frontier.

5.2 Findings of the study: An overview.

In general, the view that the demand for savings facilities by poor people is negative has been proven wrong by reports of voluntary informal savings mobilization as well as experiences from savings banks, cooperatives and other deposit taking institutions. According to hypothetical formulations, findings of the study will be reported under the following sub-headings: determinants of savings; reasons for savings mobilization; sources of savings; savings accounts used; and finally, reasons for using a particular savings plan.

5.2.1 Determinants of savings

The results of the study confirm income as the major determinant of savings behaviour. It however departs from convention in arguing that the life-cycle hypothesis regarding savings does not hold true in this specific situation. Farmers were found to still be saving irrespective of age. This was displayed by a positive relationship between age and savings mobilization.

The high level of dependency rates at household level was found to impact negatively on savings mobilization and on the ability of households to save. It is worth noting that expected determinants of savings mobilization such as farming experience; farm size; level of farmers' education, interest rate incentive (a proxy for investment/accumulation) and distance to the nearest commercial bank played no role in determining savings among resource poor farmers in the study area.

5.2.2 Reasons for savings mobilization

The study revealed that farmers in the district mainly save to meet emergencies and for grandchildren's education. At a secondary level, farmers do consider saving for accumulation, provision for farming expenditure and for future consumption. The secondary savings imperative

is more of a yearning than a reality. In summary, farmers principally save for the former reasons than the latter.

5.2.3 Sources of savings

An analysis to determine significant sources of savings by resource poor farmers in the target district isolated income from livestock sales and earnings from government social security grants as the two most significant sources of savings. The study revealed that farmers do not commercialise crops as that is used to alleviate food insecurity among households. Farmers would rather store surplus crops than sell it for income. According to Spio (1994), rural household normally keep livestock, mainly cattle as a source of savings or capital investment. Accordingly, people with spare cash would convert their money into cattle, this phenomenon is normally found in developing countries with limited savings facilities or where deposits rates are low. It is currently attractive to store wealth in the form of livestock for emergency needs than in hard cash due to inflation.

5.2.4 Savings accounts used

The study revealed that farmers mainly use ordinary savings plans for deposits with commercial banks in the district. The main reason behind this choice was found to be safety and easy access to savings (liquidity). The easy access motivation clearly supports the need for liquid funds in order to be able to cater for emergencies and other immediate financial requirements that may crop up..

5.3 Conclusions and policy recommendations

The results of the analysis using a conventional economic approach to savings behaviour of resource poor farmers in Moretele district, Northwest Province revealed the following set of findings:

- The findings invalidate the traditional view on the theory of savings that postulate that poor farmers cannot save and will not respond to opportunities to save. It was discovered that resource poor farmers in the district indeed have a significant capacity to mobilise

individual voluntary savings even at low levels of incomes. The savings motivation was however not found to be for investment or wealth accumulation, but a need to develop the ability to cater for emergencies such as funerals, illness, etc as well as catering for grandchildren's educational needs. The motivation to save for accumulation was found to be secondary and weak. The demand for savings mobilization in the area was found to be driven by a number of motivations and determinants. This situation calls for the introduction of a variety of savings options offering different levels of liquidity and returns. The introduction of appropriate deposit facilities and institutional arrangements that include technical features such as positive real return and liquidity should be considered by financial institutions. The results show that there is a potential of mobilizing rural savings even at low levels of income. It is proposed that well designed savings mobilization programmes and campaigns be inaugurated in rural areas to arrest rural savings.

The identified programmes should aim to assist households to define and develop clear savings objectives, clarify methods that will ascertain the attainment of savings objectives such as budgeting that allocate money to savings, define ways of increasing incomes and reducing expenditure. Thus savings products could be differentiated into mainly specific needs, e.g., a savings plan for children's education.

Spio (1994) identified the development of small medium and micro-enterprises in the rural areas as an alternative for generating income, creating employment that will further feed into the increased incomes that will enhance the ability of rural communities in general and resource poor farmers in particular to increase their savings. As livestock sales have been identified as a major agricultural source of income, commercialization of livestock and markets thereof should be developed and activated, so that trade in livestock is regarded as a formal economic activity in the district. The Provincial Department of Agriculture in the province should take a leading role in providing extension services, infrastructure, information on marketing options that will expedite the activation and functioning of this potential market for farmers.

- The high rates of dependency levels were found to impact negatively on the ability of households to save, especially on a pension. A recommendation to alleviate this pressure would be for households to develop awareness on the negative impact of large family sizes. Family planning campaigns should be introduced to reduce number of heads per household, this will obviously relieve the burden on the limited household income. Policies regarding the development of safety nets for these farmers could help to release accumulated funds for investment in other high return areas, for example, farming enterprise and other possible asset accumulation activities. It further indicates that investment has a lower priority in the motivation to save, something that may change if other emergency management structures can be considered.

- Farm size for crops was found not to play any significant role in savings mobilization. This deviation from expectation could be a results that farmers have only usufructuary rights on the communal land, they operate as tenants than owners, and have less motivation to invest in land to increase its productivity. Tenure reforms to allow private ownership of farming units could result in increased investment in farming that will lead to increased productivity and subsequent farm incomes. Similarly, a proper arrangement should also be implemented to phase out the communal grazing system. An alternative could be the development of a rental market for grazing, where farmers pay a fee per livestock head to access the grazing rights that could either be privately or publicly owned. This will open up a market for a well managed grazing systems that could yield high returns per livestock head than the current communal grazing system.

- The results failed to support the contribution of farming experience and education to savings mobilization in the study area. The insignificant contribution of education and farming experience to savings mobilization could be due to the fact that many farmers had no or low levels of education and insufficient formal or informal agricultural training. They only ventured into farming as the only economic activity available to them. It is recommended that extension service be coupled with agricultural training on specific aspects of agricultural production. Basic agronomic, horticultural and livestock production and management programmes that relate to farmers' daily operations to make them easily understandable will be recommended. It is further proposed that agriculture

be introduced at schools to create awareness of its importance as an integral part of commercial activities in a rural setup.

- Distance to the bank was found to be an insignificant determinant, meaning that access to commercial banks does not pose a problem. Farmers are within a reasonable radius from commercial banks in Hammanskraal and were found to be utilising commercial banking services for savings mobilization. Elsewhere in areas where farmers are not in close proximity to savings facilities one should ensure innovative approaches to effect access.

- The findings of the study however violate the application of the life-cycle hypothesis. Farmers were found to be saving irrespective of age, which reflects a fertile ground to implement savings mobilization sensitization programmes across age groups.

- Farmers were found to use the ordinary savings plan for commercial savings. This according to the results, is intended to enhance easy access to liquid savings in case of emergencies. In the light of this clear preference to for liquid, easily accessible savings facilities, adequate savings products and technologies become a critical issue for the savings institutions.

  This articulated need for liquidity and easy access call for the design of savings facilities which respond to various client needs and different market segments. Introduction of targeted programmes to increase awareness to the farmers about different savings options that yield high returns on savings could expedite the savings accumulation function. The identified savings options will aid farmers to achieve their savings requirements and objective. The availability of different savings options will assist farmers to assess advantages and disadvantages of various savings and investment alternatives to and finally select the investment alternative that best fits their savings needs.

5.4 Areas for future research

- The results of the study isolated a need for further research on the need for demand driven savings products. In particular, the following are suggested: An in-depth analysis

of the responsiveness and appropriateness of financial institutions abilities to cater for farmer's needs for different savings motives as well as for the demand for deposit facilities that offer positive investment returns, liquidity and safety of deposits at the same time. A further research on the design of such savings facilities that offer different levels of liquidity and profitability in response to the identified diverse needs of farmers.

- An analysis of the impact of livestock commercialization as a primary source of resource poor farmers' source of agricultural income would further enrich the discussions on sources of savings.

- Future research on the symbiotic roles of formal (commercial banks) and informal (stokvels and village banks) financial institutions on savings mobilization in rural areas and the potential value this collaboration can add in pursuit of mobilising savings. Identification of policy guidelines on the promotion of rural savings.

- Future research on the analysis of the impact of possible outreach programmes on savings mobilization by formal and informal financial institutions.

- A research on land tenure reform and its implications on agricultural productivity, income generation and subsequently savings mobilization.

In summary, the research revealed a fundamental argument that negates the assumption that poor rural people cannot save and will not respond to opportunities to save as well as the application of the the life-cycle hypothesis on savings behaviour. The study revealed that small scale farmers are willing and able to mobilise voluntary savings even at low levels of incomes. It also became clear from the study that farmers do not save for accumulation purposes, but for insurance and liquidity needs. However, the potential to save was found to be constrained by high dependency burdens at household level. The latent savings potential could be further enhanced through proper reform of rural formal and informal financial institutions by designing different savings facilities and products that are responsive to the various savings needs of different farmers.

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SURVEY ON THE SAVING PATTERN OF SMALL-SCALE FARMERS IN PERI-URBAN AREA (MORETELE DISTRICT: NORTHWEST PROVINCE)

Name of the area:_____

Date of the interview:_____

Interviewer:_____

Questionnaire No. _____

Household No. _____

* **Note:** Only households' heads must be interviewed.

HOUSEHOLD STRUCTURE

1. What is the name of this place:_____

2. What is your home language ? (circle answer)

   1. South Sotho 2. North Sotho
   3. Ndebele 4. Swazi
   5. Zulu 6. Tswana
   7. Other (specify):_____

3. (a) Has your household lived anywhere else before coming to this place? (Circle)

   1. Yes 2. No

   (b) If yes, where was that?_____

4. How long did you stay at this place? (In years).

   1. 1 - 5
   2. 6 - 10
   3. 11 - 15
   4. 16 - 20
   5. > 20

5. Sex of household head. (Circle).

   1. Male 2. Female

6. Number of household members in the following age categories:

Age categories	Number
1. <15 years	
2. 15 - 20 years	
3. 20 - 60 years	
4. > 60 years	

7. How old is the household head?_____

8. Years of school completed by household members:

Years of schooling	Number
1. From 0 - Std 1	
2. Bewteewn Std 2 and 5	
3. Between Std 6 and matric	
4. Matric	
5. Degree/ Diploma	

9. How many years of schooling has the householdhead completed?_____

10. How many household members are employed?_____

11. Do other household members earn money apart from wages and salaries from normal jobs?

1. Yes 2. No

12. What is the total monthly/weekly income from the informal job(s)? R_____

13. What type of formal employment are household members involved in?_____

(More than one choice(s) allowed)

1. Domestic 2. Teacher 3. Mechanic
4. Shop assistant 5. Nurse 6. Factory worker
7. Office clerk 8. Doctor 9. Preacher
10. Agricultural officer 11. Mine labourer 12. Tailor
13. Truck driver 14. Taxi driver 15. Policeman
16. Construction worker 17. Electrician 18. Sales person
19. Other (specify)_____

14. How much is the households' annual income from formal employment?

(Circle your choice)

1. From R0 - R3999
2. R 4000 - R 5999
3. R 6000 - R 7999
4. R 8000 - R 9999
5. R 10 000 - R 15 999
6. R 16 000 - R 24 999
7. R 25 000 - R 39 999

8. R 40 000 - R 59 999
9. R 60 000 - R 99 999
10. R 100 00 and over

15. (a) Is the household head a full time farmer?

1. Yes 2. No

(b) If no, where does the household head work?

1. Black owned farm
2. White owned farm
3. Pretoria
4. Hamanskraal
5. Johannesburg
6. Other (specify)_____

16. What does your spouse do? (Circle)

1. Farm together
2. Nonfarm job
3. Small enterprise
4. Nothing.

17. How much money is contributed to the household monthly? R _____

18. (a) Do members of the household receive old-age pension? (Circle).

1. Yes 2. No

(b) If yes, how much is it per month?R_____

AGRICULTURAL INFORMATION

1. (a) Does the family engage in agriculture? (Circle)

1. Yes 2. No

(b) If yes, how long have you been involved in farming?

1. Less than 1 year
2. Between 1 and 5 years
3. Between 6 and 10 years
4. Between 11 and 20 years
5. More than 20 years

(c) Did you receive any form of agricultural training or skills? (Circle)

1. Yes 2. No

(d) If yes, what kind of training/skills dis you get?

1. Crop husbandry
2. Animal husbandry
3. Farm machinery operation
4. Broiler production
5. Other, specify _____

2. How many of the household members are involved in agriculture?_____

3.(a) What proportion of your family income comes from farming?

1. < 1/4 2. 1/3 3. 1/2
4. 3/4 5. All

(b) How much was it last year? (Circle)

1. Less than R 10 2. R 11 - R 30 3. R 31 - R 50
4. R 51- R100 5. R 101 - R 200 6. R 201 - R 300
7. R 301 - R 500 8. R 500 - R 1000 9. R 1001 - R 5000
10. > R 5000

4. How many hectares does the household have?(Circle)

1. Less than one hectare
2. Between 1 and 2 hectares
3. More than 2 hectares
4. Do not know.

5. What crop enterprises do you cultivate?

1. Maize 2. Cotton 3. Wheat
4. Sorghum 5. Sunflower 6. Vegetables
7. Groundnuts 8. Beans
9. Other (specify)_____

6. What proportion of your land do you use on each of the enterprises.

Crop enterprise	No. Hectares	Total yield	Total income
1. Maize			
2. Cotton			
3. Wheat			
4. Sorghum			
5. Sunflower			
6. Vegetables			
7. Groundnuts			
8. Other, specify			
Tptal income			

*yield can be quantified in bags, tins, kg, etc.

7. Do you market your crops for cash? (Circle)

1. Yes 2. No

8. If yes, what portion of your farm output do you usually sell? (Circle)

1. 1/4 2. 1/3 3. ½

4. 2/3 5. 3/4 6. All

9. Where do you usually sell your crops/livestock?

1. Agricultural Cooperative
2. Local shop owner
3. Local community
4. Market in town
5. Roadside stall
6. Other, specify, _____

10. What was total income from crop saleslast year?_____

11. How far are you from the market? (In Km).

1. 0 - 5
2. 6 - 10
3. 11 - 15
4. 16 - 20

5. > 20

12. Do you keep some livestock? (Circle)

1. Yes 2. No

13. If yes, how many of the following do you have?

1. Cattle_____
2. Sheep_____
3. Goats_____
4. Other_____

14. On average, how much money did you realise from livestock sales last year?_____

15. How much did you pay for the following?(if ever used)

1. Labour	R
2. Fertilizers	R
3. Chemicals	R
4. Seed	R
5. Tractor services	R
6. Hand tools	R
7. Dips and sprays	R
8. Other	R
Total costs	R

16. How did you pay for the inputs? (Circle your choice)

1. Cash
2. Credit

17. How much did you pay for :

1. Cash
2. Credit

FINANCIAL ISSUES

1. (a) Did the household receive any loans for its agricultural activities last year? (Circle)

   1. Yes 2. No

   (b) If yes, how much was it? R_____

2. What was the loan for? (You may circle more than one response)

   1. Pay for labour
   2. Buy fertilizers
   3. Buy chemicals
   4. Buy seed
   5. Pay for ploughing services
   6. Buy hand tools
   7. Buy dips and sprays
   8. Other, specify_____

3. (a) Were you able to get credit when you needed it? (Circle)

   1. Yes 2. No

   (b) If yes, where did you get it from?

   1. Relatives
   2. Stokvel/burial society
   3. Local person lending as a business
   4. Neighbours
   5. Farmers' association
   6. Bank
   7. Other, specify_____

4. What problems did you experience before you could get credit? (Circle)

   1. Did not know where to get credit fom
   2. Lack of collateral
   3. Not a member of the cooperative
   4. High transport costs to the financial institution
   5. Other, specify _____

5. If no, what were the problems?

1. Lack of collateral
2. Not a member of a stokvel/cooperative
3. Bank too far
4. Not interested
5. Interest rate too high
6. Do not know where to get credit from
7. Other, specify_____

6. Do you belong to a stokvel? (Circle)

1. Yes 2. No

7. Do you belong to a burial society? (Circle)

1. Yes 2. No

8. (a) If you belong to a stokve, how much was your membership fee? R _____

(b) If you belong to a burial society, how much was your membership fee? R _____

(c) How often do you contribute to the stokvel? (Circle)

1. Weekly
2. Monthly
3. Quartely
4. Semi-annually
5. Annually
6. Occasionally

(d) How often do you contribute to a burial society? (Circle)

1. Weekly
2. Monthly
3. Quartely
4. Semi-annually
5. Annually
6. Occasionally

(e) How much do you contribute per annum to the stokvel? R _____

(f) How much do you contribute per annum to the burial society? R _____

9.(a) Have you ever used credit to buy livestock or livestock feed? (Circle)

1. Yes 2. No

(b) If yes, how much was it last year? R _____

(c) If you used credit, what rate of interest did you pay on the loan? (%) _____

10. (a) Do you know what interest mean? (Circle)

1. Yes 2. No

(b) If yes, Explain_____

_____

11. If you want to obtain some loan for agricultural purposes, can you say it would be best to get it from: (tick whichever is relevant):

1. Relatives
2. Neighbours
3. Friends
4. Children
5. Stokvel / burial society
6. Bank
7. Local moneylender/Shopkeeper
8. Not interested
9. Landbank
10. Agribannk
11. Government
12. Do not know
13. Other (specify)_____

12. What is the reason for your choice? (Circle)

1. No interest is charged
2. Credit is easily obtainable
3. Short waiting time to process application
4. Can pay it back anytime
5. Low transaction costs
6. I am a member of the organization
7. I do not have to pay back
8. Other, specify _____

13. Which of the following items does the household own? (Circle owned items)

1. Car or bakkie
2. Truck
3. Tractor
4. Ploughs
5. Other durables, specify _____

14. (a) Does the household save part of its income? (Circle)

1. Yes 2. No

(b) If yes, with which institution do you normally save?(circle)

1. Stokvel / burial society
2. Farmers association
3. Bank
4. Post office
5. Kept at home
6. Agricultural Cooperative
7. Buy livestock
8. Other (specify)_____

(c) How regularly do you save? (Circle)

1. Weekly
2. Monthly
3. Quarterly
4. Bi-annually
5. Annually
6. Occasionally

15. Which institution(s) are currently saving with? (Circle)

1. Stokvel/burial society
2. Farmers' association
3. Bank
4. Post office
5. Kept at home
6. Agricultural cooperative
7. Other, specify _____

16. If no, what discourages you from saving?(more than 1 responses allowed)

1. Low interest rates
2. High transaction costs
3. Distance to the institution
4. Standing in queues
5. No money to save
6. Institution only gives credit
7. Poor services provided by staff
8. Unavailability of savings at short notice
9. Lack of confidence on the institution
10. Do not know
11. Other, state_____

17. What is your main reason for saving with the institution (more than one response allowed)

1. Interest incentive
2. Future/old age
3. Children's education
4. Meet emergencies
5. Consumption
6. Social obligations (funerals, weddings)
7. Investment opportunities
8. Land purchases
9. Farm operations
10. Hiring labour
11. House construction
12. Buy livestock
13. Buy seeds, fertilizers
14. Provide collateral
15. Pay medical expenses
16. Other, state _____

18. How did you come to know about the institution?

1. Saw the institution
2. Through freinds/relatives
3. Through the institutions' campaigns
4. Through posters
5. Radio/Television
6. Newspaper
7. Other, state

19. Who advised you to open a savings account? (Circle)

1. Relative
2. Friend
3. Neighbour
4. Bank official
5. Family member
6. Member of my stokvel/cooperative/society
7. Extension officer
8. Other, specify _____

20. What is your opinion of the institution from the point of view of :

A. Services/treatment provided by the staff? (Circle)

1. Good
2. Average
3. Poor
4. Do no have an idea

B. Location

1. Suitable, why _____
2. Unsuitable, why _____

21. (a) Do you have savings with other banks/financial institutions?

1. Yes 2. No

(b) If yes, where?_____

22. What is the value of your savings (R) _____

23. (a) Are you aware of any interest earnings from your savings? (Circle)

1. Yes 2. No

24. If yes, how much interest on average did you earn?

1. 0 - 10%
2. 10 - 15%
3. 15 - 20%
4. 21% and over
5. Do not know

25. (a) Do you know any type(s) of savings plans available from the bank(s)? (Circle)

1. Yes 2. No

(b) If yes, list them_____

_____

26. Which of the following savings plans do you use. (Circle)

1. Savings account
2. Fixed deposit
3. 32 days notice deposit
4. Cheque account
5. Unit trusts
6. Other, specify _____

27. What is the reason(s) for using a particular account? _____

28. How far are you from the savings institution in km? (Circle)

1. 0 - 5
2. 6 - 10
3. 11 - 15
4. 16 - 20
5. > 20

29. How much is your transport costs to the institution? R _____

30. If the interest rate on the savings increases from 16 - 25 %, would you prefer to save rather than keep livestock? Explain _____

31. How would you like to save? (Circle)

1. Cash in the bank
2. Buy livestock
3. Buy assets
4. Grain/crops
5. Other (specify): _____

32. In what other forms is your surplus income held? _____

33. If the interest rates on deposits increase as above, would you sell your livestock and invest the Money? If yes, why, and if not , why not. Explain_____

34. How easy or difficult is it for you to get credit from the institution,(choose)

1. Very easy
2. Easy
3. Difficult
4. Very difficult
5. Do not know
6. Do not need credit
7. Have not tried

35. Roughly how much is your household annual income? R_____

36. How much of your income is saved?

1. Nil
2. From R1 - R 50
3. Between R 51 - R 100
4. Between R 101 - R 150
5. Between R 151 - R 200
6. More than R 200

37. What is your major source of savings? (Circle)

1. Informal job
2. Formal job
3. Livestock sales
4. Crop sales
5. Frugal living
6. Unexpected income
7. Old age pension
8. Remittances from family members
9. Other, state _____

38. If you get money unexpectedly, what would you do with it? (Circle)

1. Save it
2. Spend it
3. Save half and spend the rest

4. Do not know

39. How do you save? (Circle)

1. Individually 2. In groups 3. Both

40. Why do you save? (Circle your choices)

1. To meet emergencies
2. Investment purposes
3. Consumption
4. Weddings/Funerals
5. Education of children
6. Retirement
7. Land purchases
8. Farm operations
9. Buy furniture
10. Buy a car
11. Build a house
12. Other, specify_____

41. What do you think could be a strategy to improve your savings, explain_____

42. (a) Suppose a bank is opened now in your community, will you save your money with the bank? (Circle)

1. Yes 2. No

(b) If yes, why_____

_____

(c) If not, why_____

_____

43. What would you choose between the following:

1. A mobile bank
2. A permanent branch in your area.

44. What is the reason for your choice?_____

45. If a mobile bank becomes available in your area, how often do you want it to come?

1. Weekly
2. Monthly
3. Quarterly
4. Do not know
5. Not interested
6. Other (specify)_____

46.(a) Which of the following savings plans would you choose if you were to save with a bank?

1. Savings account

2. Fixed deposit
3. Cheque account
4. 32 days deposit
5. Other (specify)_____.

(b) Give reason(s) for your choice. _____

47. If a respondent earns a salary, when is it received?

1. Weekly
2. Fortnightly
3. Monthly
4. Other, specify _____

48. (a) How is your salary/pension paid? (Circle)

1. Cash
2. In my bank Account.

(b) If in a bank account, when do you withdraw your money? (Circle)

1. On pay day
2. According to my financial needs
3. Other, specify _____

(c) Do you withdraw all of it at once? (Circle)

1. Yes 2. No

(d) If no, when do you withdraw the rest? (Circle)

1. Daily
2. Weekly
3. Occasionally
4. Other, specify _____

49. Are you aware that you can earn interest on your savings accounts? (Circle)

1. Yes 2. No 3. Uncertain

50. How many people depend on the household income?_____

51. How much did you roughly spend on the following during the past year?

1. Maize meal	R
2. Other food	R
3. Medication	R
4. Other household expenses	R
5. Transport	R
6. Clothing	R
7. Savings	R
8. Durable household expenditures	R
9. Farm expenses	R
10. Education	R
Total	R

52. What was the household's income during the past year from the following sources.

1. Livestock sold	R
2. Crops sold	R
3. Informal Trading	R
4. Income from land rented out	R
5. Hiring out equipment	R
6. Occassional work	R
7. Cash remttance from family in cities	R
8. Pension	R
9. Other	R
Total	R

53. Differentiation between formal and informal savings institutions.

	Formal	Informal
Distance to institution (Km)		
Frequency of deposits with institution		
Number of institutions in your area		
Interest earned on deposists per year		
Size of your deposit in (R)		
Length of deposit in institution (months)		
Transaction costs, e.g transport (R)		
Business hours		
Time taken to deposit or withdraw		
Possibility of obtaining a loan (yes or no)		

THANK YOU FOR YOUR VALUED TIME

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