The effects of financial liberalisation on access to credit by Ghanaian households

Josephine Yeboah

Submitted for Doctor of Philosophy in Economics

November, 2009

Keele University

Keele
Graduate School

SUBMISSION OF THESIS FOR A RESEARCH DEGREE

Degree for which thesis being submitted: Doctor of Philosophy in Economics

Title of thesis: The effects of financial liberalisation on access to credit by Ghanaian households

Date of submission: 13th Nov 2009 Original registration date: 17th January 2005

(Date of submission must comply with Regulation 2D)

Name of candidate: Josephine Yeboah

Research Institute: Institute of Public Policy Management

Name of Lead Supervisor: Prof. Robin Bladen-Hovell

DECLARATION by the candidate for a research degree

I certify that:

(a) I understand that the decision to submit this thesis is entirely my own decision
(b) The thesis being submitted for examination is my own account of my own research
(c) My research has been conducted ethically
(d) The data and results presented are the genuine data and results actually obtained by me during the conduct of the research
(e) Where I have drawn on the work, ideas and results of others this has been appropriately acknowledged in the thesis
(f) Where any collaboration has taken place with one or more other researchers, I have included within an 'Acknowledgments' section in the thesis a clear statement of their contributions, in line with the relevant statement in the Code of Practice (see Note overleaf).
(g) The greater portion of the work described in the thesis has been undertaken subsequent to my registration for the higher degree for which I am submitting for examination
(h) Where part of the work described in the thesis has previously been incorporated in another thesis submitted by me for a higher degree (if any), this has been identified and acknowledged in the thesis
(i) The thesis submitted is within the required word limit as specified in the Regulations

Total words in submitted thesis (including the text and footnotes, but excluding references and appendices) 84,119

Signature of candidate ..... Date 13th November 2009

Cc: Lead Supervisor
Director of Postgraduate Research

Abstract

This research specifically investigates the factors that influenced access by households and individuals to credit in the financial sector in Ghana, using the Ghana Living Standards Survey for years 1988/89, 1991/92 and 1998/99. The research sheds light on the extent at which the financial liberalisation policy has affected households and individuals in accessing credit with the view of improving their standard of living. In this research, two sources of credit are identified. Formal credit including debts from commercial banks and other financial institutions; and informal credit including debts from relatives and friends, traders, and moneylenders.

Probit, Heckman probit with sample selection, multinomial logit, seemingly unrelated regression estimates and treatment effects models were used for the analytical work. The results suggest that the different characteristics of households and individuals affect access to credit and these have changed over the time with the implementation of the financial liberalisation policy. An additional result shows that the consumption pattern of households changes with access to credit.

At both the national and rural community level, the analysis of the data revealed that you are more likely to access credit the older you are, the larger your household size and if you owned a house. You are more likely to access credit (whether formal or informal) if you were a professional or in an administrative job and married. However, the farther away you live from a bank, the less likely you are to access credit but surprisingly the more likely you are to access credit if you live farther away from a market. On the effects of access to credit on the consumption pattern of households, the results showed that households with access to credit improve on their consumption pattern by consuming more non-food items. The results suggest that there is need to address key factors that inhibit access to credit by micro-economic units that would facilitate economic growth and development.

Table of Contents

List of Figures

List of Tables

Abbreviations

2SLS	Two-Stage Least-Squares Method
ADB	Agricultural Development Bank
AFRC	Arm Force Revolutionary Council
ARB(s)	Association of Rural bank
BBWA	Bank of British West Africa
BG	Bank of Ghana
CBO(s)	Community-based Organisations
CRS	Catholic Relief Services
CSL	Citi Savings & Loans Company
CU(A)	Credit Union (Association)
DFI(s)	Development Financial Institution(s)
DFID	Department for International Development
DMB	Deposit Money Bank
DMB(s)	Deposit Money Bank(s)
EA(s)	Enumeration Area(s)
ERP	Economic Recovery Programme
ESAF	Enhanced Structural Adjustment Facility
FFH	Freedom from Hunger
FINSAP	Financial Structural Adjustment Programme
FL	Financial Liberalisation
FL	Financial Liberalisation
FSR(s)	Financial Sector Reform(s)
GCB	Ghana Commercial Bank
GCSCA	Ghana Co-operative Susu Collectors Association
GDP	Gross Domestic Product
GFC	Gross Factor Cost
GHAMFIN	Ghana Micro-Finance Institutions Network
GLRT	Generalised Likelihood Ratio Test
GLSS	Ghana Living Standards Survey
GNP	Gross National Product
GPRS	Ghana Poverty Reduction Strategy
GSE	Ghana Stock Exchange
GSI	All-Share-Index
GSS	Ghana Statistical Service
GTP	Ghana Textiles Printing
HFC	Home Finance Company
HIPC	Highly Indebted Poor Countries
IDA	International Development Association
IFAD	International Fund for Agricultural Development
IFS	International Financial Statistics
IIA	Independence of Irrelevant Alternatives
IMF	International Monetary Fund
ISI(s)	Import Substitution Industries
ISSER	Institute of Statistical, Social and Economic Research
IV	Instrumental Variable
LDC(s)	Less/Least Develop Countries
LSMS	Living Standard Measurement Survey
M&A	Metropolitan and Allied Bank
MDG(s)	Millennium Development Goal(s)
MLE(s)	Maximum Likelihood Estimator(s)
MNL	Multinomial Logit
NBFI(s)	Non-banking Financial Institutions
NDC	National Democratic Council
NGO(s)	Non-governmental Organisations
NIC	National Insurance Commission
NLC	National Liberation Council

NPA	Non-performing Assets
NPART	Non-performing Assets Recovery Trust
NPP	New Patriotic Party
NR	Natural Resources
NRC	National Redemption Council
PAMSCAD	Programme of Action for the Mitigation of Social Cost of Adjustment
PNDC	Provisional National Defence Council
PP	Progress Party
PRD	Programme for Reconstruction and Development
RCB(s)	Rural and Community Banks
RMFI(s)	Rural and Micro-finance Institution(s)
ROSCA(s)	Rotating Saving and Credit Association(s)
S&L(s)	Savings and Loans Companies
SAP	Structural Adjustment Programme
SAT	Sinapi Aba Trust
SIC	State Insurance Corporation
SME(s)	Small and Medium-scaled Enterprise(s)
SNV	*Stichting Nederlandse Vrijwilligers* or Foundation of Netherlands Volunteers
SOE(s)	State Owned Enterprise(s)
SSA	Sub-Saharan Africa
SSB	Social Security Bank
SURE	Seemingly Unrelated Regression Estimates
TEM	Treatment Effects Model
TNS	TechnoServe
TUC	Trade Union Congress
UAC	United Africa Company
UMM	Unorganised Money Market
UNDP	United Nations Development Project
VAT	Value Added Tax
WACB	West Africa Currency Board
WWBG	Women's World Bank of Ghana

Acknowledgements

I am heartily thankful to my supervisors, Professors Robin Bladen-Hovell and Peter Lawrence, whose encouragement, guidance and support from the initial to the final level enabled me to develop an understanding of the subject.

I offer my regards and blessings to all the other lecturers, colleagues and staff of the School of Economics who supported me in any respect and the Dandelion that funded my studies.

Finally, I thank my parents, siblings, friends, my husband and baby for supporting me throughout all my studies at University. My best gratefulness is to God Almighty who has brought me this far.

Dedication

To my mum, Esther Kesiwaa Aboagye, who had so much faith in my education but did not live long to witness this day.

Chapter One

Introduction

This research investigates the effects of financial liberalisation on micro-economic units, with respect to accessing credit and improving standards of living. An examination is made to ascertain the factors that influence access to credit in general, and access to formal and informal credit, a feature of the financial sector of developing countries. A further investigation is undertaken to find out the extent to which financial liberalisation, through availability of credit, has influenced the consumption pattern of the households. Ghana is used for the case study.

The last three decades or so have almost seen a consensus on the importance of the financial system in the economic growth of an economy. Although the notion of the importance of the financial development of an economy dates back from the mid-1900s (Schumpeter, 1911, Robinson, 1952, Gurley and Shaw, 1960 and Goldsmith, 1969) it has gained more attention after the theses by McKinnon (1973) and Shaw (1973). In 2001, the World Bank commented that financial development contributes to growth, helps in poverty reduction and contributes to the improvement of income distribution (World Bank, 2001). Various researches have been conducted to establish the causal relationship between financial development, in the form of financial liberalisation, and economic growth, mainly at the macro-economic level, using panel and time-series data. Such work includes that of Berthelemy and Varoudakis (1996), Demetriades and Hussein (1996), Demetriades and Luintel (1996) and Arestis and Demetriades (1997)), which revealed mixed results on the causal relationship between financial liberalisation and economic growth.

In this research, I explore the effects of financial liberalisation on economic growth through the credit channel via households and individuals. Unlike the above studies and most others that examine the causality relationship between financial liberalisation and growth which use panel and time series data at the macro level, I use cross-section data to investigate the relationship at the

micro level. In this respect, there is almost no study on the assessment of the financial liberalisation policy at the micro level, and thus this study provides an original contribution to the literature and a new information source for policy makers.

This chapter provides an overview of the thesis. The rest of the chapter is organised as follows: statement of the problem, objectives, research questions, data and methodology, significance of the research and the structure of the research.

1.1 Statement of Problem

In spite of the observed macro achievements of liberalisation policies there has been little assessment of these policies in relation to how they have impacted on individuals and households, particularly those classified as vulnerable. The dominance of the rural sector implies that most of the population still live under conditions that make them susceptible to poverty. With the liberalisation of the financial sector, it was envisaged that credit would be made more available to individuals and, in particular, to those in the rural areas and those engaged in small-scale cottage industries and agriculture. It was further anticipated that the policy would help improve the standard of living either through consumption smoothing and/or increased investment. There seemed to be no special financial institutions nor is there any special formal financial service that caters for the specific credit and savings needs of individual/household and small scale entrepreneurs. Given that these economic units form a large segment of the population their poor performance makes the achievement of the alleviating poverty more challenging.

1.2 Objectives

This research involves an assessment of the impact of the Ghanaian financial liberalisation policy on individuals/households. It also attempts to assess the impact of credit on the standard of living of credit receivers. Specifically, the research aims to:

- determine the factors that influence credit accessibility by households in Ghana;

- determine factors that affect the accessibility of formal sector financial credit by individuals living in both the urban and rural areas; and
- assess the impact of credit on the welfare of credit receivers.

This research is guided by two main hypotheses. First, socio-economic factors such as age, gender, level of education, type of occupation, and community infrastructure have a direct influence on an individual/household's chances of accessing credit. Second, there is a link between credit use and the improvement of living standards.

1.3 Research Questions

The following research questions guided this research:

- What socio-economic and community factors influence access to credit by households?
- What socio-economic and community factors influence access to formal sector credit by individuals living in the urban and rural areas?
- Does credit have any potential impact in increasing the proportion of non-food expenditure to total expenditure of households?

1.4 Data and Methodology

The data used is a generic data set provided under the Living Standard Measurement Surveys sponsored and guided by the World Bank, commonly adopted by developing countries. The surveys help collate data on individuals, households and communities in order to ascertain the development trends. The data used in this thesis is a pool of three cross-sectional Living Standard Measurement Surveys for Ghana: the Ghana Living Standard Survey Waves 2, 3 and 4. The information revealed in the data include the usual data on individual and household characteristics and also information on sources of income and credit, pattern of household expenditure and the infrastructural facilities found in the rural communities.

Different models are employed to investigate the impact of financial liberalisation on the determinants of access to credit by households and individuals. In the first instance, a probit model is used to determine the factors that influence access to credit by households using Waves 2, 3 and 4. This is done in two stages, one with the entire sample and the other with households located in the rural areas alone. Using Waves 3 and 4, a further analysis is done using a Heckman probit with sample selection model and a multinomial logit model to estimate the determinants of access to formal sector credit by individuals. The choice of the two types of models is to correct for sample selection bias and to provide robust results. A final analysis is undertaken using the seeming unrelated regression estimates and treatment effects models to explore the extent to which the policy has affected the consumption pattern of households using Waves 3 and 4, accounting for endogeneity.

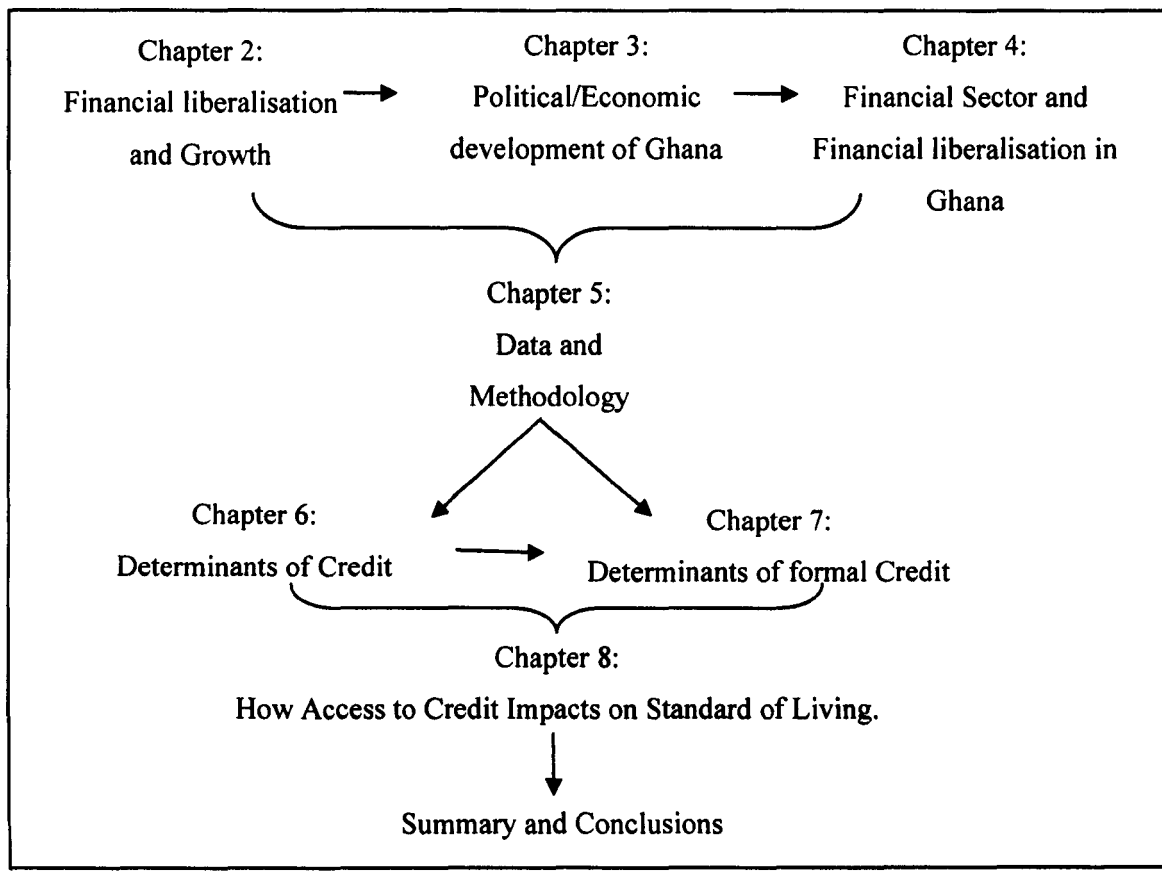
1.5 Significance of the Research

The main contribution of this research is to fill the gap in the literature in assessing the impact of the financial liberalisation policy on micro-economic units. It also provides useful information on the characteristics of individuals/households in accessing credit in general and formal credit in particular before, during and after the inception of the financial liberalisation policy. This information is essential for policy-makers especially those concerned with enhancing economic growth through the credit channel. This would help them to take appropriate actions towards the establishment of comprehensive and sustainable financial facilities for individuals/households engaged in small and medium scale enterprises. The results of the research will also be beneficial to development partners and other organisations involved in policy formulation and the provision of financial services especially to micro-economic units. Moreover, it is envisaged that the research will highlight the possible link between credit use and increases in income and the contribution to improvement in living standards.

1.6 Contents of the Thesis

Figure 1.1 shows the structure of the thesis and how the chapters contribute to the three questions investigated. Chapters 2, 3 and 4 set the work in context, chapters 5, 6, 7 and 8 investigate what determines access to credit by households and individuals and how that impacts on their living standards. Chapter 9 summarises the results of the research. The remainder of the chapter provides an overview of each chapter.

Figure 1.1 Structure of the Thesis



Chapter 2 appraises the existing literature in the area of financial liberalisation and assesses the expected effect on the access to credit. The thrust of this literature gives the economic basis for why a country should liberalise her financial sector and in particular, move from a regime of interest control and directional credit to market-oriented finance. The chapter also discusses some aspects of the empirical work on financial liberalisation, focusing especially at the macro economic effects. Although the evidence shows some economic gains at the macro level for countries that

have adopted a financial liberalisation policy there is little investigation on how the policy has affected households and individuals at the micro level.

Chapter 3 outlines the political and economic ideologies and strategies undertaken in Ghana since independence in 1957. This provides a backcloth to the various political ideologies practised and how these influenced the type of economic policies and contributed to the need for an Economic Recovery Programme and subsequent financial sector reforms. This journey took Ghana from being an emerging self-reliant import substituting country to a country dependent on international donor agencies and international financial institutions.

Chapter 4 describes the financial sector of Ghana in detail. The chapter reveals the fragmented nature of the financial sector and how these fragments co-exist and influence the financial needs of households and individuals before and after the financial liberalisation programme. The chapter also provides an overview of the changes that have occurred in the financial sector after the introduction of the programme and describes how this has influenced the access to credit by microeconomic units. This chapter reveals that despite the increase in the number of formal financial institutions with the advent of the financial liberalisation programme, the activities of the informal financial institutions are still thriving and important. There has been a further increase in the activities of semi-formal financial institutions. However due to inadequate data on their activities the analysis in this thesis does not identify this sector independently.

Chapter 5 provides a detailed description of the data used to investigate the impact of financial liberalisation on households and individuals. This chapter provides a comprehensive description of how these three surveys are reconciled for the purpose of the current research. It also describes the models used to investigate the impact of policy on the determinants of access to credit by households and individuals.

The question of what determines a household's ability to access credit is examined in Chapter 6 using a probit model. It investigates the evolution of household access to credit before, during and after the inception of the financial liberalisation programme. The results show that accessing credit is more difficult for females, those with low or no educational qualifications, and living in huts. This result holds for both the entire sample and for those residing in the rural areas. In the rural areas the distance to bank significantly affects the household's chances of accessing credit. This result provides critical support for the operation of micro-credit schemes that have developed throughout Africa.

Chapter 7 investigates the determinants of access to the source of credit by individuals and assess how this has improved with the advent of the financial liberalisation programme. Three models, probit, Heckman probit with sample selection and multinomial logit, are estimated to investigate the factors that influence credit incidence. The results show that the characteristics of individuals accessing credit from either the formal or the informal financial sectors are similar. However, among the variables that determine the source of credit are the educational qualifications, with those with higher than basic education enhancing their probability of accessing formal market credit.

Chapter 8 investigates the impact of access to credit on households' standard of living further by examining the nature of the income-expenditure relationship. A treatment effects model is also used at this stage to account for endogeneity of accessing credit. The research reveals that those who accessed credit had an income inelastic demand for food and emphasises the fact that with access to credit households and individuals are able to improve their standard of living.

Chapter 9 summarises the contribution of the thesis, discusses its limitations and suggests some areas for further research.

This research helps ascertain the factors that influence the behaviour of households and individuals in accessing credit and their pattern of consumption in the advent of the financial liberalisation policy. The next chapter provides an insight into the concept and theory of financial liberalisation, and the expected effects it has on the economy.

Chapter Two

Financial Liberalisation and Growth

2.1 Introduction

From the previous chapter it was apparent that the role of the financial sector has gain prominence in contributing to the economic growth of an economy and as a result most developing countries seeking to promote growth have employed various reforms of their financial sector. However, assessing the extent to which such reforms have impacted on credit accessibility by individuals/households is not available in the literature. Thus this research contributes originally to such literature and provides information for policy makers by using data from the Ghana living standard survey to empirically ascertain the determinants of credit and how those who access credit are able to improve their consumption pattern. In doing so the chapter provided an outline of the structure of the thesis showing two main parts; the background to the study which includes literature on financial liberalisation, information on Ghana's political, economic and financial setup and the second part that provides an empirical investigation into the impact of financial liberalisation. This chapter provides an overview of the existing literature on the financial liberalisation policy and its expected effects.

Most of the existing literature looks at the relationship between financial development, particularly, financial liberalisation, and economic growth at the macro level. The causal relationship between financial development and growth has been a major focus of this work with the key finding that country specific institutional factors play a fundamental role in the process (see Arestis and Demetriades, (1997), for example) The relationship between financial development and economic growth, is therefore likely to vary across countries. The state of development of a country's financial system, the institutional structure, notably in relation to the respective roles of banks and the stock market, can have an important impact on growth. With reference to the effect of financial liberalisation on capital accumulation some studies show significant positive contribution effects (see Murinde 1996, Murinde, Agung and Mullineux, 2004). The range of potential influences leads

to considerable uncertainty about the relationship between financial development and growth performance. In another strand, the literature suggests a positive effect of financial intermediation on growth (Pagano, 1993), with government intervention in the financial sector having a negative effect on the growth rate (King and Levine, 1993).

Throughout this literature there is little discussion on how financial policy affects behaviour at the micro level. One such investigation by Arestis and Demetriades (1995) looks at the effects of interest rate changes on household sector. Here they conclude that the effect depends strongly on the debt/asset ratio with higher debt/asset ratios being associated with more adverse effects on the household sector from increased interest rates. This finding appears to confirm Keynes' (1973) argument that increases in interest rates increases the degree of income inequality.

During the 1970s, many economists were of the view that the financial system and the efficiency of credit allocation in developing countries needed to be improved (McKinnon (1973), Shaw (1973), and Bell (1988)). There were, however, considerable differences of view about how this could be achieved and what specific policies needed to be adopted. The argument centred on whether financial repression or imperfect information was the root cause of the problem.

In the 1950s and 1960s, governments of the newly independent developing countries saw intervention in the financial sector as a way of ensuring rapid economic growth and development (World Bank, 1989; Gibson and Tsakalotos, 1994). Governments intervened, nationalising most existing banks, introduced controls and requirements on lending and deposits, and established Developmental Financial Institutions (DFIs) to lend to priority sectors. Some banks were required to open branches in the rural areas to serve small-scale farmers and other cottage industry entrepreneurs. Interest rates were kept low to encourage investment. Governments also used controls on banks, in the form of taxation and reserve ratio requirements, as a way of financing their own budget deficits.

In the 1970s, these policies came under attack. McKinnon (1973) and Shaw (1973) developed the theory of financial repression to show that government intervention in financial markets may create distortion (low or negative real interest rates). The focus, in their models, was the issue of controls or ceilings on interest rates for loans and deposits. Real interest rates are assumed to influence growth through their effect on savings and investment. Investment and savings are assumed to be negatively and positively related to real interest rates respectively. With interest rate ceilings on loans and deposits, there would be an unsatisfied demand for investment leading to credit rationing. Thus, some profitable projects would be left without access to finance. At low interest rates, projects that obtain credit tend to be those with rates of return just above the interest rate. Banks risk-taking behaviour is negatively affected since they are not able to charge a risk premium due to the controls and are therefore unwilling to lend to risky projects with higher returns. The result of such control is the stifling of savings by promoting current consumption, and a reduction of investment below its optimal level. The quality of investments is also reduced since banks tend to invest in projects with relatively low but safe returns. Distortion is further enhanced by randomness in credit allocation.

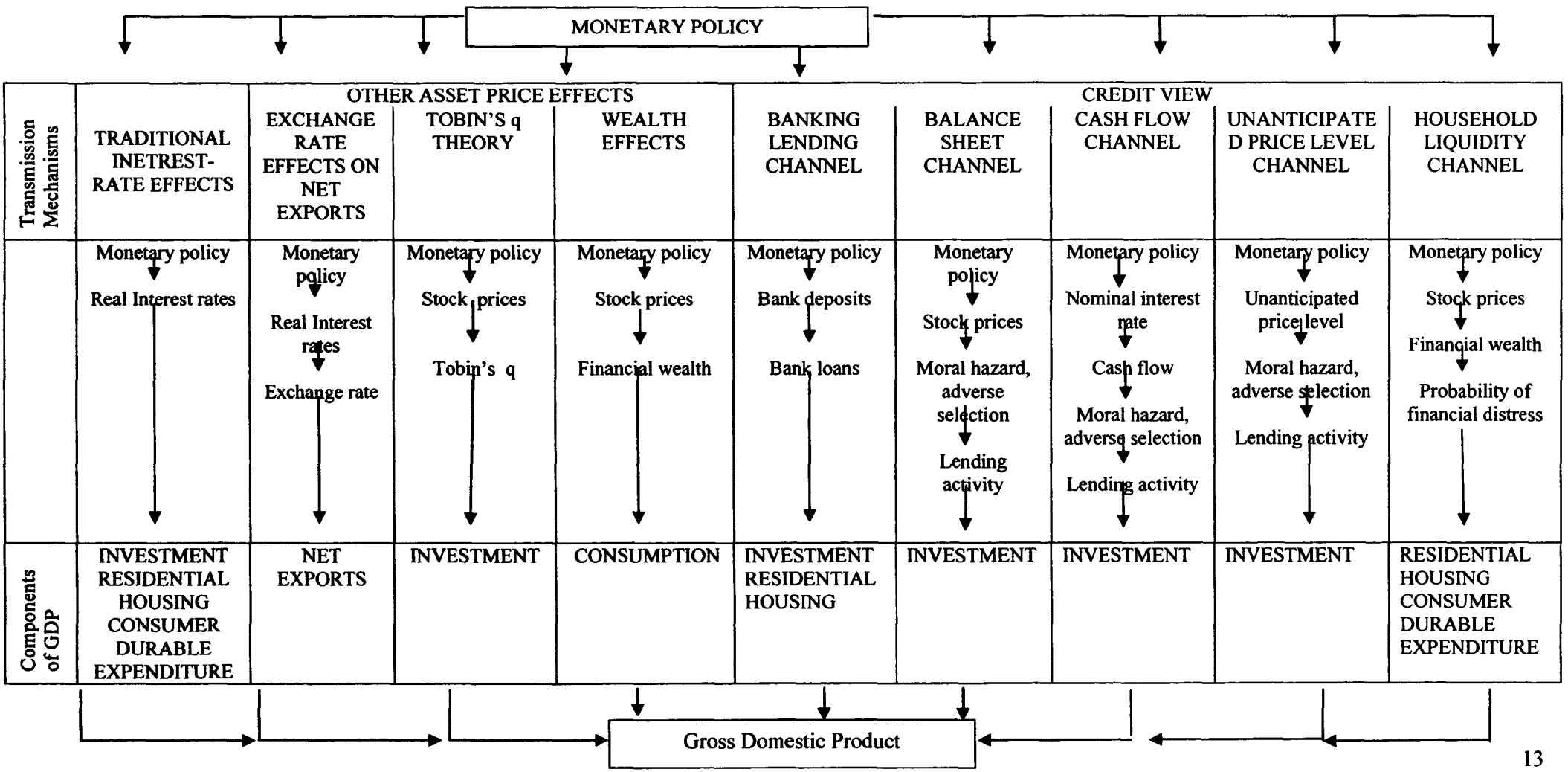
In the current overview, we explore the role of financial liberalisation policy and how it influences the behaviour of households. Our focus is therefore mainly on the effect of such policy at the micro level. To do this, the chapter is organised into sections. First, we explore the literature on finance and economic activity looking at the various transmission mechanisms of monetary policy. Then we survey the literature on the relationship between finance and growth, financial repression, financial repression and households, financial liberalisation and financial liberalisation and household behaviour in the subsequent sections. A final section concludes.

2.2 Finance and Economic Activity

Recognising the importance of finance and, in particular, the impact of monetary policy for the level of economic activity has remained a substantive theme for macroeconomics throughout the post-war period. For earlier Keynesians money and finance were considered largely unimportant in the economy, playing a passive supporting role for what was generally seen as a more important real sector. This position was reflected in the policy stance adopted by many developed countries in the early post-war period where considerable emphasis was placed on the role of fiscal adjustment in order to achieve macroeconomic stabilisation. By the 1960s, however, the process of reconsidering the role of money and finance had begun with notable contributions by Friedman and Schwartz (1963) and Mundell (1962, 1963) so that little dispute remains today that money and finance matters. Over time these views have converged with monetary policy being treated as important for economic activity (see Romer and Romer, 1989).

Alongside this development a considerable evolution has taken place in relation to views of how money and finance affect the economy. Today the conventional wisdom typically identifies three main channels by which money and finance affect the economy. The argument is more often than not expressed in terms of effect of a money supply shock on an economy: the individual channels comprising the monetary transmission mechanism. This approach is epitomised by traditional interest-rate channel, a broader asset price channel and an alternative credit channel. Following Mishkin (2004), Figure 2.1 provides a summary of the transmission channels typically invoked in conventional analysis.

Figure 2.1: The Link between Monetary Policy and GDP: Monetary Transmission Mechanisms



Source: Mishkin (2004)

In the traditional interest-rate channel, an expansionary monetary policy is associated with a fall in real interest rates leading to an increase in investment and hence culminating output. In this channel the emphasis is on the real rather than the nominal interest rate.

The second alternative mechanism emphasises the role of a broader range of asset prices including exchange rate and stock market prices. In the former case, an adverse monetary shock under perfect capital mobility, creates an incipient capital inflow and an appreciation of the exchange rate and loss of competitiveness that crowd out net exports (see Mundell 1963 for example).

Monetary shocks may also affect economic activity via the response of stock market prices. This is captured by the concept of Tobin's q defined as the market value of firms divided by the cost of capital replacement. If q is high then the market value of firms is also high relative to the cost of capital replacement. Thus an expansionary monetary shock that increases the quantity of available finance and spills over into the equity market, results in increasing demand for stock equity and increasing stock market prices (Tobin, 1969). An increase in stock market values raises q thereby stimulating higher investment spending, and thence output.

A similar scenario occurs through a household wealth effect. Here, consumption is determined by lifetime resources - Modigliani's life cycle hypothesis of consumption (Modigliani, 1971, Modigliani and Brumberg, 1954). Increasing stock market prices raise the value of equity wealth in the household portfolio and thereby stimulate consumption.

Unlike the previous channels, the credit view stresses the problem of asymmetric information in the financial markets (Mishkin, 2004). It proposes that two channels of monetary transmission arise as a result of information problems in the credit market: those that operate through the effect of asymmetric information on bank lending and those that operate through firms' and households' balance sheets (Bernarke and Gertler, 1995). The credit view is generally seen to be an important mechanism for three main reasons. First, there is a large body of evidence (Bernarke, 1993;

Bernarke and Gertler, 1995; Cecchetti, 1995) on the behaviour of individual firms that supports the view that credit market imperfections are crucial to the operation of credit channels that affect the employment and spending decisions of firms.. Second, small firms are generally perceived as more likely to be credit-constrained, and are therefore more susceptible to the effects of adverse monetary shocks than large firms (Gertler and Gilchrist, 1994). Third, information asymmetry which lies at the core of the credit channel is a theoretical construct that has proven useful in explaining many phenomena in finance including why financial institutions exist, why the financial system has the structure it has, and why financial crises are so damaging to the economy (Mishkin, 2001).

Bank lending effects arise in situations where reductions in household and firm net worth impede the provision of collateral that might otherwise provide banks with the means to reduce the problem of adverse selection and moral hazard. In the case of lending to firms, a reduction in net worth may actually aggravate the moral hazard problem since in this situation owners have a lower equity stake in the firm and may therefore be more likely to engage in risky investment projects. An alternative strand of the credit view focuses on household balance sheets and the prospect of financial distress for households following adverse financial disturbances (Mishkin, 1977). Here transmission of the shock operates through consumer expenditure, most notably durable expenditure and housing, rather than through business expenditure.

As will be apparent in subsequent discussion the credit view has come to dominate modern views of the role of finance in developing countries. This is because the financial sector of most of these countries are characterised by fragmentation – formal and informal sectors. This fragmentation is seen to exist not just because of the policy of repression that was practised initially by these countries but rather the informal sector exist as an alternative opening that complements the formal sector to provide financial services to micro units who cannot be served by the formal sector due to information asymmetry (see Aryeetey et. al, 1997).

2.3 Finance and Growth

A well-functioning financial sector can spur technological innovation by identifying and funding those enterprises with the best chances of successfully implementing innovative products and production processes and thereby enhance economic growth. Moreover, this view is long-standing. Schumpeter commented on the importance of the financial sector in economic development arguing in favour of the provision of credit to entrepreneurs thus, "what the entrepreneur first wants is credit. Before he (the entrepreneur) requires any goods whatever, he requires purchasing power" (Schumpeter (1911) p.102). Much later, Levine, (1997) argued that the financial system helps promote a more effective exchange of goods and services, mobilising individual and corporate savings, ensuring a more efficient way of allocating resources, monitoring managers and exerting corporate controls, and allowing for the pooling of risk. Other economists have expressed different views. Lucas (1988), for example, asserts that the role of the financial sector with regards to generating economic growth has been badly over-stressed while Robinson in a direct counter to Schumpeter, proposed that "where enterprise leads finance follows" (Robinson (1952) p.86), and thus implying that the state of economic development for a nation determines the particular types of financial arrangement that will be in place.

Despite these diverse views on the role of the financial sector in economic growth, theoretical argument and empirical evidence both suggest a positive association between financial development and economic growth. Works by McKinnon (1973), Shaw (1973), and Fry (1997) amongst others demonstrates the importance of the financial sector in economic growth. Growth models by Cobb and Douglas (1928), Hicks, (1946) and Solow (1956), establish that capital and investment are essential for the growth of an economy given a level of technology. Although typically omitted from these early growth models is the development of the financial sector essential in order to help mobilise more savings and channel such funds to the appropriate sectors of the economy to enhance growth.

The issue of whether financial development follows or precedes economic growth has been replaced by a universal notion that the financial system of a country plays a very important role in the economic growth process. The World Bank postulates that financial development " 'contributes significantly to growth', 'is central to poverty reduction', 'directly benefits the poor in society' and 'is associated with improvements in income distribution'" (World Bank, 2001:75). As a result, almost every developing country that requests assistance from the World Bank and other international financial institutions is expected to develop its financial sector as part of the conditionality that these institutions impose.

In absence of costs of acquiring information and making transactions there is no need for a financial sector (Arrow and Debreu, 1954); the presence of such costs creates a need for financial markets and institutions to mitigate their effects. The financial sector helps to overcome informational problems by helping to identify viable projects and scrutinising managers thereby easing risk management and facilitating transactions. Well-functioning financial institutions may devote resources to viable ventures and signal sectors with high potential growth to the broader economy.

Financial markets may also smooth trading, by offering opportunities for hedging and the pooling of liquidity risk. Liquidity in this respect plays a pivotal role in the notion of financial development. As defined by Levine (1997), liquidity relates to the availability of, access to, or convertibility into cash. An institution is said to have liquidity if it can easily meet its needs for cash because it either has cash on hand or can otherwise raise or borrow cash. Similarly a market is said to be liquid if the instruments it trades can easily be bought or sold in any quantity with little impact on market prices. An asset is also said to be liquid if that asset can be easily converted into purchasing power at agreed prices. Liquidity risk is a financial risk that occurs as a result of uncertain liquidity. An institution might lose liquidity if its credit rating falls, it experiences sudden unexpected cash outflows, or some other event causes other parties to avoid trading with or lending to the institution. A firm is also exposed to liquidity risk if markets upon which it depends are subject to a

loss of liquidity. Information asymmetries and transaction costs inhibit liquidity and intensify risk; problems that can be lessened with the intervention of the financial sector, Levine (op.cit.).

The link between liquidity and economic growth arises because most high yielding projects require a long-term commitment of capital but households, who are the main owners of liquid assets, do not want to lose control over their wealth for long periods. The financial system intermediates to augment the liquidity for long-term investments, which have high yielding returns but are associated with higher risk of default. It achieves this by pooling funds that is, by bringing together individually small quantities of deposits and making funds available for long-term investments whilst retaining sufficient funds available for households anytime they may need money. Through this means, the financial sector is able to accumulate funds from the savings of individual households and channel them to what are deemed the most efficient projects. A side product of this activity is the enhancement of economic growth. Intermediation, however, is largely absent in most Less Developed Countries (LDCs). Financial institutions in these countries engage in low risk investments such as the purchase of government bonds. The financial needs of high-yielding but risky sectors such as agriculture, which is usually the largest sector and involves mostly peasant farmers, is usually not attended to. Thus, financial resources are not channelled into sectors where they are most needed to generate economic growth and, the function of the financial sector to allocate resources efficiently is not fully realised. As a consequence agents in the primary sector frequently tend to depend upon informal financial institutions for credit where interest rates are typically higher. Such economies are often described as credit constrained as a result.

Theory suggests that enhanced liquidity has an ambiguous effect on savings and economic growth (McKinnon 1973, Shaw 1973). The McKinnon-Shaw hypothesis, for example, shows that greater liquidity increases investment returns and lowers uncertainty. However, due to the income and substitution effects, higher returns ambiguously affect saving rates which may rise or fall as liquidity rises. On the one hand, it is assumed that with high real interest rate, people would be encouraged to substitute savings for consumption (substitution effect), thus making more funds

available for investment. On the other hand, the higher interest income gained on savings could help savers achieve their savings target with lower levels of savings (income effects), with the result that they would not be encouraged to increase their level of savings overall. These effects are based on the assumption that savings are a normal good. The two effects operate in opposite directions and the net outcome depends on which effect dominates. The McKinnon-Shaw hypothesis postulates that the substitution effect dominates, hence savings are boosted and savers shift from non-financial to financial assets, a form of portfolio effect, which help make more funds available for investment.

Financial institutions help in the acquisition of information and in the allocation of resources for investment. It is difficult and expensive for individual savers to evaluate firms and market conditions and they will not wish to invest in activities about which there is little reliable information. Thus, high information costs may prevent capital from flowing to activities that offer high returns. With financial institutions, such information can be made available at a lower cost. That is, instead of each saver collecting and processing information about an array of enterprises, managers and economic conditions, financial intermediaries can do the same at a minimal cost and then allocate capital to the most appropriate sector. As cited by Levine (1997), in the mid-1800s, England's financial system for example, identified and funded more profitable ventures than most countries, which helped England enjoy comparatively greater economic success. This cannot however, be said about the financial systems of LDCs, especially during the era of financial repression[1] where credits are advanced to sectors not because they are economically viable but rather because the government directs that credits should be advanced to them.

Thus, during the era of financial repression, sectors that were insolvent, including those owned by the State were given credit that did not yield any returns. The result is that government debt

[1] A notion that refers to a set of government regulations, laws and other non-market restrictions that prevents financial intermediaries of an economy from functioning at full capacity.

increases and low economic growth. It is envisaged that the benefits of the financial system will thus be enjoyed more when the system is liberalised and credit is allocated to sectors on a competitive basis rather than at the directive of the government by political affiliation or favouritism by the banks.

There seems to be a positive relationship between the stock of financial assets accumulated in the financial system, banking sector credit and the level of investment (Nissanke and Aryeetey, 1998). This positive relationship underscores the importance of the stock market during financial reform. Stock markets provide non-interest elastic equities, which can contribute to higher rates of savings, attract external financial inflows and thus make more funds available for investment and growth. Further, while bank-based savings are often crowded out of productive investment through the influence of the public sector, particularly those in LDCs, equity flows through the stock market are directly linked to investments (Anin, 2000). This outcome is realised when there is an initial portfolio offer. Stock markets may also influence the acquisition and dissemination of information about firms, improving resource allocation substantially with corresponding implications for economic growth. With prices published by the stock markets investors are able to tell which sector is doing well and can allocate funds accordingly. Through financial reform, the structure of the financial sector that emerges is able to link savings and investment directly thus promoting growth. Improving the scope and performance of the stock market is therefore an important means through which financial liberalisation can help raise the level of saving and investment as well as improve the allocation of resources, leading to higher capital productivity among LDCs.

A further advantage of financial markets is that financial contracts, markets and intermediaries may alleviate information acquisition, enforce the monitoring of firm managers, and exert corporate control. Firm owners will create financial arrangements that compel managers to manage the firms in the best interest of the owners. Creditors, for example, create financial arrangements that compel owners and managers to run firms in the interest of the creditors (Levine, 1997). In the absence of financial intermediation, such controls will be missing and this may impede the mobilisation of

savings and thereby keep capital from flowing to profitable investments. The use of such monitoring and control leads banks to create portfolios so that their clients are provided with diverse services, hence attracting more clients whilst retaining existing ones. In terms of long-run growth, financial arrangements that improve corporate control tend to promote faster capital accumulation and growth by improving the allocation of capital.

Through financial institutions, the resources of savers are 'pooled' together for investment. Without access to several savers, many production processes would be constrained to economically inefficient scales (Siri and Tufano, 1998). Mobilisation involves the creation of small denomination instruments, which provide opportunities for households to hold different portfolios and to invest in efficient scale firms and increase asset liquidity. The enhancement of risk diversification, liquidity and the size of feasible firms help to improve resource allocation. Financial systems that are more effective at bringing together savings of individuals can profoundly affect economic development by accumulating capital, improving resource allocation and boosting technological innovation (Levine, 1997). Thus, by mobilising resources for projects effectively, the financial system may play a crucial role in promoting the adoption of better technologies and thereby encourage growth.

The financial sector in Africa is characterised by fragmentation. There are two main sectors, the formal sector and informal sector[2]. In Ghana, for example, these sectors have co-existed since colonial days and the financial liberalisation policy has had little effect on changing this characteristic. Rural areas of Africa have not been served particularly well by either segment though the informal sector has done better than the formal sector (see Nissanke and Aryeetey, 1998 for a discussion of these issues).

---

[2] Refers to all economic activities that fall outside the regulation of formal economic and legal institutions.

The formal sector comprises banking and non-banking institutions and forms the main component of the financial sector but provides few financial services, especially in the form of credit to the rural areas. This shortcoming is attributed to difficulties in loan administration such as screening, monitoring, high transaction cost and risk of default. The informal sector, on the other hand, is made up moneylenders, traders, *susu* groups[3], friends and relations. The main problem for this sector in administering credits is due to the small size of the resources that it controls (Aryeetey, 1996). The credit markets are characterised by information asymmetry, agency problems and poor contract enforcement mechanisms. The markets are fragmented mainly because they are involved with a diverse client-base that possesses distinct characteristics leaving the market unable to meet the needs of borrowers interested in certain kinds of credit. This has resulted in a credit gap whereby there are groups of borrowers who cannot obtain credit from the informal market because they require larger amounts and yet cannot gain access to the formal market. Various reasons have been given to explain the continuous co-existence of these two credit sectors. Two theoretical paradigms proposed by Aryeetey *et. al.* (1997) are the policy-based explanation and the structural-institutional based explanation.

The policy-based explanation postulates that the existence of repressive policies, particularly on interest rates tends to increase the demand for credit, which cannot be met by existing formal institutions. Hence, the dissatisfied borrowers seek credit from the informal market where interest rates are uncontrolled. It was anticipated that through financial liberalisation, repressive policies would be removed thereby enabling the formal sector to expand and eliminate the need for the informal financial sector. The alternative structural-institution explanation begins from a slightly different position observing that imperfect information on credit worthiness and the cost of screening, monitoring and enforcement of contracts among lenders, results in market failure, which undermines the operation of the financial market. As a result, lenders resort to credit rationing in

[3] Are basically savings groups in which group members arrange to pay usually small amount of money on regular basis, which are collected by a mobile 'banker'.

the face of excess demand leading to market segmentation. In this setting, informal agents who use personal relationships and social sanctions to ensure repayments serve borrowers who are rejected by formal institutions due to structural and institutional factors. In Ghana, Aryeetey and Gockel (1991) found that the informal sector derives dynamism from developments in the formal sector as well as from its own internal characteristics. In particular, it was found that factors that influence the demand for formal credit in Ghana included income levels and its frequency, bank formalities and banks' preference for large transactions. Thus, borrowers who did not satisfy these criteria had little or no choice but to satisfy their credit needs in the informal sector.

An important cost of segmentation is that funds fail to flow across groups of individuals despite the benefits of doing so. However, both the formal and informal financial sectors are faced with the issue of penalties. In the absence of contract enforcement mechanisms, both sectors rely on lending practises that emphasise loan screening rather than monitoring leading to adverse selection. Differences, however, emerge in the methods used by the two sectors. Whereas formal sector lenders rely more on project screening, informal lenders rely on character screening and the history of the borrower, particularly personal knowledge about the borrower. Loan monitoring is rarely done. Transaction costs are generally lower in informal markets. One issue that emerges from this financial structure is that the informal market seems to be more accessible for the rural poor but, due to high rates of interest demanded by this market, borrowers are usually left significantly indebted to lenders and therefore rarely able to either expand their economic activities or improve their standard of living (Nissanke and Aryeetey, 1998).

In Ghana, both the formal and informal financial markets help to mobilise savings and provide credit. With the exception of the rural banks formal markets are perceived to not be easily accessible by residents of the rural areas and consequently, informal markets are more prominent in the rural areas with *susu* collectors (savings mobilisers) the most common. According to the 2001 report by the Ghana Micro-finance Institutions Network (GHAMFIN), although 850 *susu* collectors are currently registered, it is believed that there are many more active collectors who are not

registered: there is no apex organisation representing them. *Susu* collectors run their businesses from kiosks located in the market place and act as mobile bankers. Deposits, often of low but regular value, are usually taken on a daily basis over the course of a month. At the end of the collection period, the *susu* collector returns the accumulated savings to the client, but keeps a day's savings as commission. No interest is earned on this type of savings; the incentive for savers to participate is the flexibility of saving very small amounts of money consistently with little effort since the collectors come round for the money. *Susu* collectors may also provide 'cash advances' to their clients (Nissanke and Aryeetey, 1998). These accumulated savings and 'cash advances' are used for a variety of purposes including business expansion.

Through savings mobilisation the set of production technologies available to an economy can expand financial procedures that lower transaction costs can promote specialisation, technological innovation and economic growth. With lower transaction costs, specialisation increases and this leads to the need for exchange. Since the exchange of goods through the barter system is cumbersome, there is a need for an easily recognisable medium of exchange to facilitate transactions and financial institutions can readily make this available. With the advancement in technology, exchange is made easier since payments can be made without the physical movement of money. In this way, markets that promote exchange encourage productivity gains, which lead to economic growth.

Financial development may also bring about a growth in net capital inflows, as evident especially in East Asia and Latin America. However, these foreign balances can be very volatile and may be withdrawn at short notice as was witnessed during the Asian financial crash of 1997. As a result, an expanding financial sector can pose the threat of serious disruption to emerging market economies. In the face of this, policymakers in liberalising the economy must recognise the *trilemma* they face. Exchange rate stabilisation, free international capital mobility and independence in setting monetary policy may not be mutually consistent goals (Obstfeld, Shambaugh, Taylor, 2004). There is a need for institutional stability in the process of financial development and capacity

regulation. This should not, however, be overdone. Banks should adopt adequate operating procedures for lending to avoid borrower bankruptcy. Failure to do so can result in negative growth, showing that a rapid increase in financial activity can end by inhibiting growth.

2.4 Financial Repression

Nations all over the world are incessantly seeking various ways to improve the performance of their economy. The modern literature on growth which started with the work of Harrod (1948) and Domar (1957) focused on the role of capital and labour resources and the use of technology as a means to growth. Any possible role of the financial sector in the growth process was ignored. However, in the recent years, the relationship between financial development and economic growth has become an issue of intense analysis and debate. Over the past three decades, nations, especially LDCs, seeking assistance from the Bretton Woods institutions, have been urged to liberalise their financial sector, since most of them had operated under a system of financial repression.

Financial repression in this sense is defined as a set of government regulations, laws, and restrictions that prevent financial intermediaries from functioning and allocating credit efficiently (McKinnon 1973, Shaw 1973 and Fry 1997). Financial repression consists of three elements. First, the banking system is forced to hold government bonds and money through the imposition of high reserve and liquidity ratio requirements because this allows the government to finance budget deficits at a low cost. Second, given that government revenue cannot be easily extracted from private securities the development of a private bond and equity markets is discouraged. Third, the banking system is characterised by interest rate ceilings that are purported designed to encourage low-cost investment but prevent competition with public sector fund raising activities (Gupta, 2004). Fry (1994) and Murinde (1996) in their presentation on the theoretical McKinnon-Shaw model argued that the existence of negative real interest rates, fixed and overvalued exchange rates and an overregulated financial sector prevented the financial institutions and markets to function

properly during the repression era. Generally, financial repression implies a lack of depth to financial intermediation in the financial markets of the developing world.

In the seminal contribution to this debate, McKinnon (1973) and Shaw (1973) argued that financial liberalisation, in the form of relaxation of the institutionally-determined interest rate ceilings on bank deposit rates should lead to price stabilisation and long-run growth for developing countries through capital accumulation based on the following chronology of events:

1. The higher deposit rates would cause the households to substitute away from unproductive assets (foreign currency, cash, land, commodity stocks) in favour of bank deposits.
2. This in turn would raise the availability of deposits for the banking system, and would enhance the supply of bank credit to finance firms' capital requirements.
3. This upsurge in investment would cause a strong supply side effect leading to higher output and lower inflation.

It is these propositions that we now turn.

2.4.1 Interest Rate Control - Ceilings

From the McKinnon-Shaw model, the impact of the interest rate ceilings on savings (S) and investment (I) is made clear. The model assumes a closed economy thus, at equilibrium, $I = S$, it is further assumed that there is a negative relationship between (I) and the rate of interest (r), a positive relationship between S and r and output (g) . These relationships may be written as:

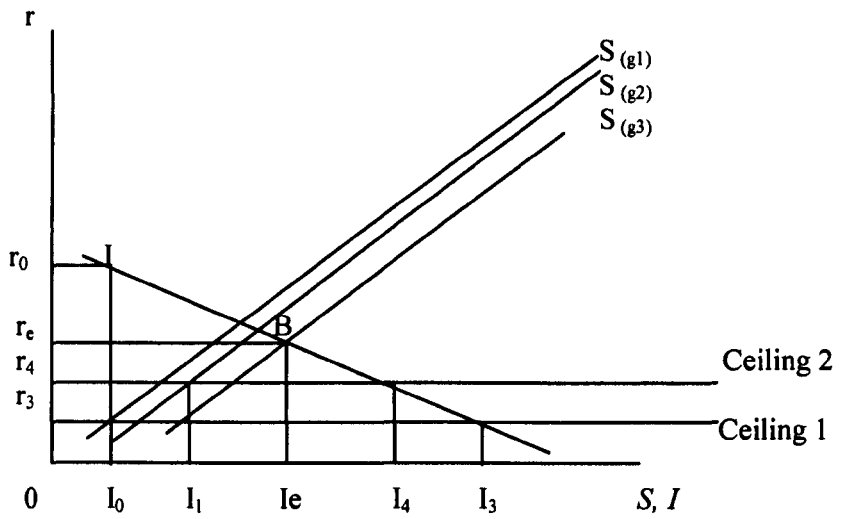
$I = I(r)$ where $Ir < 0$

$S = S(r, g)$ where $Sr > 0, Sg > 0$

With government intervention, an interest rate ceiling is imposed at below the market equilibrium rate. As a result, the level of saving declines while, the demand for credit for investment increases. But since S is low and away from equilibrium markets operates on the short side, investment is constrained. This leads to a rationing of credit to investors, and leads banks to set lending rates above the equilibrium interest rate making I expensive and unattractive.

The essence of the McKinnon-Shaw hypothesis is illustrated in a reproduced diagram from their hypothesis in Figure 2.2. Here the real rate of interest is measured on the vertical axis, (r) while Savings (S) and Investment (I) on the horizontal axis. The dependence of savings on interest rates and growth is shown by the line S (g) where $g_3>g_2>g_1$. Thus, an increase in saving from S (g_1) to S (g_2) raises growth from g_1 to g_2.

Figure 2.2: The Effect of Interest Rate Ceilings



Source: McKinnon 1973, Shaw 1973

In the absence of intervention the market equilibrium is at [r_e, I_e] If government now imposes a ceiling on interest rates, setting a ceiling at r_3 below the equilibrium interest rate r_e the level of savings will be I_0 under the assumption that economic growth is g_1 the corresponding demand for credit is I_3. Since $I_0 < I_3$ investment is clearly constrained by lack of saving and some profitable projects will not obtain credit from the market. With a ceiling on deposit rates and an excess demand for investments, banks would set their lending rates at, r_0 using the difference (r_0 - r_3) as non-price profit. If government relaxes the interest rate restrictions and allow r to increase to r_4 (ceiling 2), savings will increase to I_1, economic growth increases to g_2 and investment falls to I_4 thus excess demand for credit falls to ($I_4 - I_1$). This is because projects with returns higher than r_3 but lower than r_4 will be undertaken, thus, rationing is reduced and efficiency of investment increased. Showing that with ease in restrictions there is efficiency in investment and credit

rationing reduces. When market forces are left to determine the interest rate, r_e becomes the equilibrium rate where $S = I$ and economic growth increased to g_3. In this case, there is no credit rationing and investment will be more efficient.

The McKinnon-Shaw hypothesis predicts that financial liberalisation, which causes nominal interest rates to raise towards competitive free-market equilibrium levels, will exert a positive effect on the rate of economic growth in the short, medium, and long run (McKinnon 1973, Shaw 1973). Deregulation of interest rates increase savings which in turn raises credit availability for investments, stimulating growth. This suggests that the rate of economic growth is a function of the real rate of interest. As proposed by Solow in his growth model (Solow, 1956) the positive relationship will only show up in the short and medium run but not in the long run. Ultimately, growth in the long run depends on technological progress and the competitiveness of the economy. While the McKinnon-Shaw model is not explicit on how increases in the nominal interest rate affect growth, this can be illustrated using a simple Solow model.

The Solow model assumes that output per worker is a function of capital per worker, $y = f(k)$ via a conventional neoclassical constant returns to scale production function. The function exhibits diminishing returns to the fixed factor. The rate of growth of output is determined by the rate of net capital accumulation which is in turn determined by the savings rate, population growth rate and the rate of depreciation. From the McKinnon-Shaw model, savings are determined by the real rate of interest. Thus with a neoclassical production function $y = f(k)$ showing output per worker as a function of capital per worker, capital accumulation per worker is given as;

$\dot{k} = sy - (n + d)k$

where:

n = population growth rate

d = depreciation

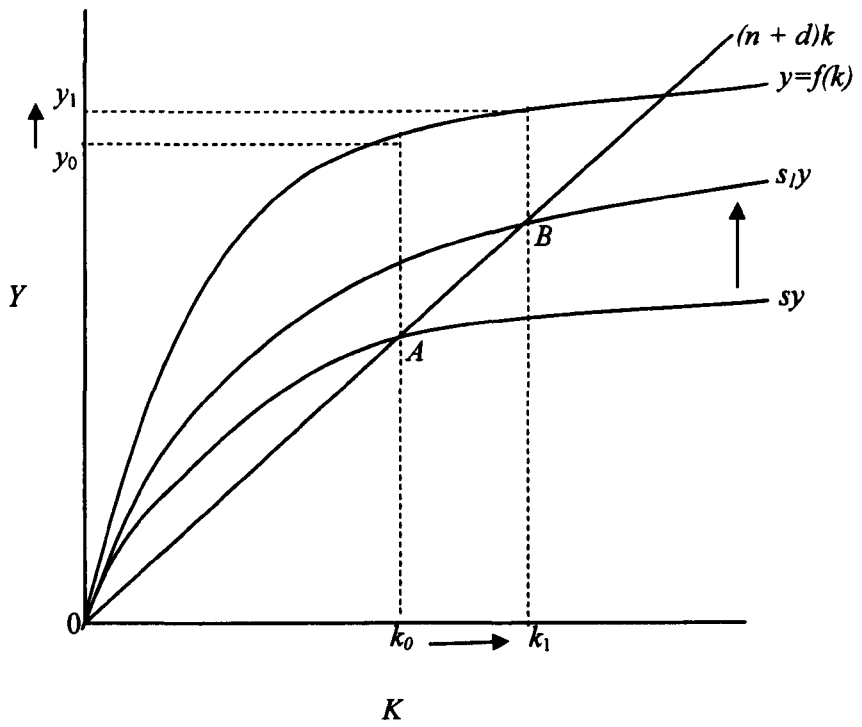
k = capital per worker

y = output/income per worker

s = savings rate

Figure 2.3 illustrates how an increase in savings consequent-upon an increase in the nominal interest rate increases growth. In the initial steady state, A, the rate of investment per worker $sy = (n + d)k$ with output per worker y_0. With an increase in s due to an increase in the real rate of interest from financial liberalisation, the schedule sy (rate of investment) shifts upwards to s_1y. At the current value of capital stock, k_0, investment per worker now exceeds the amount needed to keep capital per worker constant, with the result that capital deepening occurs and k increases over time. Capital deepening continues until $s_1y = (n+ d) k$ and capital per worker reaches k_1. In the new long-run equilibrium at B, $\acute{k} = 0$, provide a new steady state with a corresponding increase in output per head from y_0 to y_1 (Jones, 2002).

Figure 2.3: Solow Growth Model and Changes in the Savings Rate

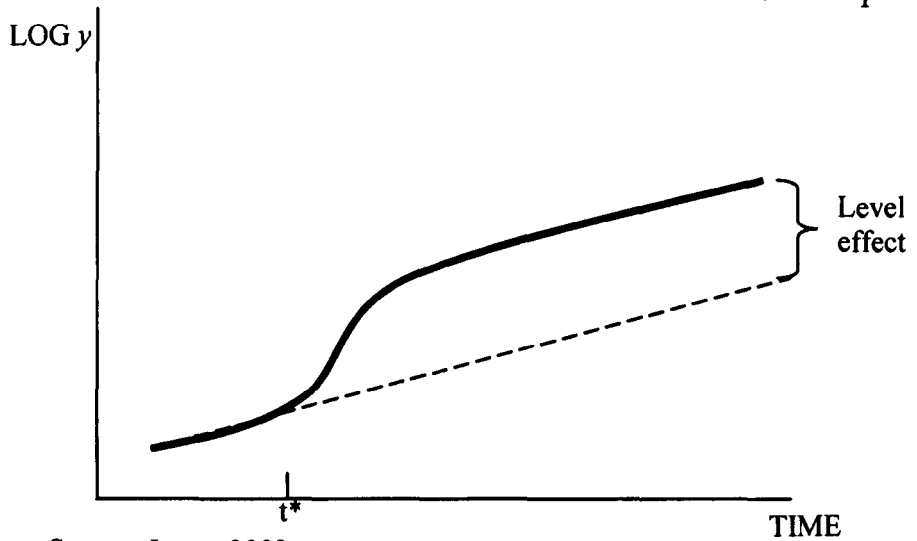


Source: Solow, 1956

However, the effect of liberalisation on the growth rate in Solow model is temporary. The increase in output per head from y_0 to y_1 is consistent with the level of output increasing at the same rate as the underlying rate of population growth and net of the effect of depreciation. The growth rate is

therefore identical at *A* and *B*. Between these two points, however, output grows at a rate faster than the rate of population growth and net of depreciation.

Figure 2.4: The Effect of an Increase in Investment on Output



Source: Jones, 2002

This continues until the output-technology ratio reaches the new steady state, then growth levels out. This emphasises the fact that in this model policy changes may bring about changes but it will be only temporary until a new steady state is reached. It also shows that policy changes can have levelling effects, as illustrated in Figure 2.4 above (Jones, 2002). Of course one need to bear in mind that in practise financial liberalisation may not be administered in a steady state and that the expected results of promoting growth as a result of increase in *sy* may be in a short or medium run which could be very long.

An alternative growth model that suggests a permanent effect of policy change on growth is the *AK* model. The *AK* growth models predict that permanent changes in government policies affecting investment rates should lead to permanent changes in a country's GDP growth (Rebelo, 1991). Although this model is similar to that of Solow, it differs significantly by relaxing the assumption of diminishing marginal returns to capital accumulation and rather relies on the assumption that returns to capital does not decline as the capital stock increases. Without diminishing returns, a

country with a high stock of capital is not deterred from continued investment and, therefore, continued growth.

We can illustrate the key idea simply by assuming α in Solow's production function above takes the value of 1. This yield

$$Y_t = A_t K_t$$

where, Y_t is output at time *t*, and A_t is the level of technology at time *t*.

The growth rate of output is now determined as:

$$\frac{\dot{Y}_t}{Y_t} = \frac{\dot{A}_t}{A_t} + \frac{\dot{K}_t}{K_t},$$

with capital accumulation rate given by

$$\dot{K}_t = sY_t - dK_t,$$

so that the growth rate of capital is given as;

$$\frac{\dot{K}_t}{K_t} = sA_t - d,$$

where d is the rate of depreciation of the capital stock. Thus the growth rate of output is $\frac{\dot{Y}_t}{Y_t} = \frac{\dot{A}_t}{A_t} + sA_t - d$.

This relationship shows that the growth rate of output depends not only on the growth rate of A but also on its level. Thus an increasing A could lead to a continuous growth for output. This suggests that by relaxing the assumption of diminishing marginal returns to capital accumulation the growth rate of an economy is an increasing function of the investment rate. Therefore, government policies that increase the investment rate of an economy permanently will increase the growth rate of the economy permanently (Jones, 2002). While it may be impossible for A to grow without bounds, it may still be possible for government policy to affect the level of A, for instance through policy changes. Thus, the AK model presents a picture of growth in which the link between government actions and growth is potentially a permanent effect rather than as in the Solow model.

This relates to the fact that with a permanent policy change of financial liberalisation, nominal interest rates will increase as established by the McKinnon-Shaw hypothesis resulting in positive real interest rates which will help encourage savings and thus investment and growth. Hence, although the financial liberalisation hypothesis relates to nominal interest rates but the growth model the real interest both work together to explain the effect of the policy on growth of the economy

Ceilings on lending and deposit rates thus distort the economy in various ways including the following. First, low interest rates encourage agents to increase present consumption rather than future consumption, thus reducing savings below the socially-optimal level. Second, potential depositors would prefer to engage in direct low-yielding investment rather than depositing money in banks, which would have been on-lent to more highly productive investors. Third, with a low price on capital, entrepreneurs will choose more capital-intensive projects to the detriment of labour intensive ones; unemployment rates will therefore be higher than otherwise. In summary, ceilings on interest rates reduce savings and capital accumulation and discourage the efficient allocation of resources.

2.4.2 High Reserve Ratios, Entry Restrictions and Dualism

Another feature of financial repression is that governments typically place high reserve requirements on commercial banks with these reserves subsequently used by governments to finance domestic budget deficits (McKinnon, 1973). Since reserves earn no interest they effectively function as a tax on banks and restrict banks from allocating a proportion of their portfolios to other productive investments including loans. High reserve requirements usually lead to widening of the lending and borrowing rate spread, which can reduce the amount of funds available in the financial markets. Banks are usually required to allocate a fraction of their deposits to government securities that yield a lower return than would be obtained in the market (Anin, 2000). This results in less efficient banks operations.

Financial repression may also take the form of government directives to banks to allocate credit at subsidised rate to specific firms and industries in order to implement industrial policy (Ariyoshi, Habermeter, and Laurens, 2000). Such directive allocation of credit is perceived to help ensure regular provision of credit to such industries rather than leaving them to compete for credit on efficient securities markets. In order to carry out these directives, which sometimes include detailed orders and instructions, the government usually take over the management of the financial institutions to ensure that the institution conducts business in line with the industrial and other government policies. An extreme example of direct state control of banks is the nationalisation of banks as observed in Mexico in the 1980s, when the government nationalised all the banks to secure public savings (Montiel, 2003).

Financial repression can also lead to dualism in which firms that are subsidised choose relatively capital-intensive technologies; whereas those not favoured by policy will only be able to implement high-yield projects with short maturity. Financial repression leads to non-market forms of market clearing. These can take the form of queuing arrangements to ration the available credits by means of quantitative restrictions and different types of bidding systems, which themselves may lead to nepotism and other corrupt practices (Gockel, 1995). These effects mean that not only will the level of savings (and investment) be low, but also that the level of activity that does occur will be of poor quality.

From the models proposed by McKinnon (1973) and Shaw (1973), it is assumed that liberalisation, which is associated with higher interest rates and with no controls, will stimulate savings. That is, savings are responsive to interest rates, which help finance higher levels of investment. Financial liberalisation (FL) is expected to help improve the functioning of financial institutions by increasing the availability of funds to the most competitive and appropriate sectors and allowing cross-country risk diversification. As argued by Obstfeld (1998), international markets can channel world savings to their most productive uses irrespective of location. As savings get to their most productive locations investments improve and may culminate in economic growth. Liberalisation

promotes transparency and accountability reducing adverse selection, moral hazard and alleviating liquidity problems in financial markets. With the presence of international capital markets, policy-makers who would have exploited a captive domestic capital market are monitored and prevented from doing so. It is thus clear that the benefit of financial liberalisation is not only to liberate repressive situations but also to increase access to domestic and international markets and increase the efficiency of capital allocation.

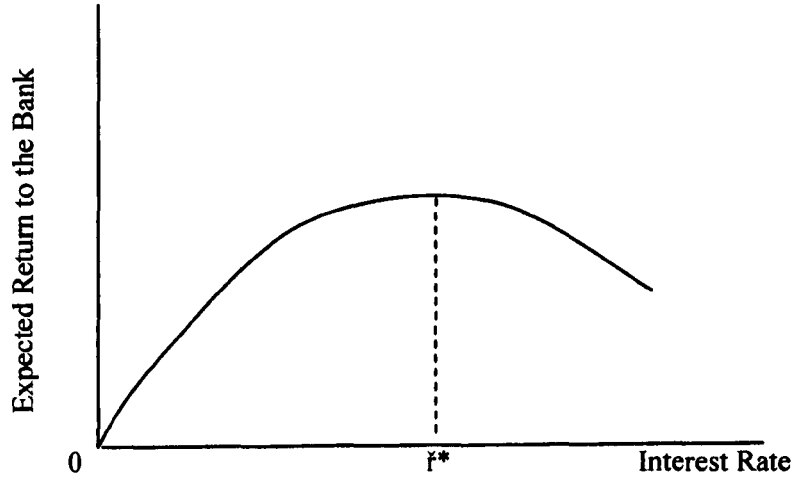
Stiglitz, (1994) however, suggested, that financial liberalisation is prone to market failure. He argues that "there exist forms of government intervention that will not only make these markets function better but will also improve the performance of the economy" (Stiglitz, 1994, p.20). Stiglitz specifically advocates the need for government to intervene to keep interest rates below the market-equilibrium level. Owing to information imperfections, there is a need for some financial repression so that the allocation of capital can be undertaken more efficiently. By lowering interest rates, the average quality of the pool of loan applicants will be improved. As a result financial repression increases firm equity because it lowers the cost of capital. In addition financial repression can be used in conjunction with an alternative allocative mechanism, such as export performance, to accelerate economic growth. Directed credit programmes can encourage lending to sectors with high technological spill-over.

Conventional wisdom suggests that when supply equals demand a market is cleared. This means that any disequilibria will be corrected if the forces of demand and supply are allowed to operate. This, however is not always the case as evident in the model developed by Stiglitz and Weiss (1981). According to their model, banks maximise their profits through a high rate of return on loans when the interest rate charged is less than the equilibrium rate. The demand for loans in this case exceeds supply at this rate resulting in credit rationing. Stiglitz and Weiss (op. cit.) show that a loan market maximises profit when credit is rationed, supporting their view that some form of government intervention in setting interest rates below the equilibrium rate is necessary in markets with imperfect information.

In allocating credit, banks are concerned about the interest received and the likelihood of repayment of the loan. The expected return to the bank depends on the probability of repayment implying that banks would like to identify and allocate loans to borrowers who are more likely to repay. Since information on these borrowers is imperfect, banks use a variety of devices to screen borrowers.

One possible device is the interest rate a borrower is willing to pay on a given loan. Those who offer to pay higher rates are most likely to default. This is because to be able to pay a higher rate the borrower should engage in a project which will yield higher returns and the risk of higher yielding projects are higher thus the likelihood to default. As a result, banks are not necessarily willing to allocate loans to clients who offer to pay high interest rates and this serves as a means of rationing credits at an interest rate lower than the equilibrium rate but provides the banks with the highest rate of returns on loans. Figure 2.5 below illustrates the relationship between the rate of interest and the expected return to banks. As argued previously, the shape of the schedule reflects the increased likelihood of default on loans bearing a higher interest rate.

Figure 2.5: An Interest Rate which Maximises the Expected Return to the Bank

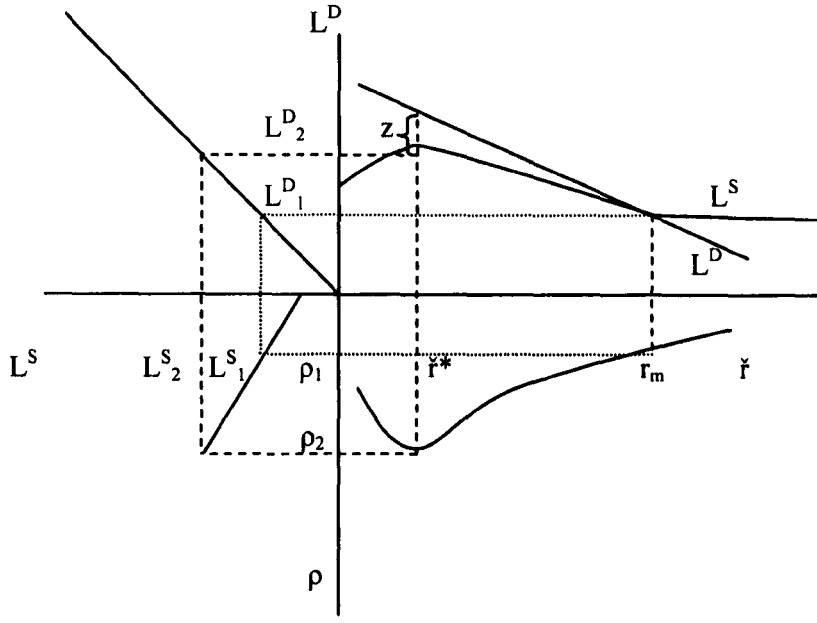


Source: Stiglitz and Weiss (1981)

The interest rate at which the expected rate of return on banks loans is maximised is denoted by ř*. No loans will be supplied above this 'bank-optimal' interest rate. The demand and supply of loans are functions of the interest rate, with the latter being determined by the expected rate of return at ř*, where the demand for loans exceeds supply. It is expected that with excess demand, some borrowers will offer a higher interest rate in order to induce banks to supply more loans. In this case, a higher interest rate will not induce an increase in the supply of loans. As shown in Figure 2.5, any rate above ř* results in a decrease in the expected rate of return and since banks want to maximise returns no loans are forthcoming at interest rates above ř*. So although the supply and demand for loans are not equated at ř*, it is the equilibrium rate, since there are no competitive market forces that will induce an increase in supply for loans and thus credit is rationed at ř* (Stiglitz and Weiss, 1981).

Figure 2.6 below helps to illustrate the credit rationing equilibrium. The demand for loans (L^D) depends on the interest rate charged by banks (ř) and the supply of loans (L^S) depends on the mean rate of returns of loans, ρ. L^D is negatively related to ř, thus L^D decreases with an increase in ř this is shown in the Northeast quadrant. The Southeast quadrant shows the non-monotonic relationship between ř and ρ, in the Southwest quadrant is the relationship between ρ and L^S and the Nortwest quadrant shows L^S as a function of ř, through the impact of ř on the return on each loan.

Figure 2.6: Determination of the Market Equilibrium



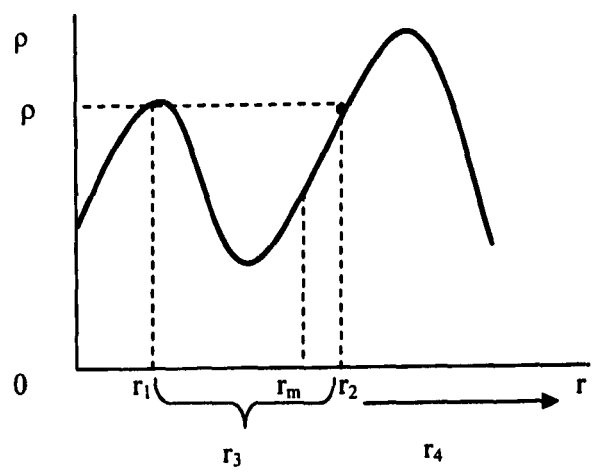
Source: Stiglitz and Weiss (1981)

Equilibrium occurs at r_m equilibrium occurs where $L^D = L^S$, this provides a supply of loans L^S_1 and the rate of return ρ_1. If the interest rate is reduced to ř*, exceeds L^D, at L^S_2 and the rate of return on credit is ρ_2 which is greater than ρ_1. Thus the bank is better-off issuing loans at ř* than at the equilibrium r_m, since the former is associated with a higher rate of return on credit. At ř*the distance Z shows the extent of the excess of demand: hence credit is rationed at ř* and those who offer to pay an interest rate higher than ř* will not receive credit because they represent a higher risk of default on credits as shown in Figure 2.5 above. Through their model Stiglitz and Weiss (1981) show that by fixing the interest rate below the equilibrium rate, banks maximise profits by maximising the rate of returns on loans even though credit rationing occurs. With credit rationing the average pool of loan applicants is better and credit would also be available more often since repayment to banks is maximised. It must be noted that credit rationing occurs not only when there is intervention in the financial market fixing the interest rate below equilibrium, but also during liberalisation due to imperfect information in the market. Here with a higher interest rate determined by the demand and supply of credit, potential borrowers are rationed out of the market

because banks have little or no information about them. The result is that some individuals will not receive credits because of the high rate of interest whilst others will not receive credit because of imperfect information.

In cases where there is more than one mode for the rate of return interest rate function, ρ (r), equilibrium may be characterised as either a single interest rate at or below market-clearing level or by two interest rates with an excess demand for credit at the lower rate (Stiglitz and Weiss, 1981). Asuming the equilibrium interest rate is r_m, and the interest rate that maximises ρ (r) is ř*, then if ř* < r_m the previous analysis will hold when there are multiplicities of modes. Credit rationing will occur at ř* and the rationed borrowers will not be able to obtain credit by offering higher interest rates. However, if ř* > r_m, then credit might be issued at two rates r_l and r_2 as depicted in Figure 2.7 below. At r_l, ρ (r_1) is maximised where $r_l \leq r_m$ and $r_2 > r_m$ but ρ (r_2 = ρ (r_l). Since r_m is the market equilibrium and the demand for credit schedule is downward sloping, it implies that there would be excess demand for credit at r_1 thus rationing would occur.

Figure 2.7: A Two-Interest Rate Equilibrium



Source: Stiglitz and Weiss (1981)

With two modes for the ρ(r) function, rationed borrowers will be able to obtain credit if they offer to pay r_2, since at this rate ρ (r_2) = ρ (r_1): hence banks will be prepared to give credit even though r_2 > r_m. In this case, borrowers who did not obtain credit at r_1 might obtain credit at r_2 but not at rates

below or above this rate. If r_3 is greater than r_1 but less than r_2 such that $\rho(r_3) < \rho(r_1)$, then credit will not be obtained since the risk of defaults at r_3 is higher. On the other hand, no bank would receive offers for credits at r_4 even if $\rho(r_4) > \rho(r_1)$ because by definition $r_4 > r_2$ and since there is no excess demand for credits at r_2 there will not be any incentive to receive offers at such high rates. This shows that in a repressive era not all interest rates are set below the equilibrium level and that, at this high rate, investors make higher returns on their investment and hence , high rate of return for the bank.

2.5 Financial Repression and Households

A further development of the financial repression literature by Campbell and Mankiw (1990) concludes that there are two groups of households - those who have access to credit markets and those who do not. For those with access, their consumption can be smoothed inter-temporarily and therefore responds to changes in the interest rate. These households will increase savings with increased interest rates from financial liberalisation. However, another type of households who are in the majority especially in developing countries, do not have access to credit markets and thus their consumption is entirely determined by the evolution of current income. In this respect, their saving pattern is independent of the rate of interest. This development challenges the assumption of the McKinnon-Shaw model, which sees households as homogenous with respect to access to the credit markets. Thus, for the second group of households, financial liberalisation that leads to an increase in the interest rate does not provide an incentive for savings or necessarily give them access to credit. In this case, what will increase savings will be an increase in income, which can be realised through the fixing of low interest rates that will enhance investment and bring about an increase in output and income and subsequently savings.

The role of subsistence consumption influences the rate of saving. In countries where most households live close to subsistence, consumption and saving will not be sensitive to changes in the real interest rate. It is only in wealthier countries that consumption responds to changes in the real

interest rate. Hence, the increase in saving consequent upon an increase in real rates due to financial liberalisation will depend on income levels (Ostry and Reinhart, 1992).

A study by Bandiera et. al. (2000) revealed that there is no evidence of a positive effect for real interest rates on saving. The study, which involved eight developing countries including Ghana, showed mixed effects of liberalisation on saving. In most cases the relationship was negative, significantly so in the case of Ghana and Indonesia.

Van Wijnbergen (1983) opposed the McKinnon-Shaw argument and suggested that the McKinnon-Shaw model ignored the role of the so called unorganised money market (UMM). Van Wijnbergen consequently stressed that the UMM, or the informal money markets, are an integral component of the financial structure of most developing countries. These informal markets provide more rather than less intermediation when compared to the banking system, because they are not subject to the interest rate and reserve requirement policies of the formal sector. The UMM is commonly viewed as a 'residual' market which absorbs the excess demand for credit from the banking system and so, in turn, helps to clear the entire market for credit. Van Wijnbergen (1983) further argued that in a world with multiple saving options in the form of unproductive assets, interest bearing bank deposits and UMM securities, interest rate deregulation can cause a reallocation in households portfolios in favour of bank deposits at the cost of the unproductive assets and the UMM securities. If this reallocation is at the expense of informal market securities, then the total supply of credit will fall since, unlike the banking system which is subjected to reserve requirements, the UMM provides one-to-one intermediation. A credit squeeze in the financial market will now push up the UMM rate and this in turn creates a cost-push effect on aggregate supply. The overall effect is a reduction in capital accumulation and output and an increase in inflation.

Focusing on the development of the domestic financial sector, capital account liberalisation that allows firms to list abroad may lead to market fragmentation and reduce liquidity in the domestic market thereby inhibiting growth. Liberalisation has also been linked to macroeconomic instability.

Financial reforms undertaken in most Latin American countries in the 1970s, aimed at ending financial repression for instance, led to financial crises characterised by bankruptcies, government interventions, nationalisation of private institutions and low domestic savings (Diaz- Alejandro, 1985). Demirguc-Kunt and Detriagiache (1998) have shown that the likelihood of crises following liberalisation decreases with the level of institutional development in the country. This supports the Stiglitz and Weiss (1981) arguments in favour of government intervention and suggestions especially from the IMF (2002), that liberalisation should be regulated and practised with reference to an individual country's particular characteristics.

2.5.1 Importance of Financial Repression

Financial repression was feature of most LDCs until the 1980s when most undertook a restructuring of their economy. During the era of repression, governments decided on how the financial system ran, set interest rates and their ceilings, fixed bank reserve ratios, controlled the creation of credits and nationalised foreign financial institutions. This practice was considered necessary because most of the ex-colonial countries had foreign-owned banks whose primary aim was private profit and not investment for long-term development. Again, the banks' position as formal institutions meant that they lent only to clients who had proven to be creditworthy at market prices: thus, many potential borrowers, especially from the agricultural sector were unable to access credit (Anin, 2000). As these economies were building-up infrastructure and stimulating growth by establishing state enterprises there was a need for the governments to have direct control over the financial sector in order to achieve this development objective. Finally, government intervention in the financial system was required to help promote the expansion of commercial banks. This was necessary because of the high transactions costs associated with organising deposit facilities for the large number of people who saved small amounts because they were poor. There was also a need for the government to establish institutions capable of mobilise savings by low-income groups, especially in the rural areas, since this group was not attractive to the private financial institutions (Newlyn and Rowan, 1954).

From the above, it was expected that financial repression would lead to an increased mobilisation of savings mobilisation and an improved allocation of capital resources that would accelerate economic growth. On the contrary, however, after several decades of government control of the financial sector, LDCs had distressed economies to show for it, with little of the expected benefits realised (Nissanke and Aryeetey, 1998).

In Ghana, for instance, the combination of low nominal interest rates and high inflation led to real interest rates becoming negative, a disincentive to savings. Funds were channelled into physical and foreign assets. Simultaneously, the expected real price of credit declined with inflation and an abnormal demand for credit was generated, though this was not for investment but rather for the purchase of real assets. Borrowers' real debt was reduced and transferred to the banks, who increased collateral requirements in order to prevent borrowing. As a result, credit allocation became inefficient. Credit was either given to those with political connections or allocated by corrupt methods of the banks. Average rates of returns on investment were below the maximum attainable rates, thus discouraging active intermediation, especially in the collecting of interest-bearing deposits (Cobbina-Asirifi, 1999).

Credit ceilings and sectoral credit directives, together with low interest rates produced disincentive effects on the banking system and discouraged banks from the collecting of savings once their ceilings were attained. In Ghana during this era, one had to have a reference from a demand account holder of the bank before a savings account could be opened. This encouraged intermediation from outside the banking system, capital flight and/or an acquisition of durable goods rather than investing to increase economic growth (Brownbridge and Gockel, 1996). The ceilings limited competition as credit was allocated on the basis of historical market shares rather than on lending opportunities. The absence of suitable liquid investment opportunities in which banks could invest their excess funds added to the disincentive for collecting savings.

Banks were required to keep reserves in the form of cash and secondary liquid assets. The cash requirement was two-tier - one for demand and another for savings deposits. The reserves, which averaged over 50% of total deposits by 1983 and 32% between 1987 and 1989, were held as either cash in tills or balances with the Bank of Ghana neither of which was interest earning, Brownbridge and Gockel, (op. cit.). The effect of such high reserves was that large amounts of funds were directed away from potential borrowers. Disappointed borrowers on their part looked elsewhere for funds thus encouraging the growth of the informal financial sector. This type of disintermediation however, is, not specific to LDCs. For example, in the, pre-competition and credit control UK, behaviour mirrors this with the development of non-bank financial institutions (Muellbauer, 2002) The difference is that in LDCs the result of disintermediation is a flow of funds away from the formal sector to the informal sector resulting in money in circulation outside the control of the formal financial sector. As a consequence money supply management by the government is difficult hence worsening the disintermediation effect.

The monetary policy in place in most LDCs during the era reinforced financial repression by accentuating distortions in financial intermediation making investment in financial assets less attractive and so discouraging savings. Severe misallocation of resources ensued, competition among banks was inhibited and the development of an inter-bank market retarded. Financial intermediation became shallower, the demand for physical wealth increased and the activities of the informal financial sector and capital flight increased. As a result, the economic growth rate was low. To reverse this situation a new policy was adopted in the form of financial liberalisation to help stimulate growth.

2.6 Financial Liberalisation

Financial liberalisation (FL), in essence, refers to the removal of governmental controls over the financial sector. These controls usually take the form of government ceilings on interest rates and controls on financial intermediaries (McKinnon, 1973). In this respect, FL is concerned with

macro-economic aggregates such as interest rates, savings and investments, the availability of credit and the conditions of the formal financial markets.

The general programme of FL is made up of two components:

i. The removal of ceilings on interest rates and sectoral credit directive and their determination by market forces.

ii. A reduction of quantitative controls to allow financial intermediaries greater control over the use of their liabilities (Gibson and Tsakalotos, 1994).

Financial Sector Reform (FSR) policies complement financial liberalisation and are concerned with restructuring the banking sector. The broad aims are to improve the regulatory and supervisory environment in the financial sector and enhance the development of financial institutions. The World Bank, one of the advocates of the policy, envisages that through the process of reform the following would be addressed:

i. A reduction in bank insolvency and the restructuring or closure of insolvent financial firms.

ii. The improvement of management systems in banks.

iii. The encouragement of competitive banking and the development of a diverse range of financial institutions such as development finance institutions (DFIs) and insurance companies.

iv. The removal of barriers to entry for private financial institutions.

v. The enactment and enforcement of legal controls and powers in favour of lenders.

vi. The improvement of government supervision.

vii. A reduction in the extent of taxation of the financial system.

viii. The increased development of the money and capital markets.

These policies have spread gradually around the world. Latin American and Asian countries were the first to undertake the policy in the 1970s while the Sub-Saharan African (SSA)[4] countries followed in the late 1980s and early 1990s as part of the Structural Adjustment Programme (SAP)

McKinnon (1973) and Shaw (1973) proposed a policy of financial liberalisation in which institutional constraints on nominal interest rates and reserve requirements are abolished. Even though they came to the same conclusions, their theoretical approaches were different. McKinnon's model assumed that all economic units are limited to self-financing and made no distinction between savers and investors. An investor had to accumulate deposits or financial assets in order to invest later. Thus, McKinnon saw deposit money and physical capital as *complementarity hypothesis* (McKinnon, 1973).

In Shaw's *debt-intermediation view*, financial intermediaries sustained deposit accumulation by raising real returns to savers and expanding their lending potential. At the same time they lowered the real cost to investors through risk diversification, economies of scale in lending, and lower information costs for both savers and investors (Shaw, 1973). Here investors were not restricted to be self-financing.

---

[4] The most often described examples in Africa are those of Ghana and Kenya, and in more recent years Zimbabwe, The Gambia and Ethiopia (Nissanke and Aryeetey, 1991). However, many more countries in SSA have undertaken the FL programme in various degrees. Villanueva (1988) lists some of the African countries implementing financial liberalisation according to its main objective. In Algeria, Egypt, Botswana and Mauritius the objective of financial reform is to improve the monetary (indirect) control system. In Zaire and Kenya, the objective is to improve the mobilisation and allocation of domestic resources by developing money markets and bank regulation and legislation. In Mauritania, Senegal, Burundi, the Gambia and Sierra Leone the objective is to improve the level and structure of interest rates.
Collier (1993) lists African financial liberalisations according to the most conspicuous measures undertaken. For instance, a deregulation of interest rates has taken place in Angola, Burundi, Congo, Cote d'Ivoire, the Gambia, Ghana, Kenya, Madagascar, Malawi, Mozambique, Nigeria, Rwanda, Tanzania, Zambia and Zimbabwe. Bank restructuring is taking place in Cote d'Ivoire, Ghana, Guinea, Kenya, Senegal, Tanzania, Rwanda and Uganda. Some bank privatisation has taken place in Cote d'Ivoire, Guinea-Bissau, Madagascar and Senegal, while bank liquidation and new bank entries have occurred in Benin, Kenya, Rwanda, Senegal, Nigeria, Uganda, Ethiopia and Zambia.

In the subsequent debate, extensions were made to the original McKinnon-Shaw, framework in the context of macroeconomic stability. Galbis (1977) proposed a two-sector model, in which financial repression led to the sustained co-existence of a traditional sector with a low constant rate of return on capital, and a modern sector with a high rate of return. Low deposit rates led to high self-financing investment in the traditional sector. If deposit rates were raised, money demand in this sector would increase, allowing investment in the modern sector to be financed from bank loans. This change in the composition of investment raised the average efficiency of investment and is referred to as *quality investment.*

Much has been learned about FL since McKinnon (1973) and Shaw (1973) first proposed it. The World Bank, for instance, favours full liberalisation. However, some studies, such as Caprio, Ayitas, and Hanson (1993), emphasise the need for stable macro-economic conditions including low inflation and a positive growth rate, as an essential precondition for a successful liberalisation. Others, including Stiglitz and Weiss (1981) Bell (1988) and Faruqi (1994), have questioned the extent to which the financial sector should be liberalised. In particular, the policy of selective control and intervention with respect to interest rates and directing credit towards export sectors has been advocated as part of a financial liberalisation policy.

On balance, there are indications that neither the repressive nor the liberal approach has changed the financial sector's ability to support socio-economic growth especially among SSA countries (Aryeetey, 2001). Financial intermediation has been limited and ineffective in making deposit and credit facilities widely available through the formal sector. In many cases, financial sector reform appears to have been focused too narrowly on the elimination of financial repression through price and interest rate liberalisation. Nissanke and Aryeetey (1998), for example, argued that reform in the SSA countries did not deal adequately with the structural and institutional issues confronting the financial sector specifically and the economies generally and that the focus was mainly on policy matters. They further argued that the main problem of fragmentation, which is a

characteristic of the financial sector in SSA, had not been addressed by the reform. Urban and rural dwellers alike depend on the informal financial sector for their savings and credit requirements.

In all of the McKinnon-Shaw type models, the deposit rate that maximises growth is the one that results from free-market equilibrium. Financial repression is identified as leading to unprofitable enterprises, poor supervision of banks resulting in insolvency, and the failure of a large number of financial institutions in LDCs (World Bank, 1989). Arguably, most individuals and households involved in informal labour and small and medium-scaled enterprises (SMEs) did not benefit from the government's intervention policies; they were rarely targeted for subsidised credit. Moreover, they were hardly served by the formal financial sector and had to depend on the informal financial sector for financial services. As a result of the mixed experience with financial liberalisation, various schools of thought have emerged. They typically are critical of financial deregulation from both the microeconomic and macroeconomic points of view. Amongst them are the institutionalist, neostructuralist and post-Keynesian approaches.

The institutional approach to financial markets is focussed at the micro-level and emphasises that market failure may come about as a result of imperfect information. Stiglitz and Weiss (1981), for example, showed that adverse selection and moral hazard could be the cause of disequilibria in the credit market rather than government intervention. The price of credit may affect the nature of the transaction and may not clear the market. Where there is excess demand, banks tend to use credit rationing rather than price to allocate credit. One possible implication of this is that individuals and SMEs may be screened out of the credit allocation process since banks may not have sufficient or adequate information to differentiate between borrowers. Involvement in small-scale agricultural activities or cottage industry activities then becomes a readily usable screening device. Thus, under certain circumstances, government intervention may be justified on the grounds of alleviating any inefficiency in credit allocation caused by market failure arising as a result of information asymmetry.

Another criticism of FL was made from the macroeconomic point of view by the post-Keynesians and neostructuralists. The two schools of thought hold similar views on the issue of price rigidity, in which adjustments are made to outputs rather than to price. They differed, however, in their specification of the supply of credit and the effect of informal markets.

Post-Keynesians assumed that investment depended not only on interest rates, but also on expectations of future demand. They argued that with increased interest rates brought about as a result of FL, stimulating cost-push inflation pressures which may lead to a collapse of demand (Taylor, 1983). In this situation, a rise in interest rates increases the marginal propensity to save, leading to a reduction in effective demand and thus investment.

In contrast, the neostructuralist approach (see Van Wijnbergen, 1983) looked at the effect of informal financial markets on the acceleration of growth when FL is practised. If an increase in the real deposit interest rate leads to a shift of assets from the informal to the formal sector, then the existence of reserve requirements will lead to a decline in financial intermediation. In a situation like this, raising interest rates would tend to shift funds from the informal markets into time deposits, thereby, reducing the overall availability of credit and leading to a fall of output and investment. The overall assessment of FL by these schools is that it may lead to stagflation as the increased desire to save results in a decline in aggregate demand and possibly leads to an increase in inflation.

2.6.1 Liberalisation in Practice

Financial liberalisation has been a dominant policy paradigm over the past few decades. Initially, it involved the relaxation of controls on interest rates. In recent times financial liberalisation has been seen to be a broader multi-faceted policy. Kaminsky and Schmukler (2003) define it as consisting of the deregulation of the foreign sector capital account, the domestic financial sector and the stock market sector, which are viewed separately. Liberalising the capital account involves minimal restriction on offshore borrowing by financial and non-financial institutions, the presence of

multiple exchange rate markets and fewer capital outflow controls. Though authorities are informed of the transactions it is expected that with a liberalised capital account sector, permissions are granted almost automatically. Reserve requirements may be in place but should not be any greater than ten percent and there should not be different exchange rates for either capital or current account transactions. Like the earlier advocates of financial liberalisation, a liberalised domestic financial sector should be devoid of lending and borrowing interest rate controls, credit controls and permission to hold foreign exchange deposits accounts. A liberalised stock market should be one in which foreign investors are permitted to hold domestic equity without restrictions and capital, dividends and interest can be repatriated freely within two years of their initial investment. According to Kaminsky and Schmukler (2003) the financial sector of an economy is fully liberalised when two of the three sectors are fully liberalised and the third partially liberalised.

The sequence in which the sectors are liberalised has been met with mixed reactions. The literature on sequencing of financial liberalisation seeks to determine the optimal order for liberalising the domestic real sector, the domestic financial sector, the external real sector and the external financial sector. In explaining the perverse outcomes of financial liberalisation programmes, especially in developing countries, Turtleboom, (1991) emphasised that macroeconomic and financial stability and sequencing are ingredients of a successful financial sector reform. Sequencing is vital for the overall success of the programme and it is crucial for the determination of interest rates after they are deregulated. It is generally agreed that domestic financial liberalisation should come after reform of the domestic real sector but before external financial sector liberalisation. However, it is not very clear whether domestic financial liberalisation should come before or after external trade liberalisation, (Gibson and Tsakalotos, 1994). It is also stressed that there is a need to carefully manage and sequence the integration of an economy with the global market as part of the financial liberalisation package. McKinnon (1994) commenting on the order of economic liberalisation argued that financial control and macroeconomic stability are more critical to a successful transition from a repressed state to a liberalised one. However, sequencing does not appear to be vindicated in empirical work. A recent study by Arestis and Caner (2004) concludes that the

ordering of liberalisation does not matter in general. Opening the capital account or the stock market does not have a different effect than opening the domestic financial sector. But exceptions exist; crashes in particular seem to be larger in developing markets if the capital account opens up first (Kaminsky and Schmukler, 2003). Stiglitz (2007) highlights this point noting that opening up the capital market helps aggravate the negative effect of any financial crises on economies, thus capital market liberalisation could bring instability, rather than growth. Stiglitz cites the case of India and China as examples of countries that have not liberalised their capital markets, but have nevertheless been the fast-growing economies.

Ranciere, Tornell, and Westerman (2003) defined financial liberalisation as a means of relaxing borrowing constraints thereby generating growth. However, this may also generate systemic risk, which results in occasional crises. The relaxation of controls on the financial sector was part of a more general policy shift towards the liberalisation and opening up of the domestic economy and the opening up to the international economy. This tends to relax borrowing constraints, leading to higher investment and higher average growth. As described by Martin and Rey (2005), financial liberalisation involves stock market liberalisation, which helps to generate investment booms in the asset market and thus promotes growth. Liberalisation is therefore broadened beyond interest rate liberalisation, to include a wide range of measures constituting a programme of financial sector reform. For many countries, financial sector reform was adopted under the World Bank (1989) structural adjustment programme lending conditionalities, the key elements of which included;

(i) the privatisation of banks,

(ii) the entry of new domestic and foreign entrants into the banking sector,

(iii) bank restructuring and recapitalisation,

(iv) opening up of the capital account,

(v) strengthening bank regulation and supervision of financial institutions.

The presence of foreign financial intermediaries with international reputations and experience - banks, including investment banks, and stock-brokers of various descriptions - was expected to increase competition domestically. It was envisaged that increased efficiency would eventually be

translated into higher returns for domestic savings and cheaper cost of funds for borrowers (Prasad et al, 2003). This would help the domestic financial sector by increasing incentives for improving the regulatory and supervisory framework for banking, by allowing foreign banks to introduce a variety of new financial instruments and techniques, increasing the quality of the domestic sector. There should also be greater efficiency in the pricing of credit and other risks, and therefore in the allocation of credit by lowering the cost of raising capital (Bekaert, Harvey and Lundblad, 2000). The global diversification of risk could also increase the investment in riskier but higher return projects that were avoided previously (Obstfeld, 1994). It was anticipated that foreign experience and expertise in the organisation of public offerings, supported by liquidity and an efficient price mechanism in the secondary market, would increase the quantity as well as the quality of the flow of both domestic savings and foreign inflows into domestic investments. It should also increase the diversity of funding and therefore, improve the overall stability and resilience of the process of financial intermediation.

For foreign financial institutions, the opportunity for profit is often more prominent in developing economies opening up their financial markets to the outside world than just opening up domestic financial systems for domestic financial intermediation. The issue of mobilising foreign savings in emerging markets or domestic savings of emerging economies into foreign investments is one of the most attractive anticipated benefits of financial liberalisation from a profitability point of view (Martin and Rey, 2005). In practice therefore, the opening up of emerging markets invariably involves the liberalisation of the capital account, to give foreign savings access to domestic financial markets and possibly domestic savings access to foreign financial markets. This would bring about free mobility of capital globally and a more efficient allocation of scarce resources, as capital is allowed to locate the highest risk-adjusted return in financial instruments, whether in the form of deposits, debt or equity.

The possibility of negative effects to financial liberalisation has also been identified in the literature. Devereux and Smith (1994), for example, noted that when countries shared endowment

risk through the international capital markets, savings and growth can be lower in financial openness than in autarky. The main result of the Devereux and Smith study holds that countries are more different in relation to their productivity risk than in relation to their income risks. However, this result has been questioned by Agenor (2002) in that the result only appears to hold when there is only one investment technology in use. When there is more than one technology available, which is normally the case, financial openness may help increase the growth rate. Edwards (2001) found that the positive relationship between capital account openness and productivity performance is only observed if a country has reached a certain degree of development. At low levels of domestic financial development, it is envisaged that capital account openness may lead to negative effect on performance. Commenting on the effects of financial liberalisation, Ranciere, Tornell and Westerman (2006), identify the dual effects of the policy effects. There have been claims that financial liberalisation does not necessarily lead to growth and may not be good for growth because of the crises associated with it. Financial liberalisation is said to encourage excessive risk-taking, generate financial fragility and increase the probability of financial crises, which often have severe recessionary consequences. However, empirical results by Ranciere et. al (2006), showed that financial liberalisation has been associated with faster average long-run growth, even though it also leads to occasional crises. It was found that in a large sample of countries, financial liberalisation typically led to financial fragility and occasional financial crises.

The shortcomings of the policy only go to give credence to the claim that financial liberalisation cannot be implemented in a vacuum. If the legal, accounting, management, and supervisory infrastructure of the financial sector is weak, then deregulation alone is unlikely to generate the expected benefits and may in fact, unleash highly destabilising forces. Accompanying structural measures are therefore vital. It is important to recognise that the success of financial liberalisation depends on a well-behaved financial system throughout the process. The process should not be seen as one that is smooth and continuous but rather one that involves reversals due to external shocks. Moreover, the coexistence of formal and informal financial institutions in developing countries suggests that countries should implement liberalisation on a gradual basis rather than on

an abrupt basis. Even if liberalisation does not increase private saving, this does not imply that it contracts the volume of funds available for productive investment. Liberalisation can increase the inflow of capital, including the return of capital flight. In addition, by strengthening market discipline and increasing the autonomy of banks and other financial institutions, the various elements of the reform process can have the effect of eliminating less productive uses of loanable funds. Again, as the liberalisation process matures, it may have a stabilising influence on financial assets by slowing the boom-bust cycle in equity markets as well as the traditional feast and famine problem in credit markets. In net terms, however, financial liberalisation resulted in faster long-run growth. Although crises are costly and have severe recessionary effects, they are rare occurrences. Thus, over the long run, it is expected that financial liberalisation would result in more investment and economic growth.

2.7 Financial Liberalisation and Household Behaviour

Savings are an essential factor for economic growth but most developing countries are characterised by low savings, which subsequently lead to low investment and low economic growth. One of the aims for financial liberalisation in LDCs like Ghana is to encourage household savings through the open market determination of interest rates. The notion is that high interest rates increase the incentive to save rather than to consume. However, savings in LDCs are still low after decades of practising financial liberalisation. There is little improvement of credit services to the rural households and the interest rates for both lending and deposits are still high (Nissanke and Aryeetey, 1998).

The literature on the effects of financial market policies on savings is mixed. Some authors take the view that liberalising the financial sector will not have a significant effect on private savings; others hold the opposite view. Ma (1993), for example, found that the demand for money in China responds to policy regime shifts. Similarly, an examination of the effects of policy change on consumption by Browning and Lusardi (1996) suggests a positive effect on consumption of

durables. This is in line with Engel's law (Engel, 1857) that suggests that as the income of households increases expenditure on durables increase relatively more than that spent on food. However, a survey of Russian households showed that they saved much the same in the 1990s as in the 1970s, despite the upheavals of transition (Gregory, Mokhtari and Schrettl, 1999). This is contrary to the widespread belief that savings were higher in the Soviet era because of shortages of consumption goods, a form of forced saving, and that savings are likely to be lower with liberalisation. However, in Shanghai, household savings did not only increase with reforms, but there was also diversification into new financial instruments (Liu and Xu, 1997).

Studies of the effect of policy on savings using panels of countries and aggregate data show long lags between policy changes and changes in private saving behaviour and suggest that financial liberalisation reduces private saving rates. Loayza, Schimdt-Hebbel and Servén, (2000), for example, found no evidence of a positive relationship between financial deepening and saving or between higher interest rates and saving. They did find that there was a positive relationship between income growth and saving. A study of Zambia by Maimbo and Mavrotas (2001) revealed that financial reforms have not resulted in an increase in savings rates partly because of poorly functioning institutions, which resulted, as in Russia, in people holding their assets in foreign currency. Though these assets are not consumed, they represent capital flight rather than savings since they are in foreign currency and might not be made available for local investment. In this case, such savings in a closed economy would not form part of the investment portfolio. An examination of the impact of financial liberalisation on resource mobilisation and investment in 25 African countries including Ghana, revealed that the real interest rate does not seem to be an important factor in determining financial saving or total savings: the activities of the informal financial market is, however, important (Hossain, 1988).

Other studies that examined the determinants of savings across developed and developing countries show that the interest rate is a significant explanatory variable for developed but not for developing countries. It was found that income growth was associated with higher savings in the

developing countries, but that beyond a point, the ratio of savings falls as income increases. A study on Ghana by Ziorklui and Barbie (2003) examined the impact of financial sector reform on private financial saving and suggested that the reforms had not achieved their intended goal of enhancing private financial savings. This is because the inflationary pressures during the reform era resulted in negative real deposit rates and as a result, a weak savings response. Thus from Ghana's experience, reform undertaken by countries with high inflation rates would experience a reduced chance of increasing savings mobilisation, thereby, supporting the notion that there is the need for stability in the economy and also maintaining some form of government regulation during financial sector liberalisation.

The conventional approach to savings in developed countries is dominated by the life cycle hypothesis, where savings accumulated when young provide for consumption in old age. The success of such smoothing is dependent upon the existence of a well-behaved financial market for savings and loans. This is not the case in developing countries because these markets are either incomplete or do not exist. With highly unstable low incomes and a lack of well-established insurance and credit markets, savings rates are relatively low, barely serving the purpose of self-insurance. Households accumulate savings in order to smooth their consumption in the advent of crop failure or unemployment. Other strategies for coping with these problems include migration, increasing the supply of child labour or reducing the household's food intake (Nissanke and Aryeetey, 1998). From the Ghana Living Standards Survey (GLSS), Waves 3 and 4, it was revealed that children under 16 had higher savings balances as compared to the working population. This shows that there is an implicit employment of child labour to augment household income. The percentage of children in this age group out of school, 36%[5], suggests that these children are probably engaged in labour activities.

---

[5] Ghana Living Standard (GLS) 3 & 4

The weather is also an important determinant of the rate of saving and dissaving in LDCs, since the main occupation for most of the households' is farming, which depends largely on the weather. Good weather, and thus a good harvest, means high income, and a corresponding increase in savings mainly with informal financial institutions. The opposite is also true. Bad weather conditions lead to dissaving and borrowing from the informal sector to smooth consumption and hire labourers to prepare the land for the next planting season (Nissanke and Aryeetey, 1998).

The existence of the informal financial sector helps by providing financial assistance with the more liquid nature of these services making them more attractive to the indigenous people than are the formal institutions (Meghana, Demirgüç-Kunt and Maksimovic, 2008). In informal markets, contracting loans is easier for the rural dwellers since there are no forms to complete and the credit is usually agreed on the spot. This is not so with formal institutions, where such transactions could take up to thirty days. Informal loans and credits are confined to relatively small groups who are well-known to each other, with such information serving as the basis that qualifies or disqualifies a client from receiving a loan. How much, or who gets a loan, is then history and contact dependent together with a willingness to pay high interest rates on loans in return for not providing collateral. Where formal banking institutions are present, saving rates are higher when the harvest is good and the closer households are to the institutions (Behrman, Foster and Rosenzweig, 1997). In Ghana, the establishment of about 133 rural banks in 1990 was designed to serve this purpose by establishing banks closer to households in the rural areas (Anin, 2000). These semi-formal financial institutions are patronised relatively better than the formal ones. They are community-based where residents are the main shareholders and as a result identify the bank as their own and feel more comfortable dealing with it. Due to the volatile nature of the income of the rural residents most of

whom are farmers and the main shareholders and clients of rural banks, some of the rural banks became insolvent after five years[6].

The continuous existence of the informal financial sector after financial liberalisation contrasts with expectation. Developing countries' formal financial institutions are unable to offer credit to the poor mainly because of a lack of collateral securities. Borrowers then turn to the informal financial institutions where risk of default is offset by for very high interest rates or where the cost of credit from friends or relatives can be zero (Kochar, 1997). In most African countries, the indigenous private sector consists largely of households and small-scale enterprises that operate outside the formal financial system. The informal financial sector serves the needs of these people by mobilising savings and providing credit. The savings of households are small but high in frequency so they need financial agents who can serve their purpose at the least cost both to the saver and to financial agent. In the same vein, the demand for credits is relatively small, thus the need to keep transactions cost low. The informal sector is able to provide these services with the least risk and transaction cost. For instance, Rotating Saving and Credit Associations (ROSCAs) involve virtually no transaction cost and the risk of default is minimal, because groups are formed based on social ties, and participants know each other very well and this forms a sort of guarantee for the services provided and received (Brownbridge, Gockel and Harrington, 2000).

Interest rate liberalisation, together with the removal of credit directives and the adoption of commercial lending policies by public sector banks, is intended to enhance the efficiency of credit allocation by allowing the price mechanism and the commercial judgement to determine credit allocation (Fry, 1994). A crucial premise supporting liberalisation is that inefficiencies in credit allocation are a result of government directed credit policies thus with the liberalisation of the

---

[6] Weather-based shocks, for example, will adversely affect the whole community and therefore represent global shocks that the locally-based rural banks were unable to insure against.

sector it is envisaged that credit allocation may be improved especially towards those who have been marginalised during the pre-liberalisation era. Dell'Arricia and Marquez (2004a, 2004b) assert that financial liberalisation leads to less screening by the banks, and this gives rise to credit-boom cycles. Thus, it is expected that those who are involved in the non-tradable sector (informal economic sector) will have access to domestic bank credit while those in the tradable sector would be able to access international capital markets (Ranciere, et. al, 2003). This helps increase the investment of financially constrained firms, particularly those in the non-tradable sector. As these firms grow, the tradable sector grows faster by providing plentiful and cheap inputs, resulting in overall economic growth.

It is also assumed, that the demand for loans from creditworthy borrowers with profitable investment opportunities could be denied under a repressed financial system because with administrative controls or the non-commercial lending policies, banks channel the available credit to less efficient borrowers, such as loss making State Owned Enterprises (SOEs). Hence, financial liberalisation is expected to allow a reallocation of credit towards the users most capable of generating higher rates of return by significantly improving the availability and accessibility of credit to individuals and households, especially those who could not access credit from the formal financial sector before the policy was implemented. An analysis of the impact of stock market liberalisation by Martin and Rey (2005) suggests that the generation of international capital inflows, expansion of diversification opportunities and lower cost of capital may lead to higher investment and growth.

However, available empirical results do not reveal a clear change in the supply of credits to small firms and individuals who are particularly involved in the informal economic sector. As noted by Chigumira (2000), formal financial institutions (banks) perceive that it is much more expensive dealing with the poor, those engaged in small and medium scale enterprises, and those involved in the informal economic sector, than with large and established enterprises. Cost, in the form of high administrative processes and high default rates, are associated with small credits thus deterring the

formal sector from providing such credit to those who need it. Bandiera *et. al.*, (2000) in a study involving eight developing countries including Ghana, found little effect of financial liberalisation on access to credit or savings among individuals and households.

There is a need to increase credit to the poor who borrow not to invest but to smooth their consumption. Unfortunately, formal institutions are not willing to lend to the poor because even if they do have collateral in the form of a share of future harvests, these harvests are subject to a high risk of failure since they are dependent on the weather. Instead, poor farmers borrow from informal credit lenders, often their property owners, via sharecropping system.

The problem of the poor farmers' access to finance can be dealt with by subsidising credit through informal agents. Their knowledge about the borrowers reduces information costs to formal lenders and their knowledge of the borrowers' reputation serves as a form of collateral. However, studies have revealed that subsidised rural credit has not help to increase agricultural output and reduced neither rural poverty nor redistributed income in favour of the rural poor (see Aryeetey and Gockel, 1991, Aryeetey, 1994, Hoff and Stiglitz, 1997, Ligon, Thomas, and Worrall, 2002).

Attempts to subsidise credit by the government have led to an increase in the interest rate rather than a decrease. In the informal credit market, an individual becomes an imperfect substitute for any other moneylender once he has been assessed by a previous lender on the basis of his repayment record. Thus if there is free entry into money lending, the market becomes monopolistically competitive. Hence, the marginal cost of lending increases due to the extra cost incurred in gathering adequate information on new clients, and this cost is then passed on through the interest rate. Thus, subsidies to informal lenders that expand the potential pool of borrowers may results in an increase in the lending interest rates. The effect is demonstrated by Hoff and Stiglitz (1997) who show that a subsidy from the government that lowers the opportunity cost of funds to moneylenders may cause an increase in the marginal cost of lending and subsequently increase the interest rate. They propose three models to illustrate this.

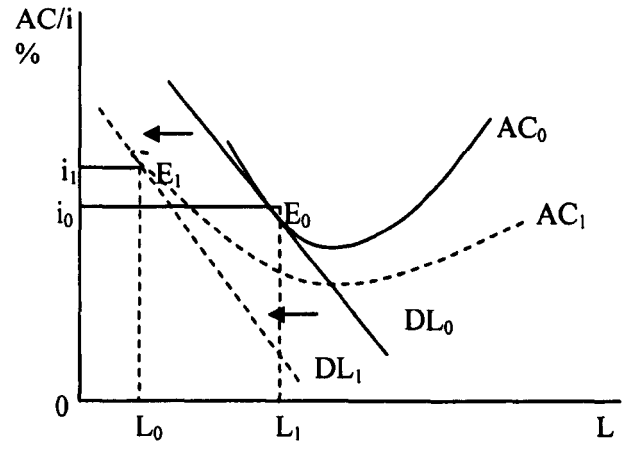
The first model is concerned with scale economies in relation to variable transaction cost of lending. It is expected that a subsidy would attract new moneylenders into the market, and their entry reduces the market size of each lender, and s(he) operates on a higher marginal cost in transacting loans. The effect of the rise in the marginal cost of lending leads to an increase in the interest rate charged. In the second model, with an increase in moneylenders, borrowers are more likely to default repayment because they can shift to other lenders when they become unworthy borrowers' to one lender. To ensure repayment in the event of an increased number of lenders, the cost of the effort for ensuring repayment increases. The additional cost incurred is recovered through increased interest rate. In this case, the rise in interest rate is due to an increase in the cost of enforcement for the repayment of loans. The third model explains the rise in interest rate with reference to the reputation effect. It is realised that the informal exchange of information about each borrower's credit history becomes less complete as the number of moneylenders increases and this weakens the reputation effect. Thus, more cost is incurred to obtain more complete information about borrowers, which is translated into higher interest rate charges.

These models by Hoff and Stiglitz provide a critical view at the policy of providing government-subsidised credit to rural dwellers through moneylenders. The notion is that such a subsidy would trickle down to the benefit of borrowers but with marginal cost increasing along the lending chain, borrowers may be left worse off than better. The diagram below illustrates that a subsidy from the government induces new entry of moneylenders into the money market, which results in higher interest rates being charged on loans.

Average cost (AC) per dollar lent and interest rate (i) are measured on the Y-axis and credit (L) on the X-axis. The demand curve for credit (DL) is inversely related to i. The average cost of the moneylender is considered U-shaped because of the fixed cost of becoming a moneylender and the increasing opportunity cost of diverting capital from his own funds for credits. The initial equilibrium obtained by the tangency between the average cost curve and the demand curve is E_0 depicted in Figure 2.8. With subsidies made available to the informal credit market through the

moneylenders, their opportunity cost of their capital reduces causing AC_0 to shift downwards to AC_1. The subsidy attracts new moneylenders into the market resulting in a reduction of demand for loans for each moneylender, thus DL_0 shifts to DL_1. The new equilibrium state E1 reached with AC_1 and DL_1 results in a higher interest rate at i_1.

Figure 2.8: Effect of Government Subsidies on Interest Rates



Source: Hoff and Stiglitz (1997)

Most rural areas in developing countries are characterised by two main classes of people, the landowner-trader-moneylender and the small landholder or landless. The former group usually receive subsidised rural credit from formal financial institutions at cheap rates and on-lend it to the latter at a higher interest rate. The small landholder or landless farmers continue to seek these credits at the high rate because they do not have access to the formal institutions directly. The assumption that rural households' demand for credit is high has led governments to adopt policies that would have resulted in low and fixed interest rates so that cheap credits can be made available to rural households with the objective of increasing agricultural output. These policies have led to credit rationing as demand exceeds supply with the result that access to credit has been limited and often been the preserve of better-connected households. An attempt by Kochar (1997) to estimate the demand for credit in rural households independent of lenders' decisions about access to credit,

showed that households are not constrained in the formal credit sector and that policies designed to increase the supply of subsidised credit may have been unwarranted.

Looking at the relationship between policy and behaviour regarding the demand for credit, it is expected that financial liberalisation will result in credit markets channelling loans to projects with competitive rates of return equal to or higher than the market rate. However, as proposed by Stiglitz and Weiss (1981), lenders are more likely to favour lending at low interest to high return-low risk projects largely because in lending to high-risk borrowers the risk of loan default is higher. This implies that in developing countries, an increase in interest rates leads to credit rationing, because of asymmetric information. There is therefore the possibility of lower investment.

Post-liberalisation has seen greater increases in the activities of the semi-formal and informal sector. Small-scale credit, provided under appropriate conditions has been recognised as an engine of rural development and informal institutions have played an important role in providing this (Amonoo, Acquah, and Asmah, 2003). However, their capacity is limited.

Formal institutions with much greater financial capacity rarely reach people in rural areas because of the risks and transaction costs. Perceptions of high risk, high cost and low returns turn banks away from investment in small-scale renewable natural resources[7] activities (Jones, Sakyi-Dawson, Harford, and Sey, 1999). Even where the density of formal financial institutions is high, accessibility for the rural poor, particularly poor women remains low. High proportions of rural credit and savings are still managed informally or, at best semi-formally after liberalisation. To varying degrees, informal financial services are characterised by easy access, flexibility in loan use, rapid processing, and flexibility in interest rates and collateral requirements. However, informal agents are restricted in the size and duration of lending and in their area of operations (Jones et.al.,

[7] Activities of the extraction sector undertaken on small-scale.

1999 and Quainoo, 1997). There is a need to link the formal and informal financial institutions in order to take advantage of both sectors. The informal financial sector is an important partner in the financial system of most developing economies, hence addressing the shortcomings of the formal financial sector to the neglect of its informal counterpart can significantly affect the financial needs of most individuals engaged in both the formal and informal economic sectors. With links forged between the formal and informal sectors, issues of concern such as lack of information about borrower characteristics, collateral requirements and high marginal cost for giving out small loans can be addressed (Amoako-Tuffour, 2002).

Participants in the natural resource sector require a range of financial services. Primary producers need fixed and working capital to renew and conserve the natural resource upon which they depend. Processors and traders need to purchase, process and market natural resource products, while input suppliers need to purchase their traded goods. However, urban concentrations of bank branches, and a reluctance to lend to production activities in the natural resource sector means that small-scale operators in this sector largely rely upon a large number of informal savings and credit agents even though these agents operate under capital and term constraints. If banks are reluctant to go to the hinterlands, then linking with informal agents may be one way of reducing the gap between needs and financial service provision in the natural resource sector and the rural area as a whole.

2.7.1 Micro credit

To make credit and savings services available to the poor, micro-finance schemes have been promoted. Two main schools of thought contribute to, nurture, and influence this notion. The first one may be termed the 'poverty lending approach' while the second is referred to as the 'financial systems approach' (Gulli, 1998). The first approach is in line with the declaration of the Washington Micro-Credit Summit held in February 1997. Here, the role of micro-credit in alleviating poverty among poor entrepreneurs, particularly for women, was emphasised. These schemes serve both the saving (consumption smoothing) and investment needs of the poor who

cannot access credit from the formal financial sector because of lack of collateral. Many of these schemes have been successful in terms of loan recovery rates and increasing output, while others have been less successful and often require continuing government subsidy (World Bank, 2000). One way of reducing poverty is by mobilising capital and encouraging investment. Micro-financing is an attempt to provide such a facility. Micro-financing refers to measures, which provide small and micro-enterprises in developing countries and transitional economies with access to financial services, which traditional banks usually do not grant (Steel and Andah, 2002). The financial needs of small and very small businesses can be sustained only with specially designed banks. Of the various methods that have been developed to alleviate poverty over time, micro-financing has proven to be a very successful method. To develop a small business, credit is crucial. However, this is rarely available in most developing countries. Local banks do not lend to poor people and informal money lenders that provide loans charge high interests against insecure conditions. Therefore, for millions of small entrepreneurs micro-finance is a key to survival. An empirical study in Bangladesh by Zeller and Sharma (1998), for example, revealed the role of micro-financing in smoothing income and consumption of rural households. It showed that credit facilities from these institutions led to an increase in school enrolment, households' assets holdings and food consumption. In Ghana, a similar observation was made in that women, who received credit from micro-financial institutions made higher off-farm incomes[8], improved their household food security and the nutritional status of their children (Quainoo, 1997).

Many of these schemes have been subject to critical scrutiny, and while it has been acknowledged that they have helped to empower women, it is also evident that most women have been forced to borrow on behalf of men (Goetz and Sen Gupta, 1996). Women are consequently faced with the problem of getting the men to repay loans for which the women are contracted.

---

[8] These include incomes from pomade and soap making and other cottage industries.

The World Bank (2001) acknowledged the limitations of micro-finance, especially the lack of valuable collateral. Credit risk is covered in the micro-finance schemes by the participants' ability to establish a reputation to repay loans. Establishing a reputation takes time but once it is established, a participant can received further loans. To address the problem of the time lag created until one becomes a reputable client; the use of movable collateral[9] is proposed.

Despite these problems, micro-finance is an important development in the financial policy for the poor. By using mobile banks, setting interest rate differentials according to loan size, links between staff pay, and financial performances and between interest rate and borrowers' repayment performance and a drought insurance scheme, financial policy can be improved to help alleviate poverty. Poor households are best served by micro-finance schemes, which promote group lending. Here, peer monitoring helps overcome the asymmetry information problem, which excludes the poor households from formal sector credit. The group ensures the repayment of loans thus reducing the risk of individual default so that the reputation of the group is maintained for further loans (Gulli, 1998).

From the discussion, decisions about savings are largely influenced by consumption smoothing objectives and the variability of income. The incomes of households are dependent on the variability of the weather, so the decision to save or borrow may be influenced more by the weather conditions than interest rates. Even though household savings are used mainly for smoothing consumption they are expected to influence economic growth in the long run. An increase in consumption implies an increase in demand, which will result in a price increase, an incentive to increase supply and thus increase investment and subsequently economic growth. Unfortunately, this is not the case in developing countries because most of household savings are spent on consumer durables, which are usually not manufactured in these countries. The effect is that

[9] These collaterals are in a form of savings balance which is held onto until the loan is repaid.

investment increases take place in countries other than the developing countries. (Aryeetey, Harrigan and Nissanke, 2000).

The nature of informal financial arrangements also influences decisions to lend or save. By linking with existing informal savings and credit arrangements, formal institutions can greatly increase the volume of small loans available to rural people in ways which are accessible, provide high repayment rates, and are profitable (Amoako-Tuffour, 2002). Policies to develop mutual cooperation and capacity building are important, and should promote an understanding of each other's operations and of their respective financial products and processes.

The effect of financial sector liberalisation on savings and credits is mixed. It is believed that a well-liberalised financial sector with a minimal role from the government in the form of support and restriction in its relation with financial institutions will significantly enhance savings mobilisation (Stiglitz and Weiss, 1981). This may help promote accessibility to credit especially by micro units in order to help improve their standard of living and economic growth.

The success of credit to micro-economic units has been of interest to researchers in many areas. These areas include women's empowerment, sustainability and outreach; group based lending and poverty alleviation. From these studies, varied conclusions have been dawn concerning the impact of credit on households and individuals. Khandker (2003) found that individuals, who received credit in Bangladesh, improved their general standard of living with a positive spill-over effect onto the community. A study of the effects of micro-credit in Ghana by Priya (2006) provides evidence that micro-credit programs may lead to higher incomes, but also higher income inequality.

Studies on the effect of credit accessibility by women in Bangladesh revealed an improvement in the standard of living of their families evident on the health and school enrolment of their children. The women were also seen to be economically empowered and thus able to make more informed decisions that helped them break away from the cycle of poverty (Micro-credit Summit, 1997). In

their study, Goetz and Gupta (1996) commented that though special credit institutions in Bangladesh have dramatically increased credit availability to poor rural women since the mid-1980s women do not seem to have that much control over the money. They challenge the assumption that women's continued high demand for loans and their manifested high propensity to repay is an indication of control and empowerment. They find that male relatives control a significant proportion of women's loans, and that the incentives to fieldworkers of dispensing and recovering credit, may outweigh concerns to ensure that women develop meaningful control over their investment activities.

Stiglitz's (1993) study on the use of peer monitoring and group lending revealed that this procedure transfers risk from the bank, which is in a better position to bear risk, to the consigner. However, the transfer of risk leads to an improvement in the borrowers' welfare. On the effect of credit on the consumption behaviour, a study on Bangladesh by Rahman, Mallik and Junankar (2007), concluded that borrowers were better off in terms of consumption of most food and non-food items compared to non-borrowers.

Based on the various success stories on the use of micro-credit (Hossain, 1988 and Hulme and Mosley, 1996) it is assumed that credit to micro economic units improved the standard of living and well-being of borrowers by improving their level of consumption. With this background, it is worth investigating the consumption behaviour of borrowers and non-borrowers to establish any significant difference in their consumption patterns across the Third and Fourth Living Standard Surveys in Ghana.

2.7.2 Consumption Pattern

Another expected impact of financial liberalisation is to help improve the living standards of the population in places where financial liberalisation is seen to be successfully implemented and thus contribute to an overall development of the economy. One way of observing an improvement in the living standard of people is through their consumption pattern. As observed by Engel (1857) the

proportion of income spent on food falls as income increases. This observation which became known as the 'Engel's law' does not suggest that the consumption of food products remains unchanged or decreases as income increases. It suggests that food expenditures increases are less in percentage terms than the increase in income, thus the income elasticity of food demand is less than one. On the basis of this it is expected that with the implementation of financial liberalisation people may have access to credit which would help them increase their income and/or help smooth their consumption. Following from various studies for example, (Rahman, Mallik and Junankar 2007, Hendriks and Lyne, 2003, Allen-Smith, McDowell, and McLean-Meyinsse, 1997, and Sawtelle 1993) on the effects of increased income on consumption patterns we make an extension to the effect that the standard of the living of the people after financial liberalisation should show that those with access to credit are able to increase their income and hence have an inelastic demand for food.

The conclusions reached in studies using the consumption-income relationship or Engel's curve relationship to establish the different consumption patterns of households are given below. Beneito (2003), using cross section data from the Spanish Household Expenditure Survey 1991 employing the Engel curve analysis, in a study of the consumption-income relationship, found that along with socio-economic factors there is a negative relationship between income and food consumption. Sawtelle (1993) in a study of the income elasticities of household expenditure, estimated two linear models representing Engel functions for household expenditure and a classification of consumer durable, non-durable and services using US cross-sectional data. One model contained only income as the regressor variable. The second model incorporated a broad range of household demographic variables, including three new regressors: number of earners in the household, self-employment status of the reference person, and value of household financial assets. The expanded Engel model strengthens estimates for all expenditure categories and generates income elasticities generally lower than those derived from the simpler Engel function. Another study by Lee and Brown (1986) on the food expenditure of US households using the Engel curve showed that the decision to eat away from home was positively affected by income while the amount spent away from home was

only affected by income, again positively, at higher levels of household income. Food expenditures at home were similarly affected by income only at higher levels of household income provided the household also ate away from home. If the household did not eat away from home, food expenditures at home were positively affected by income at all levels of income, the effect decreasing in magnitude with the level of income. A study by Allen-Smith, McDowell, and McLean-Meyinsse, (1997), using the diary portion of the 1994 Consumer Expenditure Survey classified household income into low, middle or high and compared them with food expenditure. The results indicated that though the proportion of income spent on food decreases with increasing income level, high-income households (HIH) still spend relatively more on food per capita than low-income households. Further, a significant proportion of the HIH food expenditure is spent on food eaten outside the home.

Expenditure patterns among a sample of 99 rural households in two communal districts in KwaZulu-Natal were investigated by Hendrik and Lyne (2003) to determine the potential impact of a widespread income shock on household expenditure. The results showed expenditure elasticities of close to unity for food. Low elasticities were found for staple foods. Elasticities for meat, meat products and poultry were close to unity, while horticultural products showed the greatest potential for demand growth within the food category. Of the statistically significant commodity categories, expenditure elasticities for durables, housing and transport were more than double those estimated for the aggregate food category. For consumer items, the expenditure elasticities were estimated to be 0.76 and 0.71 for the two districts, while expenditure on social obligations did not increase with rural incomes. Wealthier households had a greater propensity for increased expenditure on transport, while poorer households show a greater propensity for increased expenditure on housing and durables.

The conventional wisdom is that credit markets of less developed countries are characterised by segmentation: the formal, informal and, most recently, the semi-formal sectors, which co-exist to

provide heterogeneous products or services. Access to credit from any one of these sectors is determined by institutional, product, household and individual characteristics.

The location of the financial sector and the conditions of operation influence the probability of access to credit. As observed by Porteous (2003) in the case of South Africa, access to formal sector credit is biased towards salaried workers. This feature is also observed in Ghana, where as part of government policy, the Workmen's Compensation Law, 1987 (PNDCL 187), requires all salaried workers to be paid via the banks. This provides salaried workers with an advantage in their access to formal credit as compared to informal workers (workers in unregulated and unprotected work), including those in informal enterprises as well as informal jobs (jobs that pay no benefits or provide no social protection) and the unemployed. In the presence of information asymmetry, formal institutions would, other things being equal, be more inclined to deal with salaried workers about whom they have information than other workers or the unemployed about whom they have little or no information. The location of the formal institutions also determines the catchment area. Long distances and high transportation costs constrain the rural dwellers from accessing credit from the formal sector which is usually located in the urban area. Credit from the informal sector on the other hand relies upon local or personal contact and information (social networks). Distance is also less of a problem as many lenders in this sector operate as mobile banks.

The features of the product/credit markets that affect access include the interest rate and collateral requirements. Collateral requirements are typically considered a major determinant when accessing formal credit where collateral is used as a screening mechanism. Land, buildings and other fixed assets are widely recognised in the existing literature as collateral. In Stiglitz and Weiss (1986), collateral helps overcome the problem of adverse selection. Safer borrowers are distinguished from riskier ones as those who are willing to provide collateral. The vulnerable in society who by virtue of their cultural heritage do not own such fixed assets (Feder and Feeny, 1988 and Migot-Adholla et. al., 1990) are therefore less likely to access formal credit. In the informal sector, the provision of collateral is less important thus, credit from this sector is accessible to all groups of people.

The demographic characteristics of households/individuals also affect their access to credit. A study of the access to credit from the Gambian cooperative by Zeller and Sharma (1998) revealed that access to credit is positively influenced by age, household income, educational level and family size. Being female adversely affects access to credit. Previous business relationships with the sector also influenced access to credit; this was evident for both the formal and informal sectors. A study of the informal credit lenders and clients in Pakistan showed that the lenders used their previous encounter with a client to determine whether they should receive credit or not (Aleem, 1990). Moreover, the study suggested that longer duration business relationships enhanced the probability of accessing credits.

2.8 Conclusion

Though earlier development literature acknowledges the importance of finance in growth, they considered finance to be obtained cheaply through the development banks rather than the market. Presently, the need for finance through the market system, free from government controls, is advocated, especially liberalising interest rates to encourage savings and increase accessibility to credit. This would in theory lead to the productive allocation of funds and investment for enhanced economic growth. The introduction and implementation of the financial liberalisation policies have led to increase in private participation in the formal financial sector, improved regulation and supervision, and the introduction of various financial services. However, these innovations are readily available to large corporate bodies in the formal economic sector rather than individuals and households engaged in small scale and informal economic activities. The lack of financial deepening constrained the funds available to banks, and large government domestic borrowing requirements crowded-out the private sector. Moreover, in conditions of high inflation, as in Ghana, banks are very reluctant to extend credit to private sector borrowers even when funds are available. This is because they fear that borrowers would not be able to service the very high nominal interest costs of the loans. Although deeper financial intermediation helps to promote economic growth, not every intermediation can be beneficial. Financial sector expansion that results from inflationary liquidity

creation or deterioration in lending standards will not enhance long-run growth. Thus, the relationship between financial deepening and growth does not give a simple prescription to encourage unrestricted growth of financial intermediaries. This is evident in the fact that, even when liberalised, commercial banks end up lending to the government rather than the private sector (Caprio and Vittas, 1997, Chung, 2003). Considering the fact that financial development flourishes where real economic activity is strong, the government needs to intervene in credit supply where economic activity is weak as in the rural areas. Importantly, regulation should be seen as a prudent part of liberalising financial markets and that expansion of intermediation should be encouraged without creating inflation or excessive control.

Following from various causality studies, for example, Odedokun (1989) for Nigeria, Lyons and Murinde (1994) for Ghana, and a review by Levine (1997) on pre-1997 literature on the relationship between financial development and growth. It can be deduced that financial development contribute to economic growth but this should not be experienced only on the macro level but more importantly at the micro level. Individuals and small-scaled entrepreneurs can benefit through the accessibility of credit from the formal sector in order to expand their economic ventures and/or smooth their consumption. This would lead not only to economic growth but also the development of the economy (Amonoo, Acquah and Asmah, 2003). Financial liberalisation has also affected the sectoral allocation of credit adversely. Banks probably extend less credit to agriculture and to small farmers in particular because of the removal of lending directives, the cut back of special lending and refinancing schemes and the closure of rural branches. Because of the high administrative costs, informational problems and difficulties in enforcing loan repayment, lending to small farmers on a purely commercial basis is unattractive to the banks. Financial liberalisation, especially the liberal licensing criteria and the decontrol of interest rates, may contribute to financial crises if undertaken too abruptly or poorly sequenced with reforms on prudential regulation, and macroeconomic stabilisation. Thus, though financial liberalisation may contribute positively to economic growth this should not be overstated and should be implemented in an environment of relative macroeconomic stability. Otherwise LDCs will be led in a blind alley and left worse off in the development process.

Since this study is an empirical one using Ghana as the case, the next chapter examines the political and economic policies in Ghana since independence. This will provide an insight into the events that led to the economic situation Ghana was in before seeking assistance from the world financial institutions, that resulted in the need to embark on financial sector reforms and hence the implementation of the financial liberalisation policy.

Chapter Three

The Political and Economic Progress of Ghana

3.1 Introduction

As revealed in the previous chapter, the financial sector development of a country is seen to play an important part in enhancing economic growth. In view of this, as part of the efforts to improve on the economic situation in Ghana, the Economic Recovery Programme was implemented in 1983 and the reform of the financial sector was a component of the programme. This chapter examines the different political regimes and how the policies of each affected the economic growth of the country. The chapter is structured by first a brief description of the country and then by the regimes and the heads: Nkrumah, the National Liberation Council and Busia, the National Redemption Council I & II, Rawlings and Limann and Kufuor.

On 6th March 1957, Ghana was not only the first country in sub-Saharan Africa to attain independence from colonial rule, but also one of the most prosperous. She had the highest per capita income, a low inflation rate and was a beacon of the African continent both economically and politically. From her colonial master she inherited substantial physical and social infrastructure and about $481 million in foreign reserves (IMF, 1958). The economy was based on the production and export of cocoa, of which Ghana was the leading producer, producing one-third of the world's production by the early 1960s (Repetto and Malcolm 1988). This represented about three-fifths of total export earnings in Ghana (Bequele, 1983). Exports of natural resources, particularly gold and timber were also prominent and there was a relatively advanced educational system in place. Primary school enrolment in the 1960s was 59 %, though this was below the average of middle-income countries' of 79 percent, it was above the average of low-income countries of 51% (World Bank, 1979). The future of Ghana looked promising then. However, the next 25 years saw Ghana decline substantially in growth and prosperity and the country's image became severely tarnished. Ghana's political system became unstable, within a period of fifteen years there had been nine different political leaders. This contributed to the economic decline of the country.

3.2 Ghana - Description

Ghana was is located on West Africa's Gulf of Guinea five degrees north of the Equator and has the Greenwich Meridian, Longitude 0 degrees passing through 10 minutes eastwards, so it shares the same time zone as London and much of Europe. The country covers a total area of 238,540 km^2, of which 230,020 km^2 is land. Half of the country lies less than 152 metres (500 ft.) above sea level, and the highest point, Mount. Afadjato is 883 metres (2,900 ft.). The 539-kilometre (334-mi.) coastline is mostly a low, sandy shore backed by plains and scrub and intersected by several rivers and streams, most of which are navigable only by canoe. A tropical rain forest belt, broken by heavily forested hills and many streams and rivers, extends northward from the shore. This area, stretching through the middle belt of the country from west to east produces most of the country's cocoa, minerals, and timber, the main source of foreign exchange for the country. North of this belt, the country varies from 91 to 396 metres (300-1,300 ft.) above sea level and is covered by low bush, park-like savannah, and grassy plains.

The climate is tropical. The eastern coastal belt is warm and comparatively dry; the southwest corner, hot and humid; and the north, hot and dry. There are two distinct rainy seasons in the south-May-June and August-September; in the north, the rainy seasons tend to merge. A dry, north-easterly wind, the Harmattan, blows in January and February. Annual rainfall in the coastal zone averages 83 centimetres (33 in.).

The man-made Volta Lake, the largest in the world, extends from the Akosombo Dam in south-eastern Ghana to the town of Yapei, 520 kilometres (325 mi.) to the north. The lake generates electricity, provides inland transportation, and is a potentially valuable resource for irrigation and fish farming.

Administratively, Ghana is divided into ten regions made up of a total of 166 metropolitans, municipalities and districts. Based on the 2000 census, the estimated population of Ghana in 2006

was 22.5 million, of which 51 percent are female. The annual population growth rate has declined from 2.2 percent in 2000 to 1.9 percent in 2006. The average density is 98 persons per square km. About 54.6 percent of the population live in the rural areas with about 40 percent engaged directly or indirectly in agricultural activities (Dickson, Benneh, and Essah, 1988).

Ghana has for the past five decades been trying to eradicate poverty and disease from among her population and become self-reliant and economically independent. This was visible through the various policies, development strategies and programmes that were embarked upon immediately after gaining political independence by the then administration headed by Dr Osagyefo Kwame Nkrumah. Starting from the late 1950s, while pursuing a centrally planned economy, the government provided basic social services such as universal education to the people free of charge, as a way of improving the quality of life and alleviating poverty. State-oriented industrialisation was also pursued. The period 1960-1964 saw relatively high growth, spurred on by favourable cocoa export performance. During this period Ghana's cocoa exports were a third of the World's production and Ghana earned an average of £68 million annually. These were followed by rapid industrialisation linked to import-substitution policies (Fitch and Oppenheimer, 1966). This encouraging beginning, however, gave way to macroeconomic and political crises, leading to uneven and volatile growth from 1965-1983. This brought the economy close to collapse in the early 1980s. Recognising the need for change, the then government launched the Economic Recovery Program (ERP) April 1983, with the aim of renewing growth and contributing to significant poverty reduction (Aryeetey and Harrigan, 2000). As part of the ERP reforms, the financial sector reform (FSR) was initiated in 1991 even though some reforms in the financial sector started in 1986 (see Table 4.1), aimed at liberalising the financial sector in order to create a more efficient, market-oriented and competitive financial system.

3.3 The Nkrumah Regime

The Nkrumah regime can be divided into two main periods: the Pro-Western period from 1957 to 1961 and the Pro-Socialist era from 1961 to February 1966. The development strategy adopted during the first period was guided by the ideas of Lewis (1955) who became Nkrumah's chief economic adviser from 1957 to 1959. This strategy proposed total dependence on foreign capital to industrialise a country. As a result, the government made no changes to the development plans drawn up by the colonial government; it only ensured that Ghanaians implemented the plans. Nkrumah believed that to achieve rapid economic growth Africans should manage his own affairs even if non-Africans drew up the plans. Infrastructural development was mainly along lines established during the colonial period; railways, roads, ports, and irrigation projects were in the south, particularly linking the mining and forest areas to the coast to facilitate exports of raw materials. There was no effort to build manufacturing industries to process the raw materials or extend the infrastructural development to the Northern territories, which had been neglected by the British. The British pound served as 'an anchor of safety' and the external reserves were kept in London, British banks controlled the Ghanaian currency to help keep inflation at its minimum (Anin, 2000). Even though Ghana had attained political independence in 1957, it depended economically on the British and other foreign bodies for her development. For two years after independence, the 'Lewis Strategy' of relying on foreign capital was so influential that Ghana had no independent economic development plan. In 1959, the Five-year Development Plan was drawn up. It targets and economic policies constructed in line with the 'Lewis Strategy' for economic development. The Plan was a 'shopping list' of projects with no strategy for implementation, since the State had no control over the means of production or the generation of the needed surplus for development purposes.

During the 'Lewis Era', Ghana experienced a rapid deterioration of her balance of payments position, lost a substantial portion of her external reserves and failed to attract the amount of foreign capital required to assure Ghana's industrial future. By 1961, the balance of payments

deficit was almost £53 million, about 12 percent of the national product. The largest outflow was increased expenditure on non-durable consumer goods, the rising cost of invisibles and disinvestment by private capital (Omaboe, 1966). Foreign banks increased their external assets resulting in leakages, rather than making foreign capital available for industrialisation. The continuous reliance on foreign capital for Ghana's industrialisation programme was not necessary since, in the 1953 Report, Lewis had suggested that Ghana needed investment expenditure of about £2 million to 'take-off'. At this time Ghana had well over £200 million locked up in long-term low-interest British securities (Anin, 2000), what was required was a mere transfer of some of this amount rather than counting on foreign capital, which was not forthcoming.

Foreign exchange earnings fell dramatically and government financial reserves were depleted during the second period of Nkrumah's regime. Food prices rose significantly to over 250% of 1957 levels and up to 66% in 1965. Ghana now suffered from shortages of food and other essentials. Economic growth, which had ranged from 9% - 12% per annum until 1960, dropped to 2% - 3%, insufficient to sustain a population expanding at almost 3% per year (Ayittey, 1992). Nkrumah was no longer able to maintain the economic progress of the country.

Responding to the downturn, Nkrumah adopted a strict form of socialism to reconstruct the economy. This gave birth to the Post-1961 Pro-Socialist era in Ghana that adopted a centralist approach to economic planning and management. His objective was to attain a trade balance of £128 million by the end of the fiscal year (1960). He introduced a scheme, which required salary and wage earners to save five per cent of their monthly wages on incomes over £10 a month. Professional workers had to contribute twice as much for Nkrumah's fiscal vision to be realised. These measures led to a series of protests from ports and railways employees at Takoradi from 4th to 23rd of September, 1961 (Yergin and Stanislaw, 1998).

The economic strategies adopted were very much those of the time, in line with the consensus among development economists that only the state could mobilise the funds and coordinate the

activities of economic transformation (Lewis, 1955). Pessimism about market economies was great in Africa, since the colonisation of Africa had come with little regard for local education, health, or infrastructure. As a result, people were not equipped to participate in markets. Instead, the new leaders advocated 'African socialism' that could somehow combine modern growth and traditional values. In the words of Kwame Nkrumah, "Capitalism is too complicated a system for a newly independent nation, hence the need for a socialistic society" (Rooney, 1988:44).

Ironically, the economic device, in which Nkrumah invested his trust, was itself a colonial invention, the marketing board, a public agency responsible for buying crops from farmers and reselling them for export. The seemingly independent nature of these boards was there only in name because they were, in fact, powerful tools of control for the government. Farmers were vulnerable to volatile prices determined in world markets and the marketing boards were set up to 'correct' this situation. The Boards purchased crops at stable prices. In times of high world prices, they would accumulate a surplus of money; in times of low world prices, they use the financial surplus to support the local price. This protected farmers from the volatility of markets over which they had no control. Because the marketing boards deliberately paid farmers prices other than the world-market prices, the Boards could not function in a competitive market. Hence, they were granted monopolies (Fitch and Oppenheimer, 1966).

For Nkrumah and his government, retaining the colonial marketing boards system seemed the expedient thing to do. The Boards provided the mechanism both to capture the 'surplus' generated by agriculture and to raise revenues. The resources accumulated through this means could be combined with investment and foreign aid to jump-start industrial development and the great transformation away from rural-based economies toward industrialisation (Yergin and Stanislaw, 1998). There were some problems however. With the marketing board imposing prices lower than world prices, an illegal market for trading cocoa developed across the border in neighbouring countries. However, amid the enthusiasm for economic independence and the overriding concern with market failure, these problems seemed of little import to the government. Instead, the

government threw its energy into enlarging the existing marketing boards. The economy was run mainly through the boards. In Ghana, the Cocoa Marketing Board, for example, grew in size, staffing, and power. Other marketing boards for timber and diamonds joined it shortly, and a host of other state organizations aimed not only at exports but also at regulating local trade in foodstuffs, fish, and household goods were established (CIA World Factbook 1994).

The involvement of the state in almost every aspect of investment and commerce made Ghana a case study of development economics in action. The same confidence also extended to the other half of the process - industrialisation. Nkrumah very much believed that a big push was necessary and could be achieved rapidly. He attempted to move Ghana's economy toward a more industrial model as quickly as possible. His reasoning was that moving Ghana out of the colonial trade system by reducing its dependence on foreign capital, technology, and material goods would allow it to become truly independent (Ward, 1958). Unfortunately, he moved to industrialisation at the expense of the country's cocoa growing sector, which formed a cornerstone for the economy. In 1961, Nkrumah visited the Soviet Union and returned very much impressed at the pace of industrialisation there. He came back and drew up a rigid Seven-Year Plan. "We must try and establish factories in large numbers at great speed," he argued (Rooney, 1988:48).

State-owned companies, public authorities, and their management mushroomed in all fields. The price was most painfully felt in the countryside, as Nkrumah used cocoa revenues, controlled by the official marketing board, to cover the growing losses of public companies. The imposition of unrealistically low cocoa prices on farmers, combined with the bloated organisation of the marketing board, devastated the cocoa industry (Fitch and Oppenheimer, 1966). Many farmers switched crops altogether, others found ways to smuggle their cocoa to neighbouring countries, where better prices were offered. Ghana lost its mantle as the world's largest cocoa producer. Its currency reserves depleted, the country fell back on barter trade and loans from the Soviet bloc.

Nkrumah further harnessed his hopes to a dramatic plan for a huge multipurpose undertaking known as the Volta River Project. Ghana had large reserves of bauxite and hence the potential to become a major exporter of aluminium. However, this required building a smelter and a very large dam and power plant to feed it. That, in turn, would support a national electricity grid and the cheap, abundant power would start industrialisation all over the country. It was a grand vision that accorded perfectly with development theory. The dam would set in motion the forward and backward linkages and would give Ghana economic independence. In the end, the various economic projects undertaken during this period were generally unsuccessful and, especially in the case of the Akosombo Dam, hugely expensive. However, even today, Ghana still relies on the hydroelectric power produced by the Akosombo Dam for most of its electricity (AfricaSpeaks, 2004).

The Volta River Project was the most ambitious and complicated development project of its day, and certainly one of the most prominent. It gave rise to lengthy and arduous negotiations between the government of Ghana and its would-be partners - the World Bank, the governments of Britain and the United States, and the aluminium firms Kaiser and Reynolds[10], which agreed to build the smelter. Several years of frustrating discussion culminated in a series of contract documents that one participant described as the world's 'most complex since Queen Marie was selling Romanian bonds' (Yergin and Stanislaw, 1998: 86). Nkrumah's commitment to industrial development at any cost led to his decision to construct a hydroelectric power plant on the Volta River. The American companies were to build the dam with numerous restrictions on what could be produced using the power that it generated. It was a bad deal, but Nkrumah did not back away from it. He used borrowed money to build the dam, placing Ghana in serious debt. Financing the debt required higher taxation of the cocoa farmers. The dam project was completed and officially opened by Nkrumah amidst world publicity on January 22, 1966 (Rooney, 1988).

---

[10] Available from http://www.worldtwitch.com/ghana_bui.htm Accessed on 13/02/09

When Kwame Nkrumah came to power there were large reserves of funds, Ghana's overseas assets were well in excess of 200 million pounds, which was a very substantial amount then (Anin, 2000).The cocoa industry was generating more funds. In 1954, the world price of cocoa rose from £150 to £450 per ton. Rather than allowing cocoa farmers to use the benefit from this windfall themselves, Nkrumah decided to use the additional profit for national development (Ayitey, 1992). He decided to undertake a program of industrialisation on a massive scale in line with the economic ideology of that era. It was a *Big Push* industrialisation that is an industrialisation across a broad front of industries. Not only would his industrialisation replace imports, but also it would produce products that Ghana was too poor to import.

Multi-year plans were drawn up and investments undertaken. For example, a shoe industry was to be created. This required a leather industry and a leather industry required adequate levels of production in the cattle industry. The problem was that the economic planning became muddled with political decision-making. The leather production plants were located at great distances from the cattle industry of the north. The slaughterhouse was sited in the north at Bolgatanga, a not unreasonable decision since the north is the cattle-raising area of Ghana. However, the market for cattle in pre-Nkrumah times was not in the north. The tannery for turning the hides into leather was sited in the south at Aveyime. The plant in the north could not supply enough hides so the tannery had to import hides. The leather to be produced at Aveyime was to go to a footwear factory in Kumasi in western Ghana. The Kumasi plant was supplied with machinery from Czechoslovakia that could only produce a poor quality product. The footwear was shipped to the major consumer market at Accra but the Ghanaian consumers were not willing to buy such a shoddy product. The government then tried to give the boots produced by the plant to the police force. The chief of police pleaded that the boots should not be given to the police because they would rebel at having to wear such uncomfortable, poor quality footwear (Rooney, 1988).

One of the most outrageous economic blunders of Nkrumah's industrialisation plan was the building of a plant to can mangoes. The plant had the capacity to process 7,000 tons of mangoes a

year, but after it was built at a cost 80 percent over the original budget, it was found that there was hardly any mango trees near the plant and it would take seven years to grow fruit-bearing mango trees (Berry, 1995). Ghana soon ran out of funds to finance the public-sector projects that had been started. Cocoa prices continued to fall, while most of the cocoa was smuggled across to neighbouring countries with a resultant decline in the foreign reserves until the government resorted to deficit financing and foreign borrowing to purchase essential imports for the Import Substitution Industries (ISIs) (Fitch and Oppenheimer, 1966). This started a chain of problems. Trained workers to operate the state enterprises were in short supply and the lack of internal financial controls needed to implement developmental goals led to corruption. Despite the obvious gains that could be have been enjoyed from investment in roads, education and ISIs, by the mid 1960s, Ghana was saddled with a number of problems, all her reserves were gone, external indebtedness and, inflation had increased and economic mismanagement was the norm. The currency, the *cedi,* was overvalued thus discouraging exports. The political system was intolerant and authoritarian, ultimately leading to the overthrow of the Nkrumah government in 1966 (Agyeman-Badu and Osei-Hwedie, 1982) and plunging Ghana into a further period of political and economic instability and decline.

Although Nkrumah's Big Push overall was a disaster, there were some worthwhile elements of his program. In particular, the Volta River Dam is generally perceived today to have benefited Ghana and its neighbours. In part, the dam became more beneficial than anticipated because of the unexpected increase in petroleum prices in the 1970s. Up until 2000, the dam was the sole generator of electricity in Ghana, it still provides over 80% of the electricity consumed[11]. The harbour and port at Tema has also been a considerable benefit. During the period of 2000-2005, the

[11] Available from http://www.vra.com/power/akohydro.html

Tema port handled an average of 6.24 million tonnes, representing nearly three quarters of total sea-borne trade for Ghana[12].

On 21st February 1966, President Kwame Nkrumah visited the Democratic Republic of North Vietnam to hold diplomatic talks with the President Ho Chi Minh. During his absence, a coup d'etat took place in Ghana Armed rebels, together with the National Police, took control of the government. Subsequently, the National Liberation Council was created to run the affairs of state after the dissolution of Parliament.

3.4 The National Liberation Council and Busia Regimes

The leaders of the coup that overthrew Nkrumah immediately opened the country's borders and its prison gates to allow the return from exile or release from preventive detention of all opponents of Nkrumah. A National Liberation Council (NLC), composed of four army officers and four police officers, assumed executive power. It appointed a cabinet of civil servants and promised to restore democratic government as quickly as possible (Austin and Luckham, 1976). As a means of developing the rural areas, the NLC created a Ministry of Rural Development to initiate activities and programmes that would improve life in the rural communities. Efforts were made to implement the concept of integrated rural development with the view to integrate the otherwise unrelated components that addressed different aspects of rural underdevelopment, which *inter alia* included agricultural components and service delivery components. The objective of the integrated approach was to increase agricultural productivity, expand social amenities to the rural areas and accelerate the implementation of projects initiated by a framework of the Regional Planning Committees established in 1968 (Austin and Luckham, 1976). These efforts did not, however, improve the development of the rural areas nor agricultural practises, which were predominantly non-mechanised.

---

[12] Ghana Ports and Harbours Annual Reports, 2000-2005.

The ban on the formation of political parties remained in force until late 1968, but activity by individuals began much earlier with the appointment of a succession of committees, composed of civil servants and politicians as the first step in the return to civilian and representative rule. These moves culminated in the appointment of a representative assembly to draft a constitution for the Second Republic of Ghana. Political party activity was allowed to commence with the opening of the assembly. By election time in August 1969, the first "competitive" nationwide political contest since 1956, five parties had been organised. The results of the election made Kofi Abrefa Busia of the Progress Party (PP) the leader both of parliament and the nation. He was appointed the prime minister when the National Assembly met in September 1969.

Much was expected of Busia and his PP administration, in part because its parliamentarians were considered intellectuals and, therefore, deemed to be more perceptive in their evaluations of what needed to be done. Many Ghanaians hoped that the PP's decisions would be in the general interest of the nation, as compared with those made by the Nkrumah administration, which were judged to satisfy narrow party interests and, more important, Nkrumah's personal agenda. The NLC had given assurances that there would be more democracy, more political maturity, and more freedom in Ghana, because the politicians who contested for the 1969 elections were proponents of Western democracy. In fact, these same individuals had suffered under the old regime and were, therefore, thought to understand the benefits of democracy. The PP emphasised the need for development in rural areas, both to slow the movement of population to the cities and to redress regional imbalance in levels of development. It continued most of the programmes initiated by the NLC with the aim of improving rural life. The government expanded the activities of the already existing Rural Development Ministry by creating a new Ministry of Youth and Rural Development (Zartman, 1997). As part of its policy to ensure improvement in rural life, it introduced the development levy, which was paid by every worker, to help in rural development.

A one-year development plan was also drawn up and directed towards increasing agricultural productivity through extension services, construction and rehabilitation of feeder roads and

strengthening of co-operative movements to provide the rural population with better marketing, storage and processing facilities, as well as credit facilities to farmers on favourable terms (Aryeetey, Harrigan and Nissanke, 2000). Two early measures initiated by the Busia government were the expulsion of a large number of non-citizens and the introduction of a measure to limit foreign involvement in small-scale business. These measures were aimed at relieving the unemployment problem created by the country's precarious economic situation. The policies were especially popular because they forced out illegal immigrants who were seen to have unfair control of the retail sector. This was followed by the Alien Compliance Order on the 18th of November, 1969, whereby all foreigners without proper documentation were required to leave the country. This order, however, was at the cost of the cocoa industry (Nelson, 1974). Since most of the labourers in the industry were illegal immigrants their deportation resulted in shortage of labour and left the industry near to collapse. The resultant decline in farm revenue contributed to a growing unpopularity of the government. Other policies that added to the government's unpopularity were the proposed introduction of a loan scheme for university students, which was seen as a means of introducing a class system into the highest institutions of learning. The devaluation of the cedi from ¢1.02/$ to ¢1.82/$ in 1971 (IMF, IFS 1972) and the encouragement of foreign investment in the industrial sector was also seen as undermining Ghana's sovereignty (Agyeman-Badu and Osei-Hwedie, 1982). In addition, several austerity measures which were undertaken on the recommendation of the IMF, such as wage freezes, tax increases and import price rises, were designed to put the economy on a sounder financial base, made life even more unbearable. Ghana's economy remained largely dependent upon the often-difficult cultivation and marketing of cocoa. The cultivation of cocoa was difficult in that it was very much prone to the black-pod disease, which led to the destruction of many acres of farms once they get infest after at least five years of nursery to maturity. Again cocoa was mainly exported with the price determined by the international market; farmers were not always able to recover their cost.

The austerity measures imposed by the Busia administration, although wise in the long run, alienated influential farmers, who until then had been PP supporters. The recovery measures also severely affected the middle class and the salaried workforce, both of which faced wage freezes, tax increases, currency devaluations, and rising import prices. These measures precipitated protests from the Trade Union Congress. In response, the government sent the army to occupy the headquarters of the trade union and to block strike actions -a situation that some perceived as negating the government's claim to be operating democratically. Knowing the consequences of alienating the military officers, the Busia government began to change the leadership of the military. This, however, was the last straw. Lieutenant Colonel Ignatius Kutu Acheampong, temporarily commanding the First Brigade around Accra, led a bloodless coup that ended the Second Republic on the 13th of January 1972 (Ghana Government, 2004). The PP government was toppled after being in power for 27 months, leaving economic difficulties stemming from high foreign debts and internal problems. Medium and long-term loans amounted to $580 million, 25% of the Gross Domestic Product (GDP) in 1969, this rose to $652 million in accrued interest payments and $296 million in short-term commercial credits by 1971 (IMF IFS, 1972). During this period, (1969-1971), aid from foreign institutions helped prevent the economy from collapsing but the economy stagnated in the 10-year period preceding the overthrow of the Busia government in 1972 (Agyeman-Badu and Osei-Hwedie, 1982). Population annual growth rate of 2.76% also offset the small increases in GDP resulting in per capita income to fall from $263.45 in 1971 to $224.53 in 1972 (World Development Indicators database and CIA World Factbook, 1972).

3.5 The National Redemption Council I & II Regimes

Following the 1972 coup the country was ruled by the National Redemption Council (NRC). The period of rule by the NRC can be viewed as the worst administration in the history of Ghana with no specific plan for the country and no macroeconomic policy for economic growth (Aryeetey, Harrigan and Nissanke, 2000). The 1970s saw increasing corruption, political instability and poor-to-non-existent macroeconomic management. It was a decade of large fiscal deficits, increased

domestic financing, inflation, an overvalued exchange rate, falling exports and contracting GDP, culminating in the macroeconomic crisis of 1983, when real GDP per capita had fallen to 70 percent of its 1967 level. Political scientists and economic historians offer a range of explanations for this decline. Bates (1981) saw the main cause as political rationality but economic irrationality, that is, the government pursuing policies that would keep them in office rather than those that would lead to economic growth. Policies were made to favour the urban population who were better organised and thus exercised more political influence than the rural population. Such policies included the control of producer prices, an overvalued exchange rate and excess money supply leading to high inflation. Though these policies were at the expense of sound economic growth they won the support of the people, particularly the urban population. Acheampong is said to have believed in a statist brand of nationalism: in his words, "the political frame of reference which has guided actions and ... advice of the past two years must be cast into the rubbish heap of history" (Plave-Bennett, 1975:19). This meant a departure from the market economy and the application of effective planning as practised by the Busia government.

The Acheampong government thus reversed the fiscal and monetary policies of the previous government. They re-valued the cedi by 44%, to the admiration of the urban population as imported goods, which were mostly consumed by the urban people, became cheaper (Chazan, 1983). From 1975, the official foreign exchange rate was not adjusted to reflect Ghana's deteriorating payments situation in relation to her major trading partners. This resulted in a flourishing curb market for foreign exchange, which grew as domestic inflation and foreign currency shortages increased. The consequence of this policy was that export producers using official channels suffered while importers, especially those who could import at the official rate and sell at curb market prices, gained. Devaluation was seen as a 'myth' no government should attempt. This view influenced the Acheampong regime and its successors such that there were no devaluations, except for the small one by Akuffo, until 1983. This led to a severe deterioration of Ghana's balance of payments, arguably the single most important cause of Ghana's economic woes (Aryeetey, Harrigan and Nissanke, 2000).

The government repudiated the debts of the country, incurred in the Nkrumah era to British firms and unilaterally rescheduled the rest of the country's debt for payment over 50 years. It also nationalised all large foreign-owned companies. Legal privileges[13], which called for strong labour movements, housing allowances and other privileges for senior civil servants were restored and considerable attention was given to the leadership of the Trade Union Congress (TUC) on issues such as wages and salaries (Hansen and Collins, 1980). These moves aggravated the problem of capital flows since Ghana lost her creditworthiness and her exports were not attractive because of the over-valued currency and increase in domestic spending. In a bid to restructure the economy, the NRC undertook a programme of self-reliance, particularly in food production. It launched two agricultural programmes, 'Operation Feed Yourself' and 'Operation Feed the Nation' (Aryeetey, 1985). In these programmes, Ghanaian families were encouraged to grow their own foodstuff rather than depend on farmers to do so on their behalf. This notion was popularly known as 'Operation Backyard Garden'. The farmers were expected to grow raw materials to feed the country's industries. These plans were not realised, primarily because of the post-1973 oil price shocks and a drought that affected northern Ghana. The Acheampong administration was also interested in the development of the rural communities, and so created the Department of Rural Development with the purpose of accelerating rural development. Under the operation of the department, there was to be improvement in the economic base of rural communities, intensification in the mobilisation and motivation of the youth for community development programmes, and assistance for village development committees to facilitate economically viable projects that would generate funds for development projects in their own localities. The department also worked on housing problems and cottage industries. To help solve the housing problems the government established the Bank for Housing and Construction to provide financial services to clients for the building of estates and individual houses (Anin, 2000).

---

[13] Laws and degrees in favour of an identified cohort, in this case senior civil servant.

Another feature of the NRC was the high level of corruption, '*kalabule*'[14], embezzlement and cheating by government officials (Ocquaye, 1980). Corruption and mismanagement of the economy increased so much that it widened the gap between the rich and the poor. It also led to the deterioration of government finances and inflation, which reached more than 100% in 1977. The average real GDP growth rate between 1972 and 1978 was 1.5% and the lowest real GDP growth rate was recorded during this regime in1975 at -12.9% (Jeffries, 1989).

The general decline in the economy led to a 'palace coup by Gen. F.W.K. Akuffo in July 1978. Akuffo led a military government, which attempted to deal with Ghana's economic problems by making small changes in the over-valued currency, restraining government spending and monetary growth (Boahen, 1997). Under a one-year standby agreement with the IMF, the government promised in January 1979, to undertake economic reform. This included a reduction of budget deficit in exchange for a $68 million IMF support programme and IMF Trust Fund loans (Schatz, 1987). With these measures and help from the international financial institutions, the Akuffo administration made marked progress with the economy. By the end of 1978, inflation had dropped to 73.09% from a high of 116.4% in 1977. Real GDP growth rate also improved to 8.5% from a low of 2.3% during the same period (IFS, 1980). Pressure from the international community led the government to pledge to hand over political power to a civilian government in 1979. Less than five weeks before constitutional elections, a group of junior officers led by Flt. Lt. Jerry J. Rawlings attempted an unsuccessful coup in May 1979. Rawlings and the others were arrested and put on trial, but before the trial could end, other military officers organised another coup, freed Rawlings and overthrew Akuffo on June 4, 1979 (Aryeetey, Harrigan and Nissanke, 2000).

---

[14] Profiteering due to preference given to some traders with access to import license and monopoly on the price of such imported goods.

3.6 The Rawlings- Limann- Rawlings Regimes

The agreement with the IMF was rendered inoperative after the June 4th 1979 military coup, which saw Rawlings and the Army Force Revolution Council (AFRC) in power for four months. Despite the coup, planned elections took place and power was transferred to the elected Peoples' National Party (PNP) government of Hilla Limann (Aryeetey, Harrigan and Nissanke, 2000).

The PNP government inherited a declining per capita income and stagnant industrial and agricultural production. This was the result of inadequate import supplies, a foreign exchange constraint, shortages in imported and locally produced goods, a deficit GDP ratio of around 40%, inflation of approximately 54% and an over-valued currency. Smuggling and other parallel market activities also flourished. There was widespread underemployment; all the ISIs operated below capacity and the transport network had deteriorated. Unemployment among the urban youth was high at 37% (Asare and Wang, 2004). Despite this gloomy economic state, the new government managed to put in place a two-year reconstruction programme emphasising increased food production, exports and transport improvements. Import constraints were imposed and external payments arrears cut.

Between 1979 and 1981, in its efforts towards rural development, the Limann government, adopted an integrated rural development programme. The government aimed at decentralising the institutional framework for regional development embarked on integrated rural development programmes. Key elements of this decentralising development programme were the URADEP, VORADEP and NORRIP.[15] These projects were, however, slowed as a result of the temporary halt

[15] IFAD project initiated in 1980 and co financed by the World Bank to help improve regional agricultural activities in the Upper, Volta and Northern regions respectively.

of all donor support to Ghana due to political turmoil and instability. Donor support was only re-established after the launch of the Economic Recovery Programme in 1983[16].

By the end of 1981, the Ghanaian economy was undeniably in a critical state, characterised by a steep recession, shortages and inflation. Real GNP had almost stagnated, increasing marginally from ¢5241million in 1975 to only ¢5290 million in 1981 an annualised growth rate of about 0.08%. Per capita income fell from ¢537 in 1975 to ¢467 in 1981. Prices for imports and domestic commodities rose sharply with inflation increasing from 100% in 1977 to 117.1% in 1981, while real wage fell by two-thirds over the same period (Hug, 1989). There was a shift to speculative trading activities on import both durable and non-durable consumer goods[17], which yielded good returns but accelerated inflation and led to a further decline in the manufacturing and industrial sector. Liquidity was diverted from production to short-term trade transactions thus discouraging investment and production activities. Almost all industries were operating below capacity and unemployment soared. Wholesale and retail activities increased their share of GDP from 12% in 1971 to 30% in 1981. Malnutrition was widespread; hospitals had no beds or drugs, most schools operated without books, furniture or teachers; public transport had collapsed; and many Ghanaians, especially skilled professionals and technicians migrated to neighbouring countries or overseas (World Bank, 1985). There seemed to be no economic cure for the economy and the situation led to a further change of government, again through military intervention. On December 31, 1981, Rawlings led another coup and the civilian government fell. When Rawlings took power, it was the eighth government in fifteen years and thus, the frequent change of governments was itself having an adverse effect on the economy.

---

[16] The World Fact book, U.S. Department of State. Available from http://motherearthtravel.com/ghana/economy.htm

[17] This included basic goods like soap, non-alcoholic beverages and furniture.

Rawlings established a government led by the Provisional National Defence Council (PNDC). The PNDC regime exhibited two phases with respect to its economic policies. The first phase was dramatic and short-lived, a 'distributionist-cum-populist' mobilisation one (Gyimah-Boadi and Jeffries, 2000). This phase was characterised by the imposition and tightening of controls on the price of imported consumer items and locally produced food, rent and transport fares. An effort to institutionalise this new order of populist and equitable distribution of goods led to the creation of people's and co-operative shops. The people's shops were intended to share basic local and imported commodities equitably among the population, a type of socialist organisation where everyone was expected to have a fair share of whatever is available.

In this regime, traders accused of hoarding and overpricing their goods, had their merchandise seized and sold off to the public at reduced prices. In extreme cases, traders' sheds and tables were destroyed and whole markets – labelled as 'dens of corruption' were razed to the ground. The long-term effect of this was that trading in Ghana was seen as a risky venture and thus prospective traders, instead of engaging in trading kept their money in foreign currencies or hoarded at home (Rathbone and Gyimah-Boadi, 1989). This added to the stagnation of the economy since money was kept outside financial institution and not made available for investment. There were also moves by the PNDC government to arrest those involved in corruption by vetting the lifestyles of the people and investigating the sources of individuals' income and wealth. This led to the freezing of individual bank accounts with balances of ¢50,000 or more; the effect of which was a further reduction of confidence in the financial system and especially banks thereby increasing the incentive to hoard. Savings in the formal financial sector were low and declining, hence credit was not available for investment. Economic growth was low and stagnating plunging the economy into further recession (Aryeetey, Harrigan and Nissanke, 2000). In some ways this phase was similar to that of the Acheampong regime – the unilateral cancellation of external debts, confrontation of "international capitalist/imperialism" and its perceived hold on the Ghanaian economy. Foreign companies were threatened with nationalisation. However, with the exception of the workers take-over of the Ghana Textiles Printing Ltd. (GTP)-a subsidiary of United Africa Company (UAC)-

and the successful re-negotiation of the agreement between the government and Kaiser Aluminium Company little was done in this respect (Rathbone and Gyimah-Boadi, 1989). As part of the nationalisation programme the government shares in the only two foreign banks, Barclays and Standard Chartered were raised from 40% to 80% and they were restricted to specialist banking (Hutchful, 1989). Considerable effort was made to forge ahead with self-reliant national development, primarily by a resolution against taking IMF and World Bank loans and against devaluation of the national currency. The PNDC's Programme for Reconstruction and Development (PRD) was introduced in early 1982 with the aim of creating an independent and self-reliant economy. In the programme, 1983 was designated as a period of preparation for launching a three-year recovery programme (1984-86), which would lay the foundations for a self-reliant and integrated national economy. In the first year of the PRD, the reorganisation of the financial sector was given priority. To this end, the budget deficit was cut by 17% and the rate of growth in money supply slowed from 63.5% to 23.5%. These were combined with 'revolutionary' initiatives: confiscation of 50 cedi notes - the highest denomination - and their conversion into forced loans to the state, redeemable over five to ten years and a 'war' against tax evasion. The latter policy was particularly successful with a rise of real revenue from the self-employed from ¢128 million in 1981 to ¢307 million at the end of 1982 (Hutchful, 1989). In support of the PRD, students from the three government-owned universities left their campuses to help transport cocoa and other cash crops from the hinterlands. Private contractors were forced to participate in the rebuilding of roads and other broken-down public infrastructure (Gyimah-Boadi and Jeffries, 2000).

These measures did not, however, rescue the economy from further deterioration and therefore, by 1983, per capita income had fallen by 30%, export earnings were halved and import volumes fell to a third of their 1970 level (World Bank, 1985). The production base of the economy was further eroded as a result of emigration by skilled labour, a lack of private capital formation due to widespread dissaving, and a deterioration of the national infrastructure. Consequently, savings,

investment and production declined while import volumes and retail activities increased substantially leading to further '*kalabuleism*' (profiteering).

External factors worsened the economic situation, the fall in the primary commodity price for cocoa and timber and the oil price shocks of 1979 all played a part in the further decline of the economy. The repatriation of about one million Ghanaians from Nigeria in 1983 also added to the problems of the economy since it coincided with the famine and foreign exchange crisis at the time. Though the Ghanaians settled in quickly, especially in the rural areas their return played a role in the inflationary surge of 1983. External debt, at the end of 1982, stood at 105.7 percent of GDP. The general deterioration was so severe that in April 1983, against considerable internal opposition, the government opted for the Economic Recovery Programme (ERP) introduced by the IMF and World Bank.

Table 3.1 summarises the state of the Ghanaian economy before the reforms, from 1970 to 1983. Real GDP growth rate for half of the period was negative, with the worse experienced in 1975. Overall, trade balance was constantly negative, while the *cedi- dollar* exchange rate was over-valued until it was devalued in 1983. Inflation rates in double and triple digits for eleven of the 14 years under consideration, seriously misaligned the Ghanaian economy making it in dire need of some restructuring to rescue it from total collapse.

Table 3.1: Key Macroeconomic Indicators 1970-83

Year	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Nominal GDP (¢m)	2259	2501	2815	3502	4666	5283	6526	11163	20986	28231	42853	72626	864551	184038
Real GDP growth %	6.78	5.56	-2.5	15.5	3.3	-12.87	-3.52	2.29	8.48	-7.82	6.25	-3.52	-6.92	-4.56
Trade Account	52	-34	161	213	-29	150	89	29	113	263	195	-243	18.3	-6.1
Current Account	-68	-146	108	127	-172	17	-74	-80	-46	122	29	-421	-109	-174
Overall Balance	NA	NA	NA	109	-142	106	137	-9	-46	36	-30	-289	-10	-173
Broad money M2 % of GDP	22.2	27.3	33.1	12.2	33.9	22.4	25.7	37.3	54.4	25.6	47.7	40.3	38.9	12.4
Inflation %	3.5	5.1	20.3	1.68	24.3	41.2	41.2	121.2	73.2	54.4	50.1	116.5	19.2	123.8
Exchange rate ¢/$	1.020	1.030	1.149	1.149	1.149	1.149	1.149	2.750	2.750	2.750	2.750	2.750	2.750	30.00
GFC % GDP	12.0	12.4	8.78	7.6	11.9	11.6	9.8	9.4	6.5	6.7	6.1	4.7	3.5	3.8

Source: IMF, Balance of Payments Yearbook; World Bank, 1987

The second phase of the PNDC regime began with economic reforms undertaken in partnership with the IMF and World Bank. The Economic Recovery Programme (ERP) started in April 1983 with the devaluation of the cedi; thereafter, a progressive movement was made towards a realistic and flexible exchange rate, rather than a fixed rate which was determined by political ideas and not market forces. The periodic adjustment of the exchange rate made it possible to improve price incentives in the economy. According to Saris and Hadi (1991) the policy package under the programme, sought to:

(1) realign the exchange rate,

(2) realign interest rates and liberalise the financial sector,

(3) reform and restore productive incentives by restoring relative prices for key export crops such as cocoa, timber, and minerals to favour production,

(4) reduce the cumulative deficit,

(5) rehabilitate the country's economic and social infrastructure,

(6) encourage private savings and investments,

(7) restore fiscal and monetary discipline, and

(8) establish workers' priorities for the allocation of scarce foreign resources (Saris and Hadi, 1991).

The main aspect of the adjustment programme negotiated with the IMF included the introduction of a system of surcharges and bonuses ranging from 750% to 900% on the face value of imports and exports respectively. This brought about a dual exchange rate for the cedi and represented a massive devaluation of the cedi from ¢2.75/$1, to ¢30.00/$1 in 1978 and 1983 respectively. The basic wage was increased from ¢12.00 to ¢21.19 a day, and an increase in the cocoa producer price from ¢360 to ¢600 per 30kg. Petrol prices increased by 100%, the price of medical care increased by 1500% and also the price of meat and other basic commodities increased by 400% in the period between 1978 and 1983 (Hutchful, 1989). Particular emphasis was given to increasing productivity and to do this there was a need to mobilise all groups of people including professionals, students, workers and farmers. Attempts were made to motivate Ghanaians to contribute to the rebuilding of the economy through "hard work" encouraged by increasing salaries.

The main objectives of this programme were to consolidate gains made throughout the first three years of the ERP and institute a gradual process of structural adjustment aimed at accelerating growth, improving incentives, strengthening the capabilities of the ministries in policy planning so as to remove any remaining barriers to efficiency and growth. Meanwhile, the Extended Fund Facility set annual macro-economic targets in terms of additional conditionalities, growth rates in GDP, domestic inflation, and velocity of circulation and growth rate for the broad money supply. The Rawlings government was focused on three aspects of development policy: ensuring economic stability, creating incentives, and improving human development (World Bank, 1983).

Stabilisation policies were necessary because Ghana at that time was living beyond its means; that is, running a deficit balance of payments, which was being financed through the accumulation of debt. Thus, the objective of the stabilisation policy was to control macro imbalances, such as the fiscal deficit and balance of payments. The policy involved measures to control government expenditure and increase tax.

The second aspect of the economic policy reform package was liberalisation aimed at creating better incentives for the domestic production of goods and services. These measures involved a reduction in the role of government in commodity production, trade and financial services, through privatisation and deregulation of price and marketing controls. In some of these areas, such as privatisation, Ghana made rapid progress. Thirty state enterprises were liquidated in the initial phase of the ERP. These included both loss-making and profitable ones (Hutchful, 1989). In addition to the expanding role of the private sector, it was envisaged that the future role of government would be to provide some public and merit goods and services, as well as improve the regulatory framework for private enterprise (Issahaku, 2000.). This was necessary to prevent the private sector from providing such goods and services at exploitative rates. For example, the government still provides portable water and electricity, which are considered as necessities, at more affordable prices than would otherwise be provided by the private sector. As part of the liberalisation process, the government had to renounce its partial nationalisation of foreign banks.

A realistic and market determined exchange rate was to be established and maintained. As a result, by early 1988, the cedi had been devalued by over 99% in relation to the US dollar, from ¢2.75/$ in 1982 to ¢260.00/$ in 1989. Price controls and state subsidies were abolished so producers could generate sufficient liquidity to allow expansion. The export sector was given a boost both directly and indirectly. Indirectly, infrastructural bottlenecks such as roads, railway, ports and telecommunication systems were improved with credits from the International Development Association (IDA) and foreign donors. These were designed to attract private investors. Directly, the cocoa, gold and timber industries were supported with IDA credits and foreign grants. Producer incentives were also improved and certain exporters, such as the mining industries, were permitted to retain a proportion of the foreign exchange earnings (World Bank/IDA 1987). This was to encourage reinvestment and expansion so that more factors of production would be employed to help improve economic growth and reduce poverty.

Finally, capabilities had to be developed to take advantage of improved production incentives and the consequent increase in the demand for labour. These involved:

(i) The promotion of domestic entrepreneurial capacity.

(ii) Improvements in the capacity of the public sector to execute its changing role more efficiently.

(iii) Investments in human capital to improve quality and reduce quantity. In response to the above, preferential access to foreign exchange and credit for state enterprises was abolished (Harrigan and Younger, 2000).

Ten per cent of parastatals[18] staff was dismissed between 1987 and 1989 as part of a retrenchment programme. The Ministry of Finance and Economic Planning and other key ministries and government agencies received support to strengthen their planning, implementation, and

[18] A company or agency owned or controlled wholly or partly by the government. for example state-owned organisation, especially in Africa (Collins, 2003)

monitoring capabilities. A basic requirement for this support was the retrenchment of 5% of the civil servants and an improvement of the working conditions for the remainder of the employees (World Bank, 1985). This added to the unemployment and poverty levels, particularly in the rural areas where most of the retrenched workers returned. Little was done in terms of improving rural development particularly the agricultural sector, which employed almost 95% of the rural population. Agriculture was organised mainly on subsistence levels and little or no mechanisation used.

The PNDC era initiated another strategy for rural development and thus consigned the previous strategies to the background. The PNDC government adopted the district decentralisation strategy as the main focus for the overall development of districts and preparation of plans for community development. Programmes such as the Programme for the Mitigation of Social & Cultural Adjustment (PAMSCAD) and aspects of the Vision 2020 were engineered during this era to address some of the needs of the rural community. These efforts did not see any marked improvements in the economic activities of the rural population and thus their standard of living (Sowa, 2002).

Despite the difficult start in April 1983, the Economic Recovery Programme (ERP) made some progress in the areas of growth, inflation, balance of payments and domestic savings. Comparing the performance of growth, inflation and balance of payments before and during the programme, one could observe considerable gains from the ERP. Table 3.2 reveals this. This performance was influenced by two exogenous factors; the unusually high level of external financial help for the ERP and the exceptionally favourable terms of trade during the period. In Table 3.2 below, the ERP period has been sub-divided into two sub-periods, 1984-1990 and 1991-94. Developments in each of these may be compared with the period from 1978-83 prior to the ERP and the two political eras after ERP denoting the NDC and NPP governments in 1995-2000 and 2001-2005 respectively.

Table 3.2: Before and After Analysis of Key Macroeconomic Indicators

	Annual Average				
	1978-83	1984-90	1991-94	1995-00	2001-05
Real GDP Growth %	-1.34	5.4	4.5	4.29	5.04
Balance of payments ($m)					
Trade account	47.5	-97.4	-449.2	-688.8	-1313.6
Current account	-99.8	-101.0	-361	-467.9	-225.5
Capital Account	25.0	182.4	443.7	404.7	359.0
Overall balance	-102.0	98.3	59.7	2.8	141.2
Fiscal deficit as % of GDP	-5.95	0.21	-1.3	-1.4	-4.2
Broad money growth %	36.6	50.0	46.4	31	31.4
Inflation %	73.7	29.8	19.9	31.02	20.2
Gross fixed capital formation as % of GDP	5.2	10.8	14.8	21.8	-

Source: IMF, Balance of Payments Yearbooks, various issues.

Between 1984 and 1990, GDP growth was an impressive 5.4% and inflation and the balance of payment position significantly improved. The balance of payments went from deficit to surplus, a small fiscal surplus developed, inflation fell and gross fixed capital formation as a percentage of GDP doubled. However, trade and the current account deteriorated suggesting that the surplus in the overall balance was due to inflows of loans and grants. World Bank figures for 1991 show a total inflow of funds of $4 billion, thus accounting for the surplus in overall balance while the trade and current accounts deteriorated. The money supply continued to increase rapidly. During the 1991-94 period, the situation deteriorated. With the exception of improvements in inflation and gross fixed capital formation as a percentage of GDP, all other indicators were worse than in the first phase of the ERP, raising questions about the sustainability of the programme. The macroeconomic indicators showed similar trend for the two subsequent democratic dispensations, the current and trade accounts balance showed no improvement on the previous years'. The high overall surplus during the from 1984 till 2005 can be attributed to the influx of foreign grants and inflows of long- and short-term capital to support the ERP and from programmes such as the Millennium Development and African Growth and Opportunity Acts (Multi-Donor Budget Support

Secretariat, Ministry of Finance and Economic Planning 2003).[19] Even though some gains were made from the ERP, they were hardly sustainable independently. Ghana became more dependent on external aid. Like other developing nations, she had been confined to a system of unequal exchange whereby primary commodities are exported cheap to the developed world while importing more expensive manufactured goods, worsening the debt situation.

By the end of the 1980s, Ghana's long-term outstanding and disbursed loans stood at US$1.1 billion amounted to 48.8% of GNP. IMF debt totalled US$21.4 million and short-term debt amounted to US$195.0 million, during the same period. Long-term debt outstanding and disbursed increased to US$2.2 billion, IMF debt to US$778 million over the next decade, and short-term to US$108 million. Ghana's total external public debt stood at US$4,851.00 million (IMF, 1995). The servicing of these loans was a drain on the financial resources of the economy, resources which might otherwise have been used to support programmes for sustainable development and poverty reduction. The total payments by Ghana from 1980- 1989 amounted to US$409.40 million, out of which US$297.60 and US $111.80 were principal and interest payments respectively representing 28.40% total export earnings (Nissanke and Aryeetey, 1996). Internal financial indiscipline contributed to the economic decline. Fiscal imbalances were recorded in 1992, as a result of large wage increases to the public service and the delays in passing on the full cost of imported petroleum products due to the impending election. Consequently, the domestic primary balance moved from a surplus of 1.9% of GDP in 1991 to a deficit of 4.9% in 1992. Money supply and inflation continued to grow. Economic growth, which was experienced between 1984 and 1990 declined. To prevent further deterioration of the economy the Enhanced Structural Adjustment Facility (ESAF) was approved and began in 1995. It was aimed at among other things addressing the strong inflationary pressures and establishing a sound and stable economic environment that would sustain economic growth and improve the standard of living. The first year of the ESAF was

[19] In 2003, 10 development partners signed a framework memorandum with the government of Ghana committing to provide budgetary support to help in the implementation of the GPRS goals.

difficult. The budget was weaker than planned, the domestic primary balance was about 1.5% points of GDP short of the programme target and there were also arrears to contractors, showing a continuous weakness in expenditure monitoring and control. Inflation declined in the second half of the year, but was still high at 71% at the end of the year. Real GDP grew by 4.5% and external reserves exceeded target, but this did not help improve the economic situation or sustain it. In the second half of 1996, large fiscal slippage occurred and structural benchmarks were not attained. The budget deficit was 10.4% of GDP; the domestic surplus was only 0.3% of GDP compared to a target of 4% (IMF, IFS 1998). Structurally, the proposed automatic pricing mechanism for petroleum products was suspended due to difficulty in implementation in the face of rising world oil prices. For a second time the aim of the ESAF could not be achieved and in 1997, the government launched a fiscal adjustment plan to help restore budgetary discipline, generate domestic surplus and lower inflation and interest rates. Through this plan, the budget deficit was reduced from 10.4% of GDP in 1996 to 8.6% in 1997. Inflation was at 21% down from 33%, total expenditure declined by 5.4% in relation to GDP and domestic surplus increased to 3.3%. Tax revenue fell due to smaller collections made from petroleum and cocoa duties as a result of decrease in export volume. In order to shift the tax structure toward the taxation of consumption the government launched a value added tax (VAT) at a rate of 15%, to replace the sales tax. The new tax became effective in 1998 but at a reduced rate of 10% instead of the proposed 15%. Despite the shortfall in projected revenue, the budget deficit fell to 8.1% in 1998. General macroeconomic condition also improved. The domestic surplus improved to 3.6%, real GDP grew to 4.6% and inflation fell to 14.6% at the end of 1998 (IMF, IFS 1999). This may be due to prudent measures by the government to reduce its spending and also the influx, during the period, of foreign aid in support of the ERP.

There were also signs of economic improvement enhancing the living standards of Ghanaians. Inflation fell marginally to 13.8% in 1999 and real GDP growth fell to 4.4%. As a move towards long-term growth, the Ghana Vision 2020 development framework was launched. The Ghana Vision 2020 projected that by the year 2020, Ghana would achieve a balanced economy and

middle-income country status and a higher standard of living. Specifically, the vision of Ghana in the year 2020 is for country in which:

- Long, healthy and productive life for all individuals is the norm, with access to an enlarged range of choices for employment, housing and leisure.
- The benefits of development are equitably distributed and gross deprivation and hard-core poverty is eliminated.
- National income is growing by at least 8% per annum, compared with the present average of 4.5%.
- Population growth is reduced from its present level of about 3% to 2% per annum, thereby allowing real income per head to rise to more than four times the 1995 level.
- Solutions to socio-cultural and economic problems of the individual, the community or the nation are recognised and sought within the domain of science and technology (Ghana Vision 2020 Document, 1998).

The realisation of these objectives has not been apparent since the programme was launched at the end of 1995. In the following year, 1996, the country was preparing for an election and the government of the day was more concerned with strategies to win the election than implementation of the policy. Implementation of the document was not only suspended but also fiscal control that were in place were also loosened; there was a rapid burst in public expenditure and the terms of trade deteriorated leading to an aggravated economic crises (World Bank, 2000).

3.7 Kufuor Regime 2001 - 2004

In 2000, Ghana was seen to have set a new precedent in the politics of the West African sub-region when her longest serving head of state, Rawlings, followed the constitution and did not extend his rule for a third term. The political state had been stable since 1996 but the same could not be said about the economic situation or the living standards of the people. Inflation had re-established to 50% by the end of 2000, and government borrowing had increased resulting in the bank-lending rate increasing from 36% to 40.5% (IMF, IFS 2000). Despite the economic deterioration, there was

a peaceful and successful political election and handing over of power from a ruling government to an opposition party, the first peaceful transition in Ghana's political history.

The Kufuor administration was sworn into power in 2001 and faced many challenges in relation to the state of the economy. Inflation was running at 50%, the cedi had depreciated by 50% and the country's domestic and foreign debt stood at about ¢41 trillion, that is, about $6 billion (World Bank, 2000). Added to this, there was a demoralised private sector, an extensively corrupt public sector, high unemployment, high cost of living, declining per capita income and a high poverty rate. According to the Ghana Living Standard Survey (GLSS) (GSS, 2000), some 42% of the population experienced poverty with 26.8% experiencing extreme poverty. There was clearly a need for a strategy to lift the economy from further deterioration and rectify the inherited problems. Ghana's foreign reserves were almost gone and she could no longer service her debts. As a result, the government opted for the Highly Indebted Poor Countries (HIPC) initiative in 2001 (Ghana Government, 2001). Ghana was set for another IMF and World Bank programme with the aim of getting relief from her huge debts and eventually progress towards development and poverty alleviation.

Resources made available by debt relief under the HIPC Initiative were allocated to fund pro-poor expenditure programmes, as outlined in Ghana's Poverty Reduction Strategy Paper (GPRS), which was completed in February 2003. The GPRS contained five strategic pillars:

(i) Macroeconomic stability.

(ii) Increase in production and employment.

(iii) Enhancement of human resource development.

(iv) Special programs for the vulnerable and excluded.

(v) Good governance.

The GPRS was initiated as a medium-term strategy to Ghana's Vision 2020 with a set of comprehensive policies, strategies, programmes and projects to support growth and reduce poverty over a three-year period beginning from 2003.

The incidence of poverty can be assessed at two levels: an upper level and extreme level. In 2003, those who earned incomes of up to ¢900,000[20] a year or ¢75,000 a month or ¢2,500 a day made up the upper level. The extremely poor were those with incomes below ¢700,000 a year or ¢58,000 a month or ¢1,900 a day. The latest statistics on poverty, (GSS, 2000) estimated that about 42% of the Ghanaian population were within the upper poverty zone and about 27% of the population were in the extreme poverty zone. These figures were expected to reduce significantly by the end of the third year of the launch of the GPRS. In 2004, one year after the launch, Ghana's annual per capita income fell to $320 and the percentage of the upper poverty level had increased to 45%. In the same year, the IMF and the World Bank's IDA agreed that Ghana had reached the completion point of the HIPC initiative, and thus, would enjoy debt relief, which would enable her to save about $230million annually in debt service costs (IMF, 2004). This amount from debt relief was expected to be channelled into activities that would help improve the living standards of Ghanaians, particularly those in the rural areas where the incidence of poverty is high. Food crop farmers, fishermen and small-scaled self-employed non-agriculture entrepreneurs were targeted to receive small flexible credits from the relief fund through the District Assembly Common Fund to improve upon their outfits.

3.8 Conclusion

Ghana has, after independence, moved from a middle-income to a low-income to a HIPC State. It has moved from socialist, self-centred economy, through populist-statist to become a market economy. At one time Ghana was the showpiece of the Bretton Woods Institutions' Structural Adjustment Programme (SAP). However, in the 1990s, Ghana's economic performance was unimpressive. Inflation and fiscal deficits were restrained. The *cedi* had moved from a controlled regime to a managed float. The country's development policy also evolved from an import

---

[20] The average exchange rate for 2003 was ¢8650/$. Thus the annual rates for the upper and lower levels are equivalent to $104.05 and $80.92 respectively.

substitution industrialisation strategy to development led by export growth. In addition, the annual budget of the government had, over the years, been heavily dependent on external inflow of aid, and the fact that this often fell below projected levels and arrived late creating significant problems of budgetary management. With the implementation of the financial liberalisation policy, it was taken for granted that a sustained supply of funds would be forthcoming. Hence, steps to develop the capacity of the economy to respond to the new policy and other fundamentals associated with economic growth were overlooked. The necessary structures to help reduce transaction and information costs which inhibit development in the private sector were not provided. It was assumed that changes in the financial sector and macroeconomic policies would generate the relevant incentives and that agricultural agents would respond to the changes favourably. Even though attention was given to research and extension services of the agricultural sector, issues pertaining to marketing, availability and ability to use technology and access to credit have been ignored. Thus, the growth in the agricultural sector, the largest sector, has been slow and productivity low, resulting in persistent poverty among food crop farmers. The Ghana Statistical Survey in 1995, revealed that farming households tend to be the poorest in the country, particularly cereal growers who are found in the rural savannah area (Ghana Poverty Reduction Strategy, 2003).

Thus, to enjoy the expected benefits accruing from liberalisation, both of the financial sector and trade the development structure of the economy had to be given more attention, particularly the agricultural sector which employs more than 60% of the population. Since agriculture in Ghana is still rain fed and makes little use of mechanisation, it is considered one of the riskiest[21] sectors, and thus, financial institutions, particularly the formal ones, give out little credit to the sector. As a result the benefits of the increase in financial institutions and the availability of credit that characterised the financial liberalisation policy does not seemed to be extended to those in the

[21] Risky because it depends solely on the natural rains which are for most times unpredictable and also with little technological usage of inputs such as seeds and livestock, crop failure and animal mortality is high.

agricultural sector and hence poverty among them continues to prevail. In the next chapter we explore the financial sector of Ghana and how it has changed with the implementation of the financial liberalisation policy. Since the research investigates the effects of the policy on micro-economic units, particular reference will be made to savings and credit facilities that serve the needs of these units.

Chapter Four

Financial Sector and Financial Liberalisation in Ghana

4.1 Introduction

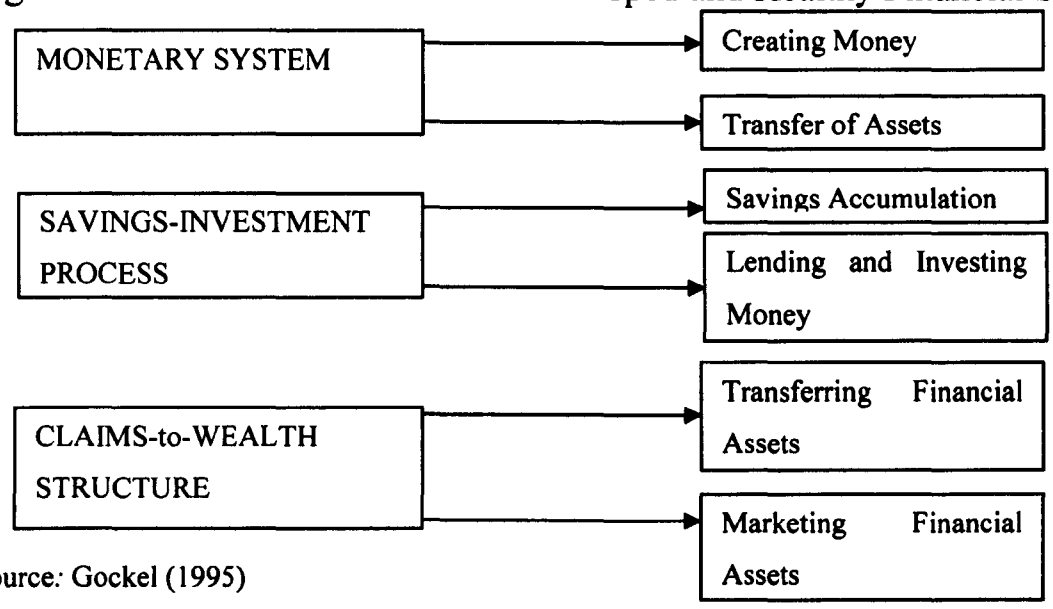
The overview of the literature on finance and development in Chapter two suggested that both the major policy regimes, that is financial repression and financial liberalisation, might influence positively or negatively the growth of an economy. In chapter three it was made apparent that Ghana, has, since gaining independence, practised both financial repression and liberalisation, with the aim of promoting economic growth. However, the financial repression policy corresponded with the period of the decline of economic growth between 1961 and 1983. In 1983, the structural adjustment programme was launched and subsequently the financial liberalisation policy was implemented and the aim of this research is to investigate how the policy has affected households' financial behaviour.

Financial systems have been recognised as playing an important role in economic growth and development, Goldsmith (1969), McKinnon (1973) and Shaw (1973). They all emphasised that a well-developed and healthy financial sector could serve as a medium for promoting economic growth and development. The attributes of a well-developed and healthy financial sector include a monetary system, a saving-investment process and a claims-to-wealth structure (Gockel, 1995).

A well-developed and healthy financial sector must have an efficient medium of exchange. Such a medium should serve as a unit of account and its value must be stable. It should be universally accepted and be a convenient means for paying for commodities. The financial system should allow for the creation of capital on a large scale to satisfy the needs of the economy. Surplus spending units should be able to deposit their funds with financial intermediaries who would in turn make funds available to deficit spending units. An effective financial system provides avenues for the transfer of financial assets and for the conversion of such assets into cash. These markets support capital formation by providing investors with convenient means of converting their

investments into cash and vice versa. These characteristics are in line with the functional approach of the financial system as proposed by Goodhart (1975), which suggests that inflationary targets should be pursed in favour of monetary targets. A summary of a well-developed and healthy financial sector is shown in Figure 4.1 below.

Figure 4.1: Attributes of a Well-developed and Healthy Financial Sector.



Source: Gockel (1995)

The objective of this chapter is to trace the evolution of Ghana's financial system and to provide a systematic analysis of the financial reform undertaken as part of the Structural Adjustment Programme in 1983. The aim of the financial liberalisation process included the introduction of measures to encourage the development of capital markets and private banking, the restructuring of existing banks, a greater recognition of the informal finance sector and the liberalisation of interest rates and prices (Nissanke and Aryeetey, 1998). In order to appraise the financial system, a comprehensive view is taken of the banking, non-banking and informal financial sector. This reveals that the financial sector in Ghana has been fragmented mainly on the lines of formal and informal financial operations during both the repressive and liberalised eras. A further faction that has become prominent with liberalisation is the semi-formal sector. These sectors exist alongside each other to provide the needed financial services to both urban and rural dwellers and attempts are being made to forge linkages between the formal and informal sectors to help take advantage of

their benefits. The chapter is organised as follows. First, it traces the background history to the financial system in Ghana, followed by an outline of the 1983 reforms and subsequent its impact on the banking, non-banking and informal sectors of the financial system in Ghana.

4.2 Background History

During the colonial era, financial intermediation was limited to monetary stability and growth, which was tied closely to foreign trade. Banking was established to provide services to the British trading enterprises and the British colonial administration. The first bank branch was opened in 1896 and was known as the Bank of British West Africa Limited (BBWA). Its main objective was to import silver coins from the Royal Mint (Anin, 2000). Despite the objective of providing banking and currency services to expatriate companies and the colonial administration, the bank attracted the patronage of the indigenous Africans.

From 1912 to 1957, the West African Currency Board (WACB) operated as the Central Bank operating a 'sterling exchange standard' through a guaranteed convertibility of the West African pound to the pound sterling. There were no exchange controls. The WACB did not have any central bank functions; in particular, it had no control over the currency supply. It served as a bureau exchanging the West African currency into sterling and vice versa, and their surplus was invested in sterling-approved securities. These arrangements helped to control the growth of money supply in the country and thus inflation. The financial system in place also provided essential currency infrastructure, which led to the transformation of the economy from a barter system to a modern currency-based one (Anin, 2000). However, money played a passive and limited role in promoting economic development. There were, for example, virtually no non-bank financial institutions. Insurance companies operated to support trade and the focus was on commercial risk, mainly for expatriates. There was no life insurance industry. In terms of the attributes of a well-developed and healthy financial system, the financial sector of the colonial era satisfied only the first criteria, which was the provision of an efficient medium of exchange or monetary system.

The period following the Second World War saw a financial system, which went beyond the existing monetary system. Two more banks, the Colonial Bank (now Barclays bank) and the Bank of Gold Coast were established. The three banks provided services that included documentary credit, discounting bills of exchange, collection and remittances. In addition, the Colonial Post Office Savings Bank was in operation since 1920 and offered competition in the mobilisation of savings from the rural areas. In 1952, the government of the Gold Coast took over the Bank of Gold Coast in response to agitation from indigenous Africans for a bank to serve their borrowing needs. This period also saw the introduction of the securities market. In July 1954, the Bank of Gold Coast initiated the issue of Treasury Bills. The Bank acted as an agent for the flotation and guaranteed the purchase of bills at all times. The Treasury bill issued was for a total of £500,000 for three months (Anin, 2000). The aim of the flotation was to create a local market for government securities, rather than to finance a government deficit since the government budget during those times was in surplus. At independence the Bank of Gold Coast was renamed Ghana Commercial Bank and a central bank, Bank of Ghana, started operations in July 1957.

As noted in chapter 3, after independence, the desire of the Ghanaian government was to make the country a fast growing economy in order to encourage development and reduce poverty. To this end, Ghana engaged in an industrialisation programme. The general lack of private capital meant that industrialisation was largely sustained by government finance. With overseas assets of over £200 million, many projects including the building of road networks and the Akosombo dam were undertaken as a route to industrialisation. Import substitution industries (ISIs) were established with the aim of making Ghana self-reliant. By 1961 all of the foreign exchange reserves were used up and Ghana was running a trade deficit of £27 million[22] per annum as the windfall trade surpluses of the early fifties were not repeated in the sixties (Gyimah-Boadi and Jeffries, 2000). To correct the imbalance two main steps were taken. First, import duties were increased and import licenses

[22] This represents 2.07% of the then country's GDP.

were introduced to help reduce the importation of goods. Second, the Exchange Control Act 1961 was enacted with the aim of controlling the outflow of funds. This introduced quantitative restrictions on interest rates, high tariffs and administrative control of prices and internal distribution of goods. Following the Act, the purchasing or borrowing of gold or external currency or selling or lending any gold or external currency could only be undertaken by an authorised dealer. Moreover, transfers and remittances to all other countries had to be approved by the Bank of Ghana. Subscriptions for foreign magazines, newspapers and all printed material had to be approved before transfers could be made (Anin, 2000). These controls, which were aimed at preserving equilibrium in Ghana's balance of payment position, also ushered in a long period of financial control for Ghana which lasted until the Economic Recovery Programme of 1983.

Prior to the Exchange Control Act, Ghana was a member of the Sterling Area. The Sterling Area was one of the responses to the global depression of the 1930s. Britain promoted trade within her Empire by creating a relationship in which overseas territories provided food and raw materials while the UK exported manufactures. Members of the Area agreed to pool their foreign exchange reserves in London to be used by the Empire as a whole. They also agreed to keep fixed exchange rates with the sterling, hold the bulk of their foreign exchange reserves in sterling and to impose exchange control in common with Britain. In return, the members enjoyed freer trade with Britain and freer access to British investments. The central reserves were available for members to settle their balance of payments deficits (Schenk, 2005). This meant that imports from within the area were not restricted, payments for invisibles were freely made, and there were no requirements to surrender proceeds from exports and no restrictions on the capital accounts. Adjustments to the domestic money stock automatically reflected changes in foreign assets and thus growth in the money stock was kept within bounds. The price level was also linked with the sterling area thus keeping inflation under control.

The effect of the Exchange Control Act was that Ghana opted out of the Sterling Area and the benefits therein. Within a year of the operation of the Act, the money/GDP ratio increased over

15%. The increase in money resulted in an increase in inflation to over 20% by 1965 (IMF, 1968). The rise in inflation was due to the fact that excess money balances were no longer converted into sterling nor saved in London, as was previously the case. Nominal interest rates increased while real interest rates became negative, a disincentive to saving, investment and growth. Inflation accelerated while the exchange rate remained fixed. The real value of the *cedi*[23] appreciated making exports unattractive. Exports fell from 30% of GDP in 1957 to 18 % in 1965 (Gyimah-Boadi and Jeffries, 2000). This feature of high inflation and low savings, which started in the mid-1960s, has become an almost permanent feature of the Ghanaian economy leading to a gradual but continual economic crisis. Meanwhile, though imports were controlled through the licensing policy, the trade deficit grew rapidly through rent seeking, a way in which importers lobbied the government for licenses at the expense of taxpayers. Thus, the trade balance deteriorated and Ghana was caught in a continuous cycle of increasing inflation and trade deficits.

To reverse this decline, Ghana sought assistance from the International Monetary Fund and World Bank leading to the launch of the Economic Recovery and Structural Adjustment Programmes (ERP/SAP) in 1983. Incorporated within the structural adjustment conditionalities was the restructuring of the financial sector. The key elements of the reforms included: the abolition of interest and credit controls, the privatisation of the banks, and the entry of new domestic and foreign entrants into the banking sector, bank restructuring and recapitalisation, an opening up of the capital account and a strengthening of banking regulatory and supervisory institutions (World Bank, 1983).

Ghana's financial system is traditionally considered as comprising of three sectors, the formal, semi-formal and informal sector: all three were affected by the reform. The formal sector comprises institutions that are incorporated by the Companies Code (Act 179) and licensed by the

---

[23] The first *cedi* was introduced in 1965 and was pegged to the British pound at a rate of 2.4 *cedis* = 1 pound.

Bank of Ghana, either under the Banking Law 1989 or the Financial Institutions (Non-Banking) Law 1993. These financial institutions include commercial, development, merchant, and rural and community banks (RCBs) [24]. There are also a number of Non-Banking Financial Institutions (NBFIs), comprising the stock exchange, insurance companies, social security and national insurance Trust,[25] mortgage house, discount houses, building societies, leasing companies and savings and loans companies (S&Ls) (Anin, 2000). All of these were established during or after the reform period and with the exception of the S&Ls, which were restricted to a limited range of services and were most active in micro and small-scale financing; operate mainly in the urban areas. Before financial reform, the formal sector was dominated by commercial banks, which were largely state-owned. Most of the banks targeted urban middle and high-income earning clients. Rural and Community Banks (RCBs) on the other hand, operate as commercial banks but do not undertake foreign exchange transactions, their clientele are from the local area and their minimum capital requirement is lower (Aryeetey and Gockel, 1991).

The semi-formal sector is made up of Non-Governmental Organisations (NGOs) and Credit Unions. Although they are formally registered, the Bank of Ghana does not license them. NGOs are registered as non-profit making companies under the Companies Code. Their focus on poverty reduction leads them to reach many poor clients using micro-finance strategies. They do not take deposits from the public but rely largely on external donors for funds. Credit Unions on the other hand, are registered by the Department of Co-operatives as societies that can receive deposits and give out loans to their members only. Though they are included in the NBFIs Law, the apex body, Ghana Co-operative Credit Union Association, is presently regulating them, pending the introduction of a Credit Union Law (Anin, 2000).

---

[24] These are unit banks usually without branches and owned by the community in which they are located, unlike for example the Indian Rural banks which are branches of mainstream banks.

[25] Although, the Stock Exchange, Insurance Companies, and Social Security & National Insurance Trust are labelled as NBFIs they are regulated by special statutory legislation. That is the, Securities Industry Law of 1993 (Decree 333), Insurance Law of 1989 (PNDCL 227) and Social Security Law 1991 respectively.

The informal financial sector comprises both commercial and non-commercial arrangements that make funds available. Commercial entities include moneylenders, *susu* groups and rotating saving and credit associations (ROSCA). Such entities are popular in the rural areas among farmers, traders and those engaged in cottage industries. Moneylenders are the only group in this sector that are officially registered (by the police under the Moneylenders Ordinance 1957) (Anin, 2000). Informal units have operated throughout the period since the colonial era and appear to thrive in increased economic activity. Informal units in Ghana are very important since they mobilise about 75% of savings from the informal economic sector and meet almost all of the credit needs of the agricultural sector. The informal sector therefore lends to sectors where the risk of default is considered to be very high. Informal institutions mobilise about 55% of total financial savings, largely through the daily collections by *susu* collectors (Aryeetey, 1994). Despite their saving mobilisation feature, they are also responsible for about 35% to 40% of the money stock outside the formal sector (Bank of Ghana, 1988) thus adding to financial shallowing.

4.3 The Banking Sector

Reform of the financial sector in Ghana was an attempt to bring about financial deepening and liberalisation. Before the reform, the financial system was mostly state-owned, highly regulated and in distress. State-owned enterprises (SOEs) ran massive overdraft positions in the banks between 1970 and the early 1980s, most of which degenerated into non-performing loans (Christensen, 1998). Banks were subject to interest rate controls, compulsory credit allocation and high reserve requirements. About 86% of domestic credit was directed to government and public enterprises with the private sector holding little more than 2% (IMF, IFS, 1987). Investment policies favoured the public sector and crowded-out the private sector. By setting the interest rate below the equilibrium value, the Bank of Ghana stimulated a demand for credit. A scarcity of credit resulted in rationing of credit and foreign exchange, which again favoured the public sector. Though there was substantial provision of infrastructure and other social amenities, their benefits

were not realised since there were few private sector investments to accelerate growth and lead to development (Christensen, 1998).

In the 1970s and early 1980s, a sharp deterioration of the Ghanaian economy put a severe pressure on the financial system. The period was marked by an average GDP growth of about 2.6%, high inflation which peaked at 123% in 1983, low savings and declining international trade (Aryeetey, Harrigan, and Nissanke, 2000). There were indications of financial repression and disintermediation. Evidence of financial repression in the case of Ghana was reflected in (Anin, 2000):

- a high percentage of demand deposits, about 64% of total deposits, thus constraining long-term lending;
- controls on interest rates resulting in negative real interest rates;
- high levels of currency outside banks with the currency/deposit ratio peaking at 77% in 1983.

These features of the financial system during the repressive period between 1961 and 1983, match some of the symptoms of financial repression as outlined by McKinnon (1973). According to McKinnon (1973, pp.68-69) the symptoms of financial repression include:

- bank credit as an appendage of certain enclaves;
- government deficits limiting lending resources of banks;
- low or negative real returns on deposits;
- scarce capital under-priced by banks.

The outcome of the repressive regime in Ghana was an overvalued currency and governments directing credit to finance its domestic budget deficits. In addition, excessive government intervention in relation to the direction of credits, led to a deterioration of credit assessment. Management problems were pervasive with fraud and insider abuse of a cheap credit system. Many unorthodox measures characterised the banking sector, particularly, in 1979 and 1982, which severely undermined the public confidence in the banking system. These measures included the

currency change in 1979 (Cobbina-Asirifi, 1999). The currency conversion was in attempt to curb inflation, thus the arrangement for the change was that 10 old *cedis* were exchanged for 7 new ones. Coins and bank accounts were unaffected. A second confiscation took place in 1982, when the ¢50 note (the highest denomination) was demonetised. Ghanaians, in theory, could exchange any amount of ¢50 notes for coins or other banknotes without loss, but foreigners could not make any exchange. However, many Ghanaians who were hoarding large amounts of *cedis* feared reprisal if they tried to convert all of it, and so simply burned a lot of their money. Many other Ghanaians received promise payment notes from the banks, but never received compensation. This confiscation was publicly justified as a means to create a disincentive for the flourishing black market. However, from a monetary perspective, currency confiscations have the effect of reducing the available cash in the economy, and thereby slowing the rate of inflation. After the ¢50 note confiscation, the ¢20 note was the highest cedi denomination, but had a street value of only about $0.35 (US). After the ¢50 note confiscation, fears existed that the Government could also confiscate the ¢20 or even the ¢10 notes. This fear, along with inflation running at about 100% annually, started causing the Ghanaian society to lose its faith in its own currency. Some transactions could only then be done in foreign currencies (although that was technically illegal), and other more routine transactions began to revert to a barter economy (Aryeetey, 1996). The demonetisation of the fifty *cedi* note and the freezing of bank deposit accounts with a balance of 50,000 *cedis* or more, added to the lack of confidence in the banking system. Ironically, in addition to liberalising the financial system, the reform had had as a primary objective the restoration of the public's confidence.

The financial system between 1973 and 1982 did not satisfy the three attributes of a well-developed and healthy financial system. The high inflation and sharp depreciation of the *cedi* violated the requirement that the value of the medium of exchange should be relatively stable. Thus, the monetary system became increasingly ineffective.

In the repressive era, 1961 to 1983, the second and third attributes were also not satisfied. The savings-investment process, in particular, was ineffective. With the mandated credit allocation system, capital could not be channelled to the most productive projects. The official control of deposit and lending rates discourage the transfer of financial assets, thus the claims-to-wealth structure was unfulfilled. In the light of this, financial reform was needed to help rejuvenate the financial system. A variety of monetary policies were implemented to help stabilise the economy as part of the Economic Recovery Programme in 1983. A summary of the main policy reforms that took place is outlined in Table 4.1 below:

Table 4.1: Financial Reforms in Ghana 1986-93

1986 September	Weekly Foreign Exchange Auction introduced for all sectors except for pharmaceuticals, agricultural machinery and petroleum products.
1987 September	Decontrolled Maximum Lending and Minimum Deposit Rates.
1987 October	Weekly Auction of Treasury Bills introduced.
1987 November	Consolidated Discount House established.
1988 February	Decontrolled Minimum Banking Savings Rate.
1988 February	Removal of Sectoral Credit Controls except for agriculture.
1988 April	Foreign Exchange Bureaus established.
1988 September	90-day Bank of Ghana bills introduced for banks
1989 July	Comprehensive restructuring plan for banks adopted.
1989 August	Enactment of a revised Banking Law providing minimum capital disclosure and prudential lending guidelines.
1989 September	Insurance Law enacted.
1989 December	Non-rediscount able, medium term BOG instruments for banks with 180-day, 1 year, and 2-year maturities introduced.
1990 January	Appointment of new bank managers for the public sector banks.
1990 March	Two New Merchant Banks Licensed.
1990 April	Unified bank cash reserve requirement on demand, savings and time deposits.
1990 May	Restructuring of three state-owned banks began and swapping of state-owned enterprise non-performing loans with Bank of Ghana FINSAP bonds.
1990 May	Official and Parallel Exchange Rates Unified.
1990 September	Non-Performing Assets (Loans, Investments) Recovery Law enacted to expedite recovery of non-performing assets.
1990 November	Cash reserve ratio reduced to 22% and secondary reserves ratio increased to 20%.

Table 4.1: Financial Reforms in Ghana 1986-93 (cont/d)

1990 November	Credits to agricultural sector removed.
1990 November	Stock exchange opened, 30-day and 180-day Bank of Ghana bills introduced. 1-year and 2-year treasury bills, 5-year government stock available to the non-bank sector.
1990 December	Remunerated cash reserves at 3%.
1990 December	Private sector non-performing loans of state-owned banks swapped with Bank of Ghana issued FINSAP bonds.
1991 March	Private sector non-performing loans to sound banks swapped with Bank of Ghana issued FINSAP bonds.
1991 June	Second discount house opened.
1991 June	Establishment of First Private Commercial Bank.
1991 July	Cash reserve ratio reduced to 18% and secondary reserves ratio increased to 24%.
1992 January	A leasing company licensed.
1992 October	Bank of Ghana Law enacted providing for stronger supervisory and regulatory powers.
1993 March	Remuneration on cash reserves increased to 5%, cash reserve ratio reduced to 10% and secondary reserves increased to 32%.
1993 May	The Financial Institutions (Non-Banking) Law, enacted to provide supervisory and regulatory framework for non-bank financial institutions and to encourage competition among commercial banks.
1993 May	Home Mortgage Finance Law, enacted to support development of housing finance.
1993 June	Finance lease law enacted to further develop the leasing industry.

Source: Anin, 2000. Aryeetey, Harrigan and Nissanke, 2000. Bank of Ghana, 2000a. World Bank 1999.

Presently majority of government shares in all banks have been floated to the public. With the exception of Ghana Commercial Bank where government owns about 30%, its share in all other banks is minimal. Capital movements are however still subject to controls. A renovation was made to these controls in 2006 with the passing of the Foreign Exchange Act, 2006 whereby there was an introduction of a partial capital account liberalisation. It opened up the market to non-resident investors and has helped accelerate the development of Ghana's domestic (particularly bond) capital markets (Bawumia, Owusu-Danso, and McIntyre, 2008).

The gradual pace of the liberalisation in Ghana as outlined in Table 4.1 above, give credence to the fact that the success of the implementation of financial liberalisation depends on the sequence and pace. This contrasts with the case of Nigeria where implementation of the policy took place in a more rapid and simultaneous manner. The period of implementation for Ghana, stretched from 1986 to 1993 while in Nigeria it was implemented between 1988 and 1992. In addition, as observed by Ikhide and Alawode (2002), the deregulation of interest rates, restructuring or liquidation of defunct financial institutions and the granting of new licenses in an attempt to enhance competition in the Nigerian financial system took place almost simultaneously in 1988. In the case of Ghana, these measures took place between 1987 and 1990 (see Table 4.1).

4.3.1 The Foreign Exchange Market

After the introduction of the controls in 1961, a parallel market for foreign exchange developed. The premium earned by the parallel market grew from the Nkrumah's regime (1961-66) through to the Limann's (1979-81) and exploded during the early PNDC government (1982-83) (Aryeetey, 1996). Figures from Wood (1988) revealed that in 1983 the parallel market premium was about 2001% of the official rate, falling sharply to about 200% after the devaluation of the *cedi* in 1984. The parallel market rate premium over the official rate continued to fall over time and in 1988 stood at about 50% of the official rate (World Bank, 1989). The existence of the premium suggested that the parallel market still flourished at the end of the 1980s and revealed an apparent lack of control of the foreign exchange in the country. The exchange rate was progressively allowed to float and became fully flexible with the launch of the reform.

A weekly auction was adopted to set the September 1986 exchange rate on a weekly basis to run alongside a fixed rate regime, a formal introduction of a dual exchange rate system. The rate at the first window was the official exchange rate prevailing in January of that year and governed the purchase of essential raw materials, crude oil, all official transactions and cocoa earnings. The rate at the second window was determined by weekly foreign exchange auctions organised by the

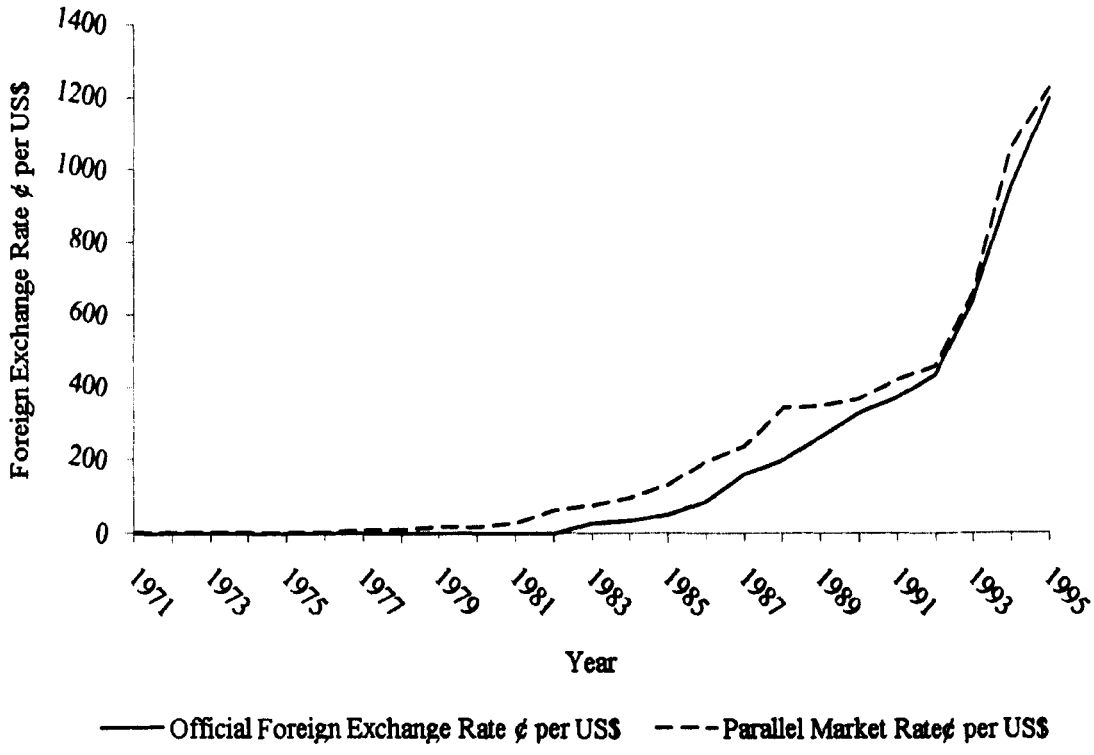
Central Bank for a specified number of foreign exchange demanders for all other businesses other than those catered for by the first window (Harrigan and Oduro, 2000).

The first window auction was based on the marginal pricing auction system in the determination of the exchange rate, in which case all the successful bidders paid the marginal price. However, for the second window auction, the Dutch Auction System was adopted. Under this system, all successful bidders paid the bid price and those whose bid prices were equal to the market-clearing (marginal) rate received a prorated amount of the remaining foreign exchange. The marginal rate declared on the auction day applied to all extra auction transactions, such as all foreign exchange bought by Bank of Ghana, allocated to the central Government and other public entities outside the auction, and sold to commercial banks to replenish their working balances. The auction system had four main objectives: to achieve an increased supply in foreign exchange to match increased demand, a reduction in the weekly variation of the exchange rate, a decrease in the spread between the highest and lowest bid rates, and a narrowing of the divergence between the auction and the parallel rates (Dordunoo, 1994). The official foreign exchange market was unified in February 1987 at which point all transactions were made subject to the auction rate. A flexible exchange rate was adopted resulting in a devaluation of the *cedi* form ¢2.75/$ in 1978 to ¢30/$ in 1983. Further devaluations were made in the three subsequent years, that is from 1984 to 1986, setting the exchange rate at ¢90/$ by March 1986, which restored the real exchange rate to the level achieved before the appreciation in 1978. This helped boost the distressed export trade, but was met by a negative political reaction. The weekly auction helped to de-politicise the setting of the exchange rate and allowed the real exchange rate to regain competitiveness[26] (Wood, 1988). In 1988, the foreign exchange market was liberalised further with the establishment of foreign exchange bureaus that allowed individuals to trade freely in foreign exchange at the spot rate. The real exchange rate depreciated following this move and the gap between the official and parallel

[26] Twelve months after the auction was introduced, the real Cedi SDR rate for 1987 was almost the same as that in 1968.

exchange rates was reduced. By the end of the year, over 70 bureaus had been established (Brownbridge, Gockel & Harrigan, 2000). The bureaus were free to buy and sell foreign exchange at freely negotiated rates. Each bureau was also free to quote its own bid and offer rates. The aim of the bureau system was to attract additional foreign exchange into official channels, facilitate the acquisition of small amounts of foreign exchange on a daily basis and to bring about convergence between the parallel and auction rates. The bureau system was run alongside the weekly auction until 1992, when the auction window was closed and the exchange rate was fully determined by demand and supply through the foreign exchange bureaus. The Figure 4.2, below shows the official and parallel exchange rates from 1971 to 1995.

Figure 4.2: Ghanaian Official and Parallel Exchange Rates: 1971-95



Source: International Monetary Fund, International Financial Statistics Yearbooks (various issues). Dordunoo, 1994.

This openness of the foreign exchange market led to an expansion of trade and investment. This was especially true in the service sector, which deals mostly in imported finished goods rather than in locally manufactured items that would enhance economic growth. After the implementation of

the 1986 reforms, there was a gradual decline in the contribution of the agricultural sector to GDP growth and an increase in the contribution of the service sector. The contribution of industrial sector to GDP however, declined in the first phase of the reform (1986-1988) and although the sector recovered afterwards the sector remains less important than the agricultural and services sectors. This represents a structural imbalance in the economy, as the pattern of structural growth deviates from the World Bank's proposed structural change that envisages a switch from agriculture to industry and then to services (Harrigan and Oduro, 2000). Even though this pattern need not be followed strictly, in the case of Ghana the growth of the service sector at the expense of the industrial sector has not contributed much to economic growth since the service sector is dominated by the trading of imports. This is seen as a means of developing foreign economies at the expense of the Ghanaian economy and trade deficits continued to increase as imports grew more than exports. Despite this, the expansion of the service sector helped to employ many young school leavers who had little or no skills.

4.3.2 Controls and Regulations

In September 1987, control of maximum lending rates and minimum deposit rates was removed and banks were motivated to mobilise more savings. This led to a more efficient mobilisation of savings and lending to credit-worthy firms who in turn expanded investment. In October the same year, a weekly auction of treasury bills was introduced to help manage liquidity in the market, assist in the reduction of inflation, and further encourage savings and investment.

With the support of the International Monetary Fund and World Bank, financial market liberalisation began as part of the comprehensive macro-economic adjustment programme in 1988 - FINSAP, 1988 (Bank of Ghana, 1990). The main objectives of the programme were to:

i. restructure financially distressed banks;
ii. encourage sound banking through improved regulatory and supervisory framework;
iii. improve the mobilisation and allocation of financial resources including the development of the money and capital markets.

The reform was in two parts FINSAP I and FINSAP II, the first running from 1988 to 1990 and the second from 1991 to 1993.

FINSAP I had as part of its objectives:

i. the restructuring of distressed banks and cleaning up non-performing assets to restore banks to profitability and viability;
ii. the enactment of the 1989 Banking Law and
iii. the strengthening of the Bank of Ghana.

With support from the International Development Association (IDA), seven state-owned banks were identified as distressed. To correct this, the Board of Directors of these banks were reconstituted and strengthened to make and implement decisions that would expand profitable services. Through the reform, direct control of the financial system by government was reduced, and directors were given the responsibility for the smooth and profitable running of the banks. The outcome was the closure of unprofitable branches and removal of staff in order to reduce operating costs. The balance sheets of the distressed banks were cleaned-up by replacing loans of non-performing SOEs, Ghana government guaranteed loans and non-performing loans of private sector with bonds. By the end of 1989, ¢31.4 billion and ¢21.9 billion owned by SOEs and the private sector respectively was removed through the issuance of bonds (Non-Performing Asset Recovery Trust, 1994). An agency, the Non-Performing Asset Recovery Trust (NPART), was set up in 1990 to help recover the non-performing assets (Anin, 2000).

The Non-Performing Asset Recovery Law was also enacted in 1990 to expedite the recovery of the assets. The agency and the law were, however, born too late with the result that most of these assets could not be recovered as most of the firms had gone bankrupt. The Bank for Housing & Construction and the National Savings & Credit Bank closed in 1994. The distribution of the non-performing assets among state-owned banks is shown in the Table 4.2 below.

Table 4.2: Non-Performing Assets Transferred to Non-Performing Assets Recovery Trust by Banks in 1990

Banks	Amount of NPAs to NPART ¢Millions	%
Ghana Commercial Bank	14,321	28.4
Social Security Bank	12,585	25.0
National Savings & Credit Bank	725	1.4
Agricultural Development Bank	1,293	2.6
National Investment Bank	6,623	13.1
Bank for Housing & Construction	12,853	25.5
Barclays Bank	689	1.4
Standard Chartered Bank	492	0.9
Merchant Bank, Ghana	881	1.7
Total	50,433	100

Source: Gockel, 1995

As part of the reforms, the Banking Act, 1970 was replaced with the Banking Law, 1989. This helped in strengthening the Bank of Ghana's supervisory role. The Central Bank was empowered to impose penalties on banks that failed to meet liquidity ratios. The Bank of Ghana was also responsible for the promotion of stability in the value of the *cedi* and to stimulate and mobilise efficient use of the nation's financial resources. The premise was that these activities would encourage investment in profitable ventures, enhance economic growth and maintain low inflation. The new Law allowed for the establishment of private and foreign financial institutions. New capital requirements were put in place to help attract investors into the financial sector.

The Bank of Ghana rationalised the minimum reserve requirements for banks, introduced new financial instruments and open market operations for liquidity management. For commercial banks with at least 60% Ghanaian ownership, a minimum requirement of ¢200 million on paid-up capital was imposed. Foreign banks were required to hold a minimum capital base of ¢500 million, whilst development and merchant banks required a minimum of ¢one billion (Bank of Ghana, 1989). The financial policy adopted through the licensing of banks sought to serve two main objectives. These were:

i. to develop specialised segments of banking and financial services notably, merchant banking, development banking, retail banking, mortgage banking and rural-based banking and finance institutions;

ii. to develop national and local entrepreneurship and the participation in the sector through the use of differentiated levels of capitalisation and equity requirements and to source strategic national interest, by way of direct state ownership and intervention in banking activity, including extending banking services to achieve regional balance and equity (Bank of Ghana, 1989).

This policy attracted new entrants into the financial sector and was associated with the introduction of a number of new instruments such as international trade financing, corporate advisory services, stock broking, investment management services and project financing.

The new entrants also helped to increase the capital base of the economy, mobilisation of savings and an efficient allocation of credits. The Banking Law put in place policies to help bolster customer confidentiality, which had been destroyed during the revolutionary era, 1981-1991 (Aryeetey, 1996). Section 44 of the Law enjoined banks to reveal information on clients only at the request of the client or in response to a court order.

4.3.3 Interest Rates and Savings

By the end of the first phase of the reforms (1983-1986), some improvement in the lending and savings interest rates had taken place. Even though rates were high, the spread had narrowed - a generally accepted indication of some financial deepening. This however was not sustained. The spread began to widen in 1987 and thereafter. With wide spreads, savings and investment are discouraged and the rate of economic activity slows. Wide spreads also show that despite the policy of liberalisation, the financial sector is still underdeveloped and the expected benefits of the policy not fully realised. The continuous widening of the spread especially after 2000 seem to suggest a sort of oligopolistic banking industry in which banks try to make excessive profits (Shaw, 1973). The real interest rates were almost always negative for the period between 1971 and 2005, covering

both the repressive and liberalised eras. The negative real interest rates for the repressive era was expected, as a characteristic of financial repression as highlighted by the McKinnon-Shaw hypothesis. The negative real interest rates recorded during and after the financial liberalisation policy was due to the effect of high inflation rates. For instance, in 1992 and 1999 when inflation rate was below 15% real interest rates were positive, the same trend was observed in 2002 and 2004. This gives credence to the argument that for financial liberalisation to be effective in terms of real interest rates there should be considerable stability in the economy (Ziorklui and Barbie 2003). Figures 4.3a&b below show the trend in lending and deposit rates before and during the reform.

Figure 4.3a: Nominal Lending and Nominal Deposit Rates

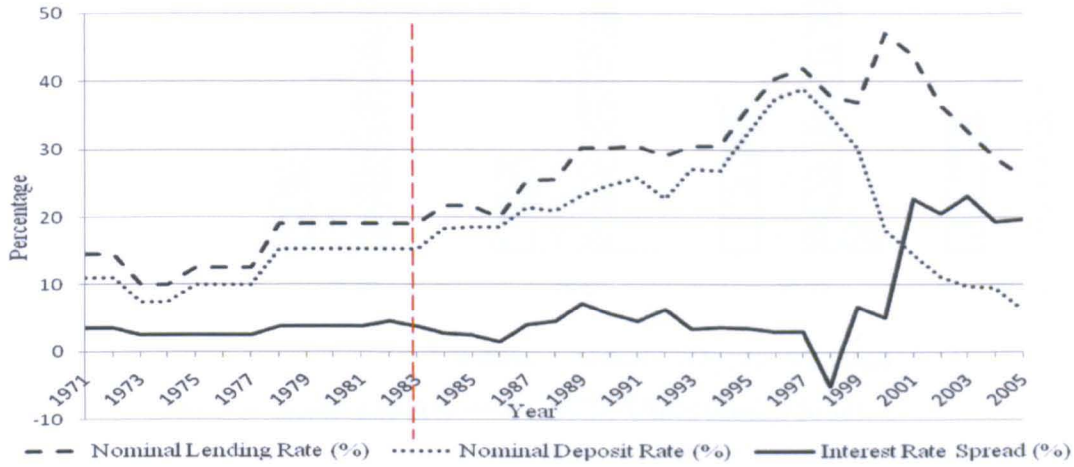
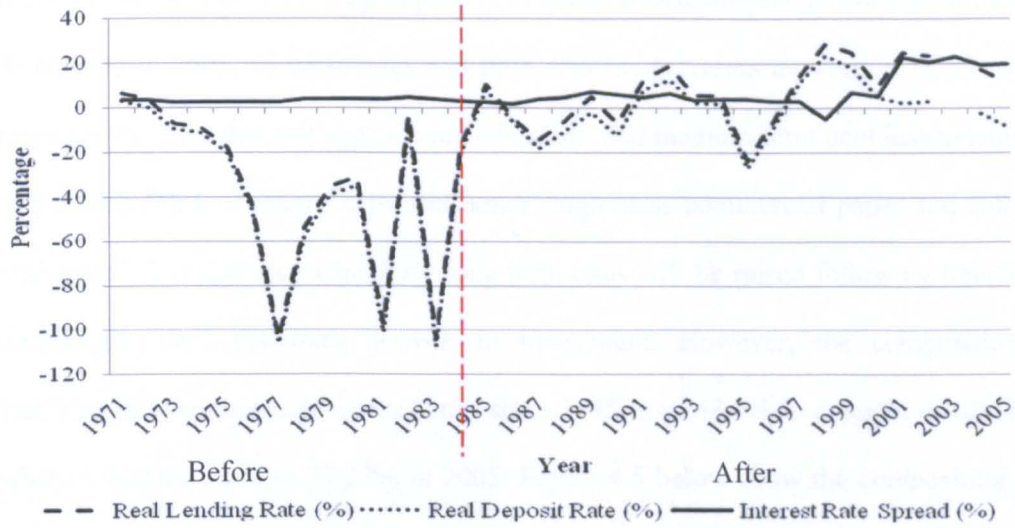


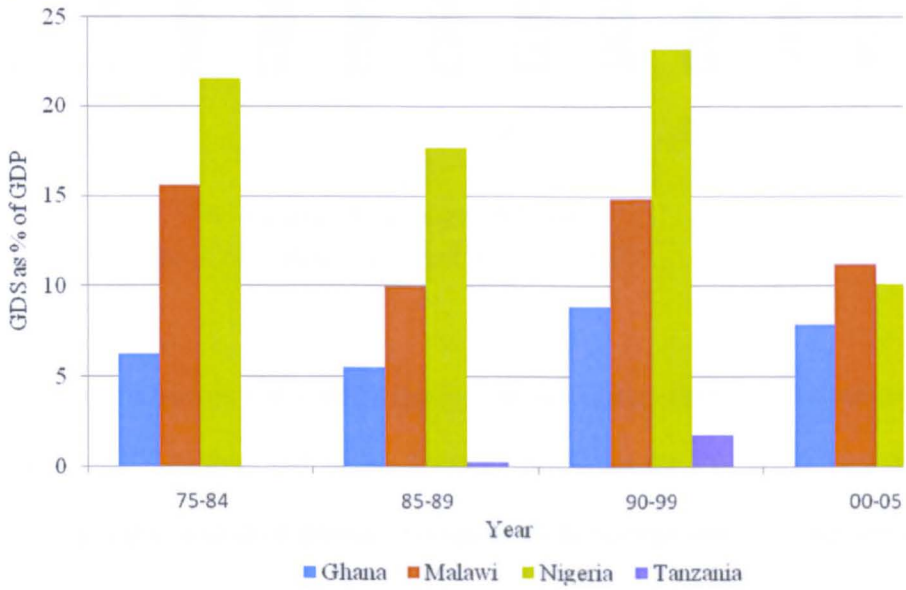
Figure 4.3b: Real Lending and Real Deposit Rates



Source: Bank of Ghana (various issues). ISSER (various issues) World Bank (2000)

The level of savings deposits with Deposit Money Banks (DMBs) in Ghana has been low by African standards. The average Gross Domestic Savings as a percentage of GDP in four African countries including Ghana is depicted in Figure 4.4 below. It showed low savings rates in Ghana between 1974 and 1989, however, after the implementation of the financial reforms the saving rate seems to be catching up with these countries even though it is still low.

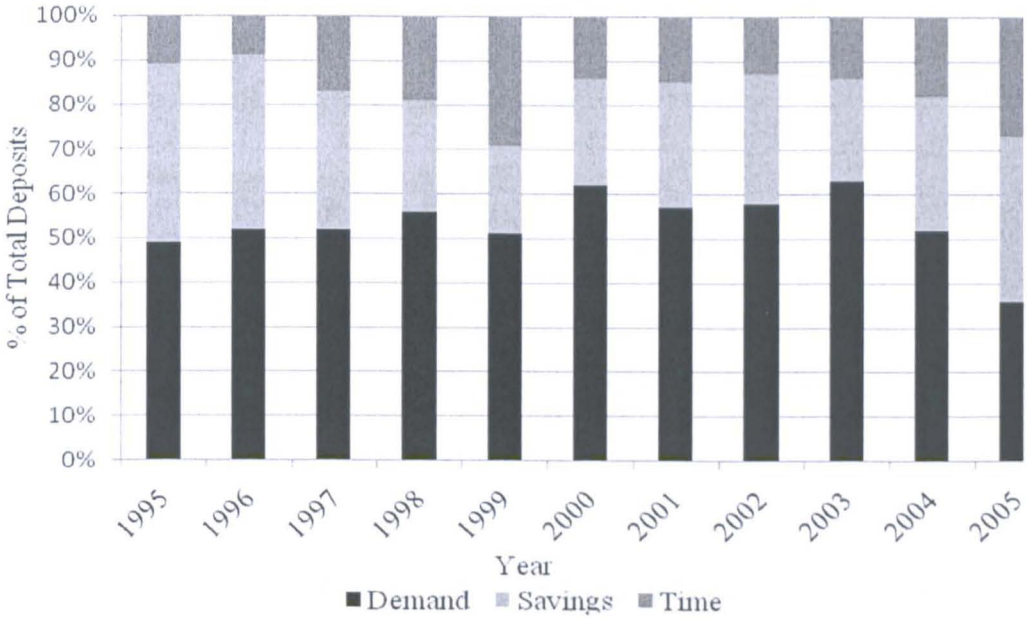
Figure 4.4 Gross Domestic Savings as a Percentage of GDP in Four African Countries



Source: Nissanke and Aryeetey (1998). World Bank, (2008).

A further analysis of the composition of the saving pattern in Ghana reveals that demand deposits make up the bulk of the saving deposits in Ghana. It constituents an average of 53.45% of savings from 1995 to 2005, while savings and time deposits represent an average of 29.63% and 19.91% respectively. The demand deposits include short- and medium-term debt instruments (treasury bills and notes), Bank of Ghana bills and bonds, high-class commercial paper and call money. It was anticipated that savings particularly long-term ones will be raised following liberalisation thereby encouraging and sustaining growth in investment. However, the composition of demand instruments have increased consistently since 1995 from 48.9% to a height of 62.7% in 2003 from where it has decrease to 37.27% in 2005. Figure 4.5 below show the composition of saving from 1995 to 2005.

Figure 4.5: Composition of Bank Deposits 1995 to 2005



Source: Calculated from Bank of Ghana Statistical Bulletin, 2005

Data from the Bank of Ghana's Statistical Release (various issues) shows a continuous decrease of the share of the 91-day, 182-day, and 1-year Treasury bill notes for the period from 2003 to 2005 inclusively. This has led to a shift of private savings towards savings and time deposits for the same period (Bank of Ghana, (2003-2006). Despite this innovation, the level of savings in Ghana, remains one of the lowest in sub-Saharan Africa. To help address this, a Long-Term Savings Scheme was established through Act 679 in 2004[27]. The objective was to set up a tax incentive-based, voluntary plan that provides retirement savings, savings for home ownership and education, all-purpose and lump-sum payments to dependents in the event of the death of a contributor. The extent to which this scheme will be able to mobilise savings is yet to be known. The low level of private savings in Ghana is due to low returns, low income, and a lack of interest by financial institutions in mobilising savings, especially from marginal savers. Offering competitive savings interest rates, encouraging mobile banking and strengthening existing can significantly increase savings deposits.

---

[27] Long-term Saving Scheme Act 679 of 2004.

The World Bank and IMF considered the first stage of the financial reform as successful in promoting growth and development (Brownbridge and Gockel, 1998). This led to the launching of FINSAP II in 1989. Its objectives were to:

i. reduce state shareholdings in Ghanaian banks;
ii. continue bank restructuring started under FINSAP I;
iii. intensify the recovery of non-performing loans by NPART, and
iv. enhance the effectiveness of a broad range of non-bank financial institutions.

(Anin, 2000)

In line with the first objective, the government embarked on a policy of divestiture and privatisation of state-owned banks. Government shares in the National Investment Bank and Agricultural Bank for example, were floated to the public and sectoral credit allocations by banks were abolished in 1990. Banks were no longer obliged to allocate at least 20% of their total loans to the agricultural sector and other SOEs. This helped banks to allocate credit on merit and competition rather than by direction.

By 1990, some of the results of FINSAP II were visible. Banks were meeting their capital adequacy standards due to recapitalisation and the off-loading of non-performing assets. The privatisation of state-owned banks was also underway. The Social Security Bank (SSB) and Ghana Commercial Bank (GCB), the largest state-owned bank, were listed on the Ghana Stock Exchange in October 1995 and May 1996 respectively (Cobbina-Asirifi, 1999). By 1998, the number of banking institutions had almost doubled. There were nine deposit banks, of which five were foreign based, three development banks and five merchant banks. The number of banks licensed by the end of 2008, five years after the launch of the Universal Banking Policy was 27 (Bank of Ghana, 2008a). Prior to the reform, there were only seven banks (Registrar-General's Department, 1998). Table 4.3a below shows the various banking institutions in operation and the number of branches prior to the introduction of the Universal Banking licensing.

Table 4.3a: Types of Bank and Branch Diffusion - 2000

Bank	Ownership (%)		Branches
	Ghanaian	Foreign	
Deposit Banks			
Ghana Commercial Bank	97	3	136
Société Générale-Social Security Bank	46	54	36
Barclays Bank	10	90	24
Stanchart Bank	24	76	20
Trust Bank	39	61	6
Metro and Allied Bank	53	47	3
International Commercial Bank	0	100	3
Stanbic Bank	9	91	1
Unibank	100	0	1
Merchant Banks			
Merchant Bank	100	0	5
Ecobank	6	94	4
Cal Merchant Bank	34	66	3
First Atlantic Bank	71	29	2
Amalgamated bank	100	0	1
Development Banks			
National Investment Bank	100	0	11
Agricultural Development Bank	100	0	39
Prudential Bank	100	0	5
Rural Banks	100	0	121[28]

Source: Registrar-General's Department, 2000 Bank of Ghana, 2000a

With the introduction of universal banking in 2003, the number of banks and their branches has increased. Table 4.3b shows the number of banks operating in Ghana at the end of 2008.

[28] These are unit banks and not branches.

Table 4.3b: Bank Ownership and Branch Diffusion

Bank	Branches
Foreign	
Bank of Baroda (Ghana) Limited	1
Banque Sahélo-Saharienne pour I'Investissement et le Commerce	1
Barclays Bank Ghana	24
BPI Bank Ghana Plc	1
CAL Bank Limited	13
Ecobank Ghana	40
Fidelity Bank Ghana	9
Ghana International Bank	1
Guaranty Trust Bank (Ghana) Limited	12
Intercontinental Bank Ghana	13
International Commercial Bank Limited	11
SG-SSG (Société GénéraleGroup)	36
Stanbic Bank Ghana Ltd	3
Standard Chartered Bank Ghana	30
Trust Bank Limited	6
United Bank for Africa (Ghana) Ltd	19
Zenith Bank (Ghana) Limited	11
Ghanaian	
First Atlantic Merchant Bank Limited	6
Agricultural Development Bank	50
Amalgamated Bank Limited	12
Ghana Commercial Bank	149
HFC Bank Ghana	14
Merchant Bank (Ghana) Limited	9
National Investment Bank Ltd	27
Prudential Bank Limited	19
UniBank Ghana Ltd	12
Rural Banks	128

Source: Bank of Ghana, 2008a, b

The increase in the number of banks presupposes the formation and mobilisation of new capital for investment to enhance economic growth. This, however, was not the case since most of these banks

were locally financed and thus there was no injection of capital from outside. The foreign banks largely base themselves in urban areas and do not become involved in the activities of the rural areas, where the majority of the population live.

This shortcoming of the reform process caused the Kufuor administration to embark on further financial reforms in 2001, designed especially to attract more foreign institutions into the country (Acquah, 2003). As a result of the earlier reforms, a cluster of small, mostly locally-owned banks had emerged with a relatively low capital base and depth that was insufficient to support significant levels of lending. The banks tended to be vulnerable to minor swings in macroeconomic fundamentals. The position of the then Governor of the Bank of Ghana, (Acquah, 2003), was that liberalising entry and encouraging foreign banks and investors in the financial services industry would help accelerate economic growth. Foreign financial institutions were expected to introduce strong business practices, technology, products and risk management systems, which would help increase resource mobilisation and introduce diverse products. Moreover, foreign financial institutions were expected to bring their own financial resources thus adding to the capital base of the economy (Green and Murinde, 1998). A more open and well-regulated financial sector was also expected to be more efficient and robust and act as an "engine of growth" for the entire economy. A stronger and deeper financial sector would protect the economy from external as well as domestic shocks. It was hoped that foreign financial institutions would better identify productive investment opportunities and move domestic savings. This was expected to lead to faster growth of the economy. An open system is intended to force all financial firms operating in the economy to offer their highest returns to savers and the lowest cost of capital to investors leading to narrower spreads and charges, thereby stimulating both savings and investment. As financial institutions aggregate capital, they move into the business and industry sectors where they earn risk-adjusted returns for their savers (Levine, 1997). This means investing in the businesses that can make the best use of their capital and encouraging economic growth.

In order to enforce efficiency and competitiveness in the banking industry, some initiatives were pursued. The initiatives included the move to universal banking, the adoption of an open licensing system, and modernisation of the payments system, including the establishment of a central securities depository and the passage of supportive laws (Bank of Ghana, 2003).

Universal banking, which involves the removal of restrictions on banking activity, was introduced in 2003, to allow banks the freedom to engage in the type of banking services they would like to offer in line with their capital, risk appetite and business orientation. It removes, for instance, the monopoly that was given to commercial banks in the area of retail banking. It creates room for diversification of the range of financial services that a bank can provide and allows merchant banks, for example, to compete for retail deposits (Cameron, 1995). This process is envisaged to lead to a branch network expansion, increasing bank penetration, and competition for deposits at the retail level. Universal banking also came with a higher capital requirement, ¢70 billion and this was to ensure that banks were sufficiently capitalised to take on additional risk. Banks were also free to take on all aspects of banking, retail corporate, or they could choose to specialise in a particular segment. Universal banking was therefore designed to make the banks stronger capital-wise and therefore capable of undertaking intermediation at a higher level (Bank of Ghana, 2006).

With the expected expansion, more risks are assumed. Overseas banks were in a good position to seize the opportunities of such an environment. Within six months, the following developments had been witnessed (Bank of Ghana, 2006):

a. acquisition of more than 50 % equity stake in SSB Bank by Société Générale;
b. granting of universal banking business;
c. establishment of a local branch office by Citibank; and
d. Union Bank of Nigeria's acquisition of 20% equity stake in Home Finance Corporation, a local mortgage institution.

Along with universal banking, the Central Bank also adopted an open, but selective licensing policy, which allowed the entry of new banks. It was anticipated that the addition of new banks

could encourage faster modernisation of banking operations and efficiency of the financial system. Rural and community banking was also being heavily promoted to improve financial intermediation in the rural areas where banking penetration is still low.

The Bank of Ghana launched the E-Zwich biometric smart card on 28th April 2008. The E-Zwich was expected to bring electronic payment to the doorstep of all Ghanaians, whether unbanked, non-banked, or under-banked, and can be accessed even in the remotest parts of the country where electricity and telecommunication facilities are unavailable. The E-Zwich biometric payment system has a low transaction cost with limited infrastructure needs and is able to work in the rural and informal sectors (Bank of Ghana, 2008d).

All these developments pointed to the creation of an investment environment favourable for foreign investors to channel their funds in order to secure adequate risk-adjusted rates of return. As efforts were made to deepen financial intermediation, concern about reaching the rural communities of Ghana with such services was great. With the majority of the population living in rural areas and engaged in agriculture, strategies to provide them with financial services were important. One such strategy was the use of Rural and Community Banks (RCBs) to help mobilise savings, provide credits to the rural population, and thereby help improve their standard of living.

4.3.4 Rural and Community Banks

Rural and Community Banks (RCBs)[29] are unit banks owned by members of the rural community through the purchase of shares. They were developed in the mid-1970s under the protection of the Bank of Ghana as a remedy for the failure of the Agricultural Development Bank (ADB) to make any meaningful impact in granting rural credits. The ADB was established to promote development in the rural areas by issuing credit to the rural dwellers. Due to setbacks, such as the high cost of

[29] These are unit banks usually without branches and owned by the community in which they are located, unlike for example the Indian Rural banks which are branches of mainstream banks (Khan, 2003).

giving out small loans, the low interest ceiling, which did not cover cost, and the lack of borrowers' collateral, the ADB could not fulfil its role of providing rural financial services. To overcome these setbacks, the ADB set up a specialist Small Farmer Group Lending Programme to give out financial services with a wider spread between deposit and lending rates to cover cost (Anin, 2000). This did not survive because it was saddled with inadequate staffing and tardiness in the processing and disbursement of loans. Anin (2000) noted that the average time for applying and for accessing credit took not less than six months, at which time the credit had lost its usefulness since the farming season would have ended. As a result, rural dwellers turned to moneylenders for credit at exorbitant interest rates. In 1973, the Central Bank stepped in with the Rural Bank concept to provide for the financial needs of the rural areas.

The business of the Rural and Community Banks include:

a. the acceptance of money from the public on either deposit or current accounts;
b. the repayment of such monies on demand;
c. the lending of money;
d. the financing of commerce, industry and agriculture through short, medium and long-term loans and advances and
e. the provision of safe custody for clients' valuables. (Anin, 2000).

During the early 1980s, the number of RCBs increased rapidly in response to the demand for rural banking services created by the government's policy of paying cocoa farmers with special cheques, the 'Akuafo cheques'[30], rather than cash. The number increased from 29 in 1973 to 106 in 1986 (Bank of Ghana, 1986). However, the promotion of the RCBs through the government's policy of paying the farmers by cheques had an adverse effect on their financial performance. In 1993, their share of total mobilised savings was 27%, but the capital base was weak and paid-up capital, income surplus, and reserves were only 7.5% of total resources. The total capital assets of the 120

[30] Literally meaning farmers' cheque.

RCBs in 1993 were ¢424 million as against that of ¢1.4 billion for ADB (Nissanke and Aryeetey, 1998). Thus, the RCBs were unable to serve the credit needs of the rural community - the main reason they were established. Instead, they became payment outlets for the cocoa industry that is paying out the cheques the farmers received after selling their cocoa to the government. Through a combination of rapid inflation, currency depreciation, economic decline, mismanagement of funds and natural disasters, particularly in 1983, only 23 of out of the 123 RCBs qualified as 'satisfactory' during the Rural Finance Project classification under FINSAP II (World Bank, 1993).

There was therefore a need for re-capitalisation and capacity building to help improve the performance of the RCBs. Between 1990 and 1994, support from the World Bank's Rural Finance Project was used to revitalise RCBs. About twenty-three distressed RBs were closed down, prompting the remaining ones to find various ways to maintain or improve their services to prevent closure. Most of the RCBs resorted to a more commercial way of running their enterprises. This they did by collaborating with NGOs that offer micro-finance strategies. Here, loans were given out on relatively short-term bases (4-6 months), with re-payment organised weekly. The size of the loans was relatively small, averaging $50-$75. Borrowers were required to maintain an up-front level of savings of 20% of the loan to serve as security, in addition to group or individual guarantees (Steel and Andah, 2002).

With this approach some RCBs, were reported to have increased their operations to over 20,000 clients and reached high levels of operational and financial sustainability (Owusu-Ansah, 1999). However, the approach tends to favour those rural individuals engaged in ventures other than peasant farming since it was these that were able to meet the requirements. Though the RCBs helped improve the living standards of some of the rural population, the poorest, who needed help most, were unable to benefit due to lack of security: in effect, they suffered the same problem as the large commercial banks. An attempt to solve this led to the development of a new strategy to access credit from the RCBs, which has helped solve the problem to an extent. With this strategy, prospective borrowers formed groups and accessed credit as a group rather than individuals. The

members of the group served as security for each other to promote repayment of the credit received. CHORD (2000) identified four such groups and described how they functioned. These are as follows:

- *Group savings with credit.* A group of vegetable growers, for example, open a joint bank savings account and mobilise initial savings deposits to qualify for a loan. The group savings are used as security against loans and are used to invest in treasury bills for the group. Groups are usually made up of 3-4 sub-groups.
- *Group and individual savings with credit.* Group members contribute to both a joint group account and their individual accounts. The group may be a 'village bank' of about 25-40 members, or as small as five members. While both individual and group savings accounts are used as collateral, the individual accounts include the members' additional personal savings. Loan repayments are made by individuals but handled through the group account.
- *Individual savings with group credit.* Individuals lodge their savings through the group, which receives a loan for distribution to members after a qualifying period and collection of the required level of savings. Members continue to save into their individual accounts as they repay the loan. The group handles the collection of savings and repayments, acts as the interface with the loan officer and bears group responsibility for recovery (though the loans are made to individual members).
- *Individual savings with credit.* Direct lending to individuals, either those who have established a credible history as a member of a group but who need larger or separate loans, or, in cases where a group approach is not suitable.

Through this approach, many more community dwellers are supplied with credits. Other strategies adopted by RCBs in providing for the financial needs of the rural community include developing links with *susu* collectors or serving community-based organisations (CBOs) with donor programmes (GHAMFIN 2001). The *susu* collectors are introduced to the culture of banking and obtained access to credit for on-lending to selected clients. By linking with the *susu* collectors, the

RCBs are able to mobilise savings at no cost to them and increase their capital and are thus able to provide more credit to their clients. The *susu* collectors provide them with information about their clients with the result that the cost of gathering such information and enforcing repayment of loans is reduced. A pilot project with members of the Ghana Co-operative *Susu* Collectors Association (GCSCA), linked with selected financial institutions in selected regions started in 1996, involving the:

- Sinapi Aba Trust (Ashanti Region);
- Nsoatreman Rural Bank (Brong Ahafo Region);
- Citi Savings and Loans Company (Greater Accra Region);
- Lower Pra Rural Bank (Western Region);

Table 4.4 below highlights some of the evaluation's findings:

Table 4.4: Pilot On-Lending Schemes

	Sinapi Aba Trust	Nsoatreman Rural Bank	Citi Savings & Loans Company	Lower Pra Rural Bank
Year of joining the Scheme	1998	1998	1998	1996
Number of collectors participating in the pilot	15	4	17	10
Average loan to collectors (¢'000)	3,000	5,000	4,000	5,000
Clients per *susu* collector (average)	175	175	500	250
Number of defaulting *susu* collectors	0	0	0	0

Source: GHAMFIN Survey Data, 2000

From the table we can deduce that *susu* collectors served as good mediators in disbursing and collecting credits both on behalf of financial institutions and clients. This has helped improve the

operations of the RCBs, by reaching more clients at a lower cost and with a higher rate of loan recovery. RCBs also use NGOs to perform some ancillary services. For example, Nsoatreman Rural Bank pays a 2% commission to an NGO that helps to identify, mobilise and educate rural groups on credit access through the International Fund for Agricultural Development (IFAD) Programme, as well as helping in monitoring and recovery of loans (Owusu-Ansah, 1999). These growing links among RCBs, NGOs, CBOs and *susu* collectors provide an important outreach to rural poor clients. The RCBs provide a decentralised network of licensed financial institutions in the rural areas while the others provide grassroots orientation to reach relatively poor and remote clients with small credits. This provides an avenue for the rural population to increase consumption and expand economic activity.

In order to improve the services of the RCBs, the Association of Rural Banks (ARB) established Apex Bank limited in 2000. It provides special services to RCBs as follows:

i. to play the role of a 'central banker' to RCBs;
ii. to provide cheque clearing, and fund management services;
iii. to source domestic and external funds for on-lending to RCBs;
iv. to provide guarantee support for RCBs' cheques;
v. to provide inspection services;
vi. to provide intermediary services to informal and semi-formal micro-finance institutions;
vii. to organise a deposit insurance scheme for RCBs to provide cover for customers' deposits.

The Apex Bank was expected to perform non-banking services such as training for employees and directors, and supply of stationery. It was intended to help remove operational bottlenecks and institutional constraints so that the RCBs could become more efficient, effective and profitable intermediaries (Bank of Ghana, 2003).

At the end of 2000, two more RCBs were established increasing the total to 113. Classification of the RCBs was also changed: 58 were classified as satisfactory compared to 52 in 1999, 51 as

mediocre compared to 57 in 1999 and the number of distressed remained unchanged at two. In 2002, the number of RCBs was 115, of which 89 were classified as 'satisfactory' and 26 'mediocre' (Bank of Ghana, 2002). The classification system was and remained based on the loan portfolio performance of the unit. As the majority of the units were performing well, it was hoped that the financial needs of rural dwellers would be catered for through this development.

The ratios of RCBs savings deposits to assets for 2000-2002 were 0.75, 0.73 and 0.76 respectively, in 2002, there seem to be a slight recovery and increase in this ratio after it fell in 2001. This could be attributed to innovative schemes such as mobile banking, *susu* schemes and special deposit facilities for students. However, the credit-deposit ratios have not been encouraging for this period at 0.33, 0.35 and 0.35 respectively, showing that less than 50% of the mobilised resources are given out as loans and advances. This points to the prudential strategy in place, which helps to ensure the smooth running of the institutions. Treasury bills and bonds have been the preferred holdings of the RCBs taking about 42.8% of their assets. Credit to the agriculture sector increased from 16.61% to 18.49%, while that for the cottage industry and transport fell from 5.77% to 5.08% and 4.68% to 3.67% respectively (ISSER, 2002).

By 2003, the number of RCBs classified as satisfactory was 100 with 15 classified as mediocre, an improvement in the operations of the RCBs. By the end of 2005, the number of RCBs rose to 121. However, their distribution was uneven with 78% located in four out of ten regions nation-wide: Ashanti –22, Central –21, Eastern –19, and Brong Ahafo –19. Total assets increased by 25.7% and total deposits by 23.81% between 2004 and 2005. The Consolidated Balance Sheet of Rural and Community Banks (Bank of Ghana, 2007a), showed that the total assets and deposits of RCBs continued to increase in 2006 increasing by 32.3% and 32.2% respectively. The improvement in the performance of the RCBs suggests that more rural areas are being reached, therefore serving more poor people with financial services. However, the impact of RCBs on rural poverty remains unclear.

4.4 The Non-Banking Financial Sector

Non-banking financial institutions (NBFIs), which were rare in the financial system of Ghana historically, have grown rapidly with the passage of the NBFIs law in 1993. The law was passed to provide a legal framework for the new set of financial institutions, which were being established. These institutions included discount houses, finance houses, building societies and leasing companies. In 1995, the growth of the non-bank finance sector received a boost when the Government of Ghana, which, with the support of a $2 million International Development Agency credit, developed a programme to enhance the capacity of the sector (Bank of Ghana, 2000a). The credit was aimed at addressing gaps in the formal non-bank sector.

By the end of 2008, there were 61 registered non-bank financial institutions, with the exception of credit unions and registered co-operatives. Table 4.5 below show the various types of NBFIs currently operating in Ghana. The Co-operatives (NGOs) include micro-finance institutions such as Sinapi Aba Trust, TechnoServe, Catholic Relief Services, and Freedom from Hunger (FFH). These institutions provide financial services that are not regulated by the central bank. The vital role of this sector stems from the fact that about 65% of Ghana's money supply is held outside the conventional banking system (Bank of Ghana, 1990). It was hoped that the establishment of these institutions would broaden and deepen financial intermediation and help manage the liquidity in the economy.

Table 4.5: Non-Banking Financial Institutions

Type of Institution	Number Available
Discount Houses	2
Finance Houses	21
Mortgage Finance Company	1
Stock exchange*	1
Stock Brokerage Companies	11
Insurance Companies*	34
Savings & Loans Companies	15
Leasing Companies	4
Credit Unions	253
Co-operatives (NGOs)	110

Source: Bank of Ghana, 2008c.

In 2000, existing NBFIs include two discount houses, which serve as avenues for smoothing the day-to-day operations of banks while earning interest on short-term idle balances. Non-bank institutions also benefit from the services of the discount houses by operating short-term money-market transactions on their behalf. The establishment of the houses has added to financial deepening and intermediation. Idle balances are mobilised and channelled into profitable investment, in the hope of enhancing investment and economic growth.

4.4.1 Mortgage Finance

Mortgage Finance Companies are companies engaged in lending funds for acquisition of residential and commercial property which are secured by mortgages on the properties financed. Additionally, they may deal in the securities collateralised by such mortgages (Anin, 2000).

Mortgage financing, which was first introduced in the early 1970s by the Ghana Commercial Bank (GCB), also received a boost through the entrance of a private venture, Home Finance Company Limited (HFC) in 1990. The Acheampong regime (1971-1978) made an effort in this respect by establishing the Bank for Housing and Construction in 1973 but, like the first attempt by GCB in

the early 1970s, this organisation shifted from its brief of assisting and promoting estate development to general commercial banking (Anin, 2000). The main problem facing this sector was the land ownership law in Ghana, which favours collective ownership of land as against individual ownership. The issue of family and stool/skin lands[31] creates a considerable amount of land litigation, which financial institutions did not want to be part of since it causes problems when it comes to the repayment of mortgage loans (Quartey and Al-Hassan, 2007).

With the Home Finance Law of 1993 (PNDCL 329), the mortgagee's position was strengthened. In July 1994, the Home Finance Company (HFC) was established, becoming a public company in October the same year and listed on the Ghana Stock Exchange (GSE) in March 1995. It is the first and only private mortgage company in Ghana. Its main business was to provide long-term mortgage loans to individuals for the purchase of houses. It also provides secondary mortgage financing whereby the HFC raises funds by issuing bonds and other financial instruments to investors the proceeds of which are used to purchase investment mortgages from other approved banks and NBFIs. HFC offers investment management and savings mobilisation services to its clients. It provides loans for home improvement, completion of partially constructed houses and refinance for homeowners thereby enabling them to release part of their equity for re-investment in other ventures. The establishment of HFC was a major step in addressing the acute housing problem in Ghana. In addition, the provision of loans helps free capital for other economic activities thus increasing income and reducing poverty. Despite these merits, the activities of HFC are confined to the urban areas and to a relatively small group of people. Thus, the majority of the population do not have access to the services and the overall housing problem remains.

---

[31] Community lands vested in the traditional community leaders on behalf of the community.

4.4.2 Stock Exchange Market

The first attempt at establishing a stock exchange in Ghana was in 1968, after the Pearl Committee's feasibility study on the subject[32] and in 1971, the Stock Exchange Act was passed to govern its activities. However, due to political instability, the stock exchange was not established until 1989 and then as a NBFI. Trading started in November 1990 with 11 listed companies; by 1997 the number of listed companies had increased to 21 (Anin, 2000). At the end of 2008, there were 33 listed companies and two corporate bonds (Kyereboah-Coleman, and Agyire-Tettey, 2008).

Since 1990, the Ghana Stock Exchange (GSE) has been gradually facilitating the development of the capital market in Ghana. One major objective for the establishment of the GSE was to enable corporate institutions and government to raise quick capital to accelerate development in order to reduce undue reliance on donors. In line with this objective, the GSE has gained prominence by facilitating tremendously the divestiture and privatisation of some state-owned enterprises. The total volume of shares traded from November 1990 to October 2001 was 569 million valued at ¢558,845.75 million. Over 12 companies have raised ¢330 billion through the Exchange since November 1990 (GSE, 2001). In terms of behaviour, the GSE enjoyed a buoyant run between 2002 and 2004, with the GSE all-share-index (GSI) rallying to reach an all period high of 7,316.31 by close of August 2004. Indeed, the exchange was adjudged as the world's best-performing market at end of the first quarter of 2004 with a year return of 144 % in $US terms compared to 30 % return by Morgan Stanley Capital International Global Index, 26 percent Standard & Poor in the USA, and 32 % in Europe, amongst others (Databank Group, 2004). This remarkable performance may be attributed to a relatively stable and good macroeconomic performance during the period and a subsequent pick-up in investor and economic activity. Within the period, a number of new initial public offers were also introduced with the divestiture of shares of existing state owned enterprise

---

[32] The Pearl Report, 1968

(SOE) on the exchange. The GSE created an avenue for individual households to invest excess funds and diversify their portfolio However, since 2005, the GSE has had a poor performance in spite of the sustained macroeconomic stability and gains in the country (Kyereboah-Coleman, and Agyire-Tettey, 2008). Some reasons have been offered in an attempt to explain this, including the fact that the market may be correcting itself due to overvaluation of equities during the 2004 bull runs. Again, it has been argued that previous petroleum price hikes fuelled inflation expectations which resulted in large diversions of funds away from shares in the stock market to short-term instruments in the money markets.

4.4.3 Insurance Market

The Insurance industry is a risk management venture aimed at the prevention and reduction of loss (Anin, 2000). In Ghana, the industry had been predominantly controlled by the government until the mid-1980s when the financial sector was liberalised and began attracting private investors. Insurance companies in Ghana fall into three categories:

a. Life Insurance.
b. Non-Life Insurance.
c. Composite Insurance (a combination of Life and Non-Life insurance).

In 1989 the Insurance Law, PNDCL 229 was passed, establishing the National Insurance Commission as the sole institution to regulate and supervise insurance activities in the country. The industry is still at its infancy even though the first insurance company in Ghana dates back to the colonial era (Anin, 2000).

The industry is dominated by non-life business, accounting for over 80 % of premium income; however life business is growing in importance. Life premium income in 2003 was 19.4 %of total premium income, with the remaining 0.6% by composite insurers. The total assets of the insurance industry, made up of 16 direct insurers and 1 reinsurance company, was equivalent to 1.84 % of GDP at the end of 2003. The overall insurance penetration, gross premium as a percentage of GDP, stood at 1.07 % for the same period. The insurance sector is concentrated among five insurers these

are, State Insurance Company, Enterprise Insurance Company, Star Assurance Company, Metropolitan Insurance Company and Ghana Union Assurance. Together they account for 77.7 % of the industry's aggregate ¢1.2 trillion total assets (Bank of Ghana, 2004).

The companies involved in Non-Life insurance products provide a mix of 'all-risk policies.[33] The most popular products, apart from motor insurance, are marine, aviation, goods-in-transit and contractors' all-risk; which are required by law to be obtained as part of regulations covering the registration of a company. Only two insurance companies provided life policies exclusively. They offer products to individuals and groups. Products for individuals include Life Savings, Accident Indemnity, Hospitalisation Insurance, Dread Diseases, Burial and Funeral Expenses Plans. The most popular is life savings and more recently that of the burial and funeral expenses plan. Products patronised by groups include Universal Endowment/Employee end of Service Benefit Plan, Executive Life Plan, Business Continuation Plan, Sport Life, Holidays and Transit Insurance (Anin, 2000).

The insurance industry in Ghana has not had any noticeable impact since the reforms except for an increase in private participation. This is because of various policies governing the industry and the economic situation in the country. High inflation and low incomes affect the development of life insurance negatively. Under such conditions, people do not have enough to consume and thus, are not encouraged to embark on any ventures that will reduce their disposable income further. Inadequate knowledge and poor public perception about insurance has resulted in a lack of confidence in the industry with the results that few people are interested in purchasing a policy. Owing to the legal implications that may arise when claims are made, the largely illiterate population has avoided the industry since they perceive it as an avenue to take their money but

---

[33] These include Fire, Householders Policy, Burglary, Employers Liability, Goods-In-Transit, Public Liability Policy, Contractors All-Risk Policy, Fidelity Guarantee Policy, All –Risk Policy, Marine Insurance, Aviation Policy and Motor Insurance.

difficult for them to make claims against. The legislation, which demands that government and parastatals agencies insure solely with the State Insurance Corporation (SIC), is also a drawback on industrial competition and efficiency (Anin, 2000). Insurance companies are urged to explore other avenues such as trade financing and long-term investments to match their liabilities. It is envisaged that further development of the insurance industry could play a vital role in mobilising savings for investment. For instance, with life policies, there is an opportunity to smooth future consumption, especially after retirement.

In order to help improve the industry, the Insurance Law of 1989 (PNDCL 227) has been replaced by the Insurance Act, 2006 (Act 724). Included in its provision is the requirement of separating non-life operations from life, thus prohibiting composite licenses. The law also specifies a capital requirement of ¢7billion for each line of business. From data (National Insurance Commission, 2007) available, seven companies have capital levels below ¢6.0 billion. The enforcement of the new capital levels may have severe implications for the industry, as the number of companies at risk of losing their licences is quite high. At the end of 2008, 34 companies had registered with the National Insurance Commission, comprising 15 Life, 17 Non-life and 2 Reinsurance companies (Odoi-Larbi, 2008).

4.4.4 Micro-finance

Micro-financing is a way of stimulating individuals by providing them with small loans, $50 on average. This is usually enough to start a successful business and break out of the cycle of poverty. Such credit enables borrowers to earn a living for themselves and their family and gives them an opportunity to improve their community. Examples of such micro-finance institutions in Ghana are 31st December Women's Movement, Citi Savings and Loans, Catholic Relief Services, Freedom

from Hunger, Sasakawa Global 2000, Women's Revolving Loan Fund, World Vision and Women's World Banking Ghana[34]. Some of these are registered as NBFIs and NGOs.

In 1996, a study by Freedom from Hunger evaluating the impact of their credit facilities to women revealed encouraging results. It showed that approximately 90% of the women clients had not only increased their incomes but had also provided healthy nutritious meals to their family and thereby reduced malnutrition among their families (Wiegand, 1998). Most commonly, participants attributed this improvement to expansion of their businesses through the ability to reduce input cost by buying in bulk or with cash and engaging in new activities as a result of access to credit.

Since 1998, the Catholic Relief Services (CRS) has been providing credit facilities to women through the Bimoba Literacy Farmers Agricultural Co-operative Union (BILFACU) village banking project. Small loans of between $20 and $60 are given to each eligible woman to help them increase their incomes by sustaining and expanding small businesses. No collateral is required. Instead, women from solidarity groups act as guarantees in case of default. In 2003, the CRS reached 2024 clients with credits, which they repay within six months through constant saving with the bank (Catholic Relief Services, 2003).

4.4.5 Savings and Loans Companies

One set of NBFIs, which has played a vital role in providing financial services to the poor, especially women, in both urban and rural communities in Ghana are the Savings and Loans Companies (SLCs). SLCs engage in mobilising retail savings by accepting deposits from the public, mainly, households and small business enterprises, and providing credit to the non-

---

[34]Microfinance Country Information- Ghana. [Online] Available on http://www.gdrc.org/icm/country/africa-ghana.html Accessed on 14/04/09.

corporate sector largely with target group orientation such as, micro and small business financing. Target group oriented credits may often be linked to savings (Anin, 2000).

SLCs activities started in early 1994, but licensing met with difficulty and long delays as the Bank of Ghana grappled with how to implement the new law. The minimum capital requirement of ¢100 million posed initial problems, but this was soon eroded by inflation. By 1995, there were 5 SLCs increasing to 8 in 2001, with 160,000 depositors and 10,000 borrowers among them. The issue of capital requirement continues to be a hurdle for prospective investors in SLCs. As of June 2001, five applications for licenses could not be approved due to lack of adequate capital, which had been increased to ¢1.4 billion (Bank of Ghana, 2001).

SLCs have been identified as a way of regularising three types of micro-financial institutions (MFIs) and boost the financial needs of the rural communities.

This is through:

- transformation of NGOs into licensed financial intermediaries;
- formalisation of actual or potential money-lending operations; and
- establishment of small private banking operations serving a market niche.

Women's World Banking Ghana (WWBG) was the first NGO to be transformed into an SLC in 1994. It was aimed at integrating more women into the economy of Ghana by providing credit, savings, training and technical services to women in micro and small enterprises. The WWBG has been able to reach low-income female entrepreneurs located in major urban areas in Ghana. The objective of the program is to enable low-income individuals, especially women, to build reserves for personal and family contingencies. The institution uses savings as a source of funds for investing and lending. By the end of 2002 there were 34,481 active clients, 34,090 borrowers and 2,442 savers. The average loan was about ¢1,000,000. Seventy-eight percent of clients were women but only 20% lived in the rural areas, an indication that rural women faced difficulties in

accessing credit. The sector that received most credit was the trade and commerce sector while the agricultural sector received only 2% (WWBG, 2002). Though the WWBG has help to improve the financial status and standard of living of women, this has been confined to the urban areas and hence the poor rural women continue to be disadvantaged.

Another NGO, which is expected to be transformed into an S&L, is the Sinapi Aba Trust (SAT). It is expected that SAT will reach more rural dwellers since it has most of its branches in the hinterlands (Steel and Andah, 2002). As of 2002, SAT was operating as an NGO. In 2004, after ten years of microfinance services in Ghana, SAT, in partnership with other international stakeholders Opportunity International and OIKO Credit, has converted three of SAT branches (Accra, Kumasi and Techiman) into a Savings and Loans company (OI-SASL) of which SAT is the majority shareholder[35].

Some licensed SLCs fall into the category that may be described as existing or potential moneylenders who want to join the formal financial system to mobilise savings as an additional source of funds. Those who fall into this category include entrepreneurs with surplus funds but lacking experience in financial services. First Allied is an example of such an SLC reaching about 51,049 depositors with ¢25.5 billion and 2,820 borrowers with a total loan portfolio of ¢10.3 billion in 2001 (GHAMFIN, 2001). It uses group and individual savings and credit schemes with existing registered occupation-based groups like butchers, kente-weavers and other associations (CHORD, 2000). It serves only the local market around Kumasi, the second largest city in Ghana but reaches many rural dwellers since they come to Kumasi to transact their business.

The development of SLCs has made the entry of a third category of private investors possible by serving a particular niche market on a smaller scale than could be accommodated by commercial

---

[35] Sinapi Aba Trust [Online] Available on http://www.sinapiaba.com/ Accessed on 12/03/09.

banks. The niche market of SLCs is the provision of micro-finance to micro-entrepreneurs: Citi Savings & Loans Company Ltd. (CSL) is the first of this kind in Ghana. CSL uses local market traders and *susu* collectors as their main depositors. The linkage between the collectors and CSL helps to mobilise many individual savings at virtually no cost to CSL. For instance, a collector with about 300 clients is able to mobilise their daily savings and deposit it with CSL thus increasing the liquidity base. Through *susu* clubs and other associations it provides group loans, with joint group guarantee and savings bank balances up to 50% of the loan amount (Anin, 2000).

4.5 Semi-formal Financial Institutions

Semi-formal financial institutions in Ghana contribute to the mobilisation of saving and provision of credit facilities particularly to the poor and thereby help increase economic activity and reduce poverty. The two main such institutions in Ghana are Credit Unions (CUs) and Non-governmental Organisations (NGOs).

Credit Unions are co-operative/mutually owned organisations formed by homogenous group(s) or interest(s) for mobilising savings from members to meet their credit needs. Canadian Catholic missionaries established the first CU in Africa at Jirapa in the Upper West region of Ghana in 1955. By 1968, there were 254 CUs, 64 in the rural areas, and they had a total membership of 60,000 under the apex body of Credit Union Association (CUA) (Quanioo, 1997). The number of CUs grew to nearly 500 by 1976 but declined to 233 by 1984 and 223 by 1992 owing to the economic situation. High inflation rates eroded their capital base, savings were discouraged by the droughts in early 1980s, and the government's redeployment exercise slowed down economic activity. With the introduction of economic reforms, activity picked up and so did the activities of the CUs. By the end of 2002, there were 253 CUs with 123,204 members. Individual members are expected to make regular predetermined deposits into their accounts and can borrow up to twice their savings. The regulations of CUA require that members in urban areas make a monthly minimum deposit of ¢20,000 while those in the rural areas make a deposit of ¢10,000. With such regulations, members

acquire the culture of saving and enjoy credit facilities to either smooth consumption and/or expand their economic activities (Quainoo, 1997).

Non-Governmental Organisations (NGOs) have facilitated the development of micro-finance practices in Ghana by introducing strategies in partnership with Rural and Micro-Finance Institutions (RMFIs) (CHORD, 2000). These strategies are based on group solidarity methods linking for example, with already existing groups based on family, occupation, location, or gender. The target clientele of these co-operatives are the low-income, small and micro rural and peri-urban informal operators. NGOs are particularly important in the northern part of the country where both commercial and rural banks are scarce and the incidence of poverty is high. NGOs act as a direct lender and savings mobilisers, packagers, and product developers. They are viewed as a vehicle of change in developing countries in view of their potential for pooling resources, through the supplier of raw materials, storage, and marketing (Quainoo, 1997). However, most of the registered co-operatives exist only in name. About 50 NGOs are active in multipurpose micro-credit and welfare-oriented programmes in Ghana, with only four having clients in excess of 3,000. The total outreach is only about 16,000 clients (GHAMFIN, 2001). The exception is the Sinapi Aba Trust[36] (SAT) established in 1994. Currently it has 18 branches countrywide, offering both group-based and individual loans. SAT is affiliated to Opportunity International and receives funding from DFID, the Hilden Charitable Fund (UK), Microstart (UNDP) and USAID. The total number of clients who received credits at the end of 2006 was 51,686 of which 92% were women and the rate of arrears for more than 30 days is 0.97 percent (Sinapi Aba Trust, 2006). At this rate, it was expected that more women would became economically active and independent, improving their living standard and that of their families. The performance of SAT in 1996, and over 2001 to 2006 is shown below in Table 4.6.

---

[36] SAT in this case is an NGO not a SLC.

Table 4.6: Performance of Sinapi Aba Trust

	1996	2001	2002	2003	2004	2005	2006
Value of Loans disbursed (¢billion)	0.7	28.5	38.7	60.3	92.7	111.2	169.5
Number of Clients	1,741	24,396	26,615	41,803	51,393	34,632	51,686
Percentage of Women	70	90	93.0	92.02	85	95	92
Operational Sustainability (%)	95	139	140	126	93.68	144.51	117.13
Financial Sustainability (%)	48	103	104	94.30	81.97	127.13	102.94
Arrears Rate > 30 days (%)	6.3	2.6	3.9	3	0.93	1.22	0.97
Portfolio at Risk >30 days (%)	6.9	4.0	8.61	5.24	1.31	1.80	1.49

Source: Sinapi Aba Trust, 2006

Other NGOs such as the Catholic Relief Services and the SNV[37] help by providing credits to groups and individuals particularly in the north. These institutions operate an adaptation of the Grameen Bank model in which both share capital and savings deposits are mobilised by members and the NGOs provide a third source of funds. CRS Ghana recognises that in order to increase household income, efforts must be made to improve both the production and marketing of crops produced by small-scale farmers. CRS Ghana is working with the Diocese of Navrongo-Bolgatanga to increase profits and production of peanut farmers in two districts in the Northern Region. In the project's first year (1998), groundnut (peanut) profits increased by 50 percent[38]. In Ghana, the CRS has used this procedure to reach over 2000 rural women who are engaged in cereal and vegetable farming in the northern part of Ghana.

Freedom from Hunger's (FFH) Credit with Education programme is another NGO which uses individual savings with group credit to target women and provide education on health, nutrition, family planning, financial planning, and micro enterprise development. Group members make a

[37] A Netherlands Development Organisation that supports organisations committed to fighting poverty and improving local governance.

[38] Catholic Relief Services Agribusiness [Online] Available on http://crs.org/ghana/projects.cfm Accessed 18/07/2006.

mandatory savings contribution for at least three months before qualifying for a loan (CHORD, 2000). Through these programmes, women learn a trade with the intention of improving their lives and that of their families.

A related organisation is TechnoServe (TNS), an NGO which, started as an inventory credit scheme in 1971 to help improve the income level of member farmers. Between 1990 and 1994, TNS mobilised a total of ¢39.3 million in savings, representing a one-time share capital payment by its members. The following table shows how this money was made available to member farmers.

Table 4.7: TechnoServe's Performance from 1990 to 1994

Item	Magnitude
Savings (¢ million)	39
Disbursements (¢ million)	283.98
Range of Loans (¢ million)	0.9-5
Average Loan Size (¢ million)	2.6
Average Loan Term (months)	10
Maximum Loan Term (months)	60
Nominal Interest Rate (%)	20-25
Range of Recovery Rate (%)	98.5-100

Source: TechnoServe, 1998

The average loan size per beneficiary by loan category was:

i. ¢88,000 for cereal growers;

ii. ¢125,000 for agricultural input loans (now discontinued) and;

iii. ¢4,700,000 for palm oil processing groups.

This scheme enables farmers' groups to obtain higher value for their crops by providing post-harvest credit through linkage with a RMFI, using stored crops as security for credit (Quainoo, 1997). Instead of selling their output at harvest when prices are low, small-scale farmers in the

scheme store their crops in a co-operatively-managed warehouse and receive loans using their stored crops as security. In the off-season when the price for crops is high, farmers then sell their crops receiving the income balance outstanding and repay the loans. Through this scheme the living standard of most small-scale farmers has been improved and post-harvest losses, which are a disincentive to increased production, eliminated to a large extent. Post-harvest losses among those with the scheme have fallen to an average of 5% (Findings, 1998). With an adequate food supply available all-year round economic activity is expected to be enhanced throughout the country.

By the end of 2005, four more NBFIs had been established, with a total asset of ¢1.7 trillion, equivalent to 2% of GDP. The consolidated assets of the NBFIs constitute about 52.65% advances of which 29.48%, 7.40% and 15.77% were allocated to short-term, long-term investments and 'other' assets respectively. This shows a significant diversification of asset portfolios of NBFIs. However, the low share of the long-term investments suggests that NBFIs' investment horizon remain short-term.

4.6 The Informal Financial Sector

The informal financial sector has been a key feature of Ghana's financial system since the colonial era. Those involved traditionally include moneylenders, *susu* collectors, groups and clubs, traders, relatives, friends and neighbours.

4.6.1 Moneylenders

Moneylenders are the only ones of this group who are formally registered by the police under the Moneylenders Ordinance 1957. Money lending by traders and cash crop farmers with liquid funds is more of a part-time activity than a full-time profession. Loans are given out for an average of three months and rarely for more than six months. These loans attract high interest rates even though the cost of transaction is very low. In the early 1990s the interest rate for a three-month loan

was between 25-30% a reduction from the 1983 rate of 100% (Aryeetey, 1994), reflecting the market response to lower inflation and increased liquidity in the post-reform period.

Moneylenders require security in the form of physical assets such as buildings or land. Little cost is incurred in enforcing pledges of such collateral made before family members or traditional rulers as the moneylenders can simply make use of the property until the debt is repaid. Loans to employees are often secured by an arrangement with the paymaster. Verbal assurances from family heads, friends and relatives could also serve as security. With such credit facilities people have easy access to funds in the event of unforeseen occurrences like crop failure or the death of a family member. The importance of moneylenders has been reduced with the emergence of rural banks, credit unions, *susu* associations and clubs and especially SLCs, which enable money lending-type operations to become licensed. These days most moneylenders do not hold licenses and the Ordinance has ceased to be of any importance although it remains on the statute books.

4.6.2 Traders

The role of traders in providing rural finance is still a very important link between farmers in the rural areas and urban markets. Traders provide credit in the form of inputs or pre-finance the farming activities against future purchase of the crop. The traders do not require collateral, but rather the agreement of the farmer to sell them the crops over an agreed period; the implicit interest rate could be as high as 50% (Offei cited in Aryeetey, 1994). This arrangement with traders tends to leave the farmers indebted to them for very long periods thus preventing the farmers from selling to the highest bidder. Fish traders also use such advances to lock-in their suppliers at relatively low prices. While these intermediaries are often regarded as exploitative in view of their monopsony power, for a large number of farmers and fishermen, access to finance depends heavily on the liquidity from these traders.

4.6.3 *Susu*

Susu activities are one type of informal financing that keeps growing even in the midst of financial liberalisation. It has taken the form of a semi-formal procedure being linked to formal financial institutions. The *susu* system primarily offers saving products to help clients accumulate their own savings over periods ranging from one month (susu collectors) to two years (susu clubs), although credit is also a common feature. Four types of *susu* have existed in Ghana, including:

- *susu* collectors: individuals who collect daily amounts specified by each client and return the accumulated amount at the end of each month, minus one day's amount as commission.
- *susu* associations are of two kinds; (i) a rotating savings and credit association (ROSCA), whose members make regular (weekly or monthly) fixed contributions, which is given to each member in turn; (ii) accumulating, whose members make regular contributions and the funds may be lent to members at very low interest rates. At the end of an agreed period, usually at the end of the year, the accumulated sum is shared among members.
- *susu* clubs are a combination of the above systems, in which members are committed to saving toward a sum that each decides over a 50-or 100-week cycle, paying 10% commission on each payment and an additional fee when they are advanced the targeted amount earlier in the cycle.
- *susu* companies are the latest of the *susu* system, they are registered as businesses whose employees collect daily savings using the regular *susu* collector method, but promise loans about twice the amount saved after a minimum saving period of six months. These companies, particularly Pyram and Resource 5000, were closed down after about nine months of operations due to mismanagement of funds and unsustainability of the scheme (Aryeetey, 1994 and Cobbina-Asirifi, 1999).

Susu collectors principally help in the accumulation of savings but give occasional advances to their best customers before the end of the month and in some cases may make loans for up to three months. Their ability to give out loans is constrained by the fact that they generally lack capital

apart from the savings they mobilise. Due to their operations, particularly among the poor, some NGOs are utilising them in order to reach such persons with credit. Action Aid is one such NGO in the three northern regions of Ghana which is reaching small-scale peasant farmers with credit distributed through the *susu* collectors (Quainoo, 1997). They use the collectors to mobilise savings and disperse credits to the farmers, and agents to ensure repayment of the credits. The shortcoming of this system is that only members of the *susu* groups obtain credit and membership is contingent on the ability to save, thus those who have nothing to save are unable to receive financial help. In this case, a large percentage of people who are considered extremely poor do not receive help even though less poor individuals get some credit to help reduce their poverty level.

4.6.4 Others

Apart from moneylenders, traders and *susu* systems, loans from relatives, friends and neighbours are the other main source of credit to farmers and others engaged in small-scale enterprises. These loans do not usually attract any interest or require security but they may not be available when needed. In addition, the traditional *nnoboa*[39] system of mutual assistance through the exchange of labour also helps farmers to expand their economic activity.

Since 1989, the government has been directly involved in the provision of credit at subsidised rates. One of such scheme is the provision of about 3,500 small loans to women using funds from PAMSCAD (Quainoo, 1997). Through the scheme women involved in small-scale cottage industries such as pomade making, mat weaving and basic food processing have been able to expand their activity. Unfortunately, the recovery rate of these loans has been so low that by 1996 the scheme could not be sustained. Presently, the government has engaged with micro-crediting

---

[39] Literally means helping to weed.

through the poverty alleviation programmes and the District Assembly Common Fund[40]. With funds from the HIPC initiative, it is hoped that this scheme can be sustained and that credit will reach more people.

4. 7 Impact of Financial Liberalisation on Ghana's Financial System

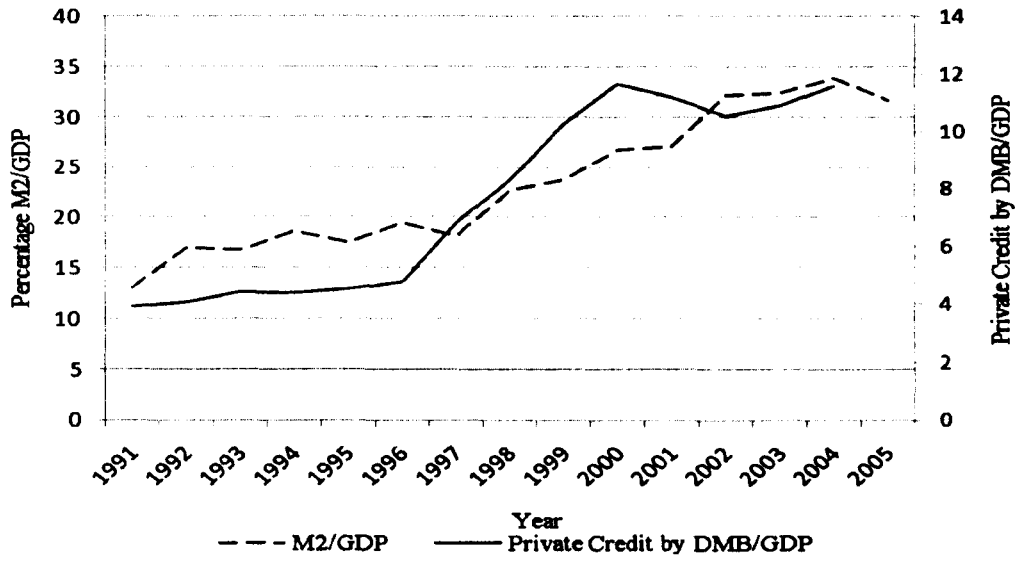
The financial sector reform has helped in the introduction of new products into the financial system and improved on existing ones. The entry of more private banking and non-banking institutions has made available different financial services. This has provided diverse portfolios into which individuals can invest their surplus funds thus making such funds available for credit. There has been a gradual increase in the percentage of credit available to the private sector. It increased from an annual average of 5.1% in the 1980s to 7.2% in the 1990s (IFS, 2000).

The number of financial institutions has increased by more than a hundred percent, with many more branches opened nationwide. The same cannot be said about financial deepening indicators, which refer to the efficiency of the financial system of a country. The ratio of M2/GDP a key measure of financial depth has been low at an average of 15.5% since the 1980s through the reform era to 1992, having fallen from an average of 23.8% in the 1970s. However, with the onset of the democratic process (1992-2005) the average has increased to 24.1 percent. This trend suggests that despite the increases in the number of financial institutions, financial deepening has barely reached the levels of the 1970s. In addition, the ratio does not compare well internationally. Figure 4.6 shows the performance of two financial deepening indicators - private credit by deposit money

[40]It is a pool of resources created under section 252 of the 1992 constitution of Ghana in which a minimum of 5% of the national revenue is set aside to be shared among all district assemblies in Ghana with a formula approved by Parliament. It is a development fund which enables the use of the nation's wealth throughout Ghana to the benefit of all citizens.

banks to GDP, DMB/GDP, and M2/GDP- from the onset of the liberalisation policy in 1991 to 2005. In 2005 for example, Ghana's M2/GDP ratio of 31.6% was low in comparison to 79% in Malaysia, and 46% in Indonesia. However, in comparison to another African country, Kenya, the ratio is not much different at 37% (ISSER, 2006).

Figure 4.6 Financial Deepening Indicators 1991 to 2005



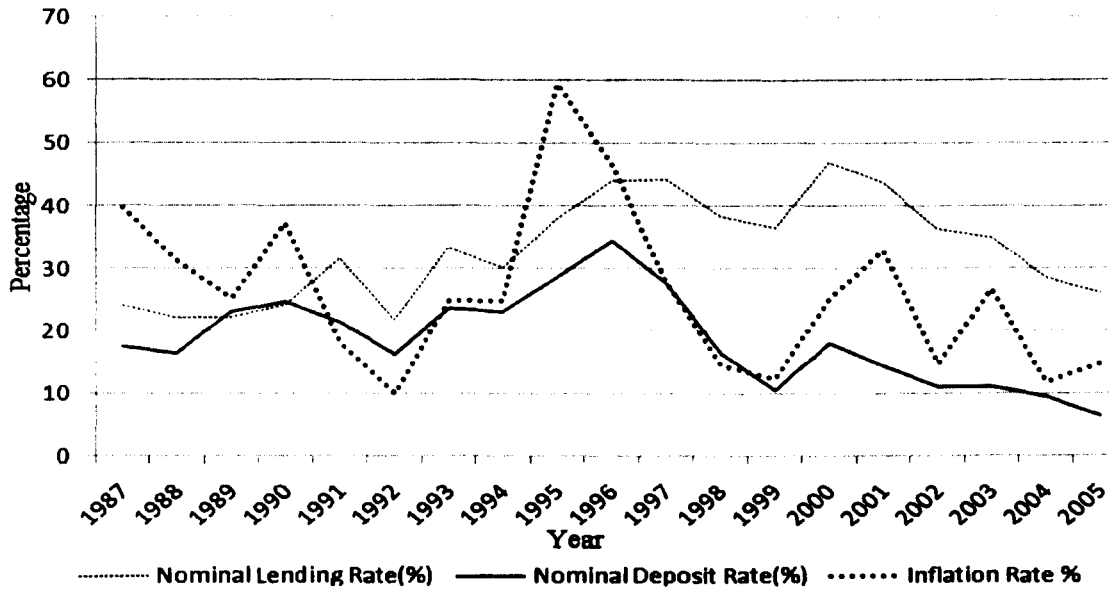
Source: Financial Structure Dataset, 2007

The DMB/GDP ratio represents the claims on the private sector by deposit money banks to GDP and measures credit issued to only the private sector. This measures one core activity of financial intermediaries – channelling savings to private investors (Thorsten, Demirgüç-Kunt, and Levine, 2000). The figure above shows a relatively small increase from 1991 to 1996, remaining around an average of 4%. Thereafter the ratio has increased to 12% in 2000, falling slightly before recovering thereafter. This suggests that credit to the private sector has changed with the implementation of the financial liberalisation policy.

One area that financial sector restructuring sought to address was the issue of interest rates. By 1988, government controls on lending and deposit rates were abolished. However, interest rates remain high, averaging 18.6% and 33.8% over the period 1987 to 2005 for deposit and lending respectively. Figure 4.7 below show developments for the nominal lending and deposit interest rates from 1987 to 2005. Throughout this period, the spread between the lending and deposit rates

remained wide this seems to suggest a less developed financial sector with a high risk-cost adjustment passing unto the lending rate. Indeed the spread between the lending and borrowing rates widened even further between 1999 and 2005, which may indicate information asymmetry between lenders and borrowers in Ghana (ISSER, 2006). Thus, the perceived high rate of default is being passed on as cost to the lender. As a result, many entrepreneurs may be deterred from accessing credit and those who do access credit might exhibit higher rate of default owing to information asymmetry as suggested by Stiglitz and Weiss (1981). However, this conclusion is, at best, only tentative. Another possible reason for the wide spread in interest rates is that financial institutions may be operating restrictive practices to keep the lending rate high and deposit rates low to the disadvantage of customers.

Figure 4.7: Nominal Lending, Deposit Interest and Inflation Rates 1987-2005



Source: World Bank Financial Structure Dataset, 2007. ISSER, 2006

With shallow financial markets and poorly developed money markets, high interest rates have led to a credit crunch and excess liquidity. The handling of inflation has been difficult. Rates have remained at double digits throughout the reform period and after. During the first phase of the ERP inflation fell from 123% in 1983 to 10% in 1985. The high inflation rate recorded in 1983 was largely due to the severe drought that hit the country rather than the effect of growth in broad money. Subsequently, with a good harvest season in 1985 inflation declined to 10% even though

money supply had grown to 59.5%. The rate of inflation continues to fluctuate averaging 26.96% between 1987 and 1992 and 32.18% between 1992 and 2000 (see Figure 4.7 above).

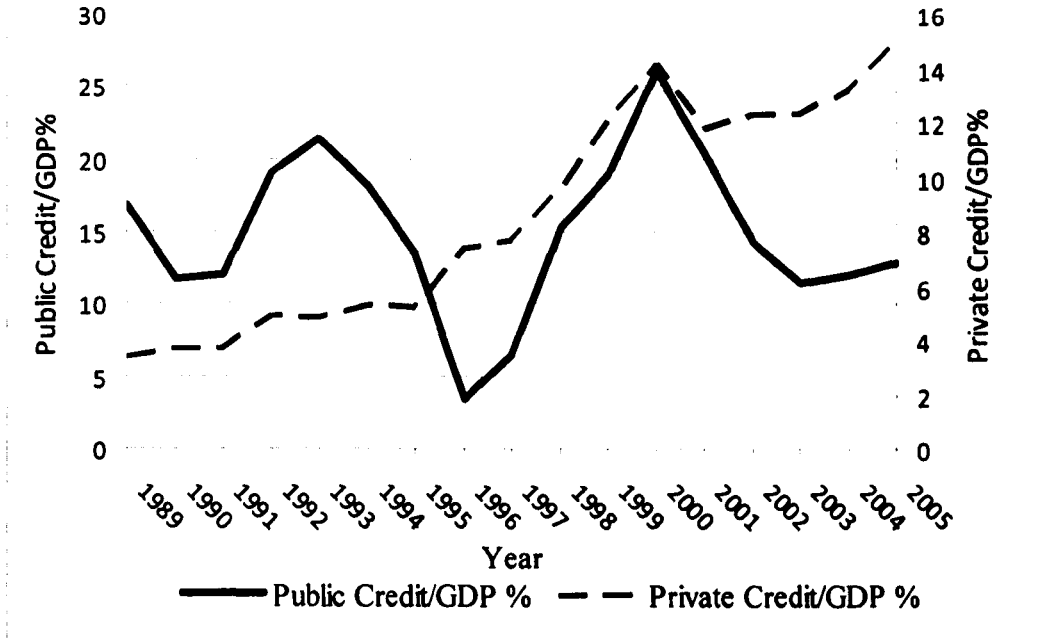
Inflation in Ghana tends to be caused by a variety of factors and responds in diverse ways to changes in monetary growth. For instance, a fall in the growth of money from 26.9% in 1989 to 15.3% in 1990 was accompanied by an increase in inflation from 25.22% to 37.26%. Again, a reduction in monetary growth from 52.9% in 1992 to 27.4% in 1993, led to an increase in inflation from 10.06% to 24.96%. However, with an increase in monetary growth from 39.1% in 1984 to 59.5% in 1985, inflation decreased from 39.67% to 10.31%. In other years like in 1987 and 1999, inflation responded positively to monetary growth.

The mixed response of inflation to monetary growth in Ghana, lends one to question the validity of Friedman's (1971) assertion that "inflation is always and everywhere a monetary phenomenon". A study by Sowa and Kwakye (1996) revealed that food production, depreciation of the national currency as well as growth of money are important determinants of inflation in Ghana. For example, the improvement in the weather conditions in 1985, which lead to an increase in food production, influenced the decline in inflation to 10.31% while money grew at the rate of 59.5%. Again, the poor food harvest in 1995 contributed to the 59.46% rate of inflation. With a stable domestic currency and a good harvest in 1992 and 1998 inflation was held at 10.06% and 19.32% though monetary growth lay at 52.9% and 55.7% respectively. In 2000, a good harvest could not overshadow the impact of the 39.8% growth in money and the 97% depreciation of the domestic currency, and the result was a 40.56% inflation rate. However, the rate fell to 32.9% in 2001 and further decreased to 14.8% as the M2/GDP ratio improved to 32.2%. This was not sustained as a result of the growing crude oil prices; inflation reached a height of 26.7% in 2003. The average year-on-year food inflation for 2000-2002 periods was 29.42%; this high rate during this period defies the normal weather-and-supply-rigidities explanation for such inflation in Ghana. Other factors may have contributed to high prices since there was a good and bumper harvest for this period. Factors such as high petroleum and high utility prices and transportation difficulties are

viable contributing factors. It can thus be said that monetary growth control is important in curbing inflation. However, this should be in combination with efforts to increase food production and the stabilisation of domestic currency through increases in exports and the expansion of the export base.

Alternative credit schemes, such as micro-financing, have been introduced but the availability of credit to the private sector through these mechanisms is still low. The ratio of Private Sector Credit to GDP averaged 1.22% from 1989 through to the period of the reform. This increased to an average of 7.8% from 1992 to 2000 and grew steadily to 12.92% between 2001 and 2005, but the ratio is still very low compared to that of fast growing economies such as Indonesia where the ratio of private credit to GDP averages 50% (Aryeetey, Harrigan and Nissanke, 2000, and ISSER, 2006). It must also be noted that since 1996, the private sector's share of domestic credit has consistently exceeded that of the public sector, but this has been due to the insolvency of the public enterprises rather than an increase in available funds. The increase in public sector creditor in 2001 was mainly due to a new initiative by the then Kufuor administration to reduce unemployment by embarking on some presidential business initiatives. Credit to central government remains important accounting for more than 50% of total domestic credit. Figure 4.8 below shows the share of domestic credit to the public and private sectors from 1989 to 2005.

Figure 4.8 Public and Private Share of Domestic Credit 1989 to 2005



Sources: World Bank, 1995b, ISSER (various issues). Aryeetey, Harrigan and Nissanke (eds), 2000. Bank of Ghana, Quarterly Bulletin, various issues. International Financial Statistics (IMF, 2000)

The Reform has strengthened the prudential regulatory framework and the supervisory capacities of the Bank of Ghana. Commercial banks have been submitting regular financial data and onsite inspections also take place regularly ensuring that banks and other financial institutions are operating prudentially.

The sectoral allocation of credit by deposit money banks (DMB) from 1995 to 2005 showed a systematic decline for all sectors (agriculture, manufacturing, mining, construction) except for the 'Others' category which increased systematically. The 'Others' category included the electricity, gas, water, import, export, domestic trade, transport, and cocoa marketing. It consolidated its position as the major sector of DMB credit with a 4 percentage point rise from 2002 to reach 64.8% share (Table 4.8). At a policy level, a fall in the share of DMB credit to agriculture, manufacturing, mining and construction cast doubts on the commitment of government to promoting industrialisation and 'the golden age of business', contrasting that with more than half of DMB credit to the 'Others' category, which is not principal for poverty reduction.

Table 4.8: Sectoral Allocation of Credit by DMBs, 1995-2005 (Percentage)

Year	Agriculture	Manufacturing	Mining	Construction	Others	Total
1995	9.7	29.8	1.5	11.7	47.3	100
1996	10.8	31.0	4.0	9.8	44.4	100
1997	12.0	22.8	5.1	10.1	50.0	100
1998	12.2	24.6	5.0	11.2	47.0	100
1999	11.8	24.9	5.8	8.9	48.6	100
2000	9.6	28.1	5.5	6.8	50.0	100
2001	9.6	19.3	4.0	6.8	60.3	100
2002	9.4	21.1	3.7	7.8	58.0	100
2003	9.4	20.7	2.9	5.0	62	100
2004	7.6	21.5	2.2	6.0	62.7	100
2005	6.7	19.1	3.7	5.7	64.8	100

Source: ISSER, 2006

4.8 Conclusion

Financial liberalisation in Ghana has had an immense influence on its economic growth. Thorsten, Demirgüç-Kunt, and Levine (2000) asserted that the degree of monetisation of an economy is a measure of the developmental level of that economy. Prior to the mid-1980s, the level of monetisation[41] was very low at about 6% of GDP, which by 2000, had risen to about 14% of GDP (Bank of Ghana, 2000). Even though this may seem a modest achievement it shows how far the country has come within the period. Significant attention has been given to the rural financial sector, which is considered as the base and main channel for mobilising rural savings. In response to the restructuring, rural banks have been more responsive to savings mobilisation and enlarging the rural lending program.

The liberalisation of the financial sector has eased the hold on profits, that is financial institutions are able to reinvest their profits rather than keeping them as reserves. This serves as an impetus for

[41] Measured as the Financial System Percentage to GDP by Thorsten, Demirgüç-Kunt, and Levine (2000).

foreign direct investment. In the mining sector, investment increased dramatically by about 3% at the beginning of the adjustment period. Mining has now overtaken cocoa as the largest single export earner. Several other investments have also been undertaken in priority areas such as agriculture. Mechanised agriculture is given much more attention. This is made possible by the availability of funds to the sector at competitive rates by financial institutions. From an annual average growth rate of 0.5% between 1970 and 1983, the sector showed a marked improvement, growing at 3.6% between 1984 and 1989. Credit availability to export firms has contributed to the encouraging performance of the sector. In 1983, the sector was growing at 5.9%. The liberalisation of the financial sector strengthened the capital base of export-based firms to the extent that, between 1984 and 1989 the sector grew at 16.5% per annum.

However, data on the financial deepening show that despite the increase in the number of financial institutions, the M2/GDP ratio has barely reached the levels of the 1970s. Bank concentration is still high at 92.8 % in 2005, and the bank branches diffusion data also show that though there are more branches they are all concentrated in the urban and semi-urban areas.

In sum, it can be said that the liberalisation of the Ghanaian financial sector has been part of the success story for the whole economy. However,

> "while macroeconomic stability is essential for successful financial liberalisation, a sound banking system is also extremely important. The benefits associated with financial reform are contingent on the financial system being 'well behaved' throughout the liberalisation process. In the presence of significant market failures or government intervention in the financial system the freedom that liberalisation offers may be exploited in ways that maybe detrimental to the overall development strategy" (World Bank, 1989, p.15).

Thus, liberalisation should not only bring about the expansion of the financial sector but also stakeholders should be allowed to make well-informed decisions without government interference. With an increase in the number of different financial institutions and the diverse instruments they

offer with the advent of financial liberalisation in Ghana, it is seem an appropriate time to assess the effects it has on households and individuals. In order to do so household and individual data on Ghana is employed for the analytical study. The next chapter provides a description of the data and methodology used for this assessment in this research.

Chapter Five

Data and Methodology

5.1 Introduction

The previous chapter provided a chronological account of the various policies embarked upon in the financial sector of Ghana since independence, particularly the liberalisation of the financial markets and discussed some of their effects. This chapter is to describe the data and the models used to discover the factors that determine household and individual participation in the credit market. And also enable judgements to be made about how far financial liberalisation has changed access to credit for micro-economic units and how this has reflected in their consumption patterns, the proportion of food and non-food items in relation to total expenditure.

5.2 Data

The current study is conducted using a combination of information from the individual/household and community levels of the Living Standards Measurement Survey (LSMS) for Ghana, 1988/89, 1991/92 and 1998/99 representing GLS Waves 2, 3 and 4 respectively. The initial data collected in 1987/88, the GLS 1, was undertaken on a pilot basis and the sampled participants were incorporated into the second round, GLS 2, having established the logistics of conducting the survey (Ghana Statistical Service, 1993).

The LSMS is a particularly rich data source and contains information on individual/household demographics, community and price variables, together with financial details of individuals relating to credit and the characteristics of the lending institutions. The latter includes the amount borrowed, the disaggregated source of the credit, such as formal institutions, moneylenders, relatives and friends, the purpose of the loan and the type of collateral used, if any (Grosh and Glewwe, 1995).

The Ghanaian LSMS is an example of a generic household survey organised and sponsored by the World Bank to provide a substantive database for developing countries. There are three separate questionnaires in a typical LSMS survey; a household questionnaire, a community questionnaire and a price questionnaire. The household questionnaire comprises up to seventeen sections, some of which are technical and used, for example, to identify suitable respondents for subsequent sections. The majority of the sections, however, are substantive and cover an extensive set of topics: household composition and individual demographic characteristics, housing and its characteristics, education, health, fertility, economic activities and time use, migration, agricultural and pastoral activities, food expenditures, remittances and other sources of income such as, savings, assets and borrowing (Ghana Statistical Service, 2000).

The community questionnaire, which is conducted only in the rural areas, solicits information from knowledgeable local people such as chiefs, village headmen, elders, teachers and medical personnel, about the local community, local economic conditions and infrastructure, such as transportation, marketing, financial institutions, educational and medical facilities. The main aim of the community questionnaire is to identify the economic infrastructure, including the educational and health facilities existing in villages, as well as any related problems that affect their welfare (Ghana Statistical Service, 2000).

The price questionnaire was administered countrywide by enumerators visiting local markets and observing prices mostly of food. This information is needed for comparing prices in different parts of the country, and allows the construction of regional price indices and an adjustment of household expenditures to a common base in order to take account of regional variations in purchasing power (Ghana Statistical Service, 2000).

All three elements of the LSMS are important for analysing the effect of financial liberalisation in Ghana. The data from 1988/89 (Wave 2) was collected five years after the launch of the Economic Recovery Programme (1983) , which had brought some stability to the economy. Even though the

financial sector reform had not yet been launched, some basic changes had been introduced into the financial system whereby the control of interest rates had been abolished (Bank of Ghana, 1986) (see chapter 4, Table 4.1 for detail). This was the first substantive data collection to be undertaken on individuals/households and is taken by this study to represent a suitable base indicating the overall state of individuals, households, communities and prices in the country before the implementation of the financial liberalisation policy. Unfortunately, the decomposition of lending by financial institutions and hence into formal and informal markets is not available in GLS 2[42] and therefore this data will be used only when considering the accessibility to credit markets as a whole. The survey on the other hand contains useful information such as the rate of interest paid for credit, a question that unfortunately was not asked in the subsequent two surveys. Data from the 1991/92 survey was collected at the time of the financial liberalisation (FL) policy in Ghana, whilst the 1998/99 survey gathered seven years after the implementation of the FL policy is an appropriate source to help assess the impact of the policy on individuals/households.

The surveys have a total sample size of 61743 individuals from 13742 households and 877 communities representing both the urban and rural areas in Ghana. A two-stage sampling technique was used in the selection. At the first stage, clusters were selected using systematic sampling with probability proportional to size method, where the size measure was the 1984 number of households in the cluster. This was achieved by ordering the list of clusters with their sizes according to the strata. The size column was then cumulated, and with a random start and a fixed interval the sample clusters were selected. For wave 4, it was observed that some of the selected clusters had grown in size over time and therefore needed segmentation. In this connection, such clusters were divided into approximately equal parts, each segment constituting about 200 households. Only one segment was then randomly selected for listing of the households. At the second stage, a fixed number of 20 households were systematically selected from each selected

[42]The coding frame relating to source of loan has been designated 'confidential' and therefore unavailable.

cluster. Additionally, 5 households were selected as reserve to replace missing households. (Ghana Statistical Service, 1995a, 2000a). The structure of the sample in given in Table 5.1.

Table 5.1: Sample Design for Waves 2, 3 and 4

Location		Wave 2	Wave 3	Wave 4
Urban				
	Clusters	84	99	105
	Households	1810	1587	2199
	Individuals	8460	6717	8734
Rural				
	Clusters	86	308	195[43]
	Households	1382	2965	3799
	Individuals	6464	13544	17682

Source: Ghana Statistical Service (1993b, 1995b and 2000b)

The community questionnaire, which was administered in rural areas only, consisted of 86, 308 and 195 communities for Waves 2, 3 and 4 respectively. In principle, a price questionnaire was completed for each cluster. Prices from up to three vendors were collected for 28 foods, 6 pharmaceuticals and 13 non-food items for Wave 2 but for Waves 3 and 4 prices were collected for 71 food items, 8 pharmaceuticals and 43 non-foods. These items form the most important items for the household budget and are usually available in most parts of the country. The price indices computed from the data was only for Waves 3 and 4. The method for computation was not clear from the available documentation and thus it was difficult to replicate for Wave 2. There was also no information on the composition of the basket used.

[43] In the Ghana Living Standards Survey Report on the Third Wave (GLS 3), it was stated that the number of rural clusters was inefficiently high, while that of the urban areas was too small for analytical purposes thus the proportions were modified for Wave 4 such that a smaller number was used. Also by the collection of the Wave 4 the population of some of the rural areas in Wave 3 had increased to the status of urban.

For this research, a pooled cross-sectional sample was selected based on individuals and household heads aged 16 years or more, together with information on whether or not they have accessed credit, a variety of community variables and information on the price of food and other non-food consumables across the three Waves. Using such a pooled sample increases the sample size and allows us to investigate the impact of the reform. This data is an example of an independently pooled cross section survey that is widely used to evaluate the impact of policy changes over time. Sub-samples are then collated from the sample to help address three specific research questions:

- What determines credit access?

Data from all three Waves are assembled at the household level because the financial data in Wave 2 is provided at the household levels only. The sub-sample size in this case is 13612 households.

- What are the effects of financial liberalisation on the consumption pattern of households?

This sub-sample is also organised at the household level for Waves 3 and 4 only due to lack of data on the price indices for Wave 2, and include data on the ratio of food to total expenditure and non-food to total expenditure in addition to household and community variables.

- What are the determinants of the access to formal and informal credit?

In this case, the sub-sample consists of individuals, those who received credit and those who have not. The sample is drawn from only Waves 3 and 4 because of lack of coding frames for Wave 2[44].

5.3 Data Description

The models were estimated over various sub-samples of the data. In order to arrive at these sub-samples, files from the three Waves were initially collated separately. An amalgamation of cluster, household and personal identification numbers were used to generate a unique personal identifier, ID. Data were then merged using an appropriate variable level-identifier. Thus individual, household and community files were merged using ID, HID and CLUST respectively. This helped

[44] The coding frame relating to source of loan has been designated 'confidential' and therefore unavailable.

to match each individual to his or her respective household and community, making the sub-sample consistent with the original database. This also helped in coordinating the three Waves. Other variables were generated for specific needs.

Data on financial activities were collated at the household and individual levels. For the household, information is reported on those households with or without access to credit. This is presented in Table 5.2 below for all three Waves. The data showed that the percentage of the households in receipt of credit decreased in Wave 3 to 28%, from 33.82% in Wave 2 and subsequently increased to 35.13% in Wave 4. In some respects, this trend is expected since at the beginning of the financial reform in 1991 (Wave 3) branches of some financial institutions were closed due to poor performance whilst by 1998 (Wave 4), the effect of private entry into the financial institutions have led to the increase in the availability of credit.

Table 5.2: Composition of Households With or Without Credit

Household	Wave 2		Wave 3		Wave 4	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
No Credit	2,080	66.18	3,204	72	3,861	64.87
Credit	1,063	33.82	1,246	28	2,091	35.13
Total	3,143	100	4,450	100	5,952	100

Source: Author's derivation from Ghana Statistical Service (1993b, 1995b, and 2000b)
Note: This sample shows the credit activities of the head of household, since s/he is held responsible for the decisions of the household and also is the representative economic head of household.

On the individual level, credit markets were designated as either formal or informal. This was only available for Waves 3 and 4.[45] Table 5.3 shows the categories that make up the two credit markets and the binary variable generated.

[45] This was due to problems associated with Wave 2, articulated in footnote 44.

Table 5.3: Sources of Credit

Source of loan	Wave 3		Wave 4		Recode
	Frequency	Percent	Frequency	Percent	
State Bank	73	5.28	98	4.23	
Private Bank	6	0.43	47	2.03	
Co-operative	12	0.87	42	1.81	
Government Agency	13	0.94	23	0.99	Formal
NGOs	7	0.51	10	0.43	
Business Firm	19	1.37	26	1.12	
Other Formal	13	0.94	26	1.12	
Money Lender	40	2.89	118	5.09	
Trader	232	16.79	510	22.02	
Farmer	16	1.16	57	2.46	Informal
Relative/Friend/Neighbour	929	67.22	1,333	57.56	
Other informal	22	1.59	26	1.12	
Total	1,382	100	2,316	100	

Source: Author's derivation from Ghana Statistical Service (1995b and 2000b)

5.3.1 Demographic Variables of Individuals/Households

Individuals aged between 16 and above were chosen for the analysis. Binary variables were generated to represent gender and marital status. Tables 5.4 and 5.5 show the details of these variables.

Table 5.4: Gender of Individual Respondents

	Wave 2		Wave 3		Wave 4	
Variable	Frequency	Percent	Frequency	Percent	Frequency	Percent
Male	7,243	48.53	9,892	48.48	12,593	47.68
Female	7,681	51.47	10,511	51.52	13,818	52.32
Total	14,924	100	20,403	100	26,411	100

Source: Ghana Statistical Service (1993b, 1995b, and 2000b)

The proportions of male and female respondents hardly change across the Waves. This broadly matches the proportion in the population as a whole. The 2006 estimated population census

revealed that the female population in Ghana was approximately 50.7% of the total population.[46] The fall in the male proportion may be partly attributed to the fact that many men migrate in pursuit of jobs.

Table 5.5: Marital Status of Individual Respondents

Status	Wave 2		Wave 3		Wave 4		Binary Code
	Freq.	Percent	Freq.	Percent	Freq.	Percent	
Married	4,471	49.31	5,912	54.82	6,346	42.24	Married
Informal/ Loose Union	131	1.44	277	2.57	1,631	10.86	
Divorced	441	4.86	731[47]	6.78	1,150	7.65	Unmarried
Separated	153	1.69					
Widowed	475	5.24	628	5.82	1,018	6.78	
Never Married	3,397	37.46	3,237	30.01	4,878	32.47	
Total	9,068	100	10,785	100	15,023	100	

Source: Ghana Statistical Service (1993b, 1995b, and 2000b)

The data summary in Table 5.5 shows that the proportion of married individuals and those unmarried are almost the same averaging 53.75% and 46.25% respectively across the Waves. This seems to suggest that there is approximately equal representation of married and unmarried individuals in the data.

The educational status of respondents is established by the highest formal educational qualification attained excluding 'Koranic' education. Due to the change in the educational system in Ghana in 1987 the coding frame for the three Waves are different and were recoded to obtain a standardised code across the three Waves. This exercise involved a lot of coordination between the Waves in order to avoid any data loss and match the correct data to the correct individual and household as provided in the original data sets. The composition and recoding is detailed in Table 1, Appendix1A. The recoded responses in columns 4, 9 and 14 of Table 1in Appendix 1A are then

[46] US Congress Library, Ghana Population 2006 (est.)
[47] Divorced and Separated are recorded as one response in Waves 3 and 4

standardised into six groups with the 'others' category dropped, because they formed a relatively small proportion of the data which was difficult to rightly add to any other group. Table 5.6 shows the standardised groups for the entire sample.

Table 5.6: Standardised Educational Categories

Educational Level[48]	Standardise Codes	Frequency	Percent
None	0	24082	66.91
Basic (1)	1	9148	25.42
Vocational/Commercial (2)	2	357	0.99
Secondary (5, 6, 13)	3	1521	4.23
Post Secondary/Voc (3, 4,14)	4	405	1.13
Tertiary (7 ,8 ,9, 10, 11)	5	477	1.33
Total		35990	100

Source: Author's derivation from Ghana Statistical Service (1993b, 1995b, and 2000b)
Note: This classification is in accordance with Table 1 in Appendix 1A, showing the recoded groups in columns 4, 9 and 14, of Table 5.6 in parenthesis. 'Basic' includes primary and junior secondary/middle school education.

Each of these categories was then generated as a binary dummy variable. The distribution of the sample over their highest educational qualification shows that the majority of the sample, 66.91%, did not have any educational qualification. The least represented category is that with vocational/commercial education, which is generally not considered an attractive educational level in Ghana.

Information about an individual's occupation is considered an important demographic variable in many economic applications for example, to help ascertain the distribution of financial services among the various professions. The data from the three Waves provided extensive information related to the various professions identified by the International Occupational Classifications (see Appendix 1B). As with the previous educational variables, standardization was required. For

[48] This classification was informed by the researcher's firsthand knowledge of the educational system in Ghana having been a school teacher.

consistency across the Waves the data was re-coded into a set of seven main occupational groups. Table 5.7 below show the seven groups and the re-coding frame.

Table 5.7: Recoded Occupations

		Wave 2		Wave 3		Wave 4	
Occupation	Recodes	Freq.	Percent	Freq.	Percent	Freq.	Percent
Professional	**0/19= 1**	261	3.72	391	3.12	1,875	12.91
Administrative	**20/29 = 2**	20	0.29	19	0.15	21	0.14
Clerical	**30/39 = 3**	145	2.07	224	1.79	206	1.42
Sales	**40/49, 620= 4**	1,081	15.43	1,715	13.67	2,315	15.94
Services	**50/59, 311 =5**	218	3.11	289	2.3	503	3.46
Agriculture	**60/69 = 6**	4,033	57.56	8,473	67.56	7,772	53.5
Production	**70/99 = 7**	1,249	17.83	1,431	11.41	1,835	12.63
Total		7,007	100	12,542	100	14,527	100

Source: Author's own derivation from Ghana Statistical Service (1993b, 1995b, and 2000b)
Note: See Appendix 1B for a detailed Occupational Classification.

For the purpose of this study, these groups were further consolidated into four categories representing:

- professional/administration made up of the amalgamation of professional, administrative /clerical,
- sales / service,
- agricultural, and
- production.

The intuition for combining the first two groups was based on the fact that they are involved in similar activities and their size when considered separately is very small. Table 5.7A shows the further categories. This reveals that over fifty percent of the sample is engaged in agriculture, with

the professional category being the smallest group with an average of 8.54% across the three Waves. The rapid increase in percentage for the professionals observed in Wave 4 may be due to the resultant improvement in the number of schools and health posts during this period and since teachers and health workers are part of the professionals the increase is reflected here.

Table 5.7A Grouped Occupations

	Wave 2		Wave 3		Wave 4	
Occupation	Frequency	Percent	Frequency	Percent	Frequency	Percent
Professional	426	6.08	634	5.06	2,102	14.47
Sales	1,299	18.54	2,004	15.98	2,818	19.4
Agriculture	4,033	57.56	8,473	67.56	7,772	53.5
Production	1,249	17.83	1,431	11.41	1,835	12.63

Source: Author's derivation from Ghana Statistical Service (1993b, 1995b, and 2000b)

Household characteristics such as size, the type of dwelling and the location of the household were used to augment the individual characteristics. In all of the surveys a household was defined as a group of people who have usually slept in the same dwelling and take their meals together for at least 9 of the 12 months preceding the interview. The following are examples of a household.

1. A household consisting of a man and his wife/wives and children, father/mother, nephew and other relatives or non-relatives;
2. A household consisting of a single person;
3. A household consisting of a couple or several couples with or without their children.

Household size is a count variable which shows the number of individuals in a household. Communal living is considered important in Ghana and the number of people in a household has economic significance especially in households that are engaged in the informal commercial sector, where more is better since the extra hands can always be employed. Thus, this variable may influence the size of the economic venture and hence the accessibility to credit. A particular problem associated with the complex structure of living arrangements in developing countries and

Ghana in particular, stems from the fact that households are often production and consumption units. For example, in a polygamous setting, - common in the rural areas of Ghana - a household may be considered as a single unit in terms of production but each wife effectively runs a separate household for consumption purposes within a larger compound presided over by the husband.

In this respect a household dwelling is a structure or group of structures (room(s) or buildings/compounds), separate or contiguous, occupied by members of the household. It could be:

1. a single family house/hut
2. a flat/apartment (self-contained)
3. rooms (compound house)
4. rooms (different compounds)
5. several huts/buildings (same compound)
6. several huts/buildings (different compound).

The dwelling variable is used as a proxy to identify the wealth status of the household. It is expected that wealthier households would be found to occupy the categories 1, 2, 5 and 6 above, depending on the location of the household. In southern Ghana, wealthier households are likely to be resident in the first two while in the northern part of the country similar wealth status households will occupy the last two. These dwellings may be rented by their occupants but then could thus not be used as a collateral security. However, renting such dwellings pre-supposes that the individual/household is gainfully employed or has inherited enough wealth to afford such a dwelling. This could influence the source of credit.

The location of the household is considered to influence the accessibility of credit from either the formal or informal financial market. In the LSMS, Ghana is divided into enumeration areas (EA)/Clusters. This is a demarcated geographic area consisting of a locality or group of localities with similar boundary description, which usually have about 200 households. Two main EA types are used in this research:

Urban EA: an EA is considered urban if it had a population greater than 1,500 people during the 1984 population census. Thus semi-urban EAs (with population between 1,501

and 5,000 were considered as urban assuming that they might have grown to urban status since the 1984 census.

Rural EA: an EA is considered rural if it had a population of 1,500 or fewer people during the 1984 population census.

These two main enumeration areas were further put into clusters in relation to the demarcations for the 1984 census. Households found in the same cluster are usually more similar to each other in characteristics such as physical and social amenities, general welfare status and ethnicity than are the households living in different clusters. This similarity is more pronounced among rural dwellers, where people living in nearby villages are likely to be faced by say the same agro-climatic conditions. The location of the household largely reveals the type of economic activity an individual is engaged in; most people in the rural area are in the informal sector and are therefore more likely to access informal credits and vice versa.

Household expenditure is another variable which is used as a proxy to identify household wealth. This is a better proxy than the income variable, which is usually understated (Deaton, 2000). For comparison across the Waves, the total household expenditure is deflated using 1991 as a base year.

5.3.2 Characteristics of Credit/Product Variables

Apart from the source of credit, the GLSS surveys present a rich information set in terms of the characteristics of the credit provided. These include; the source of loan, the size of the loan, kind of guarantee, purpose of the loan and reasons for the refusal of credit. All of these variables are utilised in the current research.

The decomposition of the different sources of credit shows there are two main sources– the formal and informal markets. Table 5.8 shows the various groups in each of the markets and the proportion

of credit they each offer to individuals. This decomposition is available for Waves 3 and 4 only owing to lack of such information in Wave 2.

Table 5.8 Distribution of Credit by Source

	Wave 3		Wave 4	
Source of loan	Frequency	Percent	Frequency	Percent
State	51	5.7	85	4.77
Private	5	0.56	38	2.13
Cooperative	7	0.78	41	2.3
Government Agents	9	1.01	30	1.68
Non-government. Agent	6	0.67	9	0.51
Business	6	0.67	16	0.9
Other formal	3	0.34	15	0.84
Money lender	32	3.58	98	5.5
Traders	121	13.53	318	17.86
Farmers	15	1.68	72	4.04
Relatives/friends	629	70.36	1,028	57.72
Other informal	10	1.12	31	1.74

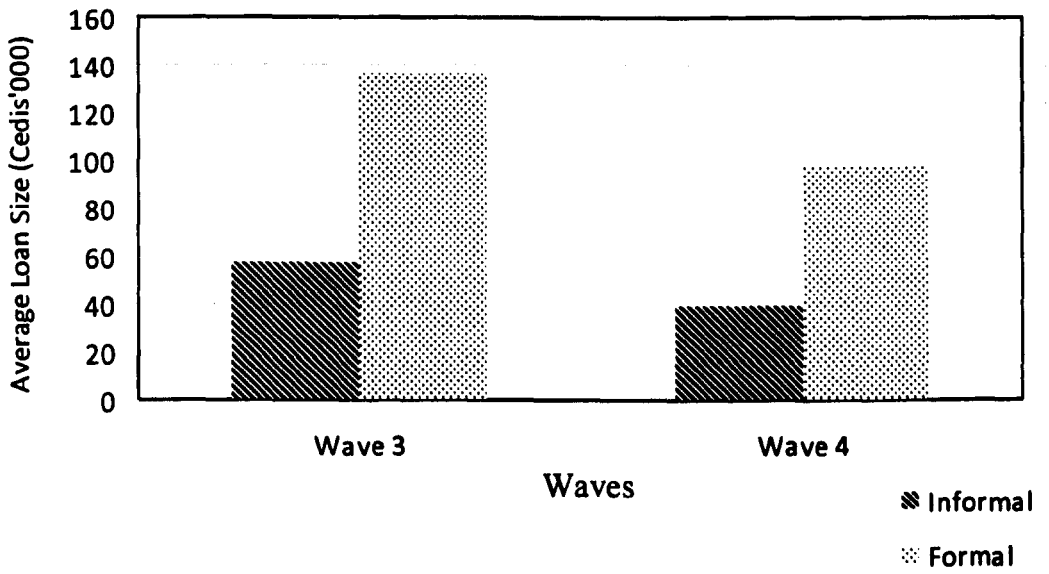
Source: Ghana Statistical Service (1993b, 1995b, and 2000b)

From the data it can be deduced that for both Waves the greatest provider of credit for the formal market, is the State and for the informal market, relatives/friends followed by traders. Taking credit from family and friends is observed to be the most important source of credit. This may be due to the fact that it is easier to contract such credits and also may not attract any interest payment.

The size of the loan is expressed in real terms using 1991 as the base year; it has also been redenominated by dividing through by 10,000 making them equivalent to the redenomination of the cedi that started on the 1st of July 2007 (Bank of Ghana, 2007b). The size of the loan is expected to help differentiate those who access formal credit and those who access the informal market. It is assumed that for large sums, individuals would access the formal credit market based on the assumption that these markets have a larger capital base, which enables them engage in larger projects. Figure 5.1 below shows a pictorial summary of Table 2 in Appendix 2. The smaller average size of loan observed in Wave 4, suggests that there might be an increase in the number of

individuals able to access credit but the capital base as not increased as much. This further suggests that though access to credit has increased with financial liberalisation there seems to be no increase in the injection of capital for this purpose as was expected from the literature on financial liberalisation.

Figure 5.1 Average Size of Loan by Source of Credit



Source: Ghana Statistical Service (1993b, 1995b, and 2000b)
Note: See Appendix 2 Table 2 for details.

The data provides information on the type of collateral security offered when accessing credit from either market. Although the majority of the credit did not require collateral guarantees some did, with land, cattle, and housing all being used for this purpose. In our study, a dummy variable is generated from this information – which takes a value of 1 when a collateral guarantee is provided and a value of 0 otherwise for all the 3 waves.

Respondents also provide information on the purpose to which credit is put. These uses include agricultural land/equipment, agricultural inputs, business expansion, housing, education, health, ceremonies, and consumer goods. Table 5.9 below shows the percentage composition for which the credits are used. As before the information can be extracted for Waves 3 and 4 only.

Table 5.9: Purpose for Credit

Purpose	Wave 3		Wave 4	
	Frequency	Percent	Frequency	Percent
Agric Land/ Equipment	44	3.19	93	4.02
Agric Inputs	105	7.62	161	6.95
Business	344	24.96	532	22.97
Housing	44	3.19	104	4.49
Education	54	3.92	98	4.23
Health	160	11.61	208	8.98
Ceremonies	158	11.47	213	9.2
Consumer goods	348	25.25	783	33.81
Other	121	8.78	124	5.35
Total	1,378	100	2,316	100

Source: Ghana Statistical Service (1993b, 1995b, and 2000b)

From Table 5.9, we can observe that the majority of the credit obtained in both waves goes into consumption. However, only just less than 11% of credit is for the purposes of agricultural production, which is the largest employer (Ghana Statistical Service, 2000). This suggests that the majority of the population who are also engaged in the agriculture sector do not have access to credit for that purpose. The data also provides information on people who have been refused credit together with the detailed reasons for the refusal. Table 5.10 provides a snapshot representation of this.

Table 5.10 Reasons for Credit Refusal

	Wave 3		Wave 4	
	Frequency	Percent	Frequency	Percent
Insufficient Income	148	39.57	97	42.54
Insufficient Collateral	59	15.78	46	20.18
Previous Debt Problems	33	8.82	21	9.21
Inappropriate Purpose of Loans	39	10.43	38	16.67
Other	95	25.4	26	11.4
Total	374	100	228	100

Source: Ghana Statistical Service (1993b, 1995b, and 2000b)

Inspecting the demographic characteristics of these individuals, it would appear that among the main reasons given for the refusal of credit, evidence of insufficient income by the borrower was most important, accounting for 39.6% and 42.5% of the refusals for Waves 3 and 4 respectively.

5.3.3 Characteristics of Rural Communities and Access to Credit

The surveys provide additional data on rural communities only. The main aim of the community questionnaire was to identify the economic infrastructure, education and health facilities existing in the villages, as well as any related problems that affect the community's welfare. The respondents to this set of questions were those who are considered to be well-informed about the activities, events and infrastructure of the community. The group consists of, for instance, the chief, leading citizens, traders, teachers or others who have lived in the community for several years.

The variables of interest for our research were those associated with the financial and economic infrastructure of the community. These included; road networks, local financial institutions (banks), local markets, and the distance to the nearest bank and market if located outside the village. Two binary variables were generated for both the availability of markets and banks. A value of 1 is given for the presence of each variable. The expectation was that the presence or otherwise of these institutions would influence access to formal credit.

In communities without markets and banks, respondents gave the distance to the nearest market or bank, which was subsequently standardised into kilometres. Table 5.11 and Table 5.12 below show the proportion of households living at places with or without road network, banks, markets, and the average distance to the nearest bank and market for those without these amenities respectively. The record for the presence of a market and bank is similar across the three waves, with the majority of households living in places where this infrastructure is not available. The opposite situation is observed in the case of the availability of motorable roads, where the majority of households lived in communities with motorable roads.

Table 5.11 Community Infrastructure (Presence of Market, Bank and Road)

	Wave 2		Wave 3		Wave 4	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
No market	1,128	84.49	2,109	77.97	3,141	84.59
Market	207	15.51	596	22.03	572	15.41
No bank	1,272	93.12	2,459	90.91	3,299	88.85
Bank	94	6.88	246	9.09	414	11.15
No road	316	23.13	499	18.45	519	13.98
Road	1,050	76.87	2,206	81.55	3,194	86.02
Sample size	1,366	100	2,705	100	3,713	100

Source: Ghana Statistical Service (1993b, 1995b, and 2000b)

The average distance to the nearest bank or the nearest market shows an increasing trend across the three Waves for each of these variables. The increasing distance to the nearest bank may have risen because of the closure of distressed rural banks with, for example twenty-three rural banks closing in 1999 (Steel and Andah, 2002). The 2008 register of rural banks shows a slight increase in the number from 112 in 2002 to128 (Bank of Ghana, 2008a).

Table 5.12 Summary Statistics of the Distance to the Nearest Community Infrastructure (in Kilometres)

Variable	Wave 2			Wave 3			Wave 4		
	Obs.	Mean	Std. Dev.	Obs.	Mean	Std. Dev.	Obs.	Mean	Std. Dev.
Bank Distance	1366	17.55	18.28	2705	18.56	21.90	3693	26.31	76.41
Market Distance	1334	7.70	9.22	2705	8.44	11.85	3693	15.12	52.81
Road Distance	1366	1.39	3.75	2705	1.78	5.36	3713	0.83	2.53

Source: Ghana Statistical Service (1993b, 1995b, and 2000b)

However, the table reveals that the distance to the nearest market is half as short as the distance to the nearest bank, even though the average trend also increases across the Waves. This may provide

some explanation to the Figure 7.4, which shows that traders are an important source of credit in both Waves 3 and 4. A further explanation can be attributed to the average passable road distance in the rural areas. The data shows that the average distance decrease, suggesting that it is easier for people to commute farther away to access credit. The large magnitude of the standard deviation suggests a form of data inconsistencies which is apparent from the data sets. For example, answers to questions like the duration it takes to get to the nearest institution and the means of transportation revealed arbitrary responses. For some respondents it took them 20 minutes to cover a distance of 20km by walking, while others suggested that for the same distance it took about 30 minutes by car. Despite these inconsistencies the data provides sufficiently adequate information that gives results that can help inform policymakers in their decisions. The variables used in the research are defined in Table 5.13 below.

Table 5.13: Definition of Variables in the Research

Variable	Definition
Credit	Dummy for incidence of credit (=1 if credit. =0 if no credit)
For	Dummy for source of credit (=1 if formal, = 0 if informal)
Gender	Dummy for sex of individual (=1 if female, = 0 if male)
Age	Age of individual >=16 years
Age2	Square of age
Single	Dummy for marital status (=1 if unmarried, =0 if married)
Education	Dummy for highest educational level (=1 literate 0= illiterate)
Basic	Dummy for highest educational level (=1 basic, 0= others)
Secondary	Dummy for highest educational level (=1 secondary, 0= others)
Post-secondary	Dummy for highest educational level (=1 post-secondary, 0= others)
Professional	Dummy for economic activity (=1 professional/management, others=0)
Admin/Clerical	Dummy for economic activity (=1 administration/clerical, others=0
Sales	Dummy for economic activity (=1 sales, others=0)
Service	Dummy for economic activity (=1 service, others=0)
Agriculture	Dummy for economic activity (=1 agriculture, others=0)
Production	Dummy for economic activity (=1 production, others=0)
Household size	Household size
House ownership	Dummy for house ownership (=1 owner, others=0)
House/flat	Dummy for type of dwellings (=1 house/flat, 0=Others)
Huts	Dummy for type of dwellings (=1 huts, 0=Others)
Room	Dummy for type of dwellings (=1 room, 0=Others)
Urban	Dummy for household location (=1 urban, 0= rural)
Loan amount	Real value of loan amount 1991=1
Guarantee	Dummy for provision of collateral security (= 1 guarantee, 0= otherwise)
Food_exp	Proportion of total expenditure on food items
Non-food_exp	Proportion of total expenditure on non-food items
Relative price	Relative price of food to non-food
Total expenditure	Total household expenditure
Wave	Dummy for data used (=0 if Wave 3, =1 if Wave 4)
Bank	Dummy for bank (=1 presence of bank, =0 no banks)
Market	Dummy for market (=1 presence of market, =0 no market)
Bank distance	Distance to the nearest bank in kilometers
Market distance	Distance to the nearest market in kilometers

Source: Generated from Ghana Statistical Service (1993b, 1995b, and 2000b)

5.4 Methodology

From the available data in the GLSS, different variables are identified from the institutional, product and demographic characteristics that are appropriate to help investigate the factors that influence access to credit in general and those that affect access to the formal or informal credit markets. These variables include age, gender, household size, educational status, location of financial institution, and availability of security guarantee. The identification of these variables is informed by previous research on the determinants of access to credit by individuals/households, for example those by, Feder and Feeny, 1988, Migot-Adholla et. al., 1990, Aleem, 1990, Zeller, 1994, and Porteous, 2003, discussed previously (see chapter 2).

Endogeneity and sample selection bias are major concerns in any empirical study. We rarely work with experimental data, in which subjects (individuals/households, firms, economies) are randomly assigned to "treatment" and "control" groups. Our data are instead taken from environments in which the subjects choose their own groups: in our case individuals choose whether to access credit ("treatment") or no credit at all ("control"), Dehejia and Wahba, (2002). Our data are also taken from environments in which the outcomes of interest (for example the ratio of food or non-food expenditure to total expenditure to measure the standard of living of the population) may be driving government policies (making credit more accessible to help improve living standards). These interactions generate biases that include self-selection bias, sample selection bias and endogeneity bias (Wooldridge, 2003).

Self-selection is use to indicate any situation in which individuals select themselves into a group, causing a biased sample. It is usually used to describe situations where the characteristics of the people which cause them to select themselves in the group create abnormal or undesirable conditions in the group. In particular, self-selection makes it difficult to evaluate programs, to determine whether the program has some effect, and makes it difficult to do market research. Self-selection makes it difficult to determine causation (Pearl, 2000).

Sample selection bias refers to problems where the dependent variable is observed only for a restricted, non-random sample. Sample selection bias arises when a selection process influence the availability of data and that process is related to the dependent variable. Sample selection bias induces correlation between a regressor and the error term (Wooldridge 2003). The bias exists due to a flaw in the sample selection process, where a subset of the data is systematically excluded due to a particular attribute. The exclusion of the subset can influence the statistical significance of the test, or produce distorted results (Heckman, 1979).

Endogeneity refers to the fact that an independent variable included in the model is potentially a choice variable, correlated with unobservables relegated to the error term. The dependent variable, however, is observed for all observations in the data. Here credit access is endogenous if the decision to access credit or not is correlated with unobservables that affect consumption patterns. For instance, if better off households are more likely to access credit and therefore have a relatively better consumption pattern ceteris paribus, then failure to control for this correlation will yield an estimated credit effect on standard of living that is biased up (Maddala, 1983).

There are many tools for addressing these issues. Common techniques include before-after estimators such as difference-in-differences, cross-section estimators such as instrumental variables and the Heckman selection estimator (Heckman 1979, Pearl 2000 and MacKinnon and Davidson 2004). In recent years, in economics and other literatures, another technique has gradually gained popularity: propensity score matching. This technique offers a method for structuring non-experimental data to look like experimental data. For every subject in the "treated" group, the researcher finds a comparable subject in the "control" group. Comparing the two groups, an estimate can be made of the effects of economic policy on outcomes of interest (Essama-Nssah, 2006, Dehejia and Wahba, 2002).

In this thesis we seek to identify the determinants of credit market participation and how this has changed among micro-economic units with the implementation of the financial liberalisation

policy. It also investigates how their access to credit has affected their standard of living via changes in their consumption pattern. Using pooled cross-sectional data from GLS Waves 2, 3 and 4 we examine the characteristics of individuals with access to credit and those without and how this has changed in Ghana. The widely used methodology is a simple probit with a time dummy for the different waves to ascertain the effect of the policy (Porteous, 2003 and Okurut, 2006). The estimation of the results is robust if they are estimated from randomised data sets in which participants are assumed homogeneous prior to the intervention. Thus, as noted in Maddala (1983) it is expected that the effect of the intervention on any participant *i* would be equal to the difference between her outcome and that of any non-participant *j*, such that

$$g_i = (y_{1i} - y_{0j}) \tag{5.1}$$

where; $y = 1$ participant

$y = 0$ non-participant

Since data usually contain a heterogeneous set of individuals both with respect to internal characteristics such as age, gender, and ability as well as external circumstances like level of education, type of occupation and location of residence, the impact of an intervention may be confounded. This may lead to biased results, thus selection bias can lead to the deviation of the assumed homogeneity of the participants and the results. One way of controlling the impact of heterogeneity is the use of randomisation. This ensures that the distribution of both the observed and unobserved characteristics is similar for both the treated and control groups. Comparing the average outcomes between the two groups within this framework yields an unbiased impact of the treatment or policy intervention (Pearl, 2000 and Dehejia and Wahba 2002).

Matching people on their observed characteristics is another way of overcoming the problem of heterogeneity. If selection is done on observables, the counterfactual outcome for participant *i* will be equal to the outcome of a non-participant *j* with the same observable attributes. Matching helps to control the observable heterogeneity by allocating in the control group look-alikes for participants, based on some tolerance criterion. Thus for a participant *i* with a set of characteristics

Z_i, a tolerance criterion will be a cut-off distance defining a neighbourhood of Z in the space of attributes such that any non-participant j with a set of characteristics in that neighbourhood qualifies as a look-alike for i. A difficulty in matching directly on observable characteristics occurs when there are a large set of attributes on which to match. When insufficient exact matches can be found, as becomes increasingly common as the number of covariates increase, we need to find a way to identify matches that are "close" (Sianesi, 2001,and Heckman, Ichimura and Todd, 1998).

In their seminal work, Rosenbaum and Robin (1983) proposed matching on the propensity score, which is the probability to participation $p(z)$ as a way of significantly reducing the problem of dimensionality. Propensity score matching requires that the distribution of scores between the treatment and control group overlap. That is, suppose $p(z) = 0$ for some values of Z, individuals with these characteristics can never be part of the programme since they cannot have counterparts among the treated group. Similarly those with $p(z) = 1$ cannot have look-alikes in the control group. Thus, as identified by Heckman, Ichimura and Todd (1998), it would be impossible to use matching in this case. Hence for matching to take place a region of common support such that $0 < p(z) < 1$ is required. In addition, all relevant differences between the two groups are captured by their observable characteristics, Z (Sianesi, 2001). If these assumptions and conditions are satisfied and when there exist sufficient number of observable variables related to the characteristics of participants on a programme, it is theoretically possible to obtain unbiased estimation of the effect of a programme or policy.

Propensity Score Matching (PSM) is one "correction strategy" that addresses the selection biases in making estimates. It employs a predicted probability of group membership—for example, treatment versus control group based on observed predictors that are usually obtained from normal or logistic regression to create a counterfactual group. The propensity score matching method was initially confined to the medical field but recently has been used in the evaluation of economic policy interventions particularly in labour economics (Sianesi, 2001). Since in this study, the data

available does not suggest that those subject to the treatment (access to credit) and the control group (those with no access to credit) are random, the estimate of the effect of treatment may be biased by the existence of confounding factors.

Rosenbaum and Robin (1983) defined the propensity score as the conditional probability of receiving a treatment given pre-treatment characteristics. The predicted probability is that an individual receives the treatment of interest (in this case accessing credit) by making comparisons between individuals with the treatment and those without. In an observational study, the treated and untreated groups are not directly comparable, because they may systematically differ at baseline. The propensity score plays an important role in balancing the study groups to make them comparable. Rosenbaum and Rubin (1983, 1984) showed that treated and untreated subjects with the same propensity scores have identical distributions for all baseline variables. This "balancing property" means that, if we control for the propensity score when we compare the groups, we have effectively turned the observational study into a randomised block experiment, where "blocks" are groups of subjects with the same propensities.

Matching each treated observation with only one non-treated observation (propensity score) tends to be inefficient, for instance when working with very large data such matching becomes time consuming and this has resulted in other matching estimators being proposed. Notable among them include stratification matching (Becker and Ichino, 2002), kernel matching and local linear matching proposed by Heckman, Ichimura and Todd (1997, 1998) and ridge matching by Frölich (2004).

In stratification matching, the sample is split into a number of equal-spaced intervals, k, of the propensity score, to ensure that within every interval the average propensity score of the treated and controlled individuals does not differ (Becker and Ichino, 2002). In this method, observations that do not have either a treated or a controlled counterpart are discarded, thus increasing the problem of selectivity.

Caliendo and Kopenig, (2005) suggest the nearest neighbour matching method which randomly orders the participants (i) and non-participants (j), then selects the first participant and finds the non-participant with the closest propensity score and matches them. In the nearest neighbour method, matching can be done either on one-on-one basis where each treated unit is matched with the nearest propensity score for the control. In this case of the one-to-nearest neighbour matching method all treated units can find a match of their own. However, some of these matches are likely to be fairly poor because for some treated units the nearest neighbour may have a very different propensity score.

The nearest neighbour matching (one-on-one) sets:

$$C(i) = \min_j \| p_i - p_j \| \tag{5.2a}$$

or

Using the radius method, all the control units with estimated propensity scores falling within a predefined radius neighbourhood r, of the propensity score of the treated unit p_i are matched to the treated i. this introduces an obvious trade-off into the analysis. If the range of the neighbourhood, the radius, is very small it is possible that some treated units will not be matched because their neighbourhood does not contain any controlled units. However, the smaller the size of the neighbourhood the better is the quality of the matches. By using more controlled observations, one can increase the precision of the estimates, but at the cost of increased bias

In radius matching

$$C(i) = \{p_j \mid \| p_i - p_j \| < r\} \tag{5.2b}$$

where $C(i)$ is the set of control units matched to the treated units i with an estimated value of the propensity score of p_i and the propensity score of the control p_j. When weighting, the nearest neighbour method assigns a weight of one to the nearest non-participant and zero to the rest. If there are more than one individual in the neighbourhood $C(i)$, then the method assigns equal weight of zero to all individuals outside the neighbourhood (Essama-Nssah, 2006).

With kernel matching the entire treated units are matched with a weighted average of all the controls with weights that are inversely proportional to the distance between the propensity scores of the treated and controlled (Becker and Ichino, 2002). Thus, the weight assigned to the non-participant j is in proportion to how close it is to participant i.

Kernel matching may therefore be expressed as:

$C(i) = \{D = 0\}$

with kernel weighting:

$$w_{ij} = \frac{K\left(\frac{p_i - p_j}{h}\right)}{\sum_{j \in \{d=0\}} K\left(\frac{p_i - p_j}{h}\right)} \tag{5.3}$$

Here h is a bandwidth parameter which gives a central issue in non-parametric analysis showing a trade-off bias, variability, K (.) is a kernel function with the choice between Gaussian and Epanechnikov distributions.

Gaussian: $$K(u) = \frac{1}{\sqrt{2\pi}} \exp\left(-u^2/2\right) \tag{5.4}$$

Epanechnikov: $K(u) = \frac{3}{4}\left(1 - u^2\right) * I(|u| \leq 1)$ the function I (.) is an indicator that takes the value of 1 if the argument is true and zero otherwise.

The ridge matching estimator, as proposed by Frölich (2004), was based on the fact that local linear regression matching could be very unreliable when data is sparse. In ridge matching the local linear estimator is modified by adding a ridge term to its denominator to avoid near-zero denominators. The ridge parameter r is a constant set to approximately 0.83 for Epanechnikov kernel and approximately 0.35 for Gaussian kernel. Ridge matching seeks to stabilise the estimator based on the ridge regression of Seifert and Gasser (1996, 2000).

In deciding which of the matching algorithms to use it must be clear that there is no winner for all situations and the choice of the estimator crucially depends on the situation at hand, especially the

structure of the data. There is little comparative research which deals with the issue of choice among the matching procedures. Caliendo and Kopenig (2005) reported that a trade-off relation exists among estimators in terms of efficiency and bias, and that, generally, the more untreated observations used to create controlled groups for treated groups, the more efficient the estimator becomes in terms of variance but the larger the bias becomes. Frölich (2004) also reported that one to one nearest neighbour matching is inefficient and suggested the use of kernel matching (Heckman, Ichimura and Todd, 1997) or ridge matching which Frölich first suggested in the same paper. Frölich conducted Monte-Carlo simulations, varying the ratio of controlled to treated and the linearity of distribution between propensity score and actual selection to the program. In most cases, ridge matching dominated in terms of efficiency measured by variance. However, when the control to treatment ratio was high (greater than four), kernel matching proved a better alternative.

Though propensity score matching has increasingly become popular in addressing the issue of self-selection and selectivity bias in non-experimental analysis, the method is not without limitations. The limitations as identified by Shadish, Cook, and Campbell, (2002) include the need for large samples in which the treatment and control groups should overlap. Hidden bias may also remain because matching only controls for observed variables to the extent that they are perfectly measured. They may be used to act "as if" a survey is an experimental design, overestimating the certainty of findings.

Despite the usefulness of these methods in addressing the issue of selectivity and endogeneity associated with empirical studies, this research did not use them because the data available do not make it possible to do so. The balancing test, which seeks to satisfy the balancing property, checks if the two groups look the same in terms of the independent variables after matching on the propensity score if they do not then it is not appropriate to use this method since the results obtain will not be consistent and robust (Rosenbaum and Rubin, 1984). In our case the balancing property was not satisfied.

A further problem associated with empirical studies is the issue of endogeneity or simultaneity bias. Endogeneity refers to the fact that an independent variable included in the model is potentially

a choice variable, and correlated with unobservables relegated to the error term. The dependent variable, however, is observed for all observations in the data (Maddala, 1983). One method of accounting for endogeneity in empirical research is the use of instrumental variables (IV) (Pearl, 2000). An *instrument* is a variable that does not belong in the explanatory equation but is correlated with the prospective regressor(s) but uncorrelated with the error term.

Assuming we are interested in the estimating the effect of credit on the ratio of food expenditure to total expenditure, given by the structural equation:

$$Y_i = \beta' X_i + U \tag{5.5}$$

where U represents unobserved (zero-mean) disturbances with constant variance, and β' is the parameter of interest. This parameter cannot be estimated by ordinary least squares unless U *and* X are uncorrelated: when U and X are correlated the estimator β' is biased and inconsistent when OLS is used (Greene, 2003). Thus, as illustrated by Pearl (2000) and Angrist (2006), suppose that one or more of the regressors X are not independent of the error term U and suppose another variable Z and X are correlated but Z and U are uncorrelated then Z is identified as an instrument for X such that the IV estimator is defined as:

$$\hat{\beta}_{iv} = (Z'X)^{-1} Z'Y \tag{5.6}$$

Thus considering a linear relation between the dependent variable Y and the regressors $X_1, \ldots, X_K$ of the form

$$Y_i = \sum_{k=1}^{k} X_{ik} \beta_{0k} + U_i, i = 1, \ldots, n, \tag{5.7}$$

Then

$$\hat{\beta}_{iv} = \frac{\Sigma_i z_i y_i}{\Sigma_i z_i x_i} = \frac{\Sigma_i z_i (x_i \beta + u_i)}{\Sigma_i z_i x_i} = \beta + \frac{\Sigma_i z_i u_i}{\Sigma_i z_i x_i} \tag{5.8}$$

With z and u uncorrelated, the final term approaches zero in the limit, providing a consistent estimator. When x is uncorrelated with the error term, x is itself an instrument for itself. In this

case, OLS is a narrower version of IV estimators. The above is generalised in a straightforward way to a regression with multiple variables.

$$\hat{\beta}_{iv} = (Z'X)^{-1}Z'Y = (Z'X)^{-1}Z'(X\beta + U) = \beta + (Z'X)^{-1}Z'U \tag{5.9}$$

If Cor (Z, U) = 0, then E ($\hat{\beta}_{iv}$) = β

Three cases can be identified in instrumental variable regression (Pearl, 2000 and Angrist, 2006). If there are multiple regressors $x_1 ... x_k$ and multiple instruments $z_1 ... z_m$, the coefficients of the endogenous regressors $\beta_1 ... \beta_k$ could fall into any of these cases:

a) Exactly identified, if $m = k$, this method leads to a unique solution where the IV estimator denoted by $\hat{\beta}_{iv}$ is given by;

$$\hat{\beta}_{iv} = (\sum_{i=1}^{n} Z'_i X_i)^{-1} \sum_{i=1}^{n} Z'_i Y_i \tag{5.10}$$

b) Under-identified, if $m < k$, here there are fewer instruments than the regressors thus the system does not have enough equations so the method cannot be used.

Over-identified, if $m > k$, this method leads to a system where there are more equations than unknowns. After substituting the sample moments for the population moments, the resulting system is generally inconsistent. One possible solution is to select only k instruments among the m available instruments $z_1 ... z_m$ .This involves choosing instruments defined by;

Z * A = ZA

where A is a non-random matrix of size $M \times K$. The components of $Z * A$ are valid instruments since $E(uZ * A) = E(uZA) = E(uZ)A = 0$ (5.11)

Because Z is a system of m instruments and the matrix A is assumed to be a full column rank K, then it is easy to see that $Z * A$ constitutes a valid system of K instruments (Gourieroux and Monfort, 1995). There are as many instrumental variables estimators as possible matrices in A, that is infinity. Each instrumental variable estimator is given by;

$$\hat{\beta}_{IV}(\mathrm{A}) = (\mathrm{Z'*AX})^{-1}(\mathrm{Z'*AY}) \tag{5.12}$$

$$\hat{\beta}_{iv}(A) = [A'Z'X']^{-1} A'Z'Y \tag{5.13}$$

The two-stage least-squares method (2SLS) is one computational method used for implementing the IV technique especially because it is able to combine efficiently information from multiple instruments for over-identified regressions. Under the 2SLS approach, each endogenous regressor is regressed on all valid instruments, including the full set of exogenous regressors in the main regression in a first stage. Since the instruments are exogenous, these approximations of the endogenous regressors will not be correlated with the error term. So, intuitively they provide a way to analyse the relationship between the dependant variable and the endogenous ones. In the second stage, the regression of interest is estimated as usual, except that in this case each endogenous variable is replaced with its approximation estimated from the first stage. The slope estimator obtained is thus consistent and unbiased. In principle, this estimator is identical to the single stage estimator when the number of instruments is equal to the number of regressors. Another way of dealing with over-identified IV regression is to drop the weakest instruments. These can be identified as those regressors that are weakly correlated to the dependent variable (Greene, 2003).

Despite the general appeal and wide use, the method of instrumental variables has two main disadvantages: it cannot be use for non-linear models and the IV estimator is highly biased if a slight correlation exists between Z and U. In dealing with discrete or truncated variables or a mixture of normal distributions, the IV estimator cannot be used even if an instrument Z can be identified which is perfectly independent of the error term, U. As indicated by Angrist, Imbens, and Rubin (1993) and Balke and Pearl (1993) instrumental variables can only produce bounds, rather than point estimates in the analyses of non-parametric models for the causal effect of X on Y.

The IV-estimator is also biased if there is the slightest correlation between Z and U (Bartels, 1991). Since U is unobservable, there is no effective test to reveal such a correlation. Some

procedures developed by Wu (1973) are able to minimise the possibility of selecting inappropriate instruments but they are generally considered only partially successful as they rely on comparisons of other estimators. The selection of reliable IV is based on the subjective judgment about the cause-effect relationship in the domain.

To address these setbacks, Pearl (1993) developed a complementary method, which can provide unbiased estimates under conditions where the IV method fails. This method seeks a variable Z' that mediates the interaction between X and Y rather than finding a variable that is independent of the error term U. In a simple linear model given as

$$Y = \beta X + U \tag{5.14}$$

$$Z' = cX + \varepsilon_{z'} \tag{5.15}$$

This implies

$$Y = dZ' + U' \tag{5.16}$$

$\varepsilon_{z'}$ is an exogenous disturbance independent of X and U'. Since X is not in the equation (5.16), it has no effect on Y except the one mediated by Z'

Although the method of propensity score matching provides an appropriate solution for addressing the issues of selectivity we do not use it here because our data do not allow it to be used since the balancing property which helps us to draw on consistent and robust conclusions cannot be met. In addition, the various criteria on which matching is done are arbitrary and thus do not provide a firm solution for the problem of selectivity. Hence, the methods employed for this research to help address the issues of selectivity and endogeneity include the Heckman probit with sample selection also known as "heckprobit", (Heckman, 1979, Van den Ven and Van den Praag, 1981) and a treatment effects model. The other methods employed are a simple probit, multinomial logit, seemingly unrelated regression equations. The details of these methods are provided in the subsequent chapters where they are used for the analytical process.

5.5 Conclusion

The different models to be used in this analytical study are aimed at exploring the influence of access to credit in Ghana. The three data sets from Ghana, the GLS Waves 2, 3, and 4 are appropriate to this investigation because as described earlier in this chapter section 5.2, the data contains information that will help provide answers on the effect of the financial liberalisation policy on households and individuals. In the next chapter, we adopt a probit model to investigate the factors that influence the determinants of access to credit using GLS Waves 2, 3, and 4 at the household level for both the whole and rural samples.

Chapter Six

Determinants of Credit by Households

6.1 Introduction

The data described in the previous chapter, reveals that some individuals and households access credit while others do not. Reasons are given by respondents to explain why they are refused credit. The data is however, silent on the issue of why households may choose not to access any credit. Again looking at the characteristics of those who access credit (treatment) and those who do not (control) (see Table 6.2) suggests that the two groups have similar characteristics. This provides the motivation to investigate the determinants of accessing credit by these micro-units in Ghana. In this chapter we use a simple probit model to investigate the determinants of credit using all three Waves for both the whole sample and rural sample. With the probit model, we find out the factors that contribute to the likelihood of accessing credit. In this case, the particular credit market is not relevant, and will be addressed in the next chapter. The results show that for the whole sample being older, literate, having a larger household, and owning a house made access to credit more likely for all the Waves, while being a female made such access less likely. These results are similar to those of a study on South Africa (Okurut, 2006) and Tanzania (Khalid, 2003). The same factors correlated with credit access in the same way for the rural sample in addition to whether households lived near to a bank and near to a market.

The rest of this chapter is organised as follows. Section 6.2 discusses the research model and the data for investigating the determinants of households' credit incidence. The third and fourth sections provide the results and conclusion respectively.

6.2 Econometric Model for the Determinants of Access to Credit by Households

Our focus is to ascertain the determinants of the access to credit by households. A probit model is estimated using data on households in Ghana covered by the Ghana's Living Standard Surveys, Waves 2, 3 and 4. We examine how the probability of a household's access to credit has changed over the Waves. Two issues are examined. The first covers the whole sample and includes households in both the urban and the rural areas but omits community infrastructure variables; the second applies only to those who reside in the rural area, investigating the role of community infrastructure variable. The latter study in particular helps to determine the effects of community infrastructure such as the availability of banks and markets on the incidence of credit by households.

Probit regressions are useful where the prediction of the presence or absence of an outcome is based on a latent variable that determines a binary outcome. The linear probability model (LPM) is also useful for such qualitative dependent variables. However, the error term in this case has a binomial distribution, heteroscedatic variance and the value of the dependent variable may not fall within the required bounds of 0 and 1 for a probability model, which may lead to incorrect inferences (Cameron, 2005). A Probit model has properties that overcome such deficiencies. The model imposes a normal probability distribution for the error term, has a point of inflection at the probability of 0.5 and is symmetrical around this point. These properties are similar to that of the Logit with the exception that the probit model has thicker tails, a higher density and is cumulatively normally distributed. A Logit model's error term by comparison has a cumulative logistic distribution. As noted by Greene (2003), it is difficult to justify the choice of one of these models over the other on theoretical grounds. The Probit regression coefficients are used to estimate the odds ratio for each of the independent variables in the model. These show the probability of the dependent variable taking a unit value.

The probit model belongs to the class of binary response models that take the form;

$$P(Y=1/X)=G(\beta_0+\beta_1X_1+\beta_2X_2+...+\beta_k+X_k) \tag{6.1}$$

where G is a function taking values strictly between zero and one: $0<G_{\cdot}<1$ for all real numbers of z. G is the standard normal cumulative distribution function (cdf), expressed as an integral

$$G(z)=\Phi(z)\equiv\int_{-\infty}^{z}\phi(v)dv \tag{6.2}$$

where $\Phi(z)$ is the standard cumulative distribution function and $\phi(v)=(2\pi)^{-\frac{1}{2}}\exp(\frac{-z^2}{2})$ is the standard normal density.

Estimation of a probit model is usually based on a maximum likelihood method. The idea behind maximum likelihood parameter estimation is to determine the parameters that maximise the probability (likelihood) of the sample data, as developed by Fisher (1925).

The method of maximum likelihood is considered more robust and yields estimators with known statistical properties. In other words, maximum likelihood methods are versatile and apply to most models and many different types of data. In addition, maximum likelihood estimation provides efficient methods for quantifying uncertainty through confidence bounds. The maximum likelihood estimator is said to be sufficient – it provides complete information about the parameter(s) of interest; it is consistent – true parameter(s) value are generated asymptotically; it provides the lowest possible variance of the parameter(s) estimates asymptotically, and thus it is efficient and it is unbiased such that the true value is not consistently underestimated nor overestimated (Myung, 2003). It is upon these merits that the probit model is chosen over the other methods discussed in chapter five for the analysis of the data in this research.

Since probits are estimated by maximum likelihood, we cannot form an F statistic to test exclusion restrictions; a likelihood ratio test is used instead. The restricted and unrestricted models are estimated, and the likelihood ratio estimated as $R=2(Lur-Lr)\sim\chi^2(q)$

where Lur and Lr is the unrestricted and restricted models respectively. Similarly, we cannot form R^2 as a goodness-of-fit measure. An alternative is a pseudo R^2 defined as $1 - Lur / Lr$, is the model with just an intercept. Accessing credit is modelled as an unobserved activity, a 'latent' variable model in which a binary variable takes the value of 1 if a household receives credit and zero otherwise . Thus, the model is of the form;

$$y_i^* = \beta x_i + u_i \tag{6.3}$$

$(i = 1,...N)$ where y_i^* is the latent dependent variable interpreted as the probability of accessing credit, x_i is a vector of exogenous household, product and community explanatory variables affecting y_i^* β is a set of vector coefficients associated with explanatory variables and u_i is unobserved random term with normal distribution $N(0, \sigma_u^2)$. The observed binary outcome variable is defined as:

$$y_i = \begin{cases} 1 \text{ if } y_i^* > 0 \\ 0 \text{ otherwise} \end{cases} \tag{6.4}$$

The subscript i indexes the households with N the sample size.

The probit model is used to estimate the probability of a household in Ghana obtaining credit. Thus, the source of the credit, whether formal or informal, is not considered relevant in this present analysis and will be considered in the extension of the analysis in chapter 7. The probit regression analysis is appropriate here since the dependent variable is a discrete binary outcome, credit or no credit. The amount of credit received is not used here because using that will eliminate those who have not accessed any credit. This is not available from the data since those without credit are recorded as missing rather than having zero credit.

The method of estimation is maximum likelihood, which assumes that the optimality properties of the maximum likelihood estimators are met[49] (Greene, 2003).

The probability of a household accessing credit is expressed as a function of explanatory variables, as follows:

$$y_i^* = \beta_i x_i + \varepsilon \tag{6.5}$$

where $y = 1$ if $y_i^* > 0$ households with access to credit

$y = 0$ if $y_i^* \leq 0$ households without access to credit

where ε is the error term, which is assumed independent, normally distributed, mean = 0, variance =1, and a white noise.

β_i = vector of coefficients

x_i = vector of explanatory variables including household demographic and socio-economic characteristics and community infrastructure features.

The variables used in this model estimation are a subset of those defined in Table 5.13, above.

6.3 Data

As stated in the previous chapter (5), the study utilises data from Ghana's Living Standard Surveys Waves 2, 3 and 4, which contains information on the demographic and socio-economic characteristics of households and community characteristics. Descriptive summary statistics for the underlying data are provided in Table 6.1 below. The table shows the average characteristics of the variables across the three waves and how they compare between households who have credit (the "treatment" group) and those who have not (the "control" group). The mean age of the control

[49] The MLE implements the likelihood principle. MLEs are often simple and easy to compute. It has asymptotic optimality properties (consistency and efficiency). MLEs are invariant under reparameterisation. In signal detection with unknown parameters (composite hypothesis testing), MLEs are used in implementing the generalised likelihood ratio test (GLRT).

group is 45 for Waves 2 and 3, increasing slightly to 47 in Wave 4. The gender proportion is also similar across the Waves with an average of 32% of head of households being female who did not access credit. The average household size and the average number of households who own their dwelling places are also similar across the Waves for the two groups. This similarity can be observed across the infrastructure development of the communities for both groups. This suggests that the households across the Waves and between the groups are comparable.

Table 6.1: Descriptive Statistics for the Underlying Data

Variable	Wave 2				Wave 3				Wave 4			
	Control Group		Treatment Group		Control Group		Treatment Group		Control Group		Treatment Group	
	Obs.	Mean	Obs.	Mean	Obs.	Mean	Obs.	Mean	Obs.	Mean	Obs.	Mean
Age	2080	45.38	1063	42.20	3204	45.00	1246	42.42	3861	46.96	2091	43.73
Age2	2080	2336.95	1063	1977.95	3204	2281.39	1246	1973.70	3861	2466.28	2091	2096.45
Gender (= 1 Female)	2080	0.32	1063	0.27	3204	0.32	1246	0.33	3861	0.33	2091	0.34
Single (= 1 Single)	2080	0.29	1063	0.26	3200	0.30	1244	0.24	3861	0.36	2091	0.29
Education(= 1,Literate)	2080	0.70	1063	0.58	3199	0.64	1246	0.57	3858	0.57	2088	0.49
Basic	2080	0.22	1063	0.31	3199	0.27	1246	0.33	3858	0.29	2088	0.38
Secondary	2080	0.04	1063	0.06	3199	0.06	1246	0.07	3858	0.08	2088	0.07
Post -Secondary	2080	0.04	1063	0.05	3199	0.04	1246	0.04	3858	0.06	2088	0.07
Professional	1978	0.05	1031	0.08	2993	0.06	1200	0.07	3522	0.05	1999	0.06
Clerical/Admin	1978	0.03	1031	0.05	2993	0.04	1200	0.04	3522	0.03	1999	0.03
Sales	1978	0.09	1031	0.10	2993	0.11	1200	0.14	3522	0.14	1999	0.15
Services	1978	0.04	1031	0.05	2993	0.04	1200	0.03	3522	0.05	1999	0.05
Agriculture	1978	0.60	1031	0.53	2993	0.58	1200	0.52	3522	0.57	1999	0.53
Production	1978	0.20	1031	0.20	2993	0.17	1200	0.18	3522	0.15	1999	0.18
House hold size	2080	4.54	1063	4.89	3204	4.36	1246	4.77	3861	4.21	2091	4.76
House	2080	0.09	1063	0.10	3184	0.16	1239	0.15	3861	0.17	2091	0.15
Rooms	2080	0.62	1063	0.65	3184	0.73	1239	0.77	3861	0.70	2091	0.76
Huts	2080	0.29	1063	0.24	3184	0.11	1239	0.08	3861	0.13	2091	0.09
House Ownership(=1, owner)	2080	0.67	1063	0.75	3185	0.61	1240	0.67	3861	0.56	2091	0.62

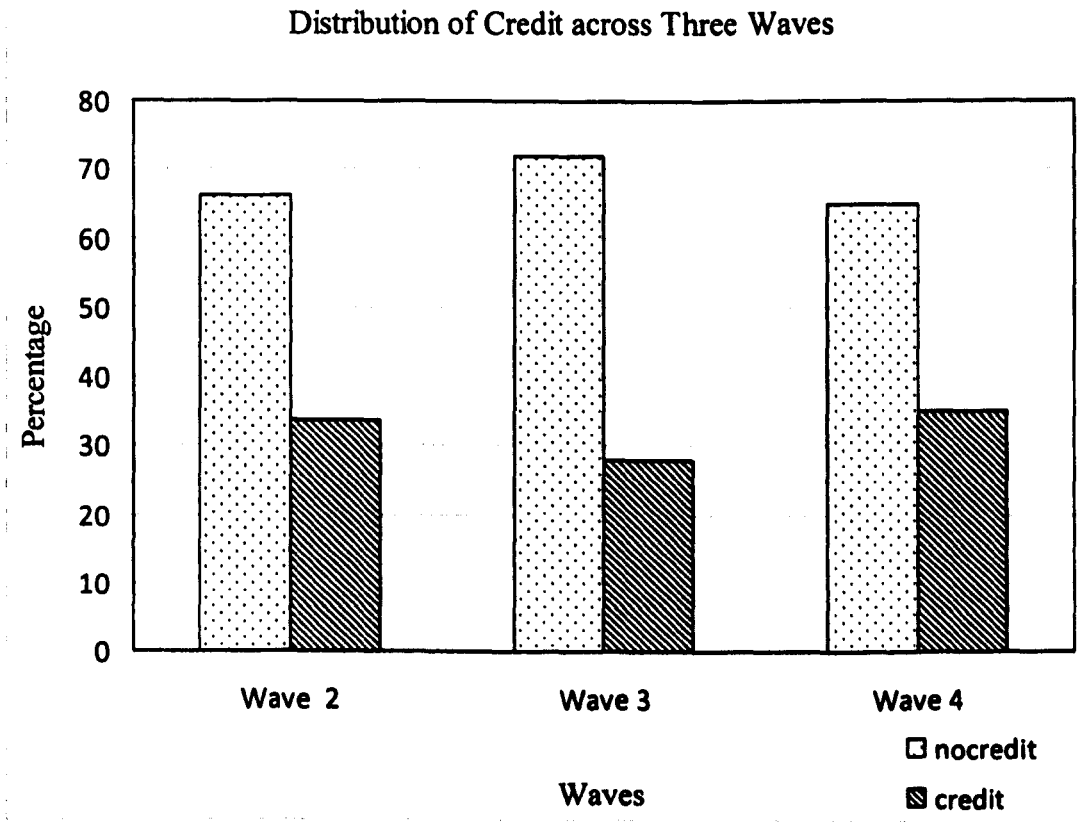
Table 6.1: (Cont/d) Descriptive Statistics for the Underlying Data

Variable	Wave 2				Wave 3				Wave 4			
	Control Group		Treatment Group		Control Group		Treatment Group		Control Group		Treatment Group	
	Obs.	Mean	Obs.	Mean	Obs.	Mean	Obs.	Mean	Obs.	Mean	Obs.	Mean
Food expenditure	2079	0.69	1063	0.64	3204	0.62	1245	0.58	3861	0.62	2091	0.58
Non-food expenditure	2079	0.31	1063	0.36	3204	0.38	1245	0.42	3861	0.38	2091	0.42
Hsehld expend/capita	2079	13736.98	1063	14694.00	3204	180015.10	1245	198613.80	3861	178215.60	2091	184505.80
Urban	2080	0.54	1063	0.62	3204	0.33	1246	0.37	3861	0.37	2091	0.36
Bank (= 1present)	962	0.07	402	0.07	1976	0.09	704	0.11	2429	0.10	1281	0.14
Market= 1 (present)	943	0.15	390	0.18	1976	0.20	704	0.27	2429	0.15	1281	0.17
Bank kilometres	962	18.48	402	15.40	1976	19.46	704	16.20	2418	25.54	1272	27.82
Market kilometres	940	7.48	392	8.21	1976	8.43	704	8.51	2423	13.66	1267	17.92

6.3.1 Household Access to Credit by Socio-economic Characteristics of Head of Households

Data from the three Waves reveals that the proportion of households receiving credit and credit volumes is generally low in Ghana. In Wave 2, prior to the implementation, 33.8% of the sample accessed credit. This percentage fell to 28% in Wave 3 when the Financial Liberalisation policy was implemented. This reduction is in part to be expected since the implementation of the financial liberalisation policy led to less efficient financial institutions branches closing, for example, the insolvency of the Bank for Housing and Construction in 1991, with a more efficient system developing over time. In Wave 4, seven years after the implementation of the policy 35.1% of households accessed credit. The statistics on the percentage of households accessing credit before, during and after financial liberalisation reveals cursory evidence that the policy has had some influence on access to credit by households. Figure 6.1 shows the distribution of the access to credit by households across the three Waves.

Figure 6.1: Household Access to Credit by Wave



Demographic characteristics are identified to influence access to credit as noted by Okurut (2006) in South Africa, Zeller (1994) in the Gambia and Aleem, (1990) in Pakistan. In the light of this and for the purpose of the current research we identify some demographic characteristics of heads of households that may affect access to credit. Table 6.2 below show a summary of the proportion of heads that accessed credit.

Table 6.2: Demographic Distribution Heads of Household with Credit

Variables		Wave 2	Wave 3	Wave 4
Gender	Male	34.5	27.6	34.8
	Female	30.1	28.9	35.7
Marital Status	Married	35	29.4	37.8
	Single	30.8	24.3	29.8
Location	Rural	29.5	26.7	35.3
	Urban	37.2	30.5	34.8
Education	No Education	29.7	25.6	31.5
	Basic	41.6	32.7	41.7
	Secondary	46.9	30.1	30.9
	Post-secondary	37.5	30.4	38.1
Occupation	Professional	45.9	32.4	38.7
	Clerical/Admin	47.6	31.4	34.8
	Sales	36.4	33.8	39.0
	Services	40.2	25.2	35.7
	Agricultural	31.2	26.6	34.5
	Production	35.1	30.2	39.2
Domicile	Flat	37.6	27.2	33.2
	Rooms	34.8	29.0	36.9
	Huts	30.2	21.6	27.1

Note: Figures show the proportion of head of households with credit in percentages.

The gender composition suggests that access to credit was higher among male-headed households (35.4%) as compared to female-headed households (30.1%) in Wave 2. However, this trend reversed in Waves 3 and 4, when 28.9% and 35.7% of female-headed households accessed credit compared to 27.6% and 34.8% male-headed households respectively. Though the change may seem small, the access of credit by female-headed households suggests that females are not necessarily disadvantaged when accessing credit.

The marital status of the household head in relation to credit access shows that a higher percent of married household heads accessed credit compared to the single ones across the three Waves. It showed that 35%, 29.4% and 37.8% of married heads of households accessed credit as compared to 30.8%, 24.3% and 29.8% singled-household heads in Waves 2, 3 and 4 respectively. This suggests that single heads of households may be considered as more likely to default and hence have a lower access to credit. However, their access to credit increased in Wave 4.

Access to credit may be affected by the location of a household. A higher percentage of households that accessed credit were located in the urban areas in Waves 2 and 3 however, for Wave 4, those located in the rural area accessed more credit and the difference is small.

Heads of households may be classified into four categories by their highest educational qualifications, ranging from those without any formal educational qualification to those with up to post-secondary education (see Table 5.6 for full detail of groupings). A common pattern emerges from the three waves in relation to the proportion of households with access to credit. Those with no educational qualification were the most represented, while those with post-secondary accessed the least. Intuitively, this may be due to accessing credit from the informal market for the least educated and those with the highest qualification opted not to access credit.

For all the heads of households it was possible to identify their main occupation from the data. This was re-coded as specified on Tables 5.7 and 5.7a of chapter 5. The occupational structure suggests that majority of those engaged in agricultural activity accessed no credit for all the three Waves. About 80% of the working population is engaged in agriculture and this sector is the largest contributor to GDP, 40.6% (ISSER, 2006). Thus, proportionally, the provision of credit to the agriculture sector is very low.

Of those who accessed credit, households that resided in dwellings marked as rooms had the highest percentage in Waves 3 and 4; in Wave 2, those in flats had the highest. There is little difference across the Waves.

Access to credit is also seen to be influenced by the community infrastructure variables (Okurut, 2006 and Porteous, 2003) in South Africa. Table 6.3 provides a summary of the proportion of heads of households who accessed credit in relation to the presence or otherwise of community infrastructure such as banks, market and roads.

Table 6.3: Access to Credit Distribution by Community Infrastructure

Variables		Wave 2	Wave 3	Wave 4
Bank	Absent	29.4	25.8	33.6
	Present	31.2	30.7	42.0
Market	Absent	28.5	24.6	33.6
	Present	33.3	33.0	37.9
Road	Absent	24.4	21.2	34.5
	Present	31.0	27.4	34.5

The proportion of household heads that lived in areas without banks and accessed credit increased across the three waves suggesting that credit is accessed from other sources rather than banks, most likely from informal sources. Those who accessed credit in areas with banks also increased across the Waves with the slight decrease from Wave 2 to 3 showing a policy cost of the implementation of the financial liberalisation programme. The difference in the proportion of those who accessed credit in relation to the presence and absence of banks was big, suggesting that the presence of banks had an added influence on the access to credit in rural areas.

The location of market suggests that of those who accessed credit, a higher percent lived in localities with markets 33.3%, 33% and 37.9% for Waves 2, 3, and 4 respectively. This trend may be due to the fact that in the rural areas most people access credit from the informal market in which traders play a particular important role as a source of credit. The difference between the proportions of heads of households who accessed credit where there is a market is quite bigger than those who lived in areas without markets. This adds to the intuition that traders are important players in providing credit to dwellers of the rural areas.

Though the proportion of heads of households who accessed credit in areas with a passable road network is greater than those without the difference is small and in Wave 4 it was almost the same. This trend suggests that the availability of road networks is not of particular import for credit access, partly because most credit is accessed from the informal sector where the stakeholders are usually connected on social lines and thus usually live close together. Also with the use of mobile banks, particularly observed in Wave 4, with the implementation of the financial liberalisation policy financial services seem to be closer to clients hence road networks do not seem to matter that much.

Using the above identified variables the next section investigates how the variables influence access to credit for both the whole nation and rural dwellers using probit models.

6.4 Econometric Results for the Determinants of Credit Access by Households

6.4.1 Probit Model for Credit Access for the Whole Sample

A probit is estimated to determine the factors that affect access to credit for the whole sample, using only the household socio-economic variables in Table 5.13 chapter 5 above. The reference category for the binary variables is shown in Table 6.4

Table 6.4 Table of Reference Category

Variable	Reference Category
Gender	Male
Education	Illiterate
Occupation	Agriculture
Domicile	House/flats
House Ownership	Not owned

The result of the probit regression is shown on Table 6.5 below.

The age of the household head had a positive and statistically significant effect on credit access in Waves 3 and 4 but not in Wave 2 where it was positive but statistically insignificant. Age has a significant quadratic effect on the access to credit in all three waves. The pooled sample also revealed a statistical significant quadratic effect. The results suggest that though older heads of households are more likely to obtain credit the probability declines after a maximum age. Thus in Wave 3, there is a 3% higher chance of getting credit for a unit increase in the age of the household head. This percentage falls to 1% for Wave 4. The quadratic relationship between access to credit and age show a peak age of 34, 44, 35 and 31 years for Waves 2, 3, 4 and the pooled sample respectively. This suggests that the maximum age after which the probability of accessing credit with increase in age falls is 35 years, after the implementation of the financial liberalisation. This age seems reasonable for an economy with an average life expectancy of 55 years[50] (Ghana Statistical Service, 2008).

[50] Base on the 2008 population census estimates.

Table 6.5 Probit model for access to credit whole sample

	Wave 2		Wave 3		Wave 4		Waves 2,3,4	
Credit	Coefficient	Std. Err.	Coefficient	Std. Err.	Coefficient	Std. Err.	Coefficient	Std. Err.
Age	0.015543	0.009958	0.0261**	0.0089	0.0139**	0.0076	0.0188**	0.0050
Age2	-0.00023**	0.000103	-0.0003**	0.0001	-0.0002*	0.0001	-0.0003**	0.0001
Gender (= 1, female)	-0.13213**	0.062192	0.0762	0.0530	0.1911*	0.0453	0.0712**	0.0299
Single (=1,single)	0.141573**	0.065286	-0.0303	0.0567	-0.1204*	0.0481	-0.0221	0.0318
Education (= 1, literate)	0.172136**	0.058164	0.1315**	0.0507	0.1859*	0.0407	0.1660**	0.0278
Professional (= 1, professional)	0.159647	0.105803	-0.0016	0.0933	-0.0774	0.0831	0.0031	0.0532
Admin/Clerical (=1, administration)	0.181339	0.134994	-0.0536	0.1152	-0.1344	0.1044	-0.0366	0.0666
Sale (=1, sales)	0.048843	0.091765	0.1048	0.0749	0.0363	0.0585	0.0561	0.0409
Services (=1, services)	0.08783	0.125886	-0.1262	0.1184	-0.0427	0.0867	-0.0384	0.0607
Production (=1, production)	0.004562	0.065182	0.0128	0.0634	0.0454	0.0538	0.0201	0.0346
Household size	0.105576**	0.023263	0.0613**	0.0239	0.0825*	0.0216	0.0836**	0.0128
Household size squared	-0.00499**	0.001554	-0.0027	0.0018	-0.0033*	0.0017	-0.0038**	0.0009
House ownership (=1, owner)	0.167963**	0.060227	0.1000**	0.0499	0.1256*	0.0398	0.1211**	0.0275
Urban (=1, urban)	0.143921**	0.051849	0.0398	0.0527	-0.0485	0.0427	0.0302	0.0277
Constant	-1.2372**	0.21853	-1.4019**	0.1983	-0.9787*	0.1759	-1.1530**	0.1130
Wave 3 (=1, Wave 3)							-0.1551**	0.0323
Wave 4(=1, Wave 4)							0.0540*	0.0308
Number of observations	3009		4160		5515		12684	
Log likelihood Ratio $chi^2(14)$	118.24		79.1		169.86		377.3	
Prob > chi^2	0.000		0.000		0.000		0.000	
Log likelihood	-1874.978		-2452.39		-3524.73		-7878.64	
Pseudo R^2	0.0306		0.0159		0.0235		0.0234	

Note: The coefficient of a variable is said to be significant if its significance level is at most 5%. However the exact significance levels of the variables are indicated in the respective tables as follows: ** significant at 5% and *significant at 10%.

Access to credit by women has also evolved over the three waves. In Wave 2, being female had a negative and statistically significant effect on access to credit. In Wave 3, when financial liberalisation has just begun, the effect was positive but statistically insignificant, in Wave 4, seven years on from financial liberalisation; the effect was positive and statistically significant. This suggests that the financial liberalisation policy may have helped improved access to credit for women. The pooled sample revealed also a positive and statistically significant relation. The coefficients show that in Wave 2 a female was 13% less likely to access credit in relation to a male by Wave 4, access by females was 19% as likely as males. This change may not be just of statistical significance but also economical, in the context that females accessing credit may help improve the standard of living of the general society, as observed in Bangladesh (Grameen Bank Method of Action, 1996).

Being single had a positive and statistically significant effect only in Wave 2 while in Wave 4 the effect is negative and statistically significant, but negative and statistically insignificant in Wave 3, thus implying the marital status of the head of a household had a mixed effect on the access to credit during and after financial liberalisation in terms of its significance. However, the negative coefficient implies that the probability of a single-head of household accessing credit is less likely with reference to the married one. Thus, households that may be considered as vulnerable and high risk in terms of defaulting repayment, that is single heads of households, may be marginalised when accessing credit.

There was a positive and statistically significant probability of accessing credit for those with any level of education in relation to those without any educational qualification across all three waves. A similar relationship was observed for the pooled sample. The coefficients showed that during the implementation period (Wave 3), the probability of a literate accessing credit was the lowest at 13% likelihood, in Wave 4 the probability rose to 18% likelihood. This may be attributed to the effect of the initial cost of the policy in Wave 3 and the subsequent recovery and increase after the implementation of the policy.

Household size had a positive and statistically significant effect on credit access in all three waves. This suggests that heads of larger households are more likely to access credit than those with smaller household size. This is expected in a largely subsistence agricultural economy where more is better since the extra hands could add to the number of workers on the farm, however small their contribution may be. Though household size seemed to have a nonlinear effect this is statistically significant for Waves 2, 4 and the pooled sample, suggesting that the quadratic turn was less important in Wave 3. The optimal household size across the pooled whole sample is 11, varying between 10 and 13 members, for the individual Waves. Though these figures seem to be high relative to the average family size from the 2008 population census, (3.68) they are appropriate for the definition of a household as provided on page 181. The coefficients showed a decrease in the chance of larger household accessing credit in Wave 3 from Wave 2, and then increased in Wave 4.

The ownership of a house had a positive and statistically significant effect on credit access in all the waves and the pooled sample. This suggests that having a house, a collateralable asset, enhances the probability of accessing credit. It can be deduced from the coefficients that with the implementation of the financial liberalisation policy, (Wave 4), the chances of a house-owner accessing credit were 13% more likely than a non-owner.

The two-year dummy variables reveal the effect of the policy over time with respect to Wave 2. A negative statistically significant relationship for Wave 3 implies that with the introduction of the policy, the effect of factors that influenced access to credit becomes less pronounced. However, after seven years of implementation, the Wave 4 year dummy shows a positive and statistically significant relationship, suggesting some improvement over Wave 2. This is in relation to discussions by some development economists, for example, Lawrence (2006) that there are usually some costs to the implementation of such development policies before the expected results are observed.

6.4.2 Determinants of Credit Access by Rural Residents

A probit was subsequently estimated for the probability of those who reside in the rural areas in Ghana accessing credit, see Table 6.6 below. This analysis is particularly important in order to ascertain the effect of community infrastructure on credit access. The study was limited to the rural areas due to the unavailability of data of community infrastructure for the urban areas.

The effects of the non-community variables do not differ much from those for the whole sample. The main exception was with the house ownership dummy, which revealed different effects on the access to credit for those who resided in the rural communities. Owning a house remained positively related to access to credit in the rural area as for the whole sample, it was statistically insignificant for the rural dwellers in Waves 2 and 3 but statistically significant in Wave 4 and the pooled sample. The coefficients were also different for Waves 2 and 3, which were much smaller for the rural sample. In this case the chances of a household accessing credit in Waves 2 and 3 was under 5% more likely to occur, while that of Wave 4 showed a similar percentage (12%) with that of the whole sample.

The other non-community variables relating to the age, educational qualification, gender, and size of household, had similar directional effects and level of statistical significance to those of the whole sample. Though the coefficients for the rural sample for these variables were averagely bigger than that for the whole sample. For the rural sample, the optimal household size in the pooled sample is 10, ranging between 8 and 13 for the individual Waves. These figures show that the optimal level for rural areas is lower than that of the whole sample. Intuitively this may be because larger household size in the rural areas is more likely to be poor thus less likely to obtain credit since they may be considered likely to default.

The distance from the nearest bank showed a negative statistically significant effect across the three waves and with the pooled sample. The distance of a market from the community where a

household is located had a positive and statistically significant effect on credit access for Waves 2, 4 and the pooled sample but was statistically insignificant for Wave 3, though positive. This suggests that the farther away a household is located from a market the more likely to access credit.

The negative sign for the bank distance indicates that the further away a household is from a bank the less likely to access credit, however, the coefficients gets smaller over the Waves suggesting a weaker relationship, thus financial liberalisation seems to have improved access to credit for those who live away from banks. The positive sign for the market distance, though contrary to expectation may be due to the fact that most of the credit is taken from the informal credit sector, particularly traders, so household heads from outside their immediate locality are able to access credit rather than do so in their own locality where they are better known.

The Wave dummies revealed a similar relationship to that of the whole sample. The coefficients for the Wave dummies suggest that the effects of the determinants of access to credit are 9% less likely to occur during the period of policy implementation (Wave 3) than before (Wave 2), but they are 10% more likely to occur after implementation (Wave 4) as compared to Wave 2.

Table 6.6: Probit Model for access to credit: rural dwellers sample

Variables	Wave 2		Wave 3		Wave 4		Waves 2,3,4	
Credit	Coefficient	Std. Err.	Coefficient	Std. Err.	Coefficient	Std. Err.	Coefficient	Std. Err.
Age	0.0237	0.0150	0.0450**	0.0112	0.0204**	0.0095	0.0290**	0.0065
Age2	-0.0003*	0.0002	-0.0005**	0.0001	-0.0003**	0.0001	-0.0004**	0.0001
Gender (= 1, female)	-0.2989**	0.1006	0.0299	0.0734	0.1339**	0.0591	0.0249	0.0412
Single (=1,single)	0.1759*	0.1064	0.0072	0.0769	-0.0996	0.0629	-0.0061	0.0438
Education (= 1, literate)	0.2884**	0.0987	0.1799**	0.0683	0.2174**	0.0508	0.2256**	0.0374
Professional (= 1, professional)	0.1949	0.1912	0.0121	0.1380	-0.0264	0.1174	0.0267	0.0804
Admin/Cler (=1, administration)	0.4981	0.3405	-0.3231	0.2772	-0.2927	0.2159	-0.1222	0.1484
Sales (=1, sales)	-0.0942	0.2273	0.1064	0.1206	0.1869**	0.0835	0.1457**	0.0651
Services (=1, services)	-0.4572	0.2943	-0.2209	0.1857	-0.2616*	0.1577	-0.2546**	0.1113
Production (=1, production)	-0.0822	0.1125	0.0201	0.0913	0.1048	0.0747	0.0508	0.0511
Household size	0.0862**	0.0376	0.0881**	0.0320	0.0738**	0.0264	0.0843**	0.0174
Household size squared	-0.0051**	0.0025	-0.0053**	0.0024	-0.0027	0.0020	-0.0044**	0.0013
House ownership (=1, owner)	0.0328	0.0890	0.0014	0.0611	0.1237**	0.0478	0.0817**	0.0341
Bank distance	-0.0065**	0.0023	-0.0055**	0.0015	-0.0011**	0.0004	-0.0016**	0.0004
Market distance	0.0073*	0.0041	0.0029	0.0023	0.0016**	0.0005	0.0018**	0.0004
Constant	-1.2058**	0.3410	-1.7523**	0.2578	-1.1160**	0.2261	-1.4140**	0.1509
Wave 3(=1, Wave 3)							-0.0919**	0.0460
Wave 4(=1, Wave 4)							0.1086**	0.0442
Number of observations	1290		2568		3523		7381	
LR chi2(15)	62.97		80.13		152.03		286.29	
Prob > chi2	0		0		0		0	
Log likelihood	-754.828		-1452.38		-2204.29		-4439.86	
Pseudo R2	0.04		0.0268		0.0333		0.0312	

* *Significant at 5% and *Significant10%

The pseudo R-squared statistics for the Waves and pooled sample, in both samples were less than 5%. Such small magnitudes for cross-sectional data are usually expected, the statistically significance of the chi square shows that the models for each Wave significantly explains the effects of the variables on access to credit both for the whole nation and those who reside in the rural areas. The log likelihood ratios for the models can be said to be relatively large in absolute terms implying that the observed results are more likely to occur, which are also statistically significant. Examining the ratios for both samples show that the pool-sample has larger values this suggests that the results from the pooled-sample are an appropriate alternative to using the individual Waves.

6.5 Conclusion

This chapter has presented the results of probit models that help investigate the factors that are associated with accessing credit. The models suggest that the effect of the factors that determine access to credit for the whole nation and rural dwellers have changed over the period from 1989 through to 1998. This period covers a time of policy change in the financial structure of Ghana. It represents three distinct periods of financial repression (Wave 2), implementation of financial liberalisation (Wave 3) and after (Wave 4).

At the national level, the effect of age on access to credit changed from being positive and insignificant to positive and significant across the three waves. That of being a female changed from negative and significant to positive and significant over the same period of time. Access to credit was positive and significantly influenced by attaining any level of educational qualification by the household head and the household size for the three periods.

Among those who lived in the rural areas, similar changes and effects were observed for age, being single, attaining any educational level and household size. The access to credit was negatively and significantly influenced by the distance to the nearest bank.

It can be argued that with time across the three Waves, and the implementation of the financial liberalisation policy, the effects of some factors that influence access to credit has improved. It also suggested that to help improved credit access to rural dwellers, financial institutions should be situated as close by as possible.

Since most developing countries have a financial sector that is characterised by segmentation the next chapter examines the factors that influence access to credit from each of the different markets. Though, there are about three main types of credit markets, that is, formal, semi-formal and informal, in the case of Ghana, from where data for this analysis is used there is inadequate data on the semi-formal market for the times under consideration. Therefore the study covers only the formal and informal markets. In this analysis, GLS 3 and 4 are used owing to problems of lack of information on this subject in GLS 2. It is also done on the individual level rather than the household level as was the case in the present analysis.

Chapter Seven

Determinants of Access to Formal Credit in Ghana

7.1 Introduction

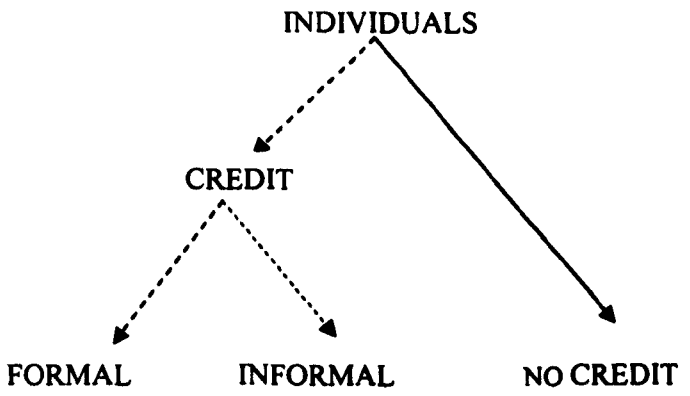
In chapter six, I investigated the factors that affected access to credit by households in Ghana. This chapter investigates the factors that determine an individual's access to the credit from the formal and informal market. It is of particular interest to ascertain the factors that drive individuals to particular credit markets as found in LDCs. The results may also add to the explanation of the continuous existence of fragmentation of the credit market in LDCs. Using Ghana's data is a useful vehicle to help provide answers to this question since the financial reforms in Ghana are similar to those implemented in other developing countries, in particular countries in the Sub-Saharan region. Also Ghana's reforms have been implemented for longer and perhaps with more determination and consistency, thereby earning the reputation as a 'showpiece' of the world financial institutions (Harrigan and Younger, 2000). In addition the data replicates the Living Standards Measuring Surveys common to most of the developing countries and therefore appropriate to help provide an important insight into the efficacy of standard financial sector reform programmes.

Three models are specified to help identify the determinants of access to credit in the specific markets, formal and informal. A simple probit model is first used to identify the determinants, thereafter a Heckman probit with sample selection and a multinomial logit model are used, correcting for selectivity and establishing robustness. The chapter is organised as follows. A description of the models and data used to help determine the factors that influence access to credit - formal or informal - is provided in section 7.2. The results from the three models are presented in sections 7.3.1, 7.3.2 and 7.3.3. The results reveal that access to both the formal and informal credit market is influenced significantly by age, gender, marital status, educational level, individual wealth, time, and distance from bank and market. Section 7.4 concludes the chapter.

7. 2 Models and Data

This section describes the models and data that are used to address the second question, the determinants of an individual's access to formal credit and how that has been influenced by the policy of financial liberalisation. The data used raises the issue of sample selectivity, where the sample comprises only those who have successfully received credit. This is an example of a truncated sample. According to Hosmer and Lemeshow (1999), a censored value is one whose value is incomplete due to random factors for each subject. A truncated observation, on the other hand, is one which is incomplete due to a selection process in the design of the study. Thus, truncation changes the sample size while censoring does not. Figure 7.1 below shows the sample design of this sub-sample:

Figure 7.1: Sample Design for Exercise 2: Residents with Access to Credit[51]



Truncation occurs when some observations are not included in the analysis, that is, the sample is drawn from a restricted part of the population. A truncated distribution is the part of an untruncated distribution that is above or below some specified threshold. Under normality assumptions for the whole population, the error term in the truncated regression model has a truncated normal distribution, which is a normal distribution that has been scaled either upward or downward so that the distribution integrates to one over the restricted range. Compared to the mean of an untruncated distribution, the mean of the truncated distribution is greater if the point of truncation is from

[51] The dashed arrow shows the subsample of interest.

below, and smaller if the point of truncation is from above. Truncation also reduces the variance compared with that of the untruncated distribution (Greene, 2003).

The first model is a probit used to determine the factors that affect an individual's access to the formal credit market, ignoring the issue of sample selection as discussed above. In this respect, we have a model similar to the one specified in equation 6.5 but this time with reference to individuals and the specific source of credit using only Waves 3 and 4 due to the unavailability of data at this level for Wave 2.

The equation for determining the factors that affect access to formal credit can be estimated using probit maximum likelihood method as found in Greene (2003):

$$w_i = \beta' H_i + \varepsilon_i = \Phi(\beta' H_i) \tag{7.1}$$

Where $w_i = 1$ if the ith individual accesses formal credit

$w_i = 0$ otherwise,

H_i is a vector of exogenous individual characteristics, product and community features affecting the probability that an individual receives credit from the formal credit market, β' is a coefficient vector, $\varepsilon_i \sim N(0,1)$ an unobserved random term and Φ is the cumulative standard normal distribution function. The corresponding log-likelihood function is given as:

$$L_i = \sum [w_i \ln\Phi(\beta' H_i) + (1 - w_i)\ln(1 - \Phi(\beta' H_i))] \tag{7.2}$$

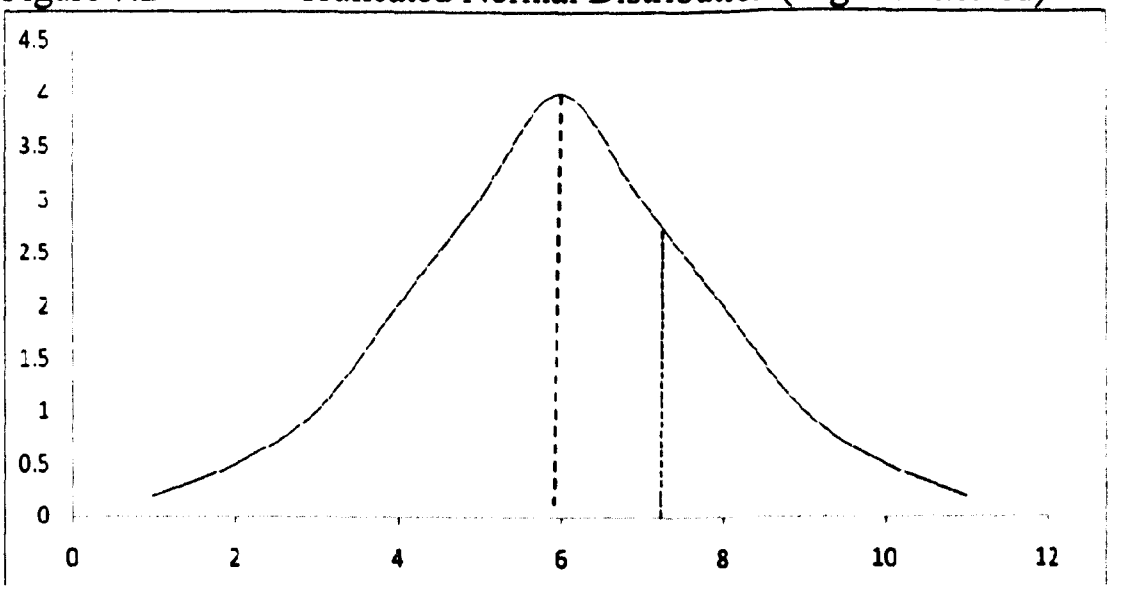
With derivatives

$$\delta\Phi(\beta' H_i)/\delta H_i = \phi(\beta' H_i)\beta'. \tag{7.3}$$

This model is estimated based on one of the fundamental assumptions made concerning applied studies, that is, the sample is randomly drawn from the underlying population. However, due to the sample design problems stated above (Figure 7.1) this assumption is violated. Due to non-response and truncation, we arrive at a sample that exhibits selectivity. This could be as a result of dropping some individuals from the model, for example, those who do not receive credit (truncation) or due

to the unavailability of data on some individuals, for instance, community infrastructure information on those residing in the urban areas (non-response). The truncated regression model is the formal credit equation estimated from the data for those who obtained credit. There are individuals without credit who have similar characteristics to those who received credit that have been eliminated from the study, with the result that our probit overestimates the effect on credit. The truncation takes the form $y_i < L_i$ depending on whether an individual has accessed credit and is illustrated in Figure 7.2 as a right truncated sample.

Figure 7.2[52] Truncated Normal Distribution (Right-truncated)



Since the data is assumed to be truncated from the right, the mean of the data under consideration will be lower than the mean of the untruncated data thus the regression takes account of the truncation in order to provide consistent and unbiased estimates.

This gives rise to a sample selection problem not only because the sample is non-randomly selected but also due to the fact that the selection is conditional. In our particular case, the latent probability of access to the formal credit market is conditional on the latent probability of access to

[52] The values on figure 7.2 above are arbitrary they are for illustration but could represent the density of the x values.

credit. To correct for the sample selection bias a second model, the Heckman probit with sample selection is specified sometime referred as "Heckprobit" model (Heckman, 1979, van den Ven and van den Praag, 1981). This is based on two latent dependent variables models:

$$Y_1^* = \beta' x + U_1 \qquad \text{(Outcome equation)} \tag{7.4}$$

$$Y_2^* = \gamma' Z + U_2 \qquad \text{(Selection equation)} \tag{7.5}$$

where x and Z are vectors of regressors, possibly with common components, including intercepts. The error terms U_1 and U_2 are jointly bivariate, normally distributed conditional on x and Z, with zero mean and variance is equal to 1.

The model for Y_1^*, the probability that an individual accesses formal credit, is the one we are interested in, but Y_1^* can only be observed if Y_2^*, the probability that an individual has credit, is greater than 0. Thus the observed dependent variable Y is;

$$Y = Y_1^* \text{ if } Y_2^* > 0$$

$$Y = \text{missing value if } Y_2^* = 0$$

The latent variable Y_2^* itself is not observable, only its sign such that $Y_2^* > 0$ if Y is observable, and $Y_2^* = 0$ if not. However, the Z's are observable even if Y is a missing value, that is characteristics of individuals who do not access credit are observable, and the X's are observable if they Y's are. If the sample selection problem is ignored as in equation (7.1) then the estimator β' is biased due to the fact that

$$E\left[Y_1^* \middle| Y_2^* > 0, x, Z\right] = \beta' x + \rho\sigma\phi(\gamma' Z)/\Phi(\gamma' Z) \tag{7.6}$$

where Φ is the cumulative bivariate normal distribution function, ϕ is the corresponding density, σ^2 is the variance of U_1 and ρ is the correlation between U_1 and U_2. Thus,

$$E[Y_1^* | Y_2^* > 0, x] = \beta' x + \rho\sigma E[\phi(\gamma' Z)/\Phi(\gamma' Z) | x] \tag{7.7}$$

The second term on the right-hand-side is the cause of the sample selection bias of the estimator β' if ρ is non-zero, that is if Y is regressed on x using only the valid observations on Y, that is, if x and Z are independent then

$$E[\phi(\gamma' Z)/\Phi(\gamma' Z)|x] = E[\phi(\gamma' Z)/\Phi(\gamma' Z)] \tag{7.8}$$

is constant therefore only affecting the intercept.

In order to correct sample selection bias and obtain asymptotically efficient estimators, we estimate the model using equations (7.4) and (7.5) in which the model parameters are estimated using maximum likelihood. The log-likelihood for the Heckman probit model with sample selection is

$$\ln L = \sum_{Y_2^* = 1, Y_1^* = 1} \ln \Phi[\beta' x, \gamma' Z, \rho] \tag{7.9}$$

$$+ \sum_{Y_2^* = 1, Y_1^* = 0} \ln \Phi[-\beta' x, \gamma' Z, -\rho]$$

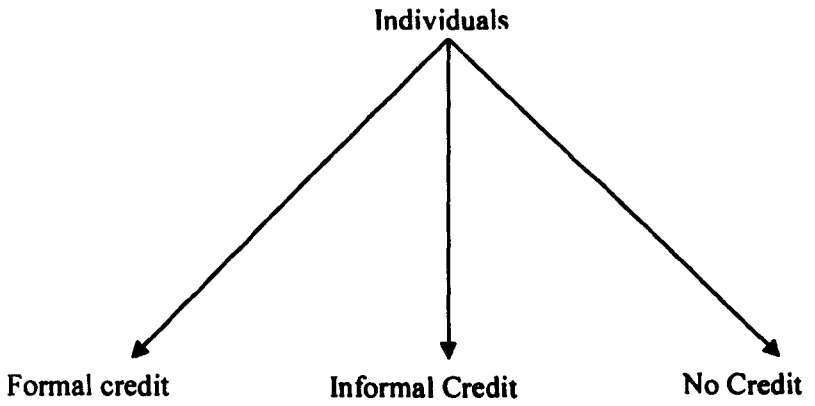
$$+ \sum_{Y_2^* = 0} \ln \Phi[-\gamma' Z]$$

where the sample $n_{1,1}$ is the set of individuals i for which $Y_2^* = 1, Y_1^* = 1$ (those with credit and those with formal credit), $n_{1,0}$ for which $Y_2^* = 1, Y_1^* = 0$ (those with credit but with informal credit), and n_0 for which $Y_2^* = 0$ (those without credit) (Heckman, 1979).

The third model to help estimate the determinants of access to formal or informal credit is to estimate a multinomial logit for the process. In estimating the model to determine the factors that influence the access to credit in either the formal and informal sector, there is the need to consider those who have not accessed any credit. This is helpful in addressing any sample selection problems that may arise. The data employed does not provide any specific information on reasons why some are reported as not having accessed any credit. Thus, it is not clear whether the people who do not have credit chose to be without credit or whether they were unable to access credit

owing to some personal characteristics. Indeed they may have held credit sometime prior to the survey. A further possibility is that these people may be found likely to access credit in the future, hence the suggested model takes account of these people who had not accessed credit at the time of data collection. Figure 7.3 below provides a pictorial representation of the sample that would be used for estimating the model.

Figure 7.3 Samples Showing All Individuals With and Without Credit



The sample categories are based on the assumption that the individuals in each category are unique to that category. Thus there are no individuals who have, for example, both formal and informal credit and thus the categories are independent of each other. In order to estimate the factors that influence the choice an individual makes, a multinomial logit model is estimated.

Multinomial logit is used to model relationships between a polytomous dependent variable and a set of predictor variables, that is, the dependent variable consist of more than two categories. In our case the dependent variable is made up of three categories; formal credit, informal credit and no credit. Polytomous response models can be classified into two types depending on whether the response has an ordered or unordered structure (Wooldridge, 2002).

In an ordered structure, the dependent variable Y is restricted to one of m ordered values. For example, the severity of a condition may be none, mild or severe. In an unordered model, such as

the one considered here, the dependent variable does not have an ordered structure. Two classes of model, the generalised logit models and conditional logit models can then be used to estimate nominal response data. The generalised logit model consists of a combination of several binary logits considered simultaneously (McCullagh and Nelder, 1989). For instance, the response variable is the access to credit or not, from two sources of markets; the formal or informal credit market. Two binary logits are considered: one for formal credit versus no credit and the other informal credit versus no credit. This type of generalised logit model is usually used in biomedical research to estimate the relative risks in matched case-control studies (McCullagh and Nelder, op.cit.).

In studying individual consumer behaviour, where an individual is faced with a choice among given alternatives, both the generalised and conditional logit models can be used to analyse discrete choice data. In the conditional logit model, a choice among alternatives is treated as a function of the characteristics of the alternatives, while in the generalised logit model; the choice is a function of the characteristics of the individual making the choice (Greene, 2003). In view of our particular need, we use the generalised logit model to analyse the determinants of access to formal credit, informal credit and no credit. Thus, we investigate the relationship between the choice of source of credit or no credit, and the individual, household and community characteristics.

The multinomial logit model assumes that data are case specific, that is, each independent variable has a single value for each case. The individuals are assumed to make decisions considering the three options simultaneously, that is an individual either chooses to have no credit, or formal credit or informal credit. Though the data suggests that there are some individuals who have accessed both formal and informal credit, the number is relatively small and they have been dropped, since it is difficult to place them in one unique category due to inadequate information. Colinearity is assumed relatively low as it becomes difficult to differentiate between the impacts of the variables if they are highly correlated. When using multinomial logit regression as expounded by So and Kuhfeld (1995), one category of the dependent variable is chosen as the comparison category: in

our case no credit. It really makes no difference which category is picked as the comparison category, because we can always convert from one formulation to another. In our case, with $m = 3$ categories, we contrast category 1 (formal credit) versus 3 (no credit) and 2 (informal credit) versus 3. The missing contrast between categories 1 and 2 can be easily obtained in terms of the two, since

$$\log(\Pi_{i1} / \Pi_{i2}) = \log(\Pi_{i1} / \Pi_{i3}) - \log(\Pi_{i2} / \Pi_{i3}). \tag{7.10}$$

Separate risk ratios are determined for all the independent variables for each category except that of the comparison category of the dependent variable, which is omitted from the analysis. Relative risk ratios, the exponential beta coefficient, represent the change in the odds from being in the dependent variable versus the comparison category associated with one unit change in the independent variable (So and Kuhfeld, 1995).

Consider an individual j, faced with the decision of choosing among m alternatives in a choice set involving source of credit and no credit. Let Π_{jk} denote the probability of individual j chooses alternative k, and let χ_j represent the characteristics of the individual j. The generalised logit model focuses on the individual as the unit of analysis and uses the individual characteristics. In our case, this includes household and community characteristics related to the individual, as explanatory variables. The explanatory variables are constant over the alternatives. For example, for each of the m credit alternatives the age of say the first subject is the same. The probability that individual j chooses alternative k is given as:

$$\Pi_{jk} = \frac{\exp(\beta_k' \chi_j)}{\Sigma_{l=1}^{m} \exp(\beta_l' \chi_j)} = \frac{1}{\Sigma_{l=1}^{m} \exp[(\beta_l - (\beta_k)' \chi_j)]} \tag{7.11}$$

$\beta_{1,\ldots,}\beta_m$ are m vectors of unknown parameters each of which is different, even though χ_j is constant across the alternatives. Since $\Sigma_{k=1}^{m}\Pi_{jk} = 1$, the m sets of parameters are not unique. By setting the last set of coefficients to null, that is β_m (no credit) = 0, the coefficient β_k represents the effects of the χ variables on the probability of choosing the kth over the last alternative.

An important property of the multinomial logit model is the independence of irrelevant alternatives (IIA). It is a property which implies that the relative odds between two alternatives are the same no matter what other alternatives are available. In discrete choice models, the IIA property holds for certain types of models. The multinomial logit model is an example of this. Consider two alternatives a and b; then, under the multinomial logit model, the IIA property tells us that the ratio of their logit probabilities does not depend on any other alternatives other than a and b i.e.

$$\frac{P_a}{P_b} = \frac{\dfrac{e^v a}{e^v a + e^v b}}{\dfrac{e^v b}{e^v a + e^v b}} = \frac{e^v a}{e^v b}$$

Since the ratio is independent from alternatives other than a and b, it is said to be independent from irrelevant alternatives. In the nested logit model, when two alternatives are in the same nest, the IIA property holds since the ratio of probabilities is independent of the existence of other alternatives. (Train, 2003),

- It is possible to consistently estimate model parameters by using only a subset of alternatives in the decision making process. An example in McFadden (1987), wherein amongst 100 alternatives; a researcher may choose to estimate parameters using only 10 alternatives for each sampled person. Since, under the IIA property, relative probabilities within this subset are unaffected by the attributes or existence of alternatives outside the subset, the consistency of the estimator is not affected by excluding a majority of the alternatives.

- If a researcher wishes to examine choices amongst only a subset of all the alternatives and not amongst all possible alternatives, then the IIA property is of immense use since it allows the inclusion of only the relevant subset and hence saves the researcher considerable money and time.

However, if two alternatives are placed in different nests, then the IIA property no longer holds. Also, under the probit model, the IIA property does not hold. This third model provides the best

alternative among the others in determining the factors that influence access to formal or informal credit since every individual is accounted for, even those without credit at the time of data collection. This helps account for selectivity and also provides the need to consider those who may access credit later.

The data used is from the Third and Fourth Waves of the Ghana Living Standard Survey (GLSS), a pooled cross-sectional dataset representative of all individuals and all rural communities in Ghana. In addition to the data analysed in chapter 6, the survey contains information about credit access. This includes details of the disaggregated source of the credit, such as formal institutions, moneylenders and relatives and friends, the purpose of the loan and the type of collateral used, if any. The total sample size of individuals for Waves 3 and 4 aged between 16 and 99 inclusive is 23,606, with 3,693 individuals who accessed credit. However, due to missing data on some key variables for some individuals, the total sample size of individuals who accessed credit for the whole nation is 2352 and 952 for the rural sample. The summary statistics for the data showing the key characteristics of individuals with credit from either of the credit markets are given in Table 7.1 below for Waves 3 and 4. The statistics show that the average characteristics of individuals who accessed credit from the formal and the informal credit markets across the two Waves are similar. There are however a few exceptions. Women, for example, appear more likely to access the informal market. The average distance to the nearest bank also increased in Wave 4, and this may be most likely due to the closure of 23 distressed rural banks in 1999 (Steel and Andah, 2002).

Table 7.1 Descriptive Statistics for the Underlying Data

	Wave 3				Wave 4			
	Informal		Formal		Informal		Formal	
Variable	Obs.	Mean	Obs.	Mean	Obs.	Mean	Obs.	Mean
Age	1238	40.79725	143	42.85315	2040	41.67451	272	44.16912
Age2	1238	1839.518	143	1960.643	2040	1921.818	272	2075.904
Gender(=1,female)	1238	0.448304	143	0.230769	2040	0.530882	272	0.301471
Single(=1,unmarried)	1236	0.242718	143	0.125874	2040	0.278431	272	0.136029
No education	816	0.394608	114	0.157895	1450	0.382069	232	0.137931
Basic	816	0.481618	114	0.491228	1450	0.49931	232	0.413793
Secondary	816	0.068628	114	0.175439	1450	0.068276	232	0.181035
Post-secondary	816	0.055147	114	0.175439	1450	0.050345	232	0.267241
Professional	836	0.043062	89	0.134832	1286	0.106532	156	0.160256
Clerical/admin	836	0.014354	89	0.089888	1286	0.011664	156	0.076923
Sales	836	0.186603	89	0.168539	1286	0.164075	156	0.166667
Services	836	0.02512	89	0.022472	1286	0.041991	156	0.051282
Agriculture	836	0.574163	89	0.449438	1286	0.522551	156	0.391026
Production	836	0.156699	89	0.134832	1286	0.153188	156	0.153846
Household size	1238	4.866721	143	5.237762	2040	4.904412	272	5.797794
Household size squared	1238	32.54362	143	35.99301	2040	31.01716	272	42.26103
House ownership	1233	0.675588	142	0.704225	2040	0.590686	272	0.617647
House	1233	0.137064	141	0.241135	2040	0.15	272	0.224265
Rooms	1233	0.790754	141	0.687943	2040	0.761275	272	0.720588
Huts	1233	0.072182	141	0.070922	2040	0.088726	272	0.055147
Urban	1238	0.376414	142	0.464789	2040	0.329902	272	0.386029
Presence of guarantee	1226	0.04894	143	0.286713	2040	0.038235	272	0.242647
Presence of bank	701	0.094151	68	0.220588	1324	0.126133	163	0.226994
Presence of market	701	0.265335	68	0.397059	1324	0.166918	163	0.190184
Bank kilometres	639	18.04778	53	18.1734	1157	30.55056	126	29.19841
Market kilometres	397	15.30089	30	14.48406	940	26.93936	106	18.4717

7.2.1 Demographic Characteristics of Individuals

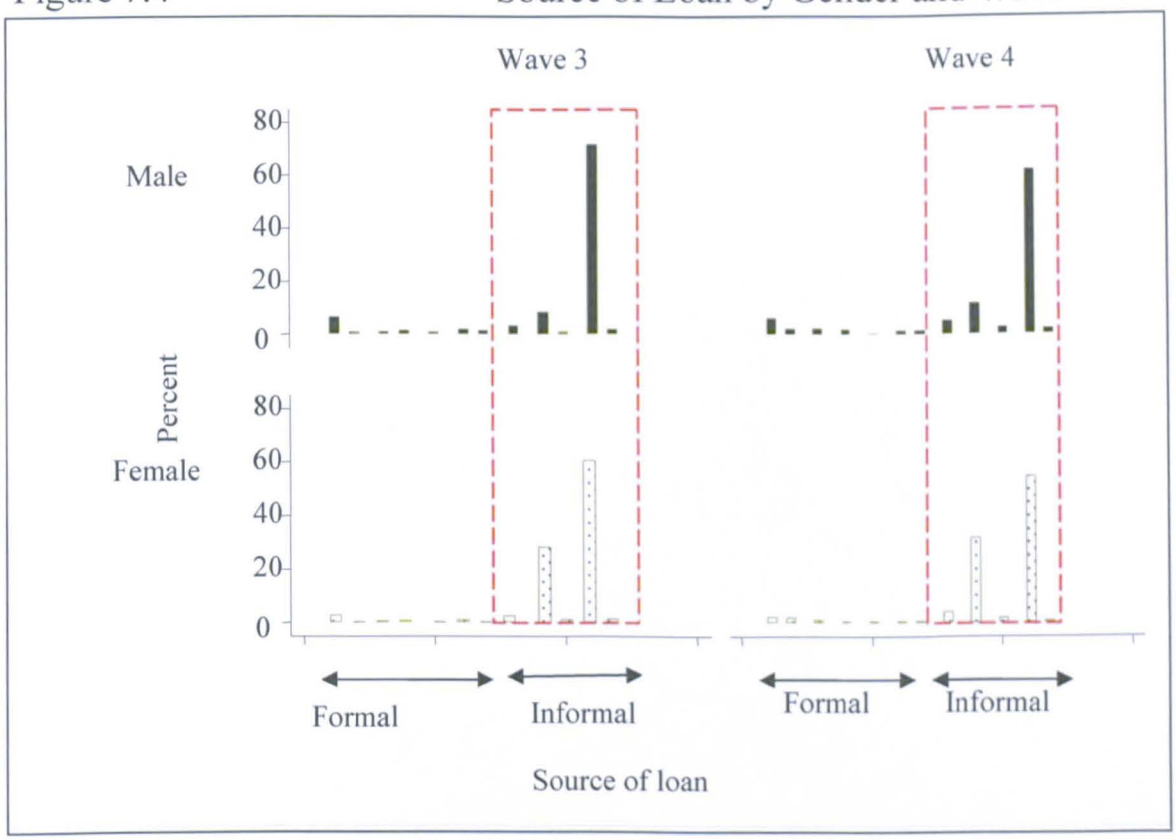
Access to any form of credit has been low. About 16% (15.8%) of individuals in 1991/92 (Wave 3) had access to credit with 84.2% having no access. This increased to 18.8% in 1998/99 (Wave 4). Access to the formal market was lower than that for informal credit. Wave 3 showed that 10.35% of those accessing credit had access to formal credit and 89.65% accessed informal credit. In Wave 4, access to credit was similar, 11.76% and 88.24% respectively. The average loan size was similar for both Waves with a larger nominal amount accessed from the formal than the informal market. However, the amount decreased in Wave 4 for both sectors, which may reflect a feature of the financial liberalisation policy widening access to credit but the available funds remaining relatively unchanged (see Table 2, Appendix 2).

The distribution of access to credit is skewed in relation to age in favour of those aged less than 45. The surveys indicate that the mean age of those who accessed credit was 41 years in Wave 3 and 42 years in Wave 4. With age, the respondents were put into three categories: those younger than 45, those between 46 and 65 and those over 65. Overall, those younger than 45 years made up the majority of the credit market. The results suggested that in Wave 3 an average of 65% of those who accessed credit from both markets were younger than 45, and 61.6% from this category in Wave 4. Low access to any form of credit was recorded by those aged over 65 across Waves, 4.6% in Wave 3 and 5.2% in Wave 4. Since the life expectancy rate in Ghana is 55 years it is assumed from the data that individuals are able to access credit at the prime of their working age to improve upon their earnings. Though individuals in their old age have little access to any form of credit this may not be detrimental to them since most of these old people usually live with their children or other family members at this stage of their life (Deaton, 2000).

Gender distribution to the access of informal and formal credit was biased against females in Wave 3. Females accessed less of the credit from both markets; however they accessed a relatively equal percentage of the informal credit, 44.8% but 23.1% of the formal credit. In Wave 4, female access to informal credit increased even further to 53%, while the percentage that accessed formal credit

remained less than a half of what was accessed by males at 30.2%. Most of the credit for the females was from the traders comprising an average of 30% across both waves. Figure 7.4 below shows the different sources from which credit is accessed across the two Waves by gender[53].

Figure 7.4 Source of Loan by Gender and Wave



The average amount of formal sector credit accessed in Wave 3 was ¢154,229.63 ($44) by males and ¢75,642.42 ($21) by women. This amount levelled out at around ¢98,000 ($27) for both males and females in Wave 4. Not only did the average amount of formal credit accessed by females increase with the advent of FL, but also the percentage of formal credit accessed by women increased from 23.08% in Wave 3 to 30.15% in Wave 4.

Tables 6 to 10 inclusive in Appendix 2 provide information on the distribution of the incidence of credit from the two markets in relation to the individual and household characteristics of the

[53] See Tables 4 and 5 in Appendix 2

respondents. The results indicate a similar pattern of access for each sector across both waves. Generally, respondents who have a lower social status, such as those who are single, those with no educational qualifications, those with larger household size, and those dwelling in huts, had little access to credit.

The type of economic activity in which an individual engages influences access to credit from both the formal and informal financial markets. Individuals engaged in the agricultural sector accessed the majority of the credit from both markets in Wave 3. However, the average amount of credit accessed by this sector was at ¢38,415.98 from the informal credit market but ¢140,663.75, the second highest from the formal credit market. This observation in which the agricultural sector is seen to receive a high credit amount from the formal sector can be attributed to the system of directed credit to this sector which was in place until the end of 1990 thus the recorded data in 1991 reflected the benefits of the directional credit. Data from Wave 4 showed a mixed pattern. While the agricultural sector still received the highest percentage of credit from both markets, the proportion of those who accessed formal credit decreased to 39.1 percent. At this time, with the abolition of directed credit, the average amount accessed by individuals engaged in the agricultural sector was at the lowest for both markets. Table 10 in Appendix 2 shows the composition of credit accessed by individuals via their occupations.

7.2.2 Product characteristics

Whether respondents lived in the urban or the rural areas affected their decision on the source of credit. Individuals in both locations access both formal and informal credit. The informal sector is the main source of credit for both urban and rural dwellers in Ghana. Data from both Waves shows that more than 80% of individuals who accessed credit did so from the informal credit market irrespective of their location. (See Table 11, Appendix 2).

Although the data suggested that collateral requirements did not seem to be important in accessing credit from either market, the presence or otherwise of collateral influenced the size of the credit

accessed. Table 12 in Appendix 2 indicates that for both Waves more than 95% of those who accessed credit from the informal sector provided no collateral security whereas more than 70% of those who accessed from the formal market did. However, the average amount of credit received was smaller in both markets when no collateral was provided. From Table 13 in Appendix 2 it can be observed that only a few individuals obtained credit from any of the formal credit institutions without providing collateral guarantee in both Waves.

The purpose for which the loans are contracted also seems to be related to their source. An inspection of the data for both Waves shows that most of the credit received from the informal credit market is used for social[54] and consumption purposes while that accessed from the formal markets are usually used for social and commercial purposes, which includes agricultural activities. (See Appendix 2, Table 14).

7.2.3 Institutional characteristics

The infrastructure characteristics of the rural communities influence the source from which credit is accessed. The availability of institutions such as banks and markets and also the availability of road networks affect the decision as to which source to use for credit. However, the presence or otherwise of these community facilities further influenced which market the individual patronised. The data from both Waves indicated that in places where these facilities were present there were more individuals who accessed formal credit than in places where they were absent. (See Tables 15 to 17 in Appendix 2).

---

[54] These include housing, education, health and ceremonies.

7.3 Determinants of Access to Formal Credit by Individuals in Ghana

7.3.1 Probit Model for Access to Formal Credit for the Whole Nation and Rural Communities

A probit regression is first used to determine the factors that affect an individual's ability to access credit from either the formal or informal financial sector, ignoring the issue of selectivity. In this case, the binary response is whether the respondent accessed credit from the formal financial sector ("formal"=1) or the informal financial sector ("informal"= 0). The model of interest is in the form

$$y_i^* = \beta x_i + \varepsilon_i (i = 1,...N) \tag{7.12}$$

where y_i^* is the latent dependent variable interpreted as the probability of accessing credit from the formal market, x_i is a vector of exogenous individual, product and community explanatory variables affecting y_i^* β_i is a set of vector coefficients associated with explanatory variables and ε_i is unobserved random term with normal distribution $N(0,\sigma_\varepsilon^2)$. The observed binary outcome variable is defined as:

$$y_i = \begin{cases} 1 & \text{if } y_i^* > 0 \\ 0 & \text{otherwise} \end{cases} \tag{7.13}$$

The subscript i indexes the individuals and N the sample size.

The probit regression was analysed using Stata to establish the factors that significantly influence credit access from the formal financial sector for the entire sample. Later the same analysis was run on the rural areas only, to help ascertain the effect of community infrastructure in the relationship. Explanatory variables include gender, age, marital status, highest educational qualification, occupation, household size, type of dwelling, location of individual, availability of market, availability of bank, and wave.

The results of the probit regression analysis are shown in Table 7.2 below.

Table 7.2 Results from Probit Model for Access to Formal Credit

Formal (=1,formal credit)	Individuals Whole Sample Coefficient	Standard Error	Individuals Rural Communities Coefficient	Standard Error
	Dependent variable: for (=1 if accessed formal credit)			
Age	0.009844**	0.003161	0.008752*	0.005251
Gender(=1,female)	-0.29281**	0.092148	-0.31121*	0.167923
Single(=1, unmarried)	-0.21557**	0.106999	-0.32257	0.206714
Basic	0.28194**	0.093258	0.41835**	0.15245
Secondary/voc.	0.780221**	0.155204	0.944245**	0.31277
Post-secondary	0.959035**	0.159934	1.286009**	0.36837
Professional	0.178218	0.136689	-0.28771	0.249945
Administration	0.788305**	0.218449	1.02188*	0.625731
Sales	0.18337	0.118909	-0.05556	0.248084
Services	0.090394	0.221783	-	-
Production	0.077542	0.121191	-0.06944	0.23472
House owner(=1,owner)	0.086334	0.08927	-0.09053	0.144487
Household size	0.045453**	0.014549	0.044632*	0.025167
Rooms	0.012013	0.106447	0.367728**	0.191111
Huts	0.129741	0.165551	0.457896*	0.256853
Urban(=1,urban)	0.034857	0.0951	-	-
Guarantee (=1.present)	1.101662**	0.122088	0.844163**	0.211439
Wave (=1,Wave 4)	0.065723	0.080326	0.150682	0.147633
Constant	-2.29843**	0.210025	-2.41114**	0.373494
Bank distance	-	-	-0.00461	0.004594
Market distance	-	-	-0.00065	0.001884
Number of observations	2352		952	
LR chi2(18)	263.9		84.95	
Prob > chi2	0.000		0.000	
Pseudo R2	0.1684		0.1574	

Note: The coefficient of a variable is said to be statistical significant if its significance level is at most 5%. However the exact significance levels of the variables are indicated in the respective tables as follows: ** significant at 5% and * significant at 10%.

Of the factors, gender, age, marital status (single), highest educational qualification (Basic, secondary/voc and post-secondary), household size, and presence of guarantee for the whole sample were found to influence significantly an individual's chances of access to credit from the formal sources.

A positive statistically significant coefficient for the age variable indicates that older people have a better chance of accessing credit from the formal financial institutions than younger people. This relationship was not expected since people tend to be more risk averse as they advance in age so they try not to enter into debt obligations. Although, the magnitude of the age coefficient for the rural communities is very similar to that for the recipients on the whole, it is statistically insignificant. This suggests that perhaps the age of an individual was not relevant in accessing informal credit, since most individuals in the rural areas are engaged in the informal economic activities where age is not a constraint of working. Thus anyone at any age could access credit from the informal credit market.

Gender had a statistically significant negative coefficient for the whole sample, implying that females are less likely to access credit from the formal financial sector relative to males. This shows that despite the various credit schemes introduced in favour of females, they still face credit access difficulties especially from the formal credit markets. With reference to the rural communities, there is a negative relation between accessing formal credit and gender, but this is not statistically significant. Showing that in rural communities though the gender of an individual is biased against females it did not influence the chance of accessing credit from the formal sector.

The marital status of an individual had a negative and statistically significant relationship to access to credit for the whole sample but a statistical insignificant negative relationship for rural communities. This indicates that an unmarried individual has a lower likelihood of accessing formal credit. However, the fact that the relationship is statistically insignificant for the rural area indicates that all individuals irrespective of their marital status could access credit here.

The level of education was found to be positively associated with the chance of accessing formal credit. The dummy variables for basic, secondary and post-secondary levels showed a statistical significant positive relationship for the whole nation and rural community. This implies that individuals with any level of educational qualification had higher chances of accessing formal credit compared to those with no educational qualification.

The individual's occupation had a mixed association with the access of formal credit across the whole sample and for those residing in the rural areas. The omitted category was engagement in agriculture and its related activities. The results showed that with reference to the whole sample, individuals in the administration/clerical occupations[55] were significantly more likely to access formal credit. This relationship was insignificant in the rural areas. Those in the professional, sales, services and production professions were more likely to access to formal credit for both the whole sample and rural sample but the relationship was statistically insignificant. Thus, the probability is that individuals engaged in other professions are more likely to access formal credit than those in the agricultural profession.

The size of household had a positive and statistically significant association with access to formal credit for the whole sample. This suggests that larger households had a greater likelihood of accessing formal credit than the smaller ones. Individuals who owned their dwelling were insignificantly more likely to have access to formal credit for the whole sample but not for the rural areas. This disparity may be due to the communal living in the rural areas making such a collaterable asset as houses less relevant. Houses may also measure the wealth status of an individual, in this case suggesting that individuals owning their dwelling may be well enough off to opt out of the credit market. Living in rooms or huts had a statistically insignificant effect on

---

[55] See Appendix 1B Occupational categories.

access to formal credit relative to occupying house or flat, with the whole sample but a positive statistically significant effect in the case of rooms for the rural sample.

Providing collateral guarantees had a positive and statistically significant association with formal credit access in the whole sample as well as in the rural communities. Thus, though owning a house, a collaterable asset, has an insignificant association with accessing formal credit in the rural communities, providing collateral appears to be essential. This is accords with Table 12 (Appendix 2): the presence of collateral influences the amount of credit accessed in both the formal and informal markets for Waves 3 and 4. This suggests that other forms of assets, movable assets such as savings accounts, for example, are used as collateral instead.

The community infrastructure had an insignificant association with formal credit access. The distance to the nearest bank had a negative though statistically insignificant relationship with access to formal credit, implying that those living in communities sited further away from banks had less chance to access credit from the formal credit sector. The distance to the nearest market also had a negative relationship to access to formal credit. Thus the further away individuals are from a market place the less likely they are to access formal credit but the more likely to access informal credit, as suggested in Chapter 6. This may be due to the fact that individuals are likely to access credit from traders. The influence of the presence or otherwise of a bank and/or a market in a community had an insignificant association with small coefficients hence the variables were dropped in this model.

The wave dummy was expected to be significant because it was thought that with the onset of financial liberalisation individuals in Wave 4 would have better chances of accessing credit from the formal sector than those in Wave 3. This was however not the case.

7.3.2 Heckman Probit with Sample Selection for Access to Formal Credit by Individuals for Whole and Rural Sample

In the previous section the factors that influence access to formal credit was investigated using a simple probit model, though this model provides results that help to identify factors that influence formal credit the issue of selectivity is not addressed. This causes measures of statistical significance to appear much stronger than they are, and possibly cause completely illusory artifacts. In order to account for such selectivity a second model is run. The Heckman probit model with sample selection was used to estimate the factors that influence access to formal credit by individuals. This was also done for the entire sample and then for the rural sample only, to establish the effects of community infrastructure on access to formal credit. The dependent variable for the outcome equation was *for* (=1 if accessed formal credit), while that for the selection equation was *credit* (=1 if credit is accessed). This is in relationship to Figure 7.1.

The model is based on two latent dependent variables:

$$Y_1^* = \beta' x + U_1 \quad \text{(Outcome equation)} \tag{7.14}$$

$$Y_2^* = \gamma' Z + U_2 \quad \text{(Selection equation)} \tag{7.15}$$

Where x and Z are vectors of regressors, possibly with common components, including intercepts. The regressors for the selection equation are chosen arbitrarily from the set of individual/household and community variables but have one or more variables omitted from that of the outcome equation to serve as identification. For both samples, the identification includes age squared, all the educational variables, household size, collateral and the market distance.

The results in Table 7.3 suggest that for our equation of interest only the gender variable has some significant association with access to formal credit in the rural sample. This may be because the specified model is not appropriate for the data under consideration. The multinomial logit model provided in the next section gives an appropriate alternative.

The age of the individual had a statistically insignificant positive association with formal credit access, for the entire sample and the rural communities. However, age squared had a statistically

insignificant negative effect on both samples. Being female had a negative and statistically significant association in the rural sample but an insignificant association in the whole sample for the probability of formal credit access. This result may suggest that females are discriminated against in the formal credit market in the rural communities.

Having any level of educational qualification had a positive and a statistically insignificant association with formal credit access for both samples. This suggests that individuals with any educational qualification are more likely to access formal credit. This may be due to the complex forms and procedures involved in accessing formal credit.

Individuals engaged in any occupation had a positive statistically insignificant effect on access to formal credit compared to those in the agricultural profession (base category) for both samples. The results on the whole, revealed that access to formal credit by both samples was statistically insignificantly associated with all of the variables including the community infrastructure ones for the rural communities. This may suggest that access to formal credit in Ghana may be very arbitrary. In addition, there may be a lot of factors that cannot be captured by the data such as favouritism, for example people working in the formal sector are paid through banks, thus they are more likely to access formal credit since information on them is readily available to the banks unlike individuals engaged in the informal economic sector who do not usually use the other bank services. With a lot more individuals engaged in the informal economic sector it suggests that most individuals are unable to access formal credit.

Table 7.3 Results from Heckman probit model with Sample Selection for Access to Formal Credit

Explanatory Variable	Whole Sample		Rural Sample	
	Coefficient	Standard Error	Coefficient	Standard Error
Equation of Interest: Dependent variable for (=1 if accessed formal credit)				
Age	0.0430747	0.048909	0.04298	0.032473
Age2	-0.0003865	0.000333	-0.00035	0.000355
Gender(=1,female)	-0.2235161	0.631759	-0.42449**	0.201902
Single(=1,unmarried)	-0.1017677	0.777263	-0.38666	0.251804
Basic	0.2563518	0.196548	0.364877	0.245096
Sec/voc	0.7516913	0.518854	0.809065	0.534381
Post-sec	0.9094092	0.606651	1.146002	0.72579
Professional	0.1271522	0.381918	-0.22298	0.3544
Administration	0.7639176	0.545505	0.984634	0.807835
Sales	0.1415891	0.51737	-0.0326	0.228719
Services	0.0746246	0.45717	-	-
Production	0.0834994	0.126737	-0.0465	0.218087
Household size	0.0383244	0.028908	0.037265	0.030852
House owner(=1, owner)	0.0793336	0.100498	-0.00695	0.283926
Rooms	-0.1308536	0.178904	-0.43302	0.337365
Huts	-0.1144885	0.157654	-0.09176	0.198059
Guarantee (=1,present)	1.045603	0.695291	0.738828	0.448772
Wave (=1, Wave 4)	0.0592389	0.08598	0.141432	0.151404
Bank distance	-	-	-0.0072	0.00742
Market distance	-	-	-0.0006	0.001732
Constant	-2.274481**	5.607082	-3.19956**	1.116411
Selection Equation: Dependent variable credit(= if credit accessed)				
Gender	-0.2261337**	0.025477	-0.30777**	0.037153
Age	0.0075008**	0.00079	0.005821**	0.001129
Single(=1, unmarried)	-0.3254477**	0.027333	-0.30978**	0.040873
Professional	0.1291521**	0.046199	0.114506*	0.068874
Sales	0.197011**	0.035178	-	-
Services	0.1633229**	0.070455	-	-
Bank distance	-	-	-0.00872**	0.001171
House owner(=1,owner)	-	-	0.20213**	0.03807
Constant	-1.095601**	0.038937	-1.13881**	0.064389
Rho	-0.3174442	2.325349	0.456104	1.365367
Test of indep. Eqns. (rho = 0): chi2(1)	0.01		0.08	
Prob > chi2	0.933		0.7836	
Number of observations	14417		8411	
Censored observations	12065		7469	
Uncensored observations	2352		952	
Wald chi2(18)	85.47		72.73	

**Significant at 5% *significant at 10%

7.3.3 Multinomial Logit Model for Credit Access for Whole and Rural Samples

Although the model in section 7.3.2 on the use of Heckman probit with sample selection was used to correct for sample selection in the sense of accounting for those who accessed credit from particular markets given that they have credit there is still a shortfall of omitting some individuals. These omitted individuals included those who have never accessed credit and/or those who had accessed credit in the past but not at the time of the data collection. Since all these were classified as 'not accessed credit' omitting them out of the analysis introduces a bias because they could access credit in the future. To address this bias a multinomial logit model is run accounting for all individuals whether they have accessed credit or not.

The individuals are assumed to make decisions considering the three options simultaneously, that is an individual either chooses to have no credit, or formal credit or informal credit. Though the data suggests that there are some individuals who have accessed both formal and informal credit, the number is relatively small and they have been dropped, since it is difficult to place them in one unique category due to inadequate information.

A multinomial logit model for the determinants of access to each of the different credit sources was estimated for both the whole sample and rural sample, using no access to credit as the reference category. Thus, we look at the odds of an individual accessing formal credit rather than no credit, and the odds of accessing informal credit rather than no credit. The relative risk ratio, the beta coefficients, represents the change in the odds of being in the dependent variable category versus the reference category associated with a unit change on the independent variable. The results reported in Table 7.4 below suggest mixed effects of the determinants of access to formal and informal credit for the two samples.

Access to formal credit by both samples was positively and statistically significantly[56] influenced by age, having any level of educational qualification as against having no qualification, and having an administrative occupation rather than an agricultural one. This relationship suggests that the odds of accessing formal credit by an individual with these characteristics were greater for a unit increase in these variables than those for an individual who had no credit. The coefficients for these variables for both samples were very similar.

On the other hand, being female and being single was statistically significantly negatively related to accessing formal credit for both samples, implying that the odds of females and single individuals accessing formal credit are lower compared to having no credit. There are a few cases where the relationship of the independent variable to access to formal credit was mixed for both samples. For individuals in the professional occupations the relationship was positive for both samples but statistically significant for only the whole sample and the coefficients are quite different. A similar trend is observed for house ownership. For individuals living in rooms the relationship is positive and statistically significant for the rural sample but not for the whole sample. This trend may be due to the fact that the standard of living in the urban area, which is included in the whole sample, is relatively higher than in the rural areas so while individuals living in rooms in the urban areas may be considered to have low wealth those living in rooms in the rural areas may be considered to be of a higher wealth status. Hence rural dwellers living in rooms are considered to be more likely to pay back their credit obligations than their urban counterparts.

The Wave dummy had a positive statistically significant association with access to formal credit for both samples. This suggests that the odds of an individual accessing formal credit are more likely with the advent of financial liberalisation. This may be because with the implementation of the policy some formal financial institutions have adopted new products and ways of reaching out to

---

[56] Significance was measured at 10% or less, the results reported in Table 7.4.give detail for each variable.

more individuals. For example, Barclays Bank of Ghana's services to include micro-finance in 2005 has enabled it reach out to over 85,000 clients daily with financial services through its *susu* collectors agents (Barclays, 2006). Bank distance was negatively and statistically significantly related to access to formal credit. Thus, the further away an individual lives from a bank the odds of accessing formal credit is reduced relative to accessing no credit.

In relation to the services provided by the *susu* agents for the banks, it seems their operations are centred in the urban areas hence the access to formal credit in the rural areas is still not sufficiently addressed. Data on the diffusion of bank branches from the Bank of Ghana (2000b and 2008a) shows that the number of bank branches of Barclays bank, for example, remains the same at 24 for the years 2000 and 2008 (see chapter 4 Table 4.3a/b).

The relationship between age, being female, being single, and having a basic educational qualification and access to informal credit with reference to accessing no credit was similar to that for both samples. The other educational qualifications revealed mixed effects. Having secondary or a higher level of education was negatively and statistically significantly related to access to informal credit for both samples. Thus individuals with such characteristics are less likely to access informal credit relative to no credit. Being involved in the professional and production occupations is positively and statistically significantly related to access to informal credit with the rural sample but not the whole, while those in the sales occupation have a positive and statistically significant relation to informal credit for both samples. Intuitionally, this observed trend may be due to the fact that teachers and health personnel form the majority of professionals found in rural areas and are taught to have relatively low salaries hence they are attracted to the informal financial sector. Also production activities in the rural areas are generally on a small-scale who do not compete favourably for formal credit so they depend on the informal market.

For the household variables, the size of the household and living in huts was statistically significantly and negatively related to access to informal credit for both samples while it was

positively and statistically significantly related to those living in rooms. These results suggest the odds of larger families and an individual living in huts accessing informal credit is lower, relative to accessing no credit. Living in the urban areas had a negative and statistically significant effect on access to informal credit for the whole sample. This may be because there are many formal financial institutions in the urban areas and thus individuals are likely to access credit from them rather than from the informal credit market.

The dummy variable for the Waves had a positive and statistically significant association with access to informal credit for both samples, suggesting that in Wave 4, with the advent of financial liberalisation, individuals are more likely to access informal credit than no credit. This accord with Stiglitz and Weiss (1981), that is, financial liberalisation may increase the importance of the informal credit market rather than help eliminate it.

The community infrastructure revealed that the distance to bank was negatively and statistically significantly related to access to informal credit while distance to market is positively and statistically significantly related to access to informal credit. Thus, the further away borrowers live from a bank the less likely they are to access informal credit but the more likely they are to access informal credit when they are further away from market centres. Inspection of the average distance to the nearest bank and market, as shown in Table 5.12, suggests that where the location of banks and markets coincide individuals who access credit do so from the banking sector. Again, the positive relation with the market distance may be due to the credit facilities most rural dwellers especially farmers receive from 'market queens'[57] prior to their farming season. Also borrowers may be inclined to access credit from market places which are further away from them because it may be easier for a say 'bad' borrower to access credit with such distance since informal lenders usually depend on social ties to give out credit. Thus with no or little information on the borrower

[57] These are heads of the different foodstuffs sold in the market who serve as middleman for the distribution of foodstuff among market traders.

due to distance credit may be more accessible. This relates in a way to Hoff and Stiglitz's (1997) assertion that with more lenders (informal) available the rate of default is high and, lenders tend to charge higher interest rates to cover for such losses.

Table 7.4 Results from Multinomial Logit Model for Access to Credit

Explanatory Variables	Formal				Informal			
	Whole Sample		Rural Sample		Whole Sample		Rural Sample	
	Coefficient	Standard Err.	Coefficient	Standard Err.	Coefficient	Standard Err.	Coefficient	Standard Err.
Age	.2368054**	.0347279	.2410046**	.0611878	.1631952**	.0100234	.1827429**	.0157976
Age2	-.0022822**	.0003813	-.0023752**	.0006644	-.0016734**	.0001125	-.0019348**	.0001779
Gender (=1, female)	-.9841628**	.1614365	-1.44335**	.3143849	-.3041868**	.051335	-.5633355**	.0810632
Single(=1, unmarried)	-.7521332**	.1997926	-1.35191**	.4543834	-.2794474**	.0576705	-.2034492**	.0924311
Basic	.8232864**	.1735498	.9085776**	.2807672	.1944087**	.0588992	.0290942	.0952161
Secondary	1.21607**	.243219	1.282297**	.4814173	-.3714001**	.1250244	-.5156344**	.2576965
Post-secondary	1.566185**	.2421917	1.505008**	.5051525	-.2274641	.1507337	-.7110616**	.3288139
Professional	.3802595*	.2213847	.0202316	.4088689	.1236206	.0972114	.4362023**	.1526675
Administration	.9332749**	.3048914	1.721955**	.7142749	-.3810793*	.2184387	-.5731842	.7631973
Sales	.2993425	.2128772	.1329895	.4276981	.2262714**	.0759242	.3286642**	.1392263
Service	.2700449	.3574795	-30.91702	4587066	.0407069	.1392581	.1015974	.3229023
Production	.1733658	.2179145	-.0749533	.4521181	.1612235**	.0770563	.3061089**	.1349067
Household size	.0170566	.0243744	.0397333	.0423722	-.0938791**	.0097495	-.0809394**	.0152214
House owner	.2926065*	.1575074	.1430269	.2609189	.275422**	.0561755	.2447135**	.0852303
Rooms	.0804441	.1799261	.6817401**	.352774	.1140826	.0701387	.1298073	.1048069
Hut	-.3776899	.2874957	.2255372	.4577856	-.5295165**	.1036876	-.5576536**	.1450095
Wave (=1,wave 4)	.2536265*	.1406108	.7464487**	.2737025	.2510385**	.0505278	.4824901**	.0845796
Constant	-9.727837**	.8034686	-10.18715**	1.429667	-4.822578**	.2335442	-5.077721**	.3643039
Urban (=1, urban)	-.0915659	.16423	-	-	-.1629851**	.0626734	-	-
Bank distance	-	-	-.0154689*	.009008	-	-	-.0102649**	.002492
Market distance	-	-	-.0004433	.0032507	-	-	.0027174**	.0008322
Number of observation	14090		5869		14090		5869	
LR chi2(36)	1217.42**		LR chi2(40)	610.06**	1217.42**		LR chi2(40)	610.06**
Pseudo R2	0.0851		0.1066		0.0851		0.1066	
Log likelihood	-6543.0628		-2556.9131		-6543.0628		-2556.9131	

**Significant at 5% * Significant at 10% Base Category: No Access to Credit

7.4 Conclusion

The financial market in Ghana is segmented into two main components, the formal and informal sectors. This research, tries to identify the factors that influence the access to formal and informal credit by individuals and what has changed with the implementation of the financial liberalisation (FL) policy.

The models suggest that for the whole sample access to formal credit is positively associated with age, having some level of education and being engaged in the administrative/clerical profession. Females, being single and those who are engaged in the agricultural industry are less likely to access formal sector credit. This situation constrains the development and expansion of the agricultural sub-sector and to a large extent, inhibits the attempts to improve the living standards of the large proportion of Ghanaians who are involved in these sectors to help alleviate poverty. In a country where the illiteracy rate is still high among individuals aged 15 years[58] and over, such a finding shows that though the FL policy may have had an impact on the economy most of the individuals have not yet benefited because of their demographic characteristics.

For the rural sample, access to formal credit was seen to be negatively influenced by being female, being single, and being in the production sector. These characteristics are seen to be the plight of most individuals in the rural communities thus the results reveal that majority of these individuals are less likely to access formal credit. The Wave dummy for the rural sample shows a positive relationship, thus for individuals in the rural communities their chances of accessing formal credit are seen to increase with the implementation of the FL policy.

---

[58] Literacy rate = 74.8% 82.7%(Male); 67.1% (Female)
NOTE: National Population and Housing Census showed that "43.4 per cent of those who are three years old or more have never been to school and 49.9 per cent of the adult population of 15 years or more are totally illiterate." (Ghana Statistical Service, 2001)

The factors that influence access to informal credit are similar to those that affect the formal credit for both the whole sample and rural sample.

The three models provide similar results in relation to the association of the various individual characteristics to access to credit from either of the credit markets. However, looking at the effect of the financial liberalisation policy on the incidence of credit the model estimated using the multinomial logit provides the most robust results since it accounts for all individuals who have had credit and those without.

The analyses in chapters six and seven revealed that the determinants of access to credit in general and those that affect the formal and informal credit markets in particular have improved over the years with the advent of financial liberalisation in Ghana for households and individuals. In the next chapter we examine how the availability of access to credit has impacted on the living standards of households as apparent through their consumption pattern.

Chapter Eight

The Impact of the Incidence of Credits on Household Expenditure Patterns in Ghana

8.1 Introduction

The two previous chapters of this research suggest that the introduction of the financial liberalisation programme in Ghana has positively influenced the determinants of the availability of credit to households and individuals. This chapter investigates how far the availability of credit has affected households in Ghana by analysing their expenditure patterns using Engel curve analysis with a systems equation model to correct for correlation between the error terms. In addition a treatment effects model will be used to help address the issue of endogeneity of access to credit. The underlying research question is whether those with access to credit are better off in terms of their consumption pattern. The assumption is that credit may be used either for investment and/or consumption. In that case, if it is used for the former, consumption may fall initially but consumption is expected to increase in the long run. For this analysis, it is assumed that credit would lead to increase in income and thus consumption.

As discussed in chapter two, in his 1857 study, Engel concluded that the proportion of income spent on food declines as income increases, that is food is a necessity whose consumption rises less rapidly as income rises. Because of data availability, the estimation of the consumption-income relationship or the Engel relationship has received considerable attention in developed countries. Examples of such studies include those by Lee and Brown, (1986) examine food expenditure on household data using United States data, Sawtelle (1993) estimated two linear Engel functions for household total expenditure and 15 aggregate classes of consumer durable, non-durable and service expenditures using US cross section data. Beneito (2003) estimated income elasticity using Engel curve analysis on Spanish data.

There are also contemporary studies of the Engel curve for developing countries. Hendriks and Lyne (2003) use panel data on two villages of Africa and Ndanshau (2000) analysed the consumption pattern of peasant households in Tanzania. A summary of these studies were also detailed in chapter two.

These studies share some characteristics. First, is their search for the most appropriate mathematical form of the Engel function: the most popular forms of equations subjected to empirical tests are the log-linear and double-log functions. A second feature of the studies is the test of Engel's law by using disaggregated consumption items, including food and non-food items. A third feature is marked by tests of Engel's law using panel and time series data collected by the national household budget surveys. Because of data restrictions we only investigate the impact of accessing credit on the consumption patterns of Ghanaian households using aggregated consumption for food and non-food items over Waves 3 and 4 using seemingly unrelated regression estimates (SURE) and a treatment effects model (TEM). Although these studies were able to establish the influence income had on the consumption pattern of households they did not address any issue of endogeneity that may arise. In this research, I use TEM to correct for endogeneity – better off people usually get credit, in addition to using SURE to ascertain the effect of access to credit on the consumption pattern of households in Ghana.

The rest of the chapter is structured as follows. Section 2 describes the models and the data used. The results are discussed in section 3. A conclusion is drawn in the final section.

8. 2 Models and Data

8. 2.1 Models

The fundamental function of the Engel's consumption-income function includes expenditures on food or non-food items as the regressand and income as the only regressor. However, with

reference to the theory of consumer behaviour, the function can be estimated including demographic factors such as, household size, education, and age of the household head[59].

The size of the household is expected to affect the Engel function negatively. This could be for some products only, example clothes passed on to younger children, because there may be products whose consumption will not necessarily decrease with an extra child in the family (Strauss, 1982, Singh and Singh, 1971). Education is expected to influence consumption patterns of households negatively. This can be seen in two ways; first with increased education, households may prefer to have quality food rather than quantity hence expenditure on food may decrease. On the other hand, the preference for quality food may mean buying more expensive high quality food and so the relationship between education and consumption could be positive. Secondly, higher levels of education may mitigate thriftiness and a smaller household size, thus giving a negative relationship between education and consumption (Kapunda, 1988; Massel and Heyer, 1969 and Ostby and Gulilat, 1969). The age of the head of the household is expected to be positively associated with consumption and more so in developing countries where the traditional social welfare system causes the number of dependents to increase with age. Thus there is likely to be an increase in household expenditure, especially food items, with an increase in age of the head of household (Ndanshau, 2000).

With reference to the above, the general model for estimation is a linear expenditure system (Neary, 1997) given as:

$$c_{ij} = f(tex_j, a_j, ed_j, hs_j) \tag{8.1}$$

where c_{ij} is the expenditure of household j on the ith consumption item, and tex_j is the total expenditure of the household. Total expenditure is used as a proxy for household income because

[59] Other studies have included factors like marital status, sex and occupation of the household head. See Kapunda, 1988

of problems associated with income data in developing countries. Reasons for such a choice are based on practicality and data arguments (Deaton, 2000). At the practical level, difficulties in measuring incomes are more severe than those of measuring consumption, especially in rural areas where most households' income comes from self-employment in agriculture. Again, with the agricultural activities solely dependent on rain, the incomes are very variable and a farmer's income in any month could be a poor indicator of living standards. Given also that annual income is required for a satisfactory estimate for living standards, an income-based measure requires many visits or the recall of data, which has its problem of levels of income diminishing with the length of recall period (Scott and Amenuvegbe, 1990). However, the expenditure measure can rely on expenditure over the previous few weeks, where the problems of recall are reduced. The age and educational level of the household head are represented by a_j and ed_j respectively. These are used as proxies for the age and educational level of the entire household on the basis that the head of the household determines the consumption pattern of the entire household. The household size of the jth is denoted by hs_j .

The theory of consumer behaviour is not explicit on the specific functional form for estimation. This research utilises a double log-linear function, which has been used by previous studies for example, Ray (1980) and Rahman, Mallik, and Junankar, (2007) and also yielded better estimates in the pre-test carried out for this research. The general function, a linear expenditure system, (Neary, 1997) given in (8.1) above is expressed as a double log-linear:

$$\log c_i = a_i + \beta_i \log tex + \gamma_i \log a + \delta_i ed + \psi_i \log hs + \varepsilon_i \qquad (8.2)$$

where i are the consumption items, which is made up of an aggregation of food items and non-food items for this research[60]. ε_i is a stochastic error term which is assumed to be normally distributed with zero mean and constant variance.

---

[60] See Appendix 3 for the components of food and non-food items as employed in the GLS Waves 3 and 4.

The income (*tex)* elasticity coefficient of demand is expected to be greater than zero but less than unity for necessary household consumption items like food, and income elasticity is expected to be greater than unity for luxury consumption items. Thus a negative total expenditure elasticity coefficient of demand signifies a necessity and a positive one a non-necessity. In order to correct for endogeneity, a maximum likelihood treatment effects model is also estimated.

Estimates here augment the expenditure relationship for food and non-food with a term for the relative price of food to the aggregate price index. Allowing the aggregate price index to be a weighted average of food and non-food prices, we have:

$$P = P_f^{(1-\alpha)} P_{nf}^{\alpha} \tag{8.3}$$

and

$$\ln\left(\frac{P}{P_f}\right) = \alpha \ln\left(\frac{P_{nf}}{P_f}\right) \tag{8.4}$$

This implies that we capture the effect of relative price of food to non-food in the model. Our expectation is that relative food expenditure will be negatively related to this relative price while relative non-food will be positively related.

8.2.2 Data

In this chapter, we use household data from GLS Waves 3 and 4. This provides information on households with and without credit, head of household demographics, household expenditure and price indices for food and total expenditure. Household data is used rather than individual data because most of the household consumption in LDCs is made up of family-farm produce, which is difficult to attribute to individuals. Data on purchases are for the household as a whole rather than individuals. There are also public goods in most households the consumption of which by one member does not exclude consumption by others. The consumption of these goods cannot be assigned to individuals. Thus, we use households as units whose welfare is being measured, (Deaton, 2000). Previous work (Rahman, Mallik, and Junankar, 2007) with this sort of Engel curve

has shown that household expenditure patterns can often be well-explained by the logarithm of household per capita expenditure. The additional term in the logarithm of household size allows for the possibility that the pattern of expenditures is not invariant to changes in the size of the household, even when household structure and household per capita outlay are held constant. The two waves of the GLSS provide a means of assessing the effect of credit on the consumption pattern. The data is made up 3372 borrowers and 7114 non-borrowers.

Items consumed by the households in 35 days[61] are classified broadly as food and non-food, (see Appendix 3). Consumer behaviour theory requires that the prices of items are considered in the analysis. However, there is no individual item price information for this data and due to the aggregation of items, assigning individual prices is difficult if not impossible. In view of this, we assume that all households face the same prices. This assumption follows Ferdous (1997).

For this study a model is specified using the double log-linear function in equation (8.2) above. Since the objective of this chapter is to find out if there is a significant difference in the consumption behaviour of borrowers and non-borrowers of credit, a dummy variable called *cd* (credit dummy) is introduced into the function. A wave dummy is included to see if there is any significant difference in consumption across the waves. The education variable is dropped for simplification of the model. The model for consideration is thus:

$$\log C_i = \alpha_i + \beta_i \log tex + \pi_i \log \rho + \gamma_i \log a + \psi_i \log hs + \eta_i cd + \chi_i w4 + \varepsilon_i \qquad (8.5)$$

In the above equation:

$cd = 1$ for borrowers

$= 0$ other

---

[61] Details of food expenditures were collected at five-day intervals over a period of 35 days - to account for those long months which are usually made up of 5 weeks - in all the households surveyed. Items purchased frequently were covered in the same way, but for less frequently purchased items the reference period was 3 months or 12 months, depending on the household's frequency of purchase. All expenditure values were subsequently projected to give annual estimates.

$w4 = 1$ for Wave 4

$= 0$ otherwise

Mean of borrowers:

$$E(c_i|cd = 1) = a_i + \eta_i(1) \tag{8.6}$$

$$= a_i + \eta_i \tag{8.7}$$

Mean of non-borrowers:

$$E(c_i|cd = 0) = a_i + \eta_i(0) \tag{8.8}$$

$$= a_i \tag{8.9}$$

From the regressions it can be deduced that the intercept term $a_i + \eta_i$ gives the mean consumption of borrowers, while $= a_i$ gives the mean consumption of non-borrowers. The coefficient η_i shows the degree of difference in consumption between borrowers and non-borrowers. A test of the hypothesis that consumption by borrowers is the same as non-borrowers, that is $\eta_i = 0$ can be ascertained by testing whether η_i is statistically significant. The model we use in this research contains multiple equations one for relative food expenditure and the other for relative non-food expenditure. Thus, we use Seemingly Unrelated Regression Estimates (SURE) to estimate the model specified in equation (8.5). SURE, developed by Zellner (1962), is a technique for analysing a system of multiple equations with cross-equation parameter restrictions and contemporaneously correlated error terms. The name comes from the fact that, each equation in the model (8.5) has its own coefficient vector for the explanatory variables; it appears that the equations are not related. However, the error terms in the different equations are likely to be correlated and this is addressed using SURE, (Wooldridge, 2002).

An economic model may contain multiple equations, which are independent of each other on the surface that is they are not estimating the same dependent variable (Wooldridge, 2002). However, if the equations are using the same data and, in our case, the dependent variables are a share of the

budget, it would be unrealistic to assume the errors are not correlated across the equations. SURE is an extension of the linear regression model, which allows correlated errors between equations. The Gauss-Markov assumptions hold for all the equations. Thus the OLS estimates are BLUE (i.e., will result in the Best Linear Unbiased Estimator) (Greene, 2003). However, by using the SURE method to estimate the equations jointly, efficiency is improved. The assumptions we make between the error terms and the explanatory variables for each of the equations on the system are crucial for determining which estimators of the coefficients have acceptable properties. For a system which represents a structural model, we assume that the error terms are uncorrelated with the explanatory variables in all equations. When the system of equations is derived from economic theory this assumption is often very natural (Wooldridge, 2002). For example, as in our case, in a set of demand functions we present, $\chi_M \equiv \chi$ is the same for all M, where M = the total number of equations in the system.

Thus $E(\in_M | \chi_M) = E(\in_M | \chi) = 0$ (8.10)

The mathematics is very similar to computing Huber-White standard errors (Greene, 2003). Suppose we have a series of equations;

$$y_i = x_i \beta_i + \varepsilon_i \tag{8.11}$$

where x, β, and ε are vectors and i = 1, ..., M, where M is the number of equations. Assume each equation has N observations and let Σ be an $M \times M$ matrix representing the covariance of residuals between the equations. Even though each equation satisfies the OLS assumptions, the joint model exhibits serial correlation due to the correlation of the error terms. Standard OLS estimation then will be inefficient (unless all the equations have identical explanatory variables). Thus, SURE uses generalized least squares to estimate β:

$$\hat{\beta}_{SUR} = (\chi' \nu^{-1} \chi)^{-1} \chi' \nu^{-1} \gamma$$

where

$$\nu(\gamma) = \varsigma \otimes \mathrm{I}_{\mathrm{N}}$$

where $\otimes$ is the Kronecker product and $\nu(\gamma)$ is an $M \times N$ matrix (Greene, 2003).

The treatment effects model is estimated using a full maximum likelihood estimator to estimate the effect of an endogenous binary treatment, z_j, access to credit, on a fully-observed variable y_j, consumption, conditional on the set of independent variables $\chi_j and \varpi_j$. This is based on the exposition by Cong and Drukker, 2000. The main interest is in the regression function

$$y_j = \chi_j \beta + \delta z_j + \varepsilon_j \tag{8.12}$$

Where z_j is an endogenous dummy variable indicating whether the treatment is assigned or not, in our case whether credit is obtained or not. The binary decision to obtain the treatment z_j is modelled as the outcome of a latent variable; z_j^*. It is assumed that z_j^* is a linear function of the exogenous covariates ω_j and a random component u_j. Specifically,

$$z_j^* = \omega_j \gamma + u_j \tag{8.13}$$

The decision to obtain credit, the treatment, is made in relation to the rule

$$z_j = \begin{cases} 1, z_j^* > 0 \\ 0, otherwise \end{cases} \tag{8.14}$$

where ε and u are bivariate normal with mean zero and covariance matrix $\begin{bmatrix} \sigma & \rho \\ \rho & 1 \end{bmatrix}$.

We use the maximum likelihood estimation as derived by Maddala (1983). Here σ and ρ are not directly estimated.

8.3 Results and Discussion

This section provides the empirical results with interpretation of the estimates. A brief overview of the summary statistics is given to provide an insight into the average consumption pattern of food and non-food items relative to total expenditure of households, with and without credit across the Waves.

8.3.1 Mean and Percentage Consumption of Items by Wave

Table 8.1 shows the average consumption of food and non-food items relative to total expenditure for borrowers and non-borrowers across the two waves. The percentage consumption of each item is shown in parentheses. Percentages are obtained by dividing the mean consumption by the mean of the total expenditure multiplied by a hundred.

Table 8.1 Average Consumption of Households Categorised as having Credit and No Credit for Waves 3 and 4 (Figures are in Cedis[62])

	Wave 3		Wave 4		Total	
Variable	Credit Mean	No credit Mean	Credit Mean	No credit Mean	Credit Mean	No credit Mean
Food expenditure	384,625.10 (53.82)	344,332.30 (58.46)	2,511,877 (55.24)	2,140,231 (57.58)	1,715,735 (55.12)	1,324,326 (57.68)
Non-food expenditure	330,091.70 (46.18)	244,653.10 (41.54)	2,034,943 (44.76)	1,577,010 (42.42)	1,396,888 (44.88)	971,699.5 (42.32)
Total expenditure	714,716.80 (100)	588,985.40 (100)	4,546,820 (100)	3,717,240 (100)	3,112,622 (100)	2,296,026 (100)
No. of Observations	1262	3232	2110	3882	3372	7114

Note: The figures in parentheses show the percentage of consumption in terms of expenditure. Total expenditure on food and non-food including imputed cash value of receipts in kind. Due to lack of sufficient information on disaggregation in the reported data non-food expenditures includes durables.

From Table 8.1, the percentage consumption of food items of non-borrowers for the two waves is almost the same as for borrowers. On the other hand, the percentage consumption for non-food items is higher for borrowers in both waves. It can thus be concluded prima facie that borrowers spend more of their budget on non-food items while non-borrowers spend more on food items. Looking at the mean value of total food compared with that of total non-food, it appears that the mean consumption of total food for the waves exceeds that of the mean of total non-food for borrowers and non-borrowers.

[62] Cedis is the currency of Ghana.

8.3.2 Regression Results

The results from the iterated SURE analysis are summarised in Table 8.2 below, for the two samples. The figures in parentheses show the Z-statistics at 95% confidence interval. A negative value of the total expenditure coefficient for any item indicates a necessity and a positive value indicates a non-necessity. Relative food expenditure is expected to be negatively related to the relative price while relative non-food expenditure relates positively (Ndanshau, 2000).

The results show that for both samples, for relative expenditure on food items the coefficient of the total expenditure elasticity is negative and statistically significant, and less than unity, thus confirming Engel's law. As expected relative food expenditure and relative non-food expenditure are negatively and positively related to the relative price respectively in both samples. The effect of household size is negative and statistically significantly associated with relative food expenditure for the rural sample, showing an inverse relationship as expected. However, for the whole sample, the relation is positive but statistically insignificant. The age of the household head is statistically significantly positively related to relative food expenditure, with a coefficient less than unity. This implies that the rate of dependency increases with age, and thus more of the budget share goes into food items with the increase in age. The coefficient of the credit dummy is statistically significantly negative for relative food expenditure for both samples. Thus households with access to credit spend proportionately less on food items. The wave dummy is statistically significant and positive for relative food expenditure for both samples, which implies that there is a proportionate increase in food expenditure relative to total expenditure. For the rural sample, the distance to the nearest bank is positively and statistically significantly related to the relative expenditure on food items while distance to the nearest market is statistically insignificant. Thus it can be assumed that those who live closer to banks may have access to credit which goes into non-food consumption.

The total expenditure elasticity for relative non-food expenditure is less than unity and is statistically significantly positive, implying non-food items are non-necessities.

Household size is statistically significantly positively related to expenditure on non-food items. Thus proportionately more is spent on non-food items as the size of the household increases. An inverse relationship is observed for the age of the household head with respect to relative expenditure on non-food items. This suggests a decrease in asset accumulation, thus an increase in age leads to less than proportionate increase in the consumption of non-food items most likely durables. The credit dummy shows that relative non-food expenditure significantly increases with access to credit. Intuitively this may be interpreted as an increase in durables consumption as household access to credit helps to improve their standard of living. However, the wave dummy shows a statistically significant decrease in the proportion of expenditure on non-food items with the advent of financial liberalisation. This may suggest less availability of credit to micro-units with the advent of financial liberalisation and hence their inability to increase the consumption on non-food items.

In general, the regression results presented in Table 8.2 demonstrate that total household expenditure (used as a proxy for household income) is an important determinant of expenditures on food items and this is influenced by the incidence of credit.

It must be noted that the unadjusted coefficient of determination (R^2) is low and similar for both relative expenditures on food and non-food items, implying that the regressors explain less than 20 percent of the variation in the relative expenditures on food and non-food items for the whole sample, while for the rural sample is less than 10 percent However, the low R^2 is characteristic of household budget survey studies. Besides, the chi-square statistics are statistically significant for both functions, implying that the regressors explain the variation in the dependent variables of the functions estimated.

Table 8.2 Results from Seemingly Unrelated Regression Estimates for Food and Non-food Items

	Whole Sample		Rural Sample	
	Log food_exp	Log non-food_exp	Log food_exp	Log non-food_exp
Log total expenditure	-0.09258**	0.089876**	-0.03036**	0.021179**
	(-21.55)	(14.7)	(-6.12)	(2.53)
Log of Relative price	-0.76325**	1.284811**	-0.46604**	1.035639**
	(-22.35)	(26.44)	(-7.22)	(9.49)
Log household size	0.004037	0.027464**	-0.01868**	0.05746**
	(0.98)	(4.67)	(-3.97)	(7.23)
Log age	0.096514**	-0.18554**	0.1089**	-0.20795**
	(12.83)	(-17.32)	(13.27)	(-15)
Credit(=1, credit)	-0.0296**	0.055065**	-0.03203**	0.06531**
	(-5.37)	(7.02)	(-5.08)	(6.14)
Wave(=1, Wave 4)	0.165981**	-0.13315**	0.038377**	-0.0104
	(17.77)	(-10.01)	(3.72)	(-0.6)
Bank distance		-	0.000477**	-0.00092**
		-	(7.41)	(-8.45)
Market distance		-	3.06E-05	-3.7E-05
		-	(0.41)	(-0.29)
Constant	0.291634**	-1.50514**	-0.48821**	-0.5973**
	(4.62)	(-16.76)	(-6.74)	(-4.88)
Observations	10486		6382	
R-squared	0.1561	0.1614	0.0721	0.0859
Chi squared	1939.42**	2018.23**	496.01**	599.38**

Note: ** significant at 5% level and the Z-statistics are shown in the parentheses.

The across-equation equality test between the food and the non-food relative expenditure equations on the coefficient of credit shows that there is a significant difference between the expenditure patterns for the two broad items. The significant chi-square test means a rejection of the null hypothesis that the difference is zero as stated below in equation (8.15):

[lf_exp] credit - [lnf_exp] credit = 0 (8.15)

chi2 (1) = 97.04

Prob > chi2 = 0.0000

8.3.3 Tests for Significant Difference between Borrowers and Non-Borrowers

The estimated model assumes that the dummy variables affect the intercept but not the slope of the two subgroup regressions. However, the slopes may be different so there is a need to find out whether the two regressions are different, with respect to the intercepts or slopes or both. Since the motivation of this research is to investigate the difference between borrowers and non-borrowers with regard to their consumption pattern and expenditure (income), we test for the difference in the slope coefficient of borrowers and non-borrowers. In order to do so, we introduce a multiplicative form of the credit dummy variable. This helps to differentiate between the slope coefficient of borrowers and non-borrowers.

Thus the following equation is estimated:

$$c_i = \alpha_i + \beta_i \log tex + \gamma_i \log a_i + \psi_i \log hs + \eta_i cd + \lambda_i tex * cd + \chi_i w4 + \varepsilon_i \quad (8.16)$$

To see the implications of model (8.9), and assuming $E(\varepsilon_i) = 0$ we obtain

$$E(c_i | cd = 0, tex) = a_i + \beta_i \quad (8.17)$$

$$E(c_i | cd = 1, tex) = (a_i + \eta_i) + (\beta_i + \lambda_i) tex \quad (8.18)$$

The terms used here are the same as those used in equation (8.1).

These are respectively the mean expenditure models for non-borrowers and borrowers. Both the intercept and slope coefficient is different as the credit dummy takes on the value of zero and one.

Table 8.3 shows SURE estimation using the differential slope coefficient. We also test whether the coefficient of the borrower dummy and the multiplicative term are jointly zero using the Wald coefficient test.

From the Table 8.3 below, it is observed that all the coefficients of the explanatory variables for the relative food expenditure are statistically significant for both samples with the exception of the household size for the whole sample and the market distance for the rural sample. Since the credit, and expenditure and credit multiplicative variables are significant it implies that there is a

difference between borrowers and non-borrowers with respect to the relative expenditure on food items for both samples. However, these two variables are statistically insignificant with reference to relative expenditure on non-food items. Thus, the relative consumption of non-food items shows no difference between borrowers and non-borrowers. It is observed from the Wald coefficient test, that the intercepts as well as the slopes of the demand functions are different for both the relative expenditure on food and non-food items. Therefore the result indicates that there is significant difference between borrowers and non-borrowers in the consumption of these items.

Table 8.3 Testing for Differential Slope Coefficient using SURE Estimation

	Whole Sample		Rural Sample	
	Log food_exp	Log non-food_exp	Log food_exp	Log non-food_exp
Log total expenditure	-0.08896**	0.088848**	-0.02631**	0.018176**
	(-19.58)	(13.74)	(-5)	(2.04)
Log of Relative price	-0.76825**	1.286231**	-0.47239**	1.040336**
	(-22.47)	(26.42)	(-7.31)	(9.53)
Log household size	0.000574	0.028447**	-0.02245**	0.060258**
	(0.13)	(4.58)	(-4.51)	(7.16)
Log age	0.096538**	-0.18554**	0.108592**	-0.20772**
	(12.83)	(-17.33)	(13.24)	(-14.98)
credit	0.118444**	0.013022	0.12869*	-0.05365
	(1.95)	(0.15)	(1.83)	(-0.45)
Log expenditure*credit	-0.0114**	0.003239	-0.01256**	0.009297
	(-2.45)	(0.49)	(-2.29)	(1)
wavedum3	0.165794**	-0.1331**	0.038142**	-0.01023
	(17.75)	(-10.01)	(3.7)	(-0.59)
Bank distance	-		0.000478**	-0.00092**
	-		(7.43)	(-8.46)
Market distance	-		3.03E-05	-3.7E-05
	-		(0.4)	(-0.29)
Constant	0.244792**	-1.49184**	-0.539**	-0.55971**
	(3.71)	(-15.9)	(-7.12)	(-4.37)
Observations	10486	10486	6382	6382
R squared	0.1566	0.1614	0.0729	0.086
Chi squared	1946.51**	2018.52**	501.68**	600.49**

Note: ** significant at 5%, *significant at 10% and the Z-statistics are shown in the parentheses.

8.3.4 Effects of Credit Access on Consumption – Treatment Effects Model

It would be expected that individuals who are better off have access to credit or accessing credit makes them better off, and they would be more likely to spend more on non-food items relatively to food items. A decision to access credit is unobserved. If the error term in our model to access credit is correlated with the decision to have credit, and the error term in our consumption equation is correlated with the decision to obtain credit, then the two terms should be positively correlated. This raises the issue of endogeneity bias. To account for the bias, we fit the treatment effects model. We model the decision to access credit as a function of household size, age and gender of head of household, wave dummy, distance to the nearest bank and market. Thus we are estimating the model[63]

$$y_j = \chi_j \beta + \delta z_j + \varepsilon_j \tag{8.19}$$

$$z_j^* = \omega_j \gamma + u_j \tag{8.20}$$

where

$$z_j = \begin{cases} 1, z_j^* > 0 \\ 0, otherwise \end{cases}$$

where ε and u are bivariate normal with mean zero and covariance matrix $\begin{bmatrix} \sigma & \rho \\ \rho & 1 \end{bmatrix}$.

The results in Table 8.4 below, gives the maximum likelihood estimates of the parameters of the model. This reveals that for both samples the average effect of accessing credit on the consumption of food items decreases while it increases for the consumption of non-food items and the coefficients are statistically significant. For both the whole and rural sample, the results show that expenditure on food items decreases relatively with increases in total expenditure (proxy for income) and that the relative increases for non-food items is, usually for durable consumption items.

---

[63] Definitions of the variables used here are the same as defined in equations (8.12) and (8.13).

The wave dummy variable shows a positive statistically significant relationship for relative expenditure on food items and a negative statistically significant relationship for relative expenditure on non-food items. This shows that the relative expenditure on food items increased in Wave 4, the period after financial liberalisation, and decreased for non-food items. This outcome was not expected since the assumption was that with the advent of financial liberalisation credit would be made more available to households and this would be reflected in their expenditure patterns, with relatively more non-food items than food items being consumed. This may indicate that credit goes more into investments than consumption, in which case the expectation is that, in the long-run, the consumption pattern of the households may change showing an increase in the consumption of non-food items relative to food items.

The results from both models are similar for all the variables except for the community variables. The SURE estimate shows a significantly positive relationship for bank distance and relative expenditure on food and a significantly negative one with relative expenditure on non-food items. While the relationship with the market distance for both items is statistically insignificant. This shows that the further away a household is from a bank the higher the relative proportion of expenditure spent on food. This suggests intuitively that with long distances households are unable to access credit hence they allocate a higher proportion of the total expenditure to food and, following from Engel's law it can be deduced that with the inaccessibility of credit their standard of living is not enhanced, as an enhanced standard of living is expected to be reflected in the consumption of more non-food (durables) items than food items.

On the other hand, the TEM revealed a statistically significantly negative relation for both items with bank distance and a statistically significantly positive relation with market distance. The results from the TEM are consistent and robust and its use in this thesis is an innovation in the analysis of the effect of credit access on the consumption patterns of households correcting for endogeneity which the other studies referred to in this research did not. The negative relationships identified for both food and non-food by this model, correcting for the endogeneity of credit, imply

again that households facing long distance to the nearest banks are unable to access credit and this affects their consumption of both food and non-food items negatively. Thus, without access to credit, households are left even worse off since they are unable to smooth their food consumption. Therefore it is expedient for banks and/or formal financial services to be established closer to households in rural areas to help improve their standard of living.

Table 8.4 Results on the Effects of Access to Credit on Consumption – Treatment Effects Model

	Log of food expenditure		Log of non food expenditure		Log of food expenditure		Log of non food expenditure	
	Whole Sample				Rural Sample			
	Coefficient	Std. Err.	Coefficient	Std. Err.	Coefficient	Std. Err.	Coefficient	Std. Err.
Log expenditure	-0.08109**	0.003926	0.091106**	0.005614	-0.03019**	0.004548	0.031512**	0.007804
Log of relative price	-0.81589**	0.032853	1.310366**	0.047681	-0.45988**	0.062974	0.98656**	0.108339
Wave (=1, Wave 4)	0.174253**	0.009372	-0.1684**	0.012934	0.069916**	0.010499	-0.07746**	0.017608
Credit	-0.38739**	0.011545	0.419075**	0.024613	-0.34621**	0.012426	0.532756**	0.027736
Constant	0.604253**	0.052005	-2.27962**	0.073878	-0.01466	0.060443	-1.58042**	0.103104
Credit								
Log household size	0.144203**	0.016331	0.222514**	0.017771	0.192436**	0.021491	0.250206**	0.022543
Log age	-0.4593**	0.031713	-0.55754**	0.035736	-0.52275**	0.040285	-0.5836**	0.042915
Gender (=1, Female)	-0.01952	0.022592	0.030686	0.025353	0.00772	0.030146	0.023183	0.032124
Wave (=1, Wave 4)	0.216995**	0.025419	0.226568**	0.02599	0.241553**	0.033094	0.254959**	0.033664
Bank distance	-	-	-	-	-0.00248**	0.000357	-0.00276**	0.000379
Market distance	-	-	-	-	0.000947**	0.000356	0.001174**	0.00038
Constant	0.971277**	0.116238	1.195033**	0.132224	1.127606**	0.150417	1.247657**	0.161134
rho	0.713326	0.014441	-0.53494	0.029382	0.709765	0.017772	-0.63089	0.027416
sigma	0.307774	0.003552	0.407418	0.005375	0.268515	0.003793	0.440799	0.007082
lambda	0.219544	0.006645	-0.21794	0.014499	0.190582	0.007069	-0.2781	0.016003
No. of observations.	10486				6382			
Wald $chi^2(4)$	2861		1792.68		989.91		543.23	
Log likelihood	-7118.91		-10938.8		-3407.46		-6822.57	
Prob. chi^2	0		0		0		0	

Note: ** 5% Significance

Instruments for credit in the expenditure function are shown in the lower part of the table.

8.4 Conclusion

This chapter presented the results of investigating the consumption pattern of households with access to credit and those without, using household data from the GLS Waves 3 and 4. A double log-linear Engel curve analysis model and a treatment effects model were used. The aggregation of food and non-food items consumed over a 35- day period was used. To correct for correlation of the error terms of the two system equations and account for endogeneity and selectivity bias the Seemingly Unrelated Regression Estimation and Treatment Effects Models were employed using the STATA 9.0 statistical package.

From the analysis, food items are found to be necessary items whose relative expenditure are likely to decrease with access to credit. This result is in line with Engel's law, where the proportion of the budget spent on food items decreases with the proportionate increase in income. Thus, with access to credit, the assumption is that as households are able to gain more income or have more income for consumption smoothing, the relative expenditure on non-food items is likely to increase. This signifies that the standard of living of such households has improved. We found that there is a significant difference between borrowers and non-borrowers in terms of the relative expenditure on food and non-food items. The results further suggest that borrowers reduce their proportionate expenditure on food items while that on non-food items is increased, implying borrowers have a higher quality consumption pattern.

The results suggest differences between the relative expenditure patterns for both food and non-food items with respect to the waves. For Wave 4, the relative expenditure on food items increased while that for non-food items decreased proportionately with reference to Wave 3. This may suggest that for the non-food items the majority of the components are durables and thus once they are acquired they remain with the household for a longer period before a replacement is bought.

In summary we conclude that borrowers are able to improve their standard of living in terms of consumption patterns compared to non-borrowers. Thus making credit available to households helps to bring a better quality of life by providing higher quality consumption. However, we cannot conclusively say if there are other factors that may influence higher quality consumption pattern of households apart from credit.

CONCLUSION

9.1 Summary

This final chapter of the thesis will provide a summary of the study carried out and will discuss the contributions and limitations of the study and possible areas of future study. The research described in the thesis has followed through the design and evaluation of the various financial sector development strategies adopted in Ghana with the aim of enhancing economic growth and development.

The first chapter of this research provided a general overview of its contents. It outlined the motivation for the research, which was to investigate the impact of the financial liberalisation policy on micro-units' financial and consumption behaviour. In addition the structure of the thesis is provided showing the links between the chapters.

A review of the literature on financial liberalisation was presented in chapter two and the expected outcomes of the policy and problem areas were identified. One conclusion that can be taken from the review is the lack of research being carried out on the impact of the policy at the micro level. There is little evidence in the literature of an evaluation of the financial liberalisation with reference to micro-economic units and none at all for Ghana in particular. In addition, the implementation of the policy in most developing countries as revealed in the literature indicates that the implementation has been developed in isolation from the traditional conditions facing micro-economic units. Such an evaluation of the policy at the micro level is necessary if financial liberalisation is expected to help improve the standard of living of households/individuals. The evaluation process will also help to provide feedback on the performance of the policy and the necessary adjustments made to help realise the full benefits of the policy in Ghana and in developing countries in general. One factor that was deduced from the literature review is that this is the first example of such an evaluation of the impact of the financial liberalisation policy on households and individuals in West Africa.

Since Ghana was used as the case for the research, chapter three was used to provide the political and economic strategies that had being pursued by the leaders of the country since independence in 1957. This revealed how the various leaders practised different forms of socialism, capitalism and various military style ideologies in the bid to help develop Ghana into a self-reliant developed country. This vision of making Ghana a self-reliant developed country, has however been challenged due to political instability and mismanagement of the economy of the country, which resulted in the almost collapse of the economy necessitating the call for help from the world financial institutions in 1983. As part of the recovery programme from these institutions Ghana's financial sector underwent some changes prominent among these was the liberalisation of the financial sector.

In chapter four, the characteristics of the financial sector of Ghana were provided and it showed an evolution from a repressed sector to a liberalised one. The study identified an increase in the different financial institutions operating in Ghana and the openness to private participation. With reference to these changes in the financial sector the research examined how much these changes have affected micro-units in terms of the availability of credit.

The data and methodology used for the research was described in Chapter 5. From the data available in the GLS Waves 2, 3 and 4 it was apparent that the policy has affected micro-economic units in various ways since its inception. For instance, the data shows an initial decline of credit availability to these units in Wave 3 from Wave 2, and then an increase in Wave 4. This reveals the initial cost of the policy implemented and then a recovery and subsequent improvement in the later years. The methodology employed for the research included that required to address the issues of selection bias and endogeneity which are common problems with empirical studies. The models used included a Heckman probit with sample selection, a multinomial logit and a treatment effects model. The subsequent chapters contain the results obtained after running these models.

Chapter 6 addresses the question on the factors that affect household access to credit and how that has been influenced by the advent of financial liberalisation. Using a probit analysis access to credit was modelled as a function of the socio-economic characteristics of head of households and community infrastructure features. Negative statistically significant results for gender, no educational qualification, and nearest to a financial institution suggested bias against females, those with no educational qualifications, and living farther away from banks. A decrease in the magnitude of the coefficients of these characteristics across the three waves suggested that financial liberalisation has led to the improvement of credit to this cohort. Such a proposition is of particular policy interest since a greater proportion of the population in Ghana have these characteristics. Thus any policy innovation should be considered with reference to address the credit needs of this cohort in order to help improve the general standard of living of the majority of the population and promote economic growth.

The analysis subsequently proceeded in chapter 7 to investigate the determinants of accessing credit from either the formal or the informal credit market by individuals. The third and the fourth waves of the GLSS were used for this investigation. Three different models were used to help address the issue of sample selectivity bias and also establish the robustness of the results. The models used were a simple probit model which ignored the issue of selectivity, a Heckprobit with sample selection and a multinomial logit model. The results of this exercise added to the understanding of the performance of different approaches of addressing sample selection bias. The results provided further insight to the continuous existence and importance of the informal credit market in most developing countries even after the implementation of the financial liberalisation policy.

The final analysis of the thesis considered the effect of accessing credit on the pattern of consumption of households. Data from Waves 3 and 4 of the Ghana Living Standards Survey were used to ascertain the consumption pattern of households with or without credit. Existing empirical evidence on the consumption pattern of households shows that those with access to credit spend a

lower proportion of their total expenditure on food items. The results from this research also suggested that households with access to credit have an inelastic income expenditure on food items and these have been statistically different across the waves, showing the impact on financial liberalisation on consumption patterns, that is households that accessed credit spent proportionately lower on food items than on non-food items, and hence the standard of living of households. Here the research used a treatment effects model to account for endogeneity which is not addressed in the previous studies.

9.2 Limitations of the Study

This study has a number of limitations, which are mainly as a result of the lack of adequate data. Though the Ghana Living Standard Survey is a rich source of data, the differences in the waves particularly Wave 2 and Waves 3 and 4 made it difficult to establish fully the effects of financial liberalisation on the fragmented financial sector. For instance, there was no data documentation on the different sources of credit for Wave 2, and hence it was not possible to investigate the determinants of access to a specific type of credit market during the repression period.

The lack of data on the infrastructure characteristics of urban areas is another setback for the study. Because of this, it was not possible to ascertain the effects of these community characteristics on those living in the urban areas. The effects of these characteristics in the urban areas would have provided further insight to the persistence existence of the informal credit market in both the urban and rural areas.

Finally, the lack of different price indices for food and non-food items in Wave 2 is considered as a limitation of the comparison between the consumption patterns of households on these items for all three waves. Though, significant differences were discovered between the consumption of the two set of items the presence of the price index for Wave 2 would have provided a more substantive comparative results and difference over a longer period. However, this research still examines a

valid measure for the living standard of the population and how that has been affected with the advent of financial liberalisation.

9.3 Future Research

There are further questions of interest that remain to be addressed and render for further research in this field. There are a number of ways in which this research can be expanded and other possible areas that can be explored.

In Chapter 6, it was apparent that there is significant bias against the probability of females accessing credit even with the advent of financial liberalisation. It will thus be interesting and beneficial to explore the characteristics of females that put them in such disadvantaged position in relation to accessing credit. This is of particular importance since the 2004 population census shows that females represent 51% of the population and also are the greater proportion of the labour force, especially food crop production. Identifying ways of addressing this bias against females in accessing credit would help considerably in improving the food crop production in Ghana and help increase food production to mitigate against the looming world food crises.

Furthermore, the analysis conducted here looked broadly at the two locations in Ghana, the urban and rural areas. Another interesting area would be to explore the incidence of credit by narrower locations such as Accra, Coastal Urban, Forest Urban, Savannah Urban, Coastal Rural, Forest Rural and Savannah Rural. Such an investigation into specified locations would be of considerable policy importance. With the Ghana Poverty Document (2003), revealing that the highest concentration of poverty levels are in the rural coastal and rural savannah areas such an investigation would help policy-makers to target such areas with localised policies to help combat poverty.

Chapter 7 identified the characteristics of individuals who access either formal or informal credit. An extension of this study would be to explore the characteristics of individuals who access semi-formal credit especially those from the micro-finance institutions which have become popular with the advent of financial liberalisation. This would help to forge links between the formal and informal credit markets, a subject which has attracted relatively little attention even though there is considerable recognition of the importance of such a linkage.

Another area that is of importance in the bid to help reduce poverty and improve the standard of living that has attracted relatively little attention in the empirical literature is an investigation into which of the credit markets serve the financial needs of small-scale agriculture and its related enterprises. Since this sector is the most important economic activity in most LDCs an insight into the obstacles to its access to credit will help drive policy towards addressing their needs thereby helping to improve the standard of these enterprises.

With the identified shortcomings in the data especially on the expenditure of households, such as the lack of the disaggregation of the non-food items into durables and non-durables, a field experiment would enhance the study considerably. Using a field experiment the researcher and data collectors would engage in participatory observation and make a record of their consumption pattern. The typical problem of recall associated with expenditure records would be minimised and the data collected would be more reliable and accurate.

The design for the field experiment should involve a succinctly prepared questionnaire to guide the data collectors in their observation and recording, and to ensure that similar observation and recording is done. The period for data collection might, for example, take the form of three observations periods, of three weeks, spread across the year. The periods represent the times of the year when economic activities are at a minimum and maximum, which will reveal the expenditure on durables and non-durables. The sample should a number of randomly chosen households from each of the randomly chosen clusters across Ghana. Thus there will be a total sample size of 3000

households and 3000 data collectors for the experiment. With this number of collectors it is assumed that data will be collected at the same time thus allowing the information to be uniform.
In addition to collecting data on the expenditure pattern of households, data will be collected on the infrastructure such as banks and markets in the rural areas. This will involve 195 clusters and will help collect first hand data on these infrastructures rather than the available one that is provided by community leaders. This would be done over a period of one week in the first quarter of the year with a follow up in the fourth quarter to incorporate any new developments. This information would be interacted with the geographic information system technology that will help 'remove' any subjectivity from this aspect of analysis

This field experiment will however be faced with a number of problems. First is the issue of cost, field experiments are expensive. Second households' consumption pattern may be altered with the presence of data collectors thus not providing the true picture of their consumption trend. Despite these potential shortcomings the field experiment using participatory observation would help provide accurate and adequate data to enhance the quality of the research analysis and its use by policy makers.

It is evident that there is considerable scope and potential for further research on the impact of financial liberalisation on the financial needs of micro-economic units. However, I believe that the research undertaken for this thesis has made a significant contribution to the literature in the field in terms of identifying the characteristics of micro-units that affect their access to credit, an issue that had previously been overlooked. This provides policy makers with information on how to better reach out to such micro-units in order to serve their financial needs to help enhance economic growth in general. Furthermore, it has provided evidence that the access to credit by households help to improve their consumption pattern and hence their standard of living, a means to aid the fight against poverty.

Also with the recognition of the crucial role played by access to credit in the improvement of the living standards of the individuals and economic growth, it is recommended that the credit policies for females, rural dwellers and those engaged in the agricultural profession be revised in relation to the financial liberalisation policy in order to improve the availability of credit to the population in every part of the country. This would help to increase productivity through the expansion of economic activities, culminate in improving the standard of living, and enhance economic growth. In addition, a lot of effort should be put in place to forge links between the formal and informal financial markets and thus regulate the informal market to the advantage of those who patronise this market.

REFERENCES:

Acquah, P.A., (2003) "Liberalising Ghana's Financial Services Sector. The Role of Overseas Banks". *Commonwealth Business Council Banking and Financial Services Symposium*, London.

AfricaSpeaks (2004) "Kwame Nkrumah's Contribution to the Decolonisation Process in Africa". [Online]. Available from: http://www.africaspeaks.com. [Accessed on 09/11/2005].

Agenor, Pierre-Richard, (2002) Macroeconomic Adjustment and the Poor: Analytical Issues and Cross-Country Evidence *Policy Research Working Paper* No. 2788, Washington, DC: The World Bank.

Agyeman-Badu, Y. and Osei-Hwedei, K., (1982) The Political Economy of Instability: Colonial Legacy, Inequality and Instability in Ghana. Virginia: Brunswick Press.

Aleem, I., (1990) "Imperfect Information, Screening, and the Costs of Informal Lending: A Study of a Rural Credit Market in Pakistan". *World Bank Economic Review* 4 (3), 329 - 349.

Allen-Smith, Joyce E., McDowell, D. R., and McLean-Meyinsse, Patricia E., (1997) "Food Expenditures and Socioeconomic Characteristics: Focus on Income Class". *American Journal of Agricultural Economics*, Vol. 79, No. 5, pp. 1444-1451.

Amoako-Tuffour, J., (2002) "Forging Linkages between Formal and Informal Financial Sectors in Ghana: Emerging Trends". *African Finance Journal,* 4 (1), 1-31.

Amonoo, E., Acquah, P. Kojo, and Asmah, E. Ekow (2003) "The Impact of Interest Rates on Demand for Credit and Loan Repayment by the Poor and SMEs in Ghana", *Impact of Financial Sector Liberalization on the Poor* Research Paper No. 03-10, International Labour Office, Geneva.

Angrist, J.D., Imbens, G. W. and Rubin, D.B., (1993) "Identification of causal effects using instrumental variables". *Technical Report* No. 136 Department of Economics, Harvard University Cambridge.

Angrist, J. D., (2006) "Instrumental Variables Methods in Experimental Criminology Research: What, Why and How". *Journal of Experimental Criminology, 2,* 23-44.

Anin, T.E., (2000) *Banking in Ghana.* Accra: Woeli Publishing Services.

Arestis, P. and Caner, A., (2004) "Financial Liberalisation and Poverty: Channels of Influence" *The Levy Institute Working Paper* No. 411 Annandale-on-Hudson, New York.

Arestis, P. and Demetriades, P., (1995) "The Ethics of Interest Rate Liberalisation in Developing Economies", in S. F., Frowen and F.P. McHugh (eds.), *Financial Decision-Making and Moral Responsibility.* London: Macmillan.

Arestis, P. and Demetriades, P., (1997) "Financial Development and Economic Growth: Assessing the Evidence" *Economic Journal.* 107(442), pp. 783-799.

Ariyoshi, A., Habermeier, K., and Laurens, B., (2000) "Capital Controls: Country Experiences with their Use and Liberalisation" *IMF Occasional Paper*190 (May).

Arrow, K. and Debreu, G., (1954) Existence of a Competitive Equilibrium for a Competitive Economy. *Econometrica* 22, (3) 205-90.

Aryeetey, E. (1985) Decentralising regional planning in Ghana. Dortmunder Beitraege zur Raumplanung, 42, Institut fuer Raumplanung, Universitaet Dortmund, Dortmund, Germany.

Aryeetey, E., (1994) "A Study of Informal Finance in Ghana". London: Overseas Development Institute, *Working Paper 78.*

Aryeetey, E., (1996) "The Formal Financial Sector in Ghana after the Reforms". London: Overseas Development Institute, *Working Paper 86.*

Aryeetey, E., Hettige, H., Nissanke, M., Steel, W.F. (1997) "Financial Market Fragmentation and Reforms in Ghana, Malawi, Nigeria and Tanzania" *The World Bank Economic Review,* Vol. 11 No. 2 pp. 195-218.

Aryeetey, E., (2001) "Strengthening Ghana's Financial Market: An Integrated and Functional Approach". *Ghana in the 21st Century ISSER Millennium Seminar Series No. 6.* Legon: ISSER.

Aryeetey, E and Gockel, F., (1991) "Mobilising Domestic Resources for Capital Formation in Ghana: The role of Informal Financial Sector." *AERC Research Paper no 3. African Economic Research Consortium.*

Aryeetey, E. and Harrigan, Jane (2000) "Macroeconomic and Sectoral developments since 1970." In E. Aryeetey, Jane Harrigan & M. Nissanke, eds. Economic *Reforms in Ghana: The Miracle & The Mirage*. Accra: Woeli Publishing Services, pp. 5-31.

Aryeetey, E., Harrigan Jane and Nissanke M., (2000) (eds). *Economic Reforms in Ghana: The Miracle & The Mirage*. Accra: Woeli Publishing Services.

Asare, B. and Wang, A., (2004) An Economic Development of Two Countries: Ghana and Malaysia. *West Africa Review* Issue 5, 2004.

Austin, D. and Luckham, R., (1976) (eds.) Politician *and Soldiers in Ghana.* London: Frank Cass.

Ayittey, G.B.N., (1992) Africa *Betrayed.* New York: St. Martin's Press.

Balke, A., and Pearl, J., (1993) "Nonparametric Bounds on Causal Effects from Partial Compliance Data" *Technical Report* R-199 UCLA Computer Science Department.

Bandiera, O., Caprio, G., Honohan, P. and Schiantarelli, F., (2000) "Does Financial Reform Raise or Reduce Saving?" *Review of Economics and Statistics*, May, 82(2), 239-263.

Bank of Ghana, (1986) *Annual Report.* Accra: Woeli Publishers.

Bank of Ghana, (1988) *Annual Report.* Accra: Woeli Publishers.

Bank of Ghana, (1989) *Annual Report.* Accra: Woeli Publishers.

Bank of Ghana, (1990) *Annual Report.* Accra: Woeli Publishers.

Bank of Ghana, (2000a) *Annual Report*. Accra: Woeli Publishers.

Bank of Ghana, (2000b) Bank and Non-Bank Financial Institutions. Business Rules. Accra: Woeli

Bank of Ghana, (2001) *Annual Report*. Accra: Woeli Publishers.

Bank of Ghana, (2002) Banking Supervision and Regulation Department.

Bank of Ghana, (2003) *Annual Report.* Accra: Woeli Publishers.

Bank of Ghana (2003-2006), *Statistical Release* Vol. 2 Woeli Publishers.

Bank of Ghana, (2004) "Financial Stability Report". *Statistical Release* Vol. 5(2) Accra: Woeli.

Bank of Ghana, (2006) *Annual Report*. Accra: Woeli Publishers.

Bank of Ghana (2007a) "The Consolidated Balance Sheet of Rural and Community Banks" *Statistical Bulletin.*

Bank of Ghana, (2007b) *Annual Report.* Accra: Woeli Publishers.

Bank of Ghana, (2008a) Register of Licensed Banks [Online] Available on, *http://www.bog.gov.gh/privatecontent/File/BankingSupervision/Licensed Banks & Addresses* Accessed 20/03/09.

Bank of Ghana, (2008b) Register of Licensed Banks [Online] Available on, http://www.bog.gov.gh/privatecontent/File/BankingSupervision/20080420-RCBs REGIONAL DISTRIBUTION Accessed 20/03/09.

Bank of Ghana, (2008c). Register of Licensed Non-Banks [Online] Available on, *http://www.bog.gov.gh/privatecontent/File/BankingSupervision/20080420-REGISTER OF NON-BANKS* Accessed 20/03/09.

Bank of Ghana, (2008d) *Annual Report.* Accra: Woeli Publishers.

Barclays Bank of Ghana Report, (2006) Accra: Woeli Publishers.

Bartels, L. M., (1991) "Instrumental and 'Quasi-Instrumental' Variables" *American Journal of Political Science*, Vol. 35, No. 3 pp. 777-800.

Bates, R., (1981). *Markets and States in Tropical Africa: The Politics of Economic Policies.* Berkeley CA: University of California Press.

Bawumia M., Owusu-Danso, Theresa and McIntyre, A., (2008) "Ghana's Reforms Transform Its Financial Sector". *IMF Survey Magazine: Countries & Regions.* [Online] Available on: http://www.imf.org/external/pubs/ft/survey/so/2008/CAR052208A.htm Accessed on 27/03/09.

Becker, S. O., and Ichino, A., (2002) "Estimation of Average Treatment Effects Based on Propensity Scores" *The Stata Journal* 2 No. 4 p. 358-377 Stata Corporation.

Behrman, J., Foster, A. and Rosenzweig, M., (1997) Dynamic Savings Decisions in Agricultural Environments with Incomplete Markets, *Journal of Business and Economics Statistics,* 15, (2) 282-92.

Bekaert, G., Harvey, C. R. and Lundblad, C. (2000) 'Emerging Equity Markets and Economic Development', *NBER* Working Paper, No. 7763, Cambridge, MA: National Bureau of Economic Research.

Bell, C., (1988) "Credit Markets and Interlinked Transactions." In H. Chenery and T.N. Srinivasan, eds., *Handbook of Development Economics*, Volume II, B.V: Elsevier Science Publishers.

Beneito, P., (2003) "A Complete System of Engel Curves in the Spanish Economy" *Applied Economics*, 35:803-816.

Bequele, A., (1983) "Stagnation and Inequality in Ghana." In *Agrarian Policies and Rural Poverty in Africa,* (eds). Dharam Ghai and Samir Radwan. Geneva: International Labour Organisation, p. 219- 247.

Bernarke, B., and Gertler, M., (1995) "Inside the Black Box: The Credit Channel of Monetary Policy Transmission" *Journal of Economic Perspective* 9 p. 27-48.

Bernarke, B., (1993) "Credit in the Macro economy". *Quarterly Review* Federal Reserve Bank of New York, p. 50-70.

Berry, L., (1995) *Ghana: A Country Study.* Washington D.C US Government Printing Office.

Berthelemy, J. C., and Varoudakis A. (1996) "Economic Growth, Convergence Clubs, and the Role of Financial Development" *Oxford Economics Paper* 48 p.300-328.

Boahen, A. A., (1997) "Ghana: Conflict Re-oriented," In I. W. Zartman ed. *Governance as Conflict Management Politics and Violence in West Africa,* Washington: Brookings Institutions.

Brownbridge, M., and Gockel, A.F., (1996) "The Impact of Financial Sector Policies on Banking in Ghana". [Online] Available on http://www.ids.ac.uk/ids/bookshop/wp/wp38.pdf. Accessed on 25/11/05.

Brownbridge, M. and Gockel, A.F., (1998) "The Impact of Financial Sector Policies in Ghana," In M. Brownbridge and C. Harvey, eds. *Banking in Africa*, Oxford: James Currey.

Brownbridge, M., Gockel, A.F., Harrington, R., (2000) Savings and Investment. In: E. Aryeetey, J. Harrigan and M. Nissanke, eds. *Economic Reforms in Ghana. The Miracle & Mirage.* Accra: Woeli Publishing Services, 132- 149.

Browning, M. and Lusardi, A., (1996) "Household Saving: Micro Theories and Micro Facts", *Journal of Economic Literature,* 34, 4.

Caliendo, M. and S. Kopenig, (2005) "Some Practical Guidance for the Implementation of Propensity Score Matching", *IZA Discussion Paper* No. 1588.

Cameron C. W., (1995) "Universal Banking and US Banking in the 1990s" *International Journal of Social Economics* Vol. 22(4) pp. 12-19.

Cameron, S., (2005) *Econometrics.* London: The McGraw-Hill Companies.

Campbell, J. Y. and Mankiw, G.N., (1990) "Permanent Income, Current Income, and Consumption" *Journal of Business and Economic Statistics,* 8, pp. 265-79.

Caprio Jr, G., Atiyas, I. and Hanson, J., (1993) "Financial Reform Lessons and Strategies". *World Bank Policy Research Working Paper WPS 1107,* February.

Caprio, G., and Vittas, D. (1997) "Financial history: Lessons of the Past for Reformers of the Present". In: G. Caprio, D. Vittas, (Eds.) *Reforming Financial Systems – Historical Implications for Policy.* Cambridge: University Press.

Catholic Relief Services, (2003) *The Micro-Finance Project.* Available on http://www.crs.org.our-work/where_we_are/overseas/africa/ghana/ microfinance.cfm. Accessed on 13/09/05.

Cecchetti, S. G., (1995) "Distinguishing Theories of the Monetary Transmission Mechanism." *Federal Reserve Bank of St. Louis Review* 77, pp.83-97.

Chazan, Naomi, (1983) An Anatomy of Ghanaian Politics: Managing Political Recession 1969-82. Boulder Co: West view Press.

Chigumira, G., (2000) *Financial Liberalisation in Zimbabwe.* Unpublished PhD *Thesis*, Strathclyde University, Glasgow UK.

CHORD, (2000) Inventory *of Ghanaian Micro-Finance Best Practices.* Accra: Report for Ministry of Finance, non-Banking Financial Institutions Project.

Christensen, P. F., (1998) "Performance and Divestment of State-owned Enterprises in Ghana" *Public Administration and Development,* Vol: 18 No: 3 pg: 281-293. London: John Wiley & Sons, Ltd.

CIA (1994) *World Factbook.* [Online] Available on http://www.photius.com/countries/ghana/economy/ghanaeconomy_cocoa.html. [Accessed on 10/05/2005].Cobb, C. W., and Douglas, P. H., (1928) "A Theory of Production," *American Economic Review*, Vol. 18, pp. 139-65.

Cobbina-Asirifi, P. (1999) "The Impact of Financial Sector Reform in the Socio-Economic Development of Post-Independent Ghana". *Periscope* Vol. 2 No.1.

Collins William Sons & Co (2003) *Collins English Dictionary – Complete and Unabridged 6th Edition* London: HarperCollins Publishers.

Databank Group (2004) *African Stock Markets Consolidate Gains*, Accra: Databank Research,

Deaton, A., (2000) The Analysis of Household Surveys: A Micro Econometric Approach to Development Policy. Baltimore: The John Hopkins University Press.

Dehejia, R.H. and Wahba, S., (2002) "Propensity Score Matching Methods for Non- Experimental Causal Studies", *Review of Economics and Statistics*, 84(1), pp.151-161.

Dell'Ariccia, G. and Marquez, R., (2004a) *Lending Booms and Lending Standards*. Mimeo, IMF.

Dell'Ariccia, G., and Marquez, R., (2004b) "Information and Bank Credit Allocation." *Journal of Financial Economics,* 72 (1), 185-214.

Demetriades, P.O. and Hussein, K.A., (1996) "Does Financial Development cause Economic Growth? Time-series Evidence from 16 countries. *Journal of Development Economics* 51(2): pp. 387-411.

Demetriades, P.O. and Luintel, K., (1996) "Financial Development, Economic Growth and banking Sector Controls: Evidence from India". *Economic Journal* 106: pp.359-374.

Demirguc-Kunt, A. and Detriagiache, E., (1998) "Financial Liberalisation and Financial Fragility". *World Bank Working Paper.*

Devereux, M.B. and Smith, G.W., (1994) "International Risk Sharing and Economic Growth". *International Economic Review*, Vol. 35, pp. 535-551.

Diaz-Alejandro, C., (1985) "Good-bye Financial Repression, Hello Financial Crash". *Journal of Development Economics* 19, 1-24.

Dickson, K.B., Benneh, G. and Essah, R., (1988) *A New Geography of Ghana* London: Longman

Domar, E., 1(957) *Essays in the Theory of Economic Growth,* New York: John Wiley & Sons, Inc.

Dordunoo, C., (1994) "The Foreign Exchange Market and the Dutch Auction System in Ghana." *African Economic Research Consortium Research Paper* No.24: Nairobi: AERC.

Edwards, S., (2001) "Capital Mobility and Economic Performance: Are Emerging Economies Different"? *NBER Working Paper* No.8076, Cambridge, MA: National Bureau of Economic Research.

Engel, E., (1857) Die Productions und Consumptions-verhaltnisse des Königsreiche Sachsen Zeitschrift des Statistischen Bureaus des Koniglich Sachsischen Ministeriums des Inneren, No. 8 und 9. Reprinted in the Appendix of Engel (1895).

Essama-Nssah, B., (2006) "Propensity Score matching and policy Impact Analysis" *Poverty Reduction Group* Washington D.C.: The World Bank.

Faruqi, S., (1994) ed. "Financial Sector Reforms, Economic Growth, and Stability: Experiences in Selected Asian and Latin American Countries." *World Bank Economic Development Institute Seminar Series.*

Feder, G. and Feeny, D., (1988) "Land Tenure and Property Rights: Theory and Applications for Development Policy." *The World Bank Economic Review* 5(1) pp 135 - 154.

Ferdous, R., (1997) "Consumer Demand Behaviour in Rural Bangladesh." *The Dhaka University Journal of Science*, 45(1), pp. 109-119.

Findings 110, (1998) *TechnoServe in Ghana.* A study produced under The Action Research Program on Sustainable Micro-finance Institutions in Africa. World Bank Group. [Online] Available on http://www.worldbank.org/afr/findings/english/finf110htm Accessed on 12/09/05.

Fisher, R. A. (1925) *Statistical Methods for Research Workers*. Edinburgh: Oliver & Boy.

Fitch, B. and Oppenheimer, M., (1966) Ghana: End of an Illusion. New York: *Monthly Review* vol. 18.

Friedman, M. and Schwartz, Anna, J., (1963) "Money and Business Cycles." *Review of Economics and Statistics* 45, pp.32-64.

Friedman, M., (1971) *Monetary History of US 1861-1960.* Princeton: Unity Press.

Frölich, M., (2004) "Finite Sample Properties of Propensity Score Matching and Weighting Estimators", *The Review of Economics and Statistics*, 86 (1) pp.77- 90.

Fry, M. J.., (1994) *Money, Interest and Banking in Economic Development* 2nd ed. Baltimore, John Hopkins University Press.

Fry, M. J., (1997) "In Favour of Financial Development". *Economic Journal* 107, pp.754-77.

Galbis, V., (1977) "Financial Intermediation and Economic Growth in Less-Developed Countries: A Theoretical Approach". *Journal of Development Studies;* 13 (2) pp.58-72.

Gertler, M. and Gilchrist S., (1994) "Monetary Policy, Business Cycles, and the Behaviour of Small Manufacturing Firms" *The Quarterly Journal of Economics*, Vol. 109, No. 2, pp. 309-340.

Ghana Government, (2001) Ghana Annual Budget Statement Accra: Ministry of Finance.

Ghana: Country Assistance Evaluation, Report No. 20328, Operations Evaluation Dept., World Bank, Washington D.C

Ghana Government. (2004) "The Security Services" *Report of the National Reconciliation Commission Volume 4 Chapter 1.* Available [Online] http://www.ghana.gov.gh/NRC/Vol%204%20Chpt%201%20com.sec.rep.pdf [Accessed on 03/04/ 2007].

Ghana Micro-finance Institutions Network (GHAMFIN), (2001) *Census of Micro Credit NGOs, Community-Based Organisations and Self-Help Groups in Ghana.* Accra: Woeli Publishers.

Ghana Poverty Reduction Strategy 2003-2005 (2003) *An Agenda for Growth and Prosperity, Analysis and Policy Statement.* Vol. 1. [Online]. Available from: http://poverty.worldbank.org/files/Ghana_prsp.pdf. [Accessed on 5 April 2005].

Ghana Statistical Service (1993a) *Ghana Living Standards Survey Report on the Second Round (GLSS2) December 1988 - November 1989, Accra:* Ghana Statistical Service.

Ghana Statistical Service (1995a) *Ghana Living Standards Survey Report on the Third Round (GLSS3) September 1991 - September 1992, Accra:* Ghana Statistical Service.

Ghana Statistical Service (2000a) *Ghana Living Standards Survey Report on the Fourth Round (GLSS4)* April 1998 - March 1999 Ghana Statistical Service.

Ghana Statistical Service, (1993b) *Ghana Living Standards Survey Round Two (GLSS 2) 1988/89, Accra:* Ghana Statistical Service.

Ghana Statistical Service, (1995b) *Ghana Living Standards Survey Round Three (GLSS 3) 1991/92 Accra:* Ghana Statistical Service.

Ghana Statistical Service, (1995c) *Measuring Informal Service Activity in Ghana,* Accra: (Proceedings of a Ghana Statistical Service/Overseas Development Administration Workshop).

Ghana Statistical Service, (2000b) *Ghana Living Standards Survey Round Four (GLSS 4) 1998/99 Accra:* Ghana Statistical Service.

Ghana Statistical Service, (2001) *National Population and Housing Census Accra:* Ghana Statistical Service.

Ghana Statistical Service, (2008) *National Population and Housing Census Accra:* Ghana Statistical Service.

Ghana Stock Exchange, (2001) *Ghana Stock Exchange Factbook,* Accra: Ghana Stock Exchange Publication.

Ghana Vision 2020 Document, (1998) Accra: Woeli Publications.

Gibson, H. D. and Tsakalotos, E., (1994) "The Scope and Limits of Financial Liberalisation in Developing Countries: A Critical Survey", *Journal of Development Studies,* Vol. 30, No. 3, pp. 578-628.

Gockel, A. F., (1995) *The Role of Finance in Economic Development: The case of Ghana.* Unpublished PhD Thesis. University of Manchester, Manchester, U.K.

Goetz, A.M. and Gupta Sen, R., (1996) "Who Takes Credit? Gender, Power and Control over Loan Use in Rural Credit Programmes in Bangladesh". *World Development,* 24, (1), 45-63.

Goldsmith, R (1969) Financial *Structure and Development. New Haven*: Yale University Press.

Goodhart, C.A.E. (1975) "Monetary Relationships: A View from Thread needle Street'. *Monetary Economics*, Volume I, Reserve Bank of Australia.

Gourieroux, C. and Monfort, A., (1995) *Statistics and Econometric Models*, Cambridge: Cambridge University Press.

Grameen Bank Method of Action, (1996) *Benefits of the Grameen Bank in Bangladesh.*

Green, C. J. and Murinde, V., (1998) "Flows-of-funds and the Macroeconomic Policy Framework for Financial Restructuring in Transition Economies", In J. Doukas, V. Murinde, and C. Wihlborg eds. *Financial Sector Reform and Privatisation in Transition Economies,* Amsterdam: Elsevier Science B.V., pp. 239-277.

Greene, W. H., (2003). *Econometric Analysis.*4th ed. New Jersey: Prentice Hall.

Gregory, P., Mokhtari, M. and Schrettl, M., (1999) "Do Russians Really Save that Much? – Alternate Estimates from the Russian Longitudinal Monitoring Survey". *Review of Economics and Statistics,* 81, 4.

Grosh, M. and Glewwe, P., (1995) "A Guide to Living Standards Measurement Study Surveys and their Data Sets", *LSMS Working Paper* No.120. The World Bank.

Gulli, H., (1998) *Micro-finance and Poverty – Questioning the Conventional Wisdom.* Washington, D.C: Publication by the Microenterprise Unit, Sustainable Development Department. Interamerican Development Bank.

Gupta, R., (2004) A *Generic Model of Financial Repression.* Dissertation, University of Connecticut. [Online] Available on http://ideas.repec.org/zimm/students/gupta1.pdf Accessed on 12/06/2006.

Gurley, J. and Shaw, E.S, (1960) *Money in a Theory of Finance.* Washington D.C: Brookings Institute.

Gyimah-Boadi, E. and Jeffries, R., (2000) "The Political Economy Reforms." In E. Aryeetey, Jane Harrigan & M. Nissanke, eds. Economic *Reforms in Ghana: The Miracle & The Mirage.* Accra: Woeli Publishing Services, pp. 32-50.

Hansen, E. and Collins, P., (1980). "The Army, the State and the Rawlings Revolution". *African Affairs* vol. 79.

Harrigan, Jane and Oduro, Abena D., (2000) "Exchange Rate Policy & Balance of Payments 1972-96." In E. Aryeetey, Jane Harrigan & M. Nissanke, eds. *Economic Reforms in Ghana: The Miracle & The Mirage*. Accra: Woeli Publishing Services, pp.152-167.

Harrigan, Jane, and Younger, S., (2000) "Aid, Debt and Growth". In: E. Aryeetey, J. Harrigan and M. Nissanke, eds., *Economic reforms in Ghana: The Miracle and the Mirage, Oxford: James Currey,* pp185-208.

Harrod, R. F., (1948) *Towards a Dynamic Economics*, London: Routledge Int. Publishing Company.

Heckman, J. J., (1979) "Sample Selection Bias as a Specification Error". *Econometrica* 47, pp. 153-161.

Heckman, J., Ichimura, H. and Todd, P., (1997) "Matching as an Econometric Evaluation Estimator: Evidence from Evaluating a Job Training Program", *Review of Economic Studies*, 64, pp. 605-654.

Heckman, J., Ichimura, H. and Todd, P., (1998). "Matching as an Econometric Evaluation Estimator" *Review of Economic Studies*, 65, pp. 261-294.

Hendriks, S. L and Lyne, M. C., (2003) "Expenditure Patterns and Elasticities of Rural Households Sampled in two Communal Areas of KwaZulu-Natal" *Development Southern Africa,* March 20(1), 105-127.

Hicks, J. R., (1946) *Value and Capital*. 2nd edition, Oxford: Oxford University Press.

Hoff, K. and Stiglitz, J.E., (1997) "Moneylenders and Bankers: Price-Increasing Subsidies in a Monopolistically Competitive Market". *Journal of Development Economics,* 52, pp. 429-462.

Hosmer, D. W. & Lemeshow, S., (1999) *Applied Survival Analysis*. New York: John Wiley & Sons, Inc.

Hossain, M., (1988) "Credit for Alleviation of Rural Poverty: The Grameen Bank in Bangladesh," *Research Report, 65,* IFPRI, Washington, D.C.

Hug, M.M. (1989) *The Economy of Ghana*, Legon: University of Ghana Press.

Hulme, D. and Mosley, P., (1996) *Finance against Poverty: Effective Institutions for Lending to small Farmers and Microenterprises in Developing Countries*, 2 Vols. London: Routledge.

Hutchful, E., (1989) "From 'Revolution' to Monetarism: The Economics and Politics of the Adjustment Programme in Ghana". In B.K. Campbell and J. Loxley, eds. *Structural Adjustment in Africa.* London: Macmillan.

Institute of Statistical, Social and Economic Research (ISSER), (1996) *The State of the Ghanaian Economy in 1995.* Accra: Wilco Publicity Services.

Institute of Statistical, Social and Economic Research (ISSER), (2001) *The State of the Ghanaian Economy in 2000.* Accra: Wilco Publicity Services.

Institute of Statistical, Social and Economic Research (ISSER), (2002) *The State of the Ghanaian Economy in 2001.* Accra: Wilco Publicity Services.

Institute of Statistical, Social and Economic Research (ISSER), (2003) *The State of the Ghanaian Economy in 2002.* Accra: Wilco Publicity Services.

Institute of Statistical, Social and Economic Research (ISSER), (2004) *The State of the Ghanaian Economy in 2003.* Accra: Wilco Publicity Services.

Institute of Statistical, Social and Economic Research (ISSER), (2005) *The State of the Ghanaian Economy in 2004.* Accra: Wilco Publicity Services.

Institute of Statistical, Social and Economic Research (ISSER), (2006) *The State of the Ghanaian Economy in 2005.* Accra: Wilco Publicity Services.

International Monetary Fund, (1958) *International Financial Statistics*. Washington D.C.: IMF Publication Services.

International Monetary Fund, (1968) *International Financial Statistics*. Washington D.C.: IMF Publication Services.

International Monetary Fund, (1972) *International Financial Statistics*. Washington D.C.: IMF Publication Services.

International Monetary Fund, (1980) *International Financial Statistics*. Washington D.C.: IMF Publication Services.

International Monetary Fund, (1987) *International Financial Statistics*. Washington D.C.: IMF Publication Services.

International Monetary Fund, (1995) *International Financial Statistics*. Washington D.C.: IMF Publication Services.

International Monetary Fund, (1996) *International Financial Statistics*. Washington D.C.: IMF Publication Services.

International Monetary Fund, (1998) *International Financial Statistics*. Washington D.C.: IMF Publication Services.

International Monetary Fund, (1999) *International Financial Statistics*. Washington D.C.: IMF Publication Services.

International Monetary Fund, (2000) *International Financial Statistics*. Washington D.C.: IMF Publication Services.

International Monetary Fund, (2002) *World Economic Outlook: Trade and Finance* Washington, D.C.: IMF Publication Services.

International Monetary Fund, (2004) *International Financial Statistics*. Washington D.C.: IMF Publication Services.

International Monetary Fund, (2006) *International Financial Statistics*. Washington D.C.: IMF Publication Services.

Issahaku, Abdul-Nasiru. (2000) "The Political Economy of Economic Reform in Ghana: Implications for Sustainable Development". *Journal for Sustainable Development*. Vol. 2, No.1 pp.13-27.

Jeffries, R., (1989) "Ghana: The Political Economy of Personal Rule". In D.B. Cruise O'Brien, J. Dunn and R. Rathbone eds. *Contemporary West Africa States*. Cambridge: Cambridge University Press.

Jones, C. I., (2002) *Economic growth* 2nd ed. London: W.W. Norton & Company.

Jones, J.H.M., Sakyi-Dawson, O., Harford, N., and Sey, A., (1999) "Improving Financial Services for Renewable Natural Resource Development in Ghana: Establishing Policy

Guidelines for the Informal Financial Sector". *Final Report submitted to Policy Research Programme, NRPAD,* DFID.

Kaminsky, G. Laura and Schmukler, S. L., (2003) "Short-Run Pain, Log-Run Gain: The Effects of Financial Liberalisation". *IMF Working Paper WP/03/34*, Washington, DC: International Monetary Fund.

Kapunda, S.M., (1988) *Consumption Patterns and Tanzania's Economic Development.* Ph.D. Thesis, University of Dar es Salaam.

Keynes, J.M., (1973) *The General Theory and After, Collected Writings*, Vol. XIV, London: Macmillan.

Khalid, M., (2003) *Access to Formal and Quasi-Formal Credit by Smallholder Farmers and Artisanal Fishermen: A Case of Zanzibar.* Dar es Salaam: Mkuki Na Nyota Publishers.

Khan, M.A., (2003) *Banking in India* New Delhi: Anmol Publications.

Khandker, S., (2003) "Micro-finance and Poverty: Evidence using panel data from Bangladesh" *World Bank Policy.* Research Working Paper 2945.

King, R.G and Levine, R. (1993) "Finance, Entrepreneurship and Growth: Theory and Evidence". *Journal of Monetary Economics,* Vol. 32(3) p. 513-542.

Kochar, A., (1997) "An Empirical Investigation of Rationing Constraints in Rural Credit Markets in India", Journal *of Development Economics,* 53, 339-371.

Kyereboah-Coleman, A. and Agyire-Tettey, K. F., (2008) "Impact of Macroeconomic Indicators on Stock Market Performance: The Case of the Ghana Stock Exchange". *The Journal of Risk Finance* Vol. 9(4) pp: 365-378.

Lawrence, P. (2006) "Finance and Development: Why should Causation Matter?" *Journal of International Development,* 18, pp. 997-1016.

Lee, J. Y. and Brown, M., (1986) "Food Expenditures at Home and Away Home in the United States- A Switching Regression Analysis" *The Review of Economics and Statistics,* 68: 142-47.

Levine, R., (1997) "Financial Development and Economic Growth: Views and Agenda". *Journal of Economic Literature* XXXV, 688-726.

Lewis, W.A. (1955) *Theory of Economic Growth*, London, Allen & Irwin.

Ligon, E., Thomas, J and Worrall, T., (2002) "Informal Insurance Arrangements in Village Economies" *Review of Economic Studies*, Volume 69, pp. 209-244.

Liu, J. C. and Xu, L., (1997) "Household, Savings and Investment: The Case of Shanghai", Journal *of Asian Economics,* 8, 1.

Loayza, N., Schimdt-Hebbel, K. and Servén, L., (2000) "What Drives Private Savings across the World"? *Review of Economics and Statistics,* 82, 2.

Lucas, R. E. JR., (1988) "On the Mechanics of Economic Development", *Journal of Monetary Economics,* July 22 (1), 3-42.

Lyons, S.E. and Murinde, V., (1994) "Co integration and Granger-Causality Testing of Hypotheses on Supply-Leading and Demand-Following Finance," *Economic Notes*, Vol.23, No.2, pp. 308-316.

Ma, G., (1993) "Macroeconomic Disequilibrium, Structural Changes and the Household Savings and Money Demand in China", *Journal of Development Economics,* 41,115-136.

MacKinnon, J. and Davidson, R., (2004) *Econometric Theory and Methods.* New York: Oxford University Press.

Maddala, G. S. (1983) *Limited-dependent and Qualitative Variables in Econometrics.* Cambridge: Cambridge University Press.

Maimbo, S. M. and Mavrotas, G., (2001) *Financial Sector Reforms and Savings Mobilisation in Zambia,* Conference Papers, Manchester, April 2001.

Massel, B.F. and Heyer, J. (1969) "Household Expenditure in Nairobi: A Statistical Analysis of Consumer Behaviour". *Economic Development & Cultural Change* 17, (2) pp.212-34.

Martin, P. and Rey, H., (2005) Globalisation and Emerging Markets: With or without Crash. *American Economic Review.* (Forthcoming).

McFadden, D. (1987) "Regression-based Specification Tests for the Multinomial Logit Model", *Journal of Econometrics* 34, 63-82.

McKinnon, I. R., (1973) *Money and Capital in Economic Development.* Washington DC: Brookings Institution.

McKinnon, I. R., (1994) *The Order of Economic Liberalisation: Financial Control in the Transition to a Market Economy*, 2nd Edition. Baltimore: John Hopkins University Press.

Meghana, A., Demirgüç-Kunt, A., Maksimovic, V., (2008) "Formal versus Informal Finance: Evidence from China". *The World Bank Development Research Group Finance and Private Sector Team Policy Research Working Paper 4465.* [Online] Available on: http://www.wds.worldbank.org/servlet/WDSContentServer/ WDSP/IB/2008/Rendered/ PDF/wps4465.pdf Accessed on 28/03/09

Microcredit Summit, (1996) Microcredit Summit, February 2-4, 1997.

Micro-finance Country Information- Ghana. [Online] Available on http://www.gdrc.org/icm/country /africa-ghana.html Accessed on 14/04/09.

Migot-Adholla, S., Hazell, P., Blorel, B. and Place, F., (1990) "Indigenous Land Rights in Sub-Saharan Africa: A Constraint on Productivity". *The World Bank Economic Review,* 5(1). pp. 155 - 175.

Mishkin, F.S., (1977) "What Depressed the Consumer? The Household Balance sheet and the 1973-1975 Recession." *Brookings Papers on Economic Activity* 1 pp. 123-164.

Mishkin, F. S., (2001) "Financial Policies and the Prevention of Financial Crises in Emerging Market Countries". *NBER working paper No. 8087.*

Mishkin, F. S., (2004) *The Economics of Money, Banking, and Financial Markets.* 7th Ed. Boston: Pearson Addison-Wesley.

Modigliani, F. and Brumberg, R. (1954) "Utility Analysis and the Consumption Function: An Interpretation of Cross-Section Data". In: K.K. Kurihara, (ed.): *Post-Keynesian Economics.* New Brunswick, NJ: Rutgers University Press.

Modigliani, F., (1971) "Monetary Policy and Consumption" In *Consumer Spending and Money Policy: The Linkages.* Boston: Federal Reserve Bank, pp. 9-84.

Montiel, P., (2003) *Macroeconomics in Emerging Markets* Cambridge: University Press.

Muellbauer, J., (2002) "Mortgage credit conditions in the UK" *Economic Outlook* Vol: 26 No.: 3 pp. 11-18.

Mundell, Robert A., (1962) "The Appropriate Use of Monetary and Fiscal Policy for Internal and External Stability," *Staff Papers, International Monetary Fund,* Vol. 9 pp. 70–77.

Mundell, Robert A., (1963) "Capital Mobility and Stabilization Policy under Fixed and Flexible Exchange Rates," *Canadian Journal of Economics and Political Science,* Vol. 29 pp. 475–85.

Murinde, V. (1996) "Financial Markets and Endogenous Growth: An Econometric Analysis for Pacific Basin Countries", in: Niels Hermes and Robert Lensink (eds.) Financial Development and Economic Growth, London and New York: Routledge.

Murinde, V., Agung, J and Mullineux, A. W., (2004) "Patterns of Corporate Financing and Financial System Convergence in Europe" *Review of International Economics*, Vol. 12, No. 4, pp. 693-705.

Myung, I. J., (2003) "Tutorial on maximum Likelihood Estimation" *Journal of Mathematical Psychology* 47 pp. 90-100.

Ndanshau, M. O.A. (2000) "An Econometric Analysis of Engel's Curve: The Case of Peasant Households in Northern Tanzania" *UTAFITI (New Series)* Special Issue, Vol. 4, pp. 57-70.

Neary, J. P. (1997) "R.C. Geary's Contributions to Economic Theory" in D. Conniffe (ed.), *R.C. Geary, 1893-1983: Irish Statistician*, Dublin: Oak Tree Press.

Nelson, O. A. (1974) "Foreign African Workers in Ghana". *International Labour Review*, 51, pp. 109-121.

Newlyn, W.T. and Rowan, D.C., (1954) *Money and Banking in British Colonial Africa: A study of the Monetary and Banking Systems of Eight British African Territories.* Oxford: Oxford University Press.

Nissanke, M., and Aryeetey, E., (1996) *Financial Integration and Development: Liberalisation and Reform in sub-Saharan Africa*, London: Routledge.

Nissanke, M., and Aryeetey, E., (1998) *Financial Integration and Development: Financial Gaps under Liberalisation in Four African Countries.* London: Routledge.

Non-Performing Asset Recovery Trust, (1994) *Annual Report and Accounts.* Accra.

Obstfeld, Maurice, (1994) "Risk Taking, Global Diversification and Growth", *American Economic Review,* Vol. 84, pp. 1310-1329.

Obstfeld, Maurice, Shambaugh, J. C., Taylor, A. M., (2004) "The Trilemma in History: Tradeoffs among Exchange Rates, Monetary Policies, and Capital Mobility". *NBER Working Paper* No. 10396.

Obstfeld, O., (1998) "The Global Capital Market: Benefactor or Menace"? *Journal Economic Perspectives,* Vol. 12(4), pp. 9-30.

Ocquaye, M., (1980) *Politics in Ghana: 1972-79* Accra: Tornado Publications.

Odedokun, M.O. (1989) "Causalities between Financial Aggregates and Economic Activities: The Results from Granger's Test", *Savings and Development,* Vol.23, No. 1, pp101-111.

Odoi-Larbi, S., (2008) National Insurance Commission, Ghana *2007 Annual Report.* Legon: Sub-Saharan Publishers.

Okurut, F. N., (2006) "Access to Credit by the Poor in South Africa: Evidence from Household Survey Data 1995 and 2000". *Stellenbosch Economic Working Papers:* 13/06.

Omaboe, E.N., (1966) The Planning Process. In: B. Walter & Neustadt, I., eds. *A Study of Contemporary Ghana,* 1, pp. 446-447.

Ostby, I. and Gulilat, T. (1969) "A Statistical Study of Household Expenditure in Addis Ababa". *Eastern Africa Economic Review* 1.

Ostry, J. D., and Reinhart, C. M., (1992) "Private Saving and Terms of Trade: Shocks Evidence from Developing Countries", *Staff Papers, International Monetary Fund,* Vol. 39, pp. 495-517.

Owusu-Ansah, M., (1999) *Nsoatreman Rural Bank- Ghana: Case of a Micro-finance Scheme.* Washington, DC: World Bank, Africa Studies in Rural and Micro-finance No.6.

Pagano, M., (1993) "Financial Markets and Growth: An Overview", *European Economic Review,* 37 (2-3), p. 613-622.

Pearl, J., (1993) "Mediating Instrumental Variables," UCLA Computer Science Department, *Technical Report R-210.*

Pearl, J., (2000) *Causality: Models, Reasoning, and Inference,* Cambridge: Cambridge University Press.

Plave-Bennett, Valerie, (1975) "Epilogue: Malcontents in Uniform". In D. Austin and R. Luckham eds. *Politician and Soldiers in Ghana.* London: Frank Cass.

Porteous, D., (2003) "The Landscape of Access to Financial Services in South Africa, Labour Markets and Social Frontiers." *South African Reserve Bank,* No. 3 pp.1-6.

Prasad, E., Kenneth, Shang-Jin Wei R., and Ayhan Kose, M., (2003). "Effects of Financial Globalisation on Developing Countries: Some Empirical Evidence", *IMF Board Document,* Washington, DC: International Monetary Fund.

Priya, M. R., (2006) *The Effects of Microfinance Program Participation on Income and Income Inequality: Evidence from Ghana* (First Draft) Washington University in St. Louis.

Quainoo, A. Aba, (1997) *A Strategy Poverty Reduction through Micro-Finance: Experience, Capacities and Prospects.* Accra: Draft Report of a study commissioned by Government of Ghana, UNDP, Africa Development Bank and World Bank.

Quartey, P. and Al-Hassan, S. (2007) "The Inter-relationship between Land Ownership, Access to finance, and Product Markets in Ghana" *Institute of Statistical, Social and Economic Research (ISSER) and USAID Land Policy Reform Project.* Final Report.

Rahman, S., Mallik, G. and Junankar, P. N., (2007) "Microcredit Programs and Consumption Behaviour: Are the Borrowers Better Off? Evidence from Bangladesh." *School of Economics and Finance,* Australia: University of Western Sydney.

Ranciere R., Tornell A. and Westermann, F., (2003) "Crises and Growth: A Re-evaluation". *NBER WP*10073.

Ranciere, R., Tornell, A. and Westerman, F., (2006) "Decomposing the Effects of Financial Liberalisation: Crises and Growth". *Working Paper* No. 74, Institut für Empirische Wirtschaftsforschung.

Rathbone, R. and Gyimah-Boadi, E., (1989) "Populism in Ghana and Burkina Faso". *Current History* Vol. 38 No.538.

Ray, R., (1980) "Analysis of a Time Series of Household Expenditure Surveys for India." *Review of Economics and Statistics,* pp. 595-602.

Rebelo, S., (1991) "Long-run Policy Analysis and Long-Run Growth". *Journal of Political Economy* 99 pp. 500–21.

Registrar-General's Department, (1998) *Annual Report.* Legon: Sub-Saharan Publishers.

Registrar-General's Department, (2000) *Annual Report.* Legon: Sub-Saharan Publishers.

Repetto, R. and Malcolm, G. (1988) *Public Policies and the Misuse of Forest Resources.* World Resources Institute.

Robinson, Joan, (1952) *The Generalisation of the Theory in the Rate of Interest and Other Essays.* London: Macmillan.

Romer, Christina and Romer, D., (1989) "Does Monetary Policy Matter? A New Test in the Spirit of Friedman and Schwartz". NBER Macroeconomics Annual 4, Ed. Stanley Fischer. Cambridge: Mass M.I.T Press.

Rooney, D., (1988) *Kwame Nkrumah: The Political Kingdom in the Third World.* New York; St. Martin's Press.

Rosenbaum, P. R. and Rubin, D. B., (1983) "The Central Role of the Propensity Score in Observational Studies for Causal Effects", *Biometrika* 70 (1) pp. 41-55.

Rosenbaum, P. R., and Rubin, D. B. (1984) "Reducing Bias in Observational Studies using Sub-classification on the Propensity Score". *Journal of the American Statistical Association*, 79, pp.516-524.

Saris, A. and Hadi S., (1991) *Ghana under Structural Adjustment: The Impact on Agriculture and the Rural Poor.* New York: New York University Press.

Sawtelle, B. A., (1993) "Income Elasticities of Household Expenditure: a US Cross-Section Perspective." *Applied Economics*, 25 pp.635-44.

Schatz, S. P. (1987) "Laissez-Faireism for Africa?" *The Journal of Modern African Studies*, Vol. 25, No. 1, pp. 129-138.

Schenk, Catherine R., (2005) "Britain in the World Economy." In: R. Coopey and N. Woodward, eds. *Britain and the Common Market.* London: Blackwell Publishing, pp. 463-481.

Schumpeter, J.A. (1911) *The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interest and the Business Cycle*. Cambridge Mass: Harvard University Press.

Scott, C. and Amenuvegbe, B., (1990) "Effect of Recall Duration on Reporting of Household Expenditures: An Experimental Study in Ghana" *Social Dimensions of Adjustment in Sub-Saharan Africa Working Paper 6* Washington, D.C., World Bank.

Sector Profile of Ghana's Financial Services Industry (2009) [Online] Available on http://investinghana.org/UserFiles/File/sector_profiles/Financial_Services.pdf Accessed 16/04/09

Seifert, B. and Gasser, T. (1996) "Finite-Sample Variance of Local Polynomials: Analysis and Solutions". *Journal of American Statistical Association* 91, pp.267–75.

Seifert, B. and Gasser, T. (2000) "Data Adaptive Ridging in Local Polynomial Regression". *Journal of Computational and Graphical Statistics* 9, pp.338–60.

Shadish, W.R., Cook, T.D. and Campbell, D.T., (2002) *Experimental and Quasi-Experimental Designs for Generalized Causal Inference,* Boston: Houghton Mifflin.

Shaw, E.S., (1973) *Financial Deepening in Economic Activity.* New York: Oxford University Press.

Sianesi, Barbara, (2001) *Implementing Propensity Score matching Estimators with Stata,* UK Stata Users Group, VII Meeting: London.

Sinapi Aba Trust (2006) Homepage [Online] Available on http://www.sinapiaba.com/ Accessed on 12/03/09.

Singh, A. and Singh, H. (1971) "Changing Consumption Pattern in Punjab: Projections of Consumer Demand for 1973-74. *Economic and Political Weekly*, No. 50 pp.2479-85.

Siri, E.R. and Tufano, P., (1998) "Costly Search and Mutual Fund Flows" Journal *of Finance,* 53, pp. 1589–1622.

So, Y. and Kuhfeld, W. F., (1995) "Multinomial logit models". In *SUGI 20 Conference Proceedings,* Cary, NC. SAS Institute, Inc.

Solow, R. M., (1956) "A Contribution to the Theory of Economic Growth" *Quarterly Journal of Economics* 70 (1) pp. 65-94.

Sowa, N. K. and Kwakye, J. K., (1996) "Inflationary Trends and Control in Ghana". *African Economic Research Consortium.* Nairobi.

Sowa, N. K., (2002) "Assessment of Poverty Reducing Policies and Programs in Ghana". A paper presented in a conference on Assessment of Poverty Reduction Policies, organised by INSEA and IDRC under *Micro Impacts of Macroeconomic Adjustment Policies (MIMAP)* Project, January 28-31, 2002, Rabat-Morocco.

Steel, F. W. and Andah, O.D., (2002) *Review of Rural and Micro-Finance Regulation in Ghana: implications for Development and Performance of Industry.* Accra: University Press, Legon.

Stiglitz, J. E., (1994) "The Role of the State in Financial Markets". In M. Bruno, and B. Pleskovic, eds., *Proceedings of the World Bank Conference on Development Economics.* World Bank Washington DC.

Stiglitz, J. E., (2007) "Financial Hypocrisy," *The Economists' Voice*: Vol. 4: Issue. 6, Article 2. [Online] Available at: http://www.bepress.com/ev/vol4/iss6/art2 (Assessed on 26/02/08).

Stiglitz, J.E. (1993) "Peer Monitoring and Credit Markets." *The World bank Economic Review* Vol. A No. 3 pp 351-366.

Stiglitz, J.E. and Weiss, A. (1981) "Credit Rationing in Market with Imperfect Information". *American Economic Review,* Vol. 71 No.3 pp 393-410.

Stiglitz, J.E., and Weiss, A. (1986) Credit Rationing and Collateral. In Edwards et al., eds., *Recent Developments in Corporate Finance* New York: Cambridge University Press.

Strauss. J. (1982) "Determinants of Food Consumption in Rural Sierra Leone" *Journal of Development Economics,* 11, pp. 327-54.

Taylor, L. (1983) *Structuralist Macroeconomics* New York: Basic Books.

TechnoServe, (1998) Homepage [Online] Available on www.technoserve.org:80/work impact/success stories/GhanaBPC.aspx Accessed on 30/01/08.

Thorsten, B., Demirgüç-Kunt, A., and Levine R. (2000) "A New Database on Financial Development and Structure". *World Bank Economic Review* 14, 597-605.

Tobin, J. (1969) "A General Equilibrium Approach to Monetary Theory". *Journal of Money, Credit and Banking* 1 pp. 15-29.

Train, K.E. (2003) *Discrete Choice Methods with Simulation*, Cambridge: University Press.

Turtleboom, B. (1991) "Interest Rate Liberalisation: Some Lessons from Africa". *IMF Working Paper, WP/* 91/121.

Van den Ven and Van den Praag (1981) "The Demand for Deductibles in Private Health Insurance: A Probit Model with Sample Selection". *Journal of Econometrics* 17: 229–252.

Van Wijnbergen, S., (1983) "Credit Policy, Inflation and Growth in a Financially Repressed Economy". *Journal of Development Economics*, 13 (1–2), 45–65.

Ward, W. E. F. (1958) *A History of Ghana*. London: George Allen & Unwin.

Wiegand, N., (1998) *Credit with Education, Strategy for Improving Nutrition Security: Impact Evaluation Results from Ghana.* Report by Freedom from Hunger, Davis. Available at http://www.gdr.org/icm/country/afri-creditghana.html. [Accessed on 13/09/05].Women's World Banking Ghana (2002) Homepage [Online] Available on www.wwbg.com.gh/Index.php Accessed on 14/11/06.

Wood, A., (1988) *Global Trends in Real Exchange Rates, 1960 to 1984*. Washington, DC World Bank Discussion Paper No. 35.

Wooldridge, J. M. (2002) *Econometric Analysis of Cross Section and Panel Data*. Massachusetts: The MIT Press.

Wooldridge, J.M., (2003) *Introductory Econometrics: A Modern Approach.* Mason: Thomson South-Western. World Bank (1979) *World Development Report,* Oxford: Oxford University Press.

World Bank (1983) *World Development Report*, Washington: World Bank and OUP Press

World Bank, (1985) *Ghana: Towards Structural Adjustment*, Report No. 5854-GH. Washington D.C.

World Bank (1989) *World Development Report*, Washington: World Bank and OUP Press.

World Bank (1993) *World Development Report*, Washington: World Bank and OUP Press

World Bank, (1994) *Adjustment in Africa: Reforms, Results and the Road Ahead*, World Bank Policy Research Report, Washington DC: World Bank.

World Bank, (1995) *Ghana: Bringing Savers and Investors Together.* Findings, No. 38, Africa Technical Department, World Bank, Washington.

World Bank, (1995b) *Statistical Appendices*. Washington, DC.

World Bank, (1999) *Africa Development Indicators.* Washington, DC.

World Bank (2000) *Ghana: Country Assistance Evaluation, Report No. 20328.* "Operations Evaluation Dept.", World Bank, Washington D.C.

World Bank, (2000) *World Development Report 2000/2001,* Washington D.C.

World Bank, (2001) *World Development Report 2002,* Washington D.C.

World Bank, (2003) Country Assistance Strategy Paper 2000-2003.

World Bank (2008) *The Little Data Book on Africa*, Washington DC 20433.

Wu, D. M., (1973) "Alternative Tests of Independence between Stochastic Regressors and Disturbances". *Econometrica* 41(4) pp. 733-750.

Yergin, D. and Stanislaw J., (1998) *Commanding Heights.* New York: Simon & Schuster, Inc.

Zartman, I. W. (1997) *Governance as Conflict Management: Politics and Violence in West Africa* Washington: Brookings Institution Press.

Zeller, M. (1994) "Determinants of credit rationing: A study of Informal Lenders and Formal Credit Groups in Madagascar", *World Development* Vol. 22 No. 12 pp.1895-1907.

Zeller, M. and Sharma, M. (1998) "Rural Finance and Poverty Alleviation", *Food Policy Report.* International Food Policy Research Institute, Washington, D.C.

Zellner, A. (1962) "An Efficient Method of Estimating Seemingly Unrelated Regression Equations and Tests for Aggregation Bias". *Journal of the American Statistical Association* 57: pp. 348–368.

Ziorklui, S. Q and Barbie, W., (2003) "Financial Sector Reforms and Financial Savings in SSA". *Savings and Development,* Issue 1.

APPENDICES

APPENDIX 1A: DATA ON EDUCATIONAL QUALIFICATION CLASSIFICATION FOR THE THREE WAVES (GLSS 2, 3 AND 4)

Table 1 below shows the data on the highest educational qualification of individuals for all three Waves. Due to the different educational system which was ran in Ghana during the period of the data collection the data on this variable had to be recoded in order to maintain a consistent variable across the waves.

Table 1: Highest Educational Qualification Classification

	Wave 2				Wave 3					Wave 4				
Education	Code	Freq.	Percent	**Recode**	Education	Code	Freq.	Percent	**Recode**	Education	Code	Freq.	Percent	**Recode**
	1	2	3	**4**	5	6	7	8	**9**	10	11	12	13	**14**
No qual.	1	5,876	70.91	**0**	No qual.	0	7,726	68.58	**0**	No qual.	1	10,480	63.2	**0**
Mslc/Bece	2	1,807	21.81	**1**	Mslc/Bece	1	2,794	24.8	**1**	Mslc/Bece	2	4,547	27.42	**1**
Com/Voc	3	88	1.06	**2**	Com/Voc	2	98	0.87	**2**	Com/Voc	3	171	1.03	**2**
T/T B	4	20	0.24	**3**	T/T A	3	6	0.05	**3**	O' Level	4	387	2.33	**5**
T/T A	5	83	1	**4**	T/T B	4	92	0.82	**4**	SSS	5	345	2.08	**13**
O' Level	6	171	2.06	**5**	O' Level	5	354	3.14	**5**	A' Level	6	129	0.78	**6**
A' Level	7	61	0.74	**6**	A' Level	6	74	0.66	**6**	T/T B	7	17	0.1	**4**
T/P Cert	8	54	0.65	**7**	T/P Cert	7	33	0.29	**7**	T/T A	8	165	1	**3**
T/P Dip	9	20	0.24	**8**	T/P Dip	8	30	0.27	**8**	Nursing	9	22	0.13	**14**
Bachelors	10	14	0.17	**9**	Bachelors	9	28	0.25	**9**	T/P Cert	10	154	0.93	**7**
Masters	11	8	0.1	**10**	Masters	10	8	0.07	**10**	T/P Dip	11	85	0.51	**8**
Doctorate	12	1	0.01	**11**	Doctorate	11	4	0.04	**11**	Bachelors	12	30	0.18	**9**
Others	13	84	1.01	**12**	Others	12	18	0.16	**12**	Masters	13	7	0.04	**10**
										Doctorate	14	1	0.01	**11**
										Others	96	42	0.25	**12**
Total		8,287	100				11,265	100				16,582	100	

Source: Author's derivation from Waves 2, 3 and 4

APPENDIX 1B: OCCUPATION BY INTERNATIONAL STANDARD CLASSIFICATIONS

1 PROFESSIONAL, TECHNICAL AND RELATED WORKERS (CAPITALS)

0-1..... Physical Scientists and Related Technicians.

0-2/0-3. Architects, Engineers and Related Technicians

0-4..... Aircraft and Ship Officers.

0-5..... Life Scientists and Related Technicians.

0-6..... Medical, Dental, Veterinary and Related Workers.

0-7..... Professional Nurses

0-8..... Statisticians, Mathematicians, Systems Analysts and Related Technicians.

0-9..... Economists.

1-1..... Accountants.

1-2..... Jurists (e.g. Lawyers, Judges)

1-3..... Teachers

1-4..... Workers in Religion

1-5..... Authors, Journalists and Related Writers

1-6..... Sculptors, Painters, Photographers and Related Creative Artists.

1-7..... Composers and Performing Artists

1-8..... Athletes, Sportsmen and Related Workers.

1-9..... Professional, Technical and Related Workers Not elsewhere classified.

2 ADMINISTRATIVE AND MANAGERIAL WORKERS.

2-0..... Legislative Officials and Government Administrators.

2-1..... Managers (excluding Farm Mangers)

3 CLERICAL AND RELATED WORKERS.

3-0..... Clerical and Related Workers.

3-1..... Government Executive Officials.

3-2..... Stenographers, Typists and Card/Tape-Punch Machine Operators.

3-3..... Book-keepers, Cashiers and Related Workers.

3-4..... Computing Machine Operators.

3-5..... Transport and Communications Supervisors

3-6..... Transport Conductors

3-7..... Mail Distribution Clerks

3-8..... Telephone and Telegraph Operators

3-9..... Clerical and Related Workers Not Elsewhere Mentioned

4 SALES AND RELATED WORKERS.

4-0..... Managers (Wholesale and Retail Trade)

4-1..... Working Proprietors (Wholesale and Retail Trade)

4-2..... Sales Supervisors and Buyers

4-3..... Technical Salesmen, Commercial Travellers and Manufacturers' Agents.

4-4.....Insurance, Real Estate Securities and Business Services, Salesmen and Auctioneers.

4-5..... Salesmen, Shop Assistants and Related Workers.

4-9..... Sales Workers Not Elsewhere Classified.

5 SERVICE AND RELATED WORKERS.

5-0..... Managers (Catering, Lodging Services)

5-1..... Working Proprietors (Catering and Lodging Services)

5-2..... Housekeeping and Related Service Supervisors

5-3..... Cooks, Waiters, Bartenders and Related Workers

5-4..... Maids and Related Housekeeping Service workers Not Elsewhere Classified.

5-5..... Building Caretakers, Char workers, Cleaners and Related Workers.

5-6..... Launderers, Dry-Cleaners and Pressers

5-7..... Hairdressers, Barbers, Beauticians and Related Workers

5-8..... Protective Service Workers.

5-9..... Service Workers Not Elsewhere Classified.

6 AGRICULTURAL, ANIMAL HUSBANDRY AND FORESTRY WORKERS, FISHERMEN AND HUNTERS.

6-0..... Farm Managers and Supervisors.

6-1..... Farmers

6-2..... Agricultural and Animal Husbandry Workers

6-3..... Forestry Workers

6-4..... Fishermen, Hunters and Related Workers.

7 PRODUCTION AND RELATED WORKERS

7-0..... Production Supervisors and General Foremen.

7-1..... Miners, Quarrymen, Well Drillers and Related Workers.

7-2..... Metal Processors.

7-3..... Wood Preparation Workers and Paper Makers

7-4..... Chemical Processors and Related Workers.

7-5..... Spinners, Weavers Knitters, Dyers and Related Workers.

7-6..... Tanners, Fishmongers and Pelt Dressers.

7-7..... Food and Beverage Processors.

7-8..... Tobacco Preparers and Tobacco Product Markers.

7-9..... Tailors, Dressmakers, Sewers, Upholsterers, and Related Workers.

8-0..... Shoemakers and Leather Goods Makers

8-1..... Cabinetmakers and Related Wood Workers

8-2..... Stone Carvers and Stone Cutters.

8-3..... Blacksmith, Toolmakers, and Machine Tool Operators.

8-4 Machinery, Fitters, Machine Assemblers and Precision Instrument Makers (Except Electrical).

8-5..... Electrical Fitters and Related Electrical and Electronics Workers.

8-6..... Broadcasting Station and Sound-Equipment Operators and Cinema Projectionists.

8-7..... Plumbers, Welders, Sheet-Metal and Structural Metal Preparers and Erectors.

8-8..... Jewellery and Precious Metal Workers.

8-9..... Glass Formers, Potters and Related Workers

9-0..... Rubber and Plastic Product Makers.

9-1..... Paper and Paperboard Product Makers.

9-2..... Printers and Related Workers.

9-3..... Painters

9-4..... Production and Related Workers Not Elsewhere Classified.

9-5..... Bricklayers, Carpenters and Other Construction Workers.

9-6..... Stationery Engine and Related Equipment Workers.

9-7..... Material Handling and Related Equipment Operators, Dockers and Freight Handlers.

9-8..... Transport Equipment Operators.

9-9..... Labourers Not Elsewhere Classified.

NOTE OCCUPATIONS

3-9: Clerical and Related Workers Not Elsewhere Classified

Workers in this minor group perform various clerical and related duties not elsewhere classified. Included are those who record the receipt, storage, weighing and issuing of finished goods or materials; despatch, receive, store issue and weight processes; calculate quantities needed and draw up correspondence; provide information and services to visitors in agencies; code and compile statistical data; operate office machines for reproducing copies of documents; operate addressing machinery; carry out other recording correspondence and filing tasks.

4-9: Sales Workers Not Elsewhere Classified.

Workers in this unit group perform various selling tasks not elsewhere classified. Their functions include: lending money to customers on pledge or bonds; selling refreshments and confectionery at places of entertainment; performing various other selling tasks.

6-4: Fishermen, Hunters and Related Workers Not Elsewhere Classified.

Workers in this unit group perform a variety of fishing hunting and related tasks not classified elsewhere. Their functions include: breeding and raising fish; cultivating oysters, trapping and hunting wild animals; performing related tasks.

7-7: Food and Beverage Processors.

Workers in this category prepare food products and beverages of all kinds for human and animal consumption. The under listed unit groups fall into this category:

Grain Millers and related workers; sugar processors and refiners; butchers and meat preparers; food preservers; dairy product processors; bakers, pastry cooks and confectionery makers; Tea, coffee and cocoa preparers; Brewers, wine and beverage makers.

Food and Beverage Processors Not Elsewhere Classified.

This unit group perform tasks not classified elsewhere in the preparation and processing of food products for human and animal consumption: example, extracting oil from oil-bearing seeds, nuts and fruits.

9-4: Production and Related Workers Not Elsewhere Classified.

Workers in this minor group include craftsmen and specialised workers performing functions requiring application of particular techniques, use of particular tools or machines, abilities and experience in working particular materials in order to make such articles as musical instruments; baskets and brushes; artificial stone and other non-metallic mineral products; dolls, rubber stamps etc.

The group also includes those who prepare and stuff skins of animals and birds to give them life-like forms.

APPENDIX 2 DESCRIPTIVE TABLES FOR THE INCIDENCE OF FORMAL AND INFORMAL CREDIT

Table 1: Incidence of Credit by Source

	Wave 3		Wave 4	
	Frequency	Percent	Frequency	Percent
Informal	1,239	89.65	2,041	88.24
Formal	143	10.35	272	11.76

Table 2: Average Size of Loan by Source in Cedis

	Loan Amount			
	Wave 3		Wave 4	
	Mean	Freq.	Mean	Freq.
Informal	57219.05	1239	38887.63	2041
Formal	136094.12	143	98254.10	272

Table 3: Incidence of Credit by Age Groups

	Wave 3			Wave 4		
	< 45	46-65	>65	< 45	46-65	>65
Informal	841	337	61	1,359	559	123
	67.88	27.2	4.92	66.59	27.39	6.03
	90.43	87.53	91.04	89.82	84.06	91.11
Formal	89	48	6	154	106	12
	62.24	33.57	4.2	56.62	38.97	4.41
	9.57	12.47	8.96	10.18	15.94	8.89

Table 4: Gender Distribution of Credit by Source and Average Credit Received

	Wave 3		Wave 4	
	Male	Female	Male	Female
Informal	684	555	957	1,084
	55.21	44.79	46.89	53
	86.15	94.39	83.44	92.97
	¢61,344.71	¢52,134.45	¢55,269.22	¢24,425.29
	$17.35	$14.75	$15.63	$6.91
Formal	110	33	190	82
	76.92	23.08	69.85	30.15
	13.85	5.61	16.56	7.03
	¢154,229.63	¢75,642.42	¢98,095.82	¢98,620.82
	$43.63	$21.40	$27.75	$27.90

Table 5: Decomposition of Source of Credit by Gender

	State Bank	Private Bank	Co-operative	Government Agency	NGOs	Business Firms	Other Formal	Money Lender	Trader	Farmer	Relative /Friend/ Neighbour	Other Informal
						Wave 3						
Male	56	6	8	10	5	14	11	24	67	8	572	13
	7.05	0.76	1.01	1.26	0.63	1.76	1.39	3.02	8.44	1.01	72.04	1.64
	76.71	100	66.67	76.92	71.43	73.68	84.62	60	28.88	50	61.57	59.09
Female	17	0	4	3	2	5	2	16	165	8	357	9
	2.89	0	0.68	0.51	0.34	0.85	0.34	2.72	28.06	1.36	60.71	1.53
	23.29	0	33.33	23.08	28.57	26.32	15.38	40	71.12	50	38.43	40.91
						Wave 4						
Male	73	26	30	19	5	19	18	70	137	35	699	16
	6.36	2.27	2.62	1.66	0.44	1.66	1.57	6.1	11.94	3.05	60.94	1.39
	74.49	55.32	71.43	82.61	50	73.08	69.23	59.32	26.86	62.5	52.52	61.54
Female	25	21	12	4	5	7	8	48	373	21	632	10
	2.14	1.8	1.03	0.34	0.43	0.6	0.69	4.12	31.99	1.8	54.2	0.86
	25.51	44.68	28.57	17.39	50	26.92	30.77	40.68	73.14	37.5	47.48	38.46

Table 6: Source of Credit by Marital Status

	Wave 3		Wave 4	
	Married	Single	Married	Single
Informal	936	300	1,472	568
	75.73	24.27	72.16	27.84
	88.22	94.34	86.23	93.88
Formal				
	125	18	235	37
	87.41	12.59	86.4	13.6
	11.78	5.66	13.77	6.12

Table 7: Incidence of Credit by Educational Status

	Wave 3				Wave 4			
	None	Basic	Secondary	Post-Secondary	None	Basic	Secondary	Post-Secondary
Informal	745	393	56	45	1,141	724	99	73
	60.13	31.72	4.52	3.63	56.01	35.54	4.86	3.58
	94.07	87.53	73.68	69.23	94.06	88.29	70.21	54.07
Formal	47	56	20	20	72	96	42	62
	32.87	39.16	13.99	13.99	26.47	35.29	15.44	22.79
	5.93	12.47	26.32	30.77	5.94	11.71	29.79	45.93

Table 8: Incidence of Credit by Household Size

	Wave 3			Wave 4		
	Less than 5	Between 5 and 11	Greater than 11	Less than 5	Between 5 and 11	Greater than 11
Informal	778	418	43	1,256	725	60
	62.79	33.74	3.47	61.54	35.52	2.94
	90.78	88.19	84.31	90.42	85.6	77.92
Formal	79	56	8	133	122	17
	55.24	39.16	5.59	48.9	44.85	6.25
	9.22	11.81	15.69	9.58	14.4	22.08

Table 9: Distribution of Credit by Type of Dwelling

	Wave 3			Wave 4		
	House	Rooms	Huts	House	Rooms	Huts
Informal	170	975	89	306	1,554	181
	13.78	79.01	7.21	14.99	76.14	8.87
	83.33	90.95	89.9	83.38	88.8	92.35
Formal	34	97	10	61	196	15
	24.11	68.79	7.09	22.43	72.06	5.51
	16.67	9.05	10.1	16.62	11.2	7.65

Table 10: Occupational Distribution of Access to Source of Credit and Credit Size

	Wave 3					
	Professional	Clerical	Sales	Services	Agriculture	Production
Informal	36	12	156	21	480	132
	4.3	1.43	18.64	2.51	57.35	15.77
	75	60	91.23	91.3	92.31	91.67
	¢39,839.17	¢78,433.33	¢132,419.23	¢51,547.62	¢38,415.98	¢37,365.15
	$11.27	$22.19	$37.46	$14.58	$10.87	$10.57
Formal	12	8	15	2	40	12
	13.48	8.99	16.85	2.25	44.94	13.48
	25	40	8.77	8.7	7.69	8.33
	¢127,500.00	¢91,750.00	¢181,247.27	¢89,000.00	¢140,663.75	¢40,891.67
	$36.07	$25.95	$51.27	$25.18	$39.79	$11.57
	Wave 4					
Informal	138	15	211	54	672	197
	10.72	1.17	16.39	4.2	52.21	15.31
	84.66	55.56	89.03	87.1	91.68	89.14
	¢32,128.35	¢186,461.96	¢60,684.52	¢93,082.84	¢20,971.25	¢34,694.28
	$9.09	$52.75	$17.17	$26.33	$5.93	$9.81
Formal	25	12	26	8	61	24
	16.03	7.69	16.67	5.13	39.1	15.38
	15.34	44.44	10.97	12.9	8.32	10.86
	¢69,423.07	¢120,637.48	¢93,307.56	¢92,529.06	¢66,713.52	¢128,116.67
	$19.64	$34.13	$26.40	$26.18	$18.87	$36.24

Table 11: Distribution of Credit by Location

	Wave 3		Wave 4	
	Rural	Urban	Rural	Urban
Informal	772	467	1,368	673
	62.31	37.69	67.03	32.97
	91.04	87.62	89.12	86.5
Formal	76	66	167	105
	53.52	46.48	61.4	38.6
	8.96	12.38	10.88	13.5

Table 12: Source of Credit by Presence of Guarantee and Average Credit Size

	Wave 3		Wave 4	
	No Guarantee	Guarantee	No Guarantee	Guarantee
Informal	1,167	60	1,963	78
	95.11	4.89	96.18	3.82
	91.96	59.41	90.5	54.17
	¢51,707.14	¢118,156.67	¢38,744.20	¢42,497.30
	$14.63	$33.42	$10.96	$12.02
Formal	102	41	206	66
	71.33	28.67	75.74	24.26
	8.04	40.59	9.5	45.83
	¢105,598.53	¢211,961.20	¢88,509.38	¢128,669.44
	$29.87	$59.96	$25.04	$36.40

Table 13: Decomposition of Source of Credit and Presence of Guarantee

	State Bank	Private Bank	Co-operative	Government Agency	NGOs	Business Firms	Other Formal	Money Lender	Trader	Farmer	Relative /Friend/ Neighbour	Other Informal
	Wave 3											
No Guarantee	52	5	9	9	6	12	9	35	221	15	877	19
	4.1	0.39	0.71	0.71	0.47	0.95	0.71	2.76	17.4	1.18	69.11	1.5
	71.23	83.33	75	69.23	85.71	63.16	69.23	87.5	97.8	100	94.81	90.5
Guarantee	21	1	3	4	1	7	4	5	5	0	48	2
	20.79	0.99	2.97	3.96	0.99	6.93	3.96	4.95	4.95	0	47.52	1.98
	28.77	16.67	25	30.77	14.29	36.84	30.77	12.5	2.21	0	5.19	9.52
	Wave 4											
No Guarantee	66	33	38	18	9	23	19	93	501	48	1,295	26
	3.04	1.52	1.75	0.83	0.41	1.06	0.88	4.29	23.1	2.21	59.7	1.2
	67.35	70.21	90.48	78.26	90	88.46	73.08	78.81	98.2	85.71	97.3	100
Guarantee	32	14	4	5	1	3	7	25	9	8	36	0
	22.22	9.72	2.78	3.47	0.69	2.08	4.86	17.36	6.25	5.56	25	0
	32.65	29.79	9.52	21.74	10	11.54	26.92	21.19	1.76	14.29	2.7	0

Table 14: Source of Credit by Purpose and Average Credit Size

	Wave 3				Wave 4			
	Agriculture	Business	Social[64]	Consumption	Agriculture	Business	Social	Consumption
Informal	115	316	477	328	191	469	631	750
	9.3	25.57	38.59	26.54	9.36	22.98	30.92	36.75
	77.18	91.86	88.83	94.25	75.2	88.16	84.47	96.15
	¢42,067.83	¢121,851.84	¢41,649.58	¢23,266.16	¢37,206.59	¢77,418.00	¢38,859.71	¢15,244.91
	$11.90	$34.47	$11.78	$6.58	$10.53	$21.90	$10.99	$4.31
Formal	34	28	60	20	63	63	116	30
	23.94	19.72	42.25	14.08	23.16	23.16	42.65	11.03
	22.82	8.14	11.17	5.75	24.8	11.84	15.53	3.85
	¢63,789.71	¢134,703.57	¢132,173.48	¢272,025	¢77,586.57	¢153,956.16	¢90,767.00	¢53,633.46
	$18.05	$38.11	$37.39	$76.95	$21.95	$43.55	$25.68	$15.17

[64] These include housing, education, health and ceremonies

Table 15: Source of Credit by Presence of Road

	Wave 3		Wave 4	
	No road	Road	No road	Road
Informal	115	586	194	1,131
	16.41	83.59	14.64	85.36
	95.04	90.43	91.94	88.57
Formal	6	62	17	146
	8.82	91.18	10.43	89.57
	4.96	9.57	8.06	11.43

Table 16: Source of Credit by Presence of Market

	Wave 3		Wave 4	
	No market	Market	No market	Market
Informal	515	186	1,104	221
	73.47	26.53	83.32	16.68
	92.63	87.32	89.32	87.7
Formal	41	27	132	31
	60.29	39.71	80.98	19.02
	7.37	12.68	10.68	12.3

Table 17: Source of Credit by Presence of Bank

	Wave 3		Wave 4	
	No bank	Bank	No bank	Bank
Informal	635	66	1,158	167
	90.58	9.42	87.4	12.6
	92.3	81.48	90.19	81.86
Formal	53	15	126	37
	77.94	22.06	77.3	22.7
	7.7	18.52	9.81	18.14

APPENDIX 3: COMPOSITION OF FOOD AND NON-FOOD ITEMS.

FOOD ITEMS

CODE	ITEM	1ST OBSERVATION	
		KG	PRICE
01	Guinea corn		
02	Maize (shelled)		
03	Millet		
04	Rice (Local)		
05	Rice (Imported)		
06	Sorghum		
07	Wheat bread (White)		
08	Corn dough		
09	Kenkey		
10	Cocoyam		
11	Yam		
12	Plantain		
13	Cassava (fresh)		
14	Gari		
15	Cassava dough		
16	Konkonte (flour)		
17	Cowpeas (small beans)		
18	Bambara beans		
19	Palmnuts		
20	Groundnuts (shelled)		
21	Groundnut oil	1 beer bottle	
22	Palm kernel oil	1 beer bottle	
23	Palm oil	1 beer bottle	
24	Margarine (Blue Band)		
25	Avocado pear		
26	Banana		
27	Orange		
28	Pineapple fresh		
29	Pineapple juice		
30	Cocoyam leaves		
31	Garden eggs		

Food Items Cont'd

CODE	ITEM	1ST OBSERVATION
32	Okro	
33	Onion	
34	Shallots	
35	Pepper (sweet green)	
36	Pepper (dried)	
37	Tomato (fresh)	
38	Tomato (paste) Brand	
39	Fresh beef (with bones)	
40	Goat (fresh)	
41	Fresh mutton	
42	Pork	
43	Bushmeat (smoked) Grass Cutter	
44	Snail (fresh)	
45	Live Chicken (Local)	
46	Live Chicken (Poultry)	
47	Chicken eggs	
48	Evaporated milk (ideal)	0.170
49	White granulated sugar	
50	Salt	
51	Nescafe (Tin)	
52	Nescafe (Sachet)	
53	Bournvita (Tin)	
54	Bournvita (Sachet)	
55	Milo (Tin)	
56	Milo (Sachet)	
57	Chocolate drink	
58	Tea (Lipton)	
59	Herring (Smoked)	
60	Herring (Fresh)	
61	Red fish (Fresh)	
62	Dried fish (Tilapia - Koobi)	
63	Pilchards (Geisha)	
64	Sardine (Titus)	
65	Fanta/Coke/Pepsi	Standard bottle (300ml)

66	Palm wine	1 beer bottle
67	Pito	1 beer bottle
68	Akpeteshie	1 beer bottle
69	Gin (Local)	720ml
70	Jam (Specify)	
71	Honey	1 beer bottle

II. NON - FOOD (PHARMACEUTICAL) ITEMS

CODE	ITEM	DESCRIPTION
72	Aspirin	10 Tablets
73	Paracetamol	10 Tablets
74	Nivaquine/Chloroquine	10 Tablets
75	Vitamin B Complex	10 Tablets
76	Penicillin oral 400,000 units	20 Tablets
77	Terramycin 250mg	20 Capsules
78	Andrews/Starwin liver Salt	1 Packet (10 Sachets)
79	Milk of Magnesia	1 Large bottle

III. NON - FOOD ITEMS

CODE	ITEM	DESCRIPTION
80	Omo	Medium size
81	Guardian Soap	One Tablet
82	Key Soap	One bar
83	Lantern globe/shade	One standard size
84	Light bulb (White)	60 Watts
85	Candle	One stick
86	Dry cell battery (Tiger head)	1.5 volts
87	Matches (Specify brand)	One box
88	Iron coal pot	Medium size
89	Kerosene	One beer bottle
90	Firewood	9kg bundle
91	Charcoal	One maxi bag of std. size
92	Liquified petroleum gas	Medium cylinder
93	Metal bucket	Standard size (34 cms)
94	Plastic bucket	Standard size (32 cms)
95	Hurricane lamp (Medium)	One (Anchor Brand)
96	Fertilizer (N.P.K /15-15-15)	One mini bag

NON-FOOD ITEMS Cont'd

CODE	ITEM	DESCRIPTION
97	Fertilizer Sulphate of Ammonia	One mini bag
98	Mosquito Coil	A packet of 10
99	Toilet Paper (Rose)	One roll
100	Razor blade (Tatra)	Packet of 10
101	Tooth paste	Pepsodent (large)
102	Vim	Large size
103	Cutlass (Crocodile brand)	One Standard size
104	Tobacco leaf	1 kg
105	'555' Cigarette	A packet of 20
106	Embassy Cigarette	A packet of 20
107	Local Real Wax Print (GTP)	6 yards
108	Kente Cloth (men) (Fathia Fata Nkrumah)	Popular brand
109	Kente Cloth (women) (Fathia Fata Nkrumah)	Popular brand
110	Adinkra (cotton)	Medium quality
111	Polyester material	One metre ordinary quality
112	Shirt (long sleeves)	65% synthetic 35% cotton medium quality
113	School uniform (boys) (10 - 12yrs)	Readymade (set)
114	School uniform (girls) (10 - 12yrs)	Readymade (set)
115	Rubber Sandals (Local)	Pair (charlie wote)
116	Vest (cotton) (women)	One medium size
117	Singlet (cotton) (men)	One medium size
118	Bed sheet (cotton) (Single bed)	One
119	Bed sheet (cotton) (double bed)	One
120	Singlet (children)	Cotton
121	Vest (children)	Cotton
122	Handkerchief (women)	One dozen
123	Handkerchief (men)	One dozen