UNIVERSITY OF CAPE COAST

DETERMINANTS OF ACCESS TO CREDIT BY WOMEN RETAIL

TRADERS IN THE MFANTSEMAN MUNICIPALITY OF THE CENTRAL

REGION

RICHARD ACHEAMPONG

2011

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BY

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THESIS SUBMITTED TO THE DEPARTMENT OF ECONOMICS OF THE

FACULTY OF SOCIAL SCIENCES, UNIVERSITY OF CAPE COAST, IN

PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF

MASTER OF PHILOSOPHY DEGREE IN ECONOMICS

JULY 2011

DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of my own original work and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature:………………………… Date ………………………

Name: Richard Acheampong

Supervisors' Declaration

We hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

Principal Supervisor's Signature:………..……………….. Date………………

Name: Prof. Isaac Kwaku Acheampong

Co-Supervisor's Signature:…………..…………………… Date……………….

Name: Mr. Isaac Dasmani

ABSTRACT

The underlying objective of this study was to analyse the determinants of access to credit by women retail traders in the Mfantseman Municipality of the Central Region. The main aim was to provide a better understanding of the individual's socio-economic characteristics and institutional factors, not only because they influence the individual's access to credit but also due to the fact that potential lenders are likely to base their assessment of borrower's creditworthiness on such characteristics and factors.

Data for the study was obtained through a survey using an interview schedule designed to elicit information on variables of interest specified in the empirical model. In all, 196 respondents were selected randomly from the study area. The analysis was conducted using descriptive analysis and logit regression.

The empirical estimation of the logit regression model revealed that junior and senior high school education, interest rate, collateral requirement, length of affiliation with financial institution and savings account significantly influence access to credit. The study suggests that the least "exit point" for female education in the Mfanteman Municipality must be senior high school level. Financial institutions must find innovative ways to minimise default rate in loan repayment in order to bring interest rate down, make strict book-keeping or financial records mandatory for retail traders as collateral substitutes. Women retail traders should build healthy interpersonal relationships with credit officers as a way of building social capital for loan acquisition. Finally, women retail traders should embrace the habit of saving.

ACKNOWLEDGEMENTS

DEDICATION

To my parents, Mr. & Mrs. Acheampong.

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LIST OF ABBREVIATIONS

ADB   Agricultural Development Bank

ADB   Asian Development Bank

BHC   Bank for Housing and Construction

CDF   Cumulative Distribution Function

FINSAP   Financial Sector Adjustment Programme

FMSCs   Farmers Multipurpose Service Cooperatives

FNGOs   Financial Non-Governmental Organisations

GCB   Ghana Commercial Bank

GDP   Gross Domestic Product

GSS   Ghana Statistical Service

ILO   International Labour Organisation

LPM   Linear Probability Model

MFI   Microfinance Institution

MFP   Microfinance Programme

MLE   Maximum Likelihood Estimation

MSEs   Micro and Small-scale Enterprises

NACRDB   Nigerian Agricultural, Cooperative and Rural Development

    Bank

NGO   Non-Governmental Organisation

NIB   National Investment Bank

NPAs   Non-Performing Assets

NSCB   National Savings and Credit Bank

OLS   Ordinary Least Squares

OECD   Organisation for Economic Cooperation and Development

ROSCAs   Rotating Savings and Credit Associations

SCB   Standard Chartered Bank

SMEs   Small and Medium-scale Enterprises

SPSS   Statistical Package for the Social Sciences

SSA   Sub-Saharan Africa

SSB   Social Security Bank

TLU   Total Livestock Unit

UNDP   United Nations Development Programme

VLSS   Vietnam Living Standard Survey

CHAPTER ONE

INTRODUCTION

Background to the Study

Many people have observed that self-employed women are contributing in significant ways to the economic health and competitiveness in countries around the world (Jalbert, 1999b). Self-employment offers tremendous opportunities for women across the world by opening doors to greater self-sufficiency, self-esteem, education, and growth – not only for the women themselves, but also for their families and their employees. Women are changing the face of business ownership internationally; between one-quarter and one-third of the world's businesses are owned by women (Weeks, 1995). As their numbers grow and as their businesses prosper, they will change the way the world does business.

Access to finance is a key issue for self-employed women. Accessing credit, particularly for starting an enterprise, is one of the major constraints faced by women entrepreneurs and is identified as a major barrier to entry into self-employment throughout the world. In fact, according to a study by Clark and Kays (1995), 41 percent of entrepreneurs report that lack of money is the greatest obstacle to starting a business, and 47 percent cite lack of capital as the greatest barrier to business growth. Women setting up microenterprises, Small and Medium-scale Enterprises (SME), or formal large-scale businesses all encounter

varying degrees of difficulty in obtaining capital, collateral, and fair lending terms.

The impact of access to credit on women entrepreneurs have largely been captured through its impact on women's livelihood, which is widely assumed to be positive, and empirically confirmed in studies in countries such as Bangladesh, India, Sir Lanka and Thailand (International Labour Organisation [ILO], 1998). Positive effects of access to credit on women micro entrepreneurs are observable in; (i) Higher income - resulting into better performance in improved health, nutritional and educational status of other household members; (ii) Increasing women's employment in micro enterprises as well as improving the productivity of women's income generating activities; (iii) Enhancement of their self-confidence and status within the family as productive partners capable of improving the income level of their families; (iv) Increased decision making ability, better conflict resolution ability, and rights consciousness. However, where funds raised are not utilised directly by women, but handed over to male member of the family, they nevertheless serve as veritable intermediary between the male productive members of the family and the credit institutions.

Women in particular tend to seek small personal loans because, in general, they tend to start small firms but the banking world has thus far shown little interest in small loans or micro credits, given the relatively high handling costs, with the result that institutionalised banking practices remain, for the most part, rigidly opposed to microcredit concepts (Jalbert, 1999b). Banks, not surprisingly, are inclined toward low-risk ventures. Women were more likely to observe that

they were not given due respect by financial institutions; they did not think their account managers were easy to talk to; they reported that they were not made to feel comfortable by financial institutions; and they perceived that bank employees discriminated against women. Bankers' pessimistic view of women's creditworthiness fosters a reluctance to grant credits.

In South Asia, women are almost invisible to formal financial institutions – they receive less than 10 percent of commercial credits (Mahbub ul Haq human Development Centre, 2000). When women do have access to credit, it is often in small amounts, whether this suits their needs or not. Differential access to credit may of course be a reflection of differences in the choice of sector, educational level or the amount of loan requested (Finnegan & Danielsen, 1997).

In Nepal, Acharya (2001) points out that all formal credit institutions seek tangible collateral for loans, and that women are effectively sidelined from institutional credit since they have little access to inherited property. The study also points out that data on borrowing from formal and informal sources show that institutional sources of credit accounts for only 15.4 percent of women's borrowing whereas non-institutional, from friends and family, accounts for 84.6 percent.

In India, Kaur and Bawa (1992), noted that 54 percent of women entrepreneurs had started their business with their own personal savings and some financial assistance from their spouse, 23 percent received finances from their parents, 13 percent from relatives and friends and only 10 percent from government agency and national banks. Many other studies in South Asia have

substantiated these findings. Dr. Shehla Akram, founder of Women Chamber of Commerce in Lahore has also identified funds as a major issue of women entrepreneurs, quoting from a study which showed that most middle-level women entrepreneurs in Pakistan were financed by their own savings or borrowing from their relatives. The study (Goheer, 2002) shows that the predominant source of start-up capital for women entrepreneurs was reported as personal savings (73 percent), while informal sources were in second position. Only 4 percent of respondents had access to formal sources of credit

Another study by Das (2000) shows that more than 50 percent of the women used their own funds or funds borrowed from their spouse or family to set up their business. Though 43 percent had taken loans from a financial institution, for a significant proportion of them (38 per cent), this was only a small part of their original investment and not the primary source of funds.

By its own nature, retail trading is among the most important informal activities found in large urban centres in Ghana and particularly in the Mfantseman Municipality of the Central Region. The predominant group of people engaged in retail trading in these large urban centres are the economically active women. For the purposes of this study, retail traders are defined as independent entrepreneurs selling items or commodities on a small scale in public spaces. They sell a variety of goods, such as fruit and vegetables, food items, garments, cosmetics and many others. They are usually poor, operate in an uncertain business environment, including the arbitrariness of municipal authorities, and face substantial income fluctuations. These retail traders are often

constrained in terms of their access to a wide variety of financial services. Within the population of retail traders, there are substantial differences. These distinctions influence their varying degrees of access to credit. Retail traders differ in terms of their personal socio-economic characteristics, such as their age, level of education, level of income, size of their business and the types of goods sold. Their access to credit will affect their welfare outcomes by alleviating the capital constraints. In addition, access to credit increases the poor household's risk-bearing ability, improve their risk-coping strategies and enable consumption smoothing over time. (Diagne and Zeller, 2001; Navajas, Schreiner, Meyer, Gonzalez-Vega, & Rodriguez-Meza, 2000).

It is however interesting to note that although it is often self-reliance that motivates women to venture out on their own, they have to rely on themselves and on the securities of others to raise their basic capital requirements.

Statement of the Problem

For most African countries, the financial system was virtually underdeveloped in the period up till independence. After the introduction of money in the colonies principally for the reason of taxation, not much was done to develop the financial system of the colonies. There were only a few expatriate banks, which catered for the needs of the expatriate merchants. These banks failed to advance loans to local peasants and entrepreneurs primarily because they lacked collateral securities. Credit thus circulated only among the big expatriate commercial houses, which could afford to provide 'good' collateral. The

collateral demanded included life assurance policies, stocks, shares, bills and other financial instruments, which could not be found in the portfolio holding of the natives. Thus, after independence, most African governments initiated plans to indigenise their banking sectors so as to make credit easily accessible to the indigenes.

The recognition that there was a need for a more effective financial system in the immediate post-independence era led to an extreme solution under which the entire economy and the financial system was brought under a planned economy. By the early 1980s, the planned financial system had ceased to function because of macroeconomic instability and severe financial repression. The transition and reform period was ushered in by the Financial Sector Adjustment Programme (FINSAP) in 1988. The programme was a far-reaching effort to restructure the banking sector, encourage the growth of nonbank financial institutions and to liberalise markets (Mensah, 1997)

It is however important to note that previous government policies and most of the existing literature on provision of financial services focused on the scarcity of providers of these services (or the supply side), with little attempt to explore the household demand for the services (the demand side). For example, the targeted and highly subsidised government credit schemes of the 1970s and 1980s, which were based on the supply-leading approach, are thought to be among the principal causes of the financial crisis in Africa (Adams, 1994). These government-provided credit schemes have been plagued with a culture of default and the presence of political interest, which limit their efficacy even if, the credit

schemes were otherwise well intended. One of the reasons for the failure or at least poor performance of these forms of credit is that they were not adapted to access for the service by the households. The current study tries to fill this gap in the literature and to provide empirical evidence on the determinants of access to credit by women retail traders in the Mfantseman Municipality of the Central Region.

Objectives of the Study

The main objective of this study was to investigate the factors that affect access to credit by women retail traders in the Mfantseman Municipality. The specific objectives were to;

(a)   Identify the socio-economic characteristics of women retail traders that influence their access to credit.

(b)   Identify the institutional factors that influence women retail traders' access to credit.

(c)   Identify the highest level of education that influences access to credit by women retail traders.

(d)   Find out the main source of funds business start-up for women retail traders.

(e)   Find out the main source of funds for business growth for women retail traders.

Statement of the Hypotheses

The hypotheses of the study are as follows:

1. H_O: Age of the retail trader does not significantly influence her access to credit.

   H_A: Age of the retail trader significantly influences her access to credit.

2. H_O: Marital status of the retail trader does not significantly influence her access to credit

   H_A: Marital status of the retail trader significantly influences her access to credit.

3. H_O: Level of education of the retail trader does not significantly influence her access to credit

   H_A: Level of education of the retail trader significantly influences her access to credit.

4. H_O: Household size of the retail trader does not significantly influence her access to credit

   H_A: Household size of the retail trader significantly influences her access to credit.

5. H_O: Level of income of the retail trader does not significantly influence her access to credit

   H_A: Level of income of the retail trader significantly influences her access to credit.

6. H_O: Household wealth of the retail trader does not significantly influence

her access to credit.

H$_A$: Household wealth of the retail trader significantly influences her access to credit.

7. H$_O$: Interest rate on credit charged by financial institutions does not significantly influence the retail trader's access to credit

H$_A$: Interest rate on credit charged by financial institutions significantly influences the retail trader's access to credit.

8. H$_O$: Collateral requirement by financial institutions does not significantly influence the retail trader's access to credit

H$_A$: Collateral requirement by financial institutions significantly influences the retail trader's access to credit.

9. H$_O$: The length of affiliation of the retail trader with the financial institution does not significantly influence her access to credit

H$_A$: The length of affiliation of the retail trader with the financial institution significantly influences her access to credit.

10. H$_O$: Savings account of the retail trader does not significantly influence her access to credit

H$_A$: Savings account of the retail trader significantly influences her access to credit.

11. H$_O$: There is no highest level of education that significantly influences the retail trader's access to credit.

H$_A$: There is a highest level of education that significantly influences the retail trader's access to credit.

12. H_O: There is no main source of start-up funds for women retail traders.

   H_A: There is a main source of start-up funds for women retail traders.

13. H_O: There is no main source of funds for business growth for women retail traders.

   H_A: There is a main source of funds for business growth for women retail traders.

Significance of the Study

Ghana has a thriving economy with women playing very important roles in the overall development of the economy and women constitute more than half of the Ghanaian populace (Ghana Statistical Service [GSS], 2000).

This study examines determinants of access to credit by women retail traders. The evidence presented adds an extra dimension to the literature and provides a basis with which future studies can be compared. Knowledge of the influence of these variables is of major importance to policymakers in Ghana. Knowledge of the degree to which the identified factors affect access to credit among women retail traders is important for the design of both micro credit and finance policies.

The study is therefore useful to the government in formulating the appropriate policies that will enhance the economic empowerment of women in the central region in particular, and Ghana in general. Policy makers will be better informed in terms of the policy formulation and implementation. It is going to serve as a source of reference for researchers who would want to do further

research in this area. Finally, it will contribute to knowledge and existing literature on access to credit and design of micro credit schemes in Ghana.

Organisation of the Study

The study was organised into five chapters. Chapter One presents the introduction which comprises background to the study, the problem statement, objectives of the study, study hypotheses, significance and the organization of the study. Chapter two presents the review of related literature. Both theoretical and empirical literature were presented. The third chapter consists of the methodology of the study. The analyses of results and findings that emerged from the study are discussed in chapter four. The fifth chapter of this study presents the summary of the study, conclusions drawn from the findings, and recommendations for policy formulation. It also makes suggestions for future studies and acknowledges the limitations of the study.

Concluding Remarks

Chapter one discussed the importance of women in the socio-economic development of a nation. The chapter noted that much as self-employed women are playing significant roles in contributing to the economic health and competitiveness in countries around the world, they are faced with several challenges. Notable among these challenges is access to credit for both business start-ups and business growth. The chapter also noted that self-employment offers tremendous opportunities for women across the world by opening doors to greater

self-sufficiency, self-esteem, education, and growth – not only for the women themselves, but also for their families and their employees. More often than not, credit may be available for women through several schemes but there are bottlenecks and gaps such as illiteracy and lack of collateral.

However, previous government policies focused on the scarcity of providers of these services (or the supply side), with little attempt to explore the demand for the services (the demand side). The study therefore seeks to investigate the individual socio-economic characteristics and institutional factors that influence their access to credit and to find out the main sources of funds for business start-ups and business growth for women retail traders in the study area. The next chapter, chapter two, looks at the related literature review supporting the study.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

Introduction

This chapter reviews the related literature of the study. It is divided into three sections. The first section presents the theoretical framework of the study. It also reviews the structure of financial markets in developing countries and looks at the characteristics of credit markets in Africa. The second section throws light on the evolution of the financial and credit systems in Ghana. This section also describes efforts made by successive governments to make credit available to the various sectors of the Ghanaian economy. Again, it examines access to credit as a tool for economic growth and development and the barriers to accessing credit. In the third section, empirical works by various researchers on the determinants of access to credit have been reviewed extensively.

Theoretical Framework

Like any other service/product, the demand for financial services is likely to be affected by their own price. In the case of financial services, the price for savings/credit is the interest rate offered/charged. In particular, in the analysis of access to credit, holding other factors constant, the higher the interest rate charged, the more constrained access to credit would be. This is a plausible

assumption because at high interest rates, the returns from an activity must be high enough to enable the investor retain profit after paying the loan plus the interest. In addition to the interest, there are other charges such as commitment fee that may be imposed on the loan recipient (Mpuga, 2004).

Availability of the financial institution can be an important determinant of the demand for financial services. Following the supply-leading hypothesis of financial services and popular Say's law; Supply creates its own demand, availability of given financial institutions may stir up demand for their services - credit and savings. Distance to the financial institution would be another credible candidate for the supply-side factors in the estimate of demand for financial services. However, the data did not capture the impact of distance on access to credit in the study area covered because of the proximity of the financial institutions. Therefore, in the analysis of the determinants of an individual's access to credit, the starting point is the theory of consumer behaviour.

In this study, access to credit is defined as the probability that a trader ever borrowed funds from a formal or informal financial institution (or source) for the start-up and/or for the growth of her business (before the survey). The extent of access to credit is measured by the maximum amount an individual can borrow (its credit limit). If this amount is positive, the individual is said to have access. Total utility function can therefore be expressed as:

$$U = U(X_1, X_2... X_n) \qquad (1)$$

Where; U represents the total individual/household utility, which is assumed to be a function of goods and services consumed, X_i represent individual/household

access to consumer and durable goods, i = 1, 2,... n. If P_1, P_2,... P_n represent the prices of goods and assuming household income is equal to its expenditure, then its total income can be represented as:

$$Y = P_1X_1 + P_2X_2 + ... + P_nX_n \qquad (2)$$

To the extent that financial services, for example, credit, result in increased access to goods and services, access to credit is thought to ease the budget constraint. By using credit, an individual/household is able to purchase more consumption goods because of the additional resources that are made available either for immediate consumption, or for investment and therefore increased consumption at a future date.

If we let F_i represent access to credit by an individual, such that $F_1 = F_1(C)$, and let r represent the price of credit (e.g. interest and other charges), then $FD_i = rF_i$ represents access to credit, subject to individual/household characteristics. The access to credit function can be stated thus;

$$FD_i = f(Y, H, V, Q.) \qquad (3)$$

Where FD_i is the access to credit function, Y is household income; H is a vector representing individual characteristics including sex, age, level of education, marital status and the number of household members; V represents the availability of the financial institutions in the locality and Q is a set of dummies representing the main economic sector in which the individual is engaged. Other factors such as experience with previous credit, and the attributes of the financial service provider may be important factors determining an individual/household's decision to make use of the service. Therefore, access to credit will depend on the

individual/household's wealth, its characteristics; age, education, sex, purpose of service and the charges associated with the provider - interest rate. The model of access to credit to be estimated is derived in the subsequent sections.

Structure of Financial Markets in Developing Countries

Financial services are useful as intermediate inputs in processes of market enlargement and integration and as tools in intertemporal resource allocations and the management of risk. They also aid in the accumulation of human and physical capital and in other ways by upgrading productive opportunities (Gonzalez-Vega, 1993; Shaw, 1973). Financial services are particularly important for the integration into markets of those households and firms that have been previously excluded from participation, including those individuals engaged in retail trading and other activities in the urban informal sector of developing countries.

Financial Markets in developing countries are characterised by fragmentations and imperfect market conditions. Ghate (1992) categorises the market into two forms: *formal and informal* financial markets. Ghate defines formal financial markets as those financial market activities that are controlled by government, which are largely urban-oriented in terms of distribution of bank branches and the concentration of deposits and lending activities. Informal financial markets are defined as activities of various financial intermediaries ranging from money-lenders, friends, relatives, and Rotating Savings and Credit Associations (ROSCAs). Quasi–formal financial intermediaries therefore fall

between these two continuums and could include credit unions and various forms of credit schemes run by government or non-governmental organisations.

The formal and informal financial systems co-exist and operate side by side with one another (Kessler, Marigue, & Ullmo, 1985). The reality of operations of the two forms of market, however, is more complex and the dividing line is not so clear-cut (Chandavarkar, 1987). Zeller (1994) observes that each segment of the financial market provides credit services that differ from each other with respect to target group, loan duration, amount of loan, its use, interest rates and transaction costs.

Formal institutions are more inclined to provide their services to the public sector, upper-income households, large-scale enterprises and non-agricultural activities, while the informal financial institutions tend to match their products and services to the characteristics and demand of the predominantly private, low-income, small-scale and rural population of most developing countries (Germidis, Kessler & Meghir, 1991). The coexistence of informal finance serving the latter market can be seen as "healthy and dynamic, permitting more people to participate in financial markets" (Von Pischke, 1991).

Literature views the informal sector as the consequence of policy distortions and emphasised the negative consequences of financial dualism for allocative efficiency, equity and economic development (Roe 1990; Taylor, 1983). However, recent developments have seen the informal financial institutions to have a comparative advantage in some market segments due to its ability to enhance efficiency in resource allocation by mobilising household

savings and financing small business activities that are beyond the reach of the formal system (Adams 1992; Ghate 1988).

Von Pischke et al. (1983) recognised that resource-poor people may remain trapped in poverty by a lack of finance needed to undertake productive investments. The provision of credit to poor households has been widely perceived as an effective strategy to help alleviate poverty (Sharma, 2000). Increased access to financial services, especially credit, can relax the liquidity constraints that impoverished households face, improve households' risk bearing ability and productivity, equip them with new skills and create jobs, and encourage activities that generate dynamic economic growth. It also helps households cope with ex-post risks of negative income shocks and to smooth income and consumption flows (Asian Development Bank [ADB], 2002; Parker & Nagarajan, 2001; Rosenzweig, 2001; Khandker, 2003). Expanded access to credit has therefore been enthusiastically canvassed in the development community for its ability and potential to generate sustainable economic growth that favours the poor (Coleman, 2002; Murdoch & Haley, 2002; Robinson, 2001).

A common notion is that credit market imperfections, especially credit constraints, may severely limit the investment and operations of household economic activities. Such imperfections can limit the size and growth, profits, activations and liquidations, and possibly the scope of operations of household firms (Monge-Naranjo & Hall, 2002). Credit constraints have a number of serious consequences for production and consumption in the short run and for asset accumulation, poverty reduction and the evolution of well-being in the long run.

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Credit constraints also, inter alia: (i) Reduce households' capacity in the face of income shocks to smooth consumption (Zeldes, 1989); (ii) Can obviate households' investment in the education and health of their members (Behrman, Pollack, & Taubman, 1982; Foster, 1995); (iii) May have strong implications for the likelihood that households fall into or overcome poverty traps (Carter & Barrett, 2006; Zimmerman & Carter, 2003); and (iv) Affect the level and distribution of income in the overall economy (Aghion & Bolton, 1997; Banerjee & Newman, 1993).

Two distinct stages are involved in the credit process (Zeller, 1994). In the first stage, which constitutes the demand side of the bargain, the household which wants credit decides on the sum to apply for from a particular source at the prevailing market interest rate. In the second stage, the lender makes a financing decision on the loan application, and this constitutes the supply side of the bargain. The lender undertakes the screening of the potential client based on observable characteristics in order to try and minimise default risk; hence, the results of this screening process influence the lender's response to the client's credit demand. Three outcomes are possible: Firstly, the loan amount demanded by the client may be fully granted by the lender. Secondly, the loan amount demanded by the client may be partially granted by the lender and thirdly, the loan application may be completely rejected by the lender. The last two scenarios represent credit constraint, that is, the state in which the borrower is constrained in his/her access to credit markets or his/her credit rationed by the lender (Zeller, 1994).

Market imperfections, institutional and household-related factors may constrain access by households to credit markets. Stiglitz and Weiss (1981) argue that market imperfections and information asymmetry problems create disequilibrium in the form of credit rationing. In market equilibrium, credit supply equilibrates with credit demand: if demand should exceed supply, interest rate will rise, thereby decreasing the quantity demanded, or increasing supply until demand is equated at the new equilibrium price. Therefore, if interest rates are flexible, credit rationing is not possible. Changing the price of the loans (interest rate) will not equilibrate the demand and supply of loans, thus lenders may restrict the amount of credit extended to borrowers at the prevailing interest rate in order to try and minimise loan default risk.

Loan default risk may be influenced by factors such as the expected returns of the project, the terms of the loan (interest rate and loan period), market imperfections and borrowers' characteristics. According to Kochar (1997), the expected returns on the proposed project have a significant influence on the lenders' decision to ration credit or not. If the expected returns of the project are less than the principal loan amount plus accrued interest, the probability of default will be high. The optimal decision would then be to ration the client's credit. The borrower's debt servicing capacity based on the lenders assessment also affects the likelihood of the borrower's credit being rationed (Zeller, 1994), that is, the lower the capacity, the greater the possibility of the credit being rationed. The strength of the previous business relationship between the client and the lending institution, in addition to the client's reputation in the credit market, is

also a determinant of the lender's credit-rationing behaviour (Aleem, 1990; Bell, 1990; Siamwalla, Pinthong, Poapongsakorn, Satsanguan, Nettayarak, Mingmaneenakin, & Tubpun, 1990). According to Hoff and Stiglitz (1990), this relationship-specific social capital built between the lender and the borrower is used as a non-price-related mechanism for credit rationing. This implies that the stronger and more long-standing the relationship, the lower the probability of the borrower's credit being rationed.

Other socio-economic variables such as the borrower's gender, age, household wealth and/or asset values (Zeller, 1994), educational level and access to network information (Vaessen, 2001) can influence the probability of a borrower's credit being rationed. Men may be perceived by lenders as more credit-worthy than women because they generally control household resources. Household wealth and/or asset values are important as collateral and male control of these can reduce the probability of credit rationing. Educational attainment enhances human capital in the form of skills, which is associated with effective utilisation of credit and minimisation of default risk. Access to network information enables the screening of potential clients and reduces default risk, as only those with good reputations are likely to be recommended for credit (Okurut & Schoombee, 2007).

Once a household decides to utilise a particular source of loan, the next question will be the determination of rate of interest (Ho, 2004). The dominance of plurality of interest rates in the informal credit markets was confusing (Gill, 2003). In the same area, on superficially similar loan transactions, rates of interest

could take a wide range of values (Udry, 1991; Ghate, 1992; Banerjee, 2003), but were often towards the higher side (Gill, 2003). Traditionally, high rates of interest were explained in terms of risk of default (Bottomley, 1975).

In rural settings of Pakistan, the standard deviation of interest rate charged by moneylenders was 40 percent per annum (Aleem, 1990). Evidence from India showed that informal interest rate varied from 20 percent to 120 percent (Timberg & Aiyar, 1984). Dasgupta (1989) reports that there is high discrepancy in the interest rates charged by moneylenders, with extensive number of loans at rates higher than 60 percent, while many others were at rates below 30 percent. Diagne, Zeller and Sharma (1998 and 2001) note that households and farmers would borrow more if additional credit were available at given interest rates. Access to credit was highly price sensitive at higher-than-normal rates of interest. It was also observed that loan size was far more responsive to changes in loan maturity than to changes in interest rate. The pattern was more pronounced among lower income individuals, consistent with liquidity constraints that decreased with income (Karlan & Zinman, 2005). Along with increase in rate of interest, the poor's demand for finance increased with increase in lending each year. However, the loan portfolio of financial institutions was shifted towards comparatively wealthier customers as compared to the composition of the portfolio that was without an interest rate change. The results on one hand support those who argue that raising rates can improve the financial permanence of microfinance organisations. On the other side, results also support those who argue that the poor, and particularly the poorest, do consider prices and reduce

loan demand accordingly (Rajeeve, Montgomery & Morduch, 2005). Consumers face a rising interest rate schedule whereby additional borrowing leads to higher interest rates. At a certain level of debt, the schedule may become vertical and consumers face a credit ceiling (Scott, 1996). Sometimes rate of interest was charged in terms to under-price the collateral (Bhaduri, 1977; Basu, 1984). Being able to provide marketable collateral was shown to have a negative association with high interest rates (Sarap, 1991; Swaminathan, 1991; Ho, 2004).

As already indicated, many of the studies and literature on access to financial services in developing countries touch upon the issue of credit rationing in the formal financial market (Kochar, 1997; Atieno, 1997) and hence conduct a combined analysis of access to formal and informal loans (Pal, 2002; Barslund & Tarp 2008). An important insight of these studies is that credit rationing is not the only determinant of access to formal vs. informal credit, but that there are distinct explanatory factors at work. Some of them further emphasise the differing effect of certain variables on access to either formal or informal loans in accordance with the distinctive underlying motivation to use a loan for either investment purposes or for consumption smoothing, the latter being more commonly the case for informal loans.

Barslund and Tarp (2008) find countervailing impacts of education, number of dependants, assets, credit history, and secure land rights on access to formal and informal loans, but most of the mentioned variables (except for assets) have a statistically significant effect only on either formal or informal credit access. Other variables, such as connections to credit institutions, exhibit a

positive significant impact on access to credit for both formal and informal loans. The authors' analysis suggests that access to formal loans is largely driven by factors such as land holdings, and hence geared towards production purposes and asset management, while informal credit access is negatively associated with factors such as age and education and positively associated with a bad credit history and the number of dependants, indicating a household's tendency to use informal loans for consumption smoothing rather than investment. Pal (2002) shows that more land holdings and less labour income significantly increase the probability of formal loan use, but this (or the opposite) relationship does not hold in the case of informal loans.

Other authors identify seasonal fluctuations in income (Pitt & Khandker 2002), gender and education level of the household head, training, prevalence of an outstanding loan (Jabbar, Ehui, & von Kaufmann, 2002), family size, primary economic activity of the household head, interest rate, price of output, and area of operational holdings (Swain 2007) as additional determinants of access to formal credit. Zeller and Sharma (2002) point out that borrowing during adverse times is an integral part of the livelihood system of households in developing countries. This indicates that the experiencing of shocks should have an effect on access to loans, which is confirmed by Nguyen, Wampfler, Benoit‑Cattin, and Savadogo, (2002). They find that many borrowers do not take loans to start a new economic activity, but rather to supplement inadequate operating capital for their already running business or to restart an activity after a break which could have resulted from a shock.

By the end of the 20th century, the phrase "micro credit" was well recognised in many developing as well as developed countries. Micro credit is the most sensational anti-poverty tool for the poorest, especially for women (Micro-credit Summit, 1997). The formal institutions failed to provide credit to needy poor due to lack of collateral. Due to limited access of the poor to institutional credit, the impact of credit on small farmers has been much below the expectations of policy makers (Qureshi, 1996). The lack of credit opportunities keep the poor in a vicious circle of poverty. The availability of microfinance seems imperative because financial markets are prone to neglect the needs of the rural poor, simply due to the existing criteria of financial worthiness requiring contacts, collateral and accessibility (Kashf foundation, 1996). Microfinance institutions attempted to overcome these barriers through innovative measures such as group lending and regular savings schemes, as well as the establishment of close links between poor clients and staff of the institutions concerned (Montgomery, 2005).

During the 1990s, micro credit sector remained busy by providing borrowing opportunities to households constrained by the formal financial institutions (Black & Morgan 1999; Yellen, 1996). At the same time, other financial developments lowered the costs of providing credit and encouraged lenders to take on more borrowers that were marginalised and offer more credit. However the proportion of households that were constrained did not change over time (Fissel & Jappelli, 1990; Zeldes, 1989). Atieno, (2001) and Fredrick and Bokosi (2004) contradict the above situation and argue that credit was accessible

at market-determined interest rates. Sustainable financial institutions offer credit not only for agricultural production, but also for consumption smoothing and income diversification. The informal credit sources provide easier access to their credit facilities for small and micro enterprises and households. However, every potential borrower faced a credit limit because of asymmetries of information between borrowers and lenders and the imperfect enforcement of loan contracts. Access to bank credit is positively and significantly influenced by age, being male, household size, education level, household per capita expenditure and race (Kavanamur, 1994; Okurut, 2004, 2006; Diagne & Zeller, 2000, 2001). The ability to borrow will also alleviate the need for accumulation of assets that mainly serve as precautionary savings, yielding poor or negative returns (Deaton, 1991).

Characteristics of Credit Markets in Africa

Credit markets in Africa have mainly been characterised by their inability to satisfy the existing demand for credit in rural areas. However, whereas for the informal sector the main reason for this inability is the small size of the resources it controls, for the formal sector it is not an inadequate lending base that is the reason (Aryeetey, 1996b). Rather, the reasons are difficulties in loan administration like screening and monitoring, high transaction costs, and the risk of default. Credit markets are characterised by information asymmetry, agency problems and poor contract enforcement mechanisms (Nissanke & Aryeetey, 1995). They are mainly fragmented because different segments serve clients with

distinct characteristics. Because of this, lending units are unable to meet the needs of borrowers interested in certain types of credit. The result is a credit gap that captures those borrowers who cannot get what they want from the informal market, yet they cannot gain access to the formal sources. Enterprises that want to expand beyond the limits of self-finance but lack access to bank credit demand external finance, which the informal sector is unable to satisfy.

Two main theoretical paradigms have been advanced to explain the existence of this fragmentation: the policy-based explanation and the structural-institutional explanations (Aryeetey, Hettige, Nissanke & Steel, 1997). According to the policy-based explanation, fragmented credit markets (in which favoured borrowers obtain funds at subsidised interest rates, while others seek funds from expensive informal markets) develop due to repressive policies that raise the demand for funds. Unsatisfied demand for investible funds forces credit rationing using non interest rate criteria, while an informal market develops at uncontrolled interest rates. Removing these restrictive policies should therefore enable the formal sector to expand and thereby eliminate the need for informal finance.

According to the structural-institutional explanations, imperfect information on creditworthiness, as well as cost of screening, monitoring and contract enforcement among lenders, results in market failure due to adverse selection and moral hazard, which undermines the operation of financial markets. As a result, lenders may resort to credit rationing in the face of excess demand, thus establishing equilibrium even in the absence of interest rate ceilings and direct allocations. Market segmentation then results. Market segments that are

avoided by the formal institutions due to institutional and structural factors are served by informal agents who use personal relationships, social sanctions and collateral substitutes to ensure repayment. An extended view of this explanation is that structural barriers result in monopoly power, which perpetuates segmentation.

Another view has attempted to explain the existence of informal finance as simply residual finance, satisfying only the excess demand by those excluded from formal finance. According to this view, informal sector finance develops in response to the formal sector controls. Structural and institutional barriers across segments perpetuate segmentation by providing opportunity for monopoly power. A further explanation is that fragmentation exists due to inherent operational characteristics of the markets. Looking at the role of informal financial sectors in Ghana, Aryeetey and Gockel (1991), attempted to investigate factors that motivate the private sector to conduct financial transactions in the informal financial sectors. They argue that the informal sector derives its dynamism from developments in the formal sector as well as from its own internal characteristics. The informal and formal sectors offer similar products that are not entirely homogeneous, implying that both sectors cater to the needs of easily identifiable groups of individuals and businesses, but at the same time serve sections of the total demand for financial services. However, participants from either sector may cross to the other depending on factors like institutional barriers, availability of credit facilities and the ease of physical access. Aryeetey and Gockel (1991) examine some of the factors that influence demand for formal savings and lending facilities in Ghana and observe that incomes, bank formalities and banks'

preference for large transactions were the major ones. Travel costs and time are among other factors that determine transaction costs to the entrepreneurs.

Besley (1994) has classified major features of rural credit markets that can be used to explain the existence of formal and informal credit markets in Africa. Among these are the existence of collateral security and covariant risk. Collateral security is often beyond the reach of many borrowers in rural areas. But even where this is not the case, the ability of the lender to foreclose is often limited, making enforcement of loan repayment difficult. Such difficulties help to explain the use of informal financial markets, which use social sanctions to ensure enforcement. In rural areas, shocks in incomes that create borrowers' potential to default will affect the operation of credit markets. In most rural economies, borrowers are faced with risks arising from uncertainties about their incomes. By diversifying their loan portfolios, lenders can avert such risks. However, credit markets in rural areas are segmented, with lenders' loan portfolios being concentrated on borrowers facing common shocks to their incomes.

An important cost of segmentation is that funds fail to flow across groups of individuals despite the benefits of doing so. According to Besley (1994), this kind of segmentation may also be reinforced by government regulations. In incomplete markets, rural households could use partially functioning credit markets to provide insurance against income shocks mainly by trading insurance. However, due to incomplete information about the nature of the risk faced by each individual, and possible changes in the private behaviour of other

individuals, insurance arrangements are only partial (Aryeetey, 1996b) or are totally absent (Aryeetey & Udry, 1997).

Another important factor for the existence of both formal and informal markets relates to penalties. In the absence of formal contract enforcement mechanisms, both formal and informal institutions rely on lending practices that emphasise loan screening rather than monitoring, which appears to suggest more concern with adverse selection than moral hazard. Differences emerge in the methods used by formal and informal institutions. Whereas formal lenders rely more on project screening, informal lenders rely more on the character and history of the borrower, particularly on personal knowledge of the borrower. Loan monitoring is rarely done by informal lenders due to the lenders' knowledge of borrowers, while in the formal market it is mainly due to lack of facilities. Transaction costs are generally lower in informal markets than in formal ones. One of the issues that emerges from this market structure is which financial institutions are accessible to the rural poor, and which factors determine their access to credit from the different sources as determined by their participation decisions.

The Evolution of the Financial and Credit Systems in Ghana

The financial system as it evolved in Ghana after independence was based on some perceived notion of credit scarcity to indigenous enterprises as a result of the colonial banking arrangements. Primarily, the allegations of the indigenous population against the British Bank for West Africa and Barclays Bank suggested that they tended to act in concert regarding loan conditions and bank charges

within a framework of a discriminatory credit policy. In a pioneering study on banking conditions in the Gold Coast and the question of setting up a "National Bank", Trevor (1951) noted that the indigenous feeling was that the banks favoured the European, Levantine and Asian communities to the detriment of the indigenous Africans. He further noted that African dissatisfaction with the existing Gold Coast banking structure was pervasive, permeating all strands of society. Consequently, the local entrepreneurs considered that a national bank should be formed to provide a useful nucleus and training ground for the development of an indigenous banking system to meet the growing needs of the country and to encourage banking habit among the population "in addition to providing a banking system that would be sympathetic to local financial needs at a reasonable rate of interest" (Trevor, 1951).

In another study, Newlyn and Rowan (1954) also argued that although start up and long-term credit were what most African entrepreneurs required, the banks were not prepared to provide venture capital or long-term lending. This, they noted, was in spite of the fact that the liability structure of the banks was such that the banks could conveniently engaged in medium-term lending, if they wanted to.

A different source of criticism against the pre-independence banking practices was the export of funds from the Gold Coast. It was questioned why an underdeveloped economy like the Gold Coast which needed its entire savings and more from outside for economic development, should become an exporter of credit (Fry, 1976).

Writing on the same theme, Lewis (1952) contended that while the sterling balances of the United Kingdom (UK) had been falling since the second World War, the Colonies had consistently invested more money every year in the U.K., albeit these territories needed resources for economic development. More interestingly, the Gold Coast Government had to borrow from the U.K. at relatively high rates of interest investable resources which had originated in the Gold Coast and had been transferred to the United Kingdom. For example, by 1951, the Public Debt of the Gold Coast Government amounted to, £ 8.41 million, "all of which was raised in London" (Trevor, 1951).

As a result of the perceived weaknesses of the then banking superstructure and subsequent recommendations of the Trevor Report, the Bank of the Gold Coast was established in 1952 to provide finance both on long term and short-term basis at very low rates of interest for Government development projects and for African farmers, traders, and industrialists against such security as land or otherwise, as they were in a position to offer (Trevor, 1951). Then in 1957 on the eve of independence, the Bank of the Gold Coast was split into two, namely Bank of Ghana (as the central bank with full panoply of executive powers) and Ghana Commercial Bank. The Ghana Commercial Bank was established to offset the dominance of the banking system by the expatriate banks; Standard Chartered Bank and Barclays Bank, and to ensure adequate supply of credit to the deprived or marginalised but productive sectors of the economy. To give it a competitive edge over the expatriate banks, Ghana Commercial Bank (GCB) was given legal

authority to be the sole bank to handle government business in areas where Bank of Ghana was not in a position to do so.

In its operations, however, GCB tended to favour the large indigenous enterprises, and was unable to reach what in the literature are the Micro and Small-scale Enterprises (MSEs). From then, post independence financial development in Ghana concentrated on institution building to provide credit to various designated sectors considered as deprived sectors. Thus the National Investment Bank (NIB) was established in 1963 to provide long-term credit facilities for manufacturing and agro-based industries; the Bank for Housing and Construction (BHC) was established in 1974 to cater for the credit needs of private housing schemes, expansion and modernisation of immovable property estates as well as industrial construction; and in 1976, the Agricultural Development Bank was established to provide finance for the development of agricultural and allied industries.

Next was what Bank of Ghana calls "Secondary Commercial Banks". They included the Social Security Bank (SSB), the National Savings and Credit Bank (NSCB) and the Co-operative Bank. An intriguing feature of these banks was that though commercial banks, they were apparently established to meet certain exigencies of the credit lacuna. Thus, the SSB and NSCB emphasised consumer credit facilities and finance for small-scale projects whilst the Co-operative Bank caters for cooperative ventures. In terms of corporate banking, the Merchant Bank was established in 1972 to provide management and corporate

financial services, underwriting the floating of stocks and shares of various maturities, block discounting and consultancy services to businesses.

Although banks were established to cater for virtually all the sectors of the economy, micro finance was still a major problem. This spurred Government on to come out with the unit banking concept, the Rural Banks. These Rural Banks are to mobilise rural resources and channel them to micro and small-scale enterprises and other informal economic activities in their respective localities. Thus, an examination of the emergence of banks in Ghana indicates that the banking system developed as a response to certain perceived credit needs. Apparently, the more banks were established, the sharper the focus on the inadequacies of the existing credit schemes. For example, the need for rural banking became evident when it was realised that the credit facilities provided by the specialised banks could not adequately cover the credit needs of small peasant farmers who produce about 90 percent of the agricultural output and that the commercial banks serve only the large-scale enterprises neglecting small scale as well as other informal businesses whilst these banks divert large parts of rural savings to urban centres.

Consequently, on the eve of the financial sector reforms in 1988, the institutional structure of the banking system showed that it was relatively diverse and apparently adequate in terms of the sheer physical existence of banks. Besides the central bank, Bank of Ghana, there were what was then referred to as the three primary commercial banks, seven secondary or specialised banks, one merchant bank and 123 unit banks that were designated as rural banks. Over the years, more

banks were established with specific objectives. As of now, Ghana has a central bank, 8 commercial banks, 4 merchant banks, 4 development banks and 132 rural/community banks.

In addition to the banks, there are other non-formal institutions. There are also identifiable semiformal and informal institutions or entities engaged in financial intermediary activities. The nonbank financial intermediaries consist of insurance companies, the Ghana Stock Exchange, Social Security and National Insurance Trust, Discount Houses, Savings and Loan Companies, Finance Houses and Leasing Companies. The semi-formal financial intermediaries include cooperatives, credit unions, and Financial Non-Governmental Organisations (FNGOs). There are also informal financial intermediaries, including collectors for rotating credit and savings association (*susus*), moneylenders, traders/suppliers/middlemen, Rotating Saving and Credit Associations, family, friends, relatives and neighbours.

Within the supply leading finance thesis, the premise is that this multitude of banks as well as their diverse character could serve as a catalyst in promoting the development of financial services and economic development.

Access to Credit as a Tool for Economic Growth and Development

There are many studies that show a causal relationship between the development of the financial system and economic growth (Levine, 1999 and Rajan & Zingales, 1998 in Reis & Valadares, 2004). Beck, Demiguc-Kunt and Levine (2004) state that extensive literature shows that financial development is

positively associated with the growth rate of per capita Gross Domestic Product (GDP), although it may not necessarily reduce poverty. According to Kumar (2005), greater financial system depth and soundness contribute to broad-based economic growth with poverty reduction. The development of financial system provides better resource allocation, higher levels of investment, optimisation of scale, lower transaction cost reflecting in higher levels of productivity and welfare for both consumers and producers especially among the poor of which women form the majority.

The last three decades has seen an increasing interest in what has been termed the 'informal' sector or economy, which has been widely recognised as a core locus of activity among the poor. This interest has fuelled research looking into what the characteristics of this sector are, what types of employment typically is taken up here, by whom and why (Shankland, 1988; De Soto, 1989; Ross & Usher, 1986; Smith, 1990; and Tokman, 1992). Research has brought to light the extent of economic activity taking place in this sector and the extent to which micro-enterprises are an increasingly vital source of income among the poor (Beck, 1988; Berger, 1989; Chuta & Liedhoin, 1979; De Soto, 1989; and Tokman, 1992)

Having discovered that the poor can and do operate micro-enterprises, increasing attention has been given to the potential role of micro-enterprises for poverty alleviation. Given the extent of this activity among the poor, it is logical that a key strategy for reducing poverty would be to enhance the income-generating potential of these activities. Access to credit is one such strategy,

which enhances the poor's income-generating potential by providing the needed resources for the expansion and or increased productivity of their income-generating activities.

In view of this, micro-credit has been praised as a development strategy which can be financially viable. Credit to the poor can generate revenue to cover the costs of operations and hence sustainable over the long term. As such, micro-credit lures with the promise of the rare find of economically viable social development. It has been praised as a strategy which builds self-reliance among the poor by enhancing the poor's capacity for income-generation and self-employment, at the same time as raising the credit user's self-esteem and self-confidence, and as such, 'empowering' the poor. Where credit targets women, it has been praised as an effective strategy for women's development, based on the assumption that access to credit improves women's status within the household by enhancing their income contribution to the household and her control over that income.

Perhaps, and most compelling, is the promising possibility of a strategy for 'development' which is financially sustainable and self-sufficient. As succinctly pointed out by Mckean (1989), "today's climate of limited development resources makes economic impact, along with project self-sufficiency, a fundamental criterion by which programmes are ultimately judged."

Barriers to Access to Credit

According to Bardhan (in Bardhan & Udry, 2000), market imperfections such as incomplete and asymmetric information problems are particularly acute in the context of development. Understanding these features and how they can affect the credit market is important to be able to better analyse the Ghanaian situation.

Bardhan (in Bardhan & Udry, 2000), point out that market imperfections will result in smaller scale and risk taking by lenders. Similarly, Aghion and Murdoch (2005) argue that entrepreneurs cannot obtain all the capital needed to run their businesses when there are market failures. Among the most important concepts are; adverse selection, moral hazard and credit market rationing.

Adverse selection arises from lack of good information of the riskiness of borrowers and inability of banks to distinguish among risky borrowers (Aghion & Murdoch, 2005). Stiglitz and Weiss (1981) explain that since different borrowers have different probabilities of repayment and banks cannot properly assess them, they have to resort to the use of variety of screening devices. The interest rates individuals are willing to pay could be used for that, as argued by Stiglitz and Weiss (1981). Individuals willing to pay higher interest rates would be perceived, on average, as riskier. Aghion and Murdoch (2005) argue that since banks do not have good information, the outcome is exceedingly high interest rates that results in the exclusion of the worthy potential borrowers (more prudent or better informed). They anticipate the difficulties in generating returns enough to repay very expensive loans and leave the market.

Stiglitz and Weiss (1981) explain that the perception that the remaining borrowers are riskier is because there is considerable chance that either they are taking more risk, by undertaking projects that have lower probability of success but higher returns when successful; or in a moral hazard approach, borrowers accept greater interest rates because their assessment of probability of repayment is low. Aghion and Murdoch (2005) further argue that ex-post moral hazard can emerge from contract enforcement difficulties (such as lack of proper institutional background).

Credit rationing as defined in Stiglitz and Weiss (1981) will be the result of the imbalance in supply and demand of loanable funds because the equilibrium interest rate is one that maximises the expected returns to the bank under market imperfections. It is not the one that clears the market. Their definition of credit rationing is reserved for two situations (i) among borrowers with apparent identical risk profiles some receive loans while others do not, and those that did not receive it would not do so even at higher interest rates; or (ii) there are identifiable groups of individuals that are unable to obtain loans (at any interest rates) with a given supply of credit but would be able to obtain these loans with larger supply.

Empirical Literature Review

A number of studies have looked at access to credit. Much of these studies have been done in developed as well as developing countries. However, studies

on developing countries are not many. Some studies in the literature are reviewed in the ensuing paragraphs.

To better understand the nature of access to credit, a number of empirical studies focus on the characteristics of consumers who are more likely to be credit constrained. Most rely on self-reported survey data to identify consumers with credit constraints. These studies estimate the probability of being credit constrained and access to credit by individual/household. Early works such as Jappelli (1990), Cox and Jappelli (1993), Duca and Rosenthal (1993), and Crook (2001) focus on the U.S. and use the Federal Reserve Board's Survey of Consumer Finance data. Other empirical works mostly focus on the Organisation for Economic Corporation and Development (OECD) countries: Magri (2002) for Italy; Crook and Hochguertel (2005) for the U.S., Italy and the Netherlands; Del-Rio and Young (2005), and Benito and Mumtaz (2006) for the U.K.

In Malawi, Diagne (1999) uses the concept of credit limit to analyse the determinants of household access to and participation in informal and formal credit markets. He finds that households are found to be credit constrained, on average, both in the formal and informal sectors; they borrow, on average, less than half of any increase in their credit lines. Furthermore, they are not discouraged in their participation and borrowing decisions by further increases in the formal interest rate and/or the transaction costs associated with getting formal credit. This suggests that getting access to credit is much more important than its cost for these households. Hence, credit policies should focus on making access easier rather than providing credit with subsidised interest rates. The composition

of household assets is found to be much more important as a determinant of household access to formal credit than the total value of household assets or landholding size. In particular, a higher share of land and livestock in the total value of household assets is negatively correlated with access to formal credit. However, land remains a significant determinant of access to informal credit.

Arvai and Toth (2001) estimate Hungarian consumers' propensity to borrow using a 2000 household survey. They find that the education level of the head of household, household income, future income expectations and past borrowing experience have positive effect on the propensity to borrow.

Recent studies indicate that household income and age of the household head are important determinants of access to credit. In recent empirical evidence for the U.S. (using data from 1990-95), Crook (2001) finds that a household's access to credit is constrained when the head of household is over 55 years old and when he/she is relatively risk averse. A household is less constrained when its income is higher, when it owns a home, when the family size is larger and when the head is working. Lower probability of credit constraint is observed when a household owns a home, has high net worth and the head is older than 55, and has spent many years at a job. For Italy, Magri (2002) finds that the role of income is important, with the uncertainty of income reducing access to loans. In addition, residence is a crucial parameter for credit rationing, which is particularly strong in regions where banks face a longer recovery time in the event of customer default.

Again in Malawi, Bokosi (2003) analyses the factors that affect household access to credit. The aim was to provide a better understanding of the households'

personal characteristics, not only because they influence the household's access to credit but also due to the fact that potential lenders are likely to base their assessment of borrowers' creditworthiness on such characteristics. The study covered 404 households in Nkhotakota, Rumphi, Dedza, Dowa and Mangochi. The analysis was conducted using three methods. First, descriptive analysis to determine the relationship between participation in credit markets and socio-economic characteristics. Second, an Ordinary Least Squares estimation of the extent of credit access and finally, a probit analysis. Estimated coefficients for family size and seasonality (pre-harvest, harvest and post-harvest periods) were positive and significantly different from zero at $p<0.01$. Family size is positively and significantly related to the household's probability of participation.

Larger family size exerts (consumption) stress on the household, which is mostly reflected through an increased probability of borrowing. Furthermore, the signs of seasonal dummies (pre-harvest, harvest and post-harvest) suggest that the probability of household borrowing increased in each of the seasons. The number of livestock owned by the household was found to be negative and not significantly different from zero. This negative relationship is due to the fact that livestock is a highly liquid asset, thus households tend not to borrow when their livestock value is substantial, since they can sell off their livestock when they are in need. It was concluded in the study that providing financial services to the rural poor must be an integral component of any development policy.

Using household surveys from Thailand, Thaicharoen, Ariyapruchya and Chucherd (2004) analyse credit access and constraints and find that low income,

low age, low educational attainment, and occupations such as farm operator or low-skilled labourer tend to be associated with greater access to loans. They also find that high income, high age, being female, a farm operator or having an education at the secondary level or above tend to reduce the likelihood of being credit constrained.

Uganda's financial sector is largely underdeveloped and concentrated in urban areas, leaving the majority of the agricultural producers in rural population with no access. Using probit, tobit and multinomial logit model estimations on Uganda household surveys; 1992/93 and 1999/2000, Mpuga (2004) analyses access to credit. He noted that the Ugandan credit market is segmented, with the rural peasant producers being served by relatives/friends and self-help credit associations and their loan applications are less likely to succeed, and of those that do, smaller loans are granted. He finds that the educated and the young are more likely to access credit while women are less likely to, and apply for smaller loans. Therefore, while government agricultural modernisation policy considers credit as an important input to its success, more needs to be done to get credit flowing to the sector. This calls for government intervention to extend credit to deserving individuals and households.

Using cross sectional data set from rice-producing women of Ini Local Government Area of Akwa Ibom State, Nigeria, to estimate access to credit function and control index of agricultural credit from informal sources, Udoh (2005), reveals moneylenders and rotational contribution scheme - *Osusu (Etibe)* as the major informal sources of credit by the women. Data used in the study were

primary data collected directly from the farmers with the use of structured questionnaires during 2002/2003 planting season. A total of 300 questionnaires were randomly administered to women farmers in 10 political wards. The estimated access to credit function indicates significant importance of farm expenditure, personal income, interest rate, education, spouse income and experience in credit access by the women. With regards to the level of control on the collected credit, the study reveals high self control index by the women and quite little level of control by their spouses. Based on the findings, the study suggests adequate extension knowledge to women on formation of credit and thrift cooperatives and proper financial management.

Crook and Hochguertel (2005) explore credit access and credit constraints in the U.S., Italy and the Netherlands. They find that higher age and wealth reduces the chance of being constrained. The self-employed face a greater chance of being discouraged or turned down in all three countries, especially in the U.S. They also find that a much greater proportion of U.S. households apply for credit than for the other two countries. Of those who apply, a much higher proportion is rejected in the U.S. Once households that are discouraged from applying are included, a considerably smaller percentage of Italian and Dutch households are credit constrained, compared with U.S. households.

Del-Rio and Young (2005) examine the determinants of participation in the unsecured debt market and the amount borrowed for 1995 and 2000 in the U.K. Age, income, positive financial prospects and housing tenure are found to be

significant for the probability of participation. For the level of borrowing, income is the main variable explaining the cross-sectional differences in unsecured debts.

The studies on the outreach of microfinance programmes have so far focused on the supply side: higher transactional costs occur when a microfinance programme (MFP) reaches out to the poor. Using a large household survey dataset from China, Cheng (2006) examines the low outreach achieved by three MFPs in China from a perspective of demand. He finds that the Grameen model microfinance programmes in China have failed to target the very poor automatically in the poor areas, as the access to micro-loans is positively related to the household incomes, the opportunities for off farm investment and the educational level of female borrowers. The study concludes that to improve the outreach of microfinance programmes to the poor, it is important to improve access to micro-loans for the poor by removing the other constraints and by tailoring the micro-loan products to the needs of the poor. More importantly, direct fiscal support would be more important for the very poor in the poor areas.

Kaino (2006) conducted an empirical investigation of the rural credit market in Myanmar to help guide policy formulation on the microfinance operations in the country. Specifically, the study looked into the determinants of credit access and of rationing loans at the household level and finds that age of household head, educational attainment of household head and the dummy for female headed households are positive but not significant. Using data primarily gathered through a survey covering a total of 301 households among 7 villages in the Dry Zone, he identifies the similarities, differences and relationships among

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the various segments of the rural credit market. The results also reveal the characteristics distinguishing the different types of credit sources, implying that the formal and semiformal credit are targeted towards different sets of clientele. The findings also suggest that promoting the semiformal credit sources likewise strengthens the development of formal credit sources.

Kasirye (2007) argues that although the financial sector has tremendously expanded in Uganda, access to financial services by rural households remains very low. He examines the rural credit markets in Uganda using the 2005/06 Uganda National Household Survey data. Specifically, he investigates the extent to which both formal and informal service providers meet the borrowing needs of rural farmers. He also examines the factors associated with the likelihood of a household applying for loan. He finds that rural areas have limited access to financial service providers despite being home to more than 80 percent of the Ugandan population. As such, most rural households obtain credit predominantly from informal sources - mainly friends or relations. The regression results point to having a savings account as key determinant of credit applications by rural households.

In Vietnam, Nguyen (2007) analyses the rural credit market to understand the determinants of credit choices and to measure impacts of borrowing activities on borrower's consumption in the 1992-1998 period. The data for this study was the Vietnam Living Standard Survey (VLSS) conducted in 1992/93 and 1997/98 by the General Statistical Office of the Government of Vietnam, and funded by United Nations Development Programme (UNDP) and the World Bank. The

surveys contain detailed information of 4,800 households from 150 communes in VLSS93 and 6,000 households from 194 communes in VLSS98. Samples were weighted based on the statistics of Vietnam Population Census. The communes were randomly selected from a total of proximately 10,000 communes in 646 districts, and 64 provinces and cities in Vietnam, and then an average of 30 households were randomly selected for interview in each commune.

There are three main results. First, there exists a uniform access to formal credit among rural households in Vietnam. Households' financial activity is found to be determined by household size and agricultural work rather than education or distance from the commune to the nearest bank branch. Education level seems to have an inverse U-shape effect on credit taking possibility; the least and the most educated households borrow least. Second, there is evidence of money lenders being crowded out by formal institutions via competition. Finally, applying fixed-effect regression and propensity score matching estimation on cross-sectional and panel data to assess impact of credit taking on household consumption, his results demonstrate that formal credit positively affects borrowers' consumption while informal finance has mixed results.

Rural credit markets have developed for a long time. However, farming households' access to credit in the Mekong Delta in Vietnam is still relatively limited. Data for the study was made up of 240 randomly selected farming households spread over four provinces in the Mekong Delta, i.e. Tien Giang, Dong Thap, Can Tho and Soc Trang. By applying the Heckman two-step model, Lensink, Ngan and Ninh (2007) suggest that the probability of using formal credit

increases if borrowers pledge their land rights, if borrowers are younger, and if household head is a male. They find that the probability of using formal credit declines if borrowers use informal credit. They also find that the size of the formal loan is higher for borrowers who pledge collateral, borrowers who are more educated, borrowers who have more land, and if the loans are used for non-production expenses.

Although Bosnia and Herzegovina has experienced rapid growth in credit to households in recent years, most individuals are still credit constrained. Using household survey data (2001 and 2004) from Emerging Europe, Chen and Chivakul (2008) analyse the determinants of household credit access and credit constraints in Bosnia and Herzegovina. Their probit estimations on the probability of credit market participation results highlight the impact of the post-conflict and transitional nature of the country on the behaviour of borrowers and lenders. They find that age, income, wealth and educational qualifications are the main factors driving credit market participation, while high income and high wealth lower credit constraints. They also find in Bosnia and Herzegovina that the probability of credit market participation peaks at 45 years old, considerably higher than in the advanced countries. At the same time, older individuals are significantly more constrained than their peers in the advanced countries. The results imply that the current credit boom may largely reflect the overall post-war demand, and indicate the worse-off position of the older generation in transition economy. Moreover, the results underscore the structural nature of unemployment as well as the

mismatch between educational qualifications and earning prospects in Bosnia and Herzegovina.

Using Rural Financial Market Survey, Ambreen (2008) examines the factors affecting the demand for borrowing. The purpose of study was to investigate how many rural women have access to finance. It also explores the additional constraint faced by them in accessing credit. For the estimation purpose, multivariate logit regression was used, taking access to credit as dependent variable. The results indicate that women lack easy access to formal credit and the socio-economic and cultural background of the family significantly impact probability of borrowing. More specifically, the results indicate that female's own age, marital status and employment bring self-confidence and reliability that encourage female borrowing while variables representing household characteristics also revealed that access to credit increases with the increase in dependency ratio. The paper proposes that government implements education programmes in order to create awareness towards role of women in economic development.

In Ethiopia, Yehuala (2008) sought to ascertain factors that affect smallholder farmer's access to formal credit and also the status of women and different wealth groups' access to formal and informal credit sources in Metema Woreda, North Gondar in Ethiopia. A two stage sampling method was employed to select three out of eighteen rural peasant associations and 130 farm households. Structured interview schedule was developed, pre-tested and used for collecting quantitative data for the study from the sampled farm households. Focus group

discussion, group interview and field observations were held to generate qualitative data. Descriptive statistics and logit model were used for analyzing quantitative data. The output from the study indicates that 56 (43.1 percent) of the sampled farm households were formal credit users, whereas the remaining 74 (56.9 percent) were non-users.

It was also found out that credit access to female headed households is still limited and the difference between the wealth groups in accessing credit from the formal sources was also statistically significant. Farmers acknowledge that group lending solves the problem of collateral requirement by lending institutions, controls misuse of borrowed funds and minimise the risk of default and they also recognise the provision of saving services by microfinance institutions (MFIs), while strongly criticising the isolation of very poor farmers from the group formation. Moreover, the smaller loan size, earlier saving requirement which was not convenient to the farmers, and repayment period by the MFIs were among the critical problems. Participation in extension package programmes, experience in credit use from the formal sources, total cultivated land size, number of livestock (measured in total livestock unit, TLU) collateral or group formation and membership of Farmers Multi-purpose Service Cooperatives (FMSCs) were highly important in influencing access to formal credit use as evidenced by the model output.

Bendig, Giesbert, and Steiner (2009) argue that the study of the demand for financial services in developing countries leaves out part of the story, if it looks at only one of the three elements of the so called finance trinity, i.e. savings

products, loans, or insurances, as is largely done in the literature. Their analysis was based on a household survey conducted by the authors in two neighbouring villages (Brakwa and Benin) in the Asikuma/Odoben/Brakwa district of the Central Region of Ghana in February 2008. The survey was undertaken in the context of a pilot study for a research project on the demand for micro insurance among low-income households in Sub-Saharan Africa. In contrast to previous research, it is assumed that household's choice for any of these services is strongly interconnected. Therefore, they simultaneously estimate the determinants of household demand for savings, loans and insurances by applying a multivariate probit model on household survey data from rural Ghana. On the one hand, the estimation results confirm the common finding that poorer households are less likely to participate in the formal financial sector than better-off households. On the other hand, there is empirical evidence that the usage of savings products, loans and insurances does not only depend on the socio-economic status of households, but also on various other factors, such as households' risk assessment and the past exposure to shocks. In addition, trust in the providing institution and its products appear to play a key role.

Oboh and Kushwaha (2009) identified significant farmer-related socio-demographic factors that affect access to credit facilities by rural farmers. Using cross-sectional data collected from 300 randomly selected loan beneficiaries of the Nigerian Agricultural, Cooperative and Rural Development Bank (NACRDB), the **t**-test showed a statistically significant gap (P≤0.01) between credit demand and credit supply. The study showed that majority of the loan beneficiaries had

poor socio-demographic background such as low level of education, small farm size, low annual income and high family size. Also, the size of loan received by respondents was far lower than the amount applied for, largely due to shortage of loanable funds at the NACRDB. From the multiple regression analysis, the coefficients of annual income, distance, farm size and previous loan status showed positive signs and were significant, indicating that all the variables improve access to loans by farmers. They recommend increased flow of capital to NACRDB for onward disbursement to farmers. By so doing, farmers will increase their farm sizes and income thereby attracting larger loan size.

Concluding Remarks

The related literature on which the study was based has been reviewed in this chapter. The theoretical framework within which the study was situated has been reviewed. The literature review shows that financial markets in African are fragmented and characterised by imperfect and costly information, risks, and market segmentation, resulting in credit rationing. This is one of the underlying factors in the coexistence of both formal and informal credit markets serving the needs of the different segments of the market. On the other hand, policy-based and structural-institutional explanations attempt to explain the coexistence of both segments of the market as a result of policy and structural-institutional rigidities.

The chapter also noted that Ghana has pursued various financial reforms with the basic objective of increasing savings mobilisation and making credit more accessible especially to micro, small and medium scale enterprises and

indeed, both the pre-FINSAP and post-FINSAP financial reforms emphasise greater credit flow to micro, small and medium scale enterprises.

Theoretically, variables such as gender, education, interest rate, household size, wealth status and collateral requirement have been found to strongly influence access to credit.

Empirically, several studies in literature have been reviewed. Studies in this area have used different types of data and estimation techniques to estimate the various variables of interest with varying results. Methodological issues relating to this study are discussed in chapter three.

CHAPTER THREE

RESEARCH METHODOLOGY

Introduction

The aim of this chapter is to discuss the methodology for the study. It describes the study area, research design, the source and type of data and data collection instrument and procedures. Discussion of some field challenges and errors in the data collected are also captured in this chapter. The chapter continues with the discussion on the method of data analysis, specification of both theoretical and empirical econometric models used in the study as well as discussion on how variables used in the empirical econometric model were measured with their respective a priori expected signs. This chapter also discusses the estimation technique used in the study.

The Study Area

The area for the study is the Mfantseman Municipality in the Central Region of Ghana. It is one of the 3 municipalities in the region. It is bordered on the west by Abura-Asebu-Kwamankese district; on the north-west by the Assin South district, on the east by the Gomoa district and on the south by the Gulf of

Guinea. The Mfantseman Municipality is a nodal town connecting many other towns and villages in the region.

Even though the Mfantseman Municipality lies along the coast, fishing activity is on a small scale because of its seasonal nature. The majority of the women population in the Municipality engage in informal economic activities such as petty trading, fish mongering, farming, artisanal work, small scale agro-processing, hairdressing, and dressmaking. Most women in the municipality engage in trading activities of which petty trading is very common. The Municipality is the hub of trading activities where the bulk of trading activities in the region take place. The focus of this study on women retail traders was due to the large number of this category of economically active women in the Municipality. The Mfantseman Municipality was chosen for the study for two reasons: first, because of its proximity to the student researcher and second, it is the biggest trading centre in the region (Wikipedia).

Research Design

According to Welman and Kruger (1999), the research design is the plan according to which research participants are obtained for purposes of collecting information. Leady (1997) shares the same opinion, stressing that the design process includes the visualisation of the data and the problems that are envisaged with the use of that data in achieving the results of the research project. The survey research design was adopted by this study to determine the factors that influence access to credit by women retail traders in the Mfantseman

Municipality. The major strength of the survey approach is that it can be used for both descriptive and exploratory purposes and allows for personal contact between the researcher and the respondents in the data collection process. Another advantage of this approach is that it can be used to obtain detailed and precise information about different groups of people.

The main weakness of this approach however, as compared to other designs, relates to the possibility of respondents not giving out true nature of events or state of affairs. This is due to the fact that in survey design, the researcher relies on reports of behaviour rather than observation of behaviour. This may result in measurement error produced by respondents' lack of truthfulness, misunderstanding of questions, and inability to recall past events accurately and by the instability of their opinions and attitudes (Singleton, Straits & Straits, 1993).

Population and Sample Frame

The target population for the study comprised women retail traders in the Mfantseman Municipality. Since a data base of these respondents was not available, a sample frame of these traders was developed. By this, a listing of women retail traders was compiled using the names of their shops and their location within the Municipality as identification. In cases where shops had not been named, the name of the owner or the regular shopkeeper was used as a form of identification. The population was made up of women retail traders selling

different kinds of products and items. Overall a total of four hundred and eight (408) retail shops were listed.

Sampling Procedure

The selection of respondents for the study was based on probability sampling technique particularly the simple random sampling. Here, the respondents with their locations were serially numbered and the random function on the scientific calculator was applied to select the respondents from the sampling frame.

Sample Size

Many quantitative researchers (Anderson, 1958; Whittemore, 1981) employ statistical methods in order to define the 'right' size of the sample. This is based on the assumption that if certain data are available, the sample size can be statistically computed so that the sampling errors can be reduced to a minimum or to an acceptable or expected level. There are several methods employed by statisticians and social researchers to determine the sample size, some of which are quite complicated. But there is an easier way of estimating the 'right' sample size, without the use of formulae and computations. This is done by means of tables. The researcher who wishes to know how large the sample should be only needs to look at the table and considering the necessary factors, such as (*p*, *which is the population estimate and q*, *which is derived by subtracting p from 1*) level

of significance and so on, ascertain the figure that corresponds to the required sample size.

Parten (1950), for instance published two tables, one for the 0.05 level of significance and one for the 0.01 level of significance. The tables offer sample size estimates for dichotomous population percentages (p and q) for two levels of significance and for error limits ranging from 0.25 to 10. The tables provide useful information and save time and energy when deciding on the required sample size.

Krejcie and Morgan (1970) offer an even more easier table for estimating sample size. The only information needed to estimate the sample size is the population. Their table gives figures for populations ranging from 10 to 1,000,000 people and the corresponding figures for the required sample size. The table can be found in Appendix E. A total of 196 respondents were selected for the study.

Source and Type of Data

The data used for the study was primary data. Cross-sectional data was collected through a field survey of individuals in the study population who were selected to form the study sample. Both quantitative and qualitative data were collected on the respondents. Information was collected mainly on individual socio-economic characteristics and institutional factors that literature identifies as influencing access to credit.

Data Collection Instrument

The instrument for the collection of data was the interview schedule. The instrument was structured with open and close-ended questions to ensure that sufficient responses were collected from respondents. Even though using interview schedule is relatively more expensive than questionnaires; as considerable amount of money has to be spent in training and paying enumerators, it was the most appropriate instrument because of the following reasons: (i) Non-response is generally very low because they are filled by enumerators who are able to get answers to all questions. (ii) Information is collected carefully and in time as they are filled in by enumerators. (iii) Information can be gathered even when the respondents happen to be illiterate. (iv) Information collected is generally complete and accurate as enumerators can remove the difficulties, if any, faced by respondents in understanding the questions very well. Consequently, the information collected through schedules is relatively more accurate than that obtained through questionnaires. (v) Along with interview schedule, observation method can also be used but such a thing is not possible while collecting data through questionnaires.

The interview schedules were administered by the student researcher and three other trained field assistants. The selection of the field assistants was based on their educational background, proficiency in the local language and their understanding of surveys of this nature. The training of the field assistants involved operational definition of terms, the general attitude of the respondents, and how to deal with difficult situations or respondents. The field assistants were

involved in the pre-test to enable them be abreast with what to expect ahead of the fieldwork to ensure consistency and accuracy in recording responses from the respondents.

Data Collection Procedure

The data collection process started with a pre-test of the survey instrument. The pre-test was carried out to ensure that the research instrument designed for the fieldwork was suitable and comprehensive. It was also to ensure the reliability of the data collected for the study and to safeguard the validity of inferences drawn from estimated results. The reliability test was to measure the extent to which the instrument produces consistent results. The reliability of the instrument was determined through the test re-test procedure (McMillan & Schumacher, 1993). The test re-test procedure ensures that a group of people is surveyed twice on different dates, using the same instrument and the two sets of scores obtained are then correlated. Validity is the extent to which inferences made on the basis of scores from an instrument are appropriate, meaningful and useful (McMillan & Schumacher, 1993). The validity of any measuring instrument depends upon the degree to which it measures what it purports to measure. In this study, the Cronbach's alpha coefficient for reliability test was determined after the pre-test. The first pre-test was done on January 4, 2011 and the second pre-test was done after two weeks, on January 18, 2011.

Retail traders in the Kotokoraba market in the Cape Coast Metropolis were chosen for the pre-test. In all, forty respondents were interviewed for the

pre-test exercise. This was done to find out the difficulties to be encountered in the collection of the actual data and design remedial measures for them. It also enabled the researcher to streamline and modify some of the questions for easier and better responses (Kumar, 1999). The pre-test revealed some inaccuracies and inconsistencies in the responses which indicated that some of the questions were not framed or structured well to elicit the appropriate responses from the respondents. These mistakes were noted and the necessary corrections effected. The actual data collection lasted for a period of about one month from January 27, 2011 to February 25, 2011.

Table 1: Results of Reliability Test

Section	Average Inter-item Correlation	Alpha (α)
Section A	0.9021	0.8912
Section B	0.8342	0.8289
Section C	0.8041	0.8801
Section D	0.8702	0.8065
Section E	0.8699	0.8483
Test Scale	0.8659	0.8791

Source: Field Survey, 2011

From Table 1, Cronbach's alpha coefficient for the five sections of the questionnaire was higher than .7, the minimum as recommended by Nunnally (1978), (from α = .8065 to α = .8912) and all inter-item correlations measured

between r = .8041 to r = .9021. The questionnaire therefore proved to be reliable overall (α = .8791 and r = .8659). The details of the reliability test results are shown in Appendix A.

The criterion jury opinion or evaluation jury is the most reliable and frequently used method to measure the validity of an instrument (Karuppanan, 2003). The criterion jury involves an expert in the area under investigation, commenting on the appropriateness of the instruments to be used in the study. In this study, the content validity of the instrument was ensured by the expert evaluation of the supervisors of this study who are distinguished researchers in the field. They reviewed the items and evaluated whether the items reflected the objectives of the empirical study. Recommendations from the supervisors' evaluation were incorporated into the final revision of the instrument.

Field Challenges and Errors in Data

This fieldwork has not been without the usual challenges associated with field exercises. A few of them have been enumerated below: (i) Some selected respondents had their shops closed at the time of the survey and so had to be replaced by other respondents who had not been included in the sample initially. (ii) It was also realised during the interview that some selected shops included in the sampling frame as belonging to females actually belong to males and they also had to be replaced. (iii) Some selected respondents simply refused to take part in the exercise even though they had been given prior briefing during the listing for the sampling frame. Apparently, some perceived the exercise as collection of

information for purposes of taxation. (iv) Some respondents would not continue with the interview half-way through because of the feeling that interviewers were prying into their private affairs. These and many more that cannot be listed here made the field work very laborious.

Like all household surveys, a number of factors limit the quality of the data collected for the study. Many individuals do not keep record of their activities. Therefore, at the least, some amount of approximations has been necessary in almost all such surveys. In view of this, approximations had to be made for some of the variables of interest. In cases of some variables like income and age of respondent, there was no option than to make approximations for some respondents. All such approximations, if not done with caution, can introduce some biases and other inconsistencies into the estimated coefficients. In applied econometrics, it sometimes becomes necessary to assign observations to the independent variables especially where some a priori knowledge is available (Pindyck & Rubinfield, 1991).

Method of Data Analyses

Two methods of data analysis were used in this study - descriptive analysis and logit regression analysis. Statistical tools such as frequency distribution and percentages were used to describe the socio-economic characteristics of the respondents and the institutional factors that affect their access to credit. The logit regression analysis was used to ascertain the effect of the independent variables on the dependent variable. The Statistical Package for

the Social Sciences software (SPSS) (version 16) and STATA software (version 11) were used to organise and analyse the data respectively. The former was used to input the data and further transferred into the latter. The STATA 11 software was used to run the econometric model to get the estimates of the parameters.

Model Specification

The logit regression model was used to estimate the factors that influence access to credit by women retail traders. According to Mpuga (2004), access to credit is described by a discrete choice model. Indeed a number of studies on credit access have used discrete choice models (Bokosi & Khalil-Edriss, 2003; Lensink, Ngan & Ninh, 2007; Ambreen, 2008). Following these studies, a binary logit model was considered for the estimation of individual access to credit.

The theoretical econometric model is given by Gujarati (2006). The Logit model is systematically specified below: Beginning from a Linear Probability Model (LPM).

$$P_i\left(y=1\middle|X\right)=p\left(y=1\middle|X_1+X_2+...+X_k\right) \tag{4}$$

P_i is the probability that an individual retail trader applies for credit.

$X_1, X_2 \ldots X_k$ denote explanatory variables. $y=1$ means the application is successful (a client becomes a credit beneficiary)

The LPM above assumes that $P_i\left(y=1\middle|X\right)$ increases linearly with $X,$ that is, the marginal or incremental effect of X remains constant throughout. This seems unrealistic since most economic variables tend to be nonlinearly related.

Moreover, since $E(y = 1|X)$ in linear probability models measures the conditional probability of an event occurring given X, it must necessarily lie between 0 and 1. Although this is true a priori, there is nothing in the procedure that guarantees that $\hat{y}_i$, the estimator of the estimated probabilities, $E(y|x)$, will necessarily fulfil this restriction, and this is the real problem with Ordinary Least Squares (OLS) estimation of Linear Probability Models (Davidson & Mackinnon, 1993). The more common and more prudent procedure is to model the probabilities by some distribution function other than the cumulative normal. The logit model which uses Cumulative Distribution Function (CDF) to model regressions where the response variable is dichotomous, does not only guarantee that the estimated probabilities fall between the logical limits 0 and 1 but also ensures that the relationship between P_i and X_i is nonlinear.

Then the logistic model specifies that the probability of being a beneficiary client is given by;

$$p_i = (y = 1|x_i) = \frac{\exp(x_i\beta)}{1 + \exp(x_i\beta)} \qquad (5)$$

Where $X_i\beta = \beta_1 + \beta_2 X_2 ... \beta_k X_k$

Equation (5) implies that the probability of being a non-beneficiary client, (*1-P$_i$*) can be written as:

$$1 - p_i = \frac{1}{1 + \exp(x_i\beta)} \qquad (6)$$

We can therefore write

$$\frac{P_i}{1-P_i} = \frac{\exp^{(x\beta)}}{1+\exp^{(x\beta)}}\left(\frac{1+\exp^{x\beta}}{1}\frac{1}{1}\right) = \exp^{x\beta} \tag{7}$$

$\dfrac{Pi}{1-Pi}$ is simply the odds ratio (OR) in favour of being a beneficiary client – the ratio of the probability that a retail trader would have access to credit to the probability that she would not have access to credit. The odds ratio is equal to *exp*($x\beta$). This shows the probability of being able to access credit for a given value of an explanatory variable, holding all other explanatory variables in the model constant. When both the dependent variable (Y) and the explanatory variable (X) are dichotomous, the odds ratio is the probability that Y is 1 when X is 1 compared to the probability that Y is 1 when X is 0.

Taking the natural log of equation (7) gives the Logit Model as specified below:

$$L_i = \ln\left(\frac{p_i}{1-p_i}\right) = \alpha + \beta X_i + \varepsilon_i \tag{8}$$

Where ln = natural logarithm; P_i = Probability of access to credit, defined in terms of cumulative logistic probability function; (1-P_i) = Probability of no access to credit; X_i = vector of explanatory variables; ε = Random disturbance term; [α, β] are the intercept and slope parameters to be estimated.

Substituting the explanatory variables into equation (8), the empirical Logit model for the study appears in the form:

$$\ln\left(\frac{p_i}{1-p_i}\right) = \beta_0 + \beta_1 ageresp + \beta_2 marsta + \beta_3 educlev$$
$$+ \beta_4 hhsize + \beta_5 inclev + \beta_6 hhwlth + \beta_7 \text{int } rate \qquad\qquad (9)$$
$$+ \beta_8 colreq + \beta_9 lenaff + \beta_{10} savacc + u_i$$

Where *ageresp* is the age of the respondent, *marsta is* marital status, *educlev* is education level of respondent, *hhsize* is household size, *inclev* is income level, *hhwlth* is household wealth, *intrate* is interest rate, *colreq* is collateral requirement, *lenaff* is length of affiliation with financial institution, *savacc* is savings account, μ_i is the error term. The expected signs of the coefficients are: $\beta_1>0$, $\beta_2>0$, $\beta_3>0$, $\beta_4>0$, $\beta_5>0$, $\beta_6>0$, $\beta_7<0$, $\beta_8<0$, $\beta_9>0$, $\beta_{10}>0$.

Measurement of Variables and A priori Expected Signs

The dependent variable for this study was client status. Client status was used to measure whether a woman retail trader had ever taken credit from a microfinance, a traditional financial institution or other sources either at the start of her business and/or for the growth of her business. Thus if the retail trader had ever taken credit before, she is a beneficiary (1); otherwise, she is a non-beneficiary (0). Client status was derived from the phrase "source of funds for business start-up and/or business growth" with (1) Self-financing, (2) Traditional Bank, (3) Microfinance Institution, (4) Family/Friend, (6) Moneylender and (7) other (specify), as the response options.

Explanatory Variables

A total of ten explanatory variables based on review of related literature were estimated in this study. The measurement and a priori expected signs of these variables are explained in the ensuing paragraphs.

Age of respondent was measured in completed years and was expected to be positively related to access to credit. This is due to the belief that as a person grows, his/her access to credit increases (Diagne & Zeller, 2000 and 2001). In Papua New Guinea and South Africa, Kavanamur (1994) and Okurut (2004 and 2006) respectively, find that access to bank credit is positively and significantly influenced by age at the national level. Age of the respondent is therefore expected to influence access to credit positively.

Marital status was measured by whether retail trader was married or otherwise. Respondents were asked to indicate their marital status by ticking one of the following response options: (1) single (2) married (3) divorced (4) separated (5) widow. However in the estimation, the various options were collapsed into two categories – single and married, due to estimation problems. Categories (3) to (5) were considered single. The first option was used as a base against which the other categories were measured in relation to access to credit. Being married was expected to be positively associated with access to credit because being married brings self-confidence and reliability that improves access to credit (Ambreen, 2008).

Level of education was measured by highest level of education attained. Education enlightens an individual and influences his or her consumption as well.

It also develops the individual's skills, competence and knowledge which facilitate his or her ability to manage a business. Besides it also plays a vital role in dispelling negative perception about a product or service thereby enhancing its adoption and use. In Vietnam, level of education positively affects household credit-taking possibility (Nguyen, 2007). In Bosnia and Herzegovina, educational qualification is one of the main factors driving credit market participation (Chen & Chivakul, 2008). Therefore the higher the level of education, the more one is expected to appreciate the need for credit to boost her business activities. Level of education was therefore expected to be positively associated with access to credit. "What is your highest level of education" with (1) no school (2) primary (3) junior high school (4) senior high school (5) higher education as the response options. The "no school" was used as a base against which retail trader's access to credit was measured.

The number of people living in a household constitutes the size of the household. This variable indicates the number of dependants of the respondent and also the number of people available to improve family business. Household size was expected to be positively related to access to credit because more labour available in a household improves family business (Sults, 2003). In Papua New Guinea and South Africa, Kavanamur (1994) and Okurut (2004 and 2006) respectively find that access to bank credit is positively and significantly influenced by household size at the national level. Crook (2001) also finds that households are less constrained in accessing credit when its family size is larger.

Since incomes are not easily disclosed, the level of income of the respondent was measured by using her average weekly expenditure. The figure was then multiplied by four to obtain the monthly expenditure which is used as a proxy for her income. It was expected that income would be positively related to access to credit since as income increases, access to credit is enhanced. According to Del-Rio and Young (2005), income is the main variable explaining access to credit in U. K. Crook (2001) also finds that individuals have more access to credit when their incomes are high.

The household possession of land, building, vehicle or other forms of assets were used as a measure of wealth of household. Household wealth is a dummy variable with yes (1) and no (0) as responses. Household wealth was expected to be positively associated with access to credit. This is because wealthy individuals can access credit more easily and their applications are more likely to be looked at more favourably. In the USA, loan portfolios of financial institutions shifted towards comparatively wealthier customers (Karlan & Zinman, 2005). Household wealth also lowers credit constraint in Bosnia and Herzegovina (Chen & Chivakul, 2008).

Interest rate was measured as the percentage of interest charged on loans. In other words, it is the cost of credit to the retail trader. If the cost of credit is high, access to credit is constrained. Hence interest rate was expected to be negatively related to credit access. Diagne et al (1998 and 2001) find that access to credit is highly price sensitive at higher-than-normal rates of interest. Stiglitz

and Weiss (1981) argue that in credit market equilibrium, access to credit decreases with rising interest rates.

Collateral requirement was measured as a dummy variable with yes (1) and no (0) as response. Even though some microfinance institutions do not require collateral as a prerequisite for granting loans, traditional banks do. This variable was expected to have a negative relationship with access to credit. In Vietnam, the probability of accessing credit increases if borrowers pledge their land rights as collateral (Lensink, Ngan & Ninh, 2007)

The length of affiliation indicates the strength of business relationship between the client and the lending institution, in addition to the client's reputation in the credit market. This variable was measured in number of years. This is also a relationship-specific social capital built between the lender and the borrower Hoff and Stiglitz (1990). According to Montgomery (2005), microfinance institutions attempt to overcome barriers to credit worthiness through innovative measures such as establishment of close links between poor clients and staff of institutions concerned. It was expected that this variable relates positively with access to credit. This implies that the stronger and more long-standing the relationship is, the lower the probability of the borrower's credit being constrained.

Savings account is a dummy variable with yes (1) or no (0) as responses, indicating whether the respondent has a savings account or not. Savings account was expected to be positively related to access to credit because maintaining an active savings account is a requirement for granting a loan by almost all financial

institutions. In Uganda, having a savings account is a key determinant of access to credit by rural households (Kasirye, 2007).

The following two tables give the summaries of the definition and measurement of the variables estimated in the study and their respective a priori expected signs.

Table 2: Summary of Definition and Measurement of Variables

Variable	Description and measurement
Dependent Variable:	
Client status	1 if beneficiary, 0 if non-beneficiary
Independent variables:	
Socio-Economic Characteristics:	
Age of respondent	Number of years completed
Marital status of respondent	1 if married, 0 if single
Education of respondent	Level of education completed
Household size	Total number of persons in the household
Income level of respondent	Monthly expenditure measured in Ghana cedis
Household wealth	1if respondent possesses asset(s), 0 if otherwise
Institutional Characteristics:	
Interest rate	Percentage of interest paid on credit
Collateral requirement	1 if required, 0 if not required
Length of affiliation	Number of years of working relationship with financial institution
Savings account	1 if Yes, 0 if No

Source: Researcher's own construct based on review of related literature.

Table 3: Summary of Explanatory Variables and their A priori Expected Signs.

Variables	A priori Expected Sign
Socio-Economic Characteristics:	
Age of respondent	+
Marital status of respondent	+
Education level of respondent	+
Household size of respondent	+
Income level of respondent	+
Household wealth of respondent	+
Institutional Characteristics:	
Interest rate	−
Collateral requirement	−
Length of affiliation	+
Savings account	+

Source: Researcher's expectation based on review of related literature.

Estimation Technique and Testing of Hypotheses

The commonly used technique for estimating models with binary dependent variable such as logit is the Maximum Likelihood Estimation (MLE). This technique was employed to estimate the parameters in the logit regression model. The method of maximum likelihood consists of estimating the unknown

parameters in such a manner that the probability of observing the dependent variable is as high (maximum) as possible (Gujarati, 2006). It is possible to show that a unique maximum exists for the binary logit model. Pindyck and Rubinfield (1991) argue that maximum likelihood estimation yields consistent parameter estimators. Thus, the MLE produced the maximum likelihood values to the parameters given the sample data. The likelihood function can be expressed as:

$$L(\beta|y) = \prod_{i=1}^{n}[F(X_i'\beta)]^{y_i}[1-F(X_i'\beta)]^{1-y_i} \qquad (10)$$

where β is a vector of parameters of the model. The log likelihood function is then written as:

$$n\,L(\beta|y) = \sum_{i=1}^{n}\{y_i \ln F(X_i'\beta) + (1-y_i)\ln[1-F(X_i'\beta)]\} \qquad (11)$$

Maximisation of the log likelihood function (11) yields the maximum likelihood estimator for the vector β. It is instructive to note that statistical packages are available for the estimation of this model.

When estimation of the regression model has been accomplished, it is necessary to determine how effective the model is at predicting the dependent variable. This is referred to as goodness-of-fit. Unlike the linear regression model, the Pseudo R^2 is adopted to determine the significance or goodness-of-fit in logit regression models. A high Pseudo R^2 indicates that the model is of good fit and a low value means that the model does not fit the data well. However, it must be recognised that low R^2 does not necessarily mean that the model is not of good fit.

McFadden (1979) recommends that Pseudo R^2 values of between 0.2 and 0.4 represent a good fit of the model.

Hypotheses test of the coefficients was executed using the likelihood ratio test expressed as:

$$LR = -2(LL_R - LL_{UR}) \sim \chi^2(r) \qquad (12)$$

Where LL_R and LL_{UR} denote the values of the restricted and unrestricted log-likelihood and r represents the number of restrictions. The test statistic for the null hypothesis that is true is given as $-2(LL_R-LL_{UR})$, which is asymptotically distributed as χ^2 (chi-squared) with r degrees of freedom. The likelihood ratio test is carried out to test the null hypothesis that all the coefficients except the constant are zero. If it is found that the critical value of the χ^2 distribution is less than the test statistic, the null hypothesis can be rejected, which means that the coefficients are different from zero.

Interpretation of the Logit Model and Marginal Effects

Since the maximum likelihood was used, the estimated standard errors are asymptotic. The standard normal (Z statistic) was used, instead of the **t** statistic, to evaluate the statistical significance of the coefficients. The reason is that if the sample size is large enough, the t distribution converges to the normal distribution. If L_i, the logit, is positive, it means that when the value of the regressor(s) increases, the odds that the regressand equals 1 (meaning some event of interest occurs) increases. If L_i is negative, it means that the odds that the regressand equals 1 decrease as the value of X increases.

The marginal effects of the explanatory variables on the dependent variable were determined after estimation of the parameters. These marginal effects were used to identify the variables that have the greatest influence on access to credit at the margin. Marginal effects of the logit refer to the change in predicted probability associated with changes in the explanatory variables (Anderson and Newell, 2003; Greene, 2003). Following Greene (2003) the marginal effects for the logit model are given as:

$$\partial E\left[y|X\right]/\partial X = (\beta'x)\left[1 - \Lambda(\beta'x)\right]\beta \qquad (13)$$

Where y is the choice variable; x is a vector of explanatory variables; β is a vector of parameter estimates and Λ is the logistic distribution function. Equation (13) therefore is the procedure for finding the marginal effects of the independent variables in the regression model. In binary regression models, the marginal effect is the slope of the probability curve relating X_i to Pr(y=1|X), holding all other variables constant. Marginal effects are popular in some disciplines (e.g. Economics) because they often provide a good approximation to the amount of change in Y that will be produced by a 1-unit change in X_i.

Concluding Remarks

This chapter presented the methodology used for the study. It described the study area, the research design, the source and type of data and data collection instrument and procedures. Some field challenges during the data collection and errors in the data collected were duly acknowledged. This chapter also discussed the methods employed in the analysis of the data collected and specified the

theoretical and the empirical econometric models used in estimating the access to credit function. It also presented a description of the variables used in the study and how these variables were measured with their respective a priori expected signs. The chapter also discussed the estimation techniques employed by the study and described the procedures for testing the stated hypotheses of the study. The logit regression model was employed to estimate the access to credit equation.

The next chapter, chapter four, presents the results of the study and discusses the findings of the study as far as the analyses of the factors influencing access to credit are concerned. Results of data analysis and discussion of these results are presented in chapter four.

CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

In this chapter, presentation of data, analyses and discussion of results generated in this study are presented. This chapter is divided into four sections. The chapter opens with a discussion of the socio-economic characteristics of the respondents and access to credit. This is followed by the discussion on the institutional factors and access to credit. The discussion on the determinants of access to credit is presented in the third section of the chapter. In the final section, the study explores the sources of funds for business start-ups and for business growth for the respondents in the study area.

This study used primary data collected from individual women retail traders who have ever accessed credit or otherwise, either for the start-up of their businesses or for the growth of their businesses in the Mfantseman Municipality. In this study, retail traders who have ever accessed credit before are labelled beneficiaries while those who have never accessed credit before whether for start-up or business growth are labelled non-beneficiaries. One hundred and ninety six individuals were sampled for the study. Out of that, 143 women representing 73 percent are beneficiaries and 53 or 27 percent are non-beneficiaries.

Socio-Economic Characteristics of Respondents

Information on individual characteristics including age, marital status, educational level, household size, income level and household wealth were used and analysed in the study.

Table 4: Age of Respondents

	Client Status		
Age Groups	Non-beneficiaries	Beneficiaries	Total
<30	20 (10.2%)	18 (9.2%)	38
31-40	19 (9.7%)	55 (28.1%)	74
41-50	9 (4.6%)	51(26.0%)	60
51-60	4 (2.0%)	15 (7.7%)	19
>61	1 (0.5%)	4 (2.0%)	5
Total	53	143	196

Source: Field Survey, 2011

From Table 4, the age group with the highest number of respondents is 31 – 40. This constitutes about 37.8 percent of respondents. Out of this, 7.9 percent and 28.1 percent constitute non-beneficiaries and beneficiaries respectively. The age group > 61 had the lowest number of respondents (2.5 percent). Generally, majority of the respondents fall into the young adult and economically active age group < 60. This represents 95 percent of the total sample of respondents. The

minimum and maximum ages are 20 and 74 respectively with a mean age of about 40.

Table 5: Marital Status of Respondents

	Client Status		
Marital Status	Non-beneficiaries	Beneficiaries	Total
Single	23(11.7%)	28(14.3%)	61
Married	30(15.3%)	105 (53.6%)	135
Total	53	143	196

Source: Field Survey, 2011

As Table 5 depicts, more than half of the respondents are married. A total of 135 out of the 196 respondents, representing about 68.9 percent are married. Out of this, 105 (53.6 percent) and 30 (15.3 percent) are beneficiaries and non-beneficiaries respectively. It can be concluded from Table 5 that being married may improve access to credit since more than 70 percent of beneficiaries are married.

Table 6: Level of Education of Respondents

Client Status

Level of Education	Non-beneficiaries	Beneficiaries	Total
None	7 (3.6%)	7 (3.6%)	14
Primary	21 (10.7%)	35 (17.9%)	56
Junior High	12 (6.1%)	39 (19.9%)	51
Senior High	11 (5.6%)	58 (29.6%)	69
Higher	2 (1.0%)	4 (2.0%)	6
Total	53	143	196

Source: Field Survey, 2011

Most of the respondents have some level of education. This variable was measured by level of education completed by respondents. From Table 6, a total of 182 women constituting approximately 92.9 percent are educated. Out of this number, 28.6 percent, 26 percent and 35.2 percent have attained primary, junior high and senior high school level of education respectively. Only three percent of the respondents proceeded to further their education after senior high. It is pertinent to note that some of the respondents with higher education have polytechnic education. About 7.2 percent of the respondents however have no education at all.

Table 7: Household Size of Respondents

Number	Client Status		Total
	Non-beneficiaries	Beneficiaries	
< 3	24 (12.2%)	39 (19.9%)	63
4-6	20 (10.2%)	77 (39.3%)	97
>7	9 (4.6%)	27 (13.8%)	36
Total	53	143	196

Source: Field Survey, 2011

About half of the respondents have between 4 – 6 persons living in the household as Table 7 depicts. Households with highest number of persons (more than 7 persons) constitute 18.4 percent of total sample. About 32.1 percent of respondents however have less than 3 persons living in their households. With about more than half of the respondents below age 40 and with fairly large households, fertility levels among the respondents can be said to be quite high.

Table 8: Level of Income of Respondents

	Client Status		
Level of Income	Non-beneficiaries	Beneficiaries	Total
< 250	16 (8.2%)	17 (8.7%)	33
251-500	33 (16.8%)	106 (54.1%)	139
501-750	2 (1.0%)	12 (6.1%)	14
>751	2 (1.0%)	8 (4.1%)	10
Total	53	143	196

Source: Field Survey, 2011

The level of income was measured by how much the respondents spend in a month. From Table 8, majority of the respondents (70.9 percent) fall within the GHS 251 – 500 income bracket. Given the current national daily minimum wage of GHS 3.11, the results show that majority of the respondents have relatively high incomes. In fact, they can be classified as being above the poverty threshold of GHS 90.00 per annum. About 12.2 percent of the respondents also earn between GHS 501 – 751. Only about 16.9 percent of the respondents earn incomes below GHS 250.00. It is pertinent to note that more than half (54.1 percent) of the respondents within the GHS 251 - 500 income bracket are beneficiaries. This could probably imply that their access to credit has lead to improvement in their levels of income.

Table 9: Household Wealth of Respondents

	Client Status		
Household Wealth	Non-beneficiaries	Beneficiaries	Total
No	30 (15.3%)	72 (36.7%)	102
Yes	23 (11.7%)	71 (36.2%)	94
Total	53	143	196

Source: Field Survey, 2011

Household wealth was measured by the assets possessed by respondents. Notable among these assets are lands, buildings, vehicles or any other durable/valuable property. From Table 9, majority of the respondents (52.0 percent) do not possess any form of asset. Of those who possess assets, 36.2 percent of them are beneficiaries while 11.7 percent of them are non-beneficiaries.

Institutional Factors

Information on factors including interest rate, collateral requirement, length of affiliation with financial institution and savings account were used and analysed in this study.

Table 10: Interest Rate on Credit to Beneficiaries

Interest Rate (%)	Beneficiaries	Percentage
< 10	13	9.1
11-20	29	20.3
21-30	89	62.2
>31	12	8.4
Total	143	100

Source: Field Survey, 2011

Interest rate is the cost of credit to borrowers. From Table 10, most of the beneficiaries paid between 20-30 percent of interest rate on credit which is quite high. Only 9.1 percent of the beneficiaries paid interest rate of less than 10 percent on credit. Another 20.3 percent of the beneficiaries paid between 11 – 20 percent on credit. Some beneficiaries paid as high as above 31 percent of interest rate on credit. It is however important to note that some beneficiaries paid as high as 75 percent interest rate on credit. The mean interest rate was 19.35 percent. Generally interest rates paid on credit by respondents were high.

Table 11: Collateral Requirement by Creditors

Collateral Requirement	Beneficiaries	Percentage
No	41	28.7
Yes	102	71.3
Total	143	100

Source: Field Survey, 2011

Accessing credit requires meeting certain conditionalities notably collateral requirement by the creditors. In answer to whether collateral was required before being granted credit, 102 out of the 196 beneficiary respondents answered yes. This represents 71.3 percent of the total number of beneficiaries. Even though microfinance institutions are not supposed to demand collateral, the study revealed that some microfinance institutions require collateral from beneficiaries before loan applications are successful. In some cases, some microfinance institutions require that women form groups in order to qualify for credit while some institutions also require that individual loan applications are guaranteed by clients who have substantial amounts in their savings accounts to defray the loan amount borrowed in case of default.

Table 12: Length of Affiliation with Financial Institution

Length of Affiliation	Beneficiaries	Percentage
< 5	31	21.7
6-10	111	77.6
>11	1	0.7
Total	143	100

Source: Field Survey, 2011

The length of affiliation with the source of credit shows the credit history of the beneficiary with the source of funds. Table 12 shows that majority of the respondents had pretty long relationships with their sources of credit. It can be seen that 77.6 percent of beneficiaries had between 6 – 10 years of affiliation with their sources of credit. Only one beneficiary had more than 11 years of relationship with her source of credit. Another 21.7 percent of beneficiaries had maintained a maximum of 5 years of working relationship with their sources of credit. Generally, the length of years of affiliation between majority of beneficiaries and their sources of credit could be considered satisfactory. This could be a reflection of the quality of working relationship between the respondents and the financial institutions, which is borne out of satisfactory track record on the part of beneficiaries.

Table 13: Number of Respondents with Savings Account

Client Status

Savings Account	Non-beneficiaries	Beneficiaries	Total
No	25 (12.8%)	10 (5.1%)	35
Yes	28 (14.3%)	133 (67.9%)	161
Total	53	143	196

Source: Field Survey, 2011

In most cases, having an active savings account with a financial institution is a prerequisite for granting credit. This study sought to find out how many of the respondents had active savings account with financial institutions. Table 13 shows that 161 out of 196 respondents had savings accounts. This figure represents 82.2 percent of the respondents, whiles the remaining 17.9 percent had no savings accounts at all. Generally, it can be concluded that majority of the respondents are financially literate.

Access to Credit

In identifying and analysing access to credit, a number of socio-economic characteristics and institutional factors were identified and incorporated into the access to credit equation. The variables are age, marital status, level of education, size of household, level of income and household wealth. The rest of the variables are interest rate, collateral requirement, length of affiliation with financial institution and savings account. The coefficients of the variables were estimated

by the maximum likelihood estimation method using STATA 11 econometrics software. The goodness-of-fit of the model was judged by the likelihood ratio test. The test statistic is chi-square distributed. At one percent level, the chi-square test was significant which indicates that the estimated model is significantly different from the null or intercept-only model. In addition, the Pseudo-R^2 shows that the model is of good fit and sufficiently predicts the individual access to credit. Apart from marital status, all the variables had the expected a priori signs. However, some of them are not significant. The results of the estimation are presented in the Table 14.

Table 14: Logistic Regression for Access to Credit

Mem_status	Odds Ratio	Robust Std. Err.	Z	[95% Conf. Internal]	
Age_resp	.9649	.0585	0.59	.8569	1.0866
Mar_stat	.3329	.3583	-1.02	.0404	2.7441
Lev_educ					
2	3.8291	4.7255	1.09	.3409	43.0090
3	9.019*	9.4528	2.10	1.1562	70.3554
4	11.0641*	11.5728	2.30	1.4242	85.9518
5	.6355	.9656	0.30	.3234	12.4888
Hsehld_size	1.1660	.3611	0.50	.6354	2.1394
Inc_lev	1.0030	.0021	1.45	.9989	1.0072
Hsehld_wlth	2.1179	1.7327	0.92	.4261	10.527
Int_rate	1.8669**	.1930	- 4.01	1.5245	2.2863
Col_req	1.7034*	1.1577	- 2.04	.2971	9.7665

Table 14 continued

Len_aff	.7111*	.0953	2.33	.5468	.9247
Sav_acc	.4740*	.4044	2.54	.0890	2.5235

Source: Estimation of field survey data, 2011.

The number of observations for the respondents is 196. Pseudo R^2 is 0.7376 and Log likelihood is -30.014392 as shown in Table 15. From Table 14, odds ratios with double asterisk sign (**) denote significance at $p < 0.01$; one asterisk sign (*) denotes significance at $p < 0.05$. The letter 'r' represents reference variable.

Table 15: Summary Statistics

Number of observations	=	196
Wald chi2 (13)	=	60.88
Prob > chi2	=	0.0000
Pseudo R2	=	0.7376
Log pseudo likelihood	=	-30.014392

Source: Estimation of field survey data, 2011.

The results in Table 14 show that age of the retail trader had a positive influence on her access to credit as expected. However the extent of influence was not significant. The implication might be that financial institutions are indifferent as far as age of the retail trader is concerned. The effect of age has been found to be inconclusive as far as access to credit is concerned. In Papua New Guinea, South Africa and Malawi, Kavanamur, (1994), Okurut, (2004 and 2006) and

Diagne and Zeller, (2000 and 2001) respectively, find a positive and significant relationship between age and access to credit. Barslund and Trap (2008) on the other hand, find a negative relationship between age and access to credit in four provinces in Vietnam.

Marital status was measured as categorical variable with two categories; single and married. The single status is used as a reference against which married variable is measured. The results show that being married does not significantly influence a retail trader's access to credit in the study area. Besides, it is negatively associated with access to credit. The implication for the negative relationship between access to credit and marital status could be that spouses of the retail traders are able to provide the needed funds for them to invest in their enterprises. However, in investigating how many rural women have access to credit, Ambreen (2008), indicates that marital status brings self-confidence and reliability that improve female access to credit in Pakistan.

Educational attainment enhances human capital in the form of skills, which is associated with effective utilisation of credit and minimisation of default risk. The level of education variable is a categorical one measured in completed level of education in this study. No school is used as a reference variable and the various levels of education used in this study are measured in reference to it. From Table 14, it can be seen that the levels of education are all positive as expected but two out of the four categories are significant at 5 percent. The odds of accessing credit in favour of a retail trader who has attained junior high school level of education is 9 times and that of a retail trader with senior high school

level of education is 11 times. Primary education and higher education are not significant. A possible reason for higher education being insignificant could be that women with higher education have paid jobs and so do the retail trading as supplementary jobs. They are therefore able to invest in their enterprises with funds from their paid jobs. For primary level of education, the implication might be that their low level of education does not make them appreciate the implications of access to credit for the growth and wellbeing of the enterprises. Nguyen (2007) finds similar results in Vietnam. He finds that education level seems to have an inverse U-shape effect on credit taking possibility; the least and the most educated households borrow least. The results of this study also support studies by Udoh (2005) and Chen and Chivakul (2008) in Nigeria and Bosnia and Herzegovina respectively. In Thailand, Thaicharoen, Ariyapruchya and Chucherd (2004) find low educational attainment to be positively associated with greater access to loans. In particular, they also find that education at the secondary level tends to reduce the likelihood of being credit constrained.

Another variable found to be insignificant but has expected sign is household size. This implies that the relationship between access to credit and the number of persons living in the retail trader's household that can be used as labour to help family business is not strong enough though it is positive. The insignificance of this variable could also mean that the retail traders access credit not for consumption smoothing but for investing in their businesses. However Kavanamur (1994) and Okurut (2004) discovered a positive and significant

relationship between household size and access to credit. Crook (2001) also finds that a household's access to credit improves when family size is large.

The income level variable was also not significant even though Del-Rio and Young (2005) find income to be significant for the probability of participation in the credit market in the United Kingdom. The reason for the insignificance of income level may be that most of the retail traders are beneficiaries of microfinance institutions whose main focus is providing credit facilities to low income groups. These microfinance institutions do not also make the level of income a criteria for granting credit. Arvai and Toth (2001) also find that household income has positive but insignificant effect on the propensity to borrow. In China however, Cheng (2006) discovers that Grameen Model Microfinance programmes fail to target the very poor as access to micro-loans is positively and significantly related to household incomes.

Household wealth captured the ownership of physical assets notably plots of land, buildings, vehicles and other durable assets. Not surprisingly, the results show the positive role of wealth-related factors on access to credit even though not significant. This result supports Karlan and Zinman (2005) who observe that in the United States of America, loan portfolios of financial institutions shifted towards comparatively wealthier customers. Chen and Chivakul (2008) also find that wealth is one of the main factors driving credit market participation.

From theory, interest rate is one of the factors perceived to strongly influence access to credit (Ho, 2004; Diagne, Zeller & Sharma, 1998 and 2001). Omission of interest rate variable renders incomplete an analysis of access to

credit. Interest rate has been included as explanatory variable to evaluate the sensitivity of women retail traders to interest rate in credit market participation. At 1 percent level of significance, interest rate was significant and had the expected sign. The odds ratio indicates that increase in the interest rate leads to decrease in the odds in favour of access to credit. More specifically a unit increase in the interest rate results in a decrease of 1.8669 in the odds of accessing credit. This implies that a reduction in interest rate leads to increase in access to credit. The results of this study corroborate that of Stiglitz and Weiss (1981) who argue that in market equilibrium, credit supply equilibrates with credit demand: if demand should exceed supply, interest rate will rise, thereby decreasing credit demand or increasing supply until demand is equated at the new equilibrium.

However, Shah, Hashmi and Bukhari (2005) discover that in Pakistan, participation in credit programme is significantly related to household characteristics where participants are indifferent to increase in rate of interest. From their results, the odds ratio for the rate of interest variable indicates that participation in credit programme significantly increases as rate of interest increases. It means that households are indifferent about the rate of interest. This is consistent with Malik (1999), Gill (2003) and, Rajeeve, Montgomery and Murdoch (2005). Their results support those who argue that raising interest rates could improve the financial permanence of microfinance organisations.

Another variable that was found to be significant is collateral requirement by financial institutions. The odds ratio in favour of collateral requirement is 1.7034. This means that a retail trader who is required to provide collateral is

1.7034 times less likely to access credit. This could be attributed to the fact that many of these retail traders do not have assets that could be presented as collateral for their loan applications to succeed. By applying Heckman two-step model, Lensink, Ngan and Ninh (2007) suggest that the probability of using formal credit increases if borrowers in the Mekong Delta in Vietnam pledge collateral. This view is also supported by (Kashf foundation, 1996).

The estimated odds ratio for the length of years of affiliation with credit institution revealed that at 5 percent level of significance, the odds of accessing credit increases by 71 percent for every one year increase in the length of years of affiliation. The result of this variable indicates that retail traders in the study area have a track record of satisfactory business relationship with the financial institutions. Thus length of affiliation is another important determinant of access to credit. The outcome of this study is consistent with that of Montgomery (2005) who discovers that clients of microfinance institutions attempt to gain financial worthiness by establishing close links with staff of financial institutions concerned. According to Hoff and Stiglitz (1990), this relationship-specific social capital built between the borrower and the lender is used as a non-price-related mechanism for accessing credit. This implies that the stronger and more long-standing the relationship is, the lower the probability of the borrower's credit being constrained.

Savings account was positive and significantly influenced access to credit. The odds ratio in favour of savings account is 0.7739 which means that a retail trader with an active savings account is 77 percent more likely to have access to

credit than those without savings account. This is true because most financial institutions require beneficiaries to hold savings accounts with them as a prerequisite for granting loans. This finding is in agreement with Kasirye (2007) whose results point to having savings account as a key determinant for accessing credit by households in Uganda.

The marginal effects of the estimated variables were generated. The marginal effects measure the change in the predicted probability for a unit change in the independent variable. The estimated results of the marginal effects are presented in Table 16.

Table 16: Marginal Effects for Access to Credit

Variable	dy/dx	Std. Err.	P > |Z|	[95% Conf. Internal]	
		Delta Method			
Age_resp	.0017	.0028	0.551	.0071	.0038
Mar_stat	-.0484	.0440	0.271	-.1347	.0389
Lev_educ					
2	.0537	.0529	0.310	-.0500	.1574
3	.0928	.0423	0.028	.0098	.1758
4	.1027	.0406	0.011	.0232	.1822
5	.0174	.0596	0.770	-.1342	.0993
Hsehld_size	.0071	.0143	0.620	-.0210	.0352
Inc_lev	.0001	.0001	0.155	-.0001	.0003
Hsehld_wlth	.0348	.0395	0.377	.0425	.1121
Int_rate	-.0290	.0069	0.000	.0255	.0324

Table 16 continued

Col_req	-.0247	.0122	0.021	.0580	.1075
Len_aff	.0158	.0067	0.014	-.0261	.0056
Sav_acc	.0346	.0114	0.002	- .1111	.0418

Source: Estimation of field survey data, 2011.

As seen in Table 16, the marginal effects of interest rate and collateral requirement are negative just as their estimated coefficients while the marginal effects of the other variables are positive.

It can be seen from Table 16 that the marginal effects of junior and senior high school levels, interest rate, collateral requirement, length of affiliation and savings account are significant. The results of the marginal effects are interpreted as follows: Level of education was hypothesised to be positively related to access to credit. Even though all levels of education used in this study positively influence access to credit, two out of the four categories of the level of education are significant - junior and senior high school. First, the marginal effect of 0.0928 for junior high school education means that the individual retail trader who has junior high level education has approximately 9.3 percent higher chance of access to credit as compared to her counterpart who has no education. Second, the marginal effect for senior high is 0.1027. This indicates that the probability of access to credit increases by approximately 10.3 percent for retail traders who have attained senior high school level of education. The reason for the significance of junior and senior high school level of education might be that since these retail traders have attained these levels of education, they can appreciate the importance of credit to the growth and sustainability of their

businesses and so are able to access credit facilities offered by financial institutions to invest in their businesses to give their businesses the necessary boost.

The insignificance of primary level of education can be attributed to the fact that with this level of education, retail traders are not educated enough to appreciate the importance of credit to the success or wellbeing of their businesses. Higher education does not also significantly influence access to credit. The reason might be that since women with this level of education are well educated, they might have paid-jobs and so engage in retail trading as a supplementary economic activity. They are therefore able to meet their credit needs with incomes from their paid-jobs.

Third, the marginal effect for interest rate is -0.0290. This implies that the probability of a retail trader accessing credit reduces by 2.9 percent if interest rate increases by 1 percent. The result of the interest rate variable was what it was hypothesised to be. The reason for the negative coefficient of the interest rate obviously is that the rate of interest charged on credit by financial institution is high and sometimes prohibitive. This prevents the retail traders from being able to access credit from the financial institutions to invest in their businesses.

Four, the marginal effect for collateral requirement is -0.0247. The implication is that a retail trader's access to credit reduces by about 2.5 percent if she is required to provide collateral before her credit application is successful. This variable was also hypothesised to have a negative influence on access to credit. The reason is that retail traders are unable to meet the collateral

requirements of the financial institutions. Even though microfinance institutions are traditionally not suppose to demand collateral, some microfinance institutions require some form of collateral before loan applications are honoured. Collateral requirement in most cases take the form of guarantees. By this, individual loan applications are to be guaranteed by a client of that microfinance institution who holds account with the microfinance institution. The amount of money in his/her account must be enough to defray the amount of credit being guaranteed for in case of default.

Five, the marginal effect for length of affiliation is 0.0158, indicating that the trader's chance of accessing credit increases by approximately 1.6 percent. Length of affiliation is a determinant of credit rationing behaviour. It indicates the strength of business relationship between the client and the lending institution, in addition to the client's reputation in the credit market. The result of this variable indicates that women retail traders have strong social relationships with credit institutions within the study area. This could probably be attributed to the fact that most of the financial institutions are located within the same vicinity where these retail traders are and so have very good social rapport with them. They may have also cultivated informal relationships with the staff of the financial institutions probably through the financial institutions' retail banking drives. These social relationships are then used by the retail traders as leverage to access credit.

Finally, the marginal effect for savings account is 0.0346 which means that the probability of access to credit increases by approximately 3.5 percent if the trader operates an active savings account. The only way an individual can

become a client of a financial institution is to open and maintain an active savings account with the financial institution. The savings account variable is obviously significant because before a client can access credit, she must maintain an active savings account with the financial institution over a period of time. Also, as a convention, the amount of credit a beneficiary may receive directly depends on his/her frequency and level of savings. Savings account therefore is a key determinant of access to credit.

Looking at the marginal effects in Table 16, it can be observed that senior high school level of education has the highest marginal effect. The implication is that education has a stronger impact on the individual woman retail trader for accessing credit.

The Wald's statistics were also generated in this study to show which variables were more important in the model. The statistic is given by the square of the ratio of the parameter estimate to its standard error, which is a z-statistic. Wald statistic has a chi-squared distribution with degree of freedom (df) = 1. The df value equals the number of parameters in the null hypothesis. It has the same P-value as the z-statistic for the two-sided H_A: $\beta = 0$. The Wald's statistic shows the partial effect of a predictor variable in a multiple logistic regression model. Table 17 shows the results of the Wald's statistics generated in the study.

Table 17: Wald's Test for Access to Credit

Mem_status	Coef	Std.Err.	Wald	P > |Z|	[95% Conf. Internal]	
			Robust			
Age_resp	.0357	.0609	.3448	0.555	-.1545	.0831
Mar_stat	-1.0998	1.0762	1.0443	0.307	-3.2091	1.0095
Lev_educ: 1(r)						
2	1.3426	1.2341	1.1836	0.277	-1.0761	3.7614
3	2.1993	1.0481	4.4032	0.036	.1451	4.2536
4	2.4037	1.0460	5.2808	0.022	.3536	4.4538
5	.4533	1.5195	.0891	0.765	-3.4315	2.5248
Hsehld_size	.1535	.3097	.2460	0.620	-.4534	.7605
Inc_lev	.0030	.0021	2.0408	0.146	-.0011	.0072
Hsehld_wlth	.7504	.8181	.8413	0.359	-.8531	2.3539
Int_rate	-.6243	.1557	16.0772	0.000	-.4216	.8269
Col_req	-.5326	.2611	4.1609	0.032	-1.2137	2.2790
Len_aff	.3410	.1463	5.4328	0.020	-.6037	.0782
Sav_acc	.7466	.2939	6.4532	0.011	2.4188	.9256
cons	-6.3715	2.6944	5.5919	0.018	-11.6524	-1.0906

Source: Estimation of field survey data, 2011.

The results in Table 17 give information about the contribution or importance of each of the predictor variables. The value of the statistic for each predictor variable can be seen in the column labelled Wald. In the column labelled P > |Z|, values less than .05 are the variables that contribute significantly to the predictive power of the model. In this case we have eight significant variables.

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They are marital status, primary education, junior high school, senior high school and level of income. The rest of the variables are interest rate, collateral requirement and length of affiliation with financial institution. Overall, it can be seen from Table 17 that interest rate is the most important significant variable and marital status is the least important significant variable. On the other hand variables like age, higher education, household size and household wealth did not contribute significantly to the model.

Sources of Funds

Other objectives of the study were to find out the sources of funds for business start-ups and business growth for women retail traders in the study area. Results of the sources of funds are shown in Tables 18 and 19.

Sources of Funds for Business Start-up

Table eighteen shows the sources of funds for start-up of businesses. Undoubtedly, non-beneficiaries themselves provided the funds needed for the start-up of their businesses. It can be seen from Table 18 that overall, 90.3 percent of the women retail traders provided their own funds for starting their businesses. A few of them also received start-up funds from their family members or friends (6.6 percent). However, a negligible percentage of the women received credit from financial institutions – 1.0 percent and 2.0 percent from traditional banks and microfinance institutions respectively. The only traditional bank from where

retail traders in this study accessed credit is the Ghana Commercial bank. A lot of the retail traders prefer to deal with the microfinance institutions.

Table 18: Sources of Funds for Business Start-Up

	Client Status		
Sources	Non-beneficiary	Beneficiary	Total
Self-financing	53(27.0%)	124 (63.3%)	177
Traditional Bank	0 (0%)	2 (1.0%)	2
Microfinance	0 (0%)	4 (2.0%)	4
Family/Friend	0 (0%)	13 (6.6%)	13
Total	53	143	196

Source: Field Survey, 2011

None of the respondents took credit from moneylenders. This is due to their exorbitant interest rates. It is pertinent to know that some moneylenders charge interest rates as high as 75 percent. The results of this study from Table 18, is consistent with Goheer (2002) , who discovers that in Pakistan, the predominant source of start-up capital for women entrepreneurs was reported as personal savings, while informal sources were in second position. Only 4 percent of respondents had access to formal sources of credit. According to Coleman (2000), women-owned businesses are often self-financed.

Sources of Funds for Business Growth

Table nineteen illustrates that majority of the respondents relied on the financial institutions as their sources of credit for their business growth. Some beneficiaries (4.1 percent) are well able to provide the funds for the growth of their businesses. Some 5.1 percent also borrow from family and friends as well as moneylenders.

Table 19: Sources of Funds for Business Growth

	Client Status		
Sources	Non-beneficiary	Beneficiary	Total
Self-financing	53(27.0%)	8(4.1%)	61
Traditional Bank	0 (0%)	44(22.4%)	44
Microfinance	0 (0%)	81(41.3%)	81
Family/Friend	0 (0%)	4 (2.0%)	4
Moneylender	0 (0%)	6 (3.1%)	6
Total	53	143	196

Source: Field Survey, 2011

It can be concluded that women retail traders are able to access funds from the financial institutions for business growth because they were able to demonstrate to the financial institutions their ability to repay loans as their businesses grow. This finding is in consonance with Nguyen et al (2002). They find that many women borrowers do not take loans to start a new economic

activity, but rather to supplement inadequate operating capital for their already running business or to restart an activity after a break which could have resulted from a shock. In a nutshell, the financial institutions are very instrumental in providing the funds essential for the growth of businesses.

Hypotheses Test

In an attempt to test the null hypothesis that all the coefficients of the explanatory variables are zero in the logit regression model, the likelihood ratio test was used. The likelihood ratio test for the estimation is in Table 15. The likelihood ratio test rejects the hypothesis that the coefficients of the explanatory variables are all zero.

Concluding Remarks

This chapter presented, analysed and discussed the results that were generated from the study. It was observed that education (particularly junior and senior high school levels), interest rate, collateral requirement, length of affiliation and savings account significantly influence access to credit. It was also observed that while interest rate and collateral requirement are inversely related to access to credit, junior and senior high school education, length of affiliation with financial institution and savings account are directly related to access to credit. The result also revealed that the main source of funds for business start-ups is self-financing while microfinance institutions are the main source of funds for business growth.

The overall summary, conclusions and policy recommendations derived from the study as well as limitations of the study and suggestions for future study are presented in chapter five, the final chapter.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This chapter presents the overall summary of the study undertaken and outlines the main conclusions drawn from the empirical results. Recommendations derived from analysis of the available data, limitations of the study and suggestions for future study are also discussed in subsequent sections.

Summary

Self-employment offers tremendous opportunities for women across the world by opening doors to greater self-sufficiency, self-esteem, education, and growth – not only for the women themselves, but also for their families and their employees. However, access to credit, particularly for starting an enterprise, is a major constraint faced by self-employed women and is identified as a major barrier to entry into self-employment throughout the world. The story is not different for women retail traders in the Mfantseman Municipality of the Central Region.

The financial markets and credit systems as they evolved in Ghana after independence were based on some perceived notion of credit scarcity to

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indigenous enterprises as a result of the colonial banking arrangements. Primarily, the allegations of the indigenous population against expatriate banks suggested that they tended to act in concert regarding loan conditions and bank charges within a framework of a discriminatory credit policy.

Consequently, the local entrepreneurs advocated for a national bank to be formed to provide a useful nucleus and training ground for the development of an indigenous banking system to meet the growing financing and credit needs of the country and to encourage banking habit among the populace in addition to providing a banking system that would be sympathetic to local financial needs at a reasonable rate of interest.

However, provision of financial services focused on the scarcity of providers of these services (or the supply side), with little attempt to explore the individual/household access to the services (the demand side). One of the reasons for the failure or at least poor performance of these forms of credit was that they were not adapted to the access of the services by individuals/households.

The purpose of the study was to investigate individual socio-economic characteristics and institutional factors that influence access to credit by women retail traders in the Mfantseman Municipality. The simple random sampling method was used in the study. The sample size was made up of 196 individual women retail traders in the Mfantseman Municipality. The interview schedule was employed to collect data for the study. Data on socio-economic characteristics of individual women retail traders and institutional factors were obtained.

The study employed the logit regression model to estimate the relationship between the dependent and the explanatory variables. Age, marital status, level of education, household size, income level, household wealth, interest rate, collateral requirement, length of affiliation and savings account were regressed on access to credit. Also, the main sources of funding for business start-ups and business growth for women retail traders in the study area were explored.

Summary of findings derived from the empirical results

This section summarises the empirical results of the study in the light of the research hypotheses posed in Chapter 1.

First, it was hypothesised that age of the retail trader does not significantly influence her access to credit. The results of the study as presented in Table 14 in Chapter 4 revealed that even though age of the woman retail trader positively influences her access to credit, it does not do so significantly. Based on the findings of the empirical study, it can be concluded that age of the retail trader does not significantly influence her access to credit. Thus, the null hypothesis that age of the retail trader does not significantly influence her access to credit is confirmed.

The second hypothesis was that marital status of the retail trader does not significantly influence her access to credit. The results of the study as presented in Table 14 in Chapter 4 revealed that contrary to the a priori expect sign, marital status of the retail trader in the study area influences her access to credit negatively but not significantly. Based on the findings of the empirical study, it can be

concluded that marital status of the retail trader does not significantly influence her access to credit. Thus, the null hypothesis that marital status of the retail trader does not significantly influence her access to credit is confirmed.

For the third hypothesis, level of education of the retail trader does not significantly influence her access to credit. The results of the study as presented in Table 14 in Chapter 4 revealed that even though primary school and higher education positively influence access to credit, they are not significant. Junior high and senior high however influence access to credit positively and significantly. Based on the findings of the empirical study, it can be concluded that even though level of education positively influences women retail traders' access to credit, it does so significantly in some instances while in other instances it is insignificant. Thus, the null hypothesis that level of education of the retail trader does not significantly influence her access to credit is rejected in certain instances and confirmed in other instances.

The fourth hypothesis was that household size of the retail trader does not significantly influence her access to credit. The results of the study as presented in Table 14 in Chapter 4 revealed that even though household size of the woman retail trader positively influences her access to credit, it does not do so significantly. Based on the findings of the empirical study, it can be concluded that household size of the retail trader does not significantly influence her access to credit. Thus, the null hypothesis that household size of the retail trader does not significantly influence her access to credit is confirmed.

The fifth hypothesis was that level of income of the retail trader does not

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significantly influence her access to credit. The results of the study as presented in Table 14 in Chapter 4 revealed that even though level of income of the retail trader positively influences her access to credit, it is not significant. Based on the findings of the empirical study, it can be concluded that level of income of the retail trader does not significantly influence her access to credit. Thus, the null hypothesis that level of income of the retail trader does not significantly influence her access to credit is confirmed.

Household wealth of the retail trader does not significantly influence her access to credit was the sixth hypothesis. The results of the study as presented in Table 14 in Chapter 4 revealed that even though household wealth of the retail trader positively influences her access to credit, it does not do so significantly. Based on the findings of the empirical study, it can be concluded that household wealth of the retail trader does not significantly influence her access to credit. Thus, the null hypothesis that household wealth of the retail trader does not significantly influence her access to credit is confirmed.

For the seventh hypothesis, interest rate on credit charged by financial institutions does not significantly influence the retail trader's access to credit. The results of the study as presented in Table 14 in Chapter 4 revealed that interest rate negatively and significantly influences access to credit. Based on the findings of the empirical study, it can be concluded that interest rate charged by financial institutions significantly influences the retail trader's access to credit. Thus, the null hypothesis that interest rate does not significantly influence the retail trader's access to credit is rejected.

The eighth hypothesis was that collateral requirement by financial institutions does not significantly influence the retail trader's access to credit. The results of the study as presented in Table 14 in Chapter 4 revealed that collateral requirement on credit by financial institutions has a negative and significant influence on access to credit by retail traders. Based on the findings of the empirical study, it can be concluded that collateral requirement on credit by financial institutions significantly influence women retail traders' access to credit. Thus, the null hypothesis that collateral requirement by financial institutions does not significantly influence the retail trader's access to credit is rejected.

Length of affiliation of the retail trader with financial institution does not significantly influence her access to credit was the ninth hypothesis. The results of the study as presented in Table 14 in Chapter 4 revealed that length of affiliation by the retail trader with financial institution positively and significantly influence her access to credit. Based on the findings of the empirical study, it can be concluded that length of affiliation of the retail trader with financial institution significantly influence her access to credit. Thus, the null hypothesis that the length of affiliation of the retail trader with financial institution does not significantly influence her access to credit is rejected.

For the tenth hypothesis, savings account of the retail trader does not significantly influence her access to credit. The results of the study as presented in Table 14 in Chapter 4 revealed that savings account of the retail trader positively and significantly influence her access to credit. Based on the findings of the empirical study, it can be concluded that savings account significantly influences

the retail trader's access to credit. Thus, the null hypothesis that savings account of the retail trader does not significantly influence her access to credit is rejected.

There is no highest level of education that influences the retail trader's access to credit in the study area was the eleventh hypothesis. The results of the study as presented in Table 14 in Chapter 4 revealed that senior high school education is the highest level of education that positively and significantly influences the retail trader's access to credit in the study area. Based on the findings of the empirical study, it can be concluded that the highest level of education that significantly influence the retail trader's access to credit in the study area is senior high school level of education. Thus, the null hypothesis that there is no highest level of education that significantly influences the retail trader's access to credit in the study area is rejected.

For the twelfth hypothesis, women retail traders have no main source of start-up funds. The results of the study as presented in Table 14 in Chapter 4 revealed that the main source of start-up funds for women retail traders in the study area is self-financing. Based on the findings of the empirical study, it can be concluded that self-financing is the main source of start-up funds for women retail traders in the study area. Thus, the null hypothesis that there is no main source of start-up funds for women retail traders in the study area is rejected.

The final hypothesis was that there is no main source of funds for business growth for women retail traders in the study area. The results of the study as presented in Table 14 in Chapter 4 revealed that the main source of funds for business growth is the microfinance institutions. Based on the findings of the

empirical study, it can be concluded that there is a main source of funds for business growth for women retail traders in the study area. Thus, the null hypothesis that there is no main source of funds for business growth for women retail traders in the study area is rejected.

Conclusions

From the perspective of the objectives, the following conclusions were made. In the first place, access to credit is explained by socio-economic characteristics and institutional factors. It was realised that consistent with literature, access to credit is dependent on education, interest rate, collateral requirement, length of affiliation with financial institution and savings account.

It was found that level of education, particularly junior and senior high levels, influence access to credit. However, the least and the most educated women borrow the least. This implies that female education up to senior high school level is necessary to influence access to credit.

Interest rate is the cost of credit. This variable impacted negatively on access to credit indicating that the higher the interest rate, the lower the probability of access to credit by individual women retail traders in the study area.

Collateral requirement by financial institutions was found to influence access to credit negatively and significantly. The implication is that if women retail traders are required by credit institutions to provide collateral, their chances of accessing credit is lowered significantly.

Length of affiliation was also found to be positively and significantly associated with access to credit implying that there is a track record of healthy and satisfactory business relationship and that the stronger and longer this relationship-specific social capital is built between the lender and the borrower, the higher the likelihood of access to credit by women retail traders in the study area.

A positive and significant relationship exists between savings account and access to credit. The indication is that maintaining an active savings account with a financial institution increases the individual retail trader's likelihood of accessing credit, all things being equal.

The study revealed that the highest level of education that influences access to credit by women retail traders in the study area is senior high school education. This implies that great efforts must be made by government to encourage female education in order to improve their access to credit.

Women the world over find it difficult to access institutional credit. It is therefore not surprising that the main source of start-up funds for women in the study area is self-financing. This conclusion is consistent with most findings on women small-business enterprises and access to credit in many developing countries.

Finally, it was also discovered that the main source of funds for business growth for retail traders in the study area comes from the microfinance institutions located within the study area. This means that these microfinance

institutions are fulfilling their mission of providing financial assistance to the poor and the vulnerable with the women in the study area being no exception.

Recommendations

On the basis of the findings of the study, the following recommendations are made to government and other stakeholders in the credit market. The findings from the study indicate that education, particularly junior and senior high school education influence access to credit. The odds in favour of access to credit increases by 9 and 11 times for women with junior and senior high school level of education respectively.

The study therefore recommends that women retail traders should be encouraged by government, civil society groups - like the churches and other women's groups to acquire more education. This can be done through strengthening of the non-formal education system by government.

Non-Governmental Organisations (NGOs) working in the area of promoting women's welfare can also take up the responsibility of organising periodic education workshops to train these women retail traders in the study area in an attempt to improve their levels of education.

It is also being suggested that female formal education must be given the needed attention. Females must be encouraged and supported by parents, government and all stakeholders to acquire a minimum of senior high school level of education. In other words, the exit point of education for females should be the senior high school level. This can be achieved through provision of attractive

incentives for females to go beyond the basic level of education. Government should also consider making female education up to the university level free of charge for females who qualify for the university.

The study also revealed that interest rate, which is the cost of borrowing constrained women retail traders' access to credit. In particular, the odds in favour of access to credit reduce 1.8669 times when interest rate increases by 1 percent. The high levels of interest rate charged by financial institutions are usually blamed on non-performing assets (NPAs) due to high levels of loan repayment default. It is therefore suggested that financial institutions should find more innovative ways of minimising default rate in loan repayment. This can be done through careful screening of loan applicants and caring out due diligence before loan applications are honoured. In-depth assessment of loan applicants and appraisal techniques by loan/credit officers should include unannounced visits to applicant's premises or workplace. Credit officers should also establish contacts with raw material dealers (in the case of manufacturing) or suppliers (in the case of traders) of applicants independently to avoid moral hazard and adverse selection. By so doing, non-performing assets can be reduced to tolerable levels. Consequently, financial institutions can reduce interest rates to bearable levels to enable more women retail traders access to credit facilities.

From the findings, collateral requirement by financial institutions negatively affects the individual retail trader's access to credit. Since these retail traders usually do not possess landed property to use as collateral, the collateral requirement usually takes the form of other clients of the financial institution in

'good standing', guaranteeing loan applications of potential beneficiaries of credit facilities. It is recommended that financial institutions should make strict book-keeping or financial records mandatory for potential loan applicants. The financial institutions should also set up relationship desks to be manned by personnel with excellent interpersonal skills. These relationship personnel would be responsible for paying regular visits to their loan beneficiaries to inspect these financial records to ensure avoidance of moral hazard that might affect their ability to repay loans. By so doing, retail traders who do not possess the necessary collateral for loan acquisition can also have access to credit and repay in due course because the poor can use loans and repay if effective procedures for disbursement, supervision and repayment are established.

The relationship-specific social capital built between the lender and the borrower, and used as a non-price-related mechanism for accessing credit by borrowers was found to be quite strong in the study area. Consequently, the length of client affiliation with financial institution variable was found to be positive and significant. This indicates that the strength of business relationship between the client and the lending institution in the study area, in addition to client's reputation in the credit market is quite remarkable. It is therefore recommended that women retail traders in the study area should endeavour and be encouraged by civil society and religious groups, Non-Governmental Organisations and through the non-formal education system to build healthy interpersonal relationships with credit officers as a way of building social capital for loan acquisition.

The study again revealed that savings account is an important determinant of access to credit. It increases the likelihood of access to credit by individual women retail traders. The odds ratio indicates that the likelihood of a retail trader accessing credit increases by 75 percent when the retail trader operates an active savings account. Based on this finding, it is suggested that women retail traders should be encouraged to open and maintain active savings accounts. Females should also be encouraged to embrace the habit of saving. The financial institutions should design more attractive savings packages to enable more retail traders and individuals open savings accounts and save. The current situation where market women leave their stores to join long queues at the banks just to deposit money in their accounts is a big disincentive for them because they tend to lose business. Some retail bankers who are employed by some of these financial institutions to take banking to the doorstep of these retail traders are not trustworthy since there have been instances where these retail bankers have misappropriated funds collected from clients. It is therefore suggested that financial institutions can introduce more innovative ways of banking like "*Speed Banking*" where retail banking staff sell specialised vouchers to their clients. The serial numbers on these specialised vouchers can then be texted to a short code used by the bank to update their accounts. This will save them the time for waiting in long queues or just giving money to retail banking staff who might misappropriate the money.

Limitations

An important limitation of this study was that the respondents sampled for the study were made up of clients of formal, semi-formal and informal financial institutions. These financial institutions have different requirements for loan applications. For example while almost all formal financial institutions require collateral security before loan applications are honoured, some semi-formal and informal financial institutions only depend on the strength of informal relationships that exist between its staff and clients. Another limitation is that, these women retail traders are not selling homogenous commodity. They retail a very wide range of commodities so have different credit needs. Finally, the study was confined to a selected area within the Central Region of Ghana and so findings cannot be generalised even for the whole region. For generalisation of findings, the study will have to be replicated in other parts of the region and the country.

Suggestions for Future Study

This study revealed some areas for future study in the credit market especially in relation to the limitations of the study. In view of this, the following suggestions are made for future studies. First, clients can be disaggregated into clients of formal, semiformal and informal financial institutions using the same variables in order to compare the effects of the variables in each case. Second, the study should consider traders retailing or selling homogenous commodities. Third, a regional or national level study would be useful to establish the generality

of the results. In future, panel data could be used to establish the long run impacts

of the independent variables on access to credit.

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APPENDICES

Appendix A

Results of Reliability Test

Section	Item-test Correlation	Item-test Correlation	Average Inter-item Correlation	Alpha (α)
Section A	0.9104	0.9111	0.9021	0.8912
Section B	0.7992	0.8129	0.8342	0.8289
Section C	0.8361	0.8011	0.8041	0.8801
Section D	0.8602	0.8277	0.8702	0.8065
Section E	0.8842	0.8582	0.8699	0.8483
Test Scale			0.8659	0.8791

Source: Field Survey, 2011

Appendix B

Logit Regression Results for Access to Credit

Iteration 0: log pseudo likelihood = -114.39822

Iteration 1: log pseudo likelihood = -55.957245

Iteration 2: log pseudo likelihood = -34.724901

Iteration 3: log pseudo likelihood = -30.302536

Iteration 4: log pseudo likelihood = -30.016759

Iteration 5: log pseudo likelihood = -30.014393

Iteration 6: log pseudo likelihood = -30.014392

Logistic regression

Log pseudo likelihood = -30.014392

			Number of obs	=	196
			Wald chi2 (13)	=	60.88
			Prob > chi2	=	0.0000
			Pseudo R2	=	0.7376

Mem_status	Coef	Robust Std.Err.	Z	P > |Z|	[95% Conf. Internal]	
Age_resp	.035723	.0608515	0.59	0.555	-.1544606	.0831406
Mar_stat	-1.099799	1.076175	-1.02	0.307	-3.209064	1.009465
Lev_educ: 1(r)						
2	1.342636	1.234091	1.09	0.277	-1.076137	3.761409
3	2.199335	1.048093	2.10	0.036	.1451111	4.253560
4	2.403705	1.04598	2.30	0.022	.3536224	4.453787
5	.4533379	1.519503	0.30	0.765	-3.431509	2.524833

Hsehld_size	.1535482	.3096905	0.50	0.620	-.453434	.7605304
Inc_lev	.0030445	.0020967	1.45	0.146	-.001065	.0071541
Hsehld_wlth	.7504105	.8181446	0.92	0.359	-.8531234	2.353944
Int_rate	-.6242849	.155682	-4.01	0.000	-.4216395	.8269302
Col_req	-.5326471	.2611012	-2.04	0.032	-1.213667	2.278961
Len_aff	.3409744	.146341	2.33	0.020	-.603716	.0782329
Sav_acc	.7465963	.2939355	2.54	0.011	2.418835	.9256422
cons	-6.371531	2.694393	-2.36	0.018	-11.65244	-1.090617

Note: 0 failures and 7 successes completely determined

Note: 1 = No School

2 = Primary School

3 = Junior High School

4 = Senior High school

5 = Higher Education

Appendix C

Logistic Regression Results for Access to Credit

Logistic regression						
			Number of obs	=	196	
			Wald chi2	=	60.88	
			Prob > chi2	=	0.0000	
Log pseudolikelihood = -30.014392			Pseudo R2	=	0.7376	

		Robust					
Mem_status	Odds Ratio	Std. Err.	Z	P > |Z|	[95% Conf. Internal]	
Age_resp	.9649075	.0584556	0.59	0.555	.8568773	1.086558
Mar_stat	.3329379	.3582994	-1.02	0.307	.0403944	2.744132
Lev_educ						
2	3.829124	4.725487	1.09	0.277	.3409099	43.009
3	9.019018	9.452769	2.10	0.036	1.156168	70.35543
4	11.06409	11.57281	2.30	0.022	1.424217	85.95182
5	.6355034	.9656493	0.30	0.765	.323381	12.48881
Hsehld_size	1.165964	.361088	0.50	0.620	.6354423	2.139411
Inc_lev	1.003049	.0021031	1.45	0.146	.9989356	1.00718
Hsehld_wlth	2.117869	1.732723	0.92	0.359	.426082	10.52701
Int_rate	1.86691	.1930243	- 4.01	0.000	1.524459	2.28629
Col_req	1.703436	1.157749	- 2.04	0.032	.2971059	9.766527
Len_aff	.7110771	.0953229	2.33	0.020	.546776	.924749
Sav_acc	.4739771	.4043966	2.54	0.011	.0890253	2.523488

Note: 0 failures and 7 successes completely determined

Appendix D

Marginal Effects

Model VCE: Robust   Number of obs =   196

Expression: Pr (mem_status), predict ( )

Marginal effects after logit regression

		Delta Method					
Variable	dy/dx	Std. Err.	Z	P > |Z|	[95% Conf. Internal]	
Age_resp	.0016576	.0027773	0.60	0.551	.0071011	.0037859
Mar_stat	-.0484366	.0440283	-1.10	0.271	-.1347304	.0388572
Lev_educ						
2	.0537119	.0528938	1.02	0.310	-.0499581	.1573819
3	.0927812	.0423464	2.19	0.028	.0097838	.1757786
4	.1026967	.0405717	2.53	0.011	.0231776	.1822158
5	.0174275	.0595785	0.29	0.770	-.1341992	.0993442
Hsehld_size	.007125	.0143494	0.50	0.620	-.0209993	.0352492
Inc_lev	.0001413	.0000994	1.42	0.155	-.0000536	.0003361
Hsehld_wlth	.0348207	.039454	0.88	0.377	.0425077	.112149
Int_rate	-.0289682	.0069137	- 4.19	0.000	.0255034	.0324329
Col_req	-.024716	.0122356	- 2.02	0.021	.058047	.1074789
Len_aff	.0158219	.006678	2.37	0.014	-.0260654	.0055785
Sav_acc	.0346437	.0114336	3.03	0.002	- .1110933	.0418059

Note: dy/dx for factor levels is the discrete change from the base level.

Appendix E

Table for Determining Sample Size from a Given Population

N	S	N	S	N	S	N	S
10	10	120	92	340	181	1200	291
15	14	130	97	360	186	1300	297
20	19	140	103	380	191	1400	302
25	24	150	108	400	196	1500	306
30	28	160	113	420	201	1600	310
35	32	170	118	440	205	1700	313
40	36	180	123	460	210	1800	317
45	40	190	127	480	214	1900	320
50	44	200	132	500	217	2000	322
55	48	210	136	550	226	2200	327
60	52	220	140	600	234	2400	331
65	56	230	144	650	242	2600	335
70	59	240	148	700	248	2800	338
75	63	250	152	750	254	3000	341
80	66	260	155	800	260	3500	346
85	70	270	159	850	265	4000	351
90	73	280	162	900	269	4500	354
95	76	290	165	950	274	5000	357
100	80	300	169	1000	278	6000	361
110	86	320	175	1100	285	7000	364

Table for Determining Sample Size from a Given Population Continued

N	S
8 000	367
9 000	368
10 000	370
15 000	375
20 000	377
30 000	379
40 000	380
50 000	381
75 000	382
1 000 000	384

Source: Krejcie, R. V. & Morgan, D. W. (1970).

***Note: N is the population size and S is sample size.

Appendix F

INTERVIEW SCHEDULE

UNIVERSITY OF CAPE COAST

DEPARTMENT OF ECONOMICS

This interview schedule is designed to elicit information on the topic:

"Determinants of Access to Credit by Women Retail Traders in the Mfantseman Municipality of the Central Region.

All information provided in this study will remain strictly confidential and your answers will not be disclosed to anyone or used for any other purpose.

SECTION A: PERSONAL CHARACTERISTICS

1. Age of respondent ………………………………..

2. Marital status [1] Single [2] Married [3] Divorced [4] Separated [5] Widow

3. What is your highest level of education? [1] No school [2] Primary

   [3] J.H.S [4] S.H.S [5] Higher education

4. If married, are you living with your partner [1] Yes [0] No

SECTION B: GENERAL HOUSEHOLD INFORMATION

5. Do you have children of your own? [1] Yes [0] No

6. Do your children go to school? [1] Yes [0] No

7. How many are in school? ....

8. How many people are living in your household? ……………………

9. What is the sex of your household head? [1] Female [0] Male

10. What is the educational level of your household head? [1] No education [2]

   Primary [3] J.H.S [4] S.H.S [5] Higher Education

11. Do you have other sources of income? [1] Yes [0] No

12. What is your income level per week? …………………………..

13. How much on the average do you spend in a week? ……………………..

14. Do you possess land, building or any form of assets? [1] Yes [0] No

15. Does your partner contribute (financially or other) to the running of your

   enterprise? [1] Yes [0] No

16. Have you ever had any intra-household problems with your partner as a

   result of your engagement in this enterprise? [1] Yes [0] No

17. Do you consider yourself as part of the decision-making process in your

   household? [1] Yes [0] No

SECTION C: ENTERPRISE CHARACTERISTICS

18. How long have you been operating this business? ....

19. Is your enterprise registered with any agency? [1] Yes [0] No

20. Is this enterprise your main (or only) economic activity? [1] Yes, go to 22

   [0] No

21. Which other economic activity are you engaged in? …..………………….

22. Do you have anyone taking care of your business in your absence? [1] Yes

   [0] No

23. Do you have paid employee(s)? [1] Yes [0] No, go to 25

24. How many are they? ....

25. What is your average sales revenue per week? ………………………………

SECTION D: BUSINESS AND FINANCIAL LITERACY

26. Do you know what a business plan is? [1] Yes [0] No, to go 31.

27. Do you have a business plan? [1] Yes [0] No

28. Is the business plan documented? [1] Yes [0] No

29. What prompted the design of the business plan? ……………….......

30. Who prepared the business plan? …………………………………….

31. Have you heard of any financial management or technical training

opportunities that will improve your finances? [1] Yes [0] No, go to 35.

32. Have you ever participated in any of these programmes? [1] Yes [0] No,

go to Q.34.

33. How did it impact your business? …………………………………………..

34. Why did you not participate? ………………………………………………

35. Do you keep financial records? [1] Yes [0] No

SECTION E: CREDIT HISTORY & FINANCIAL PRODUCT

PACKAGING

36. Where did you get the funding to start your business? [1] Self-finance

[2] Traditional Bank [3] MFI [4] family/friend [5] Moneylender [6] other

(specify)

37. Have you taken credit before (at least within the past twelve months)?

[1] Yes [0] No, go to Q.48.

38. Where did you take the credit from? [1] Self-finance [2] Traditional Bank

 [3] MFI [4] family/friend [5] Moneylender [6] other (specify)

39. What did you use the credit for? …………………………………………

40a. How much credit did you apply for the last time? ……………………….

40b. How much did you receive? ……………………………….

41. What is the average amount of credit you have taken within the past twelve

 (12) months? …………………………………………………

42. What was the interest rate charged on the credit taken? …………....

43. Were you required to provide collateral security? [1] Yes [0] No

44. What is the length of your relationship with this financial institution? ………

45. Does this financial institution provide you with other forms of support

 services apart from giving you credit? [1] Yes [0] No

46. Do you have a savings account with this or any other financial institution?

 [1] Yes [0] No, go to Q.48.

47. Is your savings account voluntary or compulsory? …………………………

48. How much on average do you save (in cash) per week? ……………………