Credit Accessibility and Utilisation: The Micro and Small-scale Entrepreneurs' Experience in Uganda

Master Thesis – Development Economics

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DEDICATION

To my children, the 3Ds and our Mum, Tinah

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Acronyms and Abbreviations

AMFIU	Association of Microfinance Institutions in Uganda
BoU	Bank of Uganda
MDI	Microfinance Deposit-taking Institution
MFI	Microfinance Institution
MFP&ED	Ministry of Finance Planning & Economic Development
MSEs	Micro and Small-scale Entrepreneurs
NGOs	Non-Governmental Organizations
ROSCAs	Rotating and Savings Cooperative Associations
SACCO	Savings and Credit Cooperative Societies
VSLAs	Village Savings and Loan Associations

Abstract

Rural credit markets are characterised by the co-existence of formal and informal lenders. Using a survey from Uganda, we base our analysis on descriptive statistics and a binary logit model to investigate this relationship. The summary of the descriptive statistics and the respective t-test results indicate that there are specific socio-economic characteristics that influence a given borrower's choice of credit source between formal or informal lenders. Results from a logistic regression on the other hand, indicate that informal credit complements credit from the formal subsector. We conclude by recommending the adoption of financial linkages in policy formulations among several governments particularly, in the developing Africa.

Key words: Micro & small-scale entrepreneurs; Credit; Accessibility; Utilisation; Financial linkages; Substitutes; Complements

Chapter 1 Introduction

1.1 Background

Over the past twenty years, the microfinance industry has substantially grown around the world especially, after the year 2000. This growth is generally, linked to the expectation that expanding credit access helps to improve the welfare of the poor (Armendariz & Morduch, 2010). Those who benefit from micro-credit programs are the very poor who have limited access to any type of conventional loan. Once given access, such people use credit proceeds to boost or start own ventures with resultant beneficial effects like improved productivity, livelihood diversification, household income and overall consumption smoothing (Obara, Mukasa, & Staschen, 2007; F.N. Okurut, Margaret, & Mukungu, 2010; Synovate, 2010; United Nations, 2003). Similar effects are equally observed at the macro-level through poverty alleviation (Honohan, 2004; Levine, 1997).

In developing countries however, credit accessibility among the poor particularly, the MSEs faces several challenges, some of which are associated with credit market imperfections (Armendáriz & Morduch, 2010). For the case of Uganda, such challenges include collateral requirements and highly bureaucratic operations, which result into poor customer relations and failure to provide innovative products that fit market needs (Friends Consult, 2008; Kasekende, 2011; Synovate, 2010). The immediate outcome of this could be an imbalance between credit demand and supply (Stiglitz & Weiss, 1981) and more poverty traps within households (Banerjee & Newman, 1993). Accordingly, many governments in developing countries and their partners have directed a lot of attention to credit-related programs (IFAD, 2006). As a case in point, the government of Uganda has initiated several programs to help improve credit accessibility among the poor without notable success (Abola, 2011; Benin et al., 2007; Kasekende, 2011; Matovu & Okumu, 2010; Synovate, 2010). Such programs include Poverty Eradication Action Plan (PEAP), Prosperity for All, *Entandikwa*, and most recently, The Youth Entrepreneurship Fund (Bahiigwa, Rigby, & Woodhouse, 2005; MFP&ED, 2011). In such programs, the government only engages formal financial institutions in the implementation (MFP&ED, 2011), which could be one of the potential reasons behind the low performance.

With better infrastructure, substantial capital base and the monopoly of running government programs and taking customers' deposits, it would be assumed that the formal subsector has a competitive edge over the informal subsector. In effect, it would be conventional that the informal subsector is outcompeted and forced out of the market. However, this has not been the case and most probably because formal institutions have own weaknesses like less commitment to politically-initiated programs, mandatory collateral requirement (Bahiigwa et al., 2005; Synovate, 2010) and bureaucratic tendencies (Kasekende, 2011). Some of these weaknesses drive majority of the MSEs to the informal subsector (Duggan, 2008; Matovu & Okumu, 2010; Mpuga, 2004; Synovate, 2010), which underscores the possibility of the two forms of credit behaving as substitutes (Bose, 1998; Ghate, 1992; Guirkinger, 2008; Jain, 1999). This could be attributed to the fact that the informal subsector has better information about the potential borrowers and employs several innovative lending mechanisms (Armendáriz & Morduch, 2010; Petersen & Rajan, 1997) and strict penalties for late payment (Petersen & Rajan, 1997) to remain competitive. On an intriguing note however, some borrowers whether constrained in the formal credit market or not, do take credit from informal markets as well. This aspect of coexistence could be explained by the possibility of the two forms of credit complementing each other (Alphonse, Ducret & Séverin, 2006; Biais & Gollier, 1997; Gupta & Chaudhuri, 1997; Sagrario Floro & Ray, 1997). Therefore, the high growth rates the informal subsector has been attaining in Uganda (Duggan, 2008) could be due to the highlighted issues. In a nutshell, designing appropriate interventions to attain sustainable credit accessibility among the poor could embrace the aspect of financial linkages. Moreover, there are existing examples where credit market interventions involving the formal-informal subsector interactions have given some positive results, the case of the Philippines (Sagrario Floro & Ray, 1997).

Though there are already some studies that have been conducted in regard to financial linkages, such studies have been in the regions outside Africa. Moreover, these studies have given conflicting outcomes which does not help to improve the weak relevance of such findings in an African context. The study by Pagura and Kirsten (2006) generally considers credit markets linkages in all the three developing regions of Africa, Asia and Latin America, as a means of improving outreach. Rural credit outreach however, may not necessarily imply adequate accessibility or utilisation for that matter. Based on the Philippines, Sagrario Floro & Ray (1997) look at how a policy that advances formal credit to informal lenders may fail to result into the realisation of improved lending terms. Bose (1998) on the other hand, focuses on how borrower characteristics with particular reference to small farmers in India, lead to credit-rationing in the formal subsector resulting into such borrowers approaching informal lenders. Using the experience of Asian developing countries, Ghate (1992) argues that a clear understanding of the interaction between formal and informal financial subsectors offers a vital insight into the improvement of the informal subsector operations. Two studies by Jain (1999) and Guirkinger (2008) based on India and Peru credit markets respectively, show that under certain circumstances, entrepreneurs can be active borrowers in both the formal and informal financial subsectors. Potential borrowers may either be excluded from the formal credit markets arising from credit rationing or simply adopt a preference of the informal credit markets driven by lower processing costs and lower risk. The two studies point to the case of credit substitution.

Using statistical tools, we look at how socio-economic characteristics influence a given borrower's choice of credit source. Likewise, we use an econometric model to determine how the utilisation of credit from the formal and informal subsectors relates. From the two analyses, we are able to come up with recommendations for improving credit accessibility and utilisation among micro and small-scale entrepreneurs. We based our study on Uganda because; i) the informal financial subsector is growing steadily in the country and is the most common among the MSEs (Duggan, 2008), ii) financial inclusion in the country remains a challenge despite all the government interventions and the many gains that have been achieved in the sector (Kasekende, 2011; Synovate, 2010), and iii) the study results can easily be generalized across many other African developing countries due to strong similarities in economic conditions–the financial market landscape, population growth rates, nature of entrepreneurial activities and GDP growth rates (Sinding, 2009).

1.2 Conceptual Design

1.2.1 Problem Statement and the Rationale for the Study

In Uganda and indeed, many other developing countries, governments and other development organisations focus most of their development interventions through the formal financial subsector (IFAD, 2006). This could be one of the possible explanations for the low levels of credit accessibility in such countries especially, among the MSEs. The significance of the informal financial subsector in this case, is usually overlooked yet the subsector remains active in the credit market despite its assumed inferior position in relation to the formal financial subsector. Development interventions implemented through a well-organised interaction between formal and informal financial subsectors however, may result into substantial economic gains due to efficient financial intermediation and improved livelihoods (Chipeta & Mkandawire, 1992). Improving credit accessibility and utilisation among micro and small-scale entrepreneurs therefore, requires coming up with a well-explained hypothesis on how formal and informal credits relate, taking into account the influence of socio-economic characteristics on an entrepreneurs' choice of credit source.

1.2.2 Study Objectives

Overall, the objective of the study was to improve credit accessibility and utilisation among micro and small-scale entrepreneurs by determining the relationship between informal and formal credits. More specifically, the study aimed at addressing two questions:

1) What determines whether an entrepreneur chooses to apply for credit from the formal or informal financial subsectors? and
2) Is credit from the informal and formal financial subsectors in form of substitutes or complements?

The first question is addressed using statistical methods. The socio-economic information collected on respondent characteristics during the survey was coded and finally analysed using descriptive statistics. We are able to identify the factors influencing the choice of a given borrower's credit source by determining the mean differences of a given characteristic between a borrower in the formal and informal subsectors. If the difference is statistically significant, we conclude that such a factor influences the choice of credit source for a given borrower. The second question on the other hand, is tackled using a binary outcome logistic model. The underlying principle is to determine the behaviour of a given household/individual that is quantity-rationed in the formal subsector. If such individuals or households resort to the informal subsector for their credit needs, we talk of credit substitutes and if they fail to approach the informal subsector altogether, we talk of credit complements.

1.2.3 Important Study Concepts

A financial linkage refers to any form of partnership between formal and semi-formal or informal financial institutions from which each of the participating institutions derives a benefit. In addition, there is an assumed resultant growth in the provision of rural financial services (Pagura & Kirsten, 2006). On the one hand, some of such linkages may be intended to help informal institutions to diversify and expand their sources of funding and on the other, to help formal institution venture into markets they have little knowledge about.

Credit rationing is implied to mean a scenario whereby the demand for formal credit exceeds the supply of such credit at the going interest rate (Chapin & Hassett, 1960) and in most cases, it is influenced by the lender's willingness and ability to lend (Diagne, Zeller & Sharma, 2000). It arises from a scenario where either a formal loan application is turned down or a potential borrower fails to make a formal loan application for fear of the application being rejected, or an amount lower than required is granted (Guirkinger, 2008). Based on these aspects, we shall use the term 'quantity-rationed' throughout this study to refer to a credit-seeking household or individual whose formal credit application was rejected, obtained less amount than was required or never made a formal application for fear of being unsuccessful.

Credit access is more of a supply-side issue and it refers to the choice of the maximum credit allowed to a potential borrower by a given formal/ informal lender (Diagne, Zeller & Sharma, 2000). In other words, it measures the extent to which both formal and informal lenders meet the credit needs of a potential borrower based on availability and eligibility criteria of a given lender.

An entrepreneur is considered to be a person who employs factors of production in a manner that maximises output while incurring less expenses and hence, creating a profit (Schumpeter 1934). Likewise, by 'micro and small-scale entrepreneur' we refer to an individual or household working with production factors (capital) worth between Ush.500,000 and 50,000,000/=[1]. In certain instances, the entrepreneur may need to supplement capital by engaging in the credit market thereby paying an interest on such capital. Access to credit is mainly seen as a measure to boost or start own ventures with resultant beneficial effects like improved productivity, financial literacy, gender empowerment and household income, overall consumption smoothing and livelihood diversification.

Formal and informal financial subsectors refer to a group of individuals, households or institutions that provide financial services to commercial and retail customers depending on how each subsector is set-up, incorporated or licensed and regulated. The formal subsector comprises of institutions that are licensed, that is, regulated by the Central Bank (BOU, 2012). The informal subsector on the other hand, is comprised of those service providers that are either not licensed but formally-constituted under the laws of Uganda or are not incorporated under any law (Staschen, 2003). In this study however, the formal subsector will only refer to the Commercial Banks and Credit Institutions while all the other financial service providers including MDIs and MFIs, are covered under the informal subsector. This categorisation is based on the fact that the properties of credit from all the other institutions than Commercial Banks and Credit Institutions are so much similar that drawing a clear distinction between them is rather difficult. Particular reference is made to short repayment forms, short credit duration, solidarity lending methodology, compulsory savings and chattel-based collateral.

[1] As of January 2013, 1US dollar ≡ 2,650 Uganda shillings; BoU website

1.3 Thesis Organization

The introductory chapter has highlighted the background information on credit accessibility and utilisation. It further, gives an insight into the conceptual framework of this research and an overview of concepts of significance to the study. The remainder of the report is organized as follows:

Chapter two covers the financial market landscape in Uganda while chapter three tackles the theoretical framework of the study, the characteristics of formal and informal borrowers, and the dynamics of formal and informal credit utilisation. Chapter four covers the description of the study area, methods of data collection, and the empirical approaches to data analysis. Chapter five presents the study’s major findings, which are discussed based on a borrower’s choice of credit source. Further, the chapter discusses the relationship between the utilisation of credit from the two financial subsectors in respect to substitution and complementarity. The sixth and final chapter is dedicated to the summary of the study findings and the conclusions thereof. Also in this chapter, recommendations directed at future research and policy implications on improving credit accessibility and utilisation among MSEs are presented.

Chapter 2 The Financial Market Landscape in Uganda

The financial sector is essential in the promotion of economic growth and productivity, and in raising savings and investment rates. Investment in business operations triggers positive growth trends but such investments require savings (Easterly, 2008). Savings on the other hand are complementary with borrowing (Armendariz & Morduch, 2010). However, the recent local and global economic hardships have made the provision of financial services in Uganda more difficult than before. This calls for the adoption of innovative lending mechanisms in order to improve the participation of most MSEs in the credit market. In turn, this would support business investment and growth. Some of the innovative approaches that have been suggested include: i) contract lending where the borrower receives inputs from the lender and the lender markets the product to recover own principal or interest first; ii) linkage banking between the two financial subsectors; iii) regular monitoring of credit utilization by the borrowers; iv) reducing bureaucracies in order to simplify the borrowing process; and v) rationalizing interest rates and collateral requirements (Matovu & Okumu, 2010).

Uganda's financial sector would provide an ideal environment for financial linkages between the formal and informal lenders due to the characterisation of the sector by dualism. Dualism relates either to the division of money markets into unorganized and organized forms (Myint, 1985) or to the coexistence of two sectors which are basically asymmetrical, in terms of both the product and organisational characteristics (Ranis, 1988). Although the country's financial sector has seen lots of reforms, there has not been substantial reduction in the gap between formal and informal financial subsectors. The formal subsector mainly targets the middle class and upper poor citizens both in urban and peri-urban areas and comprises of regulated and unregulated but formally-constituted institutions. Regulated institutions are those that are supervised by the Central Bank, BoU. On the other hand, the informal lenders though not regulated, may be or may not be formally-constituted but do offer financial services in urban and rural areas while targeting the poor or those unserved or underserved by the formal subsector (Duggan, 2008; Matovu & Okumu, 2010; Mpuga, 2004).

As summarised in Table 1, the regulated institutions include 25 commercial banks, 4 Microfinance Deposit-taking Institutions (MDIs) and 3 Credit institutions (BoU, 2012). The non-regulated institutions are either formally or informally constituted and include private money-lenders, Savings and Credit Cooperatives (SACCOs), Rotating Savings and Credit Associations (ROSCAs), Non-Governmental Organisations (NGOs), Landlords, Friends and Relatives, and Traders. Tier 1, 2 & 3 consist of Commercial Banks, Credit Institutions and Microfinance Deposit-Taking Institutions (MDIs), the operations of which are regulated and supervised by the Central Bank, BoU. Though registered, Tier 4 category which includes Savings and Credit Cooperatives (SACCOs), Village Saving and Loan Associations, Moneylenders, etc, is not regulated by the Central Bank.

Table 1: *The composition of the Financial Sector in Uganda*

Tier	***Financial Institutions***	***Number***	***Applicable law***
1	Commercial Banks	25	Financial Institutions Act 2004
2	Credit Institutions	3	Financial Institutions act 2004
3	MDI (Micro Deposit-taking Institutions)	4	MDI Act 2003
4	*MFIs registered as NGOs, Companies, Money Lenders and SACCOs	Approx. 1000	Not regulated yet; Money-lenders Act (1952), Companies Act (1961), NGO Registration Statute (1989), Co-operative Societies Statute (1991) and Co-operatives (Amendment) Bill (2002)
	*Unregistered Individuals (Money-lenders, Friends and relatives, Employers and Traders)	Numerous	Not regulated; governed by general laws of the country.

Source: BoU
* Information from the Association of Microfinance Institutions in Uganda, AMFIU

The informal financial subsector particularly money lending, is on the increase in the country for both licensed and unlicensed categories – to be licensed, lenders should follow the Money Lenders Act and take out a certificate from a magistrate (Khisa, 2012). The growth of the informal financial subsector is in response to the ever-growing number of unserved/ underserved borrowers. Unfortunately, there has always been a general tendency to blame the operations in this subsector (Duggan, 2008; Khisa, 2012) without offering suggestions for improvement and strengthening the capacity of players in the subsector. Generally, the informal subsector is blamed for some of the economic problems faced by some sections of the population in developing countries (Armendariz & Morduch, 2010; Brook, 2007) with some suggestions of a clamp down on some of such businesses. However, informal lenders may not necessarily be bad (Bruce R, 1992) and are known to provide valuable and unique services (Armendáriz & Morduch, 2010; F. N. Okurut, Schoombee, & Berg, 2005). Some of such services include capacity creation and adoption of new products and new organizational forms (Leibenstein, 1968). The informal financial subsector indirectly supports economic development through social wealth improvement and undertaking the task of solving problems of the society (Wharton School, 2003). Social wealth enhancement is through job creation, increased productivity and national competitiveness, and better quality of life (Leff, 1979). In developing countries, entrepreneurs fill the important gaps left by incomplete and underdeveloped markets. For example, in situations of severe market imperfections, informal lenders have managed to go against all the odds to perform.

Chapter 3 Theoretical Framework and Related Literature

3.1 An Entrepreneur's Choice of Credit Source

To have a clear understanding of credit accessibility it is important to consider the "permanent-income model" (Diagne, 1999). The model assumes that an individual maximises life-time utility through re-allocation of purchasing power between periods, and this is achieved through credit use. However, credit demanded is influenced by a number of factors including borrower-lender characteristics and relationships, and those associated with credit terms (Diagne, Zeller & Sharma, 2000). Capital as a factor is generally replenished or boosted by seeking credit thus, allowing a given households or individual to invest in profitable ventures. Formal and informal financial lenders have differing credit access requirements that determine whether a potential borrower seeks credit from any of the two. Likewise, potential borrowers have defining characteristics that influence the choice of the lender to approach in order to satisfy own credit needs. Many scholarly and professional articles have been written about this topic especially in as far as developing countries are concerned. It is emphasised that access to credit among the poor or MSEs for that matter, has remained a development constraint in such countries (Berger, 1989).

According to Chen & Chiivakul (2008), some of the factors that influence a given household's level of credit access are endogenous to such a household while others are exogenous, emanating from the outside environment. For example, the level of credit constraint tends to reduce with increasing age due to the lenders' perception that such borrowers are less likely to default on their obligations. Corresponding findings are witnessed in the study on Thailand household by Thaicharoen, et al. (2004). He indicates that though low income, low age and low education levels increase credit demand, such demand is not backed up by the individual's ability to borrow due to less property and household income. It is very common that borrowers of young age are associated with inadequate income and property levels, yet these are emphasized in formal credit access. Such borrowers would therefore, be more likely to approach the informal subsector in which access conditions are assumed to be less bureaucratic and highly flexible. On the other hand, being a female, farm operator or having secondary education level or above, are likely to improve credit access (Devkota, 2006). Indeed, the involvement in financial activities especially in the formal subsector requires specific knowledge and skills, yet females have relatively lower levels of literacy compared to male counterparts.

A potential lender is more likely to extend credit to an entrepreneur with whom such a lender has had a previous working relationship (Cole, 1998) and more so, if the financial institution in question is from the formal subsector (Petersen & Rajan, 1997). Being in business longer is consistent with stable business inflows, steady banking activity, asset accumulation and a credit history to refer to. With such qualities, a given entrepreneur is more likely to access larger credit (Peprah, 2012) since he/she is able to meet the mandatory access requirements of formal lenders. So, it is expected that micro and small-scale entrepreneurs who have been in business longer have a tendency to be associated with formal lenders. However, this theory may be challenged since credit constraints tend to increase with distance to the nearest lender (Doan, Gibson & Holmes, 2010), with less regard to relationships. The rigorous screening exercise in the formal subsector aimed at controlling for the 'moral hazard' problem results in high credit costs especially if the mode of repayment is frequent (Matovu & Okumu, 2010). Subsequently, borrowers would be encouraged to approach lenders nearer to them (Zeller, 1994) and if such lenders whether formal or informal, offer better terms (lenders) are (Atieno, 2001).

Property titling may lead to significant improvement in credit access among the urban poor (Carter & Olinto, 2003; Field & Torero, 2006; Matovu & Okumu, 2010). Property titling greatly improves value, which offers owners better collateral alternatives for long-term credit and higher borrowing level, which are essential for investment. Therefore, potential borrowers with titled property or high value assets are expected to approach the formal subsector in which credit supply is usually backed by tangible assets. Moreover, this subsector is more likely to offer long-term credit than the informal one. The relatively low income levels for most women in developing countries (Jiggins 1989) may be linked to this theory. Female entrepreneurs at household and community levels are faced with several socio-economic challenges, which tend to limit the ability to own productive assets

(Fafchamps & Quisumbing, 2002). For example, the issue of property ownership and inheritance in some rural parts of Africa is traditionally, vested in men. Therefore, attaining adequate credit accessibility particularly the formal credit, by individual females and female-headed households becomes a challenge. This in turn, limits females' ability to engage in larger projects for personal and own family support (Berger, 1989). They instead turn to friends and relatives, NGOs, donor agencies and other informal credit sources, which are deemed flexible (Udry, 1990) in the perspective of collateral ownership.

Table 2: Summary on Factors influencing the choice of Credit source

Author	Summarised findings
Atieno (2001)	Borrowers have a preference for a lender which offer better terms. However, credit use is limited by its supply, which arises from rationing behaviour happening in the formal and informal subsectors. Using the already established networks in the formal subsector to provide relevant channels can help reverse this trend and improve credit access.
Berger (1989)	Females engage in projects for personal support and for supporting their families however, such projects are too small to get them out of poverty.
Carter & Olinto (2003)	Property titling may lead to significant improvement in credit access among the urban poor.
Chen & Chiivakul (2008)	Some of the factors that influence a given household's level of credit access are endogenous to such a household while others are exogenous, emanating from the outside environment.
Cole, 1998	The working relationships between a potential lender and a given entrepreneur are a precursor to credit access, regardless of how long such a relationship has been in existence. Multiple borrowing limits the opportunity of a given entrepreneur to access credit a potential lender.
Devkota (2006)	Being a female, farm operator or having secondary education level or above, are likely to improve credit access.
Diagne (1999)	An individual maximises life-time utility through re-allocation of purchasing power between periods, which is achieved through credit use, i.e. the "permanent-income" hypothesis.
Diagne, Zeller & Sharma (2000)	Credit demand is influenced by a number of factors including borrower-lender characteristics and relationships, and credit terms.

Doan, Gibson & Holmes (2010)	The availability of several formal institutions in a given area does not necessarily help improve the situation of highly credit-constraints, with poor households being the most affected. Instead, the poor turn to the informal subsector for their credit needs and they use such loans for household consumption. Credit constraints tend to increase with distance to the nearest lender. Poor households have higher levels of local relationships and trust among community members, and this improves the levels of informal credit access for such households.
Fafchamps & Quisumbing (2002)	Female entrepreneurs at household and community levels are faced with several socio-economic challenges, which tend to limit the ability to own productive assets.
Field & Torero (2006)	Credit access from public and not private financial institutions, is linked with property titling.
Jiggins (1989)	Though women in Africa do most of the work aimed at improving household livelihood, their levels of income are continuously declining. Most of the business activities run by women are not licensed which delineates their inability to enjoy business-support from informal lenders.
Matovu & Okumu (2010).	Credit accessibility is influenced by several factors particularly, credit terms, borrower and lender characteristics and borrower-lender relationship. Land titling, lower interest rates, flexible repayment mode that allows 'payment in kind', lower processing costs, clear loan purpose, less bureaucracy and longer relationships, all improve credit access. Verifying some of these factors implies a rigorous screening exercise in the formal subsector that may result into high credit costs.
Petersen & Rajan (1997)	When access to credit from the formal subsector is limited, enterprises or firms use more of the informal subsector. The informal subsector can easily deal with 'bad' borrowers due to the ease with which information about such borrowers can be obtained and collateral liquidated.
Peprah (2012)	The borrower's well-being and age of business are critical household characteristics that influence a given borrower's access to credit while education level and marital status are not very relevant. Entrepreneurs who have been in business longer and/or have high well-being scores are more likely to access larger credit.
Thaicharoen, Ariyapruchya & Chucherd (2004)	Though low income, low age and low education levels increase credit demand, such demand is not backed up by the individual's ability to borrow due to less property and household income.

Udry (1990)	Rigorous screening mechanisms aimed at covering for lack of adequate information between lenders and borrowers are absent among community lenders due to the free flow of information in rural areas. Credit transactions are so flexible that there is minimal use of collateral however this poses a challenge to potential lenders from the formal sector since they have no access to information. Based on the strategies employed in the informal sector, the formal sector may design a peer monitoring system to be able to lend rural communities.
Zeller (1994)	Informal lenders are usually the closest to local borrowers and the preferred destination for credit satisfaction. By virtue of the proximity to potential borrowers, such lenders base their decisions to grant credit on information about a given applicant's credit worthiness. The informal lenders therefore, have an information advantage over the distant formal lenders about potential borrowers.

3.2 The Formal – Informal Credit Utilisation Dynamics

In a bid to improve credit accessibility especially among the poor, significant innovations have been suggested and/or adopted. Unfortunately, millions of people around the world remain credit constrained and rationed (Pagura & Kirsten, 2006) and most of these live in Africa. One of the ways that has been suggested in achieving such innovations is to have a clear understanding of the interaction between formal and informal financial subsectors (Ghate, 1992). Afterall, micro and small-scale entrepreneurs may be active borrowers in both the formal and informal financial subsectors (Guirkinger, 2008). Due to anticipated risk associated with inadequate information about small and poor borrowers, formal lenders may screen borrowers by rationing credit, setting higher interest rates and demanding for stronger collateral (Biais & Gollier, 1997). Though such actions are an impedement to successful set-up and growth of micro and small-scale businesses, credit-rationed and/or constrained borrowers have a coping strategy: They turn to the informal subsector to meet their credit needs needs (Jain, 1999), which points to the issue of the two forms of credit behaving as substitutes. Alternatively, potential borrowers may simply adopt a preference for informal credit markets because of lower processing costs and lower risk (Guirkinger, 2008). Through informal lenders therefore, the formal subsector can promote linkages to be able to profitably lend to the assumed risky markets in which informal lenders have a competitive advantage (Petersen & Rajan, 1997). Most of the studies conducted on this idea however, have concentrated on Asia and Latin America and rarely, do they present common findings. It may thus, be a challenge to apply the findings of such studies to an African context given the cultural, economic and institutional differences between the regions.

Pagura and Kirsten (2006) go for a broader picture of how such linkages work by looking at credit markets in all the three developing regions of Africa, Asia and Latin America. Going by the scope in terms of geography, population size and dispersion, it may be argued however, that such a study could not have been so exhaustive to give solid conclusions. The study considers financial linkages as a means of improving outreach. This may however, not necessarily imply adequate accessibility or utilisation for that matter. Ghate (1992) on the other hand, uses the experience of Asian developing countries to discuss alternative implications of the formal-informal subsectoral interactions. He asserts that such linkages may promote competition and intra-linkages in the informal subsector. This may in turn help to improve outreach in rural areas leading to better lending terms for rationed borrowers who are usually the MSEs. However, financial linkages may actually worsen the terms and availability of informal credit to such borrowers. The study by Sagrario Floro & Ray (1997) in the Philippines indicates that major groups of informal lenders are likely to engage in strategic alliance thus, limiting competition. Alternatively, one group of such lenders, the *insider* lender may have much more information about a potential borrower than the other, the *outsider* lender (Bose, 1998) resulting into a situation where the *insider* lender gains control.

Up to this point, we have looked at scenarios that point to the fact that credits from the formal and informal subsectors tend to behave as substitutes. However, a situation may arise where lack of (or inadequate) access to formal credit may result into a situation where a given borrower completely stops or reduces informal credit demand. Alternatively, the informal credit demand for the same borrower may increase simply because formal credit access is adequate or improving. In this case, the two forms of credit behave as complements (Alphonse, et al., 2006; Fedele &

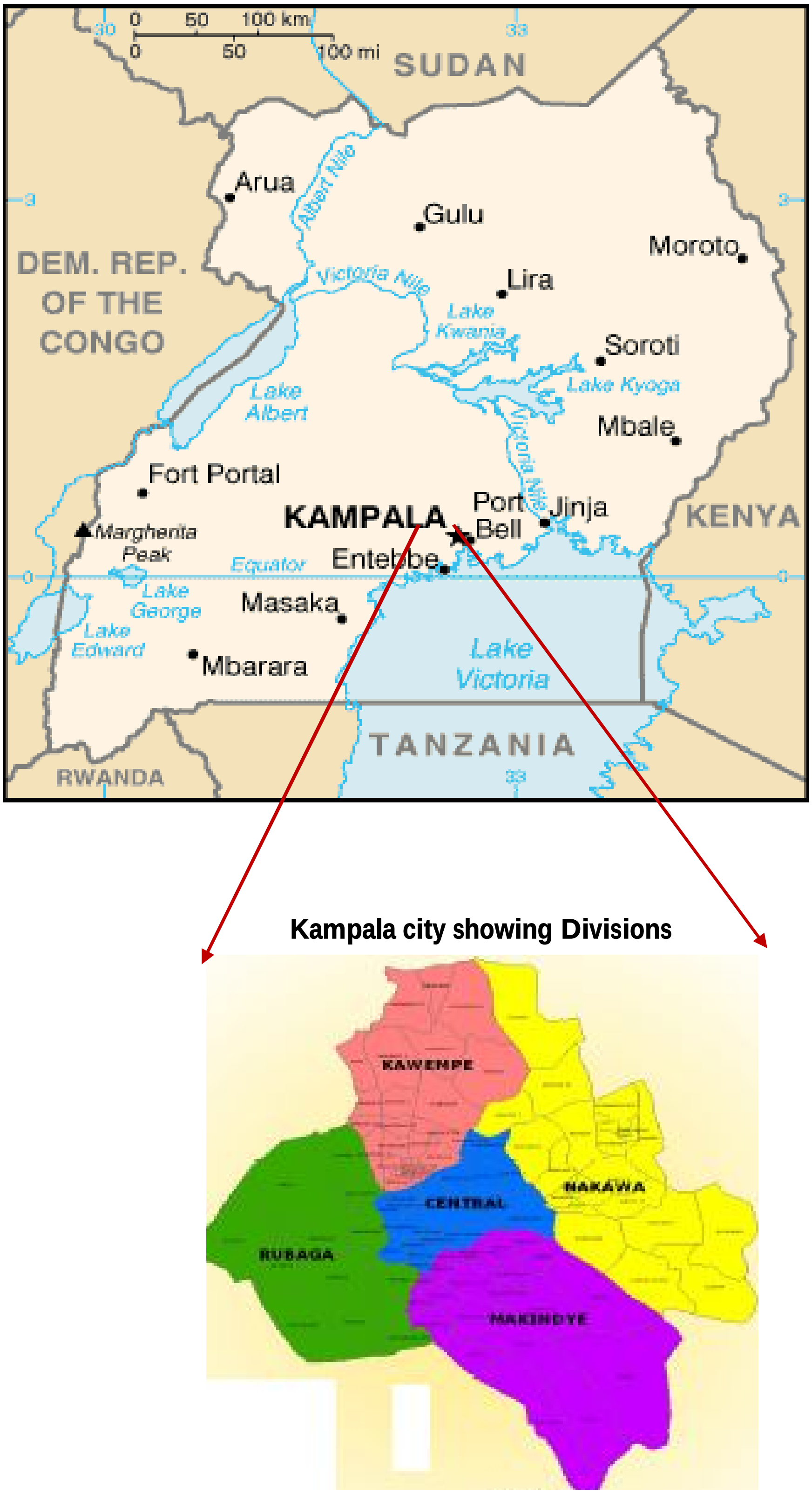
Mantovani, 2008; Karlan & Zinman, 2009). It is widely believed that most entrepreneurs use formal credit for investment purposes while turning to the informal credit to meet the day-to-day short-term operating expenses. This theory is linked to the belief that credit from the formal subsector has better terms in form of user-friendly interest rates, longer repayment period and higher credit levels compared to informal credit.

Chapter 4 Research Methodology

4.1 The Study Area

The study was conducted in the five divisions of Central, Rubaga, Kawempe, Makindye and Nakawa which constitute Kampala city in the Central region of Uganda, Figure 1. Kampala is the country's main commercial hub with a population of 1,659,600 inhabitants, and major industries, public and private institutions and several main social amenities. As such, the area is economically vibrant with very many established and upcoming micro and small-scale businesses that have attracted individual private lenders and public credit institutions (AMFIU, 2011/12). Therefore, Kampala city is considered to have a good representation of microfinance operations in the country.

Figure 1*: The Map of Uganda showing the Study area*



4.2 Sampling and Data Collection

The field work for this study was conducted between October 2012 and January 2013. It involved socioeconomic surveys conducted among micro and small entrepreneurs operating within Kampala city. To gather sufficient information, the primary data achieved from the survey, was supplemented by information about the general operations of the country's financial sector sought from the Central Bank, BoU and AMFIU. Individual financial institutions and private money lenders operating within Kampala were also visited for more information. The primary data on credit access and utilisation was achieved using a semi-structured questionnaire to interview individuals or households who were operating businesses worth Ush.500,000 – 50,000,000/= of working capital. A sample of 151units used in the study was arrived at through stratified sampling done in all the five divisions of Kampala. These units represented about 5% of the approximated 3,100 total licensed small businesses in the city. The offices of each division were visited to draw a list of individuals or households licensed to operate micro and small-scale businesses in the respective divisions. From each of the five sets of lists, 1% of such businesses were randomly selected and their premises visited for an in-depth discussion on how they access and utilise credit.

Meanwhile, the questionnaire was designed in such a way as to achieve complete, clear, relevant and consistent data in as far as household characteristics that influenced choice of credit source and the utilisation of loan proceeds were concerned. In order to achieve these attributes and to estimate the duration of the interview, the questionnaire was initially evaluated by conducting a pilot survey in the study area. The closed ended questions were used to collect the respondents' background information covering household demographic and socio-economic variables: Gender, age, marital status, residence ownership, education level, main business, secondary income sources, family size, assets owned, etc. More questions in this category were also asked about the process of credit access and how such credit was utilised: Type of lender, reasons for not applying for credit, kind of collateral offered, the overall rating of the formal lending terms, whether the respondent needed larger credit, main use of credit proceeds, etc. Besides, a range of open-ended questions were asked in regard to monthly income, credit level, repayment period, annual interest, working capital, business sales, etc.

4.3 The Empirical Approach

With the assumed advantages associated with the formal financial subsector like well-established infrastructures and systems, availability of lending funds and portfolio diversification (Pagura & Kirsten, 2006), the interest rates in this subsector would be expected to be lower and the lending terms to be better compared with the informal subsector. Conventionally, any (potential) borrower would approach this subsector for their credit needs. Conversely, many borrowers in Uganda approach the informal subsector as well (Duggan, 2008; Friends Consult, 2008). This implies that there is some form of credit-rationing in the formal subsector. In this subsection therefore, we present methods employed to address the two study questions; i) what determines an entrepreneur's choice of credit source and ii) whether credit from the two financial subsectors is in form of substitutes or complements.

4.3.1 Why does an Entrepreneur choose a given type of Credit source?

Descriptive statistics are used to determine how socio-economic characteristics influence the choice of credit source for a given individual or household. We consider characteristics based on business operations for example, age of business, working capital and monthly sales. We also look at such household characteristics as age, gender, marital status, education level, monthly income, household size, respondent's household position, household expenditure, land ownership, the value of total assets, business training and banking level. The mean differences between formal and informal borrowers based on a given characteristics are determined using t-tests with an assumption of equal variances. If such differences turn out to be statistically significant, we confirm that the given characteristic influences the borrower's choice of credit source.

4.3.2 Are Formal and Informal Credits Substitutes or Complements?

We use an econometric model to come up with an explanation of how the utilisation of informal credit relates to quantity rationing in the formal sector. According to Guirkinger (2008), there are three categories of credit rationing in relation to credit amounts, transaction costs and the risk involved. Guirkinger's model considers all the three aspects of credit rationing to explain how lenders address the risks associated with information asymmetries. At the same time, the model shows how transaction costs influence a borrower's choice to use a certain type of credit. Since the number of risk- and transaction cost-rationed borrowers is in most cases very minimal, we concentrate on the quantity-rationed individuals or households in our study. We proceed by making an important assumption: "Entrepreneurs with established businesses commonly engage in credit markets either to replenish working capital or to support investment activities". Such borrowers may either get less formal credit amounts than applied for or never make a formal application for fear that they cannot meet access requirements, or they apply for formal credit and their applications are rejected. Consequently, it is highly anticipated that most if not all, MSEs use credit and in case of non-participation in the credit market, this could be linked to quantity rationing.

In this study, we shall adopt the underlying principle of credit substitution in event that a quantity-rationed household/individual resorts to the informal subsector for their credit needs (Guirkinger, 2008; Jain, 1999). If however, such an individual or household cannot approach the informal subsector as well, we shall consider the two forms of credit as complements (Alphonse, et al., 2006; Fedele & Mantovani, 2008; Karlan & Zinman, 2009). The econometric presentation of this relationship takes the form of a binary outcome model:

$$\boldsymbol{y_i = \beta_0 + \beta_1 QR_i + x_i{}'a + \varepsilon_i}$$

Where;

- $\boldsymbol{y_i}$, the dependent variable takes the value of 1 if the household/individual uses informal credit and 0 otherwise.
- $\boldsymbol{QR_i}$ represents a dummy variable indicating a quantity-rationed borrower (in the formal subsector). We are interested in the sign of parameter β_1 (the

coefficient of term QR_i); if it is statistically significant and positive, then formal and informal credits are substitutes and if it is negative, the two forms of credit are then complements. $\boldsymbol{i}$ represents the household/individual associated with a given variable, and takes values *1,....., N* while ε_i represents the unexplained (random) term in the sample.

– $\boldsymbol{x'_i}$ indicates a vector of independent (control) variables that influence a household's/individual's level of informal credit accessibility. They include asset base, monthly income, household size, working capital level, education level, age, business type, etc.

Chapter 5 Results and Discussion

5.1 Determinants of Borrower's choice of Credit Source

The major findings regarding a given borrower's choice of credit source are contained in the results of descriptive statistics. Our keen interest is in the mean differences between the respective characteristics of the formal and informal borrowers. The mean differences that show statistically significant results indicate that such factors determine whether a given borrower approaches a formal or informal lender for his/ her credit needs.

The tests give significant results for age, education level and income level, and this is consistent with the literature. With increasing age and level of education, a given individual is more associated with formal credit due to the lenders' perception that such a borrower is less likely to default (Chen & Chiivakul, 2008). This is because of the associated knowledge and skills, liquidity levels and property ownership, which define involvement in formal financial activities (Devkota, 2006; Thaicharoen, et al., 2004). On the other hand, young borrowers and those with low income and education levels are then, most likely to use informal credit due to more flexibility in access requirements associated with the informal subsector. Land ownership and the value of total assets owned showed significant results, too. Based on theory, this holds a lot of sense since potential borrowers who own land and have assets of higher value are encouraged to go for formal credit, which is assumed to have better terms like lower interest rates, longer repayment period and larger amounts. Individuals or households with assets of less value approach the informal sub-sector where credit is granted based on other conditions than the main collateral. Such conditions may include belonging to a group, having a known address, flexible application process or using less-valued collateral like household and business chattels (Atieno, 2001).

The respective mean differences between formal and informal borrowers on the basis of banking level and period spent in business are also statistically significant, with formal borrowers doing better. The banking levels of an MSE tend to improve with the period spent in business and subsequently, the relationships with financial institutions concerned. Thus, such entrepreneurs would be more likely to access credit from the lenders with which they have had a prior relationship (Cole, 1998). Consistent with the findings of Peprah (2012), business stability presents owners with better access opportunities to larger credit amounts. With the need for larger credit amounts, any potential borrower would implicitly target formal lenders to meet their credit needs. As expected, we further find significant results for business working capital and monthly sales at 1% level. With increasing working capital, the trend of sales tends to go in the same direction. On average, entrepreneurs owning businesses with higher levels of capital have a tendency to use formal credit while those with lower capital businesses use informal credit. As far as household size and the level of household expenditure are concerned, the results show significant mean differences for borrowers in the two financial subsectors at 10% and 1% critical levels, respectively: Note that household size may have a causal relationship with the level of expenditure. On the other hand, expenditure tends to increases with household income because richer households spend highly on better social services and leisure. Such households therefore, are more likely to seek credit from the formal subsector where it is hoped that access to larger amounts are possible. Table 4 summarizes the comparisons in descriptive statistics for the formal, informal and formal-informal borrowers. It further gives the results of the t-tests on the mean differences between formal and informal borrowers based on the given socio-economic characteristics.

The results for the mean difference in gender, marital status and one's household position are not significant. This implies that such characteristics do not influence an individual's choice of credit source in our study sample. The gender result is rather intriguing since it would be expected that female entrepreneurs are credit-rationed in the formal subsector. Individual females or female-headed households may not have adequate collateral, yet it is a major access requirement in the formal subsector. This is based on the theory that in most African societies land inheritance and/or ownership are traditionally vested in men (Fafchamps & Quisumbing, 2002).

***Table 3**: Mean Differences in Socio-economic Characteristics Determining a Borrower's Choice of Credit Source*

Variable	Variable defined	Formal-Informal credit use (obs = 25)		Informal credit use (A) (obs = 80)		Formal credit use (B) (obs = 42)		Significance of mean difference (A – B)
		Mean	Std. Dev	Mean	Std. Dev	Mean	Std. Dev	t -value
gend	Gender; male = 1, female = 0	0.68	0.48	0.54	0.51	0.62	0.49	-0.86
age	Age in years	42.00	7.50	35.96	10.05	40.10	10.40	-2.13**
martlst	Marital status; 1= married, 0 = not married	0.84	0.37	0.71	0.46	0.79	0.42	-0.87
educdmy	Education level; 1 = Up to secondary level & 0 = above)	0.48	0.51	0.55	0.50	0.36	0.48	2.04**
montinc	Monthly income (Ug. shillings)	1,697,700	932,700	967,080	808,150	1,513,900	795,350	-3.14***
hhldsize	Household size (members)	7.16	2.53	4.79	1.93	5.52	2.11	-1.94*
hhldpos	Household position (1 = Head; 0 = Any other)	0.84	0.37	0.75	0.44	0.83	0.38	-1.05
hhldexp	Household expenditure (Ug.Shs)	1,324,400	932,720	805,500	703,900	1,254,500	782,740	-3.22***
astland	Land ownership (1 = Yes; 0 = No)	0.88	0.33	0.51	0.50	0.90	0.30	-4.64***
astval	Total asset value (Ug. shillings)	83,800,000	82,100,000	26,700,000	34,300,000	107,000,000	109,000,000	-6.06***
bizperd	Period spent in business (years)	8.84	4.38	5.70	3.60	7.14	3.30	-2.17**
workcapt	Working capital (Ug. shillings)	20,100,000	14,800,000	5,304,370	7,963,420	20,500,000	15,800,000	-7.08***
sales	Business sales (Ug. shillings)	22,200,000	20,500,000	4,052,000	5,270,700	16,400,000	18,200,000	-5.65***
bnkinglvl	Banking level (as %ge of sales)	60.80	20.10	40.00	21.47	61.98	21.00	-5.40***
biztrng	business training offered; 1 = if trained & 0 otherwise	0.08	0.28	0.50	0.50	0.17	0.38	3.77***

Source: Authors' Survey data

***, ** and * denote significant t-statistic at 1%, 5% and 10% critical levels, respectively.

Compared with individuals with separate formal or informal credit access, joint credit borrowers have many more household members and higher levels of household expenditure, business sales, banking, and monthly income. With a bigger household, expenditure levels tend to rise and to support this, poor households resort to borrowing from friends and relatives, groups, etc. for consumption smoothing (Diagne, 1999). Richer households on the other hand, want to maintain their status and will borrow from all the subsectors to achieve this. In most cases, richer households are synonymous with longer period businesses and may prefer venture diversification. This demands simultaneous formal-informal credit use, which points to the fact that the two credit sources complement each other (Alphonse, et al., 2006; Fedele & Mantovani, 2008; Karla & Zinman, 2009).

5.2 Are Formal and Informal Credits Complements or Substitutes?

To be able to establish whether credits from the formal and informal subsectors behave as complements or substitutes, we use our primary data to address the ultimate question of what relationship exists between the utilization of formal and informal credits. We proceed by first looking at the various ways of credit utilization and credit characteristics influencing it, and whether there is any form of quantity-rationing in the formal financial subsector.

5.2.1 Credit Utilization Alternatives and Characteristics influencing Utilization

Credit utilization may be influenced by the prevailing credit terms particularly, interest charges and repayment periods in the two respective financial sub-sectors. The results presented Table 4 indicate that informal lenders charge higher interest rates compared with formal lenders. Though the mean annual interest seems reasonable at 46.81%, this is due to the low rates charged by friends and relatives, and traders and suppliers, which may go as low as 10%. Otherwise, these informal rates can also go as high as 86% particularly, with money lenders. This is an indication of higher levels of variability in informal interest rates consistent with the study findings of Doan, Gibson & Holmes (2010) in Vietnam. The formal financial institutions on the other hand, charges relatively lower interest rates while offering comparatively longer repayment period.

Table 4: *Annual interest rates and Repayments for the Formal and Informal credit*

Variable	Sub-sector	Observations	Mean	Std. Dev.	Minimum	Maximum
Interest charges	Informal	80	46.81	16.84	10	86
	Formal	42	34.43	6.05	23	45
Repayments	Informal	80	6.41	2.69	3	12
	Formal	42	18.48	7.20	8	36
Credit amounts	Informal	80	2,478,000	4,419,000	240,000	27,000,000
	Formal	42	14,300,000	12,600,000	600,000	42,000,000

Source: Authors' survey data

The informal sub-sector was equally on the spot for the shortest repayment periods averaging at around 6.4 months. As our results indicate, credits of high interest rates coupled with short repayment period are of small amounts, as well. Could these aspects be influential in determining the way the two forms of credit are utilized? The results presented in Table 5 give an insight into this. As with formal credit utilization, most of the respondents who access informal credit use it in increasing business working capital followed by meeting or covering business operating expenses. Compared with formal credit however, more respondents used informal credit on non-production activities, that is, consumption expenditure. Much of this credit was from either friends/relatives or local groups like the ROSCAs and VSLAs most probably because of the assumed flexibility in repayment terms. The study by Doan, Gibson & Holmes (2010) on the main purpose of the loans taken by the poor in the peri-urban areas of Vietnam presents similar findings. While some 15 respondents used formal credit in building and/or construction, such utilization was conspicuously absent among those who accessed informal credit. Similarly, more respondents used formal credit in the purchasing of business equipment compared to those who accessed informal credit. Building/ construction and purchase of business equipment are both investment activities requiring long-term and low-priced credit, which are characteristic of formal credit. Overall, a very small number of respondents used either formal or informal credit for personal consumption, an indication that borrowers were weary of spending on activities that would not boost repayment capacity.

Table 5: *The Utilization of Credit proceeds from the Informal and Formal sub-sector*

Purpose to which credit proceeds were utilized	Frequencies for each purpose	
	Informal credit	Formal credit
Increasing business working capital	82	50
Purchasing business equipment	12	34
Setting-up a new business	13	7
Meeting / covering business operating expenses	43	6
Consumption (other purpose than income-generating)	4	1
Building and / or construction	0	15
Total	154	113

Source: Authors' survey data

Notes:

- 80 respondents used informal credit compared to 42 who used formal credit while 25 jointly used both credits.
- The results indicate total numbers that are bigger than number of respondents who used credit simply because some of the respondents used credit from a given source for more than one purpose.

5.2.2 Is there any form of Quantity-rationing in the Formal Financial Subsector?

According to Guirkinger (2008), credit rationing is believed to be happening in the formal sub-sector, which may be one of the several drivers of borrowers to the informal financial sub-sector. We compare the statistics of respondents who used informal credit while their formal credit applications had been rejected or had received less formal credit than required. Results in table 7 indicate that out of the 105 respondents, who used informal credit, 61 of these (representing 58.10%) either had received less credit amounts from the formal subsector or their formal credit applications had been rejected. This confirms the fact that there was some form of credit-rationing happening in the formal financial sub-sector.

Table 6: *Overall Informal Credit use in Comparison to Scenario of Credit-rationing*

Variable	Overall informal credit use			Informal credit use with quantity-rationing in the formal subsector		
	Frequency	Percent	Cumulative	Frequency	Percent	Cumulative
Non-informal credit use	46	30.46	30.46	40	39.60	39.60
Informal credit use	105	69.54	100.00	61	60.40	100.00
Total	151	100.00		101	100.00	

Source: Authors' survey data

5.2.3 What is the Relationship between Formal and Informal Credit Utilization

We analyzed the collected data using a logit model represented as:

$$y_i = \beta_0 + \beta_1 QR_i + x_i' a + \varepsilon_i.$$

The analysis proceeded by generating a quantity-rationing dummy, QR as an outcome of those borrowers who either did not get the entire amount they wanted from the formal subsector or whose formal applications had been rejected. A binary outcome variable, ''infmlcrused" represented by 1 if informal credit was used and 0 otherwise, is regressed against the QR dummy and some predetermined (control) variables. The control variables are selected based on how the associated factors influence credit access and utilisation according to literature and theory, while taking the collinearity problem (Appendices I & II) into consideration. Because our analysis followed a binary logistic regression, the non-linearity nature of the model limits the immediate interpretation of the actual coefficients. We therefore, report marginal effects, that is, the change in the probability of informal credit use as a result of a unit change in the respective variables, Table 7. We get statistically significant results for Quantity rationing dummy, age, marital status, education level, household size, household expenditure, land ownership and the value of total asset, at the respective significance levels. This implies that such variables are important in influencing the use of informal credit among micro and small entrepreneurs in Uganda.

Our main interest is in the sign of the parameter representing the quantity-rationing dummy, QR. Since this parameter is negative and statistically significant at 1% level, it indicates that informal credit complements formal credit. In other words, a unit increase in the level of quantity rationing in the formal subsector decreases the probability of using informal credit by 0.643. For example, if a given borrower does not gain more access to formal credit, which is usually used for investment, the probability of using informal credit may not change because his/her day-to-day operational expenses may not change; refer to descriptive statistics in Table 3 on the utilisation of different credit forms. The parameter representing the value of total assets is negative indicating that as assets increase the probability of informal credit use reduces, which further supports our inference based on QR parameter. With increasing assets, the probability of formal credit use increases since most formal institutions attach a lot value to assets in their credit business. Our findings are consistent with those of Alphonse, Ducret & Séverin (2006) who, using the US small business data, show that trade credit complements bank financing. Similarly, Karlan & Zinman (2009) found that credit from the formal and informal subsectors seemed to complement each other, using field experiments to measure the impacts of credit expansion to micro-entrepreneurs in Manila.

Table 7: *Coefficients & Marginal Effects of the Logistic Regression on Informal credit use*

Variable & its label	Coefficient	Marginal Effects (dy/dx)
QR (quantity-rationed)	-3.380***	-0.643***
	(0.817)	(0.090)
age (Age in years)	-0.056*	-0.014*
	(0.029)	(0.007)
martlst (Marital status)	1.084	0.264*
	(0.705)	(0.132)
resosp (Residence ownership)	1.313**	0.316**
	(0.671)	(0.151)
educdmy (dummy for education level)	0.752*	0.185
	(0.568)	(0.136)
hhldsize (Household members)	0.105	0.026
	(0.156)	(0.038)
hhldpos (Position in the household)	0.729	0.147
	(0.656)	(0134)
hhldexp (Household expenditure)	1.42×10^{-6}***	3.54×10^{-7}***
	(5.23×10^{-7})	(0.000)
astland (Land ownership)	-0.885*	-0.213
	(0.701)	(0.158)
astval (Value of total asset)	-2.85×10^{-8}**	-7.08×10^{-9}**
	(3.58×10^{-8})	(0.000)
workcapt (Business working capital)	-6.43×10^{-8}*	-1.60×10^{-8}*
	(3.58×10^{-8})	(0.000)
bnknglvl (Banking level)	-0.013	-0.003
	(0.013)	(0.003)
Pseudo R^2	0.457	
LR	95.42***	

Source: Authors' survey data
N = 151
Standard errors are reported in parentheses
***, ** and * denote significant coefficients and marginal effects at the 1%, 5% and 10% levels, respectively.

Chapter 6 Summary, Conclusion and Recommendations

6.1 Summary of the Findings

Descriptive statistics have been used to show whether a given borrower's socio-economic characteristics influence his/her choice of credit source based on the results of a two-sample t-test. Significant results for the mean differences in the characteristics of borrowers in the formal and informal subsector indicate an influence on such individuals' choice of credit source. The results for income level, household expenditure, land ownership, age, total assets, banking level, working capital and monthly sales are significant at 1%. Education level and age of business are significant at 5% while for household size, the significance level is 10%. On the other hand, the results for gender, marital status and one's household position are non-significant, which imply that such characteristics do not influence an individual's choice of credit source. We would have however, expected a significant result for gender since most of female entrepreneurs lack collateral or what they have is inadequate for formal credit access. Subsequently, most of the female entrepreneurs would be turning to the informal subsector for their credit needs. Compared with individuals with separate formal or informal credit access, joint credit borrowers have many more household members and higher levels of household expenditure, business sales, banking, and monthly income. To support their expenditure, poor households resort to borrowing from friends and relatives and groups for consumption smoothing (Diagne, 1999) while the richer households want borrow from all the subsectors to maintain their status. On a similar note, richer households are synonymous with longer period businesses and may prefer venture diversification, which demands simultaneous formal-informal credit use, some form of credit complementarity (Alphonse, et al., 2006; Fedele & Mantovani, 2008; Karla & Zinman, 2009).

Credit utilization may be influenced by the prevailing credit terms particularly, interest rates and repayment periods in the two respective sub-sectors. The informal subsectors is characterised by very short repayment periods averaging at around 6.4 months and both high and low rates. Money lenders are the most expensive charging up to 86% while friends and relatives, and traders and suppliers charge as low as 10%. The formal financial institutions on the other hand, charge relatively lower interest rates while offering comparatively longer repayment period. In a nut shell, informal credits were characterised by high interest rates, short repayment period and small amounts and such credits are utilized for short term needs like increasing working capital, covering operating expenses and consumption. Because of its assumed better terms, formal credit is used in investment activities like building and / or construction and purchasing business equipment.

Among other factors, inadequate asset level worsens the credit rationing condition among the MSEs who approach the formal sub-sector, which may be driving most borrowers to the informal financial sub-sector. The results indicate that out of the 105 respondents, who used informal credit, 61 of these (representing 58.10%) either had received less credit amounts from the formal subsector or their formal credit applications had been rejected. The logistic regression has shown significant results for the quantity rationing dummy, age, marital status, education level, household size, household expenditure, land ownership and the value of total asset at the respective levels. The parameter representing the quantity-rationing dummy, QR came out negative and statistically significant at 1% level.

6.2 Conclusion and Recommendations

6.2.1 Conclusion

Despite the substantial growth in the microfinance industry over the past twenty years, credit accessibility among micro and small entrepreneurs in developing countries has remained an important issue. One potential reason could be that the role of the informal financial subsector is usually overlooked in most of the interventions by governments and their development partners. Yet the informal subsector has attributes that may favour access to the poor (Armendáriz & Morduch, 2010; Petersen & Rajan, 1997). Such attributes include better borrower information, flexibility in collateral requirements and employing innovative lending methods like group lending methodology. Moreover, previous studies have indicated that the formal subsector has its own challenges that may limit credit accessibility among the poor. Such challenges include collateral requirements, highly bureaucratic operations (Friends Consult, 2008; Kasekende, 2011; Synovate, 2010) and inadequate information about borrowers (Biais & Gollier, 1997). From this study, we have shown that there are specific socio-economic characteristics that are important in credit use. Such characteristics include age, education level, income level, household size, household expenditure, land ownership, total assets value, banking level, business training, age of business, working capital and monthly sales. Likewise, using an econometric model, we have shown that formal and informal credits complement each other in their application or utilisation. In other words, a decrease in the use of formal credit decreases informal credit use and vice-versa. Most borrowers were weary of using any form of credit for non-productive activities, an indication that indeed, as entrepreneurs they were business-oriented. Overall, this gives an insight into the fact that the informal financial subsector should no long be looked down upon but rather, incorporated in programs designed to improve credit accessibility and utilisation among the MSEs in developing countries.

6.2.2 Recommendations

As indicated in our conclusion, credit accessibility among MSEs in developing countries has remained inadequate. One of the potential reasons could be due to overlooking the role of the informal financial subsector in most intervention programs. However, our study has shown that depending on borrower characteristics, formal and informal credits complement each other. This implies that improving credit accessibility and utilisation among the MSEs would require the strengthening of the interaction between the formal and informal financial subsectors. For future research, we recommend the consideration of how the quality of institutions in a given country, influence the level and quality of financial linkages. It is very likely that a given country's rule of law, regulatory quality, fight against corruption, investment effectiveness, etc. shape the establishment and management of formal and informal institutions which in turn, determines the level of engagement between the two financial subsectors.

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Appendices

Appendix I: Survey Questionnaire

Block 1: Background Information			Code
Name of Respondent :		Phone number:	
1.1	Gender	***1*** = Male ***2*** = Female	|_____|
1.2	Age (years)	|_______|	
1.3	Marital status	1 = Single 2 = Married 3 = Widowed 4 = Divorced	|_____|
1.4	Residence	Address (Village and Parish): District: 1 = Kampala 2 = Wakiso 3 = Mukono	|_____|
1.4.1	Residence ownership	1 = Owned 3 = Free accommodation 2 = Rented 4 = Other (specify)	|_____|
1.4.2	Type of residence	1 = Permanent 2 = Semi-permanent 3 = Temporary	|_____|
1.5	What is your highest level of education?	1 = No formal education 4 = Tertiary level 2 = Primary level 5 = University level 3 = Secondary level 6 = Post- graduate level	|_____|
1.6	What is your main business?	1 = General merchandise 9 = Bar & restaurant 2 = Textiles & foot wear 10 = Handcrafts 3 = Agro-produce marketing 11 = Auto-parts 4 = Beauty salon & cosmetics 12 = Grain milling 5 = Charcoal dealing 13= Transport 6 = Butchery & Animal products 14 = Timber dealing 7 = Phones & phone accessories 15 = Drug shop/ Clinic 8 = Financial services	|_____|
1.7	Secondary source of income (apart from the main business)	0 = None 3 = Pension/ social benefits 1 = Second business/ Rent 4 = Remittances from other source 2 = Salary/ wage 5 = Service provision	|_____|
1.7.1	Monthly income from secondary sources (UgX)	|________|	
1.8	How many people are you in the household?	|________|	
1.8.1	Other than you, how many of these have an income?	|________|	
1.9	What is your position in the household	1 = Head/ Bread-winner 2 = Any other	|_____|
1.10	Major source of cooking energy	1 = Charcoal 3 = Kerosene 5 = Gas 2 = Firewood 4 = Electricity 6 = Other (specify)	|_____|
1.11	How much is your household's monthly expenditures?		

Item	*Monthly expense*	*Item*	*Monthly expense*
Utilities/ bills Entertainment School fees Food		Medical & Clothing Transport &Communication (telephone) Rent/ Homestead maintenance (repairs, etc.) Miscellaneous	
Total	|_________|		

1.12	Assets owned	1 = Land & buildings 4 = Livestock 2 = Vehicle/ Machinery 5 = Other; .... 3 = Households & Business equipment/ stock	|______|
1.12.1	What is the total value of all assets?	|___________|	

Block 2: Business Operations			
2.1	Type of business	1 = Sole proprietorship 3 = Company 2 = Partnership 4 = Association	|______|
2.2	Business location (Division)	1 = Central 2 = Rubaga 3 = Kawempe 4 = Nakawa 5 = Makindye	|______|
2.3	Years spent in business	|__________|	
2.4	How do you rate your business in terms of working capital?	1 = Micro (< 5million) 2 = Small (5 – 50million) 3 = Medium/ Large (> 50million)	|______|
2.5	How much is your business worth (working capital)?	|___________|	
2.6	What are your monthly sales from the business?	|___________|	
2.7	Monthly business expenditure		

Item	*Monthly expense*	*Item*	*Monthly expense*
Transport & Salaries/ wages		Utilities (electricity & water bills)	
Rent		Taxes & Licences	
Loan repayment		Miscellaneous	
Total	|___________|		

2.8	Do you save or bank your business sales via any financial institution (formal or informal)?	1 = Yes 2 = No	|______|
2.8.1	If yes, which main institution do you deal with?	1 = Bank 5 = SACCO 2 = Credit Institution 6 = Mobile Money 3 = Micro Deposit-taking Institution (MDI) 4 = ROSCA/ VSLA 7 = Other, specify	|______|
2.8.2	In the last 12 months, what has been the percentage of average monthly sales that has gone through your account(s)?	|___________|	
2.9	Are you offered any form of business-related training by your bankers or any other institution?	1 = Yes 2 = No	|______|
2.9.1	If yes, what kind of training	1 = Record keeping 2 = Credit access, utilisation & repayment 3 = Business selection (opportunity identification) 4 = Business management skills (separating private from business operations, business ethics, etc) 5 = Business planning/ analysis (budgeting) 6 = Savings culture	|______|

Block 3: Credit

3.1	Do you use credit in your business	1 = Yes 2 = No	|_____|
3.2	Within the past 3 years, have you used credit from any of these lenders; *NGOs, Money lender, SACCOs, Traders & suppliers, Friends & relatives, Microfinance Institutions, ROSCAs/ VSLAs, Micro Deposit-taking Institutions*? (Multiple answers possible)	1 = Yes 2 = No	|_____|
3.2.1	If yes, please fill-in the following table and if No, skip to question *3.3*		

Type of Lender 1 = Traders & suppliers 2 = MFI 3 = NGOs 4 = SACCOs 5 = ROSCAs/ VSLAs 6 = Friends & relatives 7 = Money lender 8 = MDI	Credit level? (Ug. Shs)	Annual interest rate? (%)	What was the repayment period? (months)	What was the instalment?	For how long have you been with this lender?	Do you still deal with the same lender? 1 = Yes 2 = No	If No, why? 1 = Lack of collateral 2 = Bad credit history 3 = High interest rate & other charges 4 = Unfriendly re-payment terms 5 = Bureaucracies leading to delays 6 = Less loan amounts 8 = Other, specify (e.g. Compulsory Savings, etc.)

3.2.2	What was the main use for the credit proceeds?	1 = Increasing working capital 2 = Purchasing business equipment 3 = Setting-up a new business 4 = Covering business operational expenses 5 = Personal use/consumption 6 = Building & construction 7 = Other, specify	|_____|
3.3	**Have you used credit from any Commercial Bank or Licensed Credit Institution within the past 3 years?**	**1 = Yes 2 = No**	|_____|
3.3.1	If Yes, please fill-in the following table		

Credit level (Ug. Shs)	Annual interest rate (%)	What was the repayment period? (months)	Did you want a larger credit (at the same rate) than was granted? 1 = Yes 2 = No	For how long have you been with this lender?	Do you still deal with this lender? 1 = Yes 2 = No	If No, why? 1 = Lack of collateral 2 = Bad credit history 3 = High interest rate & other charges 4 = Unfriendly re-payment terms 5 = Bureaucracies leading to delays 6 = Less loan amounts 7 = Other, specify

3.3.2	What was the main use for the credit proceeds?	1 = Increasing working capital 2 = Purchasing business equipment 3 = Setting-up a new business 4 = Covering operational expenses for the business 5 = Personal use/consumption 6 = Building & construction 7 = Other, specify	|____|

3.4	Would you have wished to receive credit from another credit provider besides the one you are already working with?	1 = Yes 2 = No	|_____|
3.4.1	If yes, fill in the next table by indicating which lender you would have wished to seek additional credit from, how much you would have loved to borrow and the reason for such action?		

Type of Credit provider	Loan Amount	Reason	***Codes to the selected reasons:***
			1 = Less amount received from current lender(s) 2 = A lot of delays with the current lender(s). 3 = Access requirements by the new lender are user-friendly. 4 = The repayment period was too short (to allow investment activities). 5 = The two lenders finance different activities 6 = The new lender has flexible repayment terms 7 = Higher credit costs with current lender(s). 8 = Other, specify;

3.5	Did it happen that you applied for credit from formal financial institution within the past three years and your application was rejected?	1 = Yes 2 = No	|_____|
3.5.1	If Yes, please fill-in the following table and if No, proceed to question *3.6*		

Type of Lender	Year	Reason for application rejection	***Codes to the selected reasons:***
			1 = Inadequate collateral 2 = Mismatch between my cash-flows & repayment schedule 3 = Inadequate disposable income 4 = Poor or lack of credit history 5 = Small working capital 6 = No proof of a savings record 7 = Other; specify

3.6	If you did not apply for formal credit, what could have been the major reason(s) for this? (Multiple responses are possible)	|_____|

Codes to possible reasons:

1 = Too much bureaucracy involved in formal loan processing
2 = Formal lenders do not refinance before paying-off any existing obligations
3 = My business profit margin was too small
4 = There was no need for a loan in my business
5 = Interest rates & other charges are too high at times
6 = Distance to the nearest bank branch is too long
7 = I did not want to risk my business and/ or assets
8 = I was already involved with an informal lender
9 = I wasn't convinced my property would be accepted as security.

3.7	Had you been certain about a formal financial institution approving your application, would you have applied?	1 = Yes 2 = No	|_____|
3.7.1	If yes, what kind of collateral would you have provided for the required loan?	1 = Land & buildings 2 = Households & stock 3 = Livestock 4 = Vehicle or machinery 5 = Other assets; specify	|_____|
3.7.2	What is the value of the said property?	|_____|	
3.8	Overall, how would you rate the lending terms/ conditions of formal institutions?	1 = Poor 2 = Fair 3 = Good 4 = Very good	|_____|

Block 4: Social Capital			
This section looks at the groups, networks or associations and organizations, both formal and informal in which the respondent regularly gets involved with other people to do an activity. These could be suppliers, processors, traders, savings & credit groups, village groups, etc. In line with this, I seek your opinion on the following elements; apart from 4.1 & 4.2, how would you rate the other elements on a scale of 1 – 5?			
4.1	In which of these groups, associations or organisations do you belong?	1 = Local/ community groups & organizations 2 = Credit/ savings cooperatives & associations 3 = Business groups (traders' unions/ cooperatives & associations) 4 = None	|_____|
4.2	What benefits do you derive from being a member of these groups? (Multiple answers possible)	1 = Experience/ information sharing 2 = Social support (in case of death or parties) 3 = Networking 4 = Starting/ boosting business 5 = Accessing credit	|_____|
4.3	The level of confidence and trust you have in the group that you belong to	1 = No confidence/ trust 4 = Moderate level 2 = Very low level 5 = High level 3 = Low level	|_____|
4.4	Improving credit accessibility due to being a member of many networks/ groups	1 = No improvement 4 = Moderate extent 2 = A very small extent 5 = To a large extent 3 = A small extent	|_____|
4.5	The level of trust among members of these groups?	1 = No trust 4 = Moderate level 2 = Very low level 5 = High level of trust 3 = Low level of trust	|_____|
4.5	The extent to which you think you can be trusted when the number of your networks increases	1 = No trust 4 = Moderate level 2 = Very Low level 5 = High level of trust 3 = Low level of trust	|_____|
4.6	The extent to which you rate the quality of relationships/ networks among such groups (that you are involved with)	1 = Very poor quality 4 = Good quality 2 = Poor quality 5 = Very good quality 3 = Average quality	|_____|
4.7	In case of great financial difficulty e.g. due to natural calamities or death, how confident are you that you can turn to the different groups in which you belong?	1 = No confidence 4 = Moderately confident 2 = Very low confidence 5 = Very confident 3 = Low confidence	|_____|
4.8	How do you rate the benefit accruing from being a member of many groups?	1 = No benefit 4 = Moderate benefit 2 = Very little benefit 5 = A lot of benefit 3 = Little benefit	|_____|

Completion Date:

Appendix II: Collinearity Diagnostics

Variable	VIF	Tolerance	R-Square	Eigen Value	Condition Index
QR	1.40	0.715	0.285	12.880	1.000
age	2.70	0.371	0.630	1.518	2.913
martlst	1.87	0.534	0.466	0.776	4.073
gend	2.23	0.448	0.552	0.527	4.945
resoshp	1.79	0.559	0.442	0.418	5.551
educdmy	1.53	0.652	0.348	0.357	6.003
hhldsize	2.02	0.494	0.506	0.282	6.754
hhldpos	2.10	0.475	0.525	0.228	7.516
hhldexp	2.48	0.403	0.597	0.198	8.065
astland	1.98	0.506	0.494	0.178	8.515
astval	3.44	0.291	0.709	0.136	9.740
bizperd	2.92	0.342	0.658	0.131	9.910
workcapt	5.54	0.181	0.820	0.105	11.060
bnkinglvl	1.86	0.538	0.463	0.086	12.208
biztrng	1.61	0.620	0.380	0.066	13.964
sales	3.86	0.259	0.741	0.059	14.768
savbank	1.83	0.547	0.453	0.039	18.257
Mean VIF	2.42		Condition Number		28.890

Appendix III: Correlation Matrix

	QR	age	martlst	gend	resoshp	educdmy	hhldsize	hhldpos	hhldexp	astland	astval	bizperd	workcapt	bnking~l
QR	1.0000													
age	0.0206	1.0000												
martlst	0.2278	0.0811	1.0000											
gend	0.1654	0.0456	0.3512	1.0000										
resoshp	0.1078	0.3674	0.3314	0.1433	1.0000									
educdmy	-0.2392	0.1112	-0.3295	-0.0170	-0.1779	1.0000								
hhldsize	0.1984	0.4879	0.1534	0.0627	0.4009	0.0179	1.0000							
hhldpos	0.0828	0.1483	-0.1949	0.5390	-0.0271	0.1842	0.0668	1.0000						
hhldexp	0.1466	0.2319	0.2029	0.2815	0.3412	-0.1369	0.5066	0.2238	1.0000					
astland	0.3356	0.3484	0.2795	0.2779	0.4777	-0.0989	0.4057	0.2028	0.4477	1.0000				
astval	0.0892	0.3273	0.1153	0.1392	0.4345	-0.0386	0.5060	0.2243	0.6970	0.4520	1.0000			
bizperd	0.0535	0.7453	0.1975	0.1970	0.3556	0.1968	0.4849	0.1966	0.2936	0.4146	0.3796	1.0000		
workcapt	0.1978	0.2810	0.1363	0.1916	0.3656	-0.0516	0.4457	0.2140	0.6233	0.4370	0.7664	0.3807	1.0000	
bnkinglvl	0.2785	0.1570	0.1474	0.0375	0.3280	-0.0677	0.3424	0.0387	0.4550	0.2629	0.4991	0.2268	0.5802	1.0000
biztrng	-0.2525	0.1228	-0.1314	-0.1084	-0.1360	0.1829	-0.1984	-0.0139	-0.2900	-0.2752	-0.3009	0.0669	-0.3361	-0.3755
sales	0.1286	0.3309	0.1085	0.1734	0.2583	0.0534	0.4926	0.1900	0.5215	0.3594	0.6498	0.4109	0.8341	0.4592
savbnk	0.3243	0.1539	0.2395	0.1369	0.2100	-0.3598	0.3089	0.0642	0.3710	0.4095	0.3449	0.1174	0.3760	0.3822

Appendix IV: Logistic Regression Results based on 'infmlcrused'

```
Iteration 0:   log likelihood = -104.39685
Iteration 1:   log likelihood = -58.754068
Iteration 2:   log likelihood = -56.827599
Iteration 3:   log likelihood = -56.686218
Iteration 4:   log likelihood = -56.685658
Iteration 5:   log likelihood = -56.685658

Logistic regression                               Number of obs   =        151
                                                  LR chi2(12)     =      95.42
                                                  Prob > chi2     =     0.0000
Log likelihood = -56.685658                       Pseudo R2       =     0.4570
```

infmlcrused	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
QR	-3.379348	.8168114	-4.14	0.000	-4.980269	-1.778427
age	-.0557957	.0287922	-1.94	0.053	-.1122274	.000636
martlst	1.083846	.7051986	1.54	0.114	-.2983178	2.46601
resoshp	1.313006	.6711009	1.96	0.050	-.0023274	2.62834
educdmy	.7517078	.5683604	1.32	0.186	-.3622582	1.865674
hhldsize	.1046417	.1559455	0.67	0.502	-.2010058	.4102893
hhldpos	.7293586	.6556112	1.11	0.266	-.5556156	2.014333
hhldexp	1.42e-06	5.23e-07	2.72	0.007	3.97e-07	2.45e-06
astland	-.8846057	.7013849	-1.26	0.207	-2.259295	.4900834
astval	-2.85e-08	1.16e-08	-2.44	0.015	-5.13e-08	-5.62e-09
workcapt	-6.43e-08	3.58e-08	-1.80	0.072	-1.34e-07	5.83e-09
bnkinglvl	-.0126601	.0134936	-0.94	0.348	-.0391072	.0137869
_cons	3.734385	1.365469	2.73	0.006	1.058116	6.410655

Marginal effects after logit

y = Pr(infmlcrused) (predict) = .53632886

variable	dy/dx	Std. Err.	z	P>|z|	[95%	C.I.]	X
QR*	-.6430786	.08957	-7.18	0.000	-.818642	-.467515	.668874
age	-.0138753	.00715	-1.94	0.052	-.027888	.000137	38.2252
martlst*	.2636874	.16134	1.63	0.100	-.05253	.579905	.741722
resoshp*	.3162688	.15135	2.09	0.037	.019625	.612912	.536424
educdmy*	.1846993	.13604	1.36	0.175	-.081928	.451327	.490066
hhldsize	.0260223	.0388	0.67	0.502	-.050028	.102073	5.35099
hhldpos*	.1801638	.15738	1.14	0.252	-.128301	.488628	.788079
hhldexp	3.54e-07	.00000	2.69	0.007	9.6e-08	6.1e-07	1.0e+06
astland*	-.212811	.1582	-1.35	0.179	-.522868	.097246	.682119
astval	-7.08e-09	.00000	-2.40	0.016	-1.3e-08	-1.3e-09	5.8e+07
workcapt	-1.60e-08	.00000	-1.79	0.073	-3.3e-08	1.5e-09	1.2e+07
bnking~l	-.0031483	.00336	-0.94	0.348	-.009725	.003429	48.9934

(*) dy/dx is for discrete change of dummy variable from 0 to 1

Appendix V: Summary Statistics – Borrower Characteristics

. Informal credit used

Variable	Obs	Mean	Std. Dev.	Min	Max
gend	80	.5375	.5017375	0	1
age	80	35.9625	10.05232	20	75
martlst	80	.7125	.4554522	0	1
educdmy	80	.55	.5006325	0	1
montinc	48	967083.3	808157.8	200000	3600000
hhldsize	80	4.7875	1.933671	1	10
hhldpos	80	.75	.4357447	0	1
hhldexp	80	805500	703905.7	230000	3800000
astland	80	.5125	.5029973	0	1
astval	80	2.67e+07	3.43e+07	900000	1.38e+08
bizperd	80	5.7	3.591128	2	20
workcapt	80	5304375	7963423	720000	4.72e+07
sales	80	4052025	5270693	420000	3.00e+07
bnkinglvl	80	40.0625	21.46905	4	90
biztrng	80	.5	.5031546	0	1

. Formal credit used

Variable	Obs	Mean	Std. Dev.	Min	Max
gend	42	.6190476	.4915074	0	1
age	42	40.09524	10.39655	27	70
martlst	42	.7857143	.4152997	0	1
educdmy	42	.3571429	.4849656	0	1
montinc	38	1513947	795349.8	400000	4000000
hhldsize	42	5.52381	2.109654	3	13
hhldpos	42	.8333333	.3771955	0	1
hhldexp	42	1254548	782736.5	300000	3600000
astland	42	.9047619	.2971018	0	1
astval	42	1.07e+08	1.09e+08	2100000	3.96e+08
bizperd	42	7.142857	3.295018	2	16
workcapt	42	2.05e+07	1.58e+07	900000	4.80e+07
sales	42	1.64e+07	1.82e+07	600000	7.80e+07
bnkinglvl	42	61.97619	21.00231	15	93
biztrng	42	.1666667	.3771955	0	1

. Informal and formal credits used jointly

Variable	Obs	Mean	Std. Dev.	Min	Max
gend	25	.68	.4760952	0	1
age	25	42	7.5	30	60
martlst	25	.84	.3741657	0	1
educdmy	25	.48	.509902	0	1
montinc	22	1697727	1269372	450000	6200000
hhldsize	25	7.16	2.527845	3	15
hhldpos	25	.84	.3741657	0	1
hhldexp	25	1324400	932720.4	300000	3600000
astland	25	.88	.3316625	0	1
astval	25	8.38e+07	8.21e+07	4800000	3.12e+08
bizperd	25	8.84	4.384442	2	18
workcapt	25	2.01e+07	1.48e+07	2400000	4.50e+07
sales	25	2.22e+07	2.05e+07	2160000	7.38e+07
bnkinglvl	25	60.8	20.10182	20	90
biztrng	25	.08	.2768875	0	1