Access to Credit and Growth of Micro, Small and Medium-Scale Enterprises in Kenya

By

Kidali Fredrick Kimbio

Reg. No. X50/60467/2013

Supervisor

Dr. Phyllis Mumia Machio

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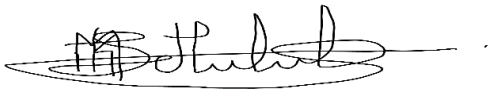
Declaration

This project is my original work and has not been presented for the award of a degree in any other University or any other award.

Kidali Fredrick Kimbio

Reg. No. X50/60467/2013



Signature: Date: …**17/11/2020**…

I confirm that the work reported in this thesis was carried out by the candidate under my supervision

Dr. Phyllis Mumia Machio

Signature: ……..……..… Date: ……

School of Economics

University of Nairobi, Kenya.

Dedication

This thesis is in memory of my late father **Mr. Armogast Kidali Chombo**. Although he fueled my desire to pursue and scale up the education ladder, he was not able to witness my graduation. This is for him.

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I cannot express enough thanks to the University of Nairobi for granting me the opportunity to undertake my postgraduate studies. I extend my heartfelt gratitude for the learning opportunities offered by the University.

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Abbreviations and Acronyms

ADB:	African Development Bank
CBK:	Central Bank of Kenya
C-DPF:	Cobb-Douglas Production Function
GoK:	Government of Kenya
GDP:	Gross Domestic Product
IGOs:	Intergovernmental Organizations
KBA:	Kenya Bankers Association
KNBS:	Kenya National Bureau of Statistics
LDCs:	Least Developed Countries
MFBs:	Microfinance Banks
MFIs:	Microfinance Institutions
MSEs:	Micro and Small Enterprises
MSEA	Micro and Small Enterprises Authority
MSMEs:	Micro, Small and Medium-Scale Enterprises
NGOs:	Non-Governmental Organizations
OECD:	Organization for Economic Cooperation and Development
OLS:	Ordinary Least Squares
SBEs:	Small Business Enterprises
SPSS:	Statistical Packages for Social Sciences
SMEs:	Small and Medium-Sized Enterprises
VIF:	Variance Inflation Factors
YEDF:	Youth Enterprise Development Fund

Operational Definition of Terms

Enterprise: An undertaking or a business concern (formal or informal) engaged in the production of goods or provision of services (MSME Act, 2012).

Micro Enterprise: Refers to a firm, trade, service, industry or business activity that engages at most 10 people (KNBS, 2016).

Small Enterprise: Refers to a firm, trade, service, industry or business activity that engages between 10 and 49 employees (KNBS, 2016).

Medium-Sized Enterprise: Refers to a firm, trade, service, industry or business activity that employs between 50 and 99 employees (KNBS, 2016).

Abstract

Micro, Small, and Medium-Scale Enterprises (MSMEs) are considered the backbone of emerging economies and play a major role in generating job opportunities and ensuring equitable economic growth and development. The unique role of MSMEs makes them pillars on which objectives of the economic growth of developing nations are anchored. Despite the critical role of this sector in developing economies and the concerted efforts by most governments to promote their growth, it is estimated that about 70 percent of MSMEs collapse within the first 3 years from the start of the businesses. Insufficient funds is the most cited cause of their collapse. It is against this backdrop that this study seeks to investigate the effect of access to credit on the growth of MSMEs. The study uses the KNBS 2016 MSMEs survey, a cross-sectional firm-level data collected from a population of 50,043 enterprises. The study estimated using an Ordinary Least Square estimation technique. The findings indicate that access to credit positively influences the growth of MSMEs in Kenya. The study also establishes that initial capital, age of the enterprise, male manager, secondary education, location in Nairobi and access to electricity positively influence the growth of MSMEs in Kenya. Further, the study finds that the MSME sector experiences reduced growth when micro-enterprise transit to small and medium enterprises. The study's main policy implication is that the Kenyan government should ensure the credit and startup capital needs of MSMEs are met for speedy growth of MSMEs. Secondly, the government should promote education especially secondary and higher levels of education. Lastly, the government through the Micro and Small Enterprises Authority (MSEA) should carry out training of the owners of MSMEs on how to ensure efficiency in their businesses as they transit from micro to small and medium enterprises.

Key Words: Access to credit, growth of MSMEs, average labour productivity, KNBS 2016 MSMEs survey.

Chapter one: Introduction

1.1. Background of the Study

Micro, Small and Medium-Scale Enterprises (MSMEs) play a very significant role in developed and developing economies (Geremewe, 2018). The sector is considered the backbone of emerging economies and is critical for generating job opportunities and equitable economic growth and development (Geleta, 2013). Globally, governments have turned their attention towards promotion of MSMEs. This can be attributed to unsuccessful attempts of promoting economic growth through reliance on large industries. MSMEs have been recognized for their enormous contributions to the development process, reduction of poverty levels and as engines of economic growth (Esiebugie, 2016). They are an important part of manufacturing sector, a good strategy for diversifying output, reducing unemployment and achieving both balance of trade and balance of payment (Ayanda & Laraba, 2011; Esiebugie, 2016).

The unique role of MSMEs makes them pillars on which objectives of growth of developing nations are anchored. Apart from providing opportunities for employment, micro, small and medium-scale firms help in curtailing rural-urban migration and enhancing proper utilization of resources in the economy (Ayele, 2018). Through producing intermediate products, which act as raw materials for large-scale companies, these enterprises assist in strengthening of industrial inter-linkages.

According to research by the Organization for Economic Cooperation and Development (OECD), Small and Medium-Sized Enterprises (SMEs) contributed 53% and 86% of all employment opportunities in the UK and Greece respectively in 2017 (Kamal-Chaoui, 2017).

The study further found that in developing economies like Peru, 98% of private business enterprises are MSMEs contributing 42% of the country's GDP and accounting for approximately 60% of total jobs (Kamal-Chaoui, 2017). The World Bank also estimates that seven out of ten formal employment opportunities in emerging economies are generated by SMEs (World Bank, 2019). It further approximates that by the year 2030 the global workforce will require 600 million jobs making the development of the MSME sector a priority for most governments.

In Europe, SMEs are the mainstay of the region's economy with the sector contributing approximately 67% of total employment in the private sector (EU, 2016). The MSEs sector in India is responsible for approximately 39% of all output in the manufacturing sector and about 33% of total exports. India's MSMEs also account for approximately 45% and 40% of manufacturing output and total export respectively (Katua, 2014). In South Africa, MSEs provide employment opportunities to 47% of the nation's working population. The sector also contributes over 20% of the country's GDP and is responsible for approximately 6% of total corporate taxes remitted (Liedtke, 2019). According to Ayele (2018), the number of MSEs establishment in Ethiopia had increased from 51,983 in 2010/2011 to 271,519 in 2014/2015 with employment created by these enterprises increasing from 806,322 to 2,800,000 respectively. For Ghana, the SME sector contributes nearly 70% of the GDP, provides nearly 85% of jobs in the manufacturing sector and accounts for 92% of all businesses enterprises (Ahiawodzi & Adade, 2012).

Despite the critical role that MSMEs play in developing economies and the concerted efforts by most governments to promote their growth, it is estimated that about 70% of MSMEs are closed within 3 years upon establishment (Douglas et al., 2017). Otar (2018) also noted that

about 45.4 to 51% of these business enterprises survive past the 5-year mark and only about 1 in 3 establishments gets past the 10-year mark. The primary cause of this trend being lack of capital, lack of market for their outputs, not having the right team, stiff competition and difficulties in the pricing of products for certain industries (Otar, 2018). Indeed, insufficient funds is one of the main obstacles that hinder growth of MSMEs. It is one of the most cited hurdles that MSMEs in emerging economies face (World Bank, 2019). According to the World Bank (2013), MSEs have extremely low chances of accessing capital hence rely on other informal sources of finances for instance borrowing from friends and relatives. This constrains their productivity and growth and, in some cases, leads to their closure. The World Bank further found that it is disproportionately hard for SMEs to access finance in Least Developed Countries (LDCs) with 41% of these enterprises reporting that the main constraints to growth is access to finance (World Bank, 2013). Beck et al., (2005) also noted that in developing economies access to credit hinders growth of MSEs more than it does to large firms. Further, Tran et al., (2011) also found out that financial support in terms of getting loans is among the three key challenges that hinder the growth of MSMEs.

The inability to access the desired finances can be attributed to several factors including underdeveloped financial sector, lack of legal and institutional structures to assist in the administration of MSEs lending risk, relatively high cost of borrowing as well as rigidities in the rate of interest (Memba et al., 2012). Due to the aforementioned factors, MSEs are forced to rely on retained earnings to expand their businesses. Financial constraints affect the availability of productive resources leading to a sluggish development of the sector preventing MSEs from realizing full growth. This may limit the number of jobs created hence threatening the sector's contribution to economic growth. It is in this regard that most governments have prioritized the formulation of policies and strategies that address access to credit by MSMEs. `

1.1.1. MSMEs s in Kenya

In Kenya, MSMEs are defined according to employment size. A micro-enterprise is any business enterprise that engages at most 10 people, small enterprise engages between 10 and 50 employees and medium-sized enterprise employ between 50 and 99 employees.

The MSMEs sector which is also referred to as the Jua Kali sector occupies a very strategic position in the country's development. MSEs cuts across all sectors of the economy and are vital sources of jobs and a good medium for poverty alleviation (MSEA, 2013). According to sessional paper number two of 2005, SMEs in Kenya provide goods and services and also act as drivers in the advancement of innovation, competition, and promotion of the culture of entrepreneurship, which is critical in the development of the private sector and industrialization (GoK, 2005). MSMEs comprise over 90% of all established businesses in Kenya accounting for over 75% of all jobs in the economy (Kenya Bankers Association (KBA), 2019) According to the KNBS 14.9 million Kenyans are employed in MSME sector with a contribution of about 33.8% of Kenya's GDP. With regards to gross value added, the sector contributed approximately KSh 1,780 billion while the entire economy had KSh 5,668.2 billion (KNBS, 2016).

Notwithstanding the significant role that MSMEs play in Kenya's economy, the sector is challenged with imperfections that hinder it from achieving its full potential. These enterprises face several challenges including the inability to obtain affordable, adequate and timely credit; poor marketing occasioned by limited resources, among others. One of the biggest obstacles to growth of the MSMEs sector in Kenya is poor access to financial resources and imperfect credit history (KBA, 2019).

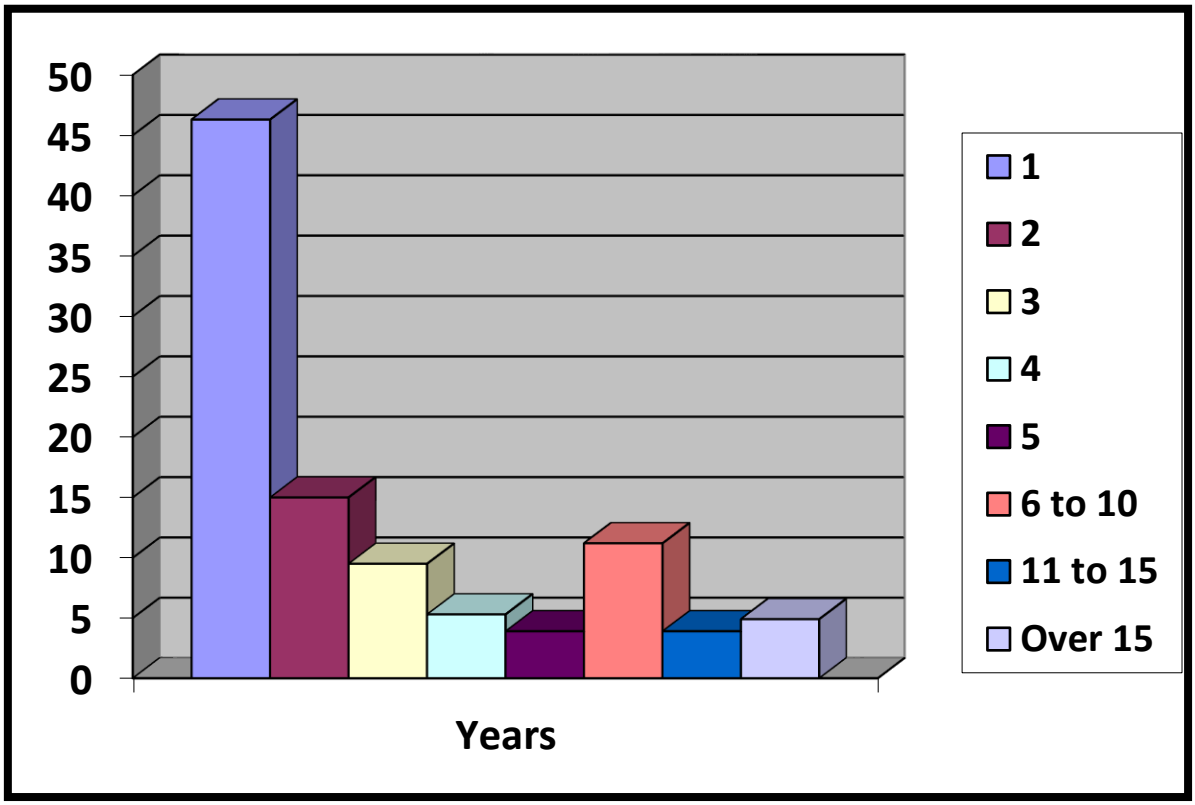
Cognizant of the challenges faced by MSMEs and in order to stimulate the sector's growth, the GoK and private sector financial institutions have introduced policies and initiatives aimed at addressing challenges of access to credit. These include the Youth Enterprise Development Fund (YEDF), Women Enterprise Fund, Uwezo Fund, and SME Fund. Most of these products were mainly intended to take care of the distinctive needs of these groups which make them not access finances from the formal system easily. This is due to rigid requirements such as the need for collateral to support their loan applications (Mutuku, 2016).

The YEDF was introduced in 2006 to provide support to youth and youth enterprises to create job opportunities for the youth through, among other things, the provision of capital to youth enterprises (Charles et al., 2012). Uwezo Fund was established in 2013 with a view of assisting women, persons with disabilities and youth access funds to promote their businesses (GoK, 2014). The SME Fund was established in 2010. It was a special SME scheme with a credit line that targeted banks that were interested in advancing loans to SMEs. The loan period was a maximum of five years to enable SMEs to secure a long paying period and the main objective of the scheme was to create an incentive for banks to engage SMEs (Berg et al., 2015). Further, in 2019, the Kenya banking sector unveiled 'Stawi', an unsecured digital credit scheme aimed at improving access to credit for MSMEs (KBA, 2019).

Despite these, an MSMEs survey by KNBS in 2016 found out that some of the main constraints to growth of the sector in Kenya are lack of capital, expensive loans and the need for multiple licenses among others (KNBS, 2016). The main reason for business closure in Kenya was the lack of enough operating funds. This was reported by 29.6% of the respondents. Insufficient operating capital was as a result of declining income, increased operating expenses and losses incurred by MSMEs.

Research by Douglas et al., (2017) found out that 70% of established SMEs in Kenya don't survive past the third year. KNBS (2016) survey report also found that 2,210,472 MSMEs in Kenya were closed between 2011 and 2016. On average the closure of these enterprises was done at 3.8 years. The survey also found that those businesses that were acquired or started within the previous two years were more vulnerable. These establishments formed 61.3% of all closed businesses. Only about 8.8% of closed MSMEs were above 11 years. This is illustrated below;

Figure 1: The Distribution of closed Establishments by Years of Closure



Source: KNBS

1.2. Statement of the Problem

MSMEs contribution to economic growth and development is widely acknowledged by governments, researchers, policymakers, and other stakeholders. The sector is considered to be the engine through which objectives of growth of developing nations are anchored. This is due to its immense contribution to job creation and the improvement of citizens' living standards. MSMEs in Kenya constitute over 90% of all established businesses accounting for over 75% of all jobs in the economy (KBA, 2019). However, studies have shown that MSMEs are faced with imperfections and constraints that hinder the achievement of their full potential. Key among them is access to credit which is the second most cited impediment of growth of MSMEs in emerging economies (World Bank, 2019).

The KNBS (2016) survey report found out that about 2,210,472 MSMEs in Kenya were closed between 2011 and 2016. The main reason for the closure was the lack of enough operating funds. This was reported by 29.6% of the respondents (KNBS, 2016). Given the impressive contribution of this sector in terms of employment opportunities to Kenyans, its collapse is likely to plunge families into a difficult situation. Assuming the reported number of the workers are breadwinners then it means that millions of Kenyan children rely on the sector for their wellbeing and education. Loss of jobs would imply the wellbeing and education of these millions of children are compromised. Several studies have been undertaken to assess the impact of credit access on the growth and development of MSMEs. These include Muiruri (2014), Dennis & Gedion (2015), Mayabi (2013), Mbiti et al. (2015), Memba et al. (2012), and Ochido (2016) among others. However, most of these studies relied on very small samples and focused on specific areas and industries. As such, there have been limited findings to inform MSMEs' policy formulation and implementation. Based on this premise, this study sought to bridge the gap by using a nationally representative sample that covers many industries to study

the relationship between access to credit and firm growth. The study considered micro, small, and medium enterprises.

1.3. Research Questions

The study was guided by two research questions namely:

- What is the effect of access to credit on growth of MSMEs in Kenya?
- What is the significance of control variables on performance of MSMEs in Kenya?

1.4. Objective of the Study

The main objective of the study was to examine the effect of access to credit on the growth of MSMEs. The specific objectives were:

- To estimate the effect of access to credit on the growth of MSMEs.
- To estimate the significance of control variables on the growth of MSMEs in Kenya.

1.5. Justification of the Study

Results of this study shall assist policymakers in reviewing/developing policies to guide and accelerate the growth of MSMEs. The research also provides a point of reference to future researchers on other related topics. Stakeholders like investors, NGOs, IGOs, and other development partners can use the research findings to come up with concrete proposals regarding enhancement of the current credit facilities being offered by the GoK and other financial institutions.

Chapter two: Literature Review

2.1 Introduction

In this chapter, existing literature on access to credit and growth of MSMEs was examined. Theoretical literature and empirical literature were reviewed in sections 2.2 and 2.3 respectively. A synopsis of the reviewed literature was also undertaken.

2.2. Theoretical Literature

The study's theoretical framework was built on stages of small businesses' growth approach as developed through the seminal work of Churchill and Lewis (1983). Other theoretical models that were reviewed include neo-classical and learning models.

2.2.1 The Stages of Small Business Growth

Firms face similar challenges at certain growth stages and these common issues can be arranged into a framework that enhances understanding of the characteristics, nature, and problems of all kinds of enterprises (Churchill & Lewis, 1983). Applying the findings of Greiner (1972) and Steinmetz (1969), Churchill and Lewis presented a five-stage model, that focused on growth of small businesses. These stages are as explain below:

The Existence Stage

In this stage, firms are concerned with attracting customers to their businesses and at the same time delivering products demanded by their clients. The business is simple, the owner undertakes everything including supervising employees directly. The staff in this case have average competence levels and the business has minimal or non-existent formal planning. The company's strategy is just to remain alive. Most companies never gain enough customer base

and/or product capability to become viable leading to business closure when start-up capital runs out. However, firms that remain in business become Stage II enterprises.

The Survival Stage

In the second stage, enterprises have shown that they are workable entities. The business has adequate satisfied customers. The main concern being whether they have sufficient financial resources to break even and stay in business. As such, the need to have additional capital to expand the business arises. In some cases, the owner would prefer adding family members and friends as partners to help in expanding the business. The firm is still simple with limited staff and minimal systems development. Formal planning is majorly cash forecasting and the owner still aims at ensuring that the business survives, reaches the breakeven point and maintains adequate cash flow to meet operating expenses. The business might grow its profit levels and move to stage three. It may also remain in this stage earning marginal revenues on invested resources and ultimately collapse when the entrepreneur retires or gives up.

The Success Stage

In this third stage, the enterprise starts earning profit. It thus has sufficient capital to expand the business. Owners are now faced with two choices. That is, whether to exploit their successes and expand the business or maintain the status quo and engage in alternative ventures. Further, specialized employees are engaged, and basic financial, production and marketing structures are now in place. Depending on the vision and values of the owner, the company may focus in human resource development and team building activities.

The Take-off Stage

In stage four, the main issues are on ensuring rapid growth and how to fund the desired growth. The enterprise becomes more formal and the owner considers delegating some responsibilities with a view of improving managerial effectiveness. They are also faced with the question of whether there is sufficient cash to meet the great demands brought about by growth. In most cases, the owner must show the willingness to tolerate a high debt-equity ratio. This is a very vital period in enterprise life and determines whether the company can graduate to big business or otherwise.

The Resource Maturity Stage

In this stage, the firm has advantages of economies of scale as well as managerial talent and financial resources making it a formidable force in the market so long as the owners maintain their entrepreneurial spirit. The business channels its energy to financial and quality control as well as creating a niche in the market.

The scope of this study mainly focused on stage two of the growth of small businesses where MSMEs are mainly concerned with having sufficient financial resources to break even and stay in business hence the need to access additional capital to enable business expansion.

2.2.2. The Neo-Classical Model

Neo-classical economics posits that firms are normally motivated by the existence of an average cost curve which is U-shaped and the objective of profit maximization to increase their operations up until they attain the scale of reasonable cost (Geroski,1999). The model hypothesizes that a firm adds workers until the marginal output of the final worker is equivalent to the amount of compensation in terms of wages paid to the worker. This means that the growth of the firm takes place as a response to fluctuation in wage rate, technology, or prices.

Therefore, according to this theory, MSMEs' growth can be attributed to factors that have an effect on the demand and supply of products manufactured by the firms.

2.2.3. The Learning Model

This model was formulated by Jovanovic (1982). It takes into consideration the dynamics of firms and their levels of efficiency in explaining firm growth. Efficient firms, which are characterized by efficient managers, grow over time. A firm joins the market with little information on growth potential. However, after entry, it begins to learn about its profitability distribution given the acquired information from the profit earned. As a result, the firm decides on whether to contract, expand or exit (Jovanovic, 1982). According to this model, firms expand and grow whenever managers realize that their estimates regarding managerial efficiency turn out to have understated their actual efficiency (McPherson, 1996). As such, firm growth and survival is dependent on its ability to adjust its strategies to the ever-changing environs. This model envisages that MSMEs' yearly rates of growth will depend on the accuracy of the prediction of the managers with regards to her ability and the product price.

Further, this model has implications on the link between growth rates of MSEs and both their size and age (McPherson, 1994). Managers of a business that has been operating for some time can estimate the efficiency of the firm more accurately. This lessens the variance of information updating density thereby reducing the probability that the subsequent period's output will be quite different from the current years. As such, newly established firms grow faster than older ones (McPherson, 1996). Regarding the firm size, controlling for the firm's age, bigger businesses grow much slower than smaller businesses. Larger firms are more efficient since they have a small room for more expansion considering that the distribution of information has a lower limit (Cunningham & Maloney, 2001). Critics of the Jovanovic model have pointed

out a lack of flexibility as far as the efficiency parameter used in the model is concerned. The model assumes that managers have an inborn efficiency level. They then learn what that level is over some time, but they are not able to alter it.

2.3. Empirical literature

In a study to examine financial inclusion and MSMEs growth in Uganda, Lakuma et al., (2019) found out that MSMEs in Uganda are faced with challenges of accessing credit more than large firms. The study utilized World Bank's 2013 Enterprise Survey where data was obtained from 762 firms operating in Uganda. Firm-level data was utilized to assess the impact of the prevailing business environment on firms of different sizes. The results suggested that MSMEs in Uganda gain more from financial access than large firms. The study recommended enhancement of financial inclusion for MSMEs and improvement of business environment especially the formalization of micro firms.

Musavi & Maingi (2018) studied the impact of both credit and education levels of the managers/owners on MSEs' performance in Kenya and their combined effect. The study relied on data from the 2016 MSMEs survey report. It used cross-sectional data from 50,043 enterprises in Kenya. Fisher's (2003) formula was used to get a sample of 384 enterprises. Total sales turnover was used as a measure of enterprise growth. The study made use of inferential statistics to cross-examine the correlation between variables. Findings showed that both access to credit and education qualifications exhibited a significant positive impact on MSEs' performance. They also found out that the independent variables' joint effect was much bigger than the individual effect. The study recommended that the CBK should increase its focus on lending plus credit facilitation programs with a view of encouraging more bank-led funding to MSEs to assist in bridging the gap between high credit demand versus credit supply.

In another study, (Hassan, 2017) examined the relationship between accessibility to credit and SMEs' growth in Langata constituency in Kenya. The study's population was 500 SMEs registered in the constituency as of December 2016 where he sampled 100 SMEs. Descriptive statistics and regression analysis were used to analyze the collected data. Results indicated existence of a positive relationship between SMEs growth and the number of lending institutions. Additionally, the education qualification of the proprietors had an impact on enterprise growth. It recommended enactment of policies that necessitate credit facilities to SMEs.

Ochido (2016) investigated how credit accessibility influenced SMEs growth in Nairobi County in Kenya as well as find out the challenges and constraints SMEs face in obtaining credit. The study sampled 379 enterprises out of 30252 SMEs that operated in the county. Regression analysis and descriptive statistics were utilized in analyzing the collected data. Results showed that credit accessibility influenced the growth of SMEs in that majority of them were underperforming because of the failure to obtain credit. It also found out that SMEs lack adequate guarantors or collateral to guarantee their formal loans. It recommended revising of interest rates and other lending policies such as lowering credit appraisal costs and penalty for late payment.

Mbiti et al., (2015) examined the influence that credit access had on growth of women-owned enterprises in Kitui County. They targeted a population of 390 enterprises from commerce, agriculture and service sectors where a sample of 194 enterprises was selected. Data analysis was undertaken using descriptive and inferential statistics. Results showed that credit access positively influenced growth of MSEs that are owned by women in the County. It, therefore,

recommended a review of lending policies, laws on inheritance, ownership of land, and women's and men's rights. It also highlighted the need for training, mentoring as well as cultivating strong business networks among women.

In a study to ascertain the effect of microfinance credit on the performance of SMEs in Uasi Gishu County of Kenya, Dennis et al., (2015) targeted over 5,000 entrepreneurs where they sampled 47 SMEs. Data analysis was undertaken using inferential statistics. They found out that MFIs positively impacted performance and growth of SMEs. They noted that MFIs mostly service individuals/firms that experience financial exclusion due to their inability to access mainstream commercial financial services. They do so by accepting social collateral as opposed to financial collateral hence ensuring easy access of funds with short procedures and less paperwork. The study recommended that credit advances should be customer-oriented as opposed to product-oriented. This is to encourage a continuous growth of SMEs,

In another study, (Abayo & Oloko, 2015) assessed the impact of credit from Mshwari on growth of Small Business Enterprises (SBEs) in Kisumu county. They focused on M-Shwari client knowledge, repayment of microcredit, access to microcredit as well as micro-credit risks. The study targeted a population of 332 SBEs where samples of 77 enterprises were selected using simple random sampling. Descriptive statistics were utilized in processing and analyzing the collected data. They found out that the ease in which SBEs could access micro-credit had an impact on their growth at a score of 3.52 which was not sufficient in boosting growth of SBEs. It recommended that stakeholders in mobile credit need to increase their efforts towards enhancing product publicity in order to demystify complexities of accessing the services by clients. For the regulator, the study recommended working ahead of the technological

innovations with a view of proactively dealing with regulatory impediments that may interfere with financial inclusion objectives.

Muiruri, (2014) sought to ascertain the role of microfinance organizations in MSEs' growth in Thika Municipality. He sampled 16 MFIs and 285 MSEs. Collected data was then analyzed using Statistical Packages for Social Sciences (SPSS). Results showed that services offered to MSEs by MFIs assisted these enterprises to grow. MSEs that received services from MFI reported revenue and sales growth as well as the number of personnel engaged. The study recommended that GoK needs to come up with a policy to help in improving both loan amount and repayment period.

Another study was undertaken by Madole, (2013) to evaluate the impact of credit from MFIs on performance of SMEs in Morogoro, Tanzania. The study found that SMEs that received loans from NMB bank improved in terms of profits, employee engagement, business diversification, sales turnover, assets and capital. The study made use of primary data where 100 respondents were sampled, and data collected analyzed using SPSS. To sustain SMEs' growth the study proposed that MFIs should explore the possibility of enhancing credit as well as increase their engagement in SMEs financing. Further, the Government and MFIs should improve the microfinance out-reach program especially for SMEs in rural areas with a view of creating awareness on the activities, operations, and benefits of the scheme.

Olowe et al., (2013) studied the effect of microfinance banks (MFBs) on growth of SMEs in Nigeria using a sample of 82 SMEs. Data analysis was done by using regression analysis. They found out that financial services offered by MFBs had a significant positive impact on MSEs growth. Further, it indicated that the requirement of collateral as loan security, high interest,

and loan repayment frequency may stagnate growth of SMEs. The study recommended easing borrowing conditions by MFBs and also increasing of loan duration for customers' loans.

Another study by Mayabi (2013) aimed at examining the impact of access to finance on growth of SMEs especially in boutique establishments in Nairobi County. The study used a descriptive approach and SPSS to analyze the data collected. The research findings showed that a certain level of access to funds is key for growth of businesses. Further, growth in credit accessibility leads to enhancement of financial management skills. The study recommended the need to enhance the uptake of credit by MSEs wishing to grow.

Memba et al., (2012) also analyzed the effect of venture capital on growth of SMEs in Kenya. Data prior to and after use of venture capital was collected from 200 SMEs. Respondents were requested to give information on the following issues prior to and after using venture capital: yearly sales, profitability of the enterprise, value of business assets, and the number of employees. Descriptive statistics were then utilized in analyzing the collected data. Research findings indicated that venture capital had an impact on SMEs' growth. Further, the study showed that using venture capital in the Country can be rewarding even in an unfavorable economic and political climate.

Ahiawodzi & Adade (2012) examined the effect of credit access on growth of SMEs in Ghana's Ho Municipality. The study made use of surveys and econometric techniques. The survey questionnaires were directed to owners of SMEs in the Municipality especially in the manufacturing sector to establish whether access to credit may lead to SMEs growth. It entailed sampling of 78 enterprises. The main indicator that was used by the study to ascertain the

growth of SMEs is change in employment levels before and after access to credit. Results indicated that credit accessibility has a noteworthy positive impact on SMEs' growth.

2.4. Overview of the Reviewed Literature

Most of the studies reviewed used descriptive research design. These include studies by Hassan (2017), Abayo & Oloko (2015), Madole, (2013, Mayabi (2013), and Memba et al., (2012). The other studies while using regression analysis relied on very small samples and focus on specific areas and industries. The current study used a nationally representative sample that covers many industries. It considered micro, small, and medium enterprises.

Chapter three: Methodology

3.1. Introduction

This chapter covers the theoretical framework, empirical model, data types and source as well as diagnostic tests that have been undertaken.

3.2 Theoretical Framework

The theoretical framework adopted in most studies on the correlation between output and credit has been centered around the Cobb-Douglas production function (C-DPF) such as Chisasa & Makina (2013) and Batool & Zulfiqar (2013). The original C-DPF, which is an inspirational work of Cobb and Douglas (1928), considers a basic interpretation of the firm where the output (Y) is determined by invested capital (K) and labour (L) as represented in the following equation:

$Y = A. K^{\alpha} L^{\beta}$ ……..…… equation 1.

Where;

A = Technological parameter

β and α are output elasticities of L and K respectively. They are constants which depend on the existing technology.

Capital (K) can also be broken down into two. That is, the input capital (k) and the average level of credit per MSE (c). This will transform equation 1 above into a production process with three factors whereby credit capital (c) is separated from physical capital. Thus, equation 1 can be transformed to:

$Y = A. (ck)^{\alpha} L^{\beta}$ ..…… …… equation 2

Notably, the elasticity of 'c' is not limited to being similar to that of L and K. However, it is assumed that total elasticity is equal to one (1) because the production function restricts the substitution between inputs in the production process.

The variables in equation 2 above can also be expressed in terms of per unit of capital input as shown in the below equation:

$\frac{Y}{K} = A.\left(\frac{C}{K}\right)^{\alpha}\left(\frac{L}{K}\right)^{\beta}$ …….. equation 3

Considering that the production function is not linear, equation 3 can be log-transformed to:

$\ln\frac{Y}{K} = \ln A + \alpha \ln\left(\frac{C}{K}\right) + \beta \ln\left(\frac{L}{K}\right)$ …… equation 4.

The extended production function above indicates that credit level has an impact on the level of MSMEs' output. This is because it boosts the capital that is required to facilitate the production process. According to Manaresi & Pierri (2018), increased credit supply leads to a corresponding increase in both firms' inputs and outputs (that is, value-added and revenues) for a given level of inputs.

3.3. Measurement of MSMEs Growth

Firm growth can be measured by using either financial or non-financial indicators (Fowowe, 2017). Financial attributes comprise sales, market share, and profit among others and one of the non-financial attributes is a change in employment levels (Hassan & Hart, 2016). However, change in employment levels and sales are the commonly used parameters for growth (Zhou & de Wit, 2009). This is because they give a reflection of long and short-term variations in an enterprise and can be remembered and obtained easily. Besides, in comparison with other measures such as profits and market shares, employment and sales are more objective indicators (Delmar, 1997 cited by (Davidsson et al., 2010). Sales is the most general attribute

considering that businesses need sales to survive. It is also an indicator that MSEs owner-managers use (Barkham et al., 2012). Additionally, sales precede other indicators in that an increase in sales necessitates increase in employees and assets leading to an increase in profits as well as market share (Davidsson et al., 2010).

This study used average labour productivity that is the average output per employee to measure MSMEs' growth. This is obtained by dividing total sales divided by the number of employees. Notably, Labour costs do form a significant portion of total costs and efficiency of a business and its profitability is closely associated with the productive use of labour. Further, for MSEs to remain competitive they need to maintain their unit costs as low as possible.

3.4 Empirical Model

To estimate the effect of access to credit on the growth of MSMEs in Kenya the study will adopt equation 4 above but will include more control variables as suggested by previous studies. Equation 4 is transformed to.

$$FG_i = \beta_0 + \beta_1 Cred_i + \beta_2 Sc_i + \beta_3 Age_i + \beta_4 Ed_i + \beta_5 Size_i + \beta_6 Rgn_i + \beta_7 Sex_i + \beta_8 Comp_i + \beta_9 Elec_i + e_i$$

…… Equation...5

Where*: FG* represents growth of MSMEs measured by average labour productivity, Cred represents credit access, Age represents firm's age, Ed represents level of education of manager/owner, Sc represents startup capital, Rgn represents the location of MSME, Sex represents the sex of the manager/owner, Size represents the size of the MSME, Comp represent the use of computers, Elec represent access to electricity while e represents the error term. The model was estimated using OLS.

3.5 Data Types and Source

The study employs cross-sectional firm-level data sourced from the KNBS 2016 MSMEs survey. This survey used two separate sampling frames. That is, licensed and unlicensed establishments where 50,043 licensed MSMEs and an additional 14,000 households' enterprises which are mostly unlicensed were sampled. It thus offers a detailed understanding on MSMEs in Kenya. The survey made use of representative probability sample design to produce estimates at three domains namely National, Counties, and Urban and rural residences. It further adopted a stratified random sampling technique for the establishment-based sample whereby a systematic random sampling of establishments was obtained by making use of equal probability selection technique. For household-based sample, a two-stage stratified cluster sampling design was used. The survey covered businesses in all sectors of the economy involving non-primary product activities or businesses. This excluded primary activities such as agricultural production (except for those which were undertaken for profit/market), fishing, hunting, animal husbandry, gathering and forestry.

3.6. Diagnostic Tests

To ensure that the estimates are valid and significant, the study performed heteroscedasticity and multicollinearity tests. Heteroscedasticity and Multicollinearity are potential problems that inhibit correct estimation of standard errors. This can lead to erroneous hypothesis tests about the significance of predicted coefficients. Heteroscedasticity is a common problem in cross-section data. It is an econometric problem where error term's variance varies with the magnitude of the explanatory variable. Its presence renders hypothesis testing inapplicable. To ensure the analysis is free of heteroscedasticity, the study tested for its presence using the Breusch-Pagan test. To check for the presence of a linear correlation between the independent variables, the study used the Pearson Product Moment correlation. The study further performed Variance Inflation Factors (VIF) to check for the presence of multicollinearity.

3.7 Description and Measurement of Variables

Table 3.1: Table showing the variables, their description, units of measurement and expected signs

Variable	Description	Expected sign and Source
Dependent variable		
Average labour productivity	This was computed as total sales divided by number of employees	Dependent variable
Independent variable		
Access to Credit	This is a dummy variable that took the value 1 if the firm accessed credit in the past 3 years, and 0 otherwise	Positive Musavi & Maingi (2018); Mulie & Raju (2015); and Ahiawodzi & Adade (2012)
Region	This is a dummy variable that took the value 1 if the firm is in Nairobi, and 0 otherwise	Positive
Sex of managers/owners	Measured by three dummy variables. Male only managers/owners dummy, Female only managers/owners dummy, Mixed gender owners/managers	Positive Mulie & Raju (2015)
Size of business	Three dummy variables were created. The micro firm dummy which took the value 1 if the firm has between 0 and 9 workers and 0 otherwise. The small firm dummy which took the value 1 if a firm has between 10 and 49 workers and medium sized dummy which took the value 1 if a firm has between 50 and 99 employees.	Negative Cunningham & Maloney, (2001)
Age of business	This is the absolute number of years for which MSME has been in existence since start-up.	Positive Ahiawodzi & Adade (2012)
Educational level of owner/manager	Refers to owner's/manager's level of formal training. It was measured as a dummy variable. No education dummy, primary school dummy, secondary	Positive

	school dummy and tertiary education dummy	Musavi & Maingi (2018); Ahiawodzi & Adade (2012); and Mulie & Raju (2015).
Startup Capital	This is the amount of money in Kenya Shillings that was used to start the business.	Positive Ahiawodzi & Adade (2012)
Has electricity	This determined whether MSMEs had access to electricity. It was measured as a dummy variable that took the value 1 for those which accessed electricity and, 0 otherwise.	Positive Grimm et al. (2013)
Use computer	This ascertained whether MSMEs used computer(s) for official purposes in the last one year. It is measured as a dummy variable that took the value 1 for those which accessed electricity and, 0 otherwise.	Positive Asunka (2016)

Chapter four: Empirical Findings and Results Discussion

4.1 Introduction

This section presents the data analysis, interpretation, and discussion of the regression results on the effect of access to credit on growth of MSMEs in Kenya. Specifically, the section presents the summary statistics, the correlation analysis, OLS regression results and post estimation tests.

4.2 Summary statistics

This sub-section presents the summary statistics of the data used in the study. The statistics discussed include the mean, standard deviation as well as minimum and maximum values. The minimum and maximum values are important in determining presence of outliers. This information is illustrated in Table 4.1 below:

Table 4.1: Summary Statistics

Variable	Observation	Mean	Standard Deviation	Min	Max
Average labor productivity	23,288	20575	313612	-74.25	3.75e+07
Access to credit	24,164	0.29	0.45	0	1
Amount of s**tartup capital**	20,593	1086406	2.03e+07	1	9.00e+08
Age of business	24,164	8.35	8.05	-0.1	96.3
Micro firms	24,164	0.89	0.31	0	1
Small firms	24,164	0.09	0.29	0	1
Medium firms	24,164	0.01	0.12	0	1
Male only owners/managers	24,164	0.46	0.50	0	1
Female only owners/managers	24,164	0.26	0.44	0	1
Mixed gender owners	24,164	0.28	0.45	0	1
No formal education dummy	22,774	0.19	0.39	0	1
Primary education dummy	22,774	0.23	0.42	0	1
Secondary education dummy	22,774	0.28	0.45	0	1
College education dummy	22,774	0.18	0.38	0	1

University education dummy	22,774	0.12	0.32	0	1
Nairobi dummy	24,164	0.06	0.24	0	1
Has electricity dummy	24,149	0.86	0.35	0	1
Use computer dummy	24,159	0.15	0.36	0	1

Table 4.1 presents the descriptive statistics. The mean average labour productivity was Kshs. 20,574.79. Only about a third (29%) of the firms had accessed credit in the past 3 years. Majority of the firms (89%) were micro firms, 9% were small firms and 1% were medium firms. On average the businesses had been in existence for 8.35yrs since start-up and the proprietors used kshs.1,086,406 to start their businesses. 46% of all businesses are owned/managed by male persons and 26% percent by female only owners/managers. Mixed gender owners constituted 28% of all businesses. With regards to owner's/manager's level of formal training, 19% had no formal education, 23% had attained primary education and 28% had attained secondary education. Further, 18% and 12% of all owner managers had attained college and university education, respectively. 6% of all businesses were located in Nairobi and about 86% of all MSMEs had access to electricity. Finally, only about 15% of all business had used computer(s) for official purposes in the previous one year.

4.3 Correlation Analysis

To check for presence of linear correlation amongst the independent variables, the study used the Pearson Product Moment correlation. The results are presented in the appendix A.

To check for presence of multicollinearity, the study performed the Variance Inflation Factors (VIF). The VIF results revealed the absence of multicollinearity since all the VIF were less than 10. The VIF results are as presented below:

Table 4.2: The VIF Test Results

Variable	VIF	1/VIF
Secondary education dummy	1.96	0.51
Primary education dummy	1.84	0.54
College education dummy	1.80	0.56
University education dummy	1.70	0.59
Mixed gender owners	1.54	0.65
Male only owners/managers	1.49	0.67
Use computer dummy	1.40	0.72
Startup capital	1.35	0.74
Small firms	1.20	0.83
Has electricity dummy	1.07	0.93
Nairobi dummy	1.06	0.94
Age of business	1.06	0.95
Access to credit	1.03	0.97
Medium firms	1.02	0.98
Mean VIF	1.39	

4.4 Regression Results

The regression results of the effect of access to credit on growth of MSMEs in Kenya are presented in table 4.3 below:

Table 4.3: Regression Results

Variables	Ordinary Standard Errors	Robust Standard Errors
Access to credit	0.151***	0.151***
	(0.021)	(0.021)
Log of startup capital	0.220***	0.220***
	(0.006)	(0.007)
Log of age of business	0.154***	0.154***
	(0.010)	(0.011)

Firm size (Base: Micro firms)		
Small firms	-0.565***	-0.565***
	(0.042)	(0.048)
Medium firms	-1.665***	-1.665***
	(0.129)	(0.236)
Gender of owner/manager (Base: Female only)		
Male only	0.148***	0.148***
	(0.023)	(0.022)
Mixed gender	-0.031	-0.031
	(0.027)	(0.026)
Education level of owner (Base: No formal education)		
Primary	0.047	0.047
	(0.030)	(0.030)
Secondary	0.085***	0.085***
	(0.029)	(0.030)
College	0.004	0.004
	(0.033)	(0.034)
University	0.055	0.055
	(0.043)	(0.046)
Nairobi dummy	0.131***	0.131***
	(0.046)	(0.048)
Electricity access dummy	0.128***	0.128***
	(0.027)	(0.027)
Has computer dummy	0.302***	0.302***
	(0.036)	(0.038)
Constant	5.760***	5.760***
	(0.071)	(0.077)
Observations	18,112	18,112
R-squared	0.117	0.117
Prob > F	0.000	0.000
Breusch-Pagan Test	0.000	

Standard errors in parentheses*** p<0.01, ** p<0.05, * p<0.1

The regression results showed that the model performed well with regard to overall significance. This was revealed by a significant F statistic of 0.000. The study performed heteroscedasticity test as a post estimation test. The Breusch-(B-P) test statistic was significant thus leading to rejection of the null hypothesis. This implied presence of heteroscedasticity. To remedy this econometric problem, the study adopted robust standard error regression.

The results indicate that the coefficient of credit was positive and statistically significant. Specifically, access to credit increases a firm's productivity by 15.1 percent holding other explanatory variables constant. This is in line with economic theory. The results are also in agreement with earlier studies by Musavi & Maingi (2018) and Hassan (2017) who studied the impact of credit on MSEs' performance in Kenya and Langata constituency respectively. This finding implied that access to credit by these firms is a key determinant of their growth.

The coefficient of the natural log of age of the MSME is positive and significant at 1 percent level of significance meaning this variable is an important determinant of the productivity of firms. Specifically, the findings showed that an increase in the age of MSME by one percent leads to an increase in the growth of an MSME by 0.154 percent. This finding conforms to economic theory. The results are in agreement with Ahiawodzi & Adade (2012) findings. This finding can be linked to ability of the firms that are much older to grow faster than the younger firms due to the experience that has been gained over the years. Thus, there exists a positive relationship between enterprise growth and its age.

The coefficient of managers with secondary education is positive and significant at 1 percent level of significance. This variable is important in determining the productivity of firms. The results showed that MSME managed/owned by individuals who have secondary education were 8.5 percent more productive than those owned/managed by individuals with no formal

education holding all other variables constant. This finding confirms findings by Mulie & Raju (2015), Musavi & Maingi (2018) and Ahiawodzi & Adade (2012).

The coefficient of Nairobi is positive and significant at 1 percent level of significance. The results indicate that firms that are located in Nairobi are 13 percent more productive than firms located outside Nairobi holding other factors constant. Nairobi has well-established infrastructure and diverse customer base as compared to other towns. In most cases, cities have a diverse cultural base and MSMEs that target a certain customer segment will do well in a big city that has a bigger population of that segment. Enterprises that provide services or offer products to a narrow niche will find more customers in that niche in a larger population.

The coefficients of the small and medium enterprises are negative and significant at 1 percent. The results showed that compared to micro-enterprises, small and medium enterprises were 66.5 percent and 166.5 percent respectively less productive holding other factors constant. The findings contradict Cunningham & Maloney (2001) who found that larger firms are more efficient since they have a small room for more expansion considering that the distribution of information has a lower limit.

The coefficient of male is positive and significant at 1 percent level of significance. The results indicate that MSMEs that are managed or owned by a male person are 14.8 percent more productive than those that are managed or owned by a female person. This finding is in line with a study by Mulie & Raju (2015). One factor that contributes to the slower growth of female owned MSMEs is that their businesses have a high likelihood of being physically situated within the household (ILO, 2004 cited by Mulie & Raju, 2015). Further, female entrepreneur managers are more risk-averse and compared to their male counterparts, their probability to grow is low (Mulie & Raju, 2015).

The coefficient of electricity is positive and significant at 1 percent implying this variable is important in determining firm productivity. The results showed that MSMEs that had access to electricity were 12.8 percent more productive than those that did not have access to electricity holding other factors constant. This finding is in line with a study by Grimm et al. (2013). Electricity can possibly wield a positive influence on productivity. This is because it contributes to enhanced uptake of modern equipment and hence improving business operations.

The coefficient of computer is positive and significant at 1 percent implying this variable is important in determining firm productivity. The results showed that an MSME that used a computer was 30.2 percent more productive holding other factors constant. This finding agrees with Asunka (2016). The use of ICT and computers accelerates productivity of MSMEs by reducing communication and transaction costs as well as by enhancing healthier relations with clients and suppliers.

Chapter five: Summary, Conclusions and Policy Implications

5.1 Introduction

This chapter describes the summary and conclusions, and policy implications of the study. The chapter ends by discussing limitations and areas for further research.

5.2. Summary and conclusions of the study

The main objective of this study was to examine the effect of access to credit on the growth of MSMEs. Firm growth was measured by average labor productivity. The study used data from the 2016 MSMEs survey and estimated an OLS model

The study found that access to credit had a positive and significant effect on firm productivity. Ensuring firms access credit is one of the ways through which governments can promote firm productivity hence growth. The other factors that were found to positively influence the growth of MSMEs in Kenya include startup capital, business age, male managers, managers who have secondary level education, MSMEs located in Nairobi, electricity access, and use of computers.

5.3 Policy Implications

To achieve the growth of MSMEs in Kenya, this study makes the following recommendations. First, the main policy implication of the study is that the GoK should priorities meeting the credit and startup capital needs of the MSMEs in the country for speedy economic growth of the nation. This can be achieved by ensuring that there is easy access to credit. To attain this, the GoK should encourage specialized or development-oriented financial institutions. The funds provided by these institutions should be made available to MSMEs at a reduced interest rate. The government should also establish a well-funded national credit guarantee fund that will assist MSMEs access credit facilities from commercial banks and other financial

institutions. Such a move will assist MSMEs to overcome challenges associated with demand for collateral security by financial institutions.

Secondly, the government should promote education especially secondary and above levels of education. In addition, the government should increase electricity connectivity. This will improve the growth of MSMEs. The government should also invest in infrastructure across the country. This is because MSMEs located in Nairobi have shown to perform well due to already established modern infrastructure. Lastly, the government should partner with international organizations to train owners of MSMEs on how to achieve efficiency as their businesses transit from micro to small and later medium status.

5.4 Limitation of the Study

This study investigated the main effect of credit access on the growth of MSMEs in Kenya using the KNBS 2016 MSMEs survey, a cross-sectional dataset. Panel dataset would have been a better dataset in answering the research question.

5.5 Areas for further study

This study investigated the main effect of credit access on the growth of MSMEs in Kenya. Future studies can disaggregate the analysis and look at MSMEs in individual sectors for instance manufacturing, agricultural, and service sector. Future studies can also focus on specific counties given that many counties have started to collect data.

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Appendix A: Pairwise Correlation Matrix

	credit	Log of startup capital	Log of age of business	Micro firms	Small firms	Medium firms	Male only owners/ managers	Female only owners/ managers	Mixed gender owners	No formal education dummy	Primary education dummy	Secondary education dummy	College education dummy	University education dummy	Nairobi dummy	Has electricity dummy	Use computer dummy
Access to credit	1.00																
Log of startup capital	0.00	1.00															
Log of age of business	0.06	-0.12	1.00														
Micro firms	-0.06	-0.30	-0.09	1.00													
Small firms	0.06	0.27	0.08	-0.94	1.00												
Medium firms	0.00	0.09	0.04	-0.28	-0.02	1.00											
Male only owners/managers	-0.07	0.04	0.04	0.05	-0.04	-0.01	1.00										
Female only owners/managers	0.01	-0.18	-0.05	0.11	-0.11	-0.03	-0.57	1.00									
Mixed gender owners	0.08	0.14	0.01	-0.17	0.16	0.05	-0.55	-0.37	1.00								
No formal education dummy	-0.10	-0.12	0.09	0.06	-0.06	0.00	0.03	0.02	-0.05	1.00							
Primary education dummy	0.01	-0.22	0.00	0.12	-0.11	-0.03	-0.02	0.08	-0.06	-0.26	1.00						
Secondary education dummy	0.03	-0.01	-0.01	0.07	-0.06	-0.02	0.01	-0.01	0.00	-0.30	-0.37	1.00					
College education dummy	0.06	0.14	-0.06	-0.06	0.07	0.00	-0.03	0.00	0.04	-0.22	-0.27	-0.31	1.00				
University education dummy	-0.01	0.31	-0.02	-0.27	0.25	0.07	0.01	-0.12	0.11	-0.15	-0.19	-0.22	-0.15	1.00			
Nairobi dummy	0.01	0.17	-0.04	-0.12	0.12	0.01	-0.04	-0.01	0.06	-0.05	-0.08	-0.01	0.06	0.12	1.00		
Has electricity dummy	0.06	0.19	-0.03	-0.04	0.05	0.00	0.03	-0.07	0.04	-0.15	-0.07	0.06	0.07	0.10	0.08	1.00	
Use computer dummy	0.06	0.37	0.03	-0.35	0.32	0.11	-0.02	-0.13	0.15	-0.13	-0.18	-0.09	0.15	0.36	0.21	0.14	1.00