MASTER THESIS

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FEMALE ENTREPRENEURSHIP, CREDIT ACCESS AND FIRM'S PERFORMANCE IN NIGERIA

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Abstract

Research on female entrepreneurship is an area of research with substantial policy implications. As the global community focuses on the United Nations Sustainable Development Goals (SDGs) 2030 targets, inquisition on women business has continued to gain currency. This study focuses on the determinants of female entrepreneurship, drivers of access to credit by female-owned firms, and the implications of access to credit on the performance of female-owned firms in Nigeria. Analyzing data from the Nigerian Enterprise survey 2014 using descriptive statistics and logistic regression procedure, the study obtained several findings leading to the following conclusions:

1. Female entrepreneurship in Nigeria is driven by access to land, access to finance, availability of infrastructure, insecurity, mentorship, education, political stability, regional affiliation, economic outlook, business registration, licensing and trade regulatory framework.
2. Access to credit by female-owned firms is determined by the availability of collateral security, access to land, financial literacy and insecurity. Also, loan administration, high-interest rate, having audited financial statement, membership of trade union, club or association and being financially constrained are determinants to female credit access.
3. Access to credit increases the performance of female-owned firms by increasing capacity utilization and sales growth or turnover rate.

The study discussed the theoretical, practical and policy implications of the findings and the limitations of the study. The study equally provided insights for further studies.

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Bodø, 25 May 2021.

Fidelis Chinonso Idigo

Table of contents

List of tables

List of figures

List of appendixes

CHAPTER ONE

1.0. Introduction

1.1. Background of the study

This study focuses on female entrepreneurship, credit access and firm's performance in Nigeria. The criticality of female entrepreneurs in national development across the globe is a general knowledge as female-owned firms (FOFs) are regarded as the world's fastest-growing entrepreneurial ventures (Global Entrepreneurship Monitor, 2015). The degree of the contribution of female entrepreneurs to economic growth and development through participation in micro, small and medium-scale enterprises (MSMEs) is unprecedented considering continuing obstacles they face in reaching the peak of their potentials. For instance, statistics from the Global Partnership for Financial Inclusion underlined that the rate of women start-ups is significantly higher than that of men in developed economies. They are playing a critical role in creating jobs and stimulating economic growth (GPFI, 2011). The report further documented that in the United States of America, the number of FOFs rose at a rate more than double of their male counterparts (23% and 9% respectively annually). The report also highlighted similar development in Canada (GPFI, 2011). A similar report by the Global Entrepreneurship Monitor in 2015 indicated that roughly 126 million females were either beginning or running new establishments in around 67 nations across the globe.

Furthermore, roughly 98 million females were already in charge of well-established firms. These females create jobs and empower themselves; they also gainfully engage others, reducing the unemployment incidence in various economies. Around 48 million FOFs and 64 million FOFs employ one or more individuals in their diverse establishments (GEM, 2015).

In developing economies (Nigeria inclusive), females actively engage in economic activities via business ventures ownership. They have made significant contributions to poverty reduction and economic growth through this channel (Nwosu & Orji, 2017). For instance, in the Middle East and North Africa (MENA) area, a study of 1228 FOFs showed that women are operating well-established firms with revenues exceeding $100,000, similar to the revenue FOFs in the United States of America generates (GPFI, 2011). The past decades have witnessed increased female participation in MSMEs in Nigeria. The Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) conducted is survey in 2010 which revealed that the total number of firms in the country was 17,284,671 (of which 17,261,753, 21,264, 1,654 were micro, small and medium enterprises, respectively). As of December 2010, the overall number of people engaged by MSMEs in Nigeria was 32,414,884

Similarly, the latest survey by SMEDAN in December 2017 shows that the number of MSMEs in the country rose to 41,543,028 with 41,469,947 for micro and 73,081 for small and medium enterprises. These MSMEs engage 59,647,954 Nigerians (representing 86.3% of the national workforce) and contribute roughly 49.78% and 7.64% to the GDP and export. Expectedly while male entrepreneurs continue to dominate ownership of firms in Nigeria, female entrepreneurs are making significant progress (SMEDAN, 2017, PwC, 2020).

SMEDAN (2017) also noted that credit access is one of the critical areas of assistance required by MSMEs in Nigeria. Similarly, a report by PwC in 2020 observed that in emerging and developing nations, roughly 55% to 68% of MSMEs are either overlooked or underserved by financial establishments resulting in a gross credit deficit of USD5.1 trillion. The report further estimated the funding deficit for MSMEs in Nigeria during pre-COVID-19 to be around ₦617.3 billion yearly, with MSMEs accounting for less than 1% of the 2018 overall commercial banking credit (PwC, 2020). Sadly, less than 5% of MSMEs have been capable of securing sufficient financing for working capital and market growth/expansion. Despite this, MSMEs account for roughly half of the country's GDP (PwC, 2020).

Discrimination against women in economic activities is very evident in most Nigerian economies (Nwosu, Orji, Nnetu & Nwangwu, 2015). For instance, their participation in the formal sector is meagre, especially in the civil service and industry. Available evidence suggests that in the federal civil service, which happens to be the biggest labour employer in the formal sector, women occupy the junior cadre (Nwosu et al., 2015). Women in Nigeria are confronted with obstacles and discrimination in accessing diverse opportunities notwithstanding their educational attainments. The majority of Nigerian women operate mainly in the informal economy, primarily in agriculture and petty trading. Aside from their unequal participation in formal employment, the bulk of their economic contributions are unpaid (Nwosu et al., 2015). Besides, women are deprived of the legal right to inherit or own property in most of Nigeria due to cultural practices. Acquisition of land in Nigeria is mainly by descent or inheritance. Given that the land inheritance system, as noted by Keke (2015), disallows women from owning land by heritage (except a woman buys a title from a male inheritor), this negatively affects women when applying for credits because landed properties are preferred as collaterals by most financial institutions in Nigeria.

In most cases, when a woman applies for credit, the lending officers would first confirm from the husband whether he consents to the credit application. If the husband does not agree to the credit application, the credit demand is as good as dismissed (Ogunleye, 2017). Culturally, in

Nigeria, it is accepted that men should lead while women should follow. Therefore, it is culturally admissible to see in Nigerian communities; men walk ahead of women. Hence, gender equity gaps in the country are connected to pre-colonial patriarchal arrangements where family structures and occupational skills are transmitted to boys. In contrast, skills involving reproductive functions are transferred to girls (Aina, Ogunlade, Ilesanmi & Afolabi, 2015).

Consequently, access to credit has been documented as a critical variable hindering the growth of female-owned business in developing economies. Credit is an effective tool for enhancing the poor's well-being and expanding business opportunities (Ouma & Rambo, 2013). Access to credit could also restrict the business scope in which women may participate. Therefore, female entrepreneurs need quick access to credit to exploit business opportunities and enhance their performance. Based on the composition of the lending process, the Nigerian credit market can be split into informal and formal sectors. Deposit money banks (DMBs) are primarily responsible for the better organized and formalized credit market. Despite the stock market and other financial markets like microfinance banks (MFBs) being part of the formal credit market, the market is dominated by DMBs. The majority of credit issued by deposit money banks is limited (CBN, 2010).

On the other hand, moneylenders, family, friends and self-help groups are part of Nigeria's informal credit sector. Over the years, several policies have been introduced to boost credit flow to the MSMEs. Notable among this policy was the Microfinance Policy, Regulatory and Supervisory Framework of 2005, which was later revised in 2011. Despite their efforts, several issues affect the sector, notably the high rate of interest charged. The interest rate ranging from 20% to over 50% is excessively high, making it impossible for MSMEs to access credit from MFBs in Nigeria (Orodje 2012). As a results of the fact that basic production materials are imported, and services such as electricity and water are primarily supplied by individuals because of government negligence of basic infrastructure, it is very expensive to do business in Nigeria. Furthermore, the lack of a clear legislative and structural structure increases transaction costs and encourages multiple taxes to prosper. Hence, the high-interest rate could discourage most FOFs from accessing credits, affecting their performance.

It is based on the above that this study beams its spotlight on female entrepreneurship, access to credit and firm's performance in Nigeria using a nationally representative dataset. The outcome of this study will be essential to policymakers, regulators of the financial sector and academia. First, gaining insights on the factors that drive female entrepreneurship and credit

access in Nigeria will assist female's economic empowerment, enterprise development and reducing the startling income gap and poverty in Nigeria. Similarly, understanding the various obstacles women encounter in accessing credit will drive policies on how women can be incorporated into the formal credit market. On the other hand, insights on the various steps taken by women to address credit hurdles will engender a greater awareness of the need to replicate such measures. Copying such actions will assist in developing and harmonizing entrepreneurship policies in Nigeria that will be inclusive. The primary goal is to promote market inclusion, which would aid in decreasing poverty through business creation and growth.

Secondly, over the years, the Nigerian financial sector has witnessed an increased entrance of new credit market players (specifically the advent microfinance banks) and the expansion of their products; however, it is unclear the implications of these products on women entrepreneurship. The finding of this study will assist in formulating and revising policies aimed at improving and stimulating women entrepreneur's financial inclusion. The Bank of Industry and Nigeria Incentive-Based Risk Sharing System for Agricultural Lending (NIRSAL) has provided training and microcredit to entrepreneurs (both women and men) in Nigeria. The outcome of this study will assist them to know the areas to prioritize.

Thirdly, most Nigerians are financially excluded, and the Central Bank of Nigeria has set a lofty target of ensuring a 95% financial inclusion rate from the current 63.2% by 2024 (CBN 2019, 2020). The apex bank plans to revise the Nigerian microfinance policy to enhance its operations and contribute to its economic outcomes to meet its target. The policy has been revised twice (2007 and 2011), with the revisions intended to improve the long-term distribution of various microfinance services to rural communities and low-income households. Empirical studies are required to determine who benefits from the existing system and the degree women entrepreneurs are included in the framework to ensure the program's effectiveness. The outcome of this study will be essential when the apex bank begins the next phase of microfinance policy revision in Nigeria. Similarly, this study will assist commercial banks in Nigeria in devising strategic decisions regarding funding women entrepreneurs.

Fourth, Nigeria has been seeking ways to achieve gender equality, particularly among African nations, to meet Sustainable Development Goal 5 by 2030. This study will present policymakers with insights on the type of targeted interventions or assistance that female entrepreneurs in Nigeria require. This study will unearth the primary drivers of female

entrepreneurs' enterprise creation in a male-dominated field, religiously conservative and socially repressed nation like Nigeria.

Lastly, aside from the fact that this study is vital to policymakers and regulators in Nigeria, the outcome and conclusion of this study will serve as key reference material to the academia in Nigeria. Female entrepreneurship is an emerging area in the Nigerian literature, and this study will provide reference material for future research endeavours.

1.2. Research Problem

The development of entrepreneurship has become a key policy priority across the world and particularly in developing countries. It is commonly regarded as a means of generating jobs, reducing poverty and improving the general well-being of individuals and households (Minniti and Naude, 2010). Undeniably, the robust efforts to encourage entrepreneurship are closely linked to the growing interest in the growth of the private sector and the neoliberal agenda of economic development (Quartey, Danquah, Owusu & Iddrisu, 2018). In pursuing entrepreneurship advancement in developing nations, women always come to the fore because they are widely perceived as vulnerable, specifically regarding income and employment. Thus, the promotion of entrepreneurship among women is widely seen as enhancing their job chances and other opportunities (Quartey et al., 2018). Improving women's social and economic outcomes has been crucial to global and national development agendas in recent years. In particular, the promotion of female involvement in entrepreneurship has been described as key to empowering women and a strategy for reducing poverty.

Consequently, development agencies and governments worldwide have provided resources and concentrated their efforts to support MSMEs, particularly in developing economies. This entrepreneurship intervention could help create jobs in these economies, particularly since the government's position as the primary source of employment opportunities has reduced significantly in recent times (Agyire-Tettey, Ackah, & Asuman, 2018). Despite these initiatives globally, women entrepreneurs continue to trail their male counterparts, particularly in developing nations. A critical variable responsible for this ugly trend is access to finance.

In response to this trend and achieving Sustainable Development Goal 5 of gender parity and women empowerment, Nigeria's government has introduced several policies and programs to boost credit access to MSMEs, particularly FOFs. Notable among these recent programmes and policies include Economic Recovery and Growth Programme (ERGP), creating National

Collateral Registry for MSMEs and establishing the Development Bank of Nigeria. Regrettably, these laudable policies have failed to turn things around as female entrepreneurs in Nigeria continue to face constraints in accessing credits. The lack of access to credit is exacerbated by the high interest rate charged by commercial banks and other cultural practices prevailing in the country that forbids women from inheriting properties that are usually utilized as collaterals in credit application (Nwosu et al., 2015, Nwosu & Orji, 2017).

There have been significant efforts in studying issues related to female entrepreneurship, but there are some shortcomings from previous studies which this study addressed. First, to my knowledge, studies in Nigeria utilizing nationally representative datasets are rare. Previous studies have used a small sample size and focused on a particular city or state in Nigeria. Because of the multidimensional nature of the Nigerian environment, these studies cannot be relied upon for making policy. Policymakers require extensive empirical evidence to assist them in policy formulation to promote female entrepreneurship in Nigeria. Secondly, since the introduction of the 2014 firm-level datasets (latest for Nigeria), there is no study in Nigeria (to my knowledge) that have studied the determinants of access to formal credit by female-owned firms and the implication of access to credit on the performance of female-owned firms. It is pertinent to note that the 2014 firm-level datasets conducted in Nigeria under the World Bank initiative is the latest enterprise survey in Nigeria and has broader coverage. Thirdly, the literature survey showed that several factors such as access to land, insecurity, financial literacy, mentorship, regional affiliations, tax administration, firm duration, membership of trade association, club or union, and having audited financial statement among others, have not been examined in the context of female entrepreneurship in Nigeria particularly in studying the drivers as well as the determinants of credits access by female entrepreneurship. These variables were introduced because of the diverse cultural, security, structural and economic situation in the country, which has various implication on female entrepreneurship. Lastly, the study applied the logistic regression, which is apt for a study of this nature given that the dependent variables (female entrepreneur, access to credit, capacity utilization and sales growth) are binary choices. The policy relevance of this study has been discussed in the preceding section.

1.3. Study Objectives

Globally, female entrepreneurship has been acknowledged as the fastest-growing entrepreneurial activities. Female-led firms make significant contributions to entrepreneurial and economic development through employment creation and poverty reduction. They have

continued to drive innovative processes that shape business environments in developing economies (Nwosu & Orji, 2017). Access to credit has been pinpointed as one of the critical constraints to firm performance. Although the intensity of financial constraint to business is more pronounced in developing nations than their developed counterparts, Igbanugo, Uzonwanne and Ezenekwe (2016) argue that women entrepreneurs could face more significant financial constraints to their peers, and this could undermine their entrepreneurial efforts. Given this, this study focuses on female entrepreneurship, credit access and firm's performance in Africa's most populous and largest economy.

1.4. Research Questions

Given the under-utilization of women in Nigeria's informal engagements, self-employment is pursued to reduce unemployment, poverty, and gender-based workplace segregation (Mordi, Simpson, Singh & Okafor 2010). Female entrepreneurs are a critical part of the country's economy, and it has been identified in the literature that there is a strong connection between entrepreneurial activity and economic outcomes (Nwosu & Orji, 2017). However, in a nation where women face several obstacles that could significantly influence their entrepreneurial decisions, it is essential to examine the factors that drive their entrepreneurship decisions. On the other hand, access to credit is crucial to the survival and growth of firms; hence the second research question focuses on the factors that drive access to credit by women entrepreneurs in Nigeria. However, although the intensity of financial constraint to business is more severe in developing countries than the developed nations, it has been documented in the literature that women entrepreneurs face more significant financial constraints than their male counterparts. Given this, the last research question focuses on the implications of access to credit and a firm's performance. The specific research questions are highlighted below

- What are the drivers of female entrepreneurship in Nigeria?
- What are the determinants of access to formal credit by female-owned firms in Nigeria?
- Does access to credit enhance the performance of female-owned firms in Nigeria?

For this study, the Enterprise Survey (ES) conducted in Nigeria under the World Bank initiative is used. Although there are ES 2007, ES 2010 and ES 2014, the study only utilizes ES 2014. The database was built using a survey conducted among Nigerian firms between April 2014 and February 2015. This choice is based on the broad coverage of ES 2014. While ES 2007 and ES 2010 cover only 11 states, ES 2014 covers 19 states. In addition, the number

of firms surveyed rose from 2387 in 2010 to 2,676 in 2014. The firms surveyed include non-farm firms, ranging from manufacturing sectors to services sector including IT; and transport, storage, and communications sector. The data is suitable for answering the research questions because it contained information about the study's objectives. It represents the only national firm-level data in Nigeria that covers firms.

1.5. Theoretical Framework

The theoretical framework is anchored on the Austrian market process (AMP) theory of entrepreneurship advanced by Schumpeter (1934) and Kirzner (1974). The AMP emphasizes that entrepreneurship is driven by human actions anchored on "creative destruction" and alertness to profit. The AMP framework is considered apt for this study because it simplifies the theoretical underpinning and synthesizes the empirical context for occupational choices. As shown in Figure 1.1, Schumpeter, as an earlier voice in AMP theory, emphasized the entrepreneurial input matrix as the critical driver of entrepreneurship. He noted that a market agent endowed with innovativeness, skill and competence becomes an entrepreneur by destroying the existing market configuration to create a new one, either in the form of a new product or a new process. By implication, the personal traits of the entrepreneur, which includes knowledge, skills, competence, self-dependence, risk-loving, innovativeness, and dreams and visions, are critical for the emergence of entrepreneurship. However, it is required that the economic agent takes concrete actions to enable them to translate the personal traits into entrepreneurial outcome. The action taken on entrepreneurial opportunities (including developing new products or developing new processes) translates an economic agent into an entrepreneur. Thus, entrepreneurs are the engines of economic development.

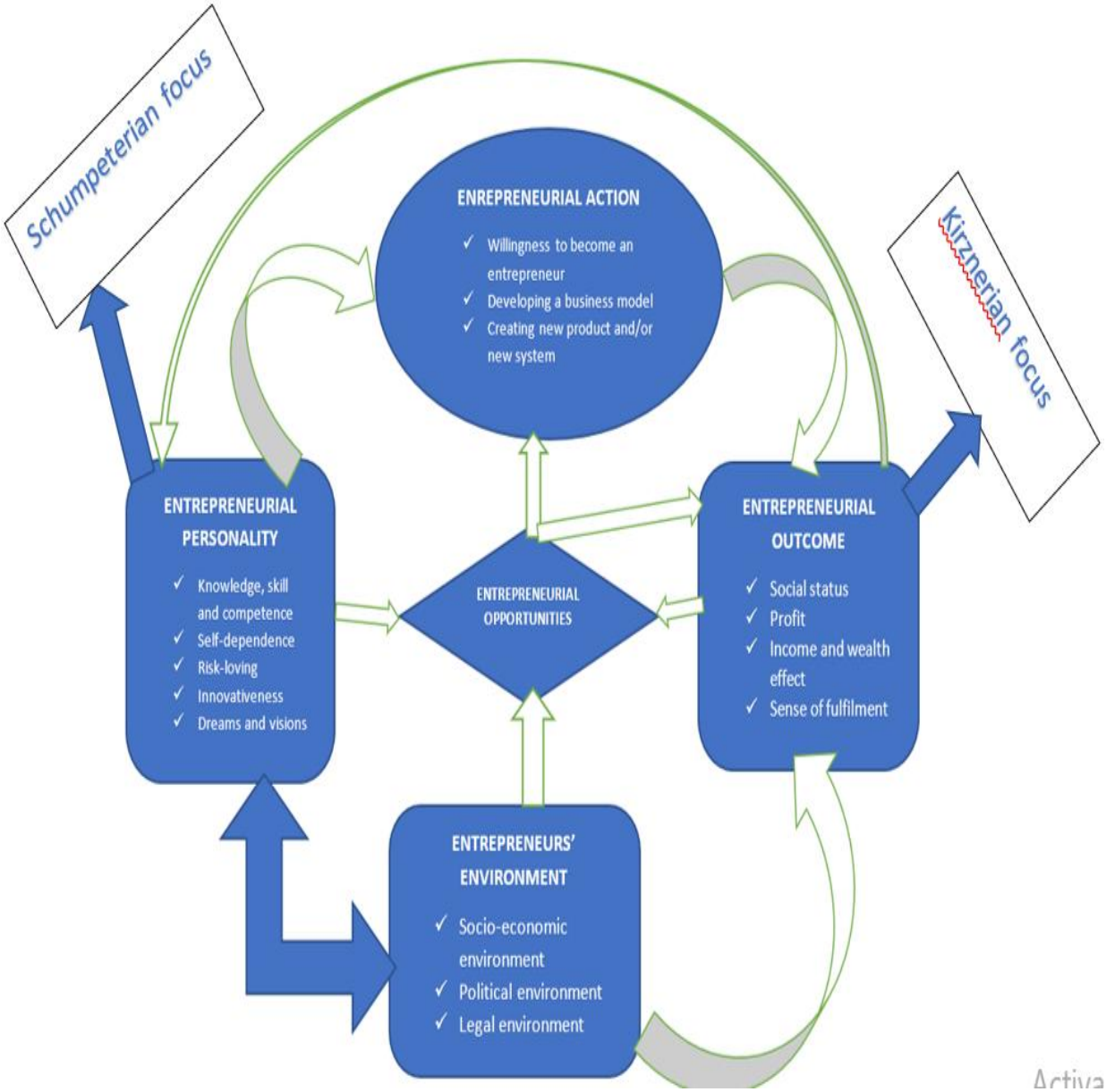

Figure 1.1: Scheme for Entrepreneurial Model

Source: Developed by the Researcher

On the other hand, Kirzner instead emphasized that the perceived or expected entrepreneurial outcome (such as profit) is the crucial determinant of entrepreneurship. Different entrepreneurial results that may spur the entrepreneur into action include a sense of fulfilment, social status and income/wealth effect. Kirzner noted that the entrepreneur is always alert to profiteering opportunities in a competitive market. Kirzner's view implies that when an economic agent perceives entrepreneurial opportunities that can generate profit, the financial agent takes entrepreneurial actions to optimize the earlier perceived outcome. Kirzner's view

also implies that only those who can discover the "profit alert" and take the necessary action to realize the profit are qualified to become entrepreneurs. Whether driven by entrepreneurial traits or entrepreneurial outcome, the AMP holds that the entrepreneur makes an effort that focuses on maximizing an entrepreneurial opportunity. The AMP, however, presumes that the would-be entrepreneur is operating in a well-functioning economy with a solid institutional framework, equal opportunities, accommodating legal framework in a politically stable environment. In other words, the would-be entrepreneur is not credit-constrained. However, as Panda (2014) noted, the entrepreneur's action is constrained by the business environment (including socio-economic, legal and political climate).

A female economic agent who is innovative and knows about a profitable entrepreneurial opportunity may be constrained from taking action if the socio-cultural milieu does not allow her. Furthermore, suppose the dismay of the economic environment (for example, banking institutions) denies credit to a female-would-be entrepreneur. In that case, the combined forces of her traits and the expected outcome may not be sufficient to allow her to take the necessary entrepreneurial action (such as developing a new product, developing a business model, and becoming an entrepreneur). Thus, the AMP emphasized that entrepreneurship requires a perfectly competitive market without artificial obstruction and preferential treatment of would-be entrepreneurs. If the AMP ideal market conditions prevail, the entrepreneur would be faced with an occupational choice proposed by Lucas (1978) and Kihlstrom and Laffont (1979). Essentially, the would-be entrepreneur is faced with the option of choosing between entrepreneurship and paid employment.

1.6. Research Hypotheses

The hypotheses are stated both in the null (H0) and alternative (H1) form as shown below:

i. H0: There are no significant drivers of female entrepreneurship in Nigeria
   H1: There are significant drivers of female entrepreneurship in Nigeria
ii. H0: There are no significant determinants of access to formal credit by female-owned firms in Nigeria
   H1: There are significant determinants of access to formal credit by female-owned firms in Nigeria
iii. H0: Access to credit does not enhance the performance of female-owned firms in Nigeria

H1: Access to credit enhances the performance of female-owned firms in Nigeria

1.7. Geographic Study Area and Context

The broad area of this study is Nigeria. With US$448.1 billion GDP, Nigeria is considered one the largest economy in Africa. It also has a landmass of about 923,768 km², a population density of 212.04 individuals per km², and an estimated 201 million people (UNPF, 2019). A West African country located in the sub-Saharan African region, Nigeria has a latitude of 9.0820o N and a longitude of 8.6753°E. As shown in Figure 1.2, Nigeria shares a border with Cameroon and Chad in the east, Niger in the north and the Benin Republic in the west.

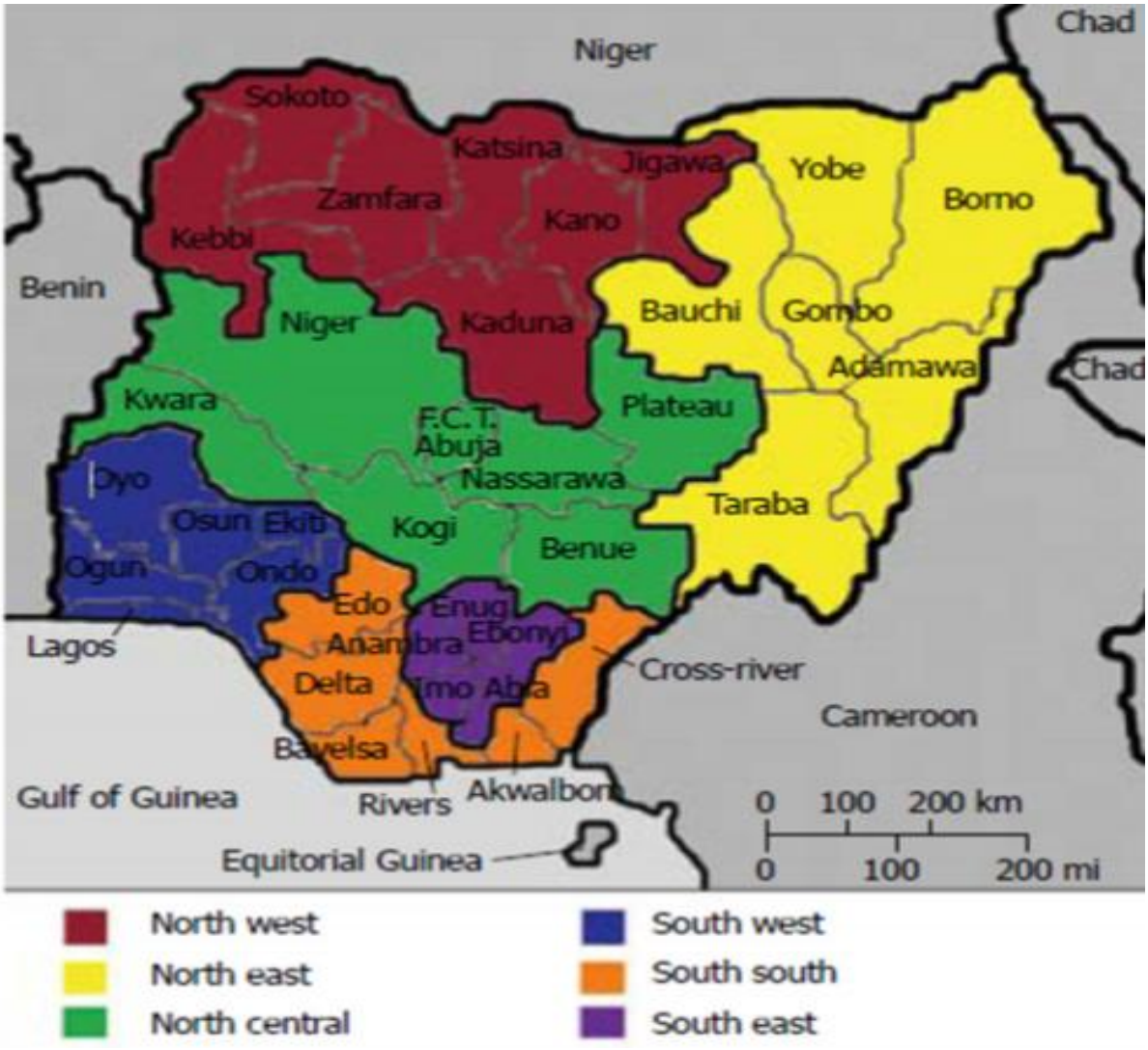

Figure 1.2: Nigeria's Map
Source: Akinlua, Meakin, Umar and Freemantle (2015)

Administratively, Nigeria is structured into 36 states plus the Federal Capital Territory (FCT), Abuja. For political representation, the states are further grouped into six geo-political zones, namely North Central, North East, North West, South-South, South-West and South-East.

Nigeria is essentially a patriarchal society where women have limited social roles in traditional society. In most states, women are not allowed to inherit wealth or other assets (including land). However, in terms of business ownership or employment, there is neither legal nor cultural constraint in terms of gender. More so, available evidence shows more male top managers than female managers in all private institutions in Nigeria; this includes banks and other financial institutions. To be specific, WIMBIZ (2014) reported that the representation of women on board stood at 15%, 16% and 19% for 2012, 2013 and 2014, respectively.

1.8. Thesis Outline

The current chapter focused on the background of the subject matter, research problem, study objective, research questions guiding the study, and describing the context of the study. The second chapter documents the literature relevant to the study. The chapter provided the concepts of entrepreneurship, theories, policies on entrepreneurship in Nigeria, empirical literature, and the summary of the literature. The description of the methodology was captured in chapter three, with chapter four presents and discussed the results obtained. The synopsis of the research outcome, policy recommendations, and ideas for further studies are contained in chapter five.

CHAPTER TWO

2.0 Literature Review

2.1. Introduction

This chapter starts with the definition of the critical concept of the study, followed by policies on entrepreneurship in Nigeria, which have been introduced over time to boost entrepreneurship in the country, thereby reducing unemployment, poverty and enhancing the country's economic outcomes. The third part concentrates on the overview of cultural norms and gender discrimination in the country. The fourth part of this chapter focuses on what prior studies have done related to the three research questions. In doing so, the researcher has been able to identify the shortcomings of previous studies. The last part summaries the literature as well as what to expect in the next chapter

2.2. Conceptual Literature

The major concepts of this study are entrepreneurship, entrepreneur, and female entrepreneur and the conceptualizations of these main concepts are paragraphed into three parts. The first paragraph focuses on entrepreneurship, while the second paragraph dwells on entrepreneur, with the last paragraph concentrating on the female entrepreneur.

Entrepreneurship is a method of participating in business endeavours with the aim of profit-making. Entrepreneurship has been existing over the decades, and it is derived from the French word “entreprendre”, meaning “to undertake”. Thus, the entrepreneur is viewed as one who undertakes (sometimes on others behalf) or simply as an intermediary (Hebert, Link & Nagarajan, 2011). According to Bjerke (2007), entrepreneurship is a method of thinking, creating, blending resources, and unearthing opportunities that evolve into a viable business. Similarly, Erasmus, Kloppers and Strydom (2013) aver that it is a method of creating from nothing something that has value, and it involves risk-taking and possessing the courage to thrive. A more comprehensive definition is provided by Carree and Thurik (2006). They conceptualized entrepreneurship as the capacity and individual willingness to identify and develop novel economic ideas (news production ideas, new products, among others) and to launch these ideas in the market despite doubt and other impediments by deciding on the location, resources as well as institutions. However, his study relates to this conceptualization of entrepreneurship. Similarly, Barringer and Ireland (2008) posit that entrepreneurship is a method whereby an entrepreneur uncovers an opportunity and diligently pursue that opportunity by converting it into a business. Lastly, Rwigema, Urban and Venter (2008) noted

that it is the process of developing a novel service or product to make a profit and is connected with uncertainty and risk.

Just like entrepreneurship, entrepreneur stems from French words: “entre” and “prendre”, meaning “between” and “to take”, respectively (Barringer & Ireland, 2008). An entrepreneur is someone who detects an opportunity and gathers the finances to evolve that opportunity into a feasible business activity (Barringer & Ireland, 2008). This study adopts this definition. Similarly, Carree and Thurik (2006) noted that an entrepreneur possesses the capacity to make accurate decisions and efficiently manage resources, products or organizations. They are change agents, and they offer novel ideas for businesses to thrive.

Some scholars like Galindo, Guzman and Ribeiro (2009) conceptualize female entrepreneur in connection with the proportion of business ownership. Given this, a female who owns above 50% of shares in a specific business is regarded as an entrepreneur. Hence a female entrepreneur is a female who employs skills and experience to nurture a business or create a business opportunity (Galindo et al. 2009). Similarly, Malhan and Ishita (2015) assert that a female entrepreneur represents an individual female or a set of women who gather funds to start a business, take risks, and resolve various challenges connected with operating a business. Likewise, a female entrepreneur is a female who begins business to attain personal goals of being self-employed and economically independent, thereby adding value to society (Iyiola & Azuh, 2014). This study relates to the definition of female entrepreneur provided by Iyiola and Azuh (2014).

This section documented the various definitions of entrepreneurship, entrepreneur and female entrepreneur. The ideas of Carree and Thurik (2006) for entrepreneurship, Barringer and Ireland (2008) for entrepreneur and Iyiola and Azuh (2014) for female entrepreneur was adopted in this study. The next section focuses on the prevailing cultural norms that have hindered female career growth in Nigeria.

2.3. A Succinct Overview of Cultural Norms and Gender Discrimination in Nigeria

Hitherto, gender bias was a global incident as every society at one point or the other encountered gender discrimination. The kind and degree of gender discrimination that is dominant in the community rely mostly on society's cultural norms at that specific time (Ohia & Nzewi, 2016). In the context of Nigeria, cultural norms significantly dictate the roles of women and men. For example, Mordi, Adedoyin and Ajonbadi (2011) assert that in Nigeria, the girl child is culturally demanded to be on the home front while the boy child is sent to

school and trained to be independent. Even when the girl eventually marries, she must focus on the home front while her husband provides for the family. This assertion is corroborated by most native names of women in the different tribes of Nigeria. For instance, the Hausas refer to married women as *iwerigida* (which means house-stayer), the Igbos named her *Oriaku* (which means one who stays at home to enjoy her husband's wealth). At the same time, the Yorubas calls her *Iyawo olowoiyebiye or Iyawo ile kikun* (which means house-stayer). The Nigeria customs places the responsibilities of a leader, emotional protector and economical provider on the male child.

Ogunjemilua and Familugba (2015) noted that the Nigerian women's non-working status persisted till the coming of the colonial masters and the development of urban cities. As urban centres continue to develop, men migrate to cities to engage in entrepreneurial activities while leaving their wives in the village. As Anikpo (2000) captured, the predominance of men in entrepreneurial activities is contingent on three factors:

1. The cultural belief about women responsibilities and their roles do not expand beyond the home front. Women who journeyed into activities that conflict with their primary functions were seen as virtue-bankrupt and were despised by society.
2. As a patriarchal society, only men are permitted to inherit asset and wealth, and in Nigeria, these assets (in most cases, land) are used as collaterals.
3. Uncertainty characterized the migration to the new urban cities. As such, while the men ventured out, women were encouraged to stay in the villages and focus on their primary roles.

Ogunjemilua and Familugba (2015) averred that another reason for the predominance of men in entrepreneurial activities was the education disparity between men and women. Hitherto, education was the sole privilege of the boy child as educating the girl child was seen as a waste of resources since she will soon be married to another man: hence her education would probably end in a man's kitchen.

Ogunjemilua and Familugba (2015) noted that when men began to find it challenging to support the family alone due to the high unemployment rate and low wages in the country, they started to encourage women to embrace entrepreneurial activities. This assertion was supported by Mordi and Mmieh (2009). They noted that women were encouraged to embrace entrepreneurship activities due to the severe tussle for limited employment openings among a teeming unemployed population in the country. On the women's side, embracing entrepreneurship grants them the opportunity to move away from the male domination that pervades work environments and constrains women career progression (Mordi, Simpson,

Singh & Okafor, 2010). Howbeit, these entrepreneurial endeavours frequently clash with normative interpretations of gender. In this setting, women entrepreneurs who desire to recreate work settings and exercise their powers are often perceived by men as threats (Brodsky, 1993). These behaviours and traits conflicts with gender belief that female should be modest and humble and via the priority accorded to their positions as mothers and wives, that they ought to embrace a minute role in business activities (Zakaria, 2001).

Usually, females in the country are regarded as subservient and minors, notwithstanding that the country's constitution offers equal rights to both genders. This value orientation is strengthened by religious ideas hinged on patriarchal thought processes. They consider the "god-given" responsibilities of the female are just a wife and a mother. The considerable difference between the population of male and female entrepreneurs are primarily noticeable in patriarchal societies. There are high masculinity and huge high masculinity (Hofstede, 1980), with the customs placing the male child as the leader, emotional protector and economic provider (Mordi et al., 2010).

This section documented the cultural norms practised in Nigeria that limits women career progression. The policies that were introduced to stimulate entrepreneurship in Nigeria is presented in the subsequent section.

2.4. Overview of Nigeria's MSMEs and Entrepreneurship Policy

Discussing the evolution of Nigeria's entrepreneurship policy is tricky because it entails discriminating between MSMEs policy and entrepreneurship policy. However, as Lundstrom and Stevenson (2005) noted, traditionally, entrepreneurship policy connects from MSMEs policy and emerges from MSMEs policy. This section documents the various notable policies introduced by the Nigerian government to drive the entrepreneurship sector in the country. These policies represent successive administrations efforts towards boosting entrepreneurship in Nigeria.

To boost the performance of the MSMEs and enhance MSMEs financing, the government facilitated low-interest loans and grants from both local and foreign institutions (Ogunade, 2019). Aside from MSMEs financing, Sanusi (2003) observed that the government of Nigeria also created agencies like the National Directorate of Employment (NDE) and saddled with the sole responsibility of creating vocational programs that equip youth with the necessary skills to be self-employed. The government of Nigeria also established other agencies specializing in training and development like the Centre for Management Development

(CMD) and the Industrial Training Fund (ITF) to assist in knowledge and skills acquisition required to boost the performance of MSMEs in the country. Despite creating these agencies, the country's government MSME policy significantly ignored the critical role that a broader training and education programs implementation plays in developing MSMEs. Records from the CBN showed that government educational spending dropped annually from ₦716 million (1984) to ₦514.4 million (1987) (CBN, 2005). This drop indicates that during the period of SAP, training and education was not seen as a national priority and hence education expenditure experienced considerable budget cuts (Ogunade, 2019).

Not much was done between 1993 and 1998 because of the unstable political environment in the country. The period witnessed the introduction of the Family Economic Advancement Program (FEAP) by General Sani Abacha. The establishment of FEAP was targeted at offering credit instruments to cooperative groups to create cottage industries (Ogwumike, 1995). The FEAP could be viewed as a continuance of SAP era policies since the agenda was to reduce poverty and foster general economic growth by providing subsidized credits to MSMEs players (Ogunade, 2019). The major assumption during this time was that with the provision of finances, MSMEs owners with little or no training and education would intuitively learn to run a business effectively. But just like SAP era policies, this program was unsuccessful in showing the criticality of the right skill, knowledge and entrepreneurial motivation mix required to run a business in the country effectively (Oliyide, 2012, Udefuna & Uzodinma, 2017)

Between 1999 and 2003, the principal objective of the new democratic government that came to power was tackling widespread corruption, rebuilding and strengthening the nation's institutions (Edo & Ikelegbe, 2014). In 2004, The government launched a National Economic Empowerment and Development Strategy (NEEDS) strategy to promote value reorientation, employment generation, wealth creation, and poverty reduction (National Planning Commission, 2004). NEEDs was expected to be complemented by State Economic Empowerment and Development Strategy (SEEDS) and Local Economic Empowerment and Development Strategy (LEEDS) at the state and local government level, respectively (Edo & Ikelegbe, 2014)

The NEEDS strategy aimed at attaining its goals by implementing macroeconomic reforms that will empower Nigerians, support the private sector and modify the manner government operates. NEEDs recognized the private sector as critical for economic progress (National Planning Commission, 2004), and hence MSMEs and entrepreneurs were regarded as the economic drivers. Some of the crucial initiatives in the NEEDS reforms comprise

privatization and economic liberalization and cheap credit to the private sector to rejig the economy. Hence, this necessitated establishing the Small and Medium Industries Equity Investment Scheme (SMIEIS) amongst other related initiatives to provide seamless credit access to the MSMEs in the country.

The SMIEIS funding ignored funding for trading or retail activities. It was majorly utilized for the economy's productive sector. The program permitted partaking financial establishments to put aside 10% of their after-tax profit yearly to fund MSMEs. The aim was for the partaking financial establishments to provide the essential technical, financial and managerial backing to MSMEs. The SMIEIS was largely unsuccessful because financial establishments that participated were unable to invest the allocated funds to MSMEs financing due to the high default rate and risk profiles of the MSMEs. Sadly, this led to the discontinuation of the program in 2008 (Ogunade, 2019).

The NEEDS strategy monitored the MSMEs by creating Small and Medium Enterprises Development Agency (SMEDAN), tasked with implementing the NEEDS private sector driven economic development goals. SMEDAN harmonizes the MSMEs activity by establishing policy, creating MSMEs support schemes and offering industrial infrastructure access. SMEDANperiodically organizing skill development and vocational training for the youths and connecting MSMES to various low-cost finances to boost their performance. SMEDAN signifies the pioneer government's efforts at developing a synchronized approach to assist in the development of MSMEs in Nigeria. SMEDAN is primarily responsible for the affairs concerning MSMEs in Nigeria, and to effectively execute its critical mandate under NEEDS, SMEDAN developed a national policy on MSMEs in 2007. Despite that, the primary objective of SMEDAN is to support existing firms in the economy; they also provide technical and vocational skills training to individuals to sharpen their skill-sets for self-employment (Ogunade, 2019).

In this period, the government started to notice the significant role of training and education in the growth and development of entrepreneurship. The government did this by introducing a compulsory entrepreneurship course in all higher institutions in the country as part of its approach to assist Nigerian youth in obtaining the requisite skills needed to succeed in entrepreneurship activities (National Planning Commission, 2004). The inclusion of the entrepreneurship curriculum provided insights about the diverse sorts of businesses Nigerian law recognizes and portrayed entrepreneurship as a feasible paid employment alternative to alleviate the high rate of unemployment in the country.

In 2007, President Yar'adua succeeded the Obasanjo administration and introduced the seven-point reform plan to promote social and economic development. Top of the priority of the agenda was broadening the economy and wealth creation via formalized MSMEs as a critical part of the plan (Nigerian High Commission, 2009). This reform agenda was short-lived because the president took ill and eventually died in 2010, with the then vice president succeeding him. According to Ogunade (2019), there was no noticeable policy from 2010 till 2013 because of the general election in 2011 and the passing away of the former president. However, in 2014, the Jonathan administration introduced the National Enterprise Development Program (NEDEP) to establish roughly one million jobs yearly by improving the MSMEs in Nigeria (Ministry of Industry, Trade, and Investment, 2014). NEDEP was targeted at training the youth to exploit the country's entrepreneurial opportunities and assisting them with accessible credits to pursue their ambitions. This goal of NEDEP was to be achieved through collaborating with other established agencies like the Bank of Industry (BOI), ITF and SMEDAN. Recently Anchor Borrowers Programme, Economic Recovery and Growth Programme (ERGP), Development Bank of Nigeria, MSMEs rating agency, Tradermoni scheme and N-Power have all been introduced and stimulate entrepreneurship in Nigeria (Akinyemi, & Adejumo, 2018).

This section presented Nigeria's government efforts to stimulate entrepreneurship in Nigeria. While these policies are laudable, implementation has also been the issue in Nigeria; however, the following section documents the outcome of previous studies related to the study research questions.

2.5. Empirical Literature Review

Scholars and readers mainly ignored studies on female entrepreneurship over the decades (Ascher, 2012). Howbeit, in recent times, there have been several studies on the issues related to female entrepreneurship. In this sub-section, some of these studies are presented, particularly those related to the study research questions. The review of prior studies is divided into three streams. The first strand focuses on the drivers of female entrepreneurship; the second stream concentrates on the predictors of access to formal credit by female-owned firms (FOFs). The final strand presents studies on the implications of access to credit on the performance of FOFs. It is pertinent to note that studies not focusing on any of these strands highlighted above were not considered in the review. The justification for presenting only these studies that are related to this present study's research questions is contingent on the

facts that narrowing the study focus on the three research questions will assist the researcher in capturing the existing arguments in the literature in a bid to identify the shortcomings of previous studies adequately.

Several variables ranging from socio-cultural, environmental, institutional, socio-economic, among others, have been identified in the extant literature to drive female entrepreneurship. In this strand, these studies are presented. Starting with one of the pioneer studies for Nigeria, Mordi, Simpson, Singh and Okafor (2010) sampled 274 participants in South-West Nigeria and highlighted credit access and family obligations as the key impediments faced by female entrepreneurs in Nigeria. Similarly, Akerele and Aihonsu (2011) sampled 100 participants and utilized the logit model to appraise the predictors of female entrepreneurship in Nigeria. The authors identified educational level, marital position, and household size as the key variables influencing female entrepreneurship in Nigeria. Chinonye et al. (2015) surveyed 570 female entrepreneurs operating in the South Western part of Nigeria. They reported that female entrepreneurs face several impediments ranging from the adverse business environment, infrastructural deficits, insufficient funds for start-up and growth, family pressure, poor business knowledge, and a poor financial base. Likewise, Etim and Iwu (2019) applied factor analysis in a sample of 210 female entrepreneurs in Nigeria. They found that the major impediments affecting female entrepreneurs in Nigeria are social, economic, personal and administrative factors.

Obisesan and Olayide (2020) utilized the 2014 Nigeria's Enterprise Survey, the latest enterprise survey for Nigeria. They established that infrastructure, finance, taxes and regulations, firm features, and gender are the major business factors constraining Nigeria's female entrepreneurs. The preceding paragraph documents studies conducted in Nigeria. One noticeable from these studies is that most of them (bar Obisesan and Olayide, 2020) employed a small sample size that was unable to capture the multidimensional features of Nigeria.

Continuing with studies in Africa, Quartey, Danquah, Owusu and Iddrisu (2018) employed the Ghana 2010 GEM data and probit regression technique to assess the variables that influence entrepreneurial propensity in Ghana. The study found that family income, fear of business failure, information of other entrepreneurs' considerable influence the entrepreneurial decisions of males, while for the females, their likelihood to embark on entrepreneurship is driven by the necessity that is the requirement to increase dwindling family incomes. In a related study in Rwanda, Nsengimana (2017) found that a shortage of

entrepreneurial skills, training and education, management skills, information technology access and skills, support network as well as a high tax and interest rates and transport cost as some of the impediments confronting women entrepreneurs in Rwanda. Nunda, Makokha and Namusonge (2016) utilized 255 respondents in Kenya to assess the predictors of female entrepreneurship. The study highlighted individual traits, nature of business engaged in, socio-cultural and environmental factors as the key drivers of female entrepreneurship in Kenya.

In Europe, specifically in Spain, Akehurst, Simarro and Mas-Tur (2012) employed factor analysis to analyze data obtained from 155 firms in Valencia and found that, among other things, access to family loans and being without a spouse positively drives the intention to begin a business by women. Similarly, in Catalonia, Spain, Noguera, Alvarez and Urbano (2013) utilized logistic technique and data from the GEM and reported that being afraid to fail and perceived capabilities as the key variables that influence the likelihood of becoming a female entrepreneur in Spain. In a study in Twente, Xue (2018) utilized 106 female participants drawn from the University of Twente community. The author identified entrepreneurial climate and entrepreneurial education as the variables that promote women entrepreneurship.

Focusing on similar studies in Asia, for instance, Satpal, Rathee and Rajain (2016) utilized 100 respondents from five districts of Haryana in India and descriptive statistics, ANOVA and factor analysis. The study highlighted female entrepreneurs faced several barriers, which they categorized into primary and secondary impediments. The primary obstacles comprise poor business management skills, lack of capital for start-ups, lack of skills to manage the workforce, socio-cultural environment and lack of finance from financial institutions. On the other hand, the secondary impediments contain child care pressure, poor access to training programmes, and remoteness from business clusters. The study further established a considerable disparity between the barriers women faced in the diverse districts of Haryana. Likewise, Roy, Tripathy and Tripathy (2017) relied on 150 female entrepreneurs in India and factor analysis. The study highlighted individual traits of female entrepreneurs, training access, land, credit access, inadequate training, raw materials and technology access and lack of adequate training as the major factors that affect female entrepreneurs and their performance. Analogously, Chatterjee, Das and Srivastava (2018) employed structural equation modelling to appraise the factors that influence the women entrepreneurs' success in four selected states in India. The study found that religiosity, family size and family support

have a significant positive effect on female entrepreneurial success. In contrast, technical skills, government support, credit access were not significant in determining the entrepreneurial success of female entrepreneurs in India.

In continuation of studies in Asia, Poon, Thai and Naybor (2012) obtained data from two regions in Vietnam. The research established that while family social capital enhances the female likelihood of embracing entrepreneurship, the institutional social capital exerts an adverse effect. In Kazakhstan, Bui, Kuan and Chu (2018) interviewed 25 female entrepreneurs and reported that family's financial and emotional assistance, networks, and accessibility of experienced relatives are the major drivers of female entrepreneurship in Kazakhstan despite their field of interest and marital positions. Ng and Fu (2018) utilized a combination of interviews. They surveyed to identify the variables that influence China's foreign female firms. The study reported that administrative and legal difficulty, market insights and language and cultural barriers as the major variables hindering China's foreign female entrepreneurs. In Saudi Arabia, Al-Kwifi, Khoa, Ongsakul and Ahmed (2019) utilized data obtained from 507 female university students and identified three critical factors: sufficient business expertise, government support framework, financial support as the key variables that drive them into becoming entrepreneurs in Saudi Arabia. Shoma (2019) identified credit access as the most significant impediments to FOFs in Bangladesh using data on loan applications from the country's financial institutions between 2010 and 2018.

H1: There are no significant drivers of female entrepreneurship in Nigeria

This strand focuses on the second research question (predictors of credit access by FOFs). Several factors have been documented to influence FOFs across the globe, and in this strand, these variables that affect credit access are presented. Beginning with a study in Kenya, Kabukuru and Afande (2016) sampled 342 FOFs. They found that the absence of collateral security and high interest rates are the significant challenges limiting women from accessing credit in Kenya. Likewise, drawing from 79 female entrepreneurs in Nakuru West Sub-County of Kenya, Mbai and Maina (2016) underlined that access to credit by female entrepreneurs are significantly influenced by credit rating.

Similarly, supported by data from 38 respondents, Karanja, Mwangi and Nyakarimi (2014) appraised the factors affecting credit access by FOFs in Kenya. The study reported that access to credit is hindered by a rigid lending process and collateral requirements. Also, in Kenya, Cheluget, Morogo and Chelimo (2015) conclude that training level drives female

entrepreneurs credit access while higher interest rates hinder credit access using data from 306 female respondents in Kenya. Furthermore, the analysis outcome showed that credit access could positively influence female business expansion in Kenya. The drivers of credit access by women farmers were also studied in Tanzania by Mmasa (2017) using a probit regression technique and data randomly obtained from women farmers. The study concludes that income level and farm experience was significant in determining access to credit. In contrast, The study found farm size, occupation, agricultural group membership and educational level to be insignificant.

In Nigeria, Adetiloye, Adegboye and Akinjare (2020) sampled 171 MSMEs in Nigeria and established, among other things, that the financial institutions' stringent requirements in loan applications are the key setback limiting female entrepreneurs from accessing credit in Nigeria. A related study in Nigeria by Usman and Kamba (2019) applied the logistic regression technique to scrutinize female entrepreneurs' credit access drivers. The study utilized 343 female entrepreneurs based in Sokoto State, and the authors established that credit cost, educational attainment, knowledge of credit openings and collateral security drives female entrepreneurs' credit access. In contrast, credit facility proximity and membership of a credit union do not drive credit access for female entrepreneurs. The study failed to disclose when data was collected. Additionally, both studies on Nigeria did not present a national viewpoint because they focused on only one state in Nigeria. Analogously, Boateng and Poku (2019) found that high-interest rates and collateral requirements are the major variables limiting women from accessing credit in Ghana.

The subject matter has also been studied in other regions of the world, particularly in Asia. For instance, the factors that influence female entrepreneurs credit access in Sri Lanka was studied by Chamani, Kulathunga and Amarawansha (2017) using 100 respondents, and the study identified firm features, procedures and policies as the key factors that affect women entrepreneurs credit access in Sri Lanka. Maurya and Mohanty (2019) applied probit regression and India nationwide representative data. They found that firm size, firm age, bank account ownership, assets ownership and keeping accounting records are the significant variables that influence credit access for FOFs in India. Chowdhury, Yeasmin and Ahmed (2018) utilized the combination of quantitative (questionnaire) and qualitative technique (interviews) to obtain data from Bangladesh's female entrepreneurs on the factors they faced in accessing credit from financial institutions. The study underlined business features, collateral demands, bank loans terms and requirements and other distinct institution issues as

the key impediments to access to credit by female entrepreneurs in Bangladesh by applying Exploratory Factor Analysis.

H2: There are no significant determinants of access to formal credit by female-owned firms in Nigeria

This strand focuses on the second research question (predictors of credit access by FOFs). Several factors have been documented to influence FOFs across the globe, and in this strand, these variables that affect credit access are presented. Beginning with a study in Kenya, Kabukuru and Afande (2016) sampled 342 FOFs. They found that the absence of collateral security and high interest rates are the significant challenges limiting women from accessing credit in Kenya. Likewise, drawing from 79 female entrepreneurs in Nakuru West Sub-County of Kenya, Mbai and Maina (2016) underlined that access to credit by female entrepreneurs are significantly influenced by credit rating.

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disclose when data was collected. Additionally, both studies on Nigeria did not present a national viewpoint because they focused on only one state in Nigeria. Analogously, Boateng and Poku (2019) found that high-interest rates and collateral requirements are the major variables limiting women from accessing credit in Ghana.

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H3: Access to credit does not enhance the performance of female-owned firms in Nigeria

Table 2.1: Summary of Empirical Literature

This table sums up the empirical literature review. The presentation was done in line with the research questions and, of course, chronologically.

Author(s)/Date	Location	Objective	Major Variables Used	Sample Size	Method of Analysis	Major Findings
Drivers of Female Entrepreneurship						
Akerele & Aihonsu (2011)	Nigeria	Predictors of female entrepreneurship	Types of religion, age, marital status, educational level, household size, family support	100 respondents	Logit model	Educational level, marital position and household size were identified as the key variables that influence female entrepreneurship
Akehurst et al (2012)	Spain	Predictors of female ent	Firm expansion, family support, marital status,	155 respondents	Factor analysis	Access to family loans and being without a

Author(s)/Date	Location	Objective	Major Variables Used	Sample Size	Method of Analysis	Major Findings
		repreneurship	banks financing, grants and subsidies			spouse positively drives the intention to start a business
Noguera et al (2013)	Spain	Factors that drive the probability of becoming a female entrepreneur	Role models, perceived capabilities, fear of failure, perceived opportunities, household size, educational level, age, employment status	Adult Population Survey data conducted by GEM	Logistic regression	Being afraid to fail and perceived capabilities were identified as the key variables that influence the likelihood of becoming a female entrepreneur
Satpal et al (2016)	India	Challenges of women entrepreneurs	Poor business management skills, lack of capital for start-ups, lack of skills to manage the workforce, socio-cultural environment and lack of access to finance from financial institutions, gender biases, child care pressure, poor access to training programmes, procurement of plant, and remoteness from business clusters	100 respondents	Factor analysis, descriptive statistics and ANOVA	The barriers they faced were categorized into primary and secondary
Nunda et al (2016)	Kenya	Predictors of female entrepreneurship	Women entrepreneurship, individual features, business ventures, environmental and socio-cultural factors	255 respondents	ANOVA	The key drivers are individual traits, business nature, socio-cultural and environmental factors
Roy et al (2017)	India	Factors affecting female entrepreneurship	Training access, land, dearth of managerial experience, credit a	150 respondents	Factor analysis	Factor identified includes training access, land, credit access, inadequate tr

Author(s)/Date	Location	Objective	Major Variables Used	Sample Size	Method of Analysis	Major Findings
			ccess, government support, inadequate training, raw materials and technology access and lack of adequate training			aining among others
Nsengimana (2017)	Rwanda	Impediments of female entrepreneurship	Marital status, education level, sector, age groups, fear of failure, market saturation, entrepreneurial skills, training and education, management skills, information technology access and skills, support network, high tax and interest rates and transport cost	398 respondents	Descriptive statistics	Some of the variables identified are management skills, information technology access and skills, support network among others
Kamunyu & Theuri (2017)	Kenya	Factors influencing the growth of FOFs	Government regulations, financing option, capital management practices and owners' entrepreneur skills	70 respondents	Ordinal regression, ANOVA	Poor access to credit was identified to hamper FOFs
Xue (2018)	Holland	Drives of women entrepreneurship	Entrepreneurial education, networking capability, entrepreneurial intention, entrepreneurial climate, educational level, age group	106 respondents	Factor analysis, ANOVA	The study identified entrepreneurial climate and entrepreneurial education as the critical variables that drives women entrepreneurship
Quartey et al (2018)	Ghana	Factors that drive entrepreneurial activities	Educational level, age, income, fear of business failure, necessity, work status, region	2010 survey data	Probit regression	Women likelihood to embark on entrepreneurship is driven by necessity

Author(s)/Date	Location	Objective	Major Variables Used	Sample Size	Method of Analysis	Major Findings
Ng and Fu (2018)	China	Identify the variables that hinder China's foreign female firms	Cultural differences, gender discrimination, lack of skills, experience and network, attracting and retaining talents, business scalability, difficulty in obtaining funding and investment	28 foreign firms from 15 nations	Descriptive technique	Administrative and legal difficulty, market insights and language and cultural barriers as the major variables hindering China's foreign female entrepreneurs
Chatterjee et al (2018)	India	Appraise the factors that influence the women entrepreneurs' success	Religiosity, technical skills, government support, credit access, age, educational level, family size and family support	437 respondents	Structural equation modelling	Religiosity, family size and family support have a significant positive effect on female entrepreneurial success
Bui et al (2018)	Kazakhstan	Factors driving female entrepreneurship	Business sector, business profile, age, educational level, regulative factors, family's financial and emotional assistance, networks and accessibility of experienced relatives	Interviewed 25 respondents	Nvivo technique	The study identified financial and emotional assistance, networks and accessibility of experienced relatives as the major drivers
Etim and Iwu (2019)	Nigeria	Impediments of female entrepreneurship	Variables ranges from administrative, social, personal and economic	210 entrepreneurs	Factor analysis	Social, economic, personal and administrative factors were identified
Al-Kwifi et al (2019)	Saudi-Arabia	Factors that drives female entrepreneurship	Financial support, social support, operation risks, knowledge and training	507 respondents	Logistic regression	The critical factors identified are sufficient business expertise, government support framework and financial support

Author(s)/Date	Location	Objective	Major Variables Used	Sample Size	Method of Analysis	Major Findings
Obisesan & Olayide (2020)	Nigeria	Drivers of female entrepreneurship	Infrastructure variables, regulations and tax variables, firm characteristics, finance variables	2014 Enterprise Survey	Descriptive Statistics	Nigeria's female entrepreneurs are constrained by most of these variables
Drivers of Access to Credit by FOFs						
Karanja et al (2014)	Kenya	Factors affecting credit access	Credit access, lending procedures, collateral requirements, purpose of the loan	38 respondents	Chi-Square test	Access to credit is hindered by rigid lending process and collateral requirements
Cheluget et al (2015)	Kenya	Factors influencing credit access	Training level, interest rate, educational attainments	306 respondents	Descriptive statistics	Training level drives female entrepreneurs credit access while higher interest rates hinder credit access
Mbai and Maina (2016)	Kenya	Factors influencing credit access	Credit rating, credit history, credit access, business worth, credit rationing	79 respondents	ANOVA	Access to credit by female entrepreneurs are significantly influenced by credit rating
Kabukuru & Afande (2016)	Kenya	Factors affecting FOFs credit access	Literacy level, interest rate, collateral requirements, number of lending institutions	342 respondents	Descriptive statistics, OLS	Absence of collateral security and high rate of interest as the major challenges limiting women from accessing credit
Mmasa (2017)	Tanzania	Drivers of credit access by women farmers	Credit access, income level, interest charged, farm experience, farm size, occupation, agricultural group membership and educational level	100 respondents	Probit regression	The study identified income level and farm experience as the most significant

Author(s)/Date	Location	Objective	Major Variables Used	Sample Size	Method of Analysis	Major Findings
Chamani et al (2017)	Sri Lanka	factors that influence female entrepreneurs credit access	Sri Lanka	100 respondents	Correlation analysis, linear regression	Firm features, procedures and policies as the key factors that affect women entrepreneurs credit access
Chowdhury et al (2018)	Bangladesh	Factors faced in accessing credit from financial institutions	Family type, age, religion, educational level, previous experience, problems faced, collateral requirements, business profile, financial institution terms and conditions	152 respondents	Exploratory Factor Analysis	Business features, collateral demands and bank loans terms were identified as the key impediments
Usman & Kamba (2019)	Nigeria	Drivers of female entrepreneurs' credit access	Credit cost, credit access, credit facility proximity, membership of a credit union, rigid requirements, educational attainment, knowledge of credit openings, collateral security	343 respondents	Logit model	Credit cost, educational attainment, knowledge of credit openings, collateral security are the important drivers
Adetiloye et al (2020)	Nigeria	Factors limiting women from accessing credit	Business registration, savings, loan conditions, educational level, number of banks women entrepreneurs operates	171 respondents	OLS	Loan conditions was identified as the major challenge
Access to credit and the performance of FOFs						
Chebet (2013)	Kenya	Credit access and FOFs performance	Education, income level, culture, interest rate, government policy, banking industry policy, business growth, credit access	306 respondents	Descriptive statistics	Credit access positively influenced FOFs

Author(s)/Date	Location	Objective	Major Variables Used	Sample Size	Method of Analysis	Major Findings
Ouma & Rambo (2013)	Kenya	Credit access and growth of FOFs	Amount of credit received, sector engaged in, business performance captured using profitability, numbers of paid workers, sales and change in liabilities	190 respondents	Descriptive statistics	Credit access is significantly connected to the growth of FOFs
Kimanzi (2016)	Kenya	Implication of credit access and FOFs performance	Training and advisory services, interest rate, size of the loan micro savings services, FOFs performance captured using sales turnover, employees number and profitability	212 respondents	Correlation analysis, multiple regression	The performance of FOFs in Kenya is significantly influenced by credit access.
Brixiová & Kangoye (2016)	Swaziland	Implications of credit access on sales	Sales, skills, entrepreneur characteristics, firm characteristics, initial capital	640 SMEs	OLS and quantile regression	Credit access positively influenced the sales performance
Itonga et al (2016)	Kenya	Credit access and FOFs	Credit access, profitability, gearing and liquidity	211 respondents	ANOVA	Credit access has no significant impact on the performance FOFs
Nwosu & Orji (2016)	Nigeria	Access to formal credit and firm performance	Business ownership, experience, education level, industry, region, children below the age of 10, firm performance, credit access,	2010 Enterprise survey	PSM	Formal credit access boost firm's performance
Nwosu & Orji (2017)	Nigeria	Implications of formal credit access on	Business ownership, experience, education level, industry, region, children below the age of	2010 Enterprise survey	PSM	Formal credit access is very critical to the survival and growth of

Author(s)/Date	Location	Objective	Major Variables Used	Sample Size	Method of Analysis	Major Findings
		firm performance	10, firm performance, credit access,			enterprises particularly FOFs
Kamunyu & Theuri (2017)	Kenya	Factors that influence FOFs	Access to credit, business growth, financing option, capital management practices, owners' entrepreneur skills and government regulations	70 respondents	Ordinal regression	FOFs is hampered in Kenya by poor access to credit services
Khaleque (2018)	Bangladesh	Implications of credit access on sales performance	Credit access, monthly turnover, training and business experience, age, educational level, business features and external features	168 respondents	OLS	Credit access boosts the sales performance
Diaka & Asenge (2019)	Nigeria	Access to credit and FOFs performance	Saving services, loan services, training service, FOFs performance	68 respondents	ANOVA	Credit access significantly enhanced the performance of FOFs
Seck et al (2020)	Senegal	Credit access and firm's performance	Access to credit, firm characteristics, ownership characteristics, efficiency scores	606 firms	PSM, endogenous switching regression, as well as data envelopment analysis	Credit access leads to enhanced efficiency
Alene (2020)	Ethiopia	Factors that explain FOFs performance	Educational level, marital status, access to credit, tax, access to business information and training, government backing, land ownership, age, access to market and physical	180 respondents	Logistic regression	Access to credit was identified to be critical

Author(s)/Date	Location	Objective	Major Variables Used	Sample Size	Method of Analysis	Major Findings
			infrastructure			

Source: Compiled by the researcher

2.6. Summary of Literature

Entrepreneurship has been cited as a viable solution to the various developmental challenges confronting developing economies (Ogunade, 2019). However, conceptualizing entrepreneurship is not an easy task as several scholars have provided different definitions of entrepreneurship. However, these definitions are related as most scholars defined entrepreneurship as creating resources for more excellent social and economic value by focusing on the available resources. Similarly, an entrepreneur is viewed as one who develops a new idea or venture and takes sole responsibility for the outcomes and risk or gathers resources (like capital, innovations and knowledge) to convert them into profitable goods. Although, across the globe, entrepreneurial activity is men dominated, however, female in recent times are growingly seeking career goals as entrepreneurs. A female entrepreneur is a female or a group of females that detects business opportunities and pulls resources together to exploit the identified opportunities. Female entrepreneurs are a dominant force in developing economies and a significant change agent for economic development. This study adopted the definitions of Carree and Thurik (2006), Barringer & Ireland (2008) and Iyiola and Azuh (2014) for entrepreneurship, entrepreneur and female entrepreneur, respectively.

This study made four-pronged contributions to the literature. First, to my knowledge, studies in Nigeria utilizing a nationally representative dataset are rare. Previous studies have used a small sample size and focused on a particular city or state in Nigeria. These studies cannot be relied upon for policymaking. This is because of the multidimensional nature of the Nigerian environment; Policymakers require ample empirical evidence to assist them in policy formulation to promote female entrepreneurship in Nigeria. Secondly, since the introduction of the 2014 firm-level datasets (latest for Nigeria), there is no study in Nigeria (to my knowledge) that has studied the determinants of access to formal credit by female-owned firms and the implication of access to the credit performance of female-owned firms. It is pertinent to note that the 2014 firm-level datasets conducted in Nigeria under the World Bank initiative is the latest enterprise survey in Nigeria and has wider coverage. Third, the literature survey showed that several factors such as access to land, insecurity, financial literacy,

mentorship, regional affiliations, tax administration, firm duration, membership of trade association, club or union, and having audited financial statement among others, have not been examined in the context of female entrepreneurship in Nigeria particularly in studying the drivers as well as the determinants of credits access by female entrepreneurship. These variables were introduced because of the diverse cultural, security, structural and economic situation in the country, which has various implication on female entrepreneurship. Lastly, the study applied logistic regression, which is apt for a study of this nature. The dependent variables (female entrepreneur, access to credit, capacity utilization and sales growth) are binary choices. The findings of this study would provide valuable insights to the policymakers, financial regulators and academia.

This chapter assisted the researcher in ascertaining the studies conducted on the subject matter across the globe before and the main arguments on the subject of study. The chapter started with the conceptualization of the significant concept of the study, followed by the presentation of the relevant policies on the theme of the study, as well as insights on what other scholars (empirical literature) have done. The next chapter concentrated on describing the methodology applied to answer the study's research questions, having achieved the above.

CHAPTER THREE

RESEARCH METHOD AND PROCEDURE

3.1. Introduction

Execution of empirical research requires that a consistent and well-defined procedure and method be employed. This not only provides validity for the research outcome but also enables other researchers to replicate the same research following similar processes. In this chapter, the research method and procedures are discussed. The first section discusses the research design followed by the area of study, study population and sampling frame. In the subsequent sections, the empirical models are developed, and the data source explained. Finally, ethical consideration as it relates to this study is elaborately discussed.

3.2. Research Design

As Creswell (2014) noted, a research design is a blueprint that defines how a study is to be conducted. The study adopts a quantitative research design to accomplish the objectives of this study (which includes ascertaining the drivers of female entrepreneurship, determinants of access to credit by female-owned entrepreneurship and impact of access to credit by female-owned entrepreneurship). McConney, Rudd and Ayers (2002) noted that quantitative research is designed generally to ensure objectivity, reliability, and generalizability. It involves random selection of respondents in an unbiased approach from the study population and statistical methods to examine pre-agreed hypotheses regarding the connections between specific variables. The researcher utilizing this design is considered external to the particular research being conducted, thereby making the findings replicable when conducted by another person. The quantitative technique is preferred because it offers reliable and quantifiable data generalized to the whole population. More importantly, importantly, this study adopts quantitative research methods because it is most appropriate for this study's type of research questions. The quantitative method used in this study has been used in similar studies (Nieuwenhuizen & Kroon, 2003, Darroch & Clover, 2005, Séraphin, 2013).

3.3. The Population and Sampling Framework

The study focuses on female entrepreneurship, credit access and firm’s performance in Nigeria. The population of the study is all female-owned enterprises. It includes enterprises that woman partly owns. NBS (2018) estimate indicate that there are about 3.1 million registered businesses in Nigeria, and women hold 30% (or 930,000) of these businesses. For

this study, the Enterprise Survey (ES) conducted in Nigeria under the World Bank initiative was used. Although there are ES 2007, ES 2010 and ES 2014, we only utilize ES 2014. This choice is based on the broad coverage of ES 2014. While ES 2007 and ES 2010 cover only 11 states, ES 2014 covers 19 states. In addition, the number of firms surveyed rose from 2387 in 2010 to 2,676 in 2014. The firms surveyed include non-farm firms, ranging from manufacturing sectors to services sectors, including IT; and transport, storage, and communications sectors.

Enterprise survey adopts sampling procedure in the study of firms. A statistical sample is a subset of a population that is assumed to approximate the attributes of the entire population. However, to ensure that sample statistics reflect the proper population parameter, Kothari (2004) observe that the probability sampling procedure is adopted. Probability sampling ensures that all elements of a population have an equal chance of being sampled. This approach minimizes selection bias and therefore improves the reliability of sample statistic. As noted in ES (2014) survey implementation manual, stratified probability sampling was adopted. Stratified sampling involves dividing a population into non-overlapping groups from where random samples are taken. The survey adopts three levels of stratification, namely, size, region and industry. Stratified sampling is preferred for several reasons:

1. It ensures that unbiased estimates are obtained for the subdivisions of the population with a known precision level.
2. It guarantees that unbiased estimates are obtained for the entire population. All subgroups attributes are sampled to achieve this.
3. It ensures that the sample includes firms from all identified sectors such that selection is not concentrated in a few industries, sectors or locations.

Although the survey covered a sample of 2,676 establishments, only 553 establishments are owned by women. The 2676 establishments also cover manufacturing (1427 firms) and others, including IT, retail trade, services, etc. (1249 firms). When categorized in terms of size, the coverage includes 1753 small firms (that is, firms with 0-19 employees), 734 medium firms (that is, firms with 20-99 employees) and 189 large firms (that is, firms with employees exceeding or equal to 100). Our interest in this study is the 553 firms that women entrepreneurs own.

3.4. Data Collection

This study utilized Enterprise Survey (ES) 2014 data (which is the latest edition) for all estimations. Although there are earlier versions of ES such as ES 2007 and ES 2010, the ES 2014 is preferred because it is not only the latest but also the most comprehensive ES data set. For example, while ES 2007 and ES 2010 are said to cover only 11 states, ES 2014 covers 19 states. In addition, the number of firms surveyed rose from 2387 in 2010 to 2,676 in 2014. The firms surveyed include manufacturing sectors, services sector (including IT, transport, storage, and communications sector) and merchandise trade (including wholesales and retailing).

The ES 2014 database was built using survey conducted among Nigerian firms in 2014 and 2015. The research instrument adopted in the survey was structured questionnaire and interview. Typically, ES is carried out in two phases. In the first phase, a screener questionnaire is applied by phone in order to ascertain the eligibility of the business establishment. In the second phase, one of the two versions of the survey questionnaire is administered to the establishment depending on whether the establishment is a manufacturing or service firm. The questionnaire is structured and comprises 16 sections, namely, Section A (control Information), Section B (General information), Section C (Infrastructure and Services), Section D (sales and Supplies), Section R (Management Practices), Section E (Degree of Competition), Section H (Innovation), Section F (Capacity), Section G (Land and Permits), Section I (Crime), Section K (Finance), Section J (Business-Government Relations), Section L (Labor), Section M (Business Environment), and Section N (Performance).

The questionnaire is administered through interview. As noted in the ES questionnaire manual, the reliability and the validity of the instrument is guaranteed. Essentially, the ES questionnaire is designed for establishments. In ES, an establishment is defined as, “a physical location where business is carried out, industrial operations take place, or services are provided” (ES, 2014). Typically, a firm may consist of more than one establishment. However, to qualify as an establishment, an entity so referred must have a separate management and control over its workforce. In each establishment surveyed, the business owners and top management are interviewed. However, where the need warrants, the interviewer calls in the human resource officers and accountants to answer questionnaires on labour force and sales revenue.

3.5. Technique of Data Analysis

The two main techniques of analysis used in this study are descriptive statistics and logistic regression analysis.

3.5.1 Descriptive Statistics

Descriptive statistics involves data analysis that describes and summarizes data in a precise and meaningful way. It helps to show patterns, trends and obtain representative statistics for an array of data (Creswell, 2014). In this study, charts, tables, frequencies, percentages, mean and standard deviation are used to describe data, summarize data and show how patterns and trends emerge. The researcher used descriptive statistics in this study because it helps visualize what the data shows, thereby enhancing the presentation of data in a more meaningful way.

3.5.2 Logistic Regression Analysis

The study utilized the logistic regression technique to obtain the requisite quantitative estimates to obtain quantitative inferential statistics that would help the researcher answer the research questions and test the hypothesis. Logistic regression is an estimation technique that measures the relationship between the categorical dependent variable and one or more independent variables (Woodridge, 2011). Tashakkori and Teddlie (1998) noted that logistic regression measures relationship by estimating probabilities using a logistic function known as cumulative logistic distribution. Logistic regression is considered apt given that the dependent variables (y = female_entepreneur/access-credit/capacity-utilization/sales-growth) are binary choices. Coding the two numerical values of y is not critical since each binary response only represents an event.

Nevertheless, the logistic regression framework requires that you code y as a zero-one variable. This restriction yields several advantages. For one, coding the variable in this fashion implies that the expected value of y is simply the probability that y = 1:

$$E(y_i / x_i, \beta) = 1.\Pr(y_i = 1/ x_i, \beta) + 0.\Pr(y_i = 0/ x_i, \beta)$$

$$= \Pr(y_i = 1/ x_i, \beta)$$

Where x_i is a vector of explanatory covariates and β is a vector of coefficients

As noted by Woodridge (2011), logistic regression first examines the odds of the event happening for different levels of each explanatory variable, then computes the log-odds or logit to produce a continuous criterion as a transformed version of the dependent variable such that

$$y = \begin{cases} 1 & if \quad y_i^* > 0 \\ 0 & if \quad y_i^* \le 0 \end{cases} \qquad \textit{Where } y_i^* \textit{ is the predicted } y$$

In practice, the logistic regression rather estimates the odd-ratio specified as:

$$L^* = \ln\left(\frac{P_i}{1-P_i}\right) = \alpha_0 + \sum_{j=1}^{J} \beta_j x_j + \varepsilon$$

Logistic regression follows the maximum likelihood procedure using Newton-Raphson with Marquardt iteration process (See appendix 1 for the specification of the models) to obtain the parameter estimates.

3.6. Measurement of Variables

3.6.1. Dependent Variables

The two categories of variables for regression analysis are dependent and independent variables. Binary logistic regression requires that dependent variables must be a binary choice variable. The following are the dependent variables used in the analysis and how there are measured.

(a) Being a Female Entrepreneur (female_entrepreneur): A female entrepreneur takes value 1 if a female respondent is an entrepreneur and 0 if otherwise. A woman is classified as an entrepreneur if she solely owns a business or is a company's part-owner.

(b) Access to credit (access_credit): This dependent variable in the second research question (however, it enters both the models for research question one and three as the independent variable). A female entrepreneur or firm is said to have access to credit if she/it has accessed formal credit from a financial institution in the past 12 months preceding the survey. Firms with a running credit line at the time of the survey are also classified as having access to credit. If a firm has access to credit as defined, it is assigned 1, otherwise 0.

(c) Firm Performance: Firm performance was measured using capacity utilization (capacity_utilization) and sales growth (sales_growth). Capacity utilization is one of the

measures of firm performance. Firms that experienced a positive increase in capacity_utilization are coded 1 otherwise coded 0. Similarly, firms that experienced positive annual sales growth for the past 12 months preceding the survey are coded 1 otherwise 0.

3.6.2. Independent Variables: Independent variables refer to explanatory variables. They are summarized in the table below

Table 3.1: Summary of Independent Variables

Covariates	**Symbol**	**Remark**
Primary Education	edu_primary	edu_primary takes 1 if a respondent has completed primary education and 0 otherwise
Secondary Education	edu_secondary	edu_secondary takes 1 if a respondent has completed secondary education and 0 otherwise
Tertiary Education	edu_tertiary	edu_tertiary takes 1 if a respondent has completed tertiary education and 0 otherwise
Access to Land	access_land	This indicates whether a respondent has access to land, whether a family land or freehold. access_land takes 1 if one has access to land or 0 otherwise
Mentorship	Mentorship	Mentorship indicates whether a female entrepreneur has a mentor or belongs to mentorship group or attends a mentorship class. If a female entrepreneur belongs to a mentorship group, or has a mentor or attends a mentorship class, it is assigned 1, otherwise it takes 0.
Firm-owner being from southern Nigeria	region_south	There are two broad regions in Nigeria, namely, southern region and northern region. region_south takes the value 1 when a respondent comes from southern Nigeria, otherwise 0
Firm-owner being from northern Nigeria	region_north	region_north takes the value 1 when a respondent comes from southern Nigeria, otherwise 0
Business registration	business_reg	This is assigned 1 if respondents indicate business registration as an obstacle, otherwise 0
Trade regulation	trade_regu	trade_regu is assigned 1 if respondents indicates it as an obstacle, otherwise 0
Government support	gov_support	gov_support is assigned 1 if respondents indicates it as an obstacle, otherwise 0
Crime and theft	crime_and_theft	crime_and_theft is assigned 1 if respondents indicates it as an obstacle, otherwise 0
Infrastructure	Infrastructure	This is an indicator of provision of social

Covariates	Symbol	Remark
		infrastructure or social capital. Availability of electricity was used as a proxy for infrastructure
Tax administration	tax_admin	tax_admin is assigned 1 if respondents indicates it as an obstacle, otherwise 0
Size of firm	log_firmsize	This is a continuous variable that is log transformed. The number of employees is used as a proxy for the size of firm
Being financially constrai ned	fin_constraint	fin_constraint is assigned 1 if respondents indicates it as an obstacle, otherwise 0
Investing in fixed assets	fixed_asset	fixed_asset is assigned 1 if respondents invested in fixed assets in the past 12 months preceding the survey, otherwise 0
Collateral security	collateral_secur ity	This covariate captures the effect of collateral security on access to credit. It takes 1 if COSE is required, otherwise it is assigned 0.
The duration of a firm	log_firm_durati on	This is an indicator of how long the firm has been in operation. It is measured in year. However, for estimation purpose, it was log transformed.
Membership of trade asso ciation, club or union	membership_as soc	membership_assoc takes 1 if a female entrepre neur/firm owner belongs to a trade association or union or club, otherwise, it takes 0
Expenditure on research and development	R_and_D	If firm spends money on R&D, it is assigned 1, otherwise, it is assigned 0
Having audited financial s tatement	financial_state	financial_state indicates whether a firm has periodic audited financial statements. It takes the value 1 if an enterprise prepares any of monthly, quarterly or annual financial statements (that is, any of income statement, statement of financial position, cash flow statement or statement of changes in equity), otherwise it takes 0
Financial literacy	financial_literac y	financial_literacy refers to the level of financial literacy of a female firm owner (in the case of sole proprietorship) and female firm manager in case of other forms of businesses. It takes 1 if the owner/manager is financially literate, and 0 otherwise
High interest rate	high_interest	This variable takes 1 if women entrepreneur indicates that interest rate is high, otherwise it takes 0
Insufficient loan size	insufficient_loa nsize	This variable takes 1 if a respondent is offered insufficient loan amount as qualifying lain fund, otherwise it takes 0

Covariates	Symbol	Remark
Political instability	Political_instability	Political_instability is an indicator of obstacles to firms. If respondent identifies Political_instability as an obstacle to the firm, it is assigned 1, otherwise 0
Loan administration	Loan_admin	Loan_admin defines the ease of processing loans by female-owned firms. If it is complex and difficult, it takes 1, otherwise it takes 0.
Economic outlook	economic_outlook	This is an indicator of the economic environment. If respondents indicate that economic outlook is a factor, it is assigned 1, otherwise 0
Insecurity	Insecurity	Insecurity is also an indicator of firm obstacle. It is assigned 1 if respondent indicates it as a factor, otherwise, it is assigned 0
Loan amount	log_loan	This is the amount of loan that is accessed by the firm in the past 12 months preceding the survey.

Source: Compiled by the researcher

3.7. Validity and Reliability

Validity and reliability of research instrument are required to reduce measurement errors (Belson, 2006; Anderson & Arsenault, 2001). As noted by Belson (2006), validity is the process of determining the extent to which the survey instrument measures what it intends to measure. The researcher is required to examine both the internal and external validity of the instrument to be able to get an accurate measurement.

Establishing internal validity attempts to guarantee that the number of intervening variables in the study's context is minimized or eliminated. It refers to the degree to which obtained findings in a research study function the systematically measured variables manipulated or noticed in the study (Anderson & Arsenault, 2001). Belson (2006) noted that threats to internal validity include testing, instrumentation, diffusion of treatment and compensatory equalization. Selection, history, maturation, rivalry, and demoralization are also included.

External validity involves the ability of a study to be generalized to other situations or people. Having robust external validity requires a sample of participants drawn randomly from a well-defined population. Strong validity in a study gives the researcher the confidence to generalize the study's outcome to other situations, people or settings. Unusual places, unusual times and unusual people are the three main external validity threats (Schneider et al., 2007;

Briggs, 2008). The World Bank team established both internal and external reliability concerning ES (2014).

On the other hand, reliability shows whether the survey instruments achieve consistency. A study is considered reliable if the same result is repeatedly obtained. Statisticians suggest that reliability must be empirically evaluated using data gathered in particular research and not by referring to original estimates presented by a developer of a survey instrument (Thompson, 2003). Thus, reliability analysis using Cronbach's alpha was employed in this study. Adopting Cronbach's alpha was justified since this statistic is widely used to estimate the internal reliability of item scales employed in instruments for business, educational, clinical psychological and behavioural assessments (Thompson, 2003; Cronbach & Shavelson, 2004). The value of Cronbach's alpha ranges from 0 to 1. The result of the reliability score for the instrument was 0.78, which is considered high and acceptable.

Table 3.2: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.780	.701	22

Source: Compiled by the researcher

3.8. Ethical Considerations

As earlier noted, this study proposes to utilize ES 2014, a secondary survey data of the World Bank and businesses was the unit of data collection. The World Bank coded survey objects (enterprises) not to be identified, and the codes are unknown to the researcher. Given this, ethical concerns about informed consent are unnecessary (Norwegian National Research Ethics Committees - NNREC, 2014). The data utilized in this study can be obtained from https://www.enterprisesurveys.org. However, a researcher who intends to use the data must register with the World Bank Microdata site. The researcher complied with the data access registration process. The data sources must be referenced appropriately, as is customary in research, and the researcher compiled this requirement in this study. Since the researcher does not have direct contact with the participants, there is no conceivable or envisaged risk.

3.9. Summary

The researcher discussed the methodology adopted for the research process in detail in this chapter. The study adopts a quantitative research design that guarantees objective analysis of behaviours and interactions within well-defined social constructs. It also enables the researcher to obtain robust estimates that could be used to test hypotheses and make inferences. All locations within the Nigerian entity is defined as the study area, and women-owned firms are defined as the study population. The sampling frame utilized in Enterprise Survey (ES) 2014 is adopted without any adjustment. The models estimated are procedurally derived, and the estimation protocols are clearly defined. The study also provides a section on ethical consideration to show that all ethical requirements are complied with; there is no intention to violate any of such requirements in the study.

CHAPTER FOUR

ANALYSIS AND PRESENTATION OF RESULTS

4.1. Introduction

This study focuses on the dynamics of female entrepreneurship, access to credit and firm performance in Nigeria. The study is a quantitative research process that utilized secondary survey data. The survey data for this study is the World Bank Enterprise 2014 for Nigeria. Data obtained from the survey regarding the key focus of this study are analyzed in this chapter to provide answers to the research questions. First, the descriptive and demographic attributes of the data are examined, followed by regression estimations focusing on the research questions. Result obtained from the regression results was used to test the research hypothesis.

4.2. Descriptive and Demographic Attributes of Female Entrepreneurship in Nigeria

4.2.1. Proportion of Firms with Female Participation in Ownership

Figure 4.1 shows the proportion of female ownership in businesses in Nigeria, sub-Saharan Africa (SSA) and the World. Figure 4.1 shows that out of the 2676 firms surveyed in Nigeria, only 20.7% of the firms (or 553 firms) are owned by females. This proportion is far below the SSA and World averages of 27.9% and 32.9%, respectively. In all the businesses in which women own a controlling interest, there is a female majority stake in only 13.2% of the firms in Nigeria. The figure also shows that 13.9% of the firms have top female managers in Nigeria, which slightly contrasts with the 16.9% and 18% recorded in SSA and the World. Figure 4.1 also provided further insight into the proportion of female full-time workers in Nigerian firms, SSA, and the World. Notably, about 24.2% and 19.3% of production workers and non-production workers are female. It can also be observed that there are more Nigerian women in production-related works than in SSA (19.7% in SSA). However, the Nigerian proportion is far below the world average of 32%.

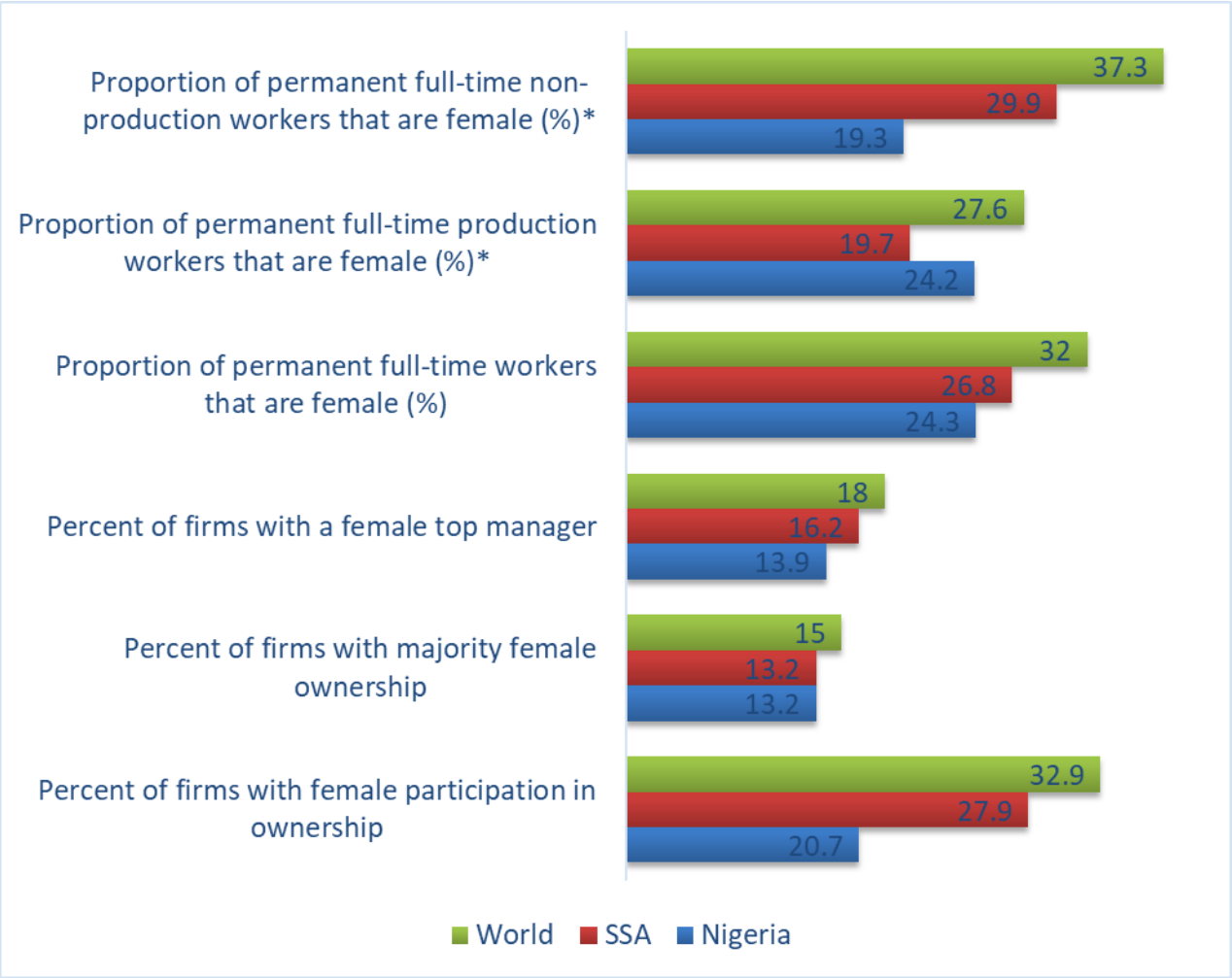

Figure 4.1 Proportion of Firms with Female Participation in Ownership

Source: ES (2014)

Table 4.1 summarizes the sectoral distribution of female-owned businesses in Nigeria. As shown in Table 4.1, about 24.5% of the manufacturing firms have female participation in ownership, while about 13.3% of the manufacturing firms have majority female ownership. Also, about 13.9% of the manufacturing firms have top female managers. At the same time, the Nigerian proportion of majority ownership of manufacturing firms by women is slightly higher than that of the SSA, the SSA averages in the overall proportion of manufacturing firms with female participation in ownership. In the same vein, there is female participation in ownership in about 16.7% of the firms in the service sector in Nigeria, with the SSA and world averages recording 28.9% and 33.3%, respectively, for similar statistics.

Table 4.1: Sectoral Distribution of Female-Owned Businesses in Nigeria

	Sectors	Percent of firms with female participation in ownership	Percent of firms with majority female ownership	Percent of firms with a female top manager
World	All Sectors	32.9	15	18
SSA	All Sectors	27.9	13.2	16.2
Nigeria	All Sectors	20.7	13.2	13.9
World	Manufacturing	31.8	13.5	15.5
SSA	Manufacturing	25.5	11.3	12.4
Nigeria	Manufacturing	24.5	13.3	11.8
World	Services	33.3	15.6	18.9
SSA	Services	28.9	13.9	17.6
Nigeria	Services	16.7	13.2	15.1

Source: ES (2014)

Similarly, the distribution of female-owned firms based on firm size shows female participation in ownership of about 16.8% of the small firms in Nigeria. In the same vein, the proportion of small firms with majority female ownership stands at 14.3%, while about 18.1% of the small firms have top female managers. Compared with the SSA and the world, the proportion of small firms with female participation in ownership stands at 26.4% and 32%, respectively. On the other hand, medium-sized firms with female participation in ownership total about 12.2%, while the same firm size has 31.2% and 34.1% female participation in ownership in SSA and the world. Table 4.2 also shows top female managers in only 5.6% of the medium firms in Nigeria. In addition, Table 4.2 also shows that there is female participation in ownership in about 23.9% of the large firms in Nigeria. In the World Bank Survey, firms with employees ranging from 5 to 19 are defined as small, 20 to 99 are defined as a medium, while firms with employees exceeding 99 are illustrated as significant.

Table 4.2: Distribution of Firm Ownership by Women Based on Firm Size

	Firm Size	Percentage of firms with female participation in ownership	Percentage of firms with majority female ownership	Percent of firms with a top female manager
World	Small*	32	16.8	19.5
SSA		26.4	15.1	18.1
Nigeria		16.8	14.3	16
World	Medium**	34.1	11.7	15.5
SSA		31.2	10.3	13.4
Nigeria		12.2	8.9	5.6
World	Large***	35.7	8.3	13.1
SSA		30.7	5.9	9.5
Nigeria		23.9	9.6	6.2

*Small (5-19 employees)
**Medium (20-99 employees)
***Large (from 100 employees and above)
Source: ES (2014)

Table 4.3 shows the distribution of women ownership of firm based on region and states of the country. The Enterprise Survey covers 19 states, including the Federal Capital Territory (FCT) (that is, Abuja which is the seat of the central government). The scope of coverage comprises of 11 northern states (namely Kano, Kebbi, Nasarawa, Gombe, Kaduna, Katsina, Niger, Kwara, Jigawa, Zamfara and Sokoto); 7 southern states (Lagos, Ogun, Cross River, Anambra, Enugu, Abia, Oyo) and the Federal Capital Territory (Abuja). As shown in Table 4.3, female participation in firm ownership is 25.1% in Abuja, 22.2% in Kano, 9.3% in Kebbi, 24.9% in Nassarawa, 8.3% in Gombe, 12.1% in Kaduna, 6.2% in Katsina, 14.3% in Niger, 18.4% in Kwara, 4.7% in Jigawa, 4.7% in Zamfara and 15.5% in Sokoto. Similarly, in the southern states, the proportion of female participation in firm ownership stands at 15.8%, 15.5%, 14.9%, 24.1%, 20.3%, 35.5% and 27.1% for Cross River, Lagos, Oyo, Ogun, Anambra, Abia and Enugu respectively. On average, female ownership of firms in the southern region (21.9%) almost doubles that of the northern part (12.9%). In the same vein, the proportion of top female managers in the southern region (21.0%) is approximately three times that of the northern part (7.7%).

Table 4.3: Distribution of Female Ownership of Firms Based on Location

Region	States	Percent of firms with female participation in ownership	Percent of firms with majority female ownership	Percent of firms with a female top manager
FEDERAL CAPITAL TERRITORY (FCT)	Abuja	25.1	12.5	11.8
NORTHERN NIGERIA	Kano	22.2	12.9	10.2
	Kebbi	9.3	5.9	1.9
	Nasarawa	24.9	19.7	13.1
	Gombe	8.3	6.3	3.5
	Kaduna	12.1	8.1	12.6
	Katsina	6.2	5.3	1.5
	Niger	14.3	14.2	12.2
	Kwara	18.4	15.9	14.2
	Jigawa	4.7	3.7	4.3
	Zamfara	4.7	4.7	1.3
	Sokoto	15.5	15.3	10
AVERAGE		12.8	10.2	7.7
SOUTHERN NIGERIA	Cross river	15.8	14.1	22.6
	Lagos	15.5	11.9	8.8
	Oyo	14.9	14.3	23
	Ogun	24.1	22.1	18.6
	Anambra	20.3	13.4	11.8
	Abia	35.5	35.2	40.1
	Enugu	27.1	22.2	22.2
AVERAGE		21.9	19.0	21.0

Source: ES (2014)

4.2.2 Access to Finance

Figure 4.2 summarizes statistics on access to finance by firms in Nigeria based on the Enterprise Survey 2014. As shown in the figure, about 70.4% of the firms operate at least one bank account (checking/demand deposit and savings account). However, only 11.4% of the firms have a bank loan or credit line. Notably, about 33.1% of the firms identified access to finance as a significant challenge in business operation. Figure 4.2 also shows that about 88.8% of the loans require collateral security, amounting to 227.7% of the loan being applied for. However, about 18.1% of the loan applicants were turned down by financial institutions.

While only 6.9% of the firms finance their investment through banks, the banks financed only 3.4% of the total firm's investment. In essence, the other 4.5 percentage point (11.4% minus 6.9%) must have obtained their line of credit through informal credit windows, which is characterized by a high-interest rate ranging from 50% to 100%.

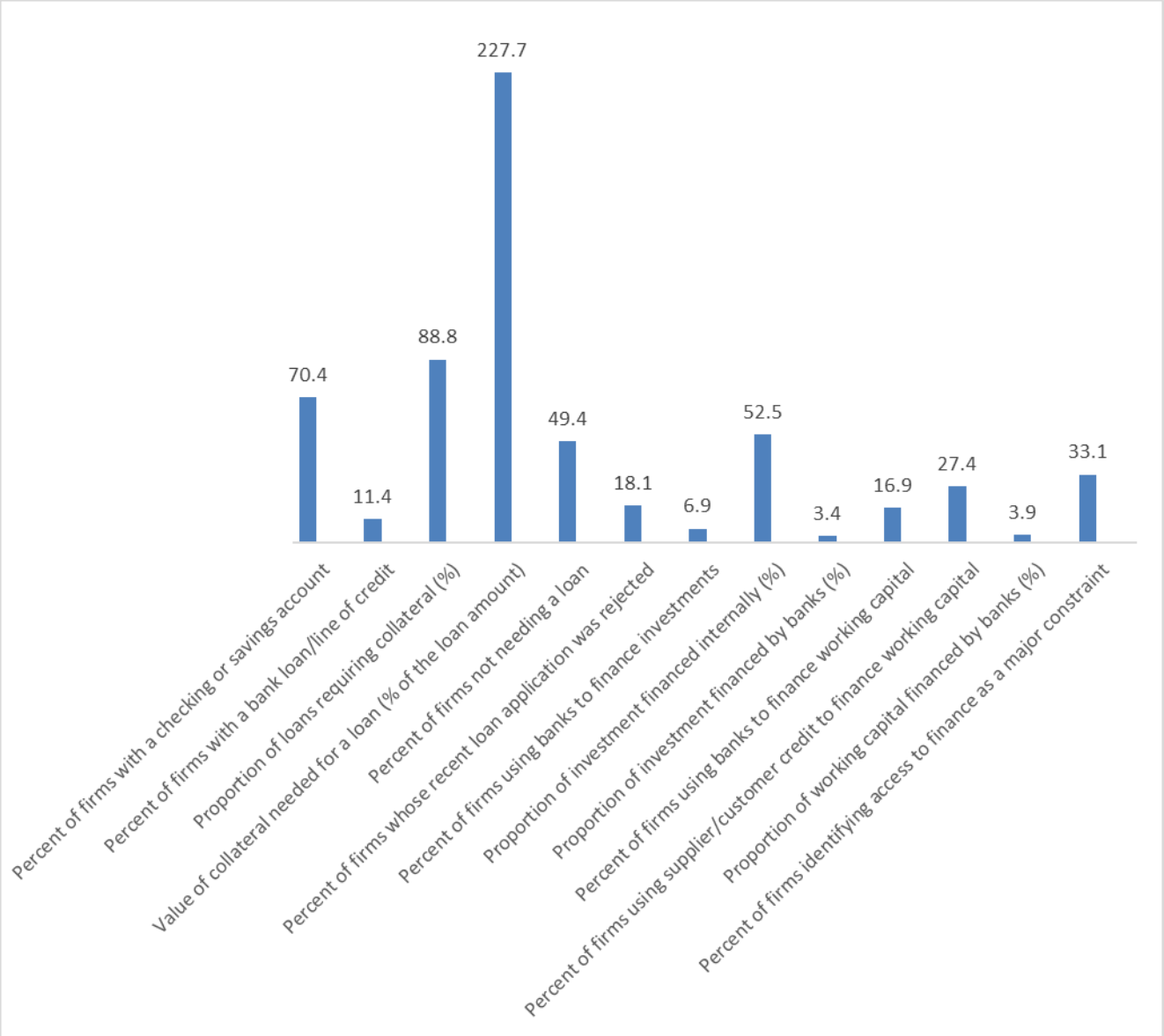

Figure 4.2: Access to Finance

Source: ES (2014)

Table 4.4(a): Access to Finance Based on Gender of the Firm owner/Manager

Indicators	Gender	Nigeria	SSA	World
Percent of firms with a checking or savings account	Top manager/owner is female	64	86.8	88.6
	Top manager/owner is male	71.6	86.4	87.5
Percent of firms with a bank loan/line of credit	Top manager/owner is female	10.6	20.1	29.6
	Top manager/owner is male	18.4	20.2	32
Proportion of loans requiring collateral (%)	Top manager/owner is female	93.3	81	74.6
	Top manager/owner is male	88.2	85.8	76.6
Value of collateral needed for a loan (% of the loan amount)	Top manager/owner is female	234	207.6	192.9
	Top manager/owner is male	149.2	214.3	200.6

Source: ES (2014)

Gender disaggregation in Table 4.4a shows that 64% of firms with female top manager/owner operates bank account while about 71.6% of firms with leading male manager/owner also operate bank accounts. Compared with female-owned firms in SSA (86.8%) and the World (88.6%), Nigerian statistics are far less. Similarly, only about 10.6% of female-owned firms have bank credit in Nigeria, while equivalent statistics in SSA and the World stand at 20.1% and 32%, respectively. Also, about 93.3% of the loan applied by female-owned firms require collateral, with the collateral value amounting to 234% of the loan request. The researcher observed that demand for male firm owners (149.2% of the loan request) is far less, with about 84.2 percentage point difference.

Similarly, about 56.2% of women-owned firms who applied for a loan were rejected, while only 16.5% of their male counterpart experienced similar outcome (see Table 4.4b). In the same vein, only 16% of female-owned firms used supplier/customer credit to finance working capital. On the other hand, male-owned businesses enjoyed about 29.4% of supplier/customer credit financing for working capital. In addition, about 52.3% of firms owned by women identified access to finance as a critical challenge in Nigeria. When compared with male-owned businesses in Nigeria, female-owned firms experience is higher by 20.2 percentage point. In the context of SSA and the World, the experience of the Nigerian female business owners is worsened by 11.5 percentage point and 28.8 percentage point, respectively.

Table 4.4(b): Access to Finance Based on Gender of the Firm owner/Manager

Indicators	Gender	Nigeria	SSA	World
Percent of firms whose recent loan application was rejected	Top manager/owner is female	56.2	14.9	10
	Top manager/owner is male	16.5	15.8	10.6
Percent of firms using banks to finance investments	Top manager/owner is female	5.3	18.4	23.6
	Top manager/owner is male	7.2	19.6	25.6
Percent of firms using supplier/customer credit to finance working capital	Top manager/owner is female	16	22.9	22.8
	Top manager/owner is male	29.4	24.4	26.4
Percent of firms identifying access to finance as a major constraint	Top manager/owner is female	52.3	40.8	23.5
	Top manager/owner is male	30.1	37.9	24

Source: ES (2014)

4.2.3 Firm Performance Based on Gender of Owner/Top Manager

Figure 4.3 shows a snapshot of the performance of both female-owned and male-owned firms. Female-owned firms achieved 73% capacity utilization in capacity utilization, while their male counterparts achieved 83.1% capacity utilization. However, in real annual sales growth, female-owned firms recorded a 10.3% loss while male-owned firms recorded real yearly sales growth of 10.8%. In addition, female-owned and male-owned firms achieved 10.1% and 8.2% annual employment growth, respectively. Similarly, male-owned firms recorded real yearly labour productivity growth of 1.2%, while female-owned firms experienced a loss of 16.1% in the same indicator. Figure 4.3 also shows that 32.5% of female-owned firms invested in the purchase of fixed assets while only 14% of the male-owned firms made similar investments.

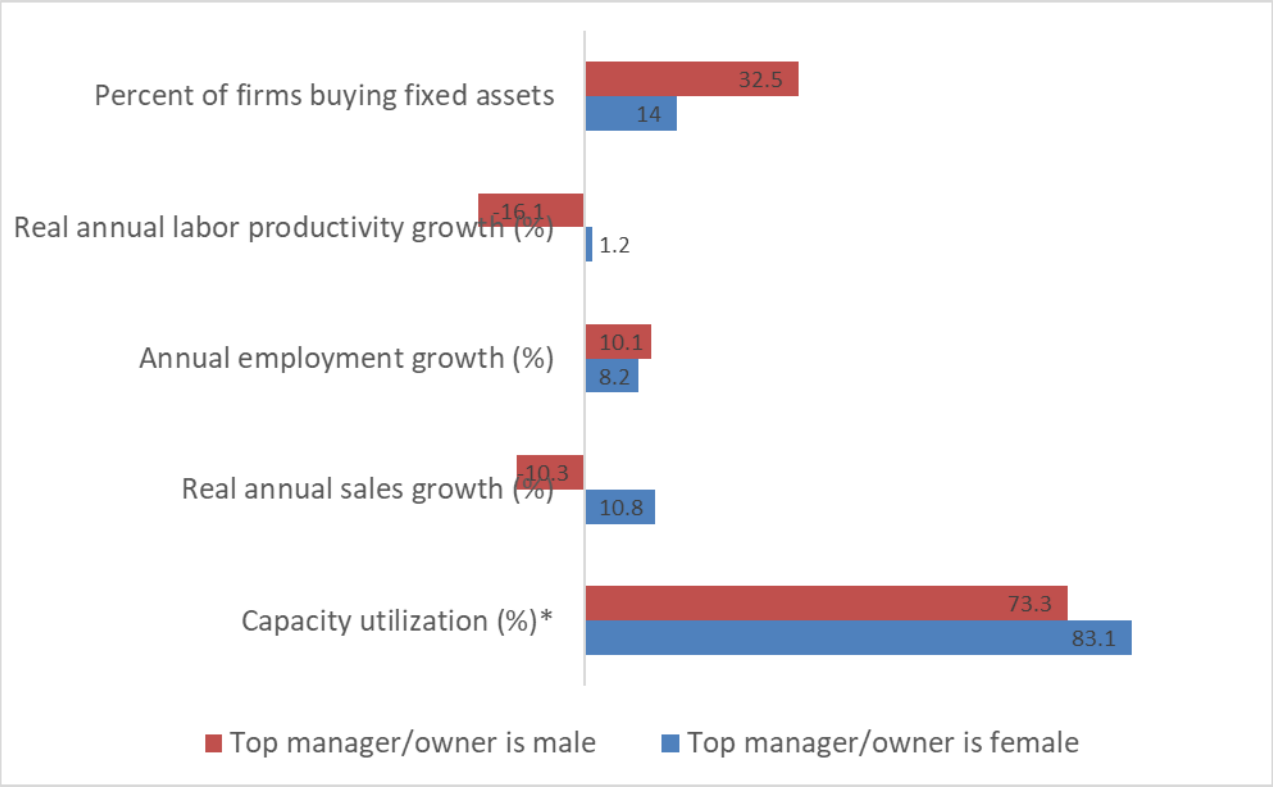

Figure 4.3: Firm Performance Based on Gender of Owner/Top Manager

Source: ES (2014)

4.2.4 Summary of Statistics for Estimation

In this subsection, the statistics of the variables used for estimation are summarized. edu_primary, edu_secondary and edu_tertiary are binary choice variables indicating 1 if a female entrepreneur belongs to the set and zero otherwise. In other words, the minimum and maximum values are 0 and 1, respectively. The mean value for the indicators of the educational attainment of female entrepreneurs are 0.238, 0.490 and 0.272, respectively.

Other mean values for binary choice variables include 0.288 (for access_land), 0.308 (for mentorship), 0.491 (for region_south), 0,509 (for region_south), 0.692 (for business_reg), 0.703 (for trade_regu), 0.132 (for gov_support), 0.109 (for crime_and_theft), 0.892 (for infrastructure), and 0.792 (for tax_admin). Firms are classified as small if employees range from 5 to 19. Firms with employees ranging from 20 to 99 and 100 and above are classified as medium and large firms, respectively. log_firmsize captures the size of a firm based on the log of the number of employees. The mean value of log_firmsize is 1.531 with a standard deviation of 0.082. Access to finance (access_finance) is a binary choice variable that takes 1 if a women-led firm accessed credit in the last twelve months preceding the survey and 0 otherwise. The mean value is 0.161, with a standard deviation of 0.003. log_loan is the log of the loan principal accessed by women-led firms that have running loans with banks. With minimum and maximum values of 5.699 and 8.301, the mean value and standard deviations are 6.778 and 1.993, respectively. The mean values of fin_constraint, collateral_security, membership_assoc, financial_state, insufficient_loansize, financial_literacy, and high_interest are 0.860, 0.861, 0.342, 0.431, 0.792, 0.214 and 0.879 respectively.Table 4.5: Summary of Statistics for Estimation

	Mean	Standard dev	Min	Max
edu_primary	0.238	0.028	0.000	1.000
edu_secondary	0.490	0.038	0.000	1.000
edu_tertiary	0.272	0.119	0.000	1.000
access_land	0.288	0.102	0.000	1.000
Mentorship	0.308	0.003	0.000	1.000
region_south	0.491	0.222	0.000	1.000
region_north	0.509	0.208	0.000	1.000
business_reg	0.692	0.004	0.000	1.000
trade_regu	0.703	0.042	0.000	1.000
gov_support	0.132	0.219	0.000	1.000
crime_and_theft	0.109	0.001	0.000	1.000
Infrastructure	0.892	0.021	0.000	1.000
tax_admin	0.792	0.051	0.000	1.000
log_firmsize	1.531	0.082	0.699	2.436
fin_constraint	0.860	0.001	0.000	1.000
fixed_asset	8.057	1.002	5.567	8.770
collateral_security	0.861	0.011	0.000	1.000
log_firm_duration	1.093	0.231	0.301	1.748
membership_assoc	0.342	0.025	0.000	1.000
R_and_D	5.844	1.208	5.079	7.010
financial_state	0.431	0.081	0.000	1.000
financial_literacy	0.214	0.102	0.000	1.000

	Mean	Standard dev	Min	Max
Sales-growth	0.321	0.066	0.000	1.000
high_interest	0.879	0.001	0.000	1.000
Access_land	0.032	0.002	0.000	1.000
insufficient_loansize	0.792	0.004	0.000	1.000
Political instability	0.698	0.019	0.000	1.000
Loan_admin	0.612	0.003	0.000	1.000
economic_outlook	0.686	0.081	0.000	1.000
political_instability	0.506	0.029	0.000	1.000
Insecurity	0.799	0.083	0.000	1.000
access-finance	0.161	0.003	0.000	1.000
log_loan	6.778	1.993	5.699	8.301

Table 4.5: summary of statistics for estimation
Source: ES (2014)

4.3. Regression Results in Line with the Research Questions

4.3.1. Drivers of Female Entrepreneurship

One of the research objectives aims at ascertaining the drivers of female entrepreneurship in Nigeria. Based on covariates covered by the Enterprise Survey 2014, logistic regression was estimated, and the result is summarized in Table 4.6. The result presented include the logit estimates and marginal effects therefrom.

From the results obtained, as shown in table 4.6, there is a likelihood that education drives entrepreneurship. The logit coefficient for primary education attainment (edu_primary), secondary education attainment (edu_secondary) and tertiary education attainment (edu_tertiary) are 0.1089, 0.8924 and 0.0089, respectively. From the results of the marginal effects, one unit increase in primary, secondary and tertiary education would lead to a 2%, 18% and 0.2% increase in the probability of a female engaging in entrepreneurship. The results also show that female with secondary education has the greatest probability of going into entrepreneurship. Also, the coefficient for access to land and mentorship are 0.690 and 0.272, respectively. The marginal effect shows that having access to land increases the probability of a female becoming an entrepreneur by 15%. Table 4.6 also shows that although there is the likelihood that female from both northern and southern Nigerian could be entrepreneurs, there is more likelihood for females from southern Nigeria. To be specific, the marginal effect statistics show that being from southern Nigerian increases the likelihood of being a female entrepreneur by 17%. This, when contrasted with the females from northern Nigeria with 5.6% incremental probability, indicates an excess of 11.4 percentage point in favour of females from southern Nigeria.

Table 4.6: Summary of Estimates for Drivers of Female Entrepreneurship in Nigeria

Covariates	Logit Coefficients	Marginal Effects
edu_primary	0.108976 (0.0217)***	0.027163 (0.0054) ***
edu_secondary	0.892389 (0.2948)***	0.183974 (0.0608) ***
edu_tertiary	0.008902 (0.002)***	0.002225 (0.0005) ***
access_land	0.690107 (0.08066)***	0.153512 (0.01794)***
Mentorship	0.271948 (0.0427) ***	0.066745 (0.0105) ***
region_south	0.813494 (0.093) ***	0.173118 (0.0198) ***
region_north	0.227027 (0.02621)***	0.056032 (0.0065) ***
Infras	-0.339556 (0.0892) ***	-0.082488 (0.0217) ***
business_reg	-0.018836 (0.0036) ***	-0.004709 (0.0009) ***
trade_regu	-0.317231 (0.0342) ***	-0.077345 (0.0083) ***
gov_support	0.024059 (0.0427)	0.006014 (0.0107)
crime_and_theft	0.006238 (0.0114)	0.001559 (0.0028)
tax_admin	-0.249457 (0.2030)	-0.061404 (0.0500)
Access_finance	0.100635 (0.0485) **	0.025095 (0.0121) **
economic_outlook	0.011147 (0.0025) ***	0.002787 (0.0006) ***
political_instability	-0.018695 (0.0041) ***	-0.004673 (0.001) ***
Insecurity	-0.832594 (0.0927) ***	-0.17587 (0.0196) ***
McFadden R-squared	0.664	
LR statistic	591.6	
Prob(LR statistic)	0.000	
H-L Statistic	0.092	
Prob. (H-L)*	0.852	
Obs	553	

Source: Logistic Regression Result from ES (2014)
*,** and *** indicates 10%, 5% and 1% significance level

Table 4.6 also shows that inadequacy of infrastructure, difficulties in business registration and unfriendly trade regulations have negative coefficients. The coefficients are -0.340, -0.019 and -0.317, respectively, which suggests that the dearth of social capital (public infrastructure), difficulties in business registration, including obtaining licenses, and unfriendly trade regulations reduces the likelihood of becoming an entrepreneur. However, the results obtained show that the coefficients of government support (gov_support) and incidence of crime and theft (crime_and_theft) are 0.024 and 0.006, respectively. Also, the coefficients for tax administration, insecurity and political instability are -0.249, -0. –0.832 and -0.019, respectively. The negative coefficients show that the current tax administration system in Nigeria may not be optimal. It also indicates that insecurity has about 18% cumulative negative effects in the Nigerian business environment. Although political instability poses a great danger to female entrepreneurship, the current marginal effect (0.47%) appears minimal and may reflect Nigeria's already stabilizing political environment.

On the other hand, the result shows that access to finance/credit (access_finance) and favourable economic outlook (economic_outlook) positively affect the likelihood of women becoming entrepreneurs. Notably, the coefficients of access to finance and economic outlook are 0.1006 and 0.011, respectively.

4.3.2. Determinants of Access to Credit by Female-led Enterprises

Table 4.7 summarizes the estimates for the determinants of access to credit. The estimates were obtained from logistic regression as specified earlier in chapter three. As shown in Table 4.7, investment in fixed assets (fixed_asset), having audited financial statements (financial_state) and having access to land (access_land) have a positive effect on access to credit. The coefficients are 0.615, 0.601 and 0.478, respectively, which suggests that investment in fixed assets, having audited financial statements and having access to land increases the likelihood of access to credit by female-led firms. To be specific, the possibility of access to credit by female-led firms would increase by 14%, 13.8% and 11.3%, respectively, if such firms invest in fixed assets, have audited financial statement and have access to land.

In the same vein, being financially constrained (financial_constraint), belonging to a trade union, club or association (membership_assoc) and being financially literate (financial_literacy) increases the likelihood of accessing credit by female-led firms. The coefficients (and the marginal effects) are 0.200 (0.0496), 0.019 (0.0048) and 0.960 (0.192) respectively. Another covariate that has a positive effect on access to credit is the duration of a firm. The positive coefficient of 0.008727 suggests that older firms are more likely to access credit than newer firms.

On the other hand, the result obtained shows that some other factors such as high-interest rate (high_interest), demand for collateral security (collateral_security) and insecurity could impede access to credit. All three covariates have negative coefficients, namely, -0.707595, -0.563583 and -0.744208, respectively. From the marginal effects, one can deduce that their marginal effects on credit access are reduced in access to credit by 15.4%, 13.0%, and 16.2%, respectively.

Table 4.7: Summary of Estimates for the Determinants of Access to Credit

Covariates	Logit Coefficients	Marginal Effects
log_firmsize	0.024959 (0.028134)	0.006239 (0.007)
fixed_asset	0.615182 (0.0934)***	0.140115 (0.0212) ***
financial_state	0.601233 (0.24621)**	0.137503 (0.0563) **
Sales-growth	0.039951 (0.050374)	0.009984 (0.0126)
collateral_security	-0.563583 (0.06428)***	-0.13027 (0.014859) ***
high_interest	-0.707595 (0.19339)***	-0.156481 (0.0428) ***
access_land	0.47821 (0.11115) ***	0.112970 (0.0263) ***
financial_constraint	-0.200467 (0.033330) ***	-0.049617 (0.0082) ***
membership_assoc	0.019265 (0.00247) ***	0.004816 (0.0006) ***
Loan_admin	-0.80117 (0.23018) ***	-0.171302 (0.0492) ***
log_firm_age	0.008727 (0.00433) **	0.002182 (0.0011) **
insufficient_loansize	-0.099614 (0.02526) ***	-0.024842 (0.0063) ***
Political instability	-0.009523 (0.01612)	-0.002381 (-0.0040)
Insecurity	-0.744208 (0.1293) ***	-0.162495 (0.0282) ***
financial_literacy	0.959759 (0.140817) ***	0.192180(0.0282) ***
McFadden R-squared	0.749	
LR statistic	206.8	
Prob(LR statistic)	0.000	
H-L Statistic	0.064	
Prob. (H-L)*	0.656	
Obs	553	

Source: Logistic Regression Result from ES (2014)
*,** and *** indicates 10%, 5% and 1% significance level

4.3.3 Impact of Access to Credit on the Performance of Female-led Firms

The third research question aims at ascertaining the impact of access to credit on the performance of female-led firms. In this study, capacity utilization and annual sales growth were used as proxies for firm performance.

Table 4.8: Impact of Access to Credit on Capacity Utilization

	Capacity Utilization	Marginal Effect
access_credit	0.620063 (0.0481)***	0.141021 (0.0109) ***
log_loan	0.517104 (0.0229)***	0.121005 (0.005359) ***
financial_state	0.346941 (0.1809)*	0.084177 (0.0439) *
Insecurity	-0.107194 (0.0082)***	-0.026722 (0.0020) ***
fin_constraint	-0.82277 (0.1101)***	-0.174463 (0.0233) ***
R_and_D	0.446526 (0.2462)*	0.106247 (0.0586) *
collateral_security	-0.185271 (0.3984)	-0.045923 (0.0987)
log_firm_duration	0.022621 (0.0044)***	0.005655 (0.0011) ***
access_credit*loan_amount	0.102099 (0.0278)***	0.025458 (0.0069) ***
Political nstability	-0.31993 (0.0321) ***	-0.07797 (0.0078) ***
access_credit*financial_state	0.20332 (0.0244)***	0.050308 (0.0061) ***
access_credit*small_firm	0.8436 (0.1159)***	0.177418 (0.0244) ***
access_credit*medium_firm	0.22621 (0.0438)***	0.055835 (0.0108) ***
access_credit*large_firms	0.01858 (0.0026)***	0.004645 (0.0007) ***
McFadden R-squared	0.708	
LR statistic	489.3	
Prob(LR statistic)	0.000	
H-L Statistic	0.052	
Prob. (H-L)*	0.567	
Obs	553	

Source: Logistic Regression Result from ES (2014)

*,** and *** indicates 10%, 5% and 1% significance level

The results of estimates obtained for capacity utilization and sales growth are summarized in Table 4.8 and 4.9, respectively. The main explanatory variables are access to credit (binary choice variable) and loan amount (numerical continuous variable transformed by log). The interaction variables include access_credit x loan_amount, access_credi x financial_state, access_credit x small_firm, access_credit x medium_firm and access_credit x large_firms. Other control variables include insecurity, financial statement, collateral security and political instability. The result shows that access to credit and the loan amount have positive effects on firm capacity utilization.

Table 4.9: Impact of Access to Credit on Annual Sales Growth

Covariates	Sales Growth	Marginal Effect
access_credit	0.867623 (0.1083)***	0.18071 (0.0226) ***
log_loan	0.98654 (0.2700)***	0.195169 (0.0005) ***
financial_state	-0.009375 (0.0016)***	-0.002344 (0.0004) ***
Insecurity	-0.015118 (0.0511)	-0.003779 (0.0128)
fin_constraint	-0.017104 (0.0029)***	-0.004276 (0.0007) ***
R_and_D	0.3709 (0.0504)***	0.089608 (0.0122) ***
collateral_security	0.9323 (0.0925)***	0.188954 (0.0188) ***
log_firm_duration	0.9323 (0.0925)***	0.188954 (0.0188) ***
access_credit*loan_amount	0.973148 (0.0340)***	0.193694 (0.0068) ***
Political nstability	0.7287 (0.9862)	0.159981 (0.2165)
access_credit*financial_state	0.378047 (1.0602)***	0.091214 (0.0387) ***
access_credit*small_firm	0.8146 (0.2091)***	0.173279 (0.0445) ***
access_credit*medium_firm	0.103557 (0.0319)***	0.02582 (0.008) ***
access_credit*large_firms	0.026677 (0.0079)***	0.006668 (0.002) ***
McFadden R-squared	0.553	
LR statistic	711.8	
Prob(LR statistic)	0.000	
H-L Statistic	0.063	
Prob. (H-L)*	0.852	
Obs	553	

Source: Logistic Regression Result from ES (2014)

*,** and *** indicates 10%, 5% and 1% significance level

The coefficients are 0.620 and 0.517, respectively. The marginal effects show that the incremental impact of access to credit is about 14%. It also shows that a one-unit increase in loan amount would increase firm capacity utilization by 12%. Note that access to credit by small firms (access_credit*small_firm) has a higher marginal effect (18%) on capacity utilization than the medium-sized firms (5.6%) and large-sized firms (0.46%). Similarly, Table 4.9 shows that sales growth is a positive function of access to credit. The coefficient of access to credit is 0.868. The marginal effect coefficient (0.18071) shows that the incremental effect of access to credit on sales growth is about 18%. In the same vein, the logit coefficient of the loan amount is 0.98654 showing that an increase in the loan amount obtainable by firms increases their demand and thus access. Notably, the marginal effect of one unit increase in loan amount is 19.5%. In a similar vein as in the case of capacity utilization, the marginal effect of access to credit is higher for small firms 17.3%) than for medium-sized firms (2.6%) and large-sized firms (0.67%).

4.4. Test of Research Hypothesis

In this subsection, the three hypotheses of the study, as stated in chapter one, are tested. The test of the hypothesis is conducted at a 5% significance level or 95% confidence level. Each hypothesis is tested separately based on the results shown in Tables 4.10, 4.11 and 4.12 for hypothesis one, hypothesis two, and hypothesis three.

Test Statistics: The probability value of the Z-statistics [*prob (Za)*] was used as the test statistic in evaluating the research hypothesis. The test statistics are reported in Tables 4.10, 4.11 and 4.12.

Decision Rule: Reject H_0 if and only if $prob\ (Za) < 0.05$, otherwise accept the H_0.

4.4.1 Hypothesis One: There are no significant drivers of female entrepreneurship in Nigeria

The test of hypothesis 1 shows several drivers of female entrepreneurship in Nigeria based on the covariates examined in the study. Particularly, at a 5% significance level, the following variables are identified to be significant drivers of female entrepreneurship in Nigeria:

1. Educational attainment. Specifically, those with secondary education are found to have a higher tendency of engaging in entrepreneurship than those with primary and tertiary education)
2. Mentorship
3. Regional affiliation. The study further established that female from southern Nigeria are more likely to engage in entrepreneurial activities than their counterpart from the northern region
4. Availability of infrastructure
5. Access to land
6. The process of business registration and licensing
7. Access to credit
8. Trade regulatory framework
9. Economic outlook
10. Insecurity
11. Political instability

Table 4.10: Summary Statistics for Test of Hypothesis One

Drivers	Logit Coefficients	Z	Prob(z)	Decision
edu_primary	0.108976	5.021935	0.0000	Reject H_0
edu_secondary	0.892389	3.027100	0.0025	Reject H_0
edu_tertiary	0.008902	4.451000	0.0000	Reject H_0
access_land	0.690107	8.555753	0.0000	Reject H_0
Mentorship	0.271948	6.368806	0.0000	Reject H_0
region_south	0.813494	8.747247	0.0000	Reject H_0
region_north	0.227027	8.661847	0.0000	Reject H_0
Infras	-0.339556	-3.806682	0.0002	Reject H_0
business_reg	-0.018836	-5.232222	0.0000	Reject H_0
trade_regu	-0.317231	-9.275760	0.0000	Reject H_0
gov_support	0.024059	0.563443	0.5851	Do not reject H_0
crime_and_theft	0.006238	0.547193	0.5964	Do not reject H_0
tax_admin	-0.249457	-1.228852	0.2211	Do not reject H_0
Access_finance	0.100635	2.074948	0.0377	Reject H_0
economic_outlook	0.011147	4.458800	0.0000	Reject H_0
political_instability	-0.018695	-4.559756	0.0000	Reject H_0
Insecurity	-0.832594	-8.981597	0.0000	Reject H_0

Source: Logistic Regression Result from ES (2014)

4.4.2 Hypothesis Two: There are no significant determinants of access to formal credit by female-owned firms in Nigeria

Hypothesis two states that there are no significant determinants of access to formal credit by female-owned firms in Nigeria. Similar to the procedure followed in testing hypothesis one, Table 4.11 summarizes the test outcome.

Table 4.11: Summary Statistics for Test of Hypothesis Two

Drivers	Logit Coefficients	Z	Prob(z)	Decision
log_firmsize	0.024959	0.887147	0.3816	Do not reject H_0
fixed_asset	0.615182	6.586531	0.0000	Reject H_0
financial_state	0.601233	2.441952	0.0145	Reject H_0
Sales-growth	0.039951	0.793088	0.4359	Do not reject H_0
collateral_security	-0.563583	-8.76763	0.0000	Reject H_0
high_interest	-0.707595	-3.6589	0.0003	Reject H_0
access_land	0.47821	4.302384	0.0000	Reject H_0
financial_constraint	-0.200467	-6.014611	0.0000	Reject H_0
membership_assoc	0.019265	7.799595	0.0000	Reject H_0
Loan_admin	-0.80117	-3.48062	0.0005	Reject H_0
log_firm_age	-0.008727	-2.01547	0.0435	Reject H_0
insufficient_loansize	-0.099614	-3.943547	0.0001	Reject H_0
Political instability	-0.009523	-0.59076	0.5662	Do not reject H_0
Insecurity	-0.744208	-5.75567	0.0000	Reject H_0
financial_literacy	0.959759	6.815647	0.0000	Reject H_0

Source: Logistic Regression Result from ES (2014)

From the results presented in Table 4.12, the following variables are significant determinants of access to credit in Nigeria:

(1) Investment in fixed assets

(2) Having audited financial statements

(3) Demand for collateral security by financial institutions

(4) High-interest rate

(5) Having access to land

(6) Being financially constrained

(7) Being a member of trade unions, clubs and associations

(8) Insecurity

(9) Financial literacy

(10) Insufficient loan size

(11) Loan administration and processing

(12) The age or duration of the firm

4.4.3 Hypothesis Three: Access to credit does not enhance the performance of female-owned firms in Nigeria

For hypothesis three, two indicators of financial performance, namely capacity utilization and sales growth, are used. In the model for firm performance, only two covariates, access to credit and loan amount, are evaluated against capacity utilization and sales growth. Other variables are control variables and thus are not included in the test of the hypothesis. From the results shown in Table 4.12, both access to credit and the amount of loan accessed by female-owned firms exert a significant impact on firm performance (including capacity utilization and sales growth). Thus, the null hypothesis that access to credit does not significantly impact firm performance is rejected for all the covariates.

Table 4.12: Summary Statistics for Test of Hypothesis Three

Covariates	Logit Coefficients	Z	Prob(z)	Decision
		Capacity Utilization		
access_credit	0.620063	12.8911227	0.0000	Reject H_0
log_loan	0.517104	22.5809607	0.0000	Reject H_0
		Sales Growth		
access_credit	0.867623	8.01129271	0.0000	Reject H_0
log_loan	0.98654	3.65385185	0.0003	Reject H_0

Source: Logistic Regression Result from ES (2014)

4.5. Summary

The Enterprise Survey 2014 relating to female entrepreneur, access to credit and performance of female-led firms in Nigeria was extensively analyzed. The descriptive statistics show that out of 2626 firms surveyed, only 16.2% are owned or led by females. Overall, female participation in entrepreneurship in Nigeria appears to trail below the SSA and global averages. The data presented shows that female-owned firms in the manufacturing sector (15.4%) and service sector (16.7%) are all covered in the analysis. The data analyzed also cover small-sized firms (16.8%), medium-sized firms (12.2%) and large-sized firms (23.9%). Similarly, geographical scope covers 11 northern states, 7 southern states and the Federal

Capital Territory (FCT), Abuja. The data obtained also show that firms owned by females are more disadvantaged in terms of access to credit and conditions for accessing credit.

From the regression analysis and the test of hypothesis, the overall results obtained show that:

(a) Educational attainment, mentorship, regional affiliation, availability of infrastructure, access to land, the process of business registration and licensing, access to credit, trade regulatory framework, economic outlook, insecurity and political instability are significant drivers of female entrepreneurship

(b) Investment in fixed assets, having audited financial statements, demand for collateral security by financial institutions, high-interest rate, having access to land, being financially constrained, being a member of trade unions, clubs and associations, insecurity, financial literacy, insufficient loan size, loan administration and processing and the age or duration of a firm are significant determinants of access to credit by female-owned firms

(c) Access to credit has a significant impact on firm performance in Nigeria

CHAPTER FIVE

DISCUSSION OF FINDING, SUMMARY AND CONCLUSION

5.1. Introduction

In this chapter, the findings from data analysis are discussed extensively in the context of the existing literature, followed by a summary and conclusion drawn from the findings. Finally, the study presents the implications of the research findings, the study's limitations, and suggestions for further studies.

5.2. Discussion of Findings

Ascertaining the drivers of female entrepreneurship, the determinants of access to credit and the impact of access to credit on female-owned firms in Nigeria is the thrust of this study. The findings are discussed under the various research objectives.

1. Drivers of Female Entrepreneurship

The findings provide evidence on the following drivers of female entrepreneurship in Nigeria:

(a) Educational Attainment: The result obtained show that although educational attainment is a crucial driver of female entrepreneurship, the likelihood of females with tertiary education becoming an entrepreneur is lean. The level of education that drives entrepreneurship most appear to be a secondary school. This finding corroborates Agboola (2016) position in a paper presented at the Federal School of Statistics Ibadan. Agboola opined that most Nigerian graduates are oriented towards seeking white-collar jobs, thereby not focusing on entrepreneurship. Similarly, in the qualitative study, Ovie (2011) obtained evidence that Nigerian tertiary education is not fundamentally designed to engender entrepreneurship. This feature of the Nigerian educational system could contribute to its high level of unemployment, estimated at 33.3% by official statistics (NBS, 2021).

(b) Mentorship: The findings also indicate that mentorship is a critical factor for the emergence of female entrepreneurs. Mentorship is a relationship between two people. An experienced entrepreneur (a mentor) provides professional guidance, instruction, and support to a would-be entrepreneur or less experienced entrepreneur (a ‘mentee’ or protégé). According to Lankau et al. (2005), mentorship could occur in either a formal or an informal setting. Admitting the centrality of mentorship in boosting entrepreneurship and other forms of career development, Allen et al. (2004) noted that minority groups such as female entrepreneurs require mentorship as a compass to

excel in an entrepreneurial endeavour. Following the view of Allen et al. (2004) that mentorship promotes mentee's social capital and professional attitudes, there is no doubt that, as the study reveals, mentorship would enhance female entrepreneurship in Nigeria.

(c) Regional Affiliation: The findings indicate that females from southern Nigeria are more likely to engage in entrepreneurship than their counterparts from northern Nigeria. This finding corroborates the findings of Adekola et al. (2015) in qualitative research that focused on hindrances of female entrepreneurship. Adekola et al. (2015) noted that the conservativeness of northern religion/culture might hinder women from effectively engaging in entrepreneurship development in the region. However, Abimbola et al. (2007) hold that early marriage and low education of women in Northern Nigeria may be responsible for the low entrepreneurial orientation of female northerners.

(d) Infrastructure and Access to Land: The study found that the dearth of infrastructure (or social capital) dampens the entrepreneurial drive of females. The lack of social capital imposes the responsibility of providing such capitals that are too critical to business start-ups on the would-be entrepreneurs. Similarly, access to land encourages females to go into an entrepreneur. Describing infrastructure as external enablers, Davidsson et al. (2018) noted that infrastructural investment is critical for stimulating entrepreneurial action. However, Bennett (2019) argues that public infrastructure could play both enabler and disabler depending on the circumstance. Bennett argues that in the case where public infrastructure serves as positive externalities, it could enable stimulant to entrepreneurial dynamism. However, the fact that infrastructure is provided as public good destroys the entrepreneurial opportunities for those who would invest in providing such infrastructure as a marketable commodity.

Similarly, the study found that access to land is a critical factor for female entrepreneurship. In most parts of Nigeria, the land is primarily owned by the community/family and can only be allocated to male members of the community/family. It is one of the most accepted collaterals in Nigeria. Again, the value of land is currently appreciating in Nigeria and selling land can provide capital to venture into entrepreneurship. Thus, having access to land could be a significant driver for female entrepreneurship (Whitehead & Tsikata, 2003; George, 2015).

(e) Business Licensing and Trade Regulations: The study further provided evidence that the institutional regulatory framework and business environment may dampen the

entrepreneurial spirits of females. The research shows that the frame of business registration, licensing and trade regulation constitute an impediment to female entrepreneurship. This result corroborates Price Waterhouse Cooper (PwC) 2020 MSME survey report. They held that the current business registration, licensing and trade regulatory framework poses a significant challenge to the emergence and survival of MSMEs in Nigeria.

(f) Insecurity: One of the study's findings is that the current state of insecurity in Nigeria impedes female entrepreneurship. This corroborates Pinazo-Dallenbach and Castelló-Sirvent (2021) finding in the case of Mexico. Their study established that rising insecurity discourage in-country entrepreneurship and encourage emigration. Some women are highly vulnerable to a security threat and thus would instead hibernate in a period of high-security risks than dare such risks. Other critical drivers of female entrepreneurship include economic outlook and political instability.

2. Determinants of Access to Formal Credit to Female-Owned Firms

Evaluating the determinants of access to credit by women-owned firms is another objective of the study. Based on the hypotheses test, the factors found to play a critical role in access to credit are discussed below.

(a) Financial Literacy: The results obtained indicates strong evidence that financial literacy increases access to formal credit by women. Cole (2011), in a study in Indonesia, concluded that low financial literacy is a major key factor for low demand for bank credit in Indonesia. Similarly, in a study of Chinese household, Lyons (2019) also obtained evidence that financial literacy is critical for being financially included, especially regarding the demand for formal credit. Female entrepreneurs who are economically literate tend to demand more formal credit. They also tend to be acquainted with what ought to be done to access such credits.

(b) Financial Constraints: The findings also indicate that being financially constrained decreases access to credit by women, contrary to our expectation that being financially constrained would increase access to credit. However, this result corroborates Strier (2010). According to Sena et al. (2012), severe financial constraint is a "bad lemon" signal suggesting that a loan-seeking firm is risky, and lending institutions may fear concealing other information relating to poor operating conditions. If it uses the

financial constraint status as a measure of the firm's health, it may be constrained from lending to such a firm. Sena et al. (2012) further note that in some cases, lending institutions will raise the debt-equity ratio lending requirement of severely constrained firms, and this will further complicate their access to credit.

(c) Collateral Security, Access to Land and High Interest Rate: The study found that demand for collateral security and a high interest rate reduces the chances of women-owned firms accessing credit. The study also shows that demand for collateral security is higher for women than men. Chowdhury et al. (2016) argued that demand for high collateral security and high interest rates could be tacit discriminatory measures to discourage women from accessing credit. Chowdhury et al. (2016) provided evidence that female-owned are usually required to pay high-interest rates and may receive insufficient loan capital. These restrictive pre-contractual requirements reduce the probability that women-owned enterprises will have access to formal credit. For example, suppose lenders require that loan applicant have title to land (a general requirement in Nigeria). In that case, women will be primarily restrained from access to finance because land acquisition in Nigeria is primary by inheritance or descent and exclusively given to men in most Nigerian societies.

Given that the land inheritance system disallows women from owning land by inheritance (except a woman buys a title from a male inheritor), making it part of credit-worthiness criteria reduces women's access to formal credit. Brush (2006) also believes that loan officials see women as housewives who are not real entrepreneurs. Ogunleye (2017) further observe that in most cases, when a woman applies for a loan, the lending officers would first confirm from the husband whether he consents to the loan application. The loan demand is as good as dead if the husband disagrees with the idea of applying for the loan. More so, if the woman is martially single, she may be adjudged to be credit unworthy.

(d) Loan Administration: The finding also indicates that one factor that could militate against access to credit is the stringent and tedious loan administration process. The loan application process may linger for months in some cases. Aremu et al. (2010) note that the paperwork is usually tedious such that the less educated find it challenging to follow through the process. As claimed by Aremu et al., the thought of the loan application process is enough to discourage many small businesses and most

vulnerable groups from starting the process. Aremu et al. further observe that although this tedious process tends to apply more rigorously to the small firms, non-performing loans are dominant in the case of the big players.

(e) Firm Age/Duration: The result also shows that smaller firms are disadvantaged in access to loan. The finding indicates that financial institutions would be more disposed to advance credit to older firms. Characteristically, Baliamoune-Lutz and Lutz (2017) opined that older firms are more likely to be bigger and stronger. This finding corroborates Baliamoune-Lutz and Lutz (2017), who obtained evidence that younger small firms owned by women are constrained to access formal credit in Italy and Europe at large. Berger and Udell (2006) also view that younger firms, especially small-sized ones, are constrained to credit access because they are more opaque than older and larger firms. Thus, financial institutions prefer to lend to more established and larger firms. Other important determinants of access to the credit include having audited financial statement, insecurity, and investing in fixed assets.

3. Impact of Access to Formal Credit on Female-owned Firms

Further, the study investigated the impact of access to credit on the performance of female-owned firms. The result obtained indicate that access to credit has a significant positive impact on both capacity utilization and annual sales of growth of female-owned firms. Capacity utilization refers to output realization in relation to the maximum realizable output. In economic analysis, firms are said to be efficient when they operate on the boundary of the production possibility frontiers; at this point, they are said to have achieved full capacity utilization. Optimum utilization of both labour and capital is required to achieve full capacity utilization. It entails financial investment in training and development of the workforce, employment of requisite skill workers, investment in technologies, and expenditure in R & D.

Tian (2016) noted that being financially constrained further constrains firms from optimizing their firm capacity due to a lack of further investment in labour, replacement capital, and emergent technology that enhances capacity utilization. An increase in capacity utilization leads to an increase in firm productivity. In other words, increased access to finance leads to a rise in a firm's productivity (Levine, 2005). An increase in a firm's total output could arise due to improved technology and increased access to production input, including labour and raw materials. In standard neoclassical production function, the firm's production possibility

set (PPS) is constrained by the firm's budget, which can only shift through an increase in funding or reduction in all input prices (Isshaq & Bokpin, 2017; Giang et al., 2018). In other words, with increased access to finance, firms can afford to increase their capacity utilization and invest in technologies that will reduce their unit cost and further increase the overall output.

Similarly, female-owned firms also experience an increase in sales due to increased access to credit. Access to finance is critical to achieving sales growth. Advertising which may be supported using external funding (Sundarsan, 2007) may achieve increased sales. Leong (1996) and Jiang et al. (2015) obtained evidence that advertising exerts a positive influence on product sales through customer loyalty and induced change in preference. The financing of other promotional activities such as loyalty rewards, branding, sales promotion, and marketing research can also increase sales. Another channel through which access to finance could engender increased sales is increasing firm output or improvement in the firm's capacity utilization. Note that an increase in a firm's productivity could lead to a decline in unit cost. The reduction in unit cost could lead to a reduction in sales price, which according to Meghabber (2015), will trigger increased demand for the firm's products. Also, an increase in a firm's total output implies that the firm's marketing team will have an increased sales target, resulting in increased sales.

On the other hand, increased access to finance can induce a firm to add new product lines. The expansion possibilities of a firm are constrained by internal financing. However, increased access to external finance could reduce the firm's binding constraints to expansion.

5.3. Summary and Conclusions

This study focuses on female entrepreneurship, access to credit by female-owned firms, and the performance of female-owned firms in Nigeria. The study conceptualized female entrepreneurs as women who participate in firm ownership to make a profit. A review of the Nigerian policy environment also reveals that several successive governments in Nigeria have focused on policies and programs that encourage female entrepreneurship. The related empirical literature reviewed shows that several factors such as access to land, insecurity, financial literacy, mentorship, infrastructure, among others, have not been examined in the context of female entrepreneurship in Nigeria. Analyzing data from the Nigerian Enterprise survey 2014 using descriptive statistics and logistic regression procedure, the study obtained several findings leading to the following conclusions.

First, female entrepreneurship in Nigeria is driven by access to land, access to finance, infrastructure, insecurity, mentorship, education, political stability, regional affiliation, economic outlook, business registration, licensing and trade regulatory framework. Second, access to credit by female-owned firms is determined by the availability of collateral security, access to land, financial literacy, insecurity, loan administration, high interest rate. Having audited financial statement, membership of trade union, club or association and being financially buoyant are also requirements. Finally, access to credit increases the performance of female-owned firms by increasing capacity utilization and sales growth or turnover rate.

5.4. Implication of the Research Findings

5.4.1. Theoretical Implication

The findings from this study have an implication for the Austrian market process (AMP) theory. The AMP emphasized that the entrepreneur is driven by human traits anchored on creative destruction and alertness to profit. The findings indicate that the choice to become an entrepreneur goes beyond "human traits". It is also equally anchored on certain societal factors that impinge on the would-be entrepreneur. In other words, beyond the ideas that engender "creative destruction" as well as alertness to profit, there are external enablers and disablers that also influences the would-be entrepreneurs' choice. For example, in societies where there is social capital (public infrastructures) and access to finance, there is a greater tendency for an economic agent to positively respond to profit alertness, especially when there are creative ideas that could exploit profiteering opportunities.

5.4.2. Practical and Policy Implication

The goal of empirical research is either to evaluate the appropriateness of theoretical propositions or to provide policy insights. Based on the findings of this study, the following practical/policy implications are discussed:

(a) **Mentorship:** One of the panaceas to the current unemployment crisis in Nigeria is entrepreneurship. Given that women are still classified as vulnerable groups, especially in developing economies, mentorship in entrepreneurship development is practically relevant. There is a need to have mentorship programs for women at various levels in society. Currently, in Nigeria, business mentorship is more common among men than women. Thus, older/senior female entrepreneurs should consider mentoring young women towards emerging as successful entrepreneurs.

(b) **Social Infrastructure:** The dearth of social infrastructure is implicitly tantamount to an increase in capital requirement for start-ups. Therefore, it is required that the Nigerian government prioritize investment in social infrastructure to create external enablers that could drive entrepreneurship.

(c) **Social Collateral:** High collateral requirement, as revealed in this study, constitute an impediment to access to credit. However, the use of social collateral (this implies the kind of buffer guarantee that unions provide for each other) should be encouraged. For example, a union can use their membership of the union as collateral. However, the unions would be severally and jointly liable to credit advanced to each of their members in the event of default. It would also help to increase creditworthiness for women.

(d) **Business Environment and Regulatory Framework:** The findings of that study that the structure of the business environment and regulatory framework in Nigeria hampers the emergence of entrepreneurs is akin to her worsening ease-to-do-business ranking (in the latest World Bank ease to do business ranking, Nigeria ranks 131 out of 190 countries). This finding indicates that the longer days, higher (hidden) costs and greater difficulties involved in business registration and licensing dampen the morale of would-be female entrepreneurs. In other words, to boost female entrepreneurship in Nigeria, it is required that the institutional framework for business registration, licensing and regulation be revamped. Government policies should focus on removing encumbrances and discriminatory tendencies that may frustrate would-be women entrepreneurs.

(e) **Financial Literacy, Loan Administration and High interest Rate:** This study found that financial literacy is key to accessing formal credit; therefore, there is a need for civil society organizations, government and financial institutions to widen the net of the financially literate women, especially among the financially excluded. Also, tedious and difficult loan processing regimes need to be reviewed to simplify the processes to encourage women entrepreneurs. Generally, the interest rate on formal credit is high in Nigeria (around 23% to 28%) and could be higher for women borrowers (who are largely considered less creditworthy). High cost of capital (that is, interest rate) reduces demand for the loanable fund, which has consequences for firm productivity and economic growth. Thus, financial authorities should target reversing the trend. In addition, a low-interest funding scheme for women-owned businesses could be designed to bring excluded women, entrepreneurs into the loanable fund market net.

(f) **Access to Credit and Firm Performance:** Given that access to credit and the volume of loan accessed by the female-owned business have a strong positive impact on firm capacity utilization, productivity and revenue, it is expedient for policymakers to design credit access programs that will remove barriers to credit access and increase the volume of credit to female-owned businesses. This has implication for economic growth and job creation, which are twin macroeconomic goals that have continued to elude Nigeria for decades now.

5.5. Limitation of the Study

This study is fundamentally quantitative research anchored on secondary survey data. In the course of carrying out this study, the following limitations are identified.

- First, quantitative research is appropriate for hypothesis testing and inferential statistics. It also aids the researcher to obtain precise and objective estimates that aptly capture the behaviour, trend and pattern of variables of interest. However, it does not allow for introspection and in-depth study of the phenomenon. For example, the researcher would want to ascertain whether outright discrimination against women was responsible for a lower number of women who accessed formal credit than their male counterparts; however, this study could not achieve such in-depth investigation due to the limitation imposed by the nature of data.
- Second, other variables (such as social norm, marital status and family role) may be interrogated in the quest to understand drivers of female entrepreneurship and credit access. However, their variables are not covered in the survey. Given that it is a secondary survey, the researcher is constrained only to investigate the variables or covariates covered within the study's scope.
- Finally, there is no standard and general way of measuring firm performance. In this study, firm capacity utilization and annual sales growth were used. If other measures are used, the results obtained may reverse. Thus, the validity of the findings is mainly dependent on the measurement of firm performance.

5.6. Suggestion for Further Research

Over the last two decades, the important contributions of female entrepreneurs to the economic and social outcomes of their respective nations have been acknowledged. Given this, studies on women business have continued to gain momentum and this research is one of such efforts, and it is expected that this research should expand more frontiers. Particularly,

there will be a need to investigate further the implication of societal gender role expectation for female entrepreneurship. Also, further studies may focus on mentorship, queen bees syndrome and a glass ceiling in understanding the dynamics of female entrepreneurship and access to credit. Further, there is a compelling need to further empirical analysis of barriers to female entrepreneurship in Northern Nigeria because it will help identify policy areas for tackling low female entrepreneurship in northern Nigeria, as revealed in this study.

References

Abimbola, O. H., Okafor, E. C. & Ahmadu, F. O. (2007). Women entrepreneurship in Nigeria: Challenges and prospects for quality of life. *Ife Centre for Gender and Behaviour*, 5(1), 1089-1102

Acs, Z. J. (2006). How is entrepreneurship good for economic growth? *Innovations*, 1(1) 97-107.

Adekola, P. O., Olawole-Isaac, A., Babatunde, A. A. & Salau, O. P. (2015). Exploring the hindrances to women entrepreneurship, development and prosperity in Nigeria. *Journal of Entrepreneurship: Research & Practice*, 15, 113-156.

Adetiloye, K.A., Adegboye, F.B., & Akinjare, V.A. (2020). Sustainable financial access for female entrepreneurs in the micro, small and medium enterprises sector in Nigeria. *Cogent Social Sciences*, 6(1), 1-13

Agboola, I. A. (2016). The possibilities for the Nigerian graduate/youths is beyond white collar jobs. A paper presented at the Department of Business Administration's Day, Federal School of Statistic, Ajibode, Ibadan, Oyo State.

Agyire-Tettey, F., Ackah, C.G., & Asuman, D. (2018). Gender and returns to entrepreneurship in Africa. *International Journal of Social Economics*, 45(12), 1609-1630.

Aina, O.I., Ogunlade, I., Ilesanmi, O.O. & Afolabi, C. (2015). Institutionalization of gender mainstreaming in Nigeria's tertiary. *European Scientific Journal*, 314-339

Akehurst, G., Simarro, E., & Mas-Tur, A. (2012). Women entrepreneurship in small service firms: motivations, barriers and performance. *The Service Industries Journal*, 32(15), 2489-2505

Akerele E.O., & Aihonsu J.O.Y (2011). Determinants of women's participation in entrepreneurship development in Yewa north local government area, Ogun State, Nigeria. *Nigerian Journal of Agricultural Economics (NJAE),* 2(1), 68- 78

Akinlua J.T, Meakin R, Umar A.M, Freemantle N. (2015). Current prevalence pattern of hypertension in Nigeria: A systematic review. *PLoS ONE*, 10(10), 1-18.

Akinyemi, F.O., & Adejumo, O.O. (2018). Government policies and entrepreneurship phases in emerging economies: Nigeria and South Africa. *Journal of Global Entrepreneurship Research*, 8, 35, 1-18.

Alene, E.T. (2020). Determinants that influence the performance of women entrepreneurs in micro and small enterprises in Ethiopia. *Journal of Innovation and Entrepreneurship*, 9, 1-24

Allen, T.D., Lillian, T.E., Mark, L.P., Elizabeth, L., & Lima, L. (2004). Career benefits associated with mentoring for proteges: A meta-analysis. *Journal of Applied Psychology*, 89(1), 127-136.

Al-Kwifi, O.S., Khoa, T.T., Ongsakul, V., & Ahmed, Z. U. (2019). Determinants of female entrepreneurship success across Saudi Arabia. *Journal of Transnational Management*, 1-27.

Anderson, G., & Arsenault, N. (2001) *Fundamentals of Educational Research*. London: Routledge Falmer.

Anikpo, M. (2000). Perspectives in gender studies and women development programme: Agenda for the new millennium. Unpublished Paper delivered at 1st Gender Studies Conference organized by the Department of English Studies, University of Port Harcourt, Nigeria

Aremu, O.S., Suberu, O.J., & Oke, J.A. (2010). Effective credit processing and administration as a panacea for non-performing assets in the Nigerian banking system. *Journal of Economics*, 1(1), 53-56

Ascher, J. (2012). Female entrepreneurship - An appropriate response to gender discrimination. *Journal of Entrepreneurship, Management and Innovation*, 8(4), 97-114

Barringer, B.R. & Ireland, R.D. (2008). *Entrepreneurship: Successfully launching new ventures (2nd ed)*. New Jersey: Pearson.

Baliamoune-Lutz, M., & Lutz, S. (2017). Financing and performance of female-owned firms in Middle Eastern and African Economies. Documentos de Trabajo del ICAE 2017-09, Universidad Complutense de Madrid, Facultad de Ciencias Económicas y Empresariales, Instituto Complutense de Análisis Económico.

Belson, W. A. (2006) *Validity in Survey Research*. Aldershot: Gower.

Bennett, D. L. (2019). Infrastructure investments and entrepreneurial dynamism in the U.S. *International Journal of Entrepreneurship and Trade*, 34, 1-28

Berger, A. N., & Udell, G. F. (2006). A more complete conceptual framework for SME finance. *Journal of Banking & Finance*, 30(11), 2945-2966.

Bjerke, B. (2007). *Understanding entrepreneurship*. Cheltenham: Edward Elgar

Boateng, S., & Poku, K.O. (2019). Accessing finance among women-owned small businesses: evidence from lower Manya Krobo municipality, Ghana. *Journal of Global Entrepreneurship Research*, 9(5), 1-17

Briggs, D.C. (2008). Comments on Slavin: Synthesizing causal inferences. *Educational Resea rcher*, 37, 15-22.

Brixiová, Z., & Kangoye, T. (2016). Start-up capital and women's entrepreneurship: Evidence from Swaziland. IZA Discussion Paper No. 10279

Brodsky, M.A. (1993). Successful female corporate managers and entrepreneurs: Similarities and differences. *Group and Organization Management*, 18(3), 366-378

Brush, C., Carter, N., Gatewood, E., Greene, P., & Hart, M. (Eds) (2006), Growth-oriented women entrepreneurs and their businesses: A global research perspective. , Cheltenham: Edward Elgar

Bui, H.T.M., Kuan, A., & Chu, T.T. (2018). Female entrepreneurship in patriarchal society: motivation and challenges. *Journal of Small Business & Entrepreneurship*, 30(4), 325-343

Carree, M. & Thurik, A. (2006). *Entrepreneurship and economic growth*. Cheltenham: Edward Elgar

Central Bank of Nigeria. (2005). *Statistical bulletin.* Abuja: Central Bank of Nigeria.

Central Bank of Nigeria. (2010). *Statistical bulletin.* Abuja: Central Bank of Nigeria

Central Bank of Nigeria (2019). The 2018 annual report of the national financial Inclusion Strategy. Abuja: Central Bank of Nigeria

Central Bank of Nigeria (2020). Financial inclusion newsletter Q2 2019. Abuja: Central Bank of Nigeria

Chamani, M.H.J., Kulathunga, K.M.M., & Amarawansha, T.G.A. (2017). Financial accessibility of women entrepreneurs (with special reference to western province women entrepreneurs). *International Journal of Scientific and Research Publications*, 7(11), 203-2017

Chatterjee, N., Das, N., & Srivastava, N. K. (2018). A structural model assessing key factors affecting women's entrepreneurial success. *Journal of Entrepreneurship in Emerging Economies*, 11(1), 122-151

Chebet, C.C. (2013). Effects of access to financial credit on the growth of women owned small retail enterprises in Uasin Gishu County: A case of Kapseret Constituency. A research project submitted the university of Nairobi, Kenya

Cheluget, D.C., Morogo, V.J., & Chelimo, K.K. (2015). Accessibility of financial credit and the growth of women owned small retail enterprises in Uasin Gishu County. *European Journal of Business and Management*, 7(18), 233-242

Chinonye, M.L., Iyiola, O.O., Akinbode, M.O., Obigbemi, I.A., & Eke, O.P. (2015). Women entrepreneurship in Nigeria: Policy framework, challenges and remedies. *Kasemera*, 43(2), 1-21

Chowdhury, M.J.A., Amin, S., & Farah, T. (2016). Access to microcredit and women's entrepreneurship: Evidence from Bangladesh. Partnership for Economic Policy working paper 2016-13

Chowdhury, T.Y., Yeasmin, A., & Ahmed, Z. (2018). Perception of women entrepreneurs to accessing bank credit. *Journal of Global Entrepreneurship Research*, 8(32), 1-16

Cole, S., Thomas, S., & Bilal, Z. (2011). Prices or knowledge? What drives demand for financial services in emerging markets? *The Journal of Finance* 66(6), 1844-67.

Creswell, J.W. (2014). *Research design: Qualitative, quantitative and mixed methods approach* (4th ed.). California: Sage Publications Inc.

Cronbach, L.J., & Shavelson, R.J. (2004). My current thoughts on coefficient alpha and successor procedures. *Educational and Psychological Measurement*, 64, 391-418.

Darroch, T. & Clover, C. (2005). The effects of entrepreneurial quality on the success of small, medium and micro agribusinesses in Kwazulu-natal, South Africa. *Agrekon*, 44(3), 321 343

Davidsson, P., Recker, J. & von Briel, F. (2018). Characteristics, roles and mechanisms of external enablers in new venture creation processes: a framework. *Academic Management Annual Meeting Proceeding*, 8, 1–6.

Diaka, H.S., & Asenge, E. L. (2019). Effect of microfinance banks on the performance of selected women-owned enterprises in Makurdi metropolis, Benue State, Nigeria. *The International Journal of Business Management and Technology*, 3(1), 39-46

Edo, S., & Ikelegbe, A. (2014). The Nigerian economy reforms, emerging trends and prospects. Centre for Population and Environmental Development (CPED) Monograph Series No. 8

Ekpenyong, D.B. (2002). Performance of small scale enterprises in Nigeria during the structural adjustment programme implementation: Survey findings. *Journal of Financial Management and Analysis*, 15, 38-50

Enterprise Survey (2014). World Bank Enterprise survey for Nigeria. Retrieved from: https://www.enterprisesurveys.org

Erasmus, B., Kloppers, S. & Strydom, J. (2013). *Introduction to business management (9th ed).* Cape Town: Oxford University Press Southern Africa

Etim, E.S., & Iwu, C.G. (2019). Factor analysis of the constraints that female entrepreneurs face in South East of Nigeria. *AUDOE*, 15(4), 259-285

Federal Republic of Nigeria (1999). Constitution of Nigeria 1999. Abuja: Federal Republic of Nigeria.

Felzmann, H. (2013). Ethical issues in Internet research: International good practice and Irish research ethics documents. Retrieved from https://research-publishing.net/publication/chapters/978-1-908416-08-7/Felzmann_80.pdf. Accessed date: 12 February, 2021

Galindo, M., Guzman, J. & Ribeiro, D. (2009). *Entrepreneurship and business: A regional perspective*. Heidelberg: Springer.

George T.O., Olokoyo F.O., Osabuohien E.S., Efobi U., Beecroft, I. (2015). Women's access to land and economic empowerment in selected Nigerian communities. In: Andrews N., Khalema N., Assié-Lumumba N. (eds) Millennium Development Goals (MDGs) in Retrospect. Social Indicators Research Series, 58. Springer, Cham. https://doi.org/10.1007/978-3-319-16166-2_4

Global Entrepreneurship Monitor (2015). Global entrepreneurship monitor: 2015 report on women and entrepreneurship, Babson College, Wellesley, MA.

Global Partnership for Financial Inclusion (2011). Strengthening access to finance for women-owned SMEs in developing countries. International Finance Corporation. Washington, DC.

Giang, M.H., Xuan, T.D., Trung, B.H., Que, M.T., & Yoshida, Y. (2018). Impact of investment climate on total factor productivity of manufacturing firms in Vietnam. *Sustainability*, 10, 48-56.

Hebert, R., Link, A. & Nagarajan, K. (2011). A history of entrepreneurship. *International Journal of Business and Social Science*, 2(9), 241-242

Heckman, J. J. (1979). Sample selection bias as specification error. *Econometrica*, 47(1), 153 161.

Hofstede, G. (1980). *Culture's consequences: International differences in work-related values*. London: Sage.

Igbanugo, I.C., Uzonwanne, M.C. & Ezenekwe, R.U. (2016). Small and medium scale enterprises in African setting: The place of women. International Journal of Economics, Commerce and Management 4 (3), 762-778

Isshaq, Z., & Bokpin, G.A. (2017). Access to finance and firm productivity in the presence of binding fiscal constraints. SSRN Electron

Itonga, L., Waweru, G., & Huka, G.S. (2016). Implications of credit access and financial performance of women owned micro and small enterprises in Imenti North sub-county, Kenya. *International Journal of Economics, Commerce and Management*, IV(11), 583-597

Iyiola, D. & Azuh. 2014. Women entrepreneurs as small medium enterprise (SME) operators and their roles in socio-economic development in Ota, Nigeria. *International Journal of Economics, Business and Finance*, 2(1), 1-10.

Jiang, J., Zhang, H., & Jia, J. (2015). Research of consumer privacy concerns and behavioral targeting advertising (OBA) under big data background. *Management World*, 8, 182-183.

Kabukuru, A., & Afande, F.O. (2016). Analysis of challenges faced by women entrepreneurs in accessing finance in Kenya (A case of beauty sector in Nairobi central business district). *Journal of Poverty, Investment and Development*, 24, 8-26

Kamunyu, C.W., & Theuri, F.S. (2017). Factors affecting growth of women owned small and medium enterprises in Kenya: A survey of women-led SMEs in South Coast Ukunda. *IOSR Journal of Business and Management*, 19(3), 60-66

Karanja, J.G., Mwangi, A.K., & Nyakarimi, S.N. (2014). Analysis of factors influencing access to credit services by women entrepreneurs in Kenya. *Research Journal of Finance and Accounting*, 5(11), 34-41

Keke, O.V. (2015). An analysis of the conceptual issues affecting land ownership/inheritance among the people of Ogbe autonomous community in Ahiazu Mbaise of Imo State. *British Journal of Environmental Sciences*, 3(4), 20-26

Khalequ, A. (2018). Performance of women entrepreneurs: Does access to finance really matter? *Eurasian Journal of Business and Economics*, 11(21), 23-48.

Kihlstrom, R. E., & Laffont, J. J. (1979). A general equilibrium entrepreneurial theory of firm formation based on risk aversion. *Journal of Political Economy*, 87, 719–49.

Kimanzi, Y.K. (2016). Influence of micro finance services on growth of women owned enterprises in Kitui central Sub County. A Master's Thesis Submitted to South Eastern Kenya University, Kenya.

Kirzner, I.M. (1973). *Competition and entrepreneurship*. Chicago, IL: University of Chicago

Kothari, C.R. (2004). *Research methodology: Methods and techniques* (2nd ed), New Delhi: New Age International Publishers

Lankau, M.J., Riordan, C.M., & Thomas, C.H. (2005). The effects of similarity and liking in formal relationships between mentors and protégés. *Journal of Vocational Behaviour*, 67(2), 252-265.

Levine, R. (2005). Finance and growth: Theory and evidence. In P. Aghion & S. Durlauf (Eds.), *Handbook of economic growth*, Vol. 1, part A. Elsevier Science: The Netherlands

Lucas, R. E. (1978). On the size distribution of business firms. *Bell Journal of Economics*, 9, 508-23.

Lundstrom, A., & Stevenson, L., A. (2005). *Entrepreneurship policy: Theory and practice*. New York, NY: Kluwer Academic Publishers.

Lyons, A. C., Grable, J. E. & Zeng. T, (2019). Impacts of financial literacy on the loan decisions of financially excluded households in the People's Republic of China. ADBI Working Paper 923

Maddala, G. S. (1986). Disequilibrium, self-selection, and switching models. In Z. Griliches and M. Intriligator (eds). *Handbook of Econometrics*, New York: Elsevier Science Publishers BV.

Malhan, A. & Ishita, M. (2015). Difficulties and challenges face by women entrepreneur in Gurgaon. *International Journal of Management and Commerce Innovation*, 2(2), 637-640,

Mamun, A.A. (2016). Access to credit, education and entrepreneurial competencies: A study among women micro-entrepreneurs in Malaysia. *Vision: The Journal of Business Perspective*, 20(3), 159-168.

Maurya, P., & Mohanty, P.C. (2019). What restricts credit to women enterprises? Evidence from India's informal sector. *International Journal of Social Economics*, 46(7), 920-937

Mbai, E.M., & Maina, K.E. (2016). Factors affecting access of women enterprise funds by women groups in Nakuru west sub-county, Kenya. *International Journal of Economics, Commerce and Management*, IV(10), 769-788

McConney, A., Rudd, A., & Ayers, R. (2002). Getting to the bottom line: A method for synthesizing findings within mixed-method program evaluations. *American Journal of Evaluation*, 23(2), 121-140.

Meghabber, F.Z. (2015). Reduce costs in the modern manufacturing environment: Case study with implementation of target costing and constraint method. *European Scientific Journal*, 16, 134-142.

Ministry of Industry, Trade, and Investment. (2014). The national enterprise development program. Abuja: Ministry of Industry, Trade, and Investment.

Minniti, M. & Naude, W. (2010). What do we know about the patterns and determinants of female entrepreneurship across countries? *European Journal of Development Research*, 22(1), 277-293.

Mmasa, J.J. (2017). Determinants of smallholder women farmers access to informal credit in Tanzania – A case of Singida and Chamwino Districts. *International Journal of Economics and Business Management*, 3(2), 78-95

Mordi, C. and Mmieh, F (2009). Divided Labour and divided in-firm markets in the Nigerian Petroleum sector. Proceedings of the 10th International Academy of African Business and Development

Mordi, C., Simpson, R., Singh, S., & Okafor, C. (2010). The role of cultural values in understanding the challenges faced by female entrepreneurs in Nigeria. *Gender in Management*, 25(1), 5-21

Mordi, C., Adedoyin, H., & Ajonbadi, H. (2011). Impediments to women career advancement: The Nigerian experience. *Petroleum-Gas University of Ploiesti Bulletin, Economic Science Series*, LXIII(2), 11-22.

Munny, K.N., & Weiyu, Z. (2011). The role of micro-credit for women entrepreneurs: The case of Bangladesh. Thesis submitted to University of Gavle, Sweden

National Bureau of Staistics (2018). Annual handbook of statistics. Abuja: NBS

National Bureau of Staistics (2021). Labor force statistics: Unemployment and underemployment Report (Q4 2020). Abuja: NBS

National Planning Commission (2004). Meeting everyone's needs: National economic empowerment and development strategy. Garki, ABJ: Nigerian National Planning Commission.

Ng, K.S., & Fu, P.P. (2018). Factors driving foreign women entrepreneurship in China. *Entrepreneurial Business and Economics Review*, 6(4), 49-69.

Nieuwenhuizen, C. & Kroon, J. (2003). The relationship between financing criteria and the successfactors of entrepreneurs in small and medium enterprises. *Development Southern Africa*, 20(1), 129-142.

Noguera, M., Alvarez, C., & Urbano, D. (2013). Socio-cultural factors and female entrepreneurship. *International Entrepreneurship and Management Journal*, 9(2), 183–197

Norwegian National Research Ethics Committees (2014). General guidelines for research ethics. Retrieved from https://www.etikkom.no/globalassets/general-guidelines.pdf Accessed date: 12 February, 2021.

Norwegian National Research Ethics Committees (2016). Guidelines for research ethics in the social sciences, humanities, law and theology. Retrieved from https://www.etikkom.no/globalassets/documents/english-publications/60127_fek_guidelines_nesh_digital_corr.pdf Accessed date: 12 February, 2021

Nunda, D.O., Makokha, E.M., & Namusonge, G.S. (2016). Determinants of effective women entrepreneurship in Kenya: A survey of Trans-Nzoia county. *European Journal of Business and Management*, 8(30), 174-182

Nsengimana, S. (2017). Challenges to women entrepreneurship in Kigali, Rwanda. Thesis submitted to the Faculty of Business and Management Sciences, Cape Peninsula University of Technology, South Africa.

Nwosu, E.O., Orji, A., Nnetu, V., & Nwangwu, C. (2015). Is there discrimination against women entrepreneurs in formal credit markets in Nigeria? PEP Working Paper 2014-08

Nwosu, E.O., & Orji, A. (2016). Access to formal credit and enterprise performance in Nigeria: A gender perspective. *Argumenta Oeconomica*, 1(36), 192-224

Nwosu, E.O., & Orji, A. (2017). Addressing poverty and gender inequality through access to formal credit and enhanced enterprise performance in Nigeria: An empirical investigation. *African Development Review*, 29(S1), 56–72

Obisesan, O.O., & Olayide, O.E. (2020). Asymmetric information, business environment, and transactions costs among business owners in Nigeria: Implications for female entrepreneurial sustainability transitions. *Business Transition and Development*, 4(1), 34-40

Ogunjemilua, A.A & Familugba, J.O. (2015). The contributions of Nigeria women towards National development. *International Journal for Innovation Education and Research*, 3(5), 91-95

Ogunade, A.O. (2019). Factors influencing entrepreneurship development in Nigeria: The role of learning. A Thesis Submitted to the Faculty of Graduate Studies and Research, Regina, Saskatchewan, Canada.

Ogunleye, T.S. (2017). Financial inclusion and the role of women in Nigeria. *African Development Review*, 29(2), 249-258

Ogwumike F. O. (1995). The effect of Micro level government policies in rural development and poverty alleviation in Nigeria. Social Science Journal, University of Ibadan, 3(11), 1-11

Ohia, N.C., & Nzewi, U.M. (2016). Socio-cultural challenges of women development: The case of female academics in Igbo land, Nigeria. *Mediterranean Journal of Social Sciences*, 7(1), 269-278

Oliyide, O. (2012). Law, credit risk management and Bank lending to SMEs in Nigeria. *Commonwealth Law Bulletin*, 38(4), 673-695.

Orodje, G. (2012). Microfinance in Nigeria two years after CBN's intervention. Microfinance Africa Publications, available at: http://microfinanceafrica.net/editors-views/microfinance-in-nigeria-two-years-after-cbns-intervention/

Ouma, C.O., & Rambo, C.M. (2013). The impact of microcredit on women-owned small and medium enterprises: Evidence from Kenya. *Global Journal of Business Research,* 7(5), 57-69

Ovie, R.A (2011). The relevance of STM education in the development of entrepreneurial skills and women employment. *In Academic Scholarship Journal,* 3 (1), 179-211

Panda, S. (2014). Constraints faced by entrepreneurs in developing countries: a review and assessment. *World Review of Entrepreneurship Management and Sustainable Development*, 10(4), 405-421

Pinazo-Dallenbach, P. & Castelló-Sirvent, F. (2021). The effect of insecurity and corruption on opportunity-driven entrepreneurship in Mexico: an fsQCA analysis. *Academia Revista Latinoamericana de Administración*, 4(1), 105-121.

Poon, J. P. H., Thai, D. T., & Naybor, D. (2012). Social capital and female entrepreneurship in rural regions: Evidence from Vietnam. *Applied Geography*, 35(1-2), 308-315.

PwC (2020). PwC's MSME survey 2020: Building to last, Nigeria's report. Accessed from https://www.pwc.com/ng/en/assets/pdf/pwc-msme-survey-2020-final.pdf. Accessed date: 10 March, 2021

Quartey, P., Danquah, M., Owusu, G., & Iddrisu, A.M. (2018). Unmasking the contributing factors of entrepreneurial activities among men and women in Ghana. *Journal of Economic Studies*, 45(1), 114-125.

Roy, S., Tripathy, P., & Tripathy, P.K. (2017). Assessment of factors affecting the performance of women entrepreneurs in MSE in Polosara District of Ganjam, Odisha. *British Journal of Economics, Management & Trade*, 17(3), 1-11

Rwigema, H., Urban, B. & Venter, R. (2008). *Entrepreneurship: Theory in practice (2nd ed).* Cape Town: Oxford University Press Southern Africa.

Sanusi, J.O (2003). Overview of government's efforts in the development of SMEs and the emergence of small and medium industries equity investment scheme (SMIEIS). Paper Presented at the National Summit on SMIEIS Organized by the Bankers' Committee and Lagos Chambers of Commerce and Industry (LCCI), Lagos

Satpal, Rathee, R., & Rajain, P. (2016). Drivers and barriers of women entrepreneurship in the state of Haryana. *International Journal of Science Technology and Management*, 5(3), 137-146

Schneider, B., Carnoy, M., Kilpatrick, J., Schmidt, W.H., & Shavelson, R. J. (2007). *Estimating causal effects using experimental and observational designs: A think tank white paper*. Washington, D.C. American Educational Research Association.

Schumpeter, J.A. (1934). The theory of economic development. Cambridge, MA: Harvard University Press

Seck, A., Araar, A., Camara, K., Diallo, F.L., Diop, N.K., & Fall, F.A (2020). Female entrepreneurship, access to credit, and firms' productivity in Senegal. *Journal of African Business*. Accessed from 10.1080/15228916.2020.1826859. Accessed 14 March, 2021

Sena, V., Scott, J., & Roper, S. (2012). Gender, borrowing patterns and self-employment: Some evidence for England. *Small Business Economics*, 38, 467-480.

Séraphin H., Butler C., & Gowreesunkar, G. B. (2013). Entrepreneurship in the tourism sector: A comparative approach of Haiti, Mauritius and Coastal Kenya. *Journal of Hospitality and Tourism*, 11 (2), 72-92.

Shoma, C. D. (2019). Financing female entrepreneurs in cottage, micro, small, and medium enterprises: Evidence from the financial sector in Bangladesh 2010–2018. *Asia & the Pacific Policy Studies*. Accessed from doi:10.1002/app5.286. Accessed 14 March, 2021

Sundarsan, P.K (2007). Evaluating effectiveness of advertising on sales: A study using firm level data. *The IUP Journal of Managerial Economics*, V(1), 54-62

Strier, R. (2010). Women, poverty, and the microenterprise: Context and discourse. Gender, Work & Organization, 17(2), 195-218.

Tashakkori, A. & Teddlie, C. (1998). *Mixed methodology: Combining qualitative and quantitative approaches*. Thousand Oaks, CA: Sage Publications.

Thompson, B. (2003). *Score reliability: Contemporary thinking on reliability issues.* Thousand Oaks, CA: Sage.

Tian, X. L. (2016). Participation in export and Chinese firms' capacity utilization. *The Journal of International Trade & Economic Development*, 25(5), 757–784

Udefuna, P.N., & Uzodinma, E.E. (2017). Entrepreneurship development in Nigeria: Issues for policy and legislative attention. *Specialty Journal of Politics and Law*, 2 (4), 33-44

United Nations Population Fund (2019). *World population dashboard*. New York: UNPF

Usman, M.F., & Kamba, M.K. (2019). Determinants of access to entrepreneurial credit: Examining women entrepreneurs in Sokoto State, Nigeria. *European Journal of Business and Management*, 11(8), 95-100

Whitehead, A., & Tsikata, D. (2003). Policy discourses on women's land rights in Sub-Saharan Africa: The implications of the re–turn to the customary. *Journal of Agrarian Change*, 3, 67–112.

WIMBIZ (2014). Wimbiz findings on female representation on boards and top management of
financial institutions in Nigeria. Retrieved from http://wimbiz.org/publication/Due%20Diligence%20Analysis%20for%20Financial%20Institutions%20in%20Nigeria%2012-August%202014.pdf

Woodridge, J. M. (2011). Econometric methods for fractional response variables. *Econometrics* 68 (1), 39-57.

Xue, Y. (2018). The role of the entrepreneurial-oriented university in stimulating women entrepreneurship. Maters Thesis Submitted to the University of Twente, Netherlands

Small & Medium Enterprises Development Agency of Nigeria (2017). national survey of micro small & medium enterprises (MSMES) 2017. Accessed from http://smedan.gov.ng/images/NATIONAL%20SURVEY%20OF%20MICRO%20SMALL%20&%20MEDIUM%20ENTERPRISES%20(MSMES),%20%202017%201.pdf. Accessed date: 10 March, 2021

Zakaria, Y. (2001). Entrepreneurs at home: secluded Muslim women and hidden economic activities in Northern Nigeria. *Nordic Journal of African Studies*, 10(1), 107-123.

APPENDIX 1

The Derivation of Models for Research Questions One and Two

In this appendix, the models that would be estimated using micro econometric procedures are methodically developed. The specification of models follows the research questions in a manner that allows for test of research hypotheses.

A.1 Drivers of Female Entrepreneurship

To ascertain the key drivers of female entrepreneurship, the study adopts random utility model. Suppose a woman j ($j=1, 2,\ldots,J$) could choose between occupational alternatives defined by i such that $i=E$ and $i=O$ for entreprenurship and "other occupations" respectively. Suppose the vector of individual attributes is indicated as X_j. Then, a woman j who is an entrepreneur derives utility

$$V_{je} = V(X_{je}; E) + \varepsilon_{ji} \qquad \text{A.1}$$

Otherwise (i.e if she is not an entrepreneur), she derives utility,

$$V_{jo} = V(X_{jo}; O) + \varepsilon_{jo} \qquad \text{A.2}$$

Where $V(.;.)$ and $\varepsilon_{j..}$ are the deterministic and random utility respectively.

Thus, the woman j takes the decision to be an entrepreneur by comparing $V_{je}\ and\ V_{jo}$. Given that the uitility derivable from each occupational choice is not observable, then an entrepreneur is expected to look at the outcome (s_j) of the comparison between the two choice sets:

$$S_j^* = V(X_{je}; E) - V(X_{jo}; O) - (\varepsilon_{je} + \varepsilon_{jo}) \qquad \text{A.3}$$

Suppose $V(X_i, i) = X_j\Gamma_j$ such that $V(.;.)$ is a linear function and Γ_j represents parameter vectors. If it is also further assumed that the first column of X_j contains only ones and $E(\varepsilon_{je}) = 0\ and\ E(\varepsilon_{jo}) = 0$, then,

$$S_j^* = X_j\Gamma_j + v_j \qquad \text{A.4}$$

Where

$\Gamma_j = \Gamma_E - \Gamma_O$ and $v_j = \varepsilon_{je} - \varepsilon_{jo}$

Woman j is expeceted to choose entrepreneurship if and only if $S_j^* > 0$, otherwise she would choose "other occupations". In other words, the observable outcome variable, S_j, which is a binary variable takes the values expressed as follows:

$$S_j = \begin{cases} 0 & if\ S_j^* > 0 \\ 1 & if\ S_j^* \leq 0 \end{cases} \qquad \text{A.5}$$

Thus, the probability that a woman with individual attributes X_j chooses to be an entrepreneur is given as:

$$\begin{aligned} pro(S_j = 1|X_j) &= prob(S_j z_i^* > 0 \big| X_j) \\ &= prob(X_j\Gamma \ + v_j > 0 \\ &= prob(-v_i < X_j\Gamma \ ) \\ &= F(X_j\Gamma \ ) \end{aligned} \qquad \text{A.6}$$

With the assumption of a density symmetric around 0, the mapping rule, F, in Equation A.6 denotes the cummulative distribution of v_i. Suppose the cummulative distribution is a logistic distribution (rather than standard normal), then the likelihood function is expressed as:

$$L = \prod_{S=0}[F(-\sum X_{j,}\ \Gamma)] \prod_{S=1}[1 - F(-\sum X_{j,}\ )] \qquad \text{A.7}$$

And the log likelihood function would be:

$$l = (\Gamma) = \text{logL}(\Gamma) = \sum_{j=0}^{n} S_j \text{log}\ (1 - F(-\sum X_{j,}\ \Gamma)] \prod_{S=1}[1 - F(-\sum X_{j,}\ ;\Gamma)) +$$
$$\big(1 - X_j\big) logF(-\sum X_j\Gamma \qquad \text{A.8}$$

Given that Equation A.6 follows logistic cummulative distribution function, then the relevant logistic regression model to be estimated is:

$$prob(S = 1) = \frac{e^{\sum X_{j,}\ \Gamma)}}{1 + e^{\sum X_{j,}\ \Gamma)}} \qquad \text{A.9}$$

A.2 **Determinants of Access to Credit by Female-Owned Enterprises**

Suppose the response variable for access to credit is ATC such that:

$$ATC = \begin{cases} 1 = firm\ has\ access\ to\ credit \\ 0 = firm\ does\ not\ have\ access\ to\ credit \end{cases} \quad \text{A.10}$$

Then, the regression equation for determinants of access to credit by female-owned enterprises is specified as:

$$ATC^* = \sum Z_j' \Omega + \varepsilon_j \quad \text{A.11}$$

ATC^* in Equation 3.2 is unobservable being a latent variable. However, ATC is observable. But given that:

$$ATC = \begin{cases} 1\ if\ ATC^* > 0 \\ 0\ if\ ATC^* \leq 0 \end{cases} \quad \text{A.12}$$

Then,

$$prob(ATC_j = 1) = prob(\varepsilon_j > -\sum Z_j' \Omega)$$

$$= 1 - F(-\sum Z_j' \Omega) \quad \text{A.13}$$

And

$$prob(ATC_j = 0 | \Omega, Z_j) = F(-\sum Z_{j,}' \Omega) \quad \text{A.14}$$

'*F*' in Equation A.12 and A.13 is the cummulative distribution function for ε_j. Also, observed values of ATC which varies with Z_j are the realisation of the binomial with probabilities. In addition, the likelihood and log likelihood functions are expressed as:

$$L = \prod_{ATC=0}[F(-\sum Z_{j,}' \Omega)] \prod_{ATC=1}[1 - F(-\sum Z_{j,}')] \quad \text{A.15}$$

$$l = (\Omega) = \text{logL}(\Omega) = \sum_{j=0}^{n} ATC_j \log\,(1 - F(-\sum Z_{j,}' \Omega)] \prod_{ATC=1}[1 - F(-\sum Z_{j,}'; \Omega)) + (1 - A_j) logF(-\sum Z_j \Omega$$

A.16

Now suppose ε_j in Equation A.11 follows logistic cummulative distribution function, then the relevant logistic function to be estimated is

$$prob(ATC = 1) = \frac{e^{\Sigma z'_{j,}\Omega)}}{1+e^{\Sigma z'_{j,}\Omega)}} \quad \text{A.17}$$

Where Ω is the vectors of parameters to be estimated which capture the impact of changes in Z on the probability that a female-owned firm has access to finance.

APPENDIX 2

Drivers of entrepreneurship

Dependent Variable: FEMALE_ENTREPRENEUR
Method: ML - Binary Logit (BHHH)
Date: 04/12/21 Time: 18:58
Sample: 1 776
Included observations: 776
Convergence achieved after 10 iterations
Covariance matrix computed using second derivatives

Variable	Coefficient	Std. Error	z-Statistic	Prob.
EDU_PRIMARY	0.108976	0.021700	5.021935	0.0000
EDU_SECONDARY	0.892389	0.294800	3.027100	0.0025
EDU_TERTIARY	0.008902	0.002000	4.451000	0.0000
ACCESS_LAND	0.690107	0.080660	8.555753	0.0000
MENTORSHIP	0.271948	0.042700	6.368806	0.0000
REGION_SOUTH	0.813494	0.093000	8.747247	0.0000
REGION_NORTH	0.227027	0.026210	8.661847	0.0000
INFRAS	-0.339556	0.089200	3.806682	0.0002
BUSINESS_REG	-0.018836	0.003600	5.232222	0.0000
TRADE_REGU	-0.317231	0.034200	9.275760	0.0000
GOV_SUPPORT	0.024059	0.042700	0.563443	0.5851
CRIME_AND_THEFT	0.006238	0.011400	0.547193	0.5964
TAX_ADMIN	-0.249457	0.203000	1.228852	0.2211
ACCESS_FINANCE	0.100635	0.048500	2.074948	0.0377
ECONOMIC_OUTLOOK	0.011147	0.002500	4.458800	0.0000
POLITICAL_INSTABILITY	-0.018695	0.004100	4.559756	0.0000
INSECURITY	-0.832594	0.092700	8.981597	0.0000
C	1.625748	0.435173	3.735862	0.0002

McFadden R-squared	0.663867	Mean dependent var	0.586345
S.D. dependent var	0.492818	S.E. of regression	0.274208
Akaike info criterion	0.580474	Sum squared resid	55.71562
Schwarz criterion	0.617551	Log likelihood	-210.8071
Hannan-Quinn criter.	0.594763	Deviance	421.6142
Restr. deviance	1013.173	Restr. log likelihood	-506.5864
LR statistic	591.5585	Avg. log likelihood	-0.282205
Prob(LR statistic)	0.000000		

Obs with Dep=0	223	Total obs	776
Obs with Dep=1	553		

Determinants of credit access

Dependent Variable: ACCESS_CREDIT
Method: ML - Binary Logit (BHHH)
Date: 04/12/21 Time: 12:08
Sample: 1 553
Included observations: 553
Convergence achieved after 14 iterations
Covariance matrix computed using second derivatives

Variable	Coefficient	Std. Error	z-Statistic	Prob.
LOG_FIRMSIZE	0.024959	0.028134	0.887147	0.3816
FIXED_ASSET	0.615182	0.093400	6.586531	0.0000
FINANCIAL_STATE	0.601233	0.246210	2.441952	0.0145
SALES-GROWTH	0.039951	0.050374	0.793088	0.4359
COLLATERAL_SECURITY	-0.563583	0.064280	8.767626	0.0000
HIGH_INTEREST	-0.707595	0.193390	3.658902	0.0003
ACCESS_LAND	0.478210	0.111150	4.302384	0.0000
FINANCIAL_CONSTRAINT	0.200467	0.033330	6.014611	0.0000
MEMBERSHIP_ASSOC	0.019265	0.002470	7.799595	0.0000
LOAN_ADMIN	-0.801170	0.230180	3.480624	0.0005
LOG_FIRM_AGE	-0.008727	0.004330	2.015473	0.0435
INSUFFICIENT_LOANSIZE	0.099614	0.025260	3.943547	0.0001
POLITICAL INSTABILITY	-0.009523	0.016120	0.590757	0.5662
INSECURITY	-0.744208	0.129300	5.755669	0.0000
FINANCIAL_LITERACY	0.959759	0.140817	6.815647	0.0000
C	-0.70948	0.673278	1.053765	0.2960

McFadden R-squared	0.748609	Mean dependent var	0.345654
S.D. dependent var	0.228710	S.E. of regression	0.210920
Akaike info criterion	0.551975	Sum squared resid	51.89756
Schwarz criterion	0.481931	Log likelihood	-289.0089
Hannan-Quinn criter.	0.816735	Deviance	402.8965
Restr. Deviance	1990.001	Restr. log likelihood	-601.7823
LR statistic	206.8185	Avg. log likelihood	-0.309278
Prob(LR statistic)	0.000000		

Obs with Dep=0	450	Total obs	553
Obs with Dep=1	103		

IMPACT OF ACCESS TO CREDIT ON FIRM PERFORMANCE

Dependent Variable: CAPACITY_UTILIZATION
Method: ML - Binary Logit (BHHH)
Date: 04/15/21 Time: 03:08
Sample: 1 553
Included observations: 553
Convergence achieved after 12 iterations
Covariance matrix computed using second derivatives

Variable	Coefficient	Std. Error	z-Statistic	Prob.
ACCESS_CREDIT	0.620063	0.048100	12.89112	0.0000
LOG_LOAN	0.517104	0.022900	22.58096	0.0000
FINANCIAL_STATE	0.346941	0.180900	1.917861	0.0547
INSECURITY	-0.107194	0.008200	13.07244	0.0000
FIN_CONSTRAINT	-0.822770	0.110100	7.472934	0.0000
R_AND_D	0.446526	0.246200	1.813672	0.0693
COLLATERAL_SECURITY	-0.185271	0.398400	0.465038	0.6548
LOG_FIRM_DURATION	0.022621	0.004400	5.141136	0.0000
ACCESS_CREDIT_LOAN_AMOUNT	0.102099	0.027800	3.672626	0.0003
POLITICAL_INSTABILITY	-0.319930	0.032100	9.966667	0.0000
ACCESS_CREDIT_FINANCIAL_STATE	0.203320	0.024400	8.332787	0.0000
ACCESS_CREDIT_SMALL_FIRM	0.843600	0.115900	7.278689	0.0000
ACCESS_CREDIT_MEDIUM_FIRM	0.226210	0.043800	5.164612	0.0000
ACCESS_CREDIT_LARGE_FIRMS	0.018580	0.002600	7.146154	0.0000
C	1.003656	0.478273	2.098501	0.0356

McFadden R-squared	0.708016	Mean dependent var	0.228976
S.D. dependent var	0.302354	S.E. of regression	0.280786
Akaike info criterion	0.518976	Sum squared resid	52.90876
Schwarz criterion	0.580124	Log likelihood	-236.0897
Hannan-Quinn criter.	0.656243	Deviance	430.0945
Restr. Deviance	1007.987	Restr. log likelihood	-667.0099
LR statistic	489.3090	Avg. log likelihood	-0.320897
Prob(LR statistic)	0.000000		

Obs with Dep=0	228	Total obs	553
Obs with Dep=1	325		

Dependent Variable: SALES_GROWTH
Method: ML - Binary Logit (BHHH)
Date: 04/15/21 Time: 03:45
Sample: 1 553
Included observations: 553
Convergence achieved after 9 iterations
Covariance matrix computed using second derivatives

Variable	Coefficient	Std. Error	z-Statistic	Prob.
ACCESS_CREDIT	0.867623	0.108300	8.011293	0.0000
LOG_LOAN	0.986540	0.270000	3.653852	0.0003
FINANCIAL_STATE	-0.009375	0.001600	5.859375	0.0000
INSECURITY	-0.015118	0.051100	0.295851	0.7799
FIN_CONSTRAINT	-0.017104	0.002900	5.897931	0.0000
R_AND_D	0.370900	0.050400	7.359127	0.0000
COLLATERAL_SECURITY	0.932300	0.092500	10.078919	0.0000
LOG_FIRM_DURATION	0.932300	0.092500	10.078919	0.0000
ACCESS_CREDIT_LOAN_AMOUNT	0.973148	0.034000	28.622000	0.0000
POLITICAL_INSTABILITY	0.728700	0.986200	0.738897	0.4691
ACCESS_CREDIT_FINANCIAL_STATE	0.378047	1.060200	0.356581	0.7345
ACCESS_CREDIT_SMALL_FIRM	0.814600	0.209100	3.895744	0.0001
ACCESS_CREDIT_MEDIUM_FIRM	0.103557	0.031900	3.246301	0.0012
ACCESS_CREDIT_LARGE_FIRMS	0.026677	0.007900	3.376835	0.0008
C	-1.099289	0.028972	37.943152	0.0000

McFadden R-squared	0.553490	Mean dependent var	0.228976
S.D. dependent var	0.330897	S.E. of regression	0.308970
Akaike info criterion	0.680987	Sum squared resid	58.08976
Schwarz criterion	0.620987	Log likelihood	-290.8925
Hannan-Quinn criter.	0.700897	Deviance	422.8016
Restr. Deviance	1112.908	Restr. log likelihood	-690.7865
LR statistic	711.8067	Avg. log likelihood	-0.369076
Prob(LR statistic)	0.000000		

Obs with Dep=0	336	Total obs	553
Obs with Dep=1	216		