Dynamics of Entrepreneurship Growth in Africa: Analysis of Macro-Level Perspectives of Financial Development, Small Business Performance, and Institutional Climate.

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Copyright Statement

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Abstract

Entrepreneurship in recent years has become very important to economic growth, especially for developing countries, mainly due to the broadness of entrepreneurship. This has led to increased enquiries on the relationship between entrepreneurship and economic growth. Moreover, the underperformance of the economies of most developing countries, including those of Africa, has increased the need for an alternative form of industrial development for economic performance. Only now does entrepreneurship literature focus mainly on developed countries, and very little is known about what drives entrepreneurship in developing countries (Autio, 2008; Bruton et al., 2008).

This study examines the relationship between financial development, entrepreneurship, and the role of institutions in 22 Sub-Saharan African countries that are signatories to the African Continental Free Trade Area (AfCFTA). The main objective is understanding how entrepreneurship development contributes to socioeconomic activities, job creation, poverty eradication, and improved living standards. Data was collected from the World Bank Governance Indicator, World Bank Entrepreneurship dataset, World Bank Global Financial Development data, Systemic Peace, Heritage Foundation, and World Bank Enterprise Survey. The study utilises various theoretical and empirical concepts and econometric analysis to obtain more robust knowledge of this relationship.

The study results find evidence that financial development positively impacts entrepreneurship of self-employment and newly registered businesses. The study results demonstrate that enhancing financial development is significant and positively impacts firm performance. This also has policy implications for policymakers. Lastly, the study finds evidence of the grease-the-wheel hypothesis in the studied countries. The study results also demonstrated that a reduced form of corruption speeds up entrepreneurial activities but becomes an obstacle to entrepreneurship when it becomes endemic.

The study proposes recommendations for improved policies around re-orientating business policies to drive specific developmental goals. Policymakers should pursue prioritised policies where the survival of small businesses would be most important. Policies that monitor and

promote financial sector activities of accessing information credits will help vitalise entrepreneurship.

Keywords: Entrepreneurship, Financial development, Firm Performance, Institutional climate, resilience, Corruption

Table of Contents

List of Tables

List of Figures

List of Acronyms and Abbreviations

2SLS	Two Stage Least Square
AFCFTA	African Continental Free Trade Area
AU	African Union
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GEM	Global Entrepreneurship Monitor
GFD	Global Financial Development
GMM	Generalised Methods of Moment (GMM)
IFC	International Financial Corporation
ILO	Internation Labor Organization
IWA	International Water Association
LRM	Linear Regression Model
OECD	Organisation of Economic Co-operation and Development
OLS	Ordinary Least Square
QRM	Quantile Regression Model
SMEs	Small and Medium Enterprises
SSA	Sub-Sahara Africa
TEA	Total Entrepreneurial Activity
TFP	Total Factor Productivity
USD	United State Dollar
WB	World Bank
WBES	World Bank Enterprise Survey
WDI	World Bank Development Indicators
WEF	World Economic Forum

CHAPTER 1

Introduction

1.1 Chapter Overview

This introductory chapter highlights the background and the objectives of the study. The study's main aim is to analyse the macro-level and firm perspective of financial development, small business performance and the role of institutional climate in entrepreneurship development in Africa. Entrepreneurship in Africa is under-reported in entrepreneurship and economic literature. This chapter also presents the study's relevance and access to financial trends in the study countries. The chapter concludes with the presentation of the thesis's structure.

1.2 Introduction

Entrepreneurship development is seen as the new industrial revolution within the African continent because of its potential to create jobs and firm-level profit (George et al., 2016; DeGhetto et al., 2016). Entrepreneurship concept is broad and encompasses most sectors of the economy. Entrepreneurship's broadness and capacity have also been explored with the primary aim of social-economic development through a three-pronged approach. This approach synergises the development of the private sector, enhancement of the banking sector for economic performance and the strategic use of institutions to create a conducive business environment for the improvement of financial performance (Morris & Jones, 1999; George & Prabhu, 2003; Mullineux & Murinde, 2014). With an annual population growth rate of over 2.5% for the past two decades (World Bank, 2023), Sub-Saharan African countries (henceforth SSA) are faced with issues of increasing unemployment, especially for its younger population, hence the need for solutions and alternative pathways for job creation, eradication of poverty, and improved standard of living for the citizenry. High unemployment rate is directly associated with

insecurity and the noticed breakdown of social order, which is fast becoming a norm in most African countries (Kannappan, 1985; Enders & Hoover, 2012; Jawadi et al., 2021).

The consciousness to change the governance approach to unemployment, poverty reduction, income inequality, and poor firm performance has led to the renaissance of African industrialisation, with entrepreneurship development and inter-regional trade being the focal point (DeGhetto et al., 2016). African heads of state have undertaken various programs and initiatives to explore the potential of entrepreneurship within the region. Some of these programs are Afreximbank[1] (African Export-Import Bank), Agenda 2063 and the African Continental Free Trade Area[2] (AFCFTA), with the focus on improving ease of doing business, access to markets, and trade to develop the private sector, small and medium enterprises, and partnerships. Thus, developing entrepreneurial activities to create jobs (reduce unemployment), improve the standard of living and ease the poverty level of the citizenry. These programs, although different, were specifically designed for African countries (and their citizenry) to explore entrepreneurial opportunities that abound and use entrepreneurship (development) to create a more prosperous and integrated Africa, promote intra and inter-African trade, eliminate trade barriers for broad market access (African union commission, 2023; DeGhetto, Gray and Kiggundu, 2016). This thesis primarily investigates the impact of financial development and institutional quality on entrepreneurship. This is premised on the conditions that financial development and institutional quality improvement are critical for improving a robust private sector and entrepreneurial activities. This should lead to increased access to finance, improved firm performance, and economic growth.

The development of the financial sector should reflect the banking sector's efficiency, profitability, and stability to provide financial information and services to both small, medium,

[1] The Afreximbank (African Export-Import Bank was formed by African heads of state to facilitate intra-African trade between Africa and other parts of the world. It was created to foster integrated economic development within the African continent by promoting trade and investment. It also provides financial and trade services to its stakeholders and partners.

[2]African head of state formed the African Continental Free Trade Area (AfCFTA) to facilitate trade within Africa and promote the performance of the private sector. Apart from accelerating the free movement of trade and services, another primary focus of the AfCFTA is to support competitiveness and industrial revolution within the region.

and large firms (Becks, Demirguc-Kunt and Levine, 2010). Increased access to finance also signals a reduction in financial constraints, which is a perennial issue with entrepreneurship (Paulson and Townsend, 2004; Bewaji et al., 2015) but also signals improved investment either in consolidating start-up initiatives or in innovative and growth opportunities (Naeem and Ki, 2019). Improved access to finance and investment increases firm performance in return on sales, employment (numbers and growth rate), labour productivity and export intensity. The study used these forms of firm performances to highlight the numerous ways the relationship between developed access to finance and entrepreneurship could contribute to and increase alternatives for job creation, eradication of poverty, and improved standard of living for the citizenry. This is geared towards the tripod economic development approach of private sector development, financial sector, and legal institutions towards conducive ease of doing business, social cohesion, and sustainable economic growth and development.

Entrepreneurial activities can either be formal or informal entrepreneurship based on the legality of the enterprise and can also be classified as necessity or opportunity entrepreneurship based on the motive of the enterprise (Reynolds et al., 2002; Coffman & Sunny, 2021). Legality means firms are duly registered and recognised by government institutions and agencies. Necessity and opportunity entrepreneurship mainly classify entrepreneurship activities depending on the motivation and approach of the enterprise. With necessity entrepreneurship, the main motive is survival-oriented, usually starts small, and is the last resort to employment. In contrast, opportunity entrepreneurship is growth-oriented, exploring opportunities and often driven by an innovative and value-creation approach (Coffman & Sunny, 2021). I adopt the definition of entrepreneurship by Shane and Venkataraman (2000), who see entrepreneurship as a study of sources, processes, evaluation and exploitation of opportunities, and an individual who discovers and organises the processes, evaluation, and exploitation of these opportunities[3]. Formal entrepreneurship is often called productive entrepreneurship (Baumol, 1990; Sobel, 2008) and is most desired because of the deliberate effort to build the economy through entrepreneurship development (Saunoris and Sajny, 2017). The study by no means tried to discredit informal

[3] Shane and Venkataraman's (2000) definition tries to harmonise Schumpeter's creativity and Kirzner's opportunistic concept by highlighting the sources and processes of opportunity and the personal qualities of entrepreneurs.

entrepreneurship[4]. Instead, it adjusted the activities of informal entrepreneurship since it is also well established in extant literature that institutional weakness and the resultant transaction cost cause informal entrepreneurship to thrive (Sobel, 2008; Saunoris and Sajny, 2017; Chowdhury, Audretsch, and Belitski, 2019). Although the decision to remain formal or informal rests solely on the entrepreneurs, the motivation is backed by perceived constraints and pressure that (weak) institutional quality exacts on businesses and firms. Resorting to the informal sector could be an incentive and the only lifeline to stay afloat to prevent job losses. The level of institutional quality in most developing countries also means that many informal entrepreneurs are creating employment but are not captured under the ambit of the law. Some binding characteristics of every form of entrepreneurship measurement are that entrepreneurship is creative and innovative to explore opportunities (Schumpeter view; Schumpeter, 1934) and seek profit or profit-oriented opportunities (Kirzner entrepreneurship; Kirzner, 1963).

1.3 Background to the Study

As mentioned earlier, the fundamental motivation of the study is to understand how entrepreneurship development contributes to social and economic activities, notably in job creation, eradication of poverty, and improved standard of living for citizenry for sustainable economic growth and development. This leads to two prominent questions: What is the relationship between entrepreneurship and economic growth, and how could entrepreneurship development impact and lead to sustainable economic growth? The study empirically focussed on the latter to establish the effect of access to finance on entrepreneurship, with economic growth and development being the beneficiaries of this relationship. Analysing the relationship between financial development and entrepreneurship is almost impossible without highlighting the factors that affect entrepreneurship development. Some of these factors and other challenges are highlighted in this study as control variables and will be discussed in subsequent chapters.

[4] Informal entrepreneurship contributes to economic growth in several ways, especially in Africa, where it helps develop the local economy. Many African small businesses operate informally and contribute immensely to self-employment and household wealth. It is a good instrument for jobs and poverty alleviation. Informal entrepreneurship is also good at innovation and provides competition for formal entrepreneurship, which also helps with economic development.

Measuring and defining entrepreneurship has been a long, contentious issue in entrepreneurship studies and is even more problematic and heightened in SSA countries due to data availability. Extant literature has argued that the nature of the dataset used shapes and influences the study results (Nagler & Naude, 2014; Marcotte, 2013). This constitutes a more significant challenge, especially concerning issues of measurement consistency. However, despite these challenges, the study effectively used various and consistent variables to proxy the measure of access to finance and entrepreneurship in all the research chapters.

In the first chapter, financial development measures the development of the size of the banking sector, access to finance, and perception of finance. A banking index was created from six indicators of the banking sector's depth, stability, efficiency, and profitability. Entrepreneurship was measured as self-employment and newly registered businesses, capturing two notable features of the SSA dataset. The self-employment dataset of the World Bank is the most elaborate measurement of entrepreneurship (Marcotte, 2013), while the newly registered businesses capture Baumol's categorisation of productive entrepreneurship. Nagler and Nuede (2014) argued that self-employment data in SSA could be inflated with unproductive agrarian activities such as fishing and hunting; hence, self-employment was also (calculated and) adjusted to correct this anomaly. In the second and third chapters, the study used the World Bank enterprise survey data, which is more suited for entrepreneurship study due to the specificity of the questionnaire used (Jobber, 1989; Lietz, 2010). Surveys are perfect for obtaining public opinions, challenges, and thought patterns about a subject since answers are usually brief and questions are closed-ended (Jobber, 1989). Lietz (2010) also argued that when questionnaire designs are of good quality, they can be very effective in improving response rate and quality and can be complementary in identifying gaps in empirical research. However, concerns have been raised about the level of truthfulness of respondents to survey questions (Hallward-Driemeier et al., 2006).

The second chapter emphasises the performances of small businesses in the SSA region. There is a direct connection between firm performance and the two broad visions of African government investment in entrepreneurship. Firstly, a direct correlation exists between firm performances and developed private sector, banking sector and institutional quality. The institutional quality sets better policies and frameworks for a conducive business environment, improving the ease of doing business for both local firms and foreign investors. Financial development is also a result

of deliberate and focused investment and banking policies of financial institutions to improve financial information and services. The improvement of both sectors will collectively impact the private sector in the areas of access to finance and financial information (loans), risk reduction, ease of doing business, getting licenses, new business registration (formation and birth), and so much more. The improvement of both sectors also has the tendency to attract foreign direct investment (FDI), which has been proven to be beneficial for the transfer of knowledge and positively impact economic growth, especially in the areas of spillover effects on small business (Asiedu & Lien, 2011; Gohou & Soumarie, 2012; Acs et al., 2012).

Secondly, firm performance is also directly correlated with job creation, poverty reduction and improved standard of living. Some of the proxies that have been used to measure firm performances in extant literature include the number of employments, return on sales, and level of export (Nichter & Goldmark, 2009; Hessels & Van Stel, 2011; Boermans & Willebrands, 2018). Thus, performance improvement could mean an increase in the number of employed staff (both skilled and unskilled), sales, volume of exportation and access to new market opportunities. All of this will depict an increase in demand that requires more labour force and training (human capital development), offering employment opportunities across the supply chain. Sustained job creation (reduction in unemployment) over a period would consequently lead to an improved standard of living and economic growth.

The third chapter analyses the role of institutional climate in entrepreneurship development. As mentioned earlier, there is a shift of attention to entrepreneurship development through the strengthening of the private sector, financial institutions, and institutional quality for sustainable economic growth. All three are interwoven such that improvement in the private sector and banking sector will amount to nothing if the business environment for competitive growth and development is missing. The ease of doing business is essential to institutional climate and is as important as other elements in the entrepreneurship and economic growth nexus. It is the connecting piece that binds all three variables. It is often conceived as institutional quality and level of corruption (Becks et al., 2005; Sobel, 2008; Chowdhury et al., 2019) and used to reflect democratic regimes and level of economic freedom in extant literature (Bylund & McCaffrey, 2017; Saunoris & Sajny, 2017). This chapter highlights some areas in which institutions influence small business operations. Irrespective of the angle at which one tries to discuss issues of institutional quality, the influence they exert on small businesses cannot be overemphasised as

the registration (birth and death), survival, and incentives are seen from the lenses of institutions. Sobel (2008) noted that businesses' decisions to operate formally or informally depend on the institutional quality level in their location. The number of days it takes to register a firm, get permits and licenses, and access electrical and water connections are strictly within the institution's purview.

The chapter also dived into the catalytic role of corruption regarding the grease or sand the wheel hypothesis. Corruption greases the wheel of corruption if it acts as a catalyst to speed up entrepreneurial activities but becomes the direct opposite when it introduces bureaucratic procedures that halt entrepreneurial activities. This is not to say that entrepreneurship benefits from corruption, but it is an advocacy for strengthening institutions and policies of governance that completely ameliorate corruption since complete elimination is almost impossible, especially in developing countries. Corrupt practices can continue for prolonged periods, and it appears as a standard procedure for getting things done. This further impairs the ease of doing business and sets a precedent of binding constraints and costs for small businesses and investors. Extant literature has been divided on the impact of corruption on entrepreneurship, especially in developing countries where institutions are weak; hence, the debate and the question of corruption greases or sands the wheel of entrepreneurship (Meon & Weill, 2010; Cooray & Schneider, 2018).

Lastly, measuring and defining entrepreneurship is also an issue within the entrepreneurship literature. This concerns what constitutes a small business, entrepreneurial intention, and the activities carried out. Most empirical studies often used innovation, the number of employees, and the age of small and legally registered businesses. The second and third chapters used a novel approach to measuring entrepreneurship in the entrepreneurship literature. This innovative approach considers entrepreneurship as small businesses with staffs ranging from 1 to 19 and paying salaries (age) for 36 months. Since the World Bank enterprise survey data used only registered businesses, the legal registration component is also added to the mix. This metric of entrepreneurship is a combination of the number of employees, legal registration, and the age of the business.

1.4 Objectives of Study

The study's key objective is to understand how entrepreneurship development contributes to social and economic activities, notably in job creation, eradication of poverty, and improved living standards for the citizenry for sustainable economic growth and development. With this objective in mind, I explored the role of financial development and institutions in entrepreneurship development in the SSA. To attain this, the study was subdivided into three empirical chapters, each focusing on individual objectives. The first chapter empirically investigated the relationship between financial development and entrepreneurial activities of self-employment and newly registered businesses. The second empirical chapter discusses the firm-level perspective on financial development and firm performance. Lastly, the third empirical chapter analyses the role of institutions in entrepreneurship development. These will be discussed broadly in subsequent sections.

1.5 Country Context

The study countries were selected from three African regions and constitute the most dominant economies. Algeria, Egypt, Morocco, and Tunisia are the most vibrant economies within the Northern African zone; Benin, Cote d'Ivoire, Ghana, Mali, Nigeria, Senegal, Sierra Leone, and Togo are located within the Western region, Mauritius, Mozambique, Rwanda, Tanzania, and Uganda have the most significant economies within the East Africa trading bloc. The criteria for selecting countries are the availability of data and countries' performance on economic growth indicators of population growth rate, investment, trade, FDI, and performance of banking institutions. Southern African countries were not considered in the study due to their dependence on the South African economy, which is the least-performing region in Africa (Africa Economic Outlook, 2019). For instance, according to the African Development Bank statistics (2018), the estimated GDP growth for the southern African region for 2018 is 1.2 per cent, with a projection of 2.2 per cent for 2019. This is compared to East Africa's 5.7 per cent estimation and 2019 projection of 5.9 per cent, north Africa's 4.3 per cent and 2019 projection of 4.4 and West Africa's 3.3 per cent estimation and 2019 projection of 3.6 per cent. These are standard features among study countries coupled with poor management of the growing population, critical to worsening poverty, inequality, and unemployment (including underemployment) gap.

Population Growth Rate

The study countries constitute 51 per cent of Africa's total population (World Bank data, 2019). The population growth rate in each country is also high. Between 2013 and 2017, for instance, Tanzania had an average population growth rate of 3.0 per cent, more than 2.6 times the world's average for the same period. As shown in Table 1.1, Nigeria and Egypt grew by 2.6 per cent and 2.5 per cent, respectively, over the same period (all population data are from the World Bank). In a bid to expand macroeconomic activities, all the study countries have turned to regional integration and the service sector and household consumption has been especially useful in driving the economies of the study countries. The study countries have also made progressive developments in other important economic indicators of growth such as investment, trade, FDI, and the performance of banking institutions.

Table 1. 1: Showing Population Growth Rate by Country and Year

Country Name	2010	2011	2012	2013	2014	2015	2016	2017
Algeria	1.81	1.88	1.95	2.00	2.03	2.05	2.05	2.04
Benin	2.81	2.80	2.80	2.79	2.78	2.77	2.76	2.75
Cote d'Ivoire	2.33	2.39	2.44	2.48	2.50	2.52	2.54	2.55
Egypt	1.98	2.11	2.21	2.27	2.26	2.21	2.15	2.09
Ghana	2.49	2.42	2.37	2.32	2.29	2.27	2.25	2.22
Mali	3.16	3.04	2.95	2.90	2.90	2.94	2.98	3.00
Mauritius	0.24	0.16	0.28	0.22	0.18	0.13	0.07	0.09
Morocco	1.29	1.35	1.39	1.42	1.40	1.37	1.33	1.29
Mozambique	2.74	2.75	2.75	2.77	2.80	2.83	2.87	2.90
Nigeria	2.67	2.68	2.68	2.68	2.67	2.65	2.63	2.61
Rwanda	2.59	2.50	2.46	2.45	2.49	2.54	2.60	2.64
Senegal	2.74	2.77	2.79	2.80	2.81	2.81	2.81	2.80
Sierra Leone	2.79	2.67	2.63	2.56	2.49	2.41	2.42	2.42
Tanzania	2.91	2.95	2.97	2.99	3.00	3.00	3.00	3.00
Togo	2.67	2.65	2.60	2.56	2.53	2.50	2.49	2.47
Tunisia	1.04	1.00	0.97	0.97	1.00	1.05	1.10	1.14
Uganda	3.19	3.18	3.18	3.23	3.35	3.50	3.65	3.75
World	1.20	1.17	1.18	1.18	1.18	1.17	1.16	1.14

Source: Author's computation from World Bank data

Investment and Capital Formation

Investment, which is also essential in entrepreneurial studies, also plays a significant role in the economies of the study countries. Investment (gross fixed capital formation) contributed to at least 14.7 per cent of the GDP of each of the study countries in 2017. In Egypt, for instance,

between 2013 and 2017, investment contributed an average of 13.7 per cent of GDP. Across the same period, it contributed 23.7 per cent, 25.4 per cent, and 39.4 per cent of GDP to the economies of Ghana, Uganda, and Algeria, respectively. Investment in infrastructure opens every part of the economy and increases exploitable opportunities. The governments of the study countries have not just prioritised but significantly emphasised economic reforms for social development, job creation, and increasing entrepreneurial and explorable opportunities. This is aimed at not just increasing citizens' purchasing and saving capabilities but also at reducing poverty and improving the living standard across the region. These reforms clearly indicate the countries' commitment to developing entrepreneurship and small and medium-scale businesses.

Table 1. 2: Showing Investment Rate by Country and Year

Country	2011	2012	2013	2014	2015	2016	2017
Algeria	31.67	30.8	34.18	36.82	42.26	43.07	40.78
Benin	18.23	16.2	20.71	21.64	20.5	19.72	23.44
Cote d'Ivoire	8.951	12.8	17	18.88	23.66	21.52	20.12
Egypt	16.71	14.69	12.99	12.45	13.65	14.47	14.82
Ghana	11.98	16.11	25.75	28.71	29.25	26.98	20.58
Mali	18.66	14.82	17.13	17.91	18.36	18.59	18.25
Mauritius	23.46	22.58	20.84	18.87	17.36	17.25	17.39
Morocco	31.5	32.6	30.79	29.85	28.37	30.03	28.62
Mozambique	20.49	32.46	37.63	40.61	31.33	25.92	22.84
Nigeria	15.68	14.21	14.17	15.08	14.83	14.72	14.72
Rwanda	20.5	22.63	23.68	22.64	23.96	27.13	22.71
Senegal	20.91	20.51	22.11	23.48	23.02	23.93	25.83
Sierra Leone	41.68	24.80	14.45	13.11	15.45	18.00	18.08
Tanzania	35.1	32.97	33.96	33.17	31.87	32.75	35.46
Togo	20.73	19.00	20.34	22.34	23.30	22.52	16.86
Tunisia	21.86	22.49	21.91	20.32	19.85	19.34	18.84
Uganda	25.71	25.14	30.44	25.6	22.54	24.23	24.05

Source: Author's computation

Trade

Trade also plays a significant role in the economies of the study countries. According to World Bank data (2017), the trade volume of the study countries constituted 58 per cent of the total trade in Africa in 2017. Trade constitutes 55.3 per cent of the GDP in Algeria, 53.7 per cent in Rwanda, and 48.5 per cent in Cote d'Ivoire. A large volume of trade demonstrates an economy's level of openness and exposure to international trade, creating opportunities for production and

entrepreneurial activities. The study countries have large markets and market potentials that, if professionally managed, can lead to and sustain an economic boom.

The level of trade is essential to countries' economic development, which is well documented in the rapid growth of the Asian economy (Pangestu, 2019). There have been deliberate attempts to improve trading relationships among sub-Saharan African countries. Although there has been progress, it is not comparable to other regions. The relatively slow progress has led to a significant spillover effect that is evident and beneficial for regional economic convergence. African share of global trade is 2.4 per cent, and the Sub-Saharah regions contribute1.7 per cent (Schmieg, 2016). However, as mentioned earlier, trade constitutes an integral part of the economy of the study countries.

Foreign Direct Investment

The study countries are also large recipients of foreign direct investment (henceforth FDI). FDI has been shown to have positive spillover effects on the economy, especially in job creation, liquidity, and knowledge transfer. It is also a key indicator of economic growth.

According to UNCTAD data (2021), FDI inflows into Africa accounted for 5 per cent of global FDI. This is a significant increase compared to three decades ago. The trend of FDI inflow into Africa shows that FDI continues to flow to more countries within the region. However, the UNCTAD 2021 report shows a general decline in FDI on the African continent. The study countries are significant FDI (net inflows, current USD) destinations in Africa. Between 2008 and 2012, these countries accounted for 55 per cent of FDI in Africa; between 2013 and 2017, it increased to 57 per cent. Egypt, Nigeria, Morocco, and Ghana are the biggest recipients of FDI, as they all received above 2.4 billion dollars in 2017 (World Bank data). If FDI is adequately utilised, its gains are numerous and can translate into more opportunities for entrepreneurship, training, job opportunities and international trade.

FDI represents the introduction of foreign capital into the economy of the host countries and has been very significant to the economies of most Sub-Saharan African countries. Foreign capital boosts entrepreneurial finance, helps resolve issues of underfinancing, and creates numerous opportunities for small businesses. FDI creates synergy within the entrepreneurship ecosystem, promoting knowledge sharing and training that is instrumental for accessing new markets (both

local and international). It also encourages trading opportunities, thereby creating job opportunities and avenues to strengthen institutions.

Banking Sector Development

The banking institutions in the study countries are also performing efficiently. The bank cost-to-income ratio is used to determine the efficiency and performance of banking institutions. Banks in the study countries have a ratio that is comparable to that of other developed countries. For instance, the Global Financial Development data showed that in 2019, the bank cost-to-income ratio in Nigeria was 60.96 per cent, in Tanzania 67.51 per cent and 28.59 per cent in Algeria. The bank cost-to-income ratio in the United Kingdom and the United States for the same period is 63.36 per cent and 57.16 per cent, respectively. A lower ratio means better efficiency and performance. This shows that in comparative terms, the banking sector in the study countries is efficient, and their performance is good. This makes a plausible argument that developing the financial sector of the study countries to realign their objective with specific financial targets and development policies can increase entrepreneurial activities and create jobs, thus reducing the unemployment level across study countries.

Competitiveness Index

Table 1. 3: Competitiveness Index

Country	2009	2012	2015	2018
Cameroon	3.5	3.6	3.7	3.7
Egypt	4.0	3.9	3.6	3.9
Ethiopia	3.4	3.8	3.6	3.8
Gambia	3.9	3.8	3.5	3.6
Kenya	3.8	3.8	3.9	4.0
Mali	3.4	3.4	3.4	3.3
Mauritania	3.1	3.2	3.0	3.1
Mauritius	4.2	4.3	4.5	4.5
Morocco	4.1	4.2	4.2	4.2
Mozambique	3.1	3.3	3.2	2.9
Nigeria	3.8	3.4	3.4	3.3
Senegal	3.7	3.7	3.7	3.8
Tanzania	3.5	3.6	3.6	3.7
Tunisia	4.6	4.5	4.0	3.9
Uganda	3.3	3.6	3.6	3.7

Note: Countries with missing data were omitted. Score: 1-7
Source: Compiled from World Bank data.

Table 1.3 shows the competitive index of the countries studied. The competitive index is compiled from numerous variables ranging from institutional quality, access to financial services, and labour market to innovation in what the World Bank termed the twelve pillars of competitiveness for a private sector-led growth initiative. The score ranges from 1 – 7, with the 7 being an ideal economy with high economic growth. Table 1.3 shows that most of the study countries are within the average of 3.5, with the maximum and minimum being Mauritius and Mauritania, with scores of 4.5 and 3.1, respectively. This reflects the level of institutions in most developing countries, mainly African countries. Nigeria, the largest economy in Africa, lost 0.5 points from 3.8 to 3.3 between 2009 and 2018. This is also the situation in Egypt, another powerhouse in the African economy. This reflects the energy channelled into institutional development among the studied countries.

Poverty Level

Although the global poverty level has declined recently, the African region has not declined proportionately. The African region has some of the least developed, low-income economies in the world, with high poverty levels. Amavilah (2015) attributes the causes of poverty within the region to the loss of traditional economics and weak institutions. The poverty level within the region has also been traced to corruption, political instability, poor governance, and poor infrastructural and health development (Addae-Karankye, 2014). The study countries have a high prevalence of poverty, hence the need to develop and diversify the economy to create jobs to meet the demand of the growing population and the increasing unemployment level. Evidence from the World Bank data shows that the proportion of the population living below the poverty line has been decreasing globally since 1990. However, the rate at which the African region declines is not compared to other regions.

Table 1. 4: Poverty Rate

	Poverty Severity				Poverty Gap			
	1990	2000	2010	2018	1990	2000	2010	2018
East Asia & Pacific	10%	4.5%	0.8%	0.0%	21.5%	10.6%	2.4%	0.2%
Europe & Central Asia	0.5%	1%	0.1%	0.0%	0.9%	2.3%	0.2%	0.0%
Latin America & Caribbean	3.9%	3.7%	1.1%	0.7%	6.3%	5.7%	2.0%	1.4%
Middle East & North Africa	0.4%	0.2%	0.2%	0.5%	1.3%	0.6%	0.5%	1.3%
South Asia	5.6%	3.5%	1.7%	0.6%	14.3%	10%	5.4%	1.9%
Sub-Saharan Africa	15.5%	15.9%	9.2%	8.1%	26.1%	26.9%	17.6%	15.4%
World	6.1%	4.3%	2%	1.5%	12.8%	9.1%	4.5%	3%

Source: Author's compilation from World Bank data

Table 1.4 shows the severity of poverty and the global poverty gap. The poverty line is benchmarked at the percentage of the population living below $1.9 a day. The poverty gap depicts the poverty situation of the population and shows the extent to which the income of the poor population has fallen below the poverty line. The table shows that the poverty situation within the African region is worse than anywhere else. Every other part of the world experiences a notable fall in poverty levels every decade except in the African region, where poverty is persistent. The World Bank data (2024) also show that countries like Nigeria, Mali and Tanzania in 2018 had 39.7%, 43.8% and 54.8 per cent of their respective population living in multi-dimensional poverty.

Gross Domestic Product

As mentioned earlier, the study countries attract foreign investment due to the level of their economic growth and development. GDP growth rates across Africa have not been very good compared to other regions. However, most African countries have a lot of potential for growth, especially with the availability of abundant natural and human resources. The GDP growth rate is a good economic indicator of a thriving economy and the study countries have shown steady growth trends in recent years. Evidence from the World Bank data (2024) shows that in 2019, the GDP of the study countries accounted for 57.9 per cent of the total African GDP of the African economy. This is a massive improvement from 47.2 per cent in 1990.

Table 1. 5: GDP Growth Rate

Region	1990	2000	2010	2019
East Asia & Pacific	5.1	5.4	7.6	4.0
Europe & Central Asia	2.3	4.4	2.7	1.8
Latin America & Caribbean	-0.4	3.6	6.4	0.7
Middle East & North Africa	10.3	6.8	5.1	1.4
South Asia	5.4	4.1	7.4	3.9
Sub-Saharan Africa	2.4	3.5	6.0	2.7
World	2.8	4.5	4.5	2.6

Source: Author's compilation from World Bank data. Note: measurement is in percentage

Table 1.5 above shows the GDP growth rate of the African region compared to other regions of the world. The table shows that the GDP of the Sub-Saharan African region grew progressively between 1990 and 2010, peaking at 6 per cent in 2010. However, the table also showed a decline between 2010 and 2019 from 6 per cent to 2.7 per cent, representing over a 50 per cent decrease in the GDP growth rate. The table shows that the global GDP growth rate peaked in 2010 when most regions had the highest performance, with East Asia & Pacific and South Asia growing above 7 per cent. There was also a noticeable decline in 2019, demonstrating a global slowdown in economic growth. Global economic growth declined in 2019, which means that despite the Sub-Saharan African region growing only 2.7 per cent in 2019, it was still higher than the global average. This necessitated the emphasis on entrepreneurship and small and medium-scale enterprises (SMEs) by African heads of state within the last decade as a means of industrialisation and a push for rapid economic growth and sustainable development (DeGhetto et al., 2016; AU, 2013).

Demographic Change

Changes in demographics are another indication of economic growth that is often associated with entrepreneurship. Demographic changes capture the variation and alterations of a country's or region's population. Economics literature and theory suggest a strong linkage between population structure, socioeconomic activities, and growth (Liang et al., 2018). Some of the demographic changes used in extant literature are age distribution, fertility rate, death rate, life expectancy, net migration pattern, Urban drift, income ratio and education. The logic behind this indication is that it influences the labour force composition of a country (Liang et al., 2018). Citeris paribus, a country with a high fertility and birth rate, will have a younger workforce and could easily replace the ageing workforce, positively impacting productivity and economic growth and vice

versa (Bonte et al., 2007). Although the migration level and urban drifting also influence the labour force of the giving and the receiving regions, the literacy level of the migrants also plays an important role (Oliinyk et al., 2022).

Table 1. 6: Population Age Distribution

	Age 15-64				Age > 65			
	1990	**2000**	**2010**	**2020**	**1990**	**2000**	**2010**	**2020**
East Asia & Pacific	64.6	67.2	70.5	68.3	5.6	7.2	8.9	12.1
Europe & Central Asia	65.7	66.8	67.9	65.2	11.6	13.3	14.5	16.8
Latin America & Caribbean	58.9	62.2	65.5	67.3	4.7	5.7	6.9	8.8
Middle East & North Africa	54.0	59.6	65.4	64.6	3.5	4.0	4.2	5.2
South Asia	57.0	59.4	62.7	65.8	4.0	4.3	4.8	6.2
Sub-Saharan Africa	51.4	52.4	53.4	54.6	3.0	2.9	2.9	3.1
World	61.0	62.9	65.3	64.9	6.1	6.9	7.7	9.4

Source: Author's compilation from World Bank data, 2024

Table 1.6 shows the age distribution and migration pattern of Sub-Saharan Africa and other world regions. It shows the age distribution of the population between 15 and 64 and those above 65. The table shows that all regions of the world have a large population between the ages of 15 and 64, with over 50 per cent of the population in this age bracket. However, the population is progressively growing older except for the African regions, where the figures are low. Between 1990 and 2020, the population above 65 years in East Asia & Pacific doubled (from 5.6 to 12.1), which represents over 100 per cent growth, while the population in Europe and Central Asia grew by over 42 per cent. The situation is similar for both Latin America & the Caribbean and South Asia. The African regions, however, showed slow growth for both age categories, with the Sub-Saharan African region growing by one per cent for ages above 65.

Table 1.7 below shows the age distribution between 0 to 14 (< 15) and net migration. A higher number of ages under 15 indicates a younger population and a high fertility level. A positive net migration indicates a high inflow of migrants, while a negative net migration pattern indicates a high outflow of migrants. The table shows a negative net migration for the Sub-Sahara African region from 1990 to 2020. This pattern of movement could be in search of better economic living conditions. This is expected as migrants always move from low-income countries to developed economies where the economic and living conditions are better (Naude et al., 2017; Oliinyk et al., 2022). This can also be positive for entrepreneurship as extant literature has linked migration to poverty reduction and diaspora remittances, which is very high for the Sub-Saharan African countries (Masron & Subramaniam, 2018; Aragbeshola, 2022). The table also shows high figures

for populations under 15 years for the African regions which depicts a high fertility and birth rate. The Sub-Saharan African region has over 40 per cent of its population within this age bracket from 1990 to 2020. This guarantees a younger workforce and the replacement of the ageing population, which has been seen as the linkage between entrepreneurship and economic growth (Liang et al., 2018). The size and age of the workforce are crucial to entrepreneurship performance, which is abundant in the study countries.

Table 1. 7: Population and Migration

	Age <15				Migration			
	1990	**2000**	**2010**	**2020**	**1990**	**2000**	**2010**	**2020**
East Asia & Pacific	29.8	25.6	20.7	19.6	0.08	-0.51	0.02	0.18
Europe & Central Asia	22.7	19.9	17.6	18.0	0.35	0.78	1.08	1.26
Latin America & Caribbean	36.3	32.2	27.7	23.9	-0.64	-0.93	0.6	-0.16
Middle East & North Africa	42.5	36.4	30.4	30.2	-0.1	0.45	0.6	-1.7
South Asia	39.1	36.3	32.5	27.9	-0.77	-0.87	-1.73	-0.3
Sub-Saharan Africa	45.5	44.6	43.7	42.3	-0.51	-0.59	-0.64	-0.15
World	32.9	30.2	27.1	25.7				

Source: Author's compilation from World Bank data, 2024.

1.6 Trends in Access to Finance

Entrepreneurship in African countries and other developing countries is small and often seen as necessity-based entrepreneurship (Nagler & Naude, 2014), which is not innovative and does not support economic growth. Nevertheless, this is often not the case, as literature has revealed that SMEs (small and medium enterprises) are relevant in job creation and economic development (Naude, 2011; Adesei, 2014). Brixiova et al., 2020 noted that SMEs created about 90 per cent of jobs within the Africa region. In this study, I used the two-stage least square estimation technique to resolve reverse causality issues and support the notion that entrepreneurial firms within the African region are productive and will impact economic growth if financially supported. The study results demonstrate that financing entrepreneurial projects to reduce financial constraints is directly proportional to a firm's productivity.

The study focused on twenty-one African countries. According to the International Water Association (IWA), these countries are all low-income. Financial constraints have been reported as a significant challenge to entrepreneurship development, especially for small and medium enterprises (Beck et al., 2005; Aghion et al., 2007; Bewaji et al., 2015). Although entrepreneurship in Africa and other developing countries is small, it is critical to local economic development and income generation (Mutandwa et al., 2015), creates jobs, and reduces

unemployment (Margolis, 2014). The unemployment and poverty levels have increased in recent times across the African continent. This has made entrepreneurship a new form of industrialisation (Scott, 2006; Gonzalez-Pernia & Pane-Legazkue, 2015). Entrepreneurship is essential in transferring knowledge, increasing domestic savings, supporting rural households (entrepreneurs), developing capacities, and creating jobs and trade. Entrepreneurship is also seen as a tool to engage unemployed youth in their locality (Margolis, 2014; Nichter & Goldmark, 2009).

Property Rights

Property rights have also been shown to affect investment and firm performance positively. Countries with better property rights attract more foreign investors as investors seek more protection for their investors (Laplume et al., 2014). Investors want a guarantee of profit for their investment, and political instability and insecurity of life and properties cannot guarantee such demands. The weak nature of political and legal institutions makes insecurity and political instability a common feature of poor and developing economies. This makes it harder for poor and unstable economies to attract foreign investments. The recent World Bank's Ease of Doing Business report and the United Nations Conference on Trade and Development (UNCTAD, 2019) review a trend where foreign direct investment inflows within the African region move from volatile to more politically stable economies. Also, developed economies with better institutions have higher ratings of ease of doing business. This makes the business environment vital and of interest in entrepreneurial literature and firm performance.

These entrepreneurship qualities have made it relevant to the study countries and other developing countries in their quest to tackle the increasing population growth rate, rising unemployment, and crime rate. There is also the issue of financing being a constraint to developing entrepreneurship in most developing countries.

Access to Finance

Financing investment is an essential aspect of entrepreneurial study. Developing and poorer countries are most affected since their financial sector and other relevant institutions remain weak (Stein, 2010). Baliamoune-Lutz et al. (2011) hinted that uncoordinated property rights and financial markets are the major causes of financial constraint within the African region, while

Demirguc-Kunt and Maksimovic (1998) argue that firms in developed countries experience fewer issues of financial constraints. Finance is essential for start-ups and running businesses, and it is even more of an issue in the African region, where entrepreneurship starts small and is necessity-oriented (Baliamoune-Lutz et al., 2011; Nagler & Nuede, 2014). Some benefits poorer and developing countries stand to benefit from a developed financial system are the creation of loans and credit facilities, the availability of firms' information, and acting as intermediaries in the finance market (Demirguc-Kunt & Maksimovic, 1998). This has increased the literature on entrepreneurial finance in developing countries and the motivation for this study.

The level of financial inclusion within the African region is also not great. Financial inclusion is an essential standard for measuring the level of access to finance of the general population. It gives a holistic view of the relationship between the financial sector and entrepreneurship in a broader context. The African region is the most financially excluded in the world, based on the World Bank report. This invariably affects entrepreneurial activities and firm performance since it increases the financial burden of entrepreneurs and start-up activities. Some ways to measure financial inclusion are account ownership, credit and debit cards, savings, and the ease of bank loans (The Global Findex Database, 2021).

Table 1. 8: Reasons for not Applying for Loans

REASONS	Frequency	Percentage
Do not know/Refused	509	4.44
No Need for a Loan	4946	43.11
Complex Application Process	1433	12.49
Unfavorable Interest Rate	1747	15.23
High Collateral Require	1241	10.82
Insufficient Size of Loan	183	1.60
Afraid of Refusal	524	4.57
Others	889	7.45
Total	11472	100

Source: Study compilation (compiled from the World Enterprises Survey data)

When compared with other parts of the world, especially with developed countries, African entrepreneurs cannot compete with their counterparts in developed countries due to the disparities between the financial institutions. Since the ease of accessing bank loans is also used to determine the average level of financial inclusion, a considerable disparity between African countries and developed countries will portray the difficulties in accessing finance in African countries compared to developed countries. Table 1.8 shows the reason small entrepreneurs in the study countries gave for not applying for loans. Over forty-three per cent said they have sufficient funds and do not need loans. This conclusion must have been informed by their varied experience and preventive measures to allocate time and resources to what is feasible rather than lose valuable work time. Over sixty-seven per cent of the remaining respondents gave complex application processes, unfavourable interest rates and high collateral requirements as the main reasons they did not apply for bank loans. Over fifteen per cent of the total respondents posited that the loan interest rate was not favourable and therefore not required. One of the reasons also mentioned is fear of refusal, which, as I mentioned earlier, could be a factor for small businesses preferring to maximise their personal and retained earnings rather than seek bank credit. High collateral was also cited as a common issue in African entrepreneurial space.

Bank loans are perceived to be challenging to access, hence the use of collateral to mitigate risk associated with information asymmetries. Most banks are also skeptical about dealing with smaller firms due to the small business framework, and if they must fashion out a plan, it will be heavily collateralised. Capping a high interest rate and unprecedented collateral requirement has been a strategy that financial instructions employ to reduce demand for credit. Smaller firms are most affected by such a strategy, and most of the time, they are denied a fair opportunity to access credit (Beck et al., 2005). This put smaller businesses off, and they resorted to other means of external financing. This level of financial exclusion has evolved into reliance on private money lenders, friends, and family for financial support. Borrowing from friends and family can be flexible and cheap, but it is usually insufficient and often used to complement other financial sources (Manolova et al., 2006; Naegels et al., 2018). Due to the ease of accessing friends and family finance, it has become prevalent for small businesses in the African region.

Table 1. 9: Type of Collateral Requirement

Collateral type	Yes	No	Percentage Yes
Land and Building	790	692	53
Machinery and Equipment	477	998	32
Receivables and Inventories	345	1121	24
Personal Assets of the Owner	617	859	42
Others	263	1196	18

Source: Study compilation (compiled from the world Enterprize Survey data)

Using collateral to access finance has been noted as a constraint in entrepreneurship financing (Baliamoune-Lutz et al., 2011) due to collateral requirements. Table 1.9 above shows the collateral requirements and assets used by entrepreneurs in the countries of study. The table shows that the most used collateral is landed properties and buildings. The table also shows that small firms use personal assets as collateral to source credit. The conditions are usually forfeiture of the collateral in the invent of default. Other forms of collateral used in the study country are machines, equipment, and inventories. All of this will have profound consequences not only for the business but also for the personal lives of the entrepreneurs. This makes small businesses sceptical of using collateral. Hence, they decide to stick with their finances, retain earnings, or stay small without wanting to expand.

Means of payment are also a crucial factor for firm performance and entrepreneurship development. A quicker means of payment will ensure that goods and services move from the point of production to the designated location faster and more conveniently. This can be better facilitated using mobile money, debit, and credit cards, which also measure financial inclusion. Owning an account with a formal financial institution also facilitates easier access to smaller loans through credit cards. However, credit cards may not be an effective way of sourcing finance primarily due to the smaller funds they can get from them. It can be used to build credit rating and customer relationships with banks, especially in the African region, where the banks rely on collateral to deal with information asymmetries. In developed countries, the use of credit and debit cards is particularly useful in facilitating transactions, but this is not the case in the African region, where, in some cases, they are absent.

Table 1. 10: Ownership of Debit and Credit Cards

	Owns a Debit Card (% age 15+)			*Owns a Credit Card (% age 15+)*		
Country	2011	2014	2017	2011	2014	2017
Benin	1	6	13	0	1	6
Burkina Faso	2	5	14	1	3	5
Cameroun	3	6	13	2	1	3
Egypt	6	10	25	1	2	3
Ghana	12	10	21	2	1	6
Kenya	32	35	38	6	5	6
Mali	2	4	12	1	1	7
Mauritius	52	63	75	14	17	24
Nigeria	19	36	32	1	3	3
Senegal	2	6	11	1	1	3
Tanzania	13	12	14	4	1	2
Uganda	11	18	17	2	2	1
United Kingdom	90	97	95	52	62	65
United State	84	87	89	62	60	66
Developing	25	34	41	7	10	10
World	35	43	49	15	17	18

Note: Countries without complete data from 2011-2021 are removed from the tables
Source: Study compilation (compiled from the World Bank data).

Table 1.10 above shows the use of debit and credit cards in some of the study countries and compares them with the developed countries and the world average. The average usage of credit cards by the population above fifteen years in the twelve African countries in Table 1.10 in 2011 is approximately three per cent, which is not close to the average of fifteen per cent for the World and seven per cent for other developing countries. This is also not compared to the average of fifty-seven per cent for the United Kingdom and the United States. Again, using debit cards in African countries from Table 1.10 also confirms the region's financial exclusion level. Other than Mauritius, which had seventy-five per cent of debit card usage in 2017, all other study countries have less than the average of forty-one per cent for developing countries, compared to ninety-five and eighty-nine per cent for the United Kingdom and the United States, respectively.

1.7 Relevance of the Study

This section presents an overview of the study and why embarking on this study is necessary. As pointed out earlier, the study's main objective is to examine the development and contribution of entrepreneurship activities to social economic activities. To fully accomplish this, understanding

the prevailing economic realities and challenges to making meaningful contributions is required. This is further discussed below.

1.7.1 Financial Development and Entrepreneurship

The role of access to finance in entrepreneurship and economic development is well established in extant literature. A critical look at most finance and entrepreneurship literature is that they focus heavily on developed economies (Bruton et al., 2008; Anokhin & Schulze, 2009). What is not established in this literature is whether the development and improvement of financial access matters in developing economies. This also leads to the question of what constitutes financial development since the measurement of financial sector indicators varies with countries (Beck et al., 2010). Most financial literature discussed financial access from the perspective of either financial constraint, which is more of the demand side of finance (Paulson & Townsend, 2004; Baliamoune-Lutz et al., 2011; Bewaji et al., 2015) or development of financial or banking sector which is more of supply side of finance (Becks et al., 2010; Naeem & Ki, 2019; Uddin et al., 2022). According to Paulson and Townsend (2004), financial constraint is a borrower's inability to access finance or access an insufficient amount (balance between supply and demand of finances). The measurement of financial constraints depicts the relationship between a firm's financial strength and ability to access loans. The financial market is also part of financial development, but I did not consider it since it is not well developed in the SSA region.

The World Economic Forum defines financial development as those factors, policies and institutions that support efficient financial intermediaries and markets and develop robust access to capital and financial services (WEF, 2011). The report identifies seven components of financial development ranging from institutional quality, ease of doing business, financial stability, banking services, non-banking services, and financial markets to financial access as a better mix for an ideal financial development. These financial sector components highlight the banking sector's capacity to accommodate and assemble what constitutes the demand and supply of financial services with efficiency and at reduced risk. Levine (1997) opined that the primary responsibility of the financial sector is gathering firm and business information for the proper allocation of resources, implementing corporate control over managers, facilitating risk management, managing savings, and facilitating a medium of exchange of goods and services. Entrepreneurial activities and economic growth are impeded when the financial sector underperforms these responsibilities (Cihak et al., 2012). Financial constraints and issues related

to under-investment are usually because of the inability of the financial sector to manage these functions and provide these services to end users effectively and efficiently. This is crucial for the SSA countries since the region is notorious for weak institutional quality, and other financial derivatives other than the banking sector are weak and poorly developed (Beck et al., 2010). A positive and significant relationship between entrepreneurship and financial development will reflect and encourage financial reforms and policies that allow banks to efficiently allocate resources (loans and credit) for entrepreneurial activities like start-ups, profitable investment, expansion and research and development. This will reduce the hassles associated with access to finance and lead to the development of financial sectors within the region.

Components of financial development tend to vary with the country's level of development. Plausibly, the more developed countries would have more robust financial development programs and banking sectors than the developing or lower-income countries. Financial depth measures the relative size of the financial sector (liquid liabilities) to GDP. It also shows the money supply in circulation determined by the financial sector. Improved financial depth signals more money in circulation and consequently encourages savings. All things being equal, the financial sectors have more money and credit to give and meet demand for potential borrowers (entrepreneurs). Financial access depicts financial inclusion and measures how firms can quickly and effectively access financial services (Cihak et al., 2012). The higher the ease of accessing financial services by the citizenry, the better for entrepreneurship. This would increase entrepreneurial activities such as the number of new firms' registration, investment and even self-employment as more households and individuals tend to take control of their resources. Financial efficiency entails credit intermediation (Cihak et al., 2012). This signals an efficient allocation of credit to ease binding constraints and reduce transaction costs, making it feasible for entrepreneurs and businesses to get credit at a reasonable cost. Financial stability measures the strength and soundness of the financial sector. It acts as a buffer between good and bad credit and is often used as a stress test of the financial sector. All these financial sector components help determine how the financial can effectively function optimally to reduce incidents of financial constraints (including under-investment) to improve the financial inclusion of small firms and businesses. These qualities of the financial sector can be used as a forecasting tool for economic growth rate, innovation rate, and taxation for future planning, reforms and policy making. Improving the financial operation regarding transaction costs, asymmetries, and risk

management would lead to incentives for forming and developing other financial intermediaries like insurance, investment funds, pension funds, and financial markets to increase liquidity, which makes the financial sector bigger and better.

1.7.2 Firm-Level Perspectives on Financial Development and Firm Performance

Firm performance and improvement of financial institutions are popular research areas in entrepreneurship study and in Africa (developing economies), mainly due to the weak investment environment, property rights and financial institutions (Hallward-Driemeier et al., 2006; Svejnar & Commander, 2007). The efficiency of small businesses finance is significant to its performance. It influences the investment decisions and the capacity of these businesses. Financially constrained firms allocate their resources for survival and cannot invest in profitable opportunities or new technology, even if they are game changers. This makes financing of more strategic importance to small businesses, especially in SSA countries that are heavily financially constrained (Brixiova et al., 2020). Increased access to finance could significantly improve a firm's performance by stimulating employment growth, improved sales, labour productivity, and export intensity (Beck et al., 2005; Asongu & Odhiambo, 2018). This also implies that improving financial services through increased access to finance and credit services positively impacts entrepreneurship development. Financial constraints have been the most reported factor affecting entrepreneurial activities in the SSA region and other developing countries. A 2017 report by the International Financial Corporation shows that about 60 per cent of small and medium enterprises in developing countries are financially constrained. A further breakdown of that figure reveals that 40 per cent of them are partially constrained while 20 per cent are heavily financially constrained. Financial constraints reduce entrepreneurship development investment capacity and productivity (Bewaji et al., 2015; Naeem & Ki, 2019; Brixiova et al., 2020).

The level of financial inclusion is an effective way of determining the level of access to finance of the general population. It shows a snapshot of the interaction between the activities of the financial sector and citizenry (and entrepreneurship) in the broader context. Financial inclusion in the SSA region is of significant concern. Thus, the World Bank reports and data show that the SSA region is the most financially excluded region globally. Some of the indicators used to proxy financial inclusion by extant literature are account ownership, owning credit and debit cards, savings, and the ease of bank loans (The Global Findex Database, 2021). This inevitably

affects entrepreneurship development and firm performance since it increases entrepreneurs' financial burden and investment capacity and reduces start-up activities and the technology adoption capacity of small firms. Since the surge in entrepreneurship development is organic, there is also a need for deliberate policies that prioritise firm performance within the SSA region. Firm performance has been measured in several ways, ranging from sales revenues (Willebraands et al., 2012), growing numbers of startups (Agion et al., 2007) and number of employees (Coleman, 2007). This empirical study contributes to the literature by testing the relationship between access to finance and firm performance while controlling for reverse causality (endogeneity). This makes sense within African and developing economies, where endogeneity issues have been treated within the context of omitted time-invariant variables (Svejnar & Commander, 2007).

As mentioned earlier, there is a need for deliberate policies that improve financial inclusion and incentives for small businesses to increase their access to finance. Using collateral and relatives (family and friends) in entrepreneurship finance is still in vogue among small businesses in SSA countries. The collateral requirements are most times exorbitant and are perceived as risk as entrepreneurs could lose property in the event of default. This presents another form of binding constraint to small businesses. The inability to provide collateral to access finance has the propensity to affect entrepreneurial activities of birth of new firms, registration, entrepreneurial orientation (self-employment), decision (informal or formal) and firm performance (Baliamoune-Lutz et al., 2011). The needed transformation in entrepreneurship in the SSA region is aimed at making entrepreneurship more productive, and this could only be achieved by introducing strategic technological production means. Strategic financing is a means of production that could reduce both the financial and non-financial burden of small businesses and increase their performance capacity (Baliamoune-Lutz et al., 2011; Brixiova et al., 2020).

1.7.3 Entrepreneurship and the Role of Institutional Climate

A simple statement cannot be used to capture the interaction between institutional quality and entrepreneurship. Instead, it is more complicated than it appears on the surface. The same argument could be made about how corruption could stall an economy's growth, even if it shows every signal and indicator of growth. Institutional climate and quality constitute a significant part of binding constraints that affect entrepreneurship development in SSA countries (North, 1990).

Institutional quality influences various aspects of government decisions, ranging from allocation of resources, resource control, property rights, taxation, sharing revenue, policies, and others. The impact of these governance tools on entrepreneurship development cannot be overemphasised as they can pull and push depending on the preferred direction by government authorities[5]. Government interference and uncertainties are low in economies with better and more developed institutions and vice versa. A democratic regime is a pull factor for local and foreign investors and increases entrepreneurial activities. However, an autocratic regime increases uncertainties among investors and acts as a constraint that impedes investment and growth of entrepreneurial activities (Saunoris & Sajny, 2017). Entrepreneurial activities react to institutional changes irrespective of that region's economic development level. The types of entrepreneurship are also not spared as a weaker institutional climate would create more informal entrepreneurship, unproductive entrepreneurship, and necessity entrepreneurship, all things being equal (Baumol, 1990: Sobel, 2008; Smallbone & Welter, 2012; Chowdhury et al., 2019). In other words, a better institutional climate with improved ease of doing business causes an increase in the number of productive entrepreneurs while, at the same time, frustrating and diminishing the number of unproductive entrepreneurs ceteris peri bus. However, a return to the status quo cannot be ruled out if institutional conditions degenerate (Sobel, 2008; Lucas & Fuller, 2017).

The operations of small businesses depend primarily on the prevailing institutional climate of the locality in which they operate (Barasa et al., 2017). A region with better government incentives, subsidies, and bankruptcy laws would encourage the springing up of new businesses and increase their resilience to withstand financial pressure at their stages of operation. Corruption is a reproach that, once embedded, can be very harmful and costly for all stakeholders (Belitski et al., 2016). In SSA countries, once a system has been infiltrated by corruption, it develops into a new form of constraint in addition to the existing challenging business environment. In the end, a complicated system is introduced and becomes the norm for everyone, and in most cases, it will

[5] The push and pull concept depicts the signalling effects of institutions, with the push factor often referring to a negative signal that, within the context of this study, would create a more informal economy as registered businesses may be compelled (push) to function as not registered to cope with the institutional demands. The pull signals are the reverse of the push signals that encourage a formal economy and an excellent way to attract foreign direct investment.

need the help of an insider (bureaucrats) or lubricant (bribe) to get things done quickly (Belitski et al., 2016). Sobel (1998) opined that the quality of the institutional climate in a place goes a long way to determining the type of entrepreneurs prevalent in that place (formal and informal).

This poses another debate about institutional quality and adverse selection in obtaining licenses or granting loans. Corruption discourages nascent entrepreneurial activities, which has consequences on productive entrepreneurship and economic growth. It could also be the case where those who can afford bribes have more finance to innovate. It is also possible to meet bribe conditions to gain a market monopoly and compromise quality for gains (Rose-Ackerman, 1997; Meon & Sekkat, 2005). The proper procedures are not always followed, which means the right persons do not always have the permits and licenses. Any attempt to produce without a license is termed illegal production (informal economy). As such, informal entrepreneurs' production and entrepreneurship activities have constantly been harassed by the state's military presence without any plan to help and formalise their operations (Igudia et al., 2022). The detrimental effect of corruption can create a scenario that either greases or sands the wheels of corruption.

Grease the Wheel of Corruption

Grease the wheel of entrepreneurship hypothesis is another dimension of corruption discussion in entrepreneurship study. Although the debate to better understand the impact of corruption on entrepreneurship development is quite popular in extant literature. However, the grease-the-wheel hypothesis is not popular. This is because of its implication to best practices, as no one wants to encourage corruption in any setting. The hypothesis reflects the propensity of corruption to quicken institutional and bureaucratic processes to get things done quicker and faster. It could also be sand the wheel of entrepreneurship, but this reflects when corruption is fully blown and becomes very exploitative. The interpretation of the hypothesis is not to legitimise corruption or promote deplorable bureaucratic conditions.

The emphasis of the hypothesis is to increase the rate of work done that ought to function very well, but it is not. Timeliness of operation is critical to business success, and a heavy bureaucratic governance system sands the wheel. In specific scenarios, there could be a complete breakdown of the process of getting things done. The study found evidence that although

corruption greases the wheels of entrepreneurship activities, it does have a negative association with firm performance. It is also worth noting that whether corruption greases or sands the wheel of entrepreneurship, it is terrible and should not be encouraged. Grease the wheel hypothesis emphasises that corruption has a positive association with growth in countries where there are weak institutions but may affect growth in countries where institutional quality is better (Meon & Sekkat, 2005; Meon & Weill, 2010; Cooray & Schneider, 2018)

Sand the Wheel of Corruption

The other side of the grease-the-wheel hypothesis is the sand-the-wheel hypothesis of corruption. This is the opposite of greasing the wheel of corruption, as this hypothesis implies a scenario where corruption causes weaker institutions to deteriorate further (Mean and Sekkat, 2005). Sand the wheel hypothesis, unlike grease the wheel that lubricates bureaucratic services, makes them worse off and can sometimes lead to a complete service breakdown. The unpredictable nature of corruption makes it even more dangerous to social and entrepreneurial activities as one is not sure what the ending will be (greases or sands the system). Corrupt government officials might use weak institutions to increase the challenges of getting services. This could translate into increased operational costs for service users or restrict services to the highest bidder or a few wealthy individuals. This would affect the level of investment because an aggregate public section is disenfranchised. This also can create a monopolistic opportunity, especially in sectors that do not need much entry investment.

Sand the wheel hypothesis depicts the negative side of corruption and the inherent constraints it imposes on institutions. It emphasises the slow pace of bureaucratic services due to weak institutions. Weak institutions and corruption incentivise corrupt government officials to bend the rules and impose more burdens on investors. This frustrates the ease of doing business and consequently reduces market opportunities, foreign direct investment (FDI) and economic growth. Mauro (1995) found evidence that corruption reduces investment and economic growth opportunities in developing countries. Reinikka and Svensson's (2005) literature reveals how corruption influences the government’s investment in primary school enrolment (public goods), thereby impacting the human development index in Uganda. Inefficiencies in government policies and programs could signal opportunities for corrupt officials to input more inefficiencies that would have been absent to get bribing opportunities (Reinikka and Svensson, 2005; Meon

and Sekkat, 2005). With the sand-the-wheel hypothesis, the compensation for corruption is usually for government officials (bureaucrats), while institutions risk being grounded.

1.8 Key Findings of the Study

The study's main findings are presented in this section based on the three broad empirical chapters. The first empirical chapter finds empirical evidence that financial development positively impacts self-employment entrepreneurship and newly registered businesses. Interacting financial development with trade variables and improving access to finance can contribute massively to new business formation and self-employment entrepreneurial activities. This will advocate for legislation reforms to strengthen financial institutions and the business environment for entrepreneurial activities, financing, partnerships, and sustainable growth.

The second empirical chapter contributes to the literature by empirically testing the impact of access to finance on firms' performance. The study contributes to finance literature on the economic development of developing (African) countries. Entrepreneurship in Africa is poorly understood, and this study is one of the first literature to use cross-country firm-level data to analyse the impact of access to finance on entrepreneurship. The study finds that enhancing financial development is significant and positively impacts entrepreneurship. This also has policy implications for policymakers. This also implies that financial development is economically substantial in stimulating firm performance in employment, improving sales and labour productivity, and increasing export intensity. The study also contributes to and informs policy development for entrepreneurial growth.

This empirical study contributes to African and developing countries' entrepreneurship and institutional quality literature. The study finds that weak institutional climate retards entrepreneurial activities and that this result holds both in less and high entrepreneurial areas. The study finds evidence of the grease-the-wheel hypothesis in the studied countries. The study's result also demonstrated that reduced corruption speeds up entrepreneurial activities but becomes an obstacle to entrepreneurship when it becomes endemic.

The study also contributes to small business literature by formulating a new definition of small business. The study defines small businesses as newly registered businesses that have paid salaries for 36 months and have employees ranging from 1 – 19. The study also contributes to methodology as this is the first time these countries are combined in a single study with data drawn from five diverse sources: the World Bank Global Financial Development Database

(GFD), World Bank Development Indicators database (WDI), World Bank Entrepreneurship database, Systemic Peace, and Heritage Foundation. Two or a few of these countries could have been combined in entrepreneurial literature.

1.9 Structure of the Thesis

This section outlines the various chapters of this thesis. Having discussed the objectives, background, and relevance of the study, the study's country context, and trends in access to finance in this introductory chapter, the structure of the thesis is organised in the following manner. The thesis comprised three broad empirical chapters: financial development and entrepreneurship at the macro level in Africa, firm-level perspective on financial development and entrepreneurship, and the role of institutions and entrepreneurship. Chapter 2 comprised a general literature review of the study (for all three broad chapters). The literature review is subdivided into theoretical and empirical literature reviews, highlighting the various theories the study founded.

Chapter 3 analyses the first empirical chapter of the study "Financial Development and Entrepreneurship at the Macro Level in Africa". This chapter describes the methodology, variable description, empirical specification, results, and the findings of the empirical chapter. The estimation technique adopted for this empirical chapter is the fixed effects regression technique. The Ordinary Least Square's and fixed effects results were presented in the results section. Chapter 4 evaluated the second empirical chapter. This chapter analyses the methodology, conceptual framework, results, and findings. The estimation technique adopted for this empirical chapter is the instrumental variable technique, and the first and second-stage results were presented in the results section. Chapter 5 investigated the third empirical chapter that focuses on the role of institutions in entrepreneurship development. The chapter discusses the methodology, data description, model framework, results, and findings. The estimation technique adopted for this empirical chapter is the quantile regression technique, and results and conclusions were presented in the results section.

Chapter 6 focuses on general findings and discussion of all empirical chapters of the thesis. Chapter 7 outlines the conclusion and policy implication of the thesis. The limitations of the study and future research direction were also discussed.

CHAPTER 2

Review of Literature

2.1 Chapter Overview

In this chapter, I present empirical and theoretical reviews of extant literature on the definition of entrepreneurship and measuring access to finance. Due to the broad nature of entrepreneurship, defining and measuring entrepreneurship simultaneously becomes very interesting yet contentious. I also highlight entrepreneurship motivation, a common debate in entrepreneurship literature. As pointed out earlier, the thesis comprised three empirical chapters and the literature review was carried out to reflect these empirical chapters. The thesis's theoretical underpinning focuses on the research's rationale and context. This chapter concludes with the determinants of entrepreneurship in the SSA region. The determinants of entrepreneurship were presented as control variables across the three empirical chapters. A table of all the study variables is presented in this chapter.

2.2 Exploring Entrepreneurship Motivation and Classification

The motivation to become an entrepreneur has significantly determined what drives entrepreneurship in regions. This stems from the work of Schumpeter (1934) and Kirzner (1963) about the concept of entrepreneurship. Schumpeter's (1934) concept of ideal entrepreneurship is innovating and creating something new, especially with production. This broadly encompasses technological adoption and the development of new ideals and novel content. Kirzner (1963) perceived entrepreneurship as a concept of alertness to profitable opportunities to make profits. This includes rent-seeking and arbitrage opportunities, majorly due to the nature of markets. Both forms of entrepreneurship seek to dominate the market share, but the approaches differ slightly. This has been seen as the primary measurement of entrepreneurship, as most literature defines entrepreneurship based on Schumpeter's or Kirzner’s ideology. This is further categorised as necessity and opportunity-oriented entrepreneurship (Coffman & Sunny, 2021). This classification depicts the motivation to become an entrepreneur within Schumpeter or

Kirzner's entrepreneurship concept. Necessity entrepreneurship entails the choice of entrepreneurship due to (un)employment issues, while on the other hand, opportunity entrepreneurship refers to the option of becoming an entrepreneur because there are opportunities to explore (Dencker et al., 2021). Nagler and Naude (2014) opined that entrepreneurship in Africa is necessity-oriented, and their opinion is based on the economic situation within the SSA region. Most SSA countries are lower-middle- or low-income countries with complicated issues of increasing population and unemployment rates. It is plausible that more of the unemployed citizenry would find their way into entrepreneurship as a last resort to employment.

There is also the pull and push aspect of entrepreneurship motivation. This categorisation investigates the dichotomy between the pull and push factors of entrepreneurship. These could be natural, environmental, and socioeconomic factors that push locals internally or pull citizenry externally into entrepreneurship. Within the African context, major pull factors are unemployment and the seasonality of weather conditions (Nagler & Naude, 2014). Most African countries have common atmospheric weather conditions, namely the rainy and dry seasons. This also shapes the kind of small business opportunities that could be explored with small capital and is very attractive to the unemployed citizenry as an alternative to employment. The different seasons also determine the planting periods and types of plants to be cultivated, which influence the availability of raw materials for manufacturers. A combination of seasons and poor infrastructures means some roads are unusable during the wet seasons, affecting the food chain in those regions. Food processors and manufacturers that depend on that food chain for raw materials are knocked off and almost inactive during wet periods. The pull factors are mostly connected to opportunistic entrepreneurship that involves significant capital investment. The local economy also presents opportunities for small businesses that do not need substantial capital investment. Because of the level of economic development in most African countries, one could understand and not be surprised by the prevalence of necessity entrepreneurship in the African region. Kirzner's concepts theorised that, in as much as markets are imperfect in business terms, explorable opportunities for profits would always abound for those who want to explore a further level of needs (Dencker et al., 2021).

2.3 Metrics of Entrepreneurship Measurement

Although much has been written about entrepreneurship theoretically, less empirical research complements theoretical literature (Porter, 1990; Baumol,1993; Wong et al., 2005). Because of the broadness of entrepreneurship, finding an acceptable measurement that suits the multi-disciplinary nature of entrepreneurship, especially in the empirical literature, is difficult (Wong et al., 2005; Salgado-Banda, 2007). Self-employment is a prevalent entrepreneurial activity often used to proxy entrepreneurship in extant literature (Ace et al., 2012; Atherton et al., 2016; Nagler & Naudé, 2014). The World Bank data is a cross-country annual data, and it is one of the most comprehensive and earliest data used in extant literature to measure entrepreneurship. This measurement has underlying concerns, as it is with most data. However, it features more countries than other datasets (Grilo & Irigoyen, 2006). Measuring entrepreneurship with self-employment could be contentious. Self-employment is the only entrepreneurship measurement for multi-year and cross-country analysis (Ace et al., 2012). The primary concern of the self-employment proxy is that it does not measure the motivation for becoming self-employed.

The GEM data is seen as a better measurement since it categorically differentiates entrepreneurship into distinct groups such as early-stage entrepreneurship, established business ownership rate, new business rate, entrepreneurial employee activity rate (Reynolds et al., 2009), total entrepreneurial activity (henceforth TEA) rate, high growth potential TEA, necessity TEA and opportunity TEA (Wong et al., 2005). This measure clearly states the entrepreneurial activities, motives, and the level of entrepreneurship in a region. Survey data also allows researchers to get helpful information from respondents. The major setback of the GEM data is that it is not available for many countries. African countries are sparingly represented in the yearly dataset. It was introduced in 1999 and cannot be used to understand the trend of entrepreneurship before 1999. It also measures entrepreneurship based on Schumpeter's perception of entrepreneurship and ignores the alertness concept of entrepreneurship (Marcotte, 2013). The conceptual dimension of the GEM data is based on innovation and growth potentials or a combination of both and has been termed problematic for entrepreneurship literature. Some of the GEM dataset measurements of entrepreneurship include the following (Renolds et al. (2005):

Total early-stage Entrepreneurial Activity Rate (TEA): percentages of the population ages 18-64 who own (manage) a new business or are engaged in nascent entrepreneurship. This entails entrepreneurial activities ranging from starting a business for more than three months to owning a business and paying salaries to the owners for less than 42 months (about three and a half years).

Established Business Ownership Rate: percentage of the population aged 18-64 who own an established business. An established business is seen as a business that has been running and paid salaries and wages to the owner for over 42 months (about three and a half years). When a business surpasses the TEA rate, it can be termed an established business.

Entrepreneurial Employee Activity Rate: This entails the level of involvement of employed staff in either starting a new business or introducing a new product and service. It takes cognisance of the level of the participation of employed staff in firms' innovative activities.

Entrepreneurial Intention Rate: Percentage of the population ages 18-64 who are self-employed (latent Entrepreneurship) and are willing to start their own business in three years.

Motivation Index: percentages of the population ages 18-64 involved in TEA, which is innovation and opportunity, divided by percentages of those aged 18-64 who are driven by necessity entrepreneurial orientation.

High-Growth Established Firms: These are established businesses and firms with over twenty (20) employed staff. There

Marcotte (2013) used data from the GEM dataset, World Bank entrepreneurship survey, EIM COMPENDIA and Eurostat barometer to investigate the relationship between various measurements and indexes of entrepreneurship and try to understand the relative features of these measurements. The author noted that combining various proxies of entrepreneurship gives a more comprehensive and generally accepted concept of entrepreneurship than a single proxy. He argued that most entrepreneurship data and proxies have different approaches to entrepreneurial activities, hence the inability to converge a unifying definition of entrepreneurship. He noted that differences in methodological and conceptual depth of datasets could be more advantageous if there are higher levels of synergy to complement each other. The study also attributed the perception of how individual, national, and organisational entrepreneurial activities are measured as a relevant factor in determining an ideal entrepreneurship concept.

Arin et al. (2015) used the Bayesian approach to investigate the impact of model specification on the factors that drive entrepreneurship. They argued that the inability to develop a finite model in empirical entrepreneurship literature is prone to errors. The authors did not see the justification for researchers to be free in specifying their model and believe that using traditional models like the Bayesian model is a better alternative. However, their emphasis was on alternative approaches to empirical research and not a complete change to traditional empirical research approaches. They used the GEM data total early-stage entrepreneurial activities (TEA rate) to measure entrepreneurship. As noted earlier, the TEA rate measures the percentage of the adult population actively involved in starting, owning, or managing a business in less than 42 months (Reynolds et al., 2002). The study used linear regression analysis and the Bayesian model averaging with 32 entrepreneurship determinant indicators to investigate model specification uncertainty.

Grilo and Irigoyen (2006) used data from the Eurobarometer survey on entrepreneurship to investigate the impact of demographics and obstacles perception on entrepreneurship spirit in the USA and 15 European countries. They used declarations for self-employment and actual self-employment activities to measure entrepreneurship. They opined that the motives of individual occupational choices depend on entrepreneurial skills and the keenness towards risk. The survey engaged respondents in choosing between being employed or preferring self-employment as a proxy for declaration of self-employment. The authors argue that country-specific effects are determinant factors influencing both preferences for and actual entrepreneurship activities. Dvoulety (2017) used newly established firms and self-employment to investigate the impact of entrepreneurship on economic growth. This is because newly registered firms are more innovative and consequently more likely to impact economic growth (Gonzalez & Pena-Legazkue, 2015; van Praag & Versloot, 2007) than other forms of entrepreneurship. In cross-country analysis, new, innovative, and high-growth firms are synonymous with increased gross domestic product (GDP), creating jobs and financial rewards for business owners, leading to economic growth. Dvoulety (2017) also acknowledged the influence of data in empirical studies and opined that a better approach would be robust survey data that captures most entrepreneurship components.

The results of Grilo and Irigoyen's (2006) study complemented their argument that country-specific effects positively impact both preferences for self-employment and actual self-

employment activities. The measurement of self-employment is a response to the survey question if the respondent planned to become self-employed. Since the respondents are already self-employed, it would be easy to respond positively. This raises an issue of bias and the genuineness of respondents. The study used probit regression, which uses binary opinion and does not give much information about the nature of the relationship. It gives the probability and chances of occurrence of a regression relationship. This current study used self-employment and newly registered businesses (firms) as a proxy for entrepreneurship. Both forms of entrepreneurship complement each other regarding motivation and the pull/push factors such that one shortcoming is supplemented by the other.

Dvoulety's (2017) study observed that newly established businesses positively impact growth, while self-employment did not impact economic growth in the Czech Republic. The results also show that both forms of entrepreneurship significantly impact the lower unemployment rate, thus complementing job creation. The findings of Dvoulety (2017) would be seriously affected by the dataset used since the study used data from 13 regions of the Czech Republic. The study region should not have much variation since they are of one nationality and the same economy. The current study used data from 17 African countries from West Africa, East Africa and Northern Africa, with wide variations in economy, culture, governance and even religion. Both the survey and study results of Grilo and Irigoyen (2006) highlighted the negative effect of financial constraints on entrepreneurial activities. The study countries are some of the most developed economies, yet issues of financial constraint persist. Their study also used the USA as a benchmark for entrepreneurship and found that being non-American reduces the chances of being self-employed. The level of entrepreneurial activities in the USA is very high, and using America as a benchmark is almost unrealistic as the result is expected. The authors' findings about country-specific effects are related to extant literature that raised concerns about conflicting empirical results often based on the data used (Dvoulety, 2017; Beck et al., 2010).

The results of the Arin et al. (2015) study show that although gross GDP per capita, unemployment tax rate, and inflation are negative and statistically significant to entrepreneurship, these are consistent entrepreneurship determinants across both regression analyses. They noted that inflation and taxation are government tools like incentives in moderating entrepreneurship activities. Arin et al. (2015) used the GEM dataset, which has ambiguities that make this study not better than other literature. Most empirical literature always

uses control variables for perceived shortcomings in the dataset. Using control variables should resolve issues of misspecification of the regression model. Also, since entrepreneurship determinants vary across regions, it is difficult, if not impossible, to prescribe a standard model for all areas.

Using correlation and hierarchical cluster analysis, Marcotte (2013) finds that in three cluster framework, indicators of venture creation, business ownership irrespective of the sizes, and growth of businesses tend to converge and diverge from the innovation concept in the first cluster, direct opposite with the same entrepreneurship indicators in the third cluster and balanced in the second (middle) cluster. This indicates that a broader concept of entrepreneurship will encompass more indicators other than the frequently used indicators of new businesses, business ownership rates and innovation activities.

Marcotte's (2013) work suffers from measurement errors and availability issues, often leading to too many computations that make interpretation difficult. Since the measurement parameters employed by these datasets are not the same, they would ordinarily be converted to general parameters. For instance, the GEM data is expressed per the age of the population between 18 and 64, while the World Bank group is expressed per population of 1000 people between 15 and 64, and the OECD data is expressed as a percentage of GDP. To use these datasets in a comparable study, they must be computed to have a standard unit of measurement. Also, these datasets are unavailable yearly to give a wide range and period for comparing entrepreneurship indicators. They are also unavailable for every country for a comparable investigation across countries. For instance, the EIM COMPENDIA dataset is only available for OECD countries. Additionally, the approach with which these datasets define entrepreneurship matters. The GEM defines entrepreneurship from the individual (or group of individuals) perspective, while the World Bank defines entrepreneurship from the firms' perspectives. These measurement issues have influenced empirical study results, making entrepreneurship research more dynamic in recent years.

2.4 Dynamics of Entrepreneurial Finance

Financing entrepreneurial projects is an integral part of the entrepreneurship process that often determines most businesses' performance levels. Within the entrepreneurship field, financial constraints, which is the inability of firms to access finance (or limited access), are probably the most discussed aspect of entrepreneurship study. The reliance of (small) firms and businesses on finance and financial development cannot be overemphasised, as every business component depends on a healthy flow of financial capital. In the production model, any missing element in the production means of land, labour, and capital (financial capital) would have a devastating effect on the success of the production model. Notwithstanding the introduction of total factor productivity (TFP) into the production model, financial capital remains relevant to attaining the desired impact of technological expansion. The primary forms of entrepreneurial finance are bank finance and venture finance. With bank finance, the entrepreneur retains total control and ownership rights, including bank debts, while control and management (daily running) are shared in venture finance (Winton & Yerramilli, 2007). Due to the study region's development level and the requirement to access bank loans, bank finance is still prevalent. However, the size, age, and information asymmetries associated with small businesses have made access to finance even more problematic.

The requirements of bank finance are cheaper and comparatively more competitive and friendly than venture finance (Bettignies & Brander, 2006). Venture finance is not as popular in the study region, plausibly due to the nature of entrepreneurship and the requirement for venture finance. Venture finance depts and equity contracts can be very stringent and are often designed such that in the event of default, venture capitalists can obtain complete control of the firm (Kaplan & Stromberg, 2003; Winton & Yerramilli, 2007). Bank finance employs less exhaustive monitoring policies compared to venture capital. Small business owners and firms do not have to worry about the complete takeover of their firms or limit their chances of accessing other means of finance, as is the case with venture capital. This has led to the development of other alternatives and the development of the banking sector as the primary source of external finance. Other entrepreneurial finance alternatives sprung up in response to the development of financial sector intermediaries and financial constraints (demand) of small businesses. These financial alternatives have proven to be very creative, especially for smaller businesses in their formation stage, where the initial finance needed for start-up could be problematic. These financing

alternatives are unique in their modus operandi, and some of them include crowdfunding platforms, incubator finance, seed funds, Angel finance, fintech, and university seed funds (Bonini & Capizzi, 2019). Like venture capital, these new financial alternatives are still poorly developed in the study region. However, their successes and impact on developed economics have made them well-known within the SSA region. It then becomes a matter of time when they will be more readily available to small businesses. The combination of venture capital and alternative financing has not reduced the dominance of bank finance. Instead, their unpopular nature and the under-development within the region have given more dominance to bank finance. Moreover, the debate regarding external financial alternatives has been centred on developing the study regions' financial sectors and finance policies. Levine (1997) argued that financial development is necessary to improve financial allocation and its associated risks. A lot of theoretical and empirical evidence illustrates a strong positive relationship between the developed financial sector and economic growth, and this association has a spillover effect on entrepreneurial activities (Alfaro et al., 2004; Hermes & Lensink, 2003). Increased access to finance improves firms' performances through an accelerated rate of increased investment in technology, high growth, and profitable opportunities (Naeem & Ki, 2019). Two channels through which financial development impacts entrepreneurship and economic growth are the development of financial intermediaries and their activities and the efficient allocation of bank savings to deserving firms (Nourzad, 2002). The developed financial sector encourages a saving culture, which signals more loanable resources for the banks. The efficient allocation of these banks' resources increases firms' performance and efficiency of production factors (Hermes & Lensink, 2003). The measurement of financial constraints depicts the relationship between a firm’s financial strength and ability to access bank loans.

The measurement of access to finance in most literature is either financial constraint which is more of the demand side of finance (Paulson & Townsend, 2004; Baliamoune-Lutz et al., 2011; Bewaji et al., 2015) and development of financial or banking sector which is more of supply side of finance (Becks et al., 2010; Naeem & Ki, 2019; Uddin et al., 2022). This broadly shows that in a perfect capital market, access to finance is conditioned on supply and demand market forces. However, institutional quality and agency costs associated with information asymmetries (imperfect capital market) have created a situation where accessing finance does not correspond

with market forces (Naeem & Ki, 2019). In most developed economies, financial systems are either market-oriented, for instance, in the UK and US or bank-oriented (Japan and Germany). These forms of financial systems affect the measurement of entrepreneurial finance in the extant literature and impact the outcomes of most empirical studies (Arestis et al., 2015). Beck, Demiguc-Kunt, and Levine (2010) noted that global financial deepening has not been felt equally across countries, with high-income countries benefiting more than low-income countries. Financial development entails strengthening institutional quality and making monetary policies that extend financial services to a broader fraction of the population. It should aim to improve the monetary transmission mechanism and network of financial flow such that more categories of businesses, firms, and households are captured to improve financial inclusion. Poor (including bad) monetary policies lead to an insufficient supply of bank loans and consequently reduce the investment capabilities of firms and businesses (Vera & Onji, 2010). This often occurs in the form of contractionary measures and weak indicators of the components of the financial sector.

2.4.1 Banking Sector

Beck, Demiguc-Kunt, and Levine (2010) group financial development indicators into four categories: size, depth (structure), profitability and efficiency of the banking sector. These indicators profile the activities of the banking sector relative to the soundness and health of the banking sector. These activities range from accessing finance from the banks, which majors on the demand side of the bank-lending mechanism, to the profitability and stability of the banking sector, which majors on the supply side of the bank-lending chain. It highlights the effectiveness of the banking sector in carrying out its lending duties without any concerns of struggling. For instance, a very high net interest margin and bank overhead cost signify a weak level of the bank's efficiency, as the high net interest margin could reduce the number of transactions and depict ineffectiveness in the demand and supply of loans (Beck et al., 2010). The Z-score is another critical indicator of the banking sector that is used to determine the chances of default of the banking system. It acts as a barrier against the insolvency of the banking sector. A higher Z-score depicts a higher level of stability in the banking sector. In extant literature, private credit by deposit money bank and domestic credit to the private sector are some of the most used accesses to finance proxies. Both indicators are often used to measure the depth of the finance sector. The

source of these indicators is the World Bank data, which also increases their acceptability and availability for a cross-country study. They give an accurate picture of the level of monetary supply to the private sector, which speaks volumes of the extent of financial inclusion of the private sector. The performance of a country's deposit money bank influences the level of investment and competitiveness of the private sector. Thus, countries where the central bank dominates the deposit money banks in financial intervention in the private sector are believed to have poor financial development and vice versa (King & Levine, 1993; Beck et al., 2010). The central bank in most SSA countries has very dominant monetary policies. It could be a plausible reason issues of financial constraints are still dominant among small businesses in the region.

2.4.2 Financial Constraints

As mentioned earlier, most extant literature on entrepreneurial finance is based on financial constraints, which is the inability of businesses to either access finance or access insufficient external finance (Bewaji et al., 2015; Naeem & Ki, 2019). The growth of the private sector and small businesses depends on the level of their financial capacity and acquired capital (Baliamoune-Lutz et al., 2011). Improving the efficiency of the financial sector will reduce the constraints in accessing finance and enable entrepreneurs to maximise their potential in anticipating future profits and exploiting perceived opportunities. The level of disparities in financial inclusion of small businesses that are financially constrained is high, and any attempts to reduce disparities among small businesses will improve financial inclusion and socioeconomic growth (Jiang et al., 2019). The level of financial constraints could be influenced by other factors that are not within the control of the small businesses. Some of the factors and concerns raised in extant literature include property rights, collateral (Baliamoune-Lutz et al., 2011), use of social capital (Akoten et al., 2006), inadequate financial information (Jiang et al., 2019), taxation (Darhihadani et al. (2018), and a host of others.

Financial constraints can also be another way of measuring under-investment, which reduces entrepreneurs' potential and productivity. Firms that are financially constrained can discuss efficiency based on available resources and not based on available opportunities. Under-investment could be costly as some high-growth potential opportunities are abandoned mid-way, resulting in investment loss. In contrast, other opportunities could be wasted (lost) due to the inability to access external capital. Development of the financial sector can intervene and provide

external finance for business projects that are midway to prevent loss of investment. A developed financial access can also collaborate with small firms such that banks allocate resources to finance high-growth opportunities, and such projects are monitored until maturation. Paulson and Townsend (2004) investigated the correlations between entrepreneurship and financial constraint in Thailand and observed that the level of financial capacity determines the nature of entrepreneurial activities in Thailand. Paulson and Townsend's (2004) literature highlight the relevance of household savings to the entrepreneurial activities of small businesses. The household survey showed that about 60% of the households started their initial businesses from household savings.

Due to financial constraints, most small businesses in the study region are innovative in allocating capital resources to survive the formation stages. Those entrepreneurs who survive the first twenty-four months in their business are most likely to have done things differently than their peers. This part and the resilience of small businesses are often not captured in extant literature since the measuring rate of innovation depends on financial spending on research and technology or the introduction of new products or services (Crick et al., 2018). One channel developed by the banking sector that could resolve financial constraints and information asymmetries is the development of financial intermediaries that take up these responsibilities and enforce better monitoring and transparency in the bank lending mechanism (Naeem & Ki, 2019). Financial intermediaries specialise in banking activities in response to banking sector inefficiencies (Levine, 2005). The central bank could set up and encourage private sector partnerships in forming financial intermediaries to take up these tasks, such as checking credit score (creditworthiness), diversifying risk, and overseeing and streamlining lending procedures to improve efficiency.

2.5 Understanding the Potential of Financial Infrastructure and the Challenges of Financial Constraints

2.5.1 Access to Finance and Entrepreneurship in SSA Countries

Boermans and Willebrands (2018) argued that access to finance in developing countries is important to entrepreneurial success. They empirically investigated the impacts of financial constraints on small and medium enterprises (henceforth SMEs) in Tanzania who are clients of microfinance institutions (MFI). Their findings showed that financial constraints negatively but

significantly impact entrepreneurial productivity. This reinforces the role of ease and cost of finance on entrepreneurial activities. Their findings also demonstrate that borrowing among entrepreneurs also increases entrepreneurial activities. This indicates that reducing the ease and constraints in accessing finance will enable entrepreneurs to maximise their potential in anticipating future profits and exploiting perceived opportunities. The study focused on Tanzania, which is quite different from my study, which covers 21 other countries, including Tanzania.

Baliamoune-Lutz et al. (2011) investigated the impact of financial constraints on productive entrepreneurship using data from 20 African countries. They opined that entrepreneurship growth depends primarily on acquired capital. They noted that entrepreneurship within the African region will benefit more by matching entrepreneurship skills with the appropriate technology. They measured entrepreneurship as new business density and used the legal right index, credit information index and the ratio of bank liquid reserves to bank assets as a measure of access to credit. Their study finds empirical evidence that information dept and legal rights in capital markets impact entrepreneurial activities. Although they used the three measures of access to finance in their study, the credit information index is of significant interest. Most banks prefer lending to bigger firms and rich individuals, thereby disproportionately cutting off most smaller enterprises. One way they do this is by making credit information less available for small business owners. This study is similar to my study, but the focus is different. While my study seeks to empirically test the relationship between private sector credit and entrepreneurship in these 21 African countries, this research points out the fact that although there is high liquidity of banks within Africa, the problem of access to finance persists. Their study specifically focuses on firm creation and growth, which are the ultimate goals of entrepreneurship study.

Akoten et al. (2006) used the multivariate probit model to empirically investigate the impact of access to credit on micro and small enterprises in Kenya using survey data. The study used 109 randomly selected entrepreneurs from three garment manufacturing clusters in Kenya. The study was based on the premise that both formal and informal credit impact micro and small enterprise growth. They opined that young entrepreneurs depend more on social capital from family and friends while their experienced counterparts depend more on bank loans. They used entrepreneurs from the garment manufacturing sector as a measure of entrepreneurship and loans from family and friends, rotating savings and credit associations (ROSCAs), microfinance

institutions (MFI), and banks as a measure of access to finance. Although their results are very relevant to existing literature, the garment manufacturing sector might not give a holistic view of entrepreneurship. These garment clusters might have some specific advantage, which may not be the case for other forms of entrepreneurship. The sample size is also small, which can lead to biased results. Their findings that new business owners depend more on social capital, which is expensive and has a shorter repayment period compared to bank loans, highlight the reasons why most new businesses collapse within their first twenty-four months.

2.5.2 Access to Finance and Entrepreneurship in Other Developing Countries

Jiang et al. (2019) believe everyone should have access to finance, and improved financial inclusion will promote farmers' entrepreneurship and develop the rural economy. They looked at the impact of the Inclusive Finance Development Index (henceforth IFD index) on farmer's entrepreneurship in China. The IFD index, to a significant extent, measures the level of access to financial services in a region. They described an IFD index in three dimensions: financial institution development, financial service availability and usage. They noted disparities in the financial inclusion levels of various regions and provinces in China and that reducing disparities will promote farmers' entrepreneurship and economic growth. They used the kernel density estimation method based on more inference with few pre-conditions for validity (Botev et al., 2010). I used the ordinary least square method in this current study, where the (minimum) variance is paramount to reduce estimation biases. The ordinary least square estimation also has more conditions for validity, thereby increasing the reliability of results.

Paulson and Townsend (2004) investigated the relationship between entrepreneurship and financial constraints in Thailand and noted that finance determines the nature of entrepreneurial activities in Thailand. They indicated that wealthier families in the Central region, compared to low-income families in the Northeast region, are more likely to start and continue to invest more in their businesses because they have fewer financial issues. They used household surveys of socio-economic and institutional study to empirically compare the relationship between entrepreneurship and financial constraints in Thailand's wealthy central and (poorer) Northeast region. They used nonparametric and reduced-form econometric evaluation to test this relationship. They argued that education and investment are more complimentary than a

substitute for entrepreneurship. They also showed that joining a financial group is a good indicator of a potential entrepreneur, as a financial group promotes entrepreneurship.

Paulson and Townsend's (2004) literature highlights the importance of savings and entrepreneurial activities to low-income economies. The household survey showed that about 60% of the households started their initial businesses from household savings. Shrimp or fish farming as a business accounts for 26% of the total business of the sampled region, which is higher than having a shop and trading, which accounts for 25% and 19%, respectively. One thing that is certain for all businesses is that there must be a small quantity of innovation to survive the initial start-up years. Those entrepreneurs who survive the first 24 months in their business are most likely to have done things differently than their peers.

2.5.3 Access to Finance and Entrepreneurship in Developed Countries

Bewaji et al. (2015) argue that cash constraints hinder minority entrepreneurs' growth and that few studies educate minority entrepreneurs on how to access funding. They empirically investigated the difficulty of minority entrepreneurs in accessing funding in the United States. They used hierarchical regression analyses to analyse survey data of 2119 respondents in 2005. Their findings show that minority entrepreneurs, compared to non-minorities, are less likely to access loans from financial institutions. Although their research used data from the United States, related results have also been found in Israel (Kushnirovich & Heilbrunn, 2008) and the United Kingdom (Sepulveda et al., 2011). Related results were observed in Israel and the United Kingdom, which may be due to similarities in demographic characteristics and level of development of their financial institutions. This differs from the African regions due to the level of development of the financial sector and other institutions responsible for ease of doing business.

Schmalz et al. (2017) investigated the impact of cash constraints in the form of collateral on entrepreneurship using data from French labour force statistics from 1992–2002. They compare the outcomes of entrepreneurs who are house owners and those on rents and then relate it to the differences observed from the house-price dynamics. They did this on the premise that an increase in house prices would cause the value of the collateral to increase, thereby providing income to start a business. The study results show that increasing collateral value increases the chances of becoming an entrepreneur. Their study highlights the importance of access to finance

to post-entry entrepreneurial activities. This also affects the exit rate of entrepreneurs. Ideally, people tend to quit if they struggle to meet their objectives. Within the African region, using collateral in accessing loans is a significant constraint as most entrepreneurs may not have collateral that meets the bank's loan requirements.

Darhihadani et al. (2018) argued that start-up costs and taxes interact with (innovative and non-innovative) entrepreneurship differently. They opined that a recurring cost, primarily taxes, should relate negatively with innovative entrepreneurship, while start-up cost, which is a one-off cost, should relate positively with innovative entrepreneurship. They measured start-up costs as expenses to register a new venture legally, and data for innovative and non-innovative entrepreneurship was collected from the GEM data set. These authors used a different measurement of entrepreneurship (early-stage Tea), but the impact of access to finance is the same. If not effectively regulated, taxes and other governance institutions (Institutional quality) could pose a constraint and sand the wheel of the solution they are designed for (Djankov et al., 2010).

Hulten and Ahmed (2013) used online survey data from five small and medium-sized businesses in Australia to empirically investigate the difficulties of Australia's migrant entrepreneurs in accessing external bank finance compared to their Australian-born migrants. The study highlighted the importance of access to finance in pursuing an entrepreneur's goals and objectives. The study result shows that more migrant entrepreneurs, compared to Australia-based entrepreneurs, report access to finance as an obstacle, have received loans from family and friends, and have lost entrepreneurial opportunities due to lack of finance. However, restricting entrepreneurship to immigrants may not give a broad view of the difficulties associated with access to finance. The survey was also conducted online, which may affect the response rate and cause issues with excluding primary targets. Respondents may not reflect a more significant portion of the target group, which will have grave consequences on the results. The results might not capture a holistic trend of imparting access to finance on entrepreneurship in the region.

2.5.4 Entrepreneurship and Informal Finance

Informal finance is a form of financial service rendered outside the banking sector. It is an essential and alternative means of accessing entrepreneurial finance in regions where financial institutions are weak and access to bank loans is difficult (Wu et al., 2016). This is widespread in developing countries and even more in lower-income countries of Africa (Manolova et al., 2006; Ayyagari et al., 2010). Insufficient financial capital retards entrepreneurial development, innovation and economic growth. Underinvestment reduces operational and innovative activities to the extent that firms can hardly grow (Rahaman, 2011). Informal finance popularity within the financial ecosystem is a response to the inability of the banking sector to provide formal banking services and the development of the stock market for sustainable growth (Turkson et al., 2022). An essential aspect of informal finance is that it is relatively easy to access, and the timeliness of the transaction is better than that of the formal banking system (Wu et al., 2016). This makes informal finance very attractive to small businesses. However, the interest rates can be costly, and the repayment default can be expensive.

Wu et al. (2016) examined the impact of informal finance on product innovation using a survey dataset of Chinese firms. Their findings showed an inverted U-shaped relationship between informal finance and production. This means that the relationship can be both positive and negative depending on the amount of informal finance used. The result is positive at a relatively moderate amount but becomes negative when the amount is higher. This finding reveals the effects of the high interest rate of informal finance. The high interest rates would reduce the profit margins of investment and increase the break-even period, which could be detrimental to the daily operations and existence of small firms.

This is consistent with the findings of Beck et al. (2015), who found a positive relationship between informal finance and small firm growth. Using Chinese rural household survey data, Beck et al. (2015) investigated the effects of external fiancé on microenterprises. They measure informal finance as borrowing from friends and family, while the microenterprises are privately owned household businesses. They found that informal finance is positive and statistically impacts the growth of microenterprises, while formal finance does not affect small businesses.

Elston et al. (2016) measure informal finance with family funds to examine its impact on micro-firms in China. The study found that informal finance positively impacts micro-firms growth and

start-ups. This study also re-emphasizes the implications of informal finance on entrepreneurial activities in developing and low-income economies in Asia and Africa. However, another string of research compared the impact of informal and formal fiancé on small firm performance. Using World Bank Investment Climate survey data and the Chinese National Bureau of Statistics (NBS) dataset, Ayyagari et al. (2010) investigated firm financing patterns and growth. The study examines the role of formal and informal finance on private Chinese firms' growth and reinvestment rate. They observed that formal finance is associated with higher growth and reinvestment rates when compared with informal finance. This is consistent with the findings of Turkson et al. (2022), whose findings show that formal finance is associated positively with firm growth compared to informal finance. All these studies used survey data and a single country for analysis. It would be interesting to test these models in a cross-country analysis.

2.5.5 Entrepreneurship and Microfinance

Microfinance has been seen and used as a tool to provide financial services to poor and underserved communities. It includes lending opportunities for small and unsecured loans to create business opportunities to generate wealth and alleviate poverty in poor communities (Bruton et al., 2011; Newman et al., 2014). Microfinance schemes range from micro-savings to insurance, mortgages, and retirement plans. These schemes aim to stimulate financial inclusion and empowerment of rural communities. The processes of accessing microfinance differ from normal banking activities as they are built on existing community social ties to manage issues of adverse selection, moral hazard, and monitoring (Bruton et al., 2011). There is a group-level consequence or pressure in dealing with default repayment (Khandker, 2005).

Due to the mode of operation of serving the poor of the poorest, there is doubt about its sustainability and its relationship with economic growth. This also increases the risk of default as no collateral is involved. The microfinance model approach aims to reduce formal banking lending criteria for poorer customers who lack the collateral to secure loans and have irregular finance inflows. This is the direct opposite of formal bank lending, where having a salary and a current account, collateral, and steady financial inflow are significant factors in securing loans.

Studies have investigated the practicability of the microfinance model due to its mode of operation, the high risk of defaults, and its impact on economic growth. Another concern would

be the ability of microfinance to stimulate entrepreneurship development since the credit is small, the repayment period is short, and the demographics of the recipient are considered. This is in line with the Schumpeterian entrepreneurship ideology of creative destruction, which relates entrepreneurship to economic growth through innovation. Khandker (2005) examines the effect of microfinance on poverty reduction both for the participant and the regional level using household survey data in Bangladesh. Khandker noted that having land, education, gender, and group formation makeup are vital determinants of microfinance loans. The study results show that microfinance positively impacts poverty reduction for individual participants and the local economy. It reduces poverty by increasing the per capita consumption of poor households. This is consistent with the findings of Khan et al. (2021). By attempting to understand how microfinance impacts different poverty levels, Khan et al. (2021) used multiple secondary data sources and the probit model to examine the impact of microfinance on poverty reduction in Pakistan. The study used active borrowers, sex-wise borrowers, area-wise borrowers, lending methodology and sector-wise borrowers as measures of poverty, while microfinance was measured as individual and group lending. The study results show microfinance positively impacts poverty reduction, with more reduction effects found in Urban areas. These studies relate to entrepreneurship by using microcredit for start-ups of microbusinesses, supporting daily operations, expansion, and increasing household consumption and savings. Thus boosting entrepreneurial activities in the local economy. This also bolsters the findings of Donou-Adosou & Sylwester (2017), whose study results show that microfinance positively impacts economic growth by increasing total factor productivity. The authors investigated the growth effects of banks and microfinance banks and argued that microfinance loans increase total-factor productivity.

2.6 Analysis of Entrepreneurship Approach and Firm Performance

The SSA region's economic development level has made entrepreneurship small and often perceived as necessity-oriented entrepreneurship (Nagler & Naude, 2014), which is not innovative and does not support economic growth. However, statistical and empirical evidence in extant literature reveals that SMEs (small and medium enterprises) are relevant in job creation and economic development (Naude, 2011; Adusei, 2014). Brixiova et al., 2020 argue that SMEs create about 90 per cent of jobs within the Africa region. The study by Brixiova et al. (2020)

used a two-stage least square to resolve reverse causality issues. It opined that small firms within the SSA region are productive and will impact economic growth if financially supported. The study highlights the under-investment of small businesses due to insufficient financial capital and noted that supporting entrepreneurial projects to reduce the financial constraints would increase the productivity of small businesses in the SSA region. Baliamoune-Lutz et al. (2011) see enforcement of improved legal rights and interbank competitions for access to credit coupled with improved business environment for creditors and borrowers as a better model that can champion the pathway to productive African entrepreneurship.

The concept of entrepreneurship varies across disciplines (Acs et al., 2014). Irrespective of the variations, entrepreneurship has been seen to be essential and relevant to development (Ace & Audretsch, 1988; Blanchflower, 2000; Parker, 2018; Terjessen & Wang, 2013; Ace et al., 2009). Entrepreneurship's relevance depends on the entrepreneurial activities' performance and its impacts on economic development (Baumol, 2014; Jiang et al., 2010; Van Stel et al., 2005; King & Lavine, 1993). As noted earlier, entrepreneurship literature focuses on the rate of innovation as a benchmark for determining the impact of small businesses on economic growth (Hector, 2006; Reynolds et al., 2002). This should not be the case since firms can be productive and, at the same time, not innovative (Marcotte, 2013). The argument should be on productivity, not innovation since diverse ways exist to attain and sustain growth. Entrepreneurship studies have used various terms to proxy a firm’s performance and sometimes used them interchangeably. The most common measurement of performance and productivity is growth.

The study uses five measures of firm performance to expand African literature within the finance and firm performance debate. Firstly, the firm's performance was measured in terms of sales revenue. This is based on the opinion that the average revenue will give a picture of the firm's production capability. Secondly, the study used two employment variables to measure firm performance: size of current employment and growth in employment size. This is based on determining a firm's performance using the size of its labour and the rate at which more recruitment exercises are done to meet production demands. Also, firm performance was measured concerning labour efficiency and the ratio of annual sales to the number of employees. This gives an overview of a firm's efficient utilisation and allocation of production means. Firms with high performance also have a high labour efficiency ratio and better allocation of (scarce) resources. Lastly, the study also used export intensity as a proxy for firm performance, based on

the argument that firms set up for exportation purposes have higher production standards, hence higher firm performance. Recent literature on entrepreneurship and firm performance has emphasised the business environment, property rights, institutions, and financial constraints (Svejnar & Commander, 2007; Beck et al., 2005; Boermans & Willebrands, 2018); all of these impact firms' efficiency and mode of operation.

Weak institutional quality has also been noted as a critical factor in issues relating to financial constraints. This is often the case when market irregularities become a norm, and some firms are given preferential treatment over others (Becks et al., 2005). A recent World Bank report on ease of doing business also depicts that investing in the business environment is an essential factor to consider in the economic growth of developing and transition economies. Heshmati (2001) pointed out that the effects of policy and estimation methods employed could also affect the measurement of firm performance in entrepreneurial studies. Measurement bias could lead to misleading and wrong interpretations of research results. Nichter and Goldmark (2009) viewed firm performance as growth in the number of employees. They opined that the personal qualities of entrepreneurs, firm characteristics, contact factors such as social networks, and contextual factors such as business environment are important determinants of firm performance. Financial constraint has a grave consequence on the firm's performance strategy and planning (Brixiova et al., 2020). Strategic business plans could be abandoned or replaced with less profitable and cheaper options, often due to inadequate resources to prosecute them. Baliamoune-Lutz et al. (2011) argued that the disparities between SSA countries and developed countries remain unaffected despite the apparent growth of African countries. They noted low productivity and subsistence agrarian practice as the predominant factors. They noted that improved market strategy and well-structured policies are needed for a productive economy. Demiguc-Kunt and Maksimovic's (1998) literature finds empirical results demonstrating that market irregularities depend on the level and strength of legal and financial sectors in such countries. Their submission means that the firm's financial strategy and ability to source external finance depends on the legal and financial institutions.

Brixiova et al. (2020) used an evaluation-based approach on firm-level data from 42 African countries to estimate the productivity of SMEs with access to formal finance. They measured productivity with the number of permanent employees and used world enterprise survey data from 2006-2009. They argued that the primary cause of financial constraints in Africa is the

absence of collateral assets and issues of recovering default collateral assets. Their result showed that having access to formal finance positively impacts the number of permanently employed staff. In this current study, I used 21 countries with 14047 SMEs compared to the 42 countries in this study. My study used five measures of firm productivity to ascertain a broader understanding of this relationship and attain a robust result, which differs from this study. Using the World Bank data (Ease of doing business and World Bank indicator) for 20 SSA countries between 2005-2009, Baliamoune-Lutz et al. (2011) find empirical evidence that the unavailability of collateral assets hinders private sector growth and productivity. However, the study measured financial constraints such as credit information index and filters around the impact of collateral assets. This differs from my research, which is more on loans and credit facilities.

Beck et al. (2005) used survey data from 54 countries to investigate firm performance and obstacles empirically. They argued that developing financial institutions reduces financial obstacles for entrepreneurship financing irrespective of the firm's size. The study covers financial, legal and corruption obstacles. The contribution of Becks et al. (2005) study provides evidence that smaller firms benefit the most from an improved financial system and suffer more from a weak one. They measured the firm's performance and productivity as its sales growth. At the same time, a financial obstacle is a response to whether finance was considered a problem for the firm's operations and if access to long-term finance was an obstacle. Their study finds that the level of impact that financial, legal, and corruption constraints have on firms' performance depends on the firms' size. Beck et al. (2005) study suffers from measurement ambiguities regarding firm sizes as small firms were described as having 5-50 employees, medium has 51-500, while large has over 500 employees. My study used the World Bank enterprise survey data, describing small firms as having 5-19 employees, medium with 20-99 employees, and large firms with over 100 employees.

Heshmati (2001) argued that the estimation method and the definition of variables adopted in research are crucial factors to consider in the relationship between firm performance variables. He noted that improving regional policy programs is critical to firm performance and growth. Heshmati used the Swedish market managers dataset to determine the relationship between the size, age, and growth of micro and small firms in Sweden. The study measured micro and small firms with one to nine and ten to one hundred, respectively. Firm growth was proxied as the number of employees, sales, and assets and the OLS and GLS estimation strategies were used for

empirical analysis. The study results confirm the importance of estimation methods as there was a positive coefficient with employment, a negative with assets and an insignificant with sales model. In this study, I measure small firms as having ten to one hundred employees, which is far different from my studies. Sweden is a developed country with a robust financial system, which makes results susceptible to definition variables and estimation strategies used. This also highlights the issues with measuring variables, as proxies may not represent what it was intended for.

Using data from both the global vantage and international finance corporation dataset of thirty countries from 1980-1991, Demiguc-Kunt and Maksimovic (1998) used the ordinary least square estimation method to investigate if weak legal and financial system hinders firm's usage of external finance to fund growth. Demiguc-Kunt and Maksimovic's (1998) study finds empirical evidence that an active stock market and a developed legal system facilitate firm growth. They noted that firms in developed countries with more robust financial and legal institutions quickly obtain external funds and grow faster. The study using the stock market as a measure of financial development makes it almost irrelevant to African countries since it is not well developed in the African region.

2.6.1 Firm-Level Performance and Women-Owned Businesses

Women's and youth's involvement in entrepreneurship has also been compared to developmental processes, especially with economic growth. There have been conflicting reports that ascertain the role of women and their impact on entrepreneurship development. Women-owned businesses make up between one-quarter and one-third of businesses in the formal economy (Minniti & Arenius, 2003; Coleman, 2007). Women-owned businesses are less competitive, grow less, and are more prone to fail than men-owned businesses (Pastore et al., 2021; Coleman, 2007; Watson, 2003; Minniti & Arenius, 2003).

Using 1998 survey data on small business finance compiled by the Federal Reserve of 3561 US firms, Coleman (2007) investigated the relationship between financial and human capital and firm performance. He noted that the performance of female-owned businesses may be because of other factors, not external capital. The study describes productivity as return on sales, total annual sales (growth), and the total number of employees. The study focused on retail and service sectors due to perceived opportunities within these sectors. Coleman's (2007) results

indicate that financial and human capital positively impact performance and productivity concerning return on sales, annual growth, and number of employees. Importantly, women-owned businesses have more return on sales compared to men-owned businesses. The study used US (firms) data, a developed country with a robust financial sector, compared to my study, which used data on African countries with weak financial systems. It would be interesting if the same outcome could be attained if replicated with data from an African country. Also noteworthy is the study's definition of small businesses as firms with 500 or fewer employees, which is ambiguous, and the study did not give further size classification.

Pastore et al. (2021) used the OLS estimation method and PROTEqIN enterprise survey to test the impact of women in top management roles on firms' performance in 13 Caribbean countries. They argued that unpaid family work, low qualifications, and small capital to start businesses are essential push factors for women-owned and women-managed businesses in the Caribbean. They also opined that starting a business also increases women's decision-making ability within the family and in the public. Firms' performance is measured as productivity, performance, and employment of females. The study results show that female-owned or managed firms positively impact female employment. They also find that female-owned or managed firms are associated with reduced productivity and profitability. Unlike my study, which focuses on the service and manufacturing sectors, the study focused on the tourism sector. Tourism is not as broad and open as the service and manufacturing sector, which might affect the study's outcome. The authors also noted that the study results are valid, with some exceptions. This is important for policy implication as it can demean the study outcome.

2.7 Relationship Between Entrepreneurship Motivation and Institutions

The linkage between entrepreneurship and institutions is crucial to the development of entrepreneurship. Hence, it is present in most entrepreneurship literature. Most literature discusses institutions through the context of financial and legal institutions. This empirical study focuses on using legal means to create an institutional climate for (small) businesses to strive. The rule of law, court perception, economic freedom, level of taxation, political stability, regulation, and property rights are common proxies of institutional variables (Barasa et al., 2017; Sobel, 2008; Asongu et al., 2018; Kaufmann et al., 2011). Although all these variables cannot individually measure institutional climate sufficiently, they give insight into the variable of

interest. Another way to view this is to investigate the motivation to invest in certain entrepreneurial activities while there are incentives and interest in geographical location. Entrepreneurship is based on maximising profits, which are enhanced by an uninterrupted performance of businesses. The steady and coordinated activities are tied to the quality of institutions.

Baumol (1990) classified entrepreneurship activities as productive or unproductive (including destructive). The point where they are seen to be productive and unproductive is measured against their complaint with existing institutions. They are productive when they profit from the law's ambit, while unproductive when they seek to exploit the lapses in institutions for profits. As noted by Sobel (2008), an entrepreneur can decide to be productive when institutions and regulations are strong and favourable but becomes unproductive when institutions are weak and provide the opportunity to cash out. Schumpeterian entrepreneurship ideology argues for a dynamic entrepreneurial setup that constantly innovates and replaces itself with quality improvement for profits (creative destruction). This form of entrepreneurship has more impact on economic growth and wealth creation than unproductive entrepreneurship, which has been noted to have a zero-sum effect on growth. The quality of institutions in a country thus determines the level and the nature of explorable and available opportunities.

Government interference and uncertainties are low in economies where institutional quality is high and developed. This acts as an incentive for investment and increases entrepreneurial activities. However, an autocratic regime increases uncertainties among investors and constrains investment and entrepreneurial activities (Saunoris & Sajny, 2017). Institutional quality strengthens market forces to create supply and demand opportunities, triggering a more productive entrepreneurship culture. In other words, a developed institutional environment encourages the number of productive entrepreneurs to increase and, at the same time, frustrates the number of unproductive entrepreneurs to diminish ceteris peri bus. However, this could change and reverse itself if the institutional conditions worsen (Sobel, 2008; Lucas & Fuller, 2017).

Property rights are another signal for institutional quality that also increases entrepreneurial activities. Investors prefer safe economies with low risks for investment. Entrepreneurship thrives more, particularly where the private sector is protected and profit is certain. Investors are happy to be law-abiding if it guarantees their profits. Intellectual property rights are also not

protected where institutional quality is weak. This could lead to a massive loss of revenue and discourage investment in innovative activities. Weak institutional quality can also create a level of distrust, especially where there is weak enforcement of contracts, laws, and order. This has consequences for competition, which healthily promotes economic activities and growth (Mizaei & Moore, 2014).

2.7.1 Entrepreneurship and Institutional Climate

Entrepreneurship and institutions are interwoven, so discussing entrepreneurship development without referring to institutional climate is almost impossible. Chowdhury et al. (2019) opined that institution and entrepreneurship are integrated such that the former dictates the rules and pace of decision-making at the individual, firm, and societal levels (Sobel, 2008; Adamako et al., 2013). The same case could be made with how corruption can compromise an economy to a nosedive. Barasa et al. (2017) argued that firm innovation depends mainly on the institutional climate in which it operates. Once bad precedents and corrupt practices find their way into a system, they form a new level of constraints in addition to the existing challenging business environment. North (1990) motioned that institutions are complex and demanding situations set up by man for monitoring and control. The pertinent issue about the institutions is that they are man-made instruments that later become constraints to the same entrepreneurship they are designed to protect and help (Adamako et al., 2013). Once the games of personal interest (poor institutional quality) are set out, a complicated system becomes the norm for everyone. In most cases of a weak institutional climate, you will need the help of a bureaucrat and a lubricant (bribe) to get things done quickly. Sobel (1998) argues that the level of institutional climate determines the level of effort entrepreneurs put into productive and unproductive means. The mode and strategy employed by multinational firms in gaining access to foreign markets also depend on the prevailing institutional quality of the host country (Mayer et al., 2009). This highlights why some developing economies can attract foreign direct investment while others cannot. Statistical evidence supports that within the SSA region, multinational firms are relocating from areas with weak institutional climates to regions with better institutional climates (UNCTAD, 2019). However, suspicion has also been raised about the motives[6] of investment

[6] The United Nations World Conference on Trade and Development Report (UNCTAD, 2019) shows FDI inflows decreased only in West Africa, with growth in North and Southern Africa and East Africa remaining unchanged

and value creation to host country's economies about multinationals and foreign firms that have been observed to invest consistently in countries with weaker institutional climates (Alvi & Senbeta, 2021; Kolstad & Wiig, 2011; Sobel, 2008).

Entrepreneurship cognitive capabilities would either be driven by Schumpeter's innovative entrepreneurship or motivated by Kerzner's profit-seeking and arbitrage concept of entrepreneurship. Since there is a high demand for success, this motivation can detour and become more exploitative and unproductive whenever an opportunity presents itself.[7] Baumol (1990) advocated that institutional climate reforms are better for developing entrepreneurship and economies than government white elephant projects (including policies) that enrich corrupt officials. The contribution of Sartor et al.'s (2018) literature shows the systematic behaviour of multinational firms in countries with weak institutions. Using a sample of 643 Japanese firms and a binary estimation model, Sartor et al. (2018) observe that Japanese multinational firms prefer a joint venture strategy to deal with host government grand corruption and prefer owning a subsidiary to deal with petty corruption. Their literature depicts grand corruption as corruption involving high-ranking bureaucrats and politicians, while lower government officials orchestrate petty corruption to speed up governmental procedures. Both forms of corruption exist in different forms and present different types of uncertainty, hence the different approaches to dealing with them. Grand corruption comes with behavioural and environmental uncertainties, which could translate into a trust deficit to the multinationals, while petty corruption is more of an agency cost to investors. However, using only Japanese firms may not reflect the global practice of multinationals, which is a significant drawback of their study. Japan is a developed and high-income economy, unlike my study, which used countries from the SSA region where institutional quality is weak and access to finance is still a binding constraint.

Meyer et al. (2009) also observed similar behavioural patterns of multinational firms. Their contribution shows that multinational firms chose to enter emerging markets through green fields

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from the previous year's report. This is due to the insurgency in the Sahel that has crippled the economy within West Africa, and Nigeria, the biggest economy in Africa, has also been affected. As it increases, the FDI loss in West Africa has now trickled down to other areas.

[7] Unproductive entrepreneurship is exploitative and formed with no intention of adding value or innovating. Entrepreneurs anticipate and speculate on markets and policy weaknesses to profit from the system. Their activities do not contribute to economic development. Instead, they weaken institutions.

and acquisition where the institutional quality is high and used joint ventures where the institutional climate is weak. Weak institutional climate affects the efficiency and transparency of the local market, thereby increasing entry costs and risks for businesses (Estrin, 2002). This research differs from the current research since it focuses on foreign investors and their various entry strategies.

Chowdhury et al. (2019) used a combination of six different datasets from 70 countries and panel data to establish that institutions positively associated with the quantity and quality of entrepreneurship. They noted that different forms of institutional development present diverse and unique effects on entrepreneurship. The study used 70 countries that encompass developed and developing countries. Depending on a country's economic development level and how they react to weak institutional quality varies, which would negatively affect the study outcome. In this study, I used 21 SSA countries, none of which were developed or high-income countries. This presents a fairer medium of comparison. The study by Chowdhury et al. (2019) also argued that debt management, venture capital availability, and bankruptcy laws are more productive in developing entrepreneurship. These institutional provisions are not developed in many African countries, making their study results more of an academic finding with almost no practical application in SSA countries. Instead, their findings would support calls for policy and institutional reforms for developing entrepreneurship in developing countries (Baumol, 1990; Sobel, 1998). This empirical study used survey data from the SSA region, and results and findings have practical implications for entrepreneurs, policy markets and other stakeholders.

Barasa et al. (2017) find empirical evidence that the development of regional institution quality is statistically significant for innovation and value creation of a firm's resources. This empirical study focuses on regional institutions' models for value creation and innovative opportunity cognisance. This may be counteractive for policymakers since there is no clear distinction between national and regional institutions. This empirical study is more elaborate as it contains the countries of Barasa et al.'s (2017) study and 18 other African countries, giving it a more comprehensive level of comparability, acceptance, and application.[8]

[8] This empirical study is more elaborate since it encompasses the three countries (Kanya, Tanzania, and Uganda) of the Barasa et al. (2017) study. Kanya, Tanzania, and Uganda are included in this empirical study.

Sobel (1998) investigated the findings of Baumol's productive theory of entrepreneurship and found empirical evidence that institutional climate has a positive association with productive entrepreneurship and a negative association with unproductive entrepreneurship. Sobel's findings discredit the idea of spending heavily on governmental programs to improve private sector performance and instead advocate for market-oriented policies as a better pathway to a productive economy (Adamako et al., 2013). The variables used to proxy entrepreneurship and institutional quality were developed from a North American database and are poorly developed in the SSA region. For instance, the productive entrepreneurship index was constructed with venture capital variables, patents, self-employment, new forms' establishment rate, and large firms (firms with over 500 employees). All other proxies are not well-developed in the SSA region except for the self-employment variable. Moreover, the World Bank data survey grouped large firms in the SSA region as having over 100 employees, which is not the same in America, which has 500 employees. It will be interesting to see if the exact measurement could have the same effects if they expanded to other regions, especially developing countries.

Barasa et al. (2017) used the World Bank enterprise survey dataset and the logistic estimation techniques to investigate the relationship between institutions, resources, and innovation in three East African countries. The authors argued that institutional obstacles increase information barriers and transaction costs, which reduces market competitiveness (Meyer et al., 2009). Weak market competition makes firms unwilling to innovate and create more value from available resources. The results of the study by Barasa et al. (2017) find that the development of regional institution quality is statistically significant for innovation and value creation of a firm's resources. This empirical study focuses on regional institutions' model for value creation and innovative opportunity cognisance. This may be counteractive for policymakers since there is no clear distinction between national and regional institutions. Policies are designed to tackle specific problems within a country without prejudice to a particular region. Policy enforcement should be the same across countries and not be selective, as this would help build foreign investors' confidence and trust. Although my study used a firm-level dataset, it focused on the interaction between a firm's operations and institutional quality compared to this empirical study on regional institutions and firms' resources and innovation. My research is also more elaborate as it contains the countries of Barasa et al.'s (2017) study and 18 other African countries, giving it a broader level of acceptance and application.

Asongu et al. (2018) used the Generalized Methods of Moment (GMM) regression techniques and the World Bank dataset to empirically investigate the relationship between the use of technology (mobile phones) institutional quality and entrepreneurial development in 48 Sub-Saharan African countries. The study finds that phone penetration in the study region reduces the start-up cost, insolvency, and time to set up warehouses. They also found that mobile phone penetration increased the business registration process. Phone penetration is still early in most Sub-Saharan African countries, and the results are unsurprising. Most government institutions still operate handwritten files, and the transition will not be immediate. The study measured institutions as a rule of law and control of corruption and used a cross-country approach, which differs from the firm-level approach used in my study. The focal point of the research is the use of technology to increase entrepreneurial activities and improve the ease of doing business. Technology can substantially increase information sharing among small businesses, which is essential for survival. Technology can reduce the deficit of information index between small businesses and financial institutions, which can minimise hazard selection and information asymmetry constraint, which have been mentioned as key reasons why small businesses cannot access bank loans (Jiang et al., 2019). This empirical study used the generalised method of moment estimation approach to deal with large numbers of countries and unobserved variables. This can also be done using panel data and allowing the Hausman test to determine if the fixed or random effects approach would be more appropriate for the regression. My study used the country effects to control for variation between study countries.

Meyer et al. (2009) used both survey and secondary datasets to empirically test the relationship between institutions, resources, and entry mode of foreign investors into emerging markets economies. They used the multinomial logistic estimation model to test this relationship in four emerging economies: Egypt, India, Vietnam, and South Africa. The study results find evidence that foreign investors (multinational firms) choose to enter emerging markets through green field and acquisition where the institutional quality is high and use joint ventures where the institutional climate is weak. Weak institutions disrupt the efficiency and transparency of the local market, thereby increasing entry costs and risks for businesses (Estrin, 2002). Such disruptions are usually intentional to have a certain level of control by government officials, corrupt officials, and even non-state actors. This research differs from the current research since it focuses on foreign investors and their various entry strategies. The research also supports the

efficiencies of emerging markets backed by institutional quality. Meyer et al. (2009) research also highlights the forms of financial development lost due to weak institutions. Foreign direct investments flow away from countries with weaker institutions to economies with better institutions (UNCTAD 2019). Foreign investors who consistently invest in countries with weaker institutions have also been viewed, and eyebrows raised about their investment motives and the return of their activities on growth and value creation to the host economy (Alvi & Senbeta, 2021; Kolstad & Wiig, 2011; Sobel, 2008).

Sartor et al. (2018) examined the relationship between institutional quality in a host market and multinational firms' entry strategy with particular reference to grand and petty corruption. Using the binary logistic estimation model and Japanese multinational firms, they found evidence that multinational firms would prefer a joint venture strategy to deal with host government grand corruption and prefer owning a subsidiary to deal with petty corruption. The study portrays grand corruption as corruption involving high-ranking government officials and political parties, while petty corruption involves bureaucrats to speed up governmental procedures. Both forms of corruption exact different forms of uncertainty, hence the different approaches multinationals take to deal with them. Grand corruption comes with behavioural and environmental uncertainties, which could translate into a trust deficit to the multinationals, while petty corruption could mean more cost to investors. The study by Sartor et al. (2018) also captures the complex nature of a compromised system I mentioned earlier with the notion of grand corruption. The level of government officials and interest involved would determine the complexity and deterrents the system could be to businesses. Using only Japanese multinationals can be a drawback to this research as firms' behaviours could be traced to national culture rather than purely business strategy. It would be attractive to subject European and American multinational firms to these conditions if the result would be the same. The study also used the logistic model debatably based on logic intuitions. Control of corruption does not entirely constitute institutional quality, as portrayed by this empirical study. My study followed other extant literature to build an institutional quality index with various variables that either speed up or impede the ease of doing business.

Saunoris and Sajny (2017) examined the impact of economic freedom on formal and informal entrepreneurship using cross-country data analysis of 61 countries. They combined data from different sources and used the Two Stage Least Square estimation techniques to conduct their

research empirically. The study results show that economic freedom positively impacts formal entrepreneurship and crowds out informal entrepreneurship. The authors noted that the interaction between formal and informal entrepreneurship improves market dynamics and benefits economic development. They argued that poor institutional quality pushes formal entrepreneurs into the informal sector and causes further fragility to the institutions. This empirical study highlights some of how weak institutions strengthen the informal sector. They also acknowledge the informal sector's potential and growth rate, which should concern policymakers. This again echoes the principles of the second-best theory and the distortion that the only alternatives to excessive regulations have on the economy. The entire system is robbed of the benefits and gains as weak institutional quality forces productive entrepreneurs within the formal sector into the informal sector and become unproductive. Attempts should be made to improve institutional climate and quality to formalise the informal sector for optimum productivity of the entrepreneurial ecosystem. Saunoris & Sajny (2017) study used 61 countries at different levels of development regarding entrepreneurship and institutional quality. This can affect the results as countries with better institutions might have a small informal sector and large formal entrepreneurship and vice versa. The definition of the informal sector and what constitutes the informal sector also varies as one moves from one continent to another. Countries were drawn from different continents, and these unobserved qualities cannot be captured with the two-stage least squares estimation techniques used in this empirical study.

2.7.2 Grease the Wheel Hypothesis

The grease-the-wheel hypothesis is a contextual argument that has been very scanty in entrepreneurship literature, especially for its implications for best practices. It is essential to understand what the hypothesis entails so that its interpretation would not legitimise corruption or promote deplorable bureaucratic conditions. Grease the wheel hypothesis emphasises that corruption has a positive association with growth in countries where there are weak institutions but may affect growth in countries where institutional quality is better (Meon & Sekkat, 2005; Meon & Weill, 2010; Cooray & Schneider, 2018). The emphasis is to increase the rate of work done of what ought to function very well, but it is not. Timeliness of operation is critical to businesses, and a heavy bureaucratic governance system acts as a clog in the wheel. In specific scenarios, there could be a complete breakdown of the process of getting things done. This is

where the greasing-the-wheel hypothesis can be helpful and inject pace into the process. The time it takes to get licenses, permits, and queues could disappear with a bribe and make things faster.

In the African context, institutional quality is growing, and policymaking and governance are still in the developmental stages (Fosu et al., 2006; Amoako et al., 2021); greasing the wheel is an efficient alternative to a slow culture of getting permits and approvals. The underperformance of government institutions gives room for corrupt practices, which can be costly and increase distortion of due process. This also makes the ease of doing business tedious and consequently discourages investment and production (Cooray & Schneider, 2018). Things could improve with an insider's help to bypass these hurdles, which best describes the greasing-the-wheel phenomenon. This process would be eliminated if institutions were working at their best level. The justification for this scenario is that it does not get in the way of due process but rather enhances it to get the process done quicker.

There is also the argument for the sand-the-wheel hypothesis postulated by Meon and Sekkat (2005). They based their argument on the inability of corruption to grease the wheels with a far worsening governance capacity. As the level of governance deteriorates, the grease that quickens the due process becomes sand that even worsens the situation. This is often the case when the unofficial bribe (grease) becomes a norm and entrenched in the system. Such a system becomes accessible to the highest bidders and gradually phases out competence. Bureaucrats used to the system can deliberately make the system slow to gain opportunities for corrupt payment. This is prevalent in most developing countries. To reemphasise that the quality of governance forms the base of the argument and constitutes the difference between greasing and sanding of the wheels of corruption.

This poses another debate of quality and adverse selection. Corruption discourages nascent entrepreneurship, which has consequences for production. The right people do not always have permits and licenses, and attempts to produce without a license are termed illegal production (informal economy). The state’s military presence has constantly harassed such entrepreneurial productions without any plan to formalise their operations (Igudia et al., 2022). It could also be the case where those who can afford bribes have more finance to innovate. It is also possible to meet bribe conditions to gain a market monopoly and compromise quality for gains (Rose-Ackerman, 1997; Meon & Sekkat, 2005). Financial institutions are also drawn to the party when

they give loans and credit to politicians and turn away entrepreneurs who need to access finance to increase their production. Smaller firms are most unlikely to access finance in economies where government involvement in banking and monetary policies is high, and banking transparency and efficiency are heavily compromised (Barth et al., 2004; Beck et al., 2006; Sartor et al., 2018). In all this, the competitive market forces are being destroyed, and the production arena shrinks.

2.8 Theoretical Framework for Financial Development and Entrepreneurship in Africa

The theoretical underpinning of this empirical chapter is a combination of the endogenous growth theory postulated by Romer (1989) and the Kirzner theory (concept of entrepreneurship) postulated by Kirzner (1963).

2.8.1 Endogenous Technological Change

Romer (1989) opined that growth in the endogenous growth model is determined by conscious investment decisions with the primary motive to make a profit (Wong et al., 2005) and avoid a notion of a steady state. The steady state[9] is derived from the neo-classical growth theory of Solow (1963), and it depicts a situation where continuous investment in capital accumulation would not result in further growth. The endogenous growth model argues that Increasing capital investment in both human capital and technology increases the marginal product of capital (MPK) where the point of a steady state is avoided[10]. This model envisages explicit technological advancement to increase the production unit and efficiency (machinery or output per worker) to improve performance capacity and market demand. This section presents the impact of the development of the financial sector on entrepreneurship in 17 selected African

[9] A steady state portrays a situation where the marginal product of capital (MPK) begins to decline, meaning an additional unit of capital will not lead to an additional unit of growth. Growth at this stage is constant, and no meaningful growth can be made except through investment in technology and human capital development.

[10] Investment in technology and innovations is essential to avoid a steady state. This alters the production cycle and injects fresh ideas and technical factors into the production function to resume growth. This will allow MPK to contribute marginally, and growth can be sustained to avoid a steady state.

countries using self-employment and newly registered firms as proxies for entrepreneurship and a composite bank index as a proxy for the development of the financial sector. The endogenous growth theory makes a strong case for the differentiation of goods and services and is a monopolistic concept closely related to Schumpeter's theory of creative destruction (1934).

Romer (1989) hypothesises the endogenous growth model in three arguments. Firstly, he noted that investment in technology provides the platform for a combination of technology and capital accumulation, which accounts for the increase in output per hour. Secondly, he emphasised that market opportunities and incentives drive technological change. Investing in technology and innovation leads to increased varieties of products and services as well as quality and quantity. This also has a spillover effect on improving transport networks, and these decisions are cautiously taken to maximise market opportunities. Thirdly, he noted that instructions for working with raw materials are different, and the cost of a new production instruction is fixed. Extra usage of the latest techniques does not incur any other extra cost. Hence, the endogenous technological changes benefit from investment in technology and research to develop the human capacity to be more productive and efficient. It seeks to exploit the increase in human capital output per hour and a larger market to increase supply. These changes in the output per hour are attributed to developed means of production, scientific enquiry, and determination to get new results to improve performance (Romer, 1989; Solow, 1957; Kendrick, 1956). Maddison (1982) noted that output per hour in the US today is ten times better compared to 100 years ago.

2.8.2 Kirzner Entrepreneurship Theory

Kirzner's theory and ideology of entrepreneurship are alert to opportunities and profit-making. Kirzner believed that entrepreneurs see opportunities where others rarely recognise them, keeping them ahead of other market participants in profit-making (Bostaph, 2013). Like the endogenous growth model, Kirzner's concept emphasises a conscious effort to make a profit, not an accidental or sudden reaction to events. McCaffrey (2014), commenting on Kirzner's proposition, noted that alertness leads to entrepreneurial incentives, which are essential and valuable opportunities yet to be discovered.

Kirzner believes entrepreneurs determine the market forces because they have better information and knowledge of existing opportunities. Alertness and competition are critical components of this theoretical model. Competition drives a dynamic market (opportunities) and economy

towards a steady state, unlike the creative destruction of Schumpeter, which disrupts the equilibrium (Douhan et al., 2007). Kirzner's work tends to disagree with the notion of a steady state. As much as the markets are imperfect and dynamic, they will always create explorable opportunities that tend to unbalance the equilibrium. The state of continuous anticipation (uncertainty), exploration and alertness to these opportunities drive the economy towards equilibrium and prevent the state of equilibrium (Kirzner, 2009). The entrepreneurship concept of Kirzner is opposed to that of Schumpeter in that the latter preferred entrepreneurship to be creative to distort the existing market realities. Kirzner argued that being alert to opportunities before other stakeholders and acting faster than others initiates change that influences market realities like Schumpeter's concept. Ripsas (1998) added that price differentials and various levels of available information would always make the concept of static market equilibrium ambiguous and confusing.

The primary role of an entrepreneur is to coordinate the production and entrepreneurial process and activities (Shane & Venkataraman, 2000) for profit (Rissas, 1998). Whether the motive was based on exploring and being alert to opportunities or creating a new product, there must be conscious attempts to organise production based on available resources and information (McCaffrey, 2014). As noted with endogenous growth theory, investing in human capital and technology to improve performance (capacity and profit) is capital intensive, and it is almost impossible where financial constraints and underinvestment still dominate the entrepreneurship and private sector subject. Baliamoune-Lutz et al. (2011) opined that firms in the SSA region cannot compete with other areas due to reliance on agrarian practices and underinvestment in new production techniques (technology). Ardichvili et al. (2003) opined that opportunity recognition and development are different processes and stages of entrepreneurship. Entrepreneurial opportunities are not lacking within the SSA region, but what is lacking is the financial capital to create value from these profit opportunities.

2.9 Theoretical Framework for Financial Development and Firm Performance in Africa

The theoretical underpinning of this empirical chapter is based on the combination of King and Levine's (1993) theoretical model and Micheal and Pearce's (2009) theoretical model. While King and Levine's (1993) theoretical model highlighted the impact of finance on entrepreneurial decisions (activities), Micheal and Pearce (2009) pushed forward theoretical evidence that the government should support entrepreneurship through innovation initiatives.

Micheal and Pearce (2009) argued that the events of market failure and agency cost should prompt government intervention in entrepreneurship, primarily through enforcing innovation policies and reforms. They classified market inefficiencies and the need for governmental intervention into three phases. Firstly, poor institutional quality leads to weak competition and monopolistic powers and, consequently, poor performance that justifies higher prices fixed by large firms. Higher prices enable large firms with monopoly powers to exploit the market and consumers. Secondly, information asymmetry is a proponent of market failure that gives the firms advantages over consumers. Lastly, providing public goods also justifies the government's intervention in entrepreneurship. Public goods are non-rival (a consumer's access to such goods does not affect another consumer's access to such goods at the same time) [11]and non-excludable (goods and services that one individual cannot claim ownership of) to consumers (Romer, 1989). Micheal and Pearce (2009) suggested that weak competition, market failure, information asymmetry and weak governance systems can be better managed by promoting policies that can check any irregularities, regulation (deregulation) and government incentives. They postulated that the rationale for government intervention for small businesses would need to be overhauled and changed from a competition concept to an innovation paradigm. This theory is based on the spillover effect of technology, research, and development from large to smaller firms. Smaller firms that are financially constrained are not likely to spend money on innovative and technological techniques to improve their performance and will benefit from government intervention in innovation. However, Micheal and Pearce (2009) see innovative information as a public good that quickly spills over. Pavitt (2001) opined that implementing technological

[11] Public goods are goods available to the public to consume without reducing their availability to other members of the public. Non-rivalrous means no individual can claim these goods since they are for the public and taxpayers.

information from a foreign country could be deceptive if the size of the economy and its population are not considered. There are concerns about how new technologies and innovation are implemented globally, and one wonders if these new scientific approaches were designed to solve complex global issues, especially in poorer regions (McNie et al., 2016). Despite globalisation and financial integration, small firms in the SSA region remain financially constrained and economic growth barely affects the poverty level (Brixiova et al.,2020).

King and Levine (1993) based their theory on the argument that financial institutions play two essential roles in firms' investment decisions: the screening process and financing the best prospect.[12] They argued that financial institutions influence entrepreneurship in diverse ways not restricted to capital accumulation. Financial institutions influence entrepreneurial activities through saving mobilisation, allocating resources, expediting risk management, facilitating transactions, and controlling cooperation (Levine, 1997). In a practical sense, financial institutions could develop alternative financial intermediaries that take up these responsibilities. David and Shulman (1992) added that factors like growth rate, profit margins, equity capital and timing of operation must be considered by financial institutions and influence the lending channel. This theory links entrepreneurship to economic growth via improved performance brought about by investment in technology. King and Levine's (1993) theory provides a framework by which financial cash flow and availability transform entrepreneurial activities (decisions and choices) and opportunities into improved firm capacity and performance. This theoretical framework outlines a concept where the availability of entrepreneurial finance eliminates underinvestment and encourages continuous investment in high-growth opportunities that can improve firm performances in the short term and economic growth in the long term. The introduction of technology increases the efficiency of both capital input and labour output, which increases production output. The best management practices and entrepreneurship would struggle to suffice without adequate funding and financial cash flow. Sandberg (1992), acknowledging the critical role of financial institutions, added that strategic planning and entrepreneurial choices are the livewire to entrepreneurial success. To complement King and

[12] Financial institutions undertake various screening processes to reduce risks of information asymmetries and bad lending. Since banks lend customers' savings to borrowers, the screening is usually strategic to avoid defaults and pay remunerations to their customers. This is usually the reason banks, especially in developing countries, find it difficult to lend to small businesses: They cannot verify their credit history to determine their creditworthiness.

Levine's (1993) entrepreneurship theories, Herron, Sapienza, and Smith-Cook (1992) noted that an interdisciplinary understanding of entrepreneurial behaviour, marketing, finance, strategic management, and research is paramount to understanding entrepreneurship growth.

Financial constraint in Africa is still a predominant issue, majorly due to weak financial institutions and insufficient property rights policies that limit access to quality land and land use as collateral (Beliamoune-Litz et al., 2011). This has led to underinvestment and the emergence of small businesses that may be too financially constrained to invest in technological innovation or high-growth opportunities. La Porta et al. (2019) affirmed that weak institutions increase financial constraints and agency costs in developing and poor-income countries with poor capital markets, few financial intermediaries and inadequate monitoring and enforcement policies. Most firms and businesses in the SSA region are small and necessity-oriented, which has made lending to them by financial institutions and intermediaries difficult since they are seen as investments with high chances of default (Shane & Cable, 2002). It is also well documented that information asymmetries are higher with smaller businesses, which translates into a high cost of capital for small businesses should they be able to access external finance (Levenson and Willard, 2000). This reason, coupled with the fact that most financial intermediaries make stringent loan demands, often discourages small firms from seeking external finance. Levine (2005) argues that (developed) financial institutions are set up to reduce constraints in accessing finance, reduce the cost of capital and improve monitoring channels to minimise the risk of defaults.

2.10 Theoretical Framework for Entrepreneurship and Institutional Climate

This empirical work is founded on Williams Baumol's theory of productive, unproductive, and destructive entrepreneurship. Baumol's theory argues that the expected returns (profits) influence entrepreneurial choices, depending on the prevailing legal institutions and political regimes (rule of the game). Baumol (1990) based his theory on three conceptual frameworks. Firstly, he posited that the game's rules determine the expected returns on entrepreneurial activities. Secondly, as one moves across regions, entrepreneurial choices and activities vary with the changes in these regions' political and legal systems. Lastly, developed institutional quality encourages productive entrepreneurship and discourages unproductive entrepreneurship. This theory lays the framework that guides entrepreneurship behaviour and reward.

Baumol (1990) argues that since entrepreneurs are innovative and interested in profits, not all would mind if their activities and choices were unproductive and destructive. Sobel (2008) was more direct when he mentioned that the same entrepreneurs involved in unproductive and destructive entrepreneurship are the same as those in productive entrepreneurship. They change their entrepreneurial behaviour depending on the prevailing institutional quality in the economy. The motivation for more payoffs and control to attain an entrepreneur's objectives often makes entrepreneurs use different approaches to relate to other economies with various rules. North (1990) emphasises that the payoff structure drives individual cognitive ability, choices, and the incentives to invest in means of production and innovation to gain control.

North's (1990) argument corresponds with Baumol's framework in that entrepreneurs do not have the power to set the rules of the game, but they have the choice to decide where, how and when to obey the rules that best suit their objectives. Entrepreneurs could act outside the institutions to be informal entrepreneurs when the institutions are not favourable and revert to formal entrepreneurship when the institutions improve (Sobel, 2008; Saunoris & Sajny, 2017). Most of the rules of the game are subject to institutional quality and policies of economic freedom. The level of economic freedom gives entrepreneurs the confidence to invest in innovation and technology and expect a level of payoff and market share without any fear of interference from the government. Iyigun and Rodrik (2004) posited that institutional qualities that encourage productive entrepreneurship are policies of quality property rights, contract enforcement laws, price control, access to finance, and developed court system (Levine, 1997; Chowdhury et al., 2019). Webb et al. (2013) theorised that the unavailability of resources, rate of returns from opportunities and perceived constraints are also factors that make unproductive (informal) entrepreneurship attractive to entrepreneurs. Baumol's (1990) theory plausibly outlines how institutions direct the flow of resources between productive and unproductive entrepreneurship. Thus, weak institutions discourage productive entrepreneurship and encourage the movement of resources from formal institutions to informal institutions (Saunoris & Sajny, 2016).

Baumol's (1990) work offers insight into ways to effectively allocate entrepreneurial behaviour and choices to be more productive, which provides society and the economy with a better payoff. The contribution of Saunoris and Sajny (2016) finds that strong institutional quality encourages productive entrepreneurship and discourages unproductive entrepreneurship. Baumol (1990)

emphasised a change in policymaking and implementation approach such that societal goals and economic growth should be prominent. He noted that the rules of the games should be changed, modified, and developed to encourage productive entrepreneurship and absolve more resources and vice versa. Sobel's (2008) findings downplayed spending heavily on governmental programs to boost production rather than advocating for market-oriented policies as a better pathway to a productive economy (Adamako et al., 2013).

2.11 Empirical Underpinning for the Study

The first chapter of the thesis tested the impact of access to finance on entrepreneurship in the SSA region, and access to finance was viewed from the development of the financial sector (supply). The rationale was based on the argument that improving the banking sector service will increase access to entrepreneurial finance for small businesses. In this current study, I used self-employment and newly registered businesses as a proxy for entrepreneurship. In contrast, a bank index was used as a proxy for the development of the financial sector. Trade, property rights, polity score, purchasing power parity and Age 20-39 were used to control the prevailing economic situations, rule of law and entrepreneurial qualities. The studies of Beck, Demiguc-Kunt, and Levine (2010), Bewaji et al. (2015), Baliamoune-Lutz et al. (2011), and Boermans and Willebrands (2018) all highlighted the importance of accessing external entrepreneurial financial and their findings shows that financial constraints are eroding financial and economic gains of entrepreneurship. Entrepreneurship has been used to successfully transform economies in other regions, especially in high-income countries. The SSA regions and other developing economies can attain similar results if the right things are done by adopting innovation and improving institutions. The contributions of Paul and Townsend (2004) and Jiang et al. (2019) demonstrated that financial inclusion and increased access to finance determine the nature and type of entrepreneurship prevalent in a region. Consequently, the necessity-oriented entrepreneurship prevalent in the SSA region, which has been seen not to contribute to economic growth, plausibly depicts the level of access to finance and development of the banking sector.

Developing entrepreneurship in the region would also require investment to improve firm performance. The second chapter investigated the impact of access to finance on firm performance. In this chapter, access to finance was seen from the demand side of finance. This is based on empirical evidence that increased access to credit and loans increases firms'

performance. The literature of Demiguc-Kunt and Maksimovic (1998), Beck et al. (2005), and Brixiova et al. (2020) give empirical evidence that increased access to finance, financial inclusion and financial intermediaries facilitates firm growth and performance. The study used five proxies of firm performance: sales, number of employees, employee growth, labour productivity and export intensity. Recent entrepreneurship and firm performance studies also have emphasised business environment, property rights, institutions, and financial constraints, which have varying impacts on the efficiency and mode of a firm's operation (Svejnar & Commander, 2007; Beck et al., 2005; Boermans & Willebrands, 2018). The literature contribution of Baliamoune-Lutz et al. (2011) also gave empirical evidence that lack of access to finance reduces the performance of firms in the African region.

Lastly, the entrepreneurship and institutional climate study is based on the empirical facts that weakening institutional quality encourages informal entrepreneurship, which has been observed not to support economic growth (Sobel, 2008; Saunoris & Sajny, 2017; Sator et al., 2018; Chowdhury et al., 2019). In other words, the empirical underpinning is based on the argument that a developed institutional environment encourages the number of productive entrepreneurs to increase and, at the same time, frustrates the number of unproductive entrepreneurs to diminish ceteris peri bus. However, this could change and reverse itself if the institutional conditions worsen (Sobel, 2008; Lucas & Fuller, 2017). Entrepreneurship and institutional quality are interwoven and can hardly be discussed in isolation in entrepreneurship development. Institutional development could be improved through financial, legal, cultural, and political reforms and technological adoption to enhance business efficiency. This empirical study focuses on using legal means to create an institutional climate for (small) businesses to strive. Barasa et al. (2017) and Asongu et al. (2018) also linked entrepreneurship and institutional quality to technological innovation when they posited that a firm's innovation depends on the level and strength of the institution. The institutional climate could be the level of corruption in bureaucratic offices, property rights, economic freedom, and intellectual property rights, which increases risks to investment, increases agency cost, and even pushes formal entrepreneurs to become informal and operate outside the rules (Meon & Sekkat, 2005; Sobel, 2008; Saunoris & Sajny, 2017; Cooray & Schneider, 2018). Corruption could grease and sand the wheels of entrepreneurship if it increases (reduces) the speed of getting bureaucratic processes done.

2.12 Determinants of Entrepreneurship

This section highlights the determinants of entrepreneurship in the SSA region. In general terms, these factors influence entrepreneurship intentions in the study countries. They could also be triggers to operate formal or informal entrepreneurship. In this study, I used control variables to highlight entrepreneurship and financial development determinants within the SSA region.

Entrepreneurship in Africa has often been underreported, majorly due to the unavailability of data (Benjamin & Mbaye, 2012; Crick et al., 2018; Akintola, 2021). This has led to conflict and misconception about the determinants of entrepreneurship within the African region. This has not been helpful since most entrepreneurship literature is based on data availability, and these data regarding the SSA region are either poorly represented, underrepresented, absent, or a combination of all (Nagler & Naude, 2014). Entrepreneurship's driving factors and determinants vary widely across various disciplines, cultures, events, and regions (Stenholm et al., 2013; Acs et al., 2014). This is not absent in literature as extant literature has used various means, factors, and theories to explain the drivers of entrepreneurship. At best, some of these factors are unique and may not reasonably define what constitutes entrepreneurship in other regions. This explains the plurality of conflicting empirical results often because most of these empirical studies used different data. Stenholm et al. (2013) suggest that some entrepreneurship data used indicators that fall below standard and would complement the well-accepted indicators when fully developed. The claims for accepted indicators of entrepreneurship do not take cognisance of the extreme factors that drive entrepreneurship across regions. What is accepted in one region might not comprehend the entrepreneurial factors in another region. The subject of entrepreneurship is broad and often reflects the nature of opportunities and social and cultural activities in a place.

Data availability forms the basic concept of most entrepreneurial literature, focusing on the prevailing forms of entrepreneurial opportunities and orientation. A geographical region's entrepreneurial orientation and level of development initiates the entrepreneurial and financial data that can be gathered from it. For instance, high-growth entrepreneurs' and innovators' data can easily be found in most developed countries. Still, they might be challenging to obtain in developing countries, although they exist in such regions. Using alternative financial means, such as angel finance, research seed, venture finance and crowdfunding, has become very popular among entrepreneurs and entrepreneurship literature in developed countries. This is not the case in most developing countries because these financial means are underdeveloped.

Obtaining these data for research purposes becomes difficult. This also explains why the World Bank data on entrepreneurship remains the most widely used measurement for most developing countries. Survey data has also been used to gather information where data is unavailable or cannot capture primary research objectives.

The variables used in the study were drawn to capture data availability issues and the determinants of entrepreneurship within the study countries. However, they are also based on extant literature on the factors that affect entrepreneurship. Entrepreneurship was measured with self-employment and new registered business data. Despite the inconsistencies of the self-employment data as a measurement of entrepreneurship, it is still the most used. At the same time, the newly registered business captures the entrepreneurial intent, nascent activities, and institutional quality. This is also consistent with the total early-stage entrepreneurial activity (Tea rate) of the Global Entrepreneurship Monitor (GEM) measure. Bank loans are the most used means of entrepreneurial finance within the study countries, and access to finance literature mainly investigates the constraints of accessing bank loans. Alternative entrepreneurial finance, like stock market finance, is poorly developed within the Sub-Saharan regions. Indexes offer a more robust measurement that captures all the qualities of the individual variables that constitute the index. The obstacle variables were created from the daily activities of small businesses ranging from administration to operations. These include registration, getting infrastructural connections, security, electricity, and perception of taxation. Lastly, the control variables capture the factors that influence entrepreneurship activities in the region. These factors are often referred to as determinants of entrepreneurship in entrepreneurial literature.

I used reliable data from the World Bank's global financial development data, World Development Indicators, World Bank entrepreneurship dataset, and Center for Systemic Peace and Heritage Foundation data in this study. The table below presents the dependent, independent and control variables of the study:

Table 2. 1: Financial Development and Entrepreneurship at the Macro Level in Africa

Variable	*Variable Description*	*Data Source*
Dependent Variables		
Self-employment (% of total employment)	Refer to People who work for themselves (own account). Their profit depends on what they can generate themselves. It is expressed as a percentage of total employment. This measurement excludes all self-employment in the agrarian sector.	*World Bank Governance Indicator*
New Registered Business	This refers to the number of newly created businesses or firms formally registered in a calendar year. Since the emphasis is on productive and formal institutions, this measurement excludes the informal sector.	*World Bank Entrepreneurship dataset*
Bank Index (Financial Development)	Aggregate value of financial sector indicator of the banking sector's depth, stability, efficiency, and profitability.	*World Bank Global Financial Development data*
Private Credit to Private Sector	It is the amount of credit commercial banks give to the private sector. This is mainly used to determine the depth or size of the banking sector.	*World Bank Global Financial Development data*
Domestic Credit to Private Sector	This includes all credit the financial sector provides to various sectors on a gross basis, excluding credit to the central government.	*World Bank Global Financial Development data*
Bank Net Interest Margin	This accounts for the value of revenues that banks earn on interest on loans or credits. It is usually expressed as a share of the bank's total earnings. It is an indicator for determining profitability and efficiency.	*World Bank Global Financial Development data*
Liquid Liabilities (Broad Money)	This refers to the sum of the money supply of M2 plus the central bank's deposit. When expressed as a ratio of GDP, it depicts the efficiency with which the banks redistribute money from Savings to borrowing. This is often used to know the depth of the banking system.	*World Bank Global Financial Development data*
Central Bank Asset/ GDP	This refers to claims on the domestic non-financial sector by the central bank. This indicator is used to determine the depth of the banking sector.	*World Bank Global Financial Development data*
Deposit Money Bank Assets to Deposit Money	This refers to the level of assets deposit money banks hold as a share of the sum of the deposit money bank	*World Bank Global Financial Development*

Bank Asset and Central Bank Assets	and Central Bank claims on the domestic nonfinancial real sector. This is also a banking sector depth variable.	*data*
Z- Score	This indicator determines the chances of default in the banking system. It acts as a barrier against the insolvency of the banking sector. A higher Z-score depicts a higher level of stability in the banking sector.	*World Bank Global Financial Development data*
Bank Overhead Cost	This refers to the ratio of operational expenses per bank's total assets. This is also used to determine the efficiency of the banking sector.	*World Bank Global Financial Development data*
Bank Return on Asset	This refers to the ratio of a bank's net revenue after tax per total assets. It is used to determine the efficiency of a bank.	*World Bank Global Financial Development data*
Control Variables		
Polity Score	This measures the level of political regime in a country. The scale ranges from -10 (inherited monarchy system) to +10 (democracy regime). The higher the score, the better.	*Systemic Peace*
Property Rights	This refers to the right of citizens, including companies, to own, use and transform capital and landed properties. The higher the scale, the more legal laws protect an individual's properties.	*Heritage Foundation*
Trade	Refer to the sum of exportation and importation of goods and services measured as a share of gross domestic product.	*World Bank Governance Indicator*
Purchasing Power Parity	This is an instrument of currency converter and price deflator used to determine the value of currencies across nations. It determines the price levels of goods and services across countries.	*World Bank Governance Indicator*
Age (20-39)	People in the population who are between the ages of 20 and 39. This is the age when people join the labour force and are highly active.	*World Bank Governance Indicator*

Table 2. 2: Firm-Level Perspective on Financial Development and Entrepreneurship

Variable	*Variable Description*
Dependent and Independent Variables	
Access to Finance 1	This refers to the availability of a line of credit. A line of credit is a form of credit readily available for firms to use whenever necessary. They are not as flexible as loans and have no predetermined expiration dates. The interest rate is calculated and paid monthly. This was obtained from firms' responses to whether firms have access to a line of credit.
Access to Finance 2	This referred to bank loans and was obtained from firms' responses on how they use bank loans to finance daily activities.
Sales	This is annual sales (revenue). It was obtained from respondents who were asked to give their annual sales in local currencies. It was later converted to USD.
Employment (log)	This refers to a firm's current number of permanent employees in the last fiscal year.
Change Employment	This refers to the growth rate in the number of employments, and this is derived by subtracting previous employment from current employment divided by previous employment.
Labor Productivity	This measures the efficient utilisation of labour resources. It is derived by dividing converted sales values by the number of employees.
Export Intensity	This measures the ability to engage in the exportation of goods and services. It is obtained by adding direct and indirect sales abroad.
Control Variables	
Age	This refers to the age of the business or firm, and it is derived by subtracting the year the firm began operation from the year the survey was taken.
Experience	This measures the number of years of work experience that top managers have gained.
Human Capital	This measures the level of training and capacity of the labour.
Court System	This is a measure of the level of fairness of the legal system. It responds to the survey question of whether the court system is fair, impartial, and uncorrupted.

Trade	This measures the availability of the market to sell goods and services. This was gotten from a combined response from firms that export directly or indirectly and have also applied for import licenses.
Female Manager	The study measures the female manager as a dummy if the top manager is a female.
Female Ownership	The study measures female owners as a dummy if females are among the owners.
Private Ownership	This refers to the portion of firms owned by private domestic individuals.
State Ownership	This refers to the portion of firms owned by the state or government.
Unregister Competition	This refers to competition from unregistered or illegal firms. The study measured unregistered businesses as a dummy if the firm competes against unregistered firms.
Govt Regulation	This variable proxy for the business environment as investors move to countries with ease of doing business than those with stringent laws.

Table 2. 3: Entrepreneurship and Institutional Climate

Variables	*Variables Description*
Dependent and Independent Variables	
Entrepreneur (New Business Ownership Rate).	This refers to small firms that have paid salaries for 36 months (about three years) and have staff ranging from 1 –19
Entrepreneur 2	This refers to small firms that have paid salaries for 48 months (about four years) and have staff ranging from 1 –19.
Institutional Index	A composite aggregate of all variables of institutional climate.
Institutional Climate I (Water)	This refers to the mean number of days to get a water connection. The number of days above the mean reflects obstacles to access to water connection. It was obtained from the survey response to the days it took to get a water connection.
Institutional Climate 2 (Electricals)	This refers to the number of days it takes to get electrical connections. The number of days above the means reflects an obstacle to getting electrical connections. It was obtained from the survey response to the days it took to get an electrical connection.

Institutional Climate 3 (Security)	This refers to the percentage of annual sales paid for security in the last 12 months. Percentages above the mean of annual sales paid for security were used to reflect security obstacles.
Institutional Climate 4 (Electricity)	This refers to the percentage of annual total sales lost due to power outages.
Institutional Climate 5 (Taxation)	This refers to respondents' perception of taxation as an obstacle. The study used respondent perceptions ranging from 2 (minor obstacles) to 4 (very severe obstacles) to capture institutional obstacles. This is a response to the survey question of to what extent firms feel taxation is an obstacle to their daily operations.
Institutional Climate 6 (Corruption)	This refers to respondents' perception of corruption as an obstacle. The study used respondent perceptions ranging from 2 (minor obstacles) to 4 (very severe obstacles) to capture institutional obstacles. This is a response to the survey question of to what extent firms feel corruption is an obstacle to their daily operations.
Institutional Climate 7 (Business License)	This refers to respondents' perception of business licenses as an obstacle. The study used respondent perceptions ranging from 2 (minor obstacles) to 4 (very severe obstacles) to capture institutional obstacles. This is a response to a survey question of to what extent firms feel business license is an obstacle to their daily operations.

Other Variables

Informal Payment	This refers to informal payments made to corrupt government officials, with payments above the mean regarded (reflecting) informal payment obstacles.
Contract Payment	This refers to the percentages of total contract value paid to government officials to secure government contracts with numbers above the means reflecting contract obstacles.
Clearance	The clearance obstacle was captured by the number of days it takes to clear goods from the customs (ports), with numbers above the mean regarded as clearance obstacles.
Importation	Importation obstacles were captured by the number of days it takes to obtain an importation license, with numbers above the mean regarded as importation obstacles.

CHAPTER 3

Financial Development and Entrepreneurship at the Macro Level in Africa

3.1 Chapter Overview

This chapter highlights the connection between entrepreneurship and financial development, which most developing African countries have prioritised as the new industrial revolution. This has recently been the focus of many African governments to promote financial sector reforms for an effective capital allocation to the private sector (entrepreneurship) to drive innovations for sustainable economic growth. African countries with vibrant economies can benefit more from an efficient interaction between financial development and entrepreneurship. In this chapter, I posited that the banking system's depth, stability, and efficiency are essential catalysts for financial development and entrepreneurial finance in Africa. The main estimation strategy employed in this chapter is the fixed effects. The chapter concludes with a presentation and discussion of the results.

3.2 Entrepreneurship and Financial Development at the Macro Level in Africa

Entrepreneurship is a topical issue, but little is known about what drives entrepreneurship in developing countries (Autio, 2008). This has led to a wide variation in the practice and challenges of entrepreneurship at the country level, most importantly, in poorer economies. The importance and relationship between financial development and entrepreneurship are well documented in extant literature because of their significant role in economic development and growth nexus (Levine, 2005; Gaies et al., 2021; Chowdhury & Maung, 2022). Although bank and equity finance constitute corporate financing, extant literature has found that alternative finance like venture capital, angel finance and family and friends have also been important to entrepreneurial finance (Cumming, Grilli and Murtinu, 2017; Gaies et al., 2021; Sakhdari et al.,

2023). One can easily understand the interconnectedness between entrepreneurship and access to finance since the nature of small enterprises is often a proxy for entrepreneurship, which means there would be issues of information asymmetry, transaction cost and associated risk management. Levine (1997) argued that these are some of the primary functions of the developed banking sector, with the main objective of creating an alternative path to growth through efficient capital allocation and innovation mix. There is literature that has attempted to measure the development of the financial sector (King & Levine, 1993; Ndikumana, 2005; Becks et al., 2010; Uddin et al., 2022), but none discussed the composition of the financial sector that supports entrepreneurship development, and the emphasis of most of this literature was economic growth nexus. This leads to two critical questions. Firstly, which components of financial development create a more efficient channel of entrepreneurship development? Secondly, does the component of financial development matter? This empirical study focuses on the composition of the development of the financial section that leads to better allocation of resources that support entrepreneurship development.

Financial development is crucial for entrepreneurial development since finance is needed in every aspect of transactions. Becks et al. (2010) highlighted the various components of the financial sector. The authors classified them into indicators of size, efficiency, profitability, stability of the banking sector, stock market comprising of equity and bond and the nonbank monetary institutions. This empirical study focuses on the banking sector and analyses the size (depth), efficiency, profitability, and stability indicators. Since the banking institutions deal with issues of efficient allocation of financial resources and risk management, this study argued that the banking sector's depth, efficiency, profitability, and stability are essential catalysts of entrepreneurial finance. Accessing more finance enables businesses to produce and supply more products as demand increases, thereby accessing more markets locally and internationally. Hence, the level of trade is hinged on the level of finance that businesses can access. Surprisingly, the interrelationship between finance, entrepreneurship, and trade has been under-discussed in the entrepreneurship literature. This forms one of the contributions of this study as it highlights the moderating impact of trade at the macro level on the relationship between access to finance and entrepreneurship.

The study finds empirical evidence that financial development positively impacts entrepreneurship. This empirical study also contributes to methodology as it is the first time

these countries are combined in a single study with data drawn from five diverse sources: the World Bank Global Financial Development Database (GFD), the World Bank Development Indicators database (WDI), the World Bank Entrepreneurship database, Systemic Peace, and the Heritage Foundation.

As pointed out in Chapter 2, the relationship between entrepreneurship and financial development and other associated factors of economic growth is not new to entrepreneurship literature. This is of interest to the study because Entrepreneurship is perceived as a tool for job creation and economic development (Acs et al., 2008). The diverse nature of entrepreneurship makes it fit into numerous economic development plans of job creation, infrastructural, institutional development, and economic growth. Although the African continent also contains some of the fastest-growing economies in the world, unemployment and poverty continue to peak. The economic contraction associated with population growth, unemployment, and poverty have also made sustainable growth a critical concern for the continent. The issues of underinvestment and lack of collateral in obtaining loans are also prevalent among African countries.

3.3 Methodology

This section presents the chapter's data description, estimation strategy and empirical specification.

3.3.1 Data

The study focuses on 17 countries from the North, East and West African sub-region and uses data from the World Bank, Center for Systemic Peace, and Heritage Foundation. The World Bank dataset is very comprehensive, especially for African countries, where data availability poses limitations to research. The data is organised as a panel dataset that covers these 17 countries and runs from 1996 to 2017. The dependent variable is self-employment as a measure of entrepreneurship. In contrast, the independent variable is the development of the banking section (bank index) as a measure of access to finance. The control variables are trade, polity score, economic freedom, property rights and age 20-39. The study used a panel data format to account for variation (heterogeneity) across countries. It used ratios as percentages, currencies converted to US dollars, and year reference (USD, 2010) for financial variables to reduce measurement errors.

The study also used the non-agrarian measurement of entrepreneurship, where employment in agriculture is subtracted from self-employment (Acs et al., 2012; Barrett et al., 2001; Nagler & Naudé, 2014). This was to reduce measurement error as the self-employment data from the World Bank are extensive (Barrett et al., 2001). The self-employment data comprised four subcategories: self-employed workers with employees, own-account workers, producers' cooperative members and family workers. Extensive self-employment data indicates a sizable portion of own-account and family workers constitute a more significant part of the agriculture sector. A critical look at existing literature and the World Bank's definition of employment in agriculture shows that employment in agriculture is not a good measurement of entrepreneurship (Barrett et al., 2001). It is subtracted from self-employment to reflect a better picture of entrepreneurship within the study region. This is also consistent with extant literature and entrepreneurship concepts. To reduce measurement errors, the study also used ratios to measure variables. For instance, self-employment is measured as a ratio of total employment, while trade is measured as a ratio (percentage) of GDP. Variables with currency values were converted from local currency to US dollars using the 2010 exchange rate as a constant. Variables of polity score and property rights are on a scale of -10 to 10 and 1 to 100, with a low scale reflecting poor or weak levels of the variables.

3.3.2 Fixed Effects

The fixed effect model is used to resolve problems associated with the effects of omitted variables. Regression results will be biased and inconsistent in a model where essential variables are omitted. The fixed effect model allows for control of the effect of omitted variables that are not measured or cannot be measured (Bai, 2013). In the fixed effect model, the unobserved effect is considered the subject of estimation in a cross-sectional analysis. Unlike random effects, the fixed effect model does not treat the unobserved effects as non-random but allows codependency between the unobserved effects and the explanatory variables (Wooldridge, 2010). The introduction of an exogenous variable (individual or unobserved time-invariant factors) that is constant over time allows the fixed effect model to address the non-randomness of omitted variables. This also provides a clearer view of the relationship between the error term and the explanatory variables with the aid of panel data (Wooldridge, 2010).

Panel data is of interest in fixed effects estimation since it shows the behaviour of variables (across different regions) over time. The panel data presents a picture of the changes that occur when the unobserved variables in a regression analysis are correlated with the observed independent variables. It also gives room to a higher degree of freedom among independent variables and, hence, lower collinearity. The primary reason panel data is crucial to the fixed effect model is that it allows for an arbitral relationship between the unobserved effects and the observed explanatory variables. The fixed effects model can also be used to resolve issues of endogeneity. Endogeneity is when the error term is correlated with one or more independent variables (Nikolaev & Van Lent, 2005; Wooldridge, 2010).

The three main assumptions of the fixed effects model, according to Woodridge (2010), are as follows: firstly, there is a strict exogeneity of explanatory variables conditioned on the unobserved effects. Thus, there is a correlation effect between the unobserved effects and the explanatory variables. This assumption is quite different from the random effects assumption because it allows the unobserved effect to perform the functions of the explanatory variables rather than treat the unobserved effects as nonrandom or independent of the explanatory variables. Secondly, a fixed effect model has a standard rank conditioned on the time demean explanatory variables. This assumption applies to the time-average qualities of randomly selected variables from a population. The time-demeaning feature explains the inapplicability of time-constant variables in fixed effects analysis. Lastly, the expected value of the idiosyncratic error and the omitted variable effects is zero. This also implies that the variance of the idiosyncratic error is constant over time, and it confers the efficiency of the fixed effect model.

The fixed effect estimation uses the principle of within transformation to demean data (by subtracting the time mean from the individual variable), thereby causing the unobserved effects to disappear. For instance, a typical fixed effect model is represented as

$$y_{it} = \alpha_i + \beta_1 x_{it} + u_{it} \quad t = 1, 2, \ldots, T \qquad \text{---- (1)}$$

Where:

y_{it} is the dependent variable, β parameter is the independent variable, α_i is the unobserved effects, and u is the error term in time t and country i.

The unobserved effects are fixed over time. Thus, the change in the country can be represented as

$$\bar{y} = \alpha_i + \beta_1 \bar{x}_i + \bar{u}_i, \qquad \text{-----(2)}$$

Where:

$\bar{y}$, $\bar{x}$, and $\bar{u}_i$ are the mean variables of the dependent variables, independent variables, and the error term, respectively. β parameter is the independent variable, α_i is the unobserved effects, and u is the error term in time t and country i.

Fixed effects sort out the effects from time-invariant variables by allowing for arbitrary correlation between the unobserved effects and the explanatory variables. It does this by removing the time-invariant variables that are constant over time. Thus, by subtracting Equation 2 from 1, we have:

$$y_{it} - \bar{y} = \beta_1(x_{it} - \bar{x}_I) + u_{it} - \bar{u}_i, \; t = 1, 2, \ldots, T \text{ ---(3)}$$

The unobserved effects in Equation 3 have disappeared. The fixed effect removes the unobserved effects of the explanatory variables on the dependent variable and eliminates omitted variable bias in a model. The fixed effects model can be beneficial when investigating macroeconomic variables and their determinants since data samples are large and are presented in annual frequency, which makes it easy to reveal the short-run business cycle fluctuation or shocks (Eller et al., 2006).

3.3.3 Random Effects

The random effect is more like the fixed effect concerning the unobserved variable. With fixed effects, the unobserved effect is assumed to be correlated with the explanatory variables, unlike with random effects, where the reverse is the case. Such that the unobserved effect is said to be uncorrelated with explanatory variables in random effects. The random effects assume that explanatory variables are uncorrelated at every time, so there is no perfect linear relationship among them (Woodridge, 2010). Since there is no relationship between the error term and the

explanatory variables, the variance is constant while the expected value of the error term is zero. The random effects also assume that the variance of the unobserved effects is also constant. All fixed effects assumption also holds for random effects accept the uncorrelation of the unobserved effects with each explanatory variable. In random effects, the intercepts for each observation in a model are believed to have been developed from a common intercept α, which over time is the same for all observable units plus a new random variable ϵ_i that varies across the model but is constant over time (Brooks, 2009). A typical random effect can be represented as

$$Y_{it} = \beta_0 + \beta_1 x_{it1} + \ldots + \beta_k x_{itk} + \alpha_i + u_{it} \quad ---(4)$$

If the unobserved effects are uncorrelated with explanatory variables, then using panel data or any unique estimation method to run the regression is unnecessary. OLS estimation method will be sufficient for such regression. Nevertheless, as mentioned earlier, panel data gives a picture and information about changes over time. Using OLS estimation will not give such information, and this can lead to estimation bias (composite error term) under the random effect estimation assumption. If the composite error term is represented as

$$V_{it} = \alpha_i + u_{it} \quad ---(5)$$

Then equation 4 can be rewritten as

$$Y_{it} = \beta_0 + \beta_1 x_{it1} + \ldots + \beta_k x_{itk} + V_{it} \quad ---(6)$$

By using a transformation technique such as the GLS that removes serial correlation in the error term, equation 6 can then be rewritten as

$$y_{it} - \theta\bar{y}_i = \beta_0(1 - \theta) + \beta_1(x_{it1} - \theta\bar{x}_{I1}) + \ldots + \beta_k(x_{itk} - \theta\bar{x}_{Ik}) + (V_{it} - {}_{it}), \quad ---(7)$$

The random effect can carry out such transformation by subtracting a fraction of the time average as the variance tends to infinity (Wooldridge, 2016).

3.3.4 Hausman Test

The Hausman test is used in econometrics analysis to examine the level of consistency and efficiency between the fixed effects model and the random effects model. It determines the suitability of the fixed or random effects for model estimation (Mutl & Pfaffermayr, 2011). The random effects model exhibits more efficiency when the samples are randomly drawn from a population, while the fixed effect does the same when the sample comprises the entire population. The main distinction exists within the variation of the omitted variable's intercept. The fixed effects method is favourable when the explanatory variables vary over time, and the effects of the variation on the dependent variable can be estimated. On the other hand, the random effects demonstrate greater efficiency when the explanatory variables are constant over time. The level of relationship between the unobserved effects and explanatory variables is crucial in deciding the most suitable estimation method.

Although most fixed effects assumption holds for a random effect, there are notable discrepancies regarding time variation and the relationship with the explanatory variable. The Hausman test compares both estimators to check for potential violations of the random effects assumptions (Wooldridge, 2010). It assesses whether the variations in the parameters of estimation are statistically significant. A statistically significant variation would signify that one of the models is less consistent and inefficient (Wooldridge, 2010; Mutl & Pfaffermayr, 2011). In the Hausman test, the null hypothesis suggests a preference for the random effect, while the alternative implies a preference for the fixed effect. Where the null hypothesis is rejected (p-value less than 0.05), the alternative (fixed effect) becomes the preferred estimation method.

3.4 Measurement and Variables

3.4.1 Entrepreneurship

The broad nature of the definition of entrepreneurship has led to inconsistent measurement of entrepreneurship variables, which also influences the regression results. Extant literature has responded to this concern by compiling and combining new datasets to find a better measurement for entrepreneurship. Most measurements of entrepreneurship, as demonstrated by these new datasets, are designed to capture entrepreneurial intention, innovativeness, and institutional and regulatory dimensions of these entrepreneurial activities. These measurements aim to give a more comprehensive description of the entrepreneurial ecosystem. Self-

employment is one measurement used to proxy entrepreneurship due to its broadness despite its shortcomings (Grilo & Irigoyen, 2006; Acs et al., 2012). This measurement captures more sections of the labour force than other forms of entrepreneurship measurement. Due to data availability challenges, self-employment is more comprehensive for most developing countries for cross-country analysis. The preconditions to be self-employed are not static and make it possible for workers to be flexible and maximise their skills, time, and entrepreneurial intentions. Most of the measurements of entrepreneurship used in existing literature are not well-developed in Africa. This could lead to biases if such variables are used to measure regional entrepreneurship development.

Acs et al. (2012) measured entrepreneurship as self-employment, excluding the agricultural sector. Taking the argument of Wenneker and Thurik (1999), the role of entrepreneurs and the various means they use to achieve their goals should be of interest rather than their innovative strengths. Entrepreneurship is more of the activities of the individual to start a new business or innovate a new product in response to opportunities. Wenneker and Thurik (1999) noted that the relationship between entrepreneurship and economic growth is through new business start-ups, innovation, and competition.

Following the same path as Acs et al. (2012), the study measured entrepreneurship as self-employment that excludes employment in agriculture (as a percentage of total employment). This was to reduce measurement errors and better measure entrepreneurship within the study region. The variables of self-employment and employment in agriculture were expressed as a percentage of total employment, making them a subset of total employment. The variable of employment in agriculture was subtracted from the variable of self-employment. This data was sourced from the World Bank dataset.

The study also used newly registered businesses as another proxy for entrepreneurship, which is also familiar with entrepreneurship literature (Acs et al., 2008; Arin et al., 2015). The newly registered business classification relates to the formal, informal, productive, unproductive, and destructive classification with the assumption that formal entrepreneurship is more productive and significantly leads to economic development compared to informal and unproductive entrepreneurship (Sobel, 2008; Saunoris & Sajny, 2017; Chowdhury et al., 2019). The World Bank enterprise survey data considers the newly registered businesses to be a reliable proxy of entrepreneurship since they portray a considerable level of start-up activities and the level of

legally registered firms (Acs et al., 2008). These qualities of the newly registered firms are essential because the intention is to attain a level of coherency in entrepreneurship measurement in a cross-country analysis. This measurement also captures the entrepreneurial intent, nascent activities, and institutional quality, which are country-specific and necessary for entrepreneurship development (Grilo & Irigoyen, 2006). This measurement excludes the informal sector due to the difficulties in capturing the informal sector and the ambiguities around it regarding its support for economic development. The current study sees these qualities as a buffer against the heterogeneity and biases that come with the measurement of entrepreneurship.

The World Bank data is a cross-country annual data, and it is one of the most comprehensive and earliest data used in extant literature to measure entrepreneurship. This measurement has underlying concerns, as it does with most data. However, it features more countries than other datasets (Grilo & Irigoyen, 2006). Measuring entrepreneurship with self-employment could be contentious. Self-employment is the only entrepreneurship measurement for multi-year and cross-country analysis (Ace et al., 2012). The primary concern of the self-employment proxy is that it does not measure the motivation for becoming self-employed. Taylor (2001), in his work on self-employment and windfall gain in Britain, acknowledges that the motivation for exiting self-employment is not well documented in extant literature. This could be because of retirement, bankruptcy, expansion, and having more employees. There is also the measurement issue, as what constitutes self-employment in one region may differ in other areas (Paker, 1995). However, Le (1999) opines that these limitations can be addressed with longitudinal data that captures factors that enhance the survival rate of self-employment. These factors could be education, experience, financial constraints, labour wage and many others.

This is a limitation of using self-employment as a measurement of entrepreneurship, and the study acknowledges this limitation. As noted earlier, longitudinal data has been used to address this limitation. Also, this study used survey data and fixed-effects methodology to address these limitations (indexes and self-employment). Survey data can be used to ask specific questions, while fixed effects manage the variations and changes over time. (for the limitation sub-section, refer to 3.10).

3.4.2 Financial Development

Following Beck et al. (2010) and Uddin et al. (2022), we created a bank index as a proxy for the development of the financial sector. Beck et al. (2010) grouped banking financial data into four categories: size (depth) of the financial sector, the efficiency of financial institutions, profitability, and stability of financial institutions. This was done based on the assumption that a single financial indicator cannot capture the development of the banking sector (financial institutions). Uddin et al. (2022) used an index combining domestic credit to the private sector, liquid liability, and bank credit to bank deposits. Beck et al. (2010) literature classified financial indicators into four essential components of banks' efficiency, stability, and depth (structure) of the banking sector. Following both papers, I created an index comprising an indicator of the banking sector's depth, stability, efficiency, and profitability. This index offers a more robust measurement of the components of the banking sector, and any improvement of these components will truly reflect an improvement of the banking sector. A positive and significant relationship with entrepreneurship will reflect and encourage laws and policies that allow banks to make a certain amount of money available for entrepreneurship for start-ups, loans, expansion, research, and development. This will reduce the hassles associated with access to finance and lead to the development of financial sectors within the region. Hulten and Ahmed (2013) used external bank finance as a proxy for access to finance, while Jiang et al. (2019) used the financial inclusion index, which is a measure of financial (bank) services availability and usage to proxy access to finance. Adu et al. (2013) opined that the effects of financial development on economic growth depend on the indicator used to measure financial development. This data is sourced from the World Bank dataset.

Indexes play a crucial role in economic literature, capturing changes or variations in economic parameters (Pakes et al., 1993). This is particularly important as different variations and changes over time can significantly influence and bias research results, especially for silent traits that are not easily captured by data. Indexes also provide an alternative framework for data management (Giannetti et al., 2015). These alternative measures present novel opportunities to view parameters from a different perspective that is consistent with the literature. The use of indexes offers the flexibility of measuring different proportions and combinations of parameters (Sobel, 2008). Indexes are extremely useful and efficient where data availability is a constraint to research and can be used to compute a more robust measurement of variables. Although

measurement issues persist in most entrepreneurship literature, the norm is to use a measurement that is similar, and that can possibly recreate the intended parameter. This premise does not in any way justify modelling up all forms of replicants that are partially similar to the intended parameter.

Reiterating the use of survey data and fixed-effects methodology in addressing the limitations, this study acknowledges the constraints of using indexes. As noted earlier, longitudinal data has been used to address this limitation. Also, this study used survey data and fixed-effects methodology to address this limitation. Survey data can be used to ask specific questions, while fixed effects manage the variations and changes over time. (for the limitation sub-section, refer to 3.10; for alternative measurement of entrepreneurship, refer to sub-section 2.3).

3.5 Other Variables

3.5.1 Trade

This is usually used to represent the size of the economy or market, and it is obtained by the addition of exportation and importation of a country in a year. Trade is often used to determine the market size, and it is expressed as the sum of the exportation and importation of goods and services as a percentage of GDP. The rationale behind this variable is that a larger market will increase entrepreneurial opportunities and knowledge transfer (Gonzalez-Pernia & Pena-Legazkue, 2015). Improved access to finance will increase the ability of small businesses to invest in profitable businesses, explore more growth-maximizing and innovative opportunities and reduce the incidence of financial constraints and under-investment (Naeem & Li, 2019). Trade is expected to impact entrepreneurship positively. The trade variable data is sourced from the World Bank development indicator data.

3.5.2 Polity Score

This is a governance and institution indicator that measures the level of democracy (including autocracy) and the rule of law in a country. A score between -10 and -6 represents an autocratic regime, between -5 and 5 represents anocracies, and between 6 and 10 represents democracy. The polity score also shows the level of participation in a country's policy-making and democratic processes. Countries with high policy scores are believed to attract more foreign investors and increase the chances of rapid entrepreneurship development. Levie & Autio (2011)

and Laplume et al. (2014) find a positive association between entrepreneurship and polity score. The study expects the polity score to impact entrepreneurship positively. The polity score variable is sourced from the centre of systemic peace data.

3.5.3 Purchasing Power Parity

This is an instrument of currency converter and price deflator used to determine the value of currencies across nations. It determines the price levels of goods and services across countries. Exchange rates are the rate at which a local currency is exchanged for a foreign currency. The purchasing power parity deflator makes the uniformity of prices of goods and services across countries possible, irrespective of the local currencies. The study expects a negative relationship since the study countries are low to middle-income countries. Increasing exchange rates often leads to an increasing cost of living which will increase start-up costs and consequently retard entrepreneurial activities. The purchasing power parity variable is sourced from the World Bank development indicator data.

3.5.4 Property Right

This refers to the right of citizens, including companies, to own, use and transform capital and landed properties. A low score depicts poor laws guiding private property ownership, while a high means good laws and protection for private property ownership. This is also a proxy for economic freedom, and the study expects a positive association between entrepreneurship and property rights. The positive association will indicate improved legal intellectual rights and ease of doing business. Laplume et al. (2014) find a positive association between entrepreneurship, property rights and polity score. Berggren and Karlson (2005) posited that property rights are significant means of wealth creation. The property right variable is sourced from the Heritage Foundation data.

3.5.5 Age 20-39 Share of People in the Population Within Ages 20-39

This age range, 20-39, also constitutes the age between secondary school graduation and university graduation in which the female population formally joins the labour force. Those with entrepreneurial qualities see themselves ready to work or start a business when they graduate from university, for those who have the opportunity to have a university education, and when

they finish secondary school, for those who cannot afford a university education. Ace et al. (2012) used the age of the population between 30 and 44 as an instrumental variable for entrepreneurship, noting that it depicts the age group with high interest in entrepreneurship. This age also reflects the age that youth graduate from secondary education, and those not intending to further their education go into the labour force and are willing to work. Those with tertiary degrees also fall within this age range. The age variable is sourced from the World Bank Development indicator data.

Table 3. 1: Variable Category and Description

Variable	***Variable Description***	***Data Source***
Dependent Variables		
Self-employment (% of total employment)	Share of people who work for themselves (own account). Their profit depends on what they can generate themselves. It is expressed as a percentage of total employment. This measurement excludes all self-employment in the agrarian sector.	*World Bank Governance Indicator*
New Registered Business	The number of newly created businesses or firms formally registered in a calendar year. This measurement excludes the informal sector since the emphasis is on productive and formal institutions.	*World Bank Entrepreneurship dataset*
Bank Index (Financial Development)	Aggregate value of financial sector indicator of the banking sector's depth, stability, efficiency, and profitability.	*World Bank Global Financial Development data*
Private Credit to Private Sector	It is the amount of credit commercial banks give to the private sector. This is mainly used to determine the depth or size of the banking sector.	*World Bank Global Financial Development data*
Domestic Credit to Private Sector	This includes all credit the financial sector provides to various sectors on a gross basis, excluding credit to the central government.	*World Bank Global Financial Development data*
Bank Net Interest Margin	This accounts for the value of revenues that banks earn on interest on loans or credits. It is usually expressed as a share of the bank's total earnings. It is an indicator for determining	*World Bank Global Financial Development data*

	profitability and efficiency.	
Liquid Liabilities (Broad Money)	The sum of the money supply of M2 plus the central bank's deposit. When expressed as a ratio of GDP, it depicts the efficiency with which the banks redistribute money from Savings to borrowing. This is often used to know the depth of the banking system.	*World Bank Global Financial Development data*
Central Bank Asset/ GDP	Claims on the domestic non-financial sector by the central bank. This indicator is used to determine the depth of the banking sector.	*World Bank Global Financial Development data*
Deposit Money Bank Assets to Deposit Money Bank Asset and Central Bank Assets	The level of assets deposit money banks hold as a share of the sum of the deposit money bank and Central Bank claims on the domestic nonfinancial real sector. This is also a banking sector depth variable.	*World Bank Global Financial Development data*
Z- Score	This indicator determines the chances of default in the banking system. It acts as a barrier against the insolvency of the banking sector. A higher Z-score depicts a higher level of stability in the banking sector.	*World Bank Global Financial Development data*
Bank Overhead Cost	The ratio of operational expenses per bank's total assets. This is also used to determine the efficiency of the banking sector.	*World Bank Global Financial Development data*
Bank Return on Asset	The ratio of a bank's net revenue after tax per total assets. It is used to determine the efficiency of a bank.	*World Bank Global Financial Development data*
Control Variables		
Polity Score	This measures the level of political regime in a country. The scale ranges from -10 (inherited monarchy system) to +10 (democracy regime). The higher the score, the better.	*Systemic Peace*
Property Rights	The right of citizens, including companies, to own, use and transform capital and landed properties. The higher the scale, the more legal laws protect an individual's properties.	*Heritage Foundation*
Trade	The sum of exportation and importation of goods and services is measured as a share of gross	*World Bank Governance*

	domestic product.	*Indicator*
Purchasing Power Parity	This is an instrument of currency converter and price deflator used to determine the value of currencies across nations. It determines the price levels of goods and services across countries.	*World Bank Governance Indicator*
Age (20-39)	People in the population who are between the ages of 20 and 39. This is the age when people join the labour force and are highly active.	*World Bank Governance Indicator*

Source: Author's compilation

3.6 Summary Statistics

This section presents the summary statistics of the study. Table 3.2 below shows that the mean entrepreneurship levels of self-employment and newly registered businesses across the study region are 22.12% and 8.67%, with a standard deviation of 14.43 and 1.29, respectively. The average bank index score across the study period is 36.63%, with a 9.88 standard deviation. The standard deviation shows the deviation from the average mean, indicating how widespread individual country observations are from each other. The study also used another composition of the bank index as another measure of the development of the financial sector to check the validity and robustness of the results. The average level of domestic credit across the study period is 24.4%, with a 21.9 standard deviation. Benin has the highest level of self-employment entrepreneurship, while Nigeria has the highest number of new registered businesses.

Table 3. 2: Summary Statistics

Variable	OBS	Mean	Std. Dev.	Min	Max
Registered Biz (log)	210	8.67	1.29	5.51	11.49
Self-Employment	255	22.91	13.96	0.84	61.30
Bank Index	248	16.85	8.94	6.32	46.71
Bank Index2	236	30.63	9.88	13.40	62.22
Polity Score	221	2.17	4.73	-6	10.00
Property Right	255	37.29	12.63	10	76.50
Trade	255	62.75	22.32	16.35	127.20
Purchasing Power Parity	255	191.45	275.04	0.36	1329.60
AGE2039	255	59.88	4.852	51.45	73.60

Source: Author's computation

3.6.1 Correlation Matrix

The correlation matrix shows a moderately low correlation among variables. The correlation between the two variables of the bank index is highly correlated at 0.96. Both variables will not be in the same equation, but it shows a high level of validity between both variables, and they can easily substitute each other. As stated earlier, both variables were used to test for reliability and robustness. Table 3.3 below shows a negative association between self-employment and the bank index but has a positive association with the other entrepreneurship variables of newly registered businesses. The type of entrepreneurial activities and motives could impact this. Self-employment is mainly seen as a last resort for the unemployed. This is also consistent with the argument that formal and registered businesses are more productive, consequently leading to growth (Sobel, 2008; Saunoris & Sajny, 2017; Chowdhury et al., 2019). All things being equal, an increasing level of financial supply should be associated with a growing level of entrepreneurial activities. This is supported by a positive association between purchasing power parity and newly registered business variables and a negative correlation between purchasing power parity variable and self-employment.

The correlation matrix also shows that there is a positive association between entrepreneurship and purchasing power parity, which is a signal of opportunities for entrepreneurship. Interestingly, there is also a positive correlation between the bank index and the share of the population aged 20-39. This implies that improving financial services and supply quality is associated with increased entrepreneurial activity. The table also shows a positive association between trade and both variables' bank index, which is expected.

Table 3. 3: Correlation Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) Registered Biz	1.000								
(2) Self-Employment	0.047	1.000							
(3) Bank Index	0.273	-0.357	1.000						
(4) Bank Index2	0.314	-0.289	0.960	1.000					
(5) Polity Score	0.106	0.334	0.057	0.099	1.000				
(6) Property Right	0.324	-0.036	0.602	0.620	0.448	1.000			
(7) Trade	-0.068	-0.227	0.589	0.621	0.319	0.537	1.000		
(8) Purchasing Power P	0.097	0.022	-0.438	-0.397	-0.113	-0.167	-0.467	1.000	
(9) AGE2039	0.175	-0.239	0.572	0.559	-0.155	0.369	0.365	-0.500	1.000

Source: Author's computation

3.7 Empirical Specification

The primary regression estimation strategy employed is the pooled OLS and the fixed effects estimation. Self-employment and newly registered businesses were used as a proxy for entrepreneurship, while the bank index was used as a proxy for the development of the financial sector. Trade was used to control the prevailing economic situations, while purchasing power parity was used to proxy for various exchange rates relative to local currencies. The variables of property rights, polity score, and age 20-39 were used as a control for economic freedom, rule of law (a measure of the strength of institutions), and entrepreneurial qualities. The study expressed entrepreneurship as a function of access to finance, polity score, property rights, trade, GDP/C, purchasing power parity, and age of the entrepreneur. This can be represented econometrically as follows:

$$\textit{Self-employment} = f(\textit{polity score, property rights, trade, PPP, age20-39}).$$

This can be rewritten as

$$\textit{Self-employment}_{it} = \beta_0 + \alpha \textit{pcredit}_{it} + \alpha \textit{polity score}_{it} + \alpha \textit{property rights}_{it} + \alpha \textit{trade}_{it} + \alpha \textit{ppp}_{it} + \alpha \textit{age20-39}_{it} + \varepsilon_{iit} \quad \ldots 8$$

Where:

β_0 is the intercept,

α is the coefficient of interest

ε_i is the error term.

To test the relationship between the development of the financial sector and entrepreneurship, the research tested both forms of entrepreneurship, each with three columns. The first column is the OLS regression analysis results. The control variables of polity score property rights, trade, purchasing power parity, and age were added to the regression analysis to ascertain the influence of these variables in the financial development and entrepreneurship relationship. The second column is the fixed effects column, which controls for heterogeneity across countries. Heterogeneity accounts for the variation across countries, which may be because of different measurement and accounting standards. This has been known to cause biases in empirical reports. The fixed effects result adjusts these measurement errors, making the results more

reliable. The third column contains regression analysis with the interaction variables. The interaction effects adjust to the marginal effects brought about by an extra unit of the variable of interest. In this empirical study, the variable of interest is the financial sector's development. The interaction effect is thus the additional units of entrepreneurial activities brought about by the impact of improvement of the financial sector in exploring new market opportunities. The study also used another composition of financial development indicators (bank index) variable for robustness check. This is to check for the reliability of the results.

3.8 Result

3.8.1 Regression Results

The results on the relationship between the development of the financial sector and entrepreneurship in selected African countries are presented in Table 3.4. The table is divided into two parts, representing the two forms of entrepreneurship (new registered businesses and self-employment). The first column is the pooled OLS results, the second is the fixed effects results, and the third is the interaction variable results. As stated earlier, the Hausman test result showed that the fixed effects result is the most preferred to the random test. However, the study presents the pooled OLS and the fixed effects results for a better understanding and clarity of results.

Table 3. 4: Regression Results

	New Registered Businesses			Self- Employment		
	(1)	(2)	(3)	(1)	(2)	(3)
	Registered Business	Registered Business	Registered Business	Self-Employment	Self-Employment	Self-Employment
Bank Index	0.083**	0.11	0.2***	0.452*	0.655**	0.922**
	(0.038)	(0.067)	(0.068)	(0.232)	(0.276)	(0.388)
Polity Score	0.01	0.006	0.017	0.307	0.300	0.332*
	(0.027)	(0.03)	(0.026)	(0.205)	(0.191)	(0.190)
Property Right	0.005	0.004	0.009	0.096	0.100	0.118*
	(0.008)	(0.008)	(0.007)	(0.064)	(0.061)	(0.066)
Trade	0.001	0.003	0.029**	0.010	0.001	0.118**
	(0.007)	(0.008)	(0.012)	(0.025)	(0.024)	(0.058)
Purchasing Power P	0.002***	0.002***	0.002***	0.004*	0.003	0.005**
	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)
AGE2039	0.061	0.091	0.057	0.754*	1.068**	0.769*
	(0.073)	(0.119)	(0.067)	(0.416)	(0.476)	(0.326)
Bank*Trade			-.002***			-.007**
			(0.001)			(0.003)
Observations	183	183	183	209	209	209
R^2/ Pseudo R^2	0.19	0.2	0.26	0.23	0.23	0.24
fixed effects		YES			YES	

Robust standard errors are in parentheses.

**** p<.01, ** p<.05, * p<.1*

The empirical analysis, as shown in Table 3.4, column 1, shows that the bank index has a positive relationship with both forms of entrepreneurship. New registered business is highly significant at 5%, whereas self-employment is not significant. This signifies that an increase in bank index (improvement of financial services and supply) by 10% would increase the entrepreneurial activities of newly registered businesses by 0.8% with a 95% confidence level. This implies that an improvement and increase in financial service and supply will consistently increase the entrepreneurial activities of newly registered businesses. Increasing financial supply and loans to smaller businesses will reduce the binding constraints of access to finance, thereby facilitating increased access to finance and investment in profitable opportunities. This is consistent with the studies of Hulten & Ahmed (2013), Boermans & Willebrands (2018), Jiang et al. (2019), and Naeem & Li (2019). Increasing the availability of loans and credit facilities will translate to improved financial inclusion and availability of credit and credit information. This will also reduce the constraints in accessing loans and increase borrowing activities, which

increases entrepreneurial activities, according to Boermans & Willebrands (2018). It is well documented in extant literature that countries with developed financial institutions experience faster economic growth and vice versa (King & Levine, 1993; Becks et al., 2000). Buera et al., 2011 also posited that reducing the burden of accessing finance will positively increase the entrepreneurial activities of self-employment, firm entry rate, lifespan of business and allocation of entrepreneurial talent.

The empirical analysis in Table 3.4, column 2 shows the fixed effects regression analysis results. Table 3.4, column 2 shows that the bank index has a positive and statistically significant effect on both forms of entrepreneurship. This means that an increase in bank index (improvement of financial services and supply) by 10% would increase entrepreneurial activities of newly registered businesses by 1.1% and self-employment by 3.9% with 95% and 90% confidence levels, respectively. This implies that an improvement and increase in financial service and banking sector activities would consistently increase the entrepreneurial activities of new registered businesses and self-employment. Increasing financial supply and improving components of the banking sector, like the depth, stability and efficiency of the banking sector, will reduce the incidence of financial constraints and under-investment (Naeem & Li, 2019). This is consistent with Paulson and Townsend, 2004, Buera et al., 2011 Boermans and Willebrands, 2018 and Jiang et al., 2019. This literature noted that improved access to finance is vital to the types and success of entrepreneurship. King and Levine (1993) also emphasise the importance of the development of the banking sector to the growth of entrepreneurial activities of smaller businesses. The level of access to finance also determines the types of entrepreneurial activities prevalent in the region. Areas with developed financial facilities and access are likely to engage in formal and innovative activities compared to areas that are financially constrained with poor financial facilities where informal and less innovative businesses would be predominant (Sobel, 2008; Darhihadani et al., 2018; Chowdhury et al., (2019). Improving financial development and access to finance in the region where financial institutions are weak will spike up entrepreneurial activities since most countries are emerging market economies with many entrepreneurial activities.

The empirical analysis in Table 3.4, column 3 shows the regression analysis results with the interaction variable. The variable of trade interacted with the variable of bank index to ascertain the level of marginal growth that an improved financial sector would have on

entrepreneurship through increased access to market and trading opportunities. This assumes that with increased access to finance, forms would invest in more profitable opportunities and increase their production capacity. This will allow firms to access more local and international market opportunities. Thus, the interaction with the trade variable is the extra unit of entrepreneurship brought about by an extra unit improvement in financial development.

Table 3.4 Column 3 results show that the bank index has a positive and statistically significant effect on both forms of entrepreneurial activities, with newly registered businesses and self-employment being significant at 1% and 5%, respectively. This shows that increasing the bank index by 10% would increase newly registered businesses by 1.98% and self-employment by 0.92% with a confidence level of 99% and 95%, respectively. This is consistent with the findings of Akoten et al., 2006; Bewaji et al., 2015; Naeem & Li, 2019; and Uddin et al., 2022. Improving access to finance through an efficient banking system would reduce the difficulties small businesses and firms encounter in accessing credit and loans. Firms cannot invest in innovative and expansion activities when they cannot access finance, consequently affecting their performance and investment capacity (Naeem & Li, 2019). Financial constraints can also change the legal status of firms. Firms that are legally registered could go informal when they encounter financial difficulties and change from productive to unproductive when they cannot operate competitively (Sobel, 2008; Schmalz et al., 2017; Saunoris & Sajny, 2017).

The result in Table 3.4 also shows the results of the control variables. While the signs of the control variables were as expected, the significance level was not. For instance, the polity score and property rights are positive but not significant for both forms of entrepreneurship. This could be because none of the study countries practice autocratic or oppressive regimes. The improvement in the ease of doing business table for most study countries supports this. These findings, consistent with the works of Levie & Autio (2011) and Laplume et al. (2014), highlight the need for policies that promote a conducive institutional climate for entrepreneurship.

Trade is positive but not significant in columns 1 and 2 for both forms of entrepreneurship. Trade is positive and significant for both forms of entrepreneurship in column 3, which involves the addition of the interaction term between the trade and banking sectors. As mentioned earlier, the interaction term indicates additional units of entrepreneurial activities brought about by the impact of improvement of the financial sector in exploring more trading opportunities. This result justifies the call for improvement of the banking sector to improve financial services for

entrepreneurship development. It also indicates the impact of trade on entrepreneurship in the study countries.

Purchasing power parity is positive and significant for both measurements of entrepreneurship. The significance level is low with self-employment: 10% in the first column, not significant in the second column, and 5% in the column. This is consistent with the literature concerning the motivation to become self-employed. The results indicate that purchasing power (exchange rates) is not significant for self-employed entrepreneurs who do not engage in trade. There could be other underlying factors other than profits/proceeds that influenced their choice to become self-employed. However, purchasing power is highly significant for newly registered businesses. This is consistent with the literature as new registered businesses are formed due to existing opportunities. Most self-employed are necessity-oriented, while newly registered businesses are opportunistic-oriented and form to explore entrepreneurial and innovative opportunities.

Age 20-39 is positive and significant for self-employment but not significant for newly registered businesses. This is consistent with the argument of Ace et al. (2012) that this age represents the population with high empathy toward entrepreneurship. This also indicates that although age is a determinate factor in becoming an entrepreneur but not but is irrelevant to the nature of entrepreneurship. This is consistent with the findings of Baumol (1990) and Sobel (2008), who found a positive association between the types of entrepreneurship (formal and informal) and institutional climate.

The interaction term results show a negative and statistically significant relationship between the interaction between trade and banking sector development and the bank index for both forms of entrepreneurship. The high significance level indicates the importance and possibility of new trading opportunities brought about by improving the banking sector's development. However, the negative sign indicates a slight reduction in the 2 per cent of the overall results in column 3 for both forms of entrepreneurship. The reduction could be because of the level of development of the financial institutions of the study countries.

3.8.2 Robustness

For robustness and reliability of the result, another bank index composition is used to ascertain the impact of the improved financial sector on entrepreneurship. The primary difference between both measurements is in the composition of the index and the level of access to finance. The first bank index comprised the indicators of private credit to the private sector, liquid liabilities/GDP, central bank asset/GDP, Zscore, bank's net interest rate, and bank's return on assets. The second bank's index comprises domestic credit indicators to the private sector, deposit money bank assets to deposit money bank assets and central bank assets, liquid liabilities, Zscore, Banks' return on assets and banks' overdraft cost. The key variation is the private credit to the private sector and the domestic credit by private money banks to the private sector. Both forms of measure have been used in finance literature to measure access to finance individually. There is a high correlation between both measurements of the bank index, which makes it a good and valid measurement.

The robustness results in Table 3.5 show the results are robust as there are no changes to the variables of interest. This further confirms the reliability of the positive impact of the improved financial sector on entrepreneurship. However, there are some changes in the sign and significance of the control variables. These changes are embedded in the variations between the compositions of the financial sector index. As mentioned earlier, the first bank index comprised the indicators of private credit to the private sector, liquid liabilities/GDP, central bank asset/GDP, Zscore, bank's net interest rate, and bank's return on assets, while the second bank's index comprises domestic credit indicators to the private sector, deposit money bank assets to deposit money bank assets and central bank assets, liquid liabilities, Zscore, Banks' return on assets and banks' overdraft cost.

The critical difference is between the private sector credit in the first index and domestic credit in the second. Private sector credit is the amount of credit commercial banks give the private sector. In contrast, domestic credit includes all credit the financial sector provides to various sectors on a gross basis, excluding credit to the central government. Consequently, private credit deals specifically with the private sector, while domestic credit is a broader economic tool that deals with the entire economy, including the private sector. Most of the changes are within the newly registered businesses, which are formal businesses that operate under legal guidelines. As noted earlier, most self-employed individuals within the study countries are necessity-oriented

entrepreneurs and operate informally. With this established, most changes can be traced to two factors. Firstly, the weak institutional climate within the study countries can be harsh or poor economic and monetary policies. Secondly, it can also be the absence or poor implementation of policies that make informal operations the norm and standard.

The results in Table 3.5 show that the sign of polity score and trade has changed from positive to negative only for newly registered businesses. This could be due to poor registration or monetary policies. The results with the interaction variable in column 3 for both forms of entrepreneurship are positive, which further emphasises the role of an improved banking sector in entrepreneurship development.

Property rights, purchasing power parity, and Age 2039 lose their significance for self-employment. This could be due to the absence of self-employment policies within the study region, mainly due to the high unemployment rate.

Table 3. 5: Regression Result

	New Registered Businesses			Self- Employment		
	(1)	(2)	(3)	(1)	(2)	(3)
	Registered Business	Registered Business	Registered Business	Self-Employment	Self-Employment	Self-Employment
Bank Index	0.084**	0.11**	0.189***	0.233	0.390*	0.645**
	(.033)	(0.052)	(0.068)	(0.201)	(0.213)	(0.261)
Polity Score	-0.001	-0.006	0.003	0.332	0.312	0.344
	(0.029)	(0.033)	(0.027)	(0.229)	(0.230)	(0.221)
Property Right	0.006	0.006	0.009	0.099	0.107	0.113
	(0.009)	(0.009)	(0.008)	(0.075)	(0.075)	(0.075)
Trade	-0.001	-0.001	0.043**	0.022	0.014	0.201***
	(0.007)	(0.009)	(0.017)	(0.027)	(0.027)	(0.066)
Purchasing Power P	0.001*	0.001	0.001*	0.002	0.00	0.001
	(0.001)	(0.001)	(0.001)	(0.003)	(0.003)	(0.003)
AGE2039	0.041	0.06	0.032	0.463	0.676	0.445
	(0.089)	(0.124)	(0.084)	(0.495)	(0.597)	(0.467)
Bank*Trade			-0.002**			-0.006***
			(0.001)			(0.002)
Observations	173	173	173	199	199	199
R^2/Pseudo R^2	0.2	0.2	0.25	0.15	0.16	0.17
fixed effects		YES			YES	

Robust standard errors are in parentheses

**** p<.01, ** p<.05, * p<.1*

3.9 Discussion and Conclusion

This chapter examined the macroeconomic relationship between financial development and entrepreneurship in 17 African countries. The key contribution in this regard is constructing a banking index to measure financial development and research methodology. I find a positive and significant relationship exists between financial development and entrepreneurship. Entrepreneurship growth is important to African countries due to its ability to create job opportunities, set up enterprises, and reduce gender inequality, creating wealth and reducing poverty. This function of entrepreneurship makes it plausible for sustainable economic growth, which is the main objective of every economy, including Africa. It is well established in the literature that small businesses account for 90 per cent of the private sector in emerging economies and over 80 per cent of jobs in the African continent. As mentioned earlier, the African continent is the most financially excluded continent regarding accessing finance. This makes understanding the impact of private sector finance on entrepreneurship revolutionary and appears to be the needed flame to lighten up the African entrepreneurial hub, especially for the selected 17 countries.

The result of the study reveals that the development of the banking sector has a positive association with entrepreneurship. There is a direct and significant relationship between financial development and entrepreneurship. This is consistent with Boermans and Willebrands (2018), Jiang et al. (2019), and Hulten and Ahmed (2013). This result reveals that increasing the bank index (financial development) will change entrepreneurial activities by at least a 95 per cent confidence level. Development of the financial sector to make entrepreneurial finance available will help unburden the binding constraints of accessing finance for entrepreneurship development to streams of boundless opportunities. Much evidence, including rectifying the African continental free trade, suggests plenty of entrepreneurial opportunities in the African region (UNCTAD, 2018; Signe, 2018). This is also in line with the assertion of King and Levine (1993) that countries with robust financial institutions (development strategies) will explore more opportunities and thus witness more growth. Aside from making credit available for entrepreneurs, a reformed financial institution works in synergy with other institutions and stakeholders to facilitate identifying prospective entrepreneurs' viable business ideals, makes

finance available, provides risk management options, and gives credit and innovative information (King & Levine, 1993). The study finding is also consistent with the assertion of Baliamoune-Lutz et al. (2011) that entrepreneurship growth depends mainly on acquired capital. The implication is that the availability of entrepreneurial finance makes entrepreneurship fluid, thereby enhancing productivity and output. Entrepreneurship is mainly exploring opportunities for profits. The volume of trade and investment and the growing population make a strong case for opportunities and human capital availability. The result of the study confirms that accessing quality finance capital is the missing link to the entrepreneurial boom of the study countries.

The results also show heterogeneity among study countries. This suggests that the study countries are not at the same level in economic development. This implies that investment in banking reforms and policies that improve banking and financial institutions are necessary to reduce financial constraints and improve the ease of doing business and business climate. This will also enhance small businesses' and firms' capability to innovate or adopt new technology to improve performance. Regional policies and setting thresholds for private sector credit and institution development will benefit African countries. The rectification of the African continental free trade area is a good take-off point.

Conclusively, this study empirically demonstrates that the development of the banking sector as an access to finance is positively related to entrepreneurship and that this relationship is significant. I also reaffirm the importance of institution development to entrepreneurship growth within the study countries. This also shows that entrepreneurship development within the study countries is a function of the bank index (financial development), level of governance, level of economic freedom, trade volume, exchange rate, level of entrepreneurship qualities and per capita income.

Policy-wise, policies will need to be explicitly targeted at small businesses about the sector and the nature of the businesses they operate. A performance-centred approach will be more proactive for efficiency. Rather than making general policies for companies and start-ups, economic sectors and start-up sizes can be targeted for policy efficiency and implementation. This also means making different policies for different sectors depending on the constraints peculiar to each sector. A move from one-size-fits-all to a result-oriented approach where reforms are horizontal rather than vertical (Morris, 2018). There should also be policies for banks to set aside a certain amount of money for entrepreneurship development. These policies should

also make financial institutions disseminate credit information for entrepreneurial activities to small business owners. Policies should also be tailored to unburden institutional ambiguities and better implementation strategies to check performance. Policies and implementation strategies should be clear and not contradict other policies or existing institutional functions. There is a need for more investment in the synergy of all institutions and collaborations of all stakeholders to attain boundless entrepreneurship opportunities. For further studies, there will be a need to test this relationship with other forms of entrepreneurship since I used self-employment. Also, using the firm-level dataset is worth testing because I used cross-country analysis.

3.10 Limitations

Due to data availability, we measure entrepreneurship as a newly registered business and self-employment. Many businesses within the study area are not registered and mainly operate within the informal sector (Hilson & Maconachie, 2020; George et al., 2016). Even for registered businesses, there is little to no information on their innovative activities and no comprehensive data on their innovation and research and development spending (Nagler & Naudé, 2014; Hilson & Maconachie, 2020). This is also the same issue with necessity and opportunity entrepreneurship. Survey data proposes a more tailored approach to defining entrepreneurship since a research questionnaire can be shaped towards answering specific research questions.

Secondly, these metrics may not accurately represent entrepreneurship within the region as they are skewed towards more capital-intensive businesses (Hilson & Maconachie, 2020; George et al., 2016). The cost of entry and running a business is high, necessitating the recent effort to improve the ease of doing business to reduce constraints. Entrepreneurs will fancy using available resources to run their businesses and diversify into unrelated businesses to manage risks rather than spend on research and development. Thirdly, there is no comprehensive data on the informal sector to capture unregistered businesses (George et al., 2016). Similar limitations apply to data and information on personal funding and private, family, and friend loans. These limitations could be resolved using survey data and to portray a comprehensive definition of entrepreneurship (Nagler & Naudé, 2014).

As mentioned earlier, self-employment also has its shortcomings. Self-employment does not measure the motives for becoming an entrepreneur or capture every aspect of entrepreneurship. The documentation of self-employment data is also not consistent across countries and regions.

Existing datasets show that lower-income countries have more self-employment data than high-income countries. This has more to do with the measurement standards adopted across these regions (Parker, 1995).

Like other macro-level studies, this chapter has limitations that could bias the study's findings. Some of these limitations can be measurement challenges with variations in the measurement standard of variables of interest. There can also be issues of omitted variables and data availability. Variables of interest might not be available across countries, which could lead to the dropping of relevant variables for less essential available variables. This is even more problematic with the SSA region. This was a significant challenge in this chapter. Macro-level studies also suffer from demography concerns, which seriously influence study results.

I used the World Bank enterprise survey dataset to address all these limitations. In the subsequent chapters of the research, we present survey-based and firm-level analyses on a restricted sample of countries.

CHAPTER 4

A Firm-Level Perspective on Financial Development and Entrepreneurship

4.1 Chapter Overview

This chapter presents the firm-level perspective of financial development and firm performance. It focuses on the challenges of accessing finance and its effects on firm performance. Firm performance is a critical aspect of entrepreneurship. The relationship between entrepreneurship and economic growth is based on firms' performances (gross domestic products), hence the growing interest. It is important in this study that the factors that influence firm-level performance are discussed to fully comprehend the level of financial development and firm performance in the region. The issues of financial constraints and the inability to create a conducive business environment that can guarantee growth are lacking. These are critical elements in the business and production framework. The study used the world enterprise survey dataset to critically analyse the role of finance in entrepreneurship and firm performance in the African region. The World Bank enterprise survey dataset is a firm-level survey aimed at understanding the business environment of participating countries. In this chapter, I used five different measurements of firm performance. The main estimation strategy employed in this chapter is the instrumental variable. The chapter concludes with a presentation and discussion of the results.

4.2 Introduction

The development of the financial system is a gateway to entrepreneurship development and productivity. Thus, an improved financial sector is strongly associated with entrepreneurship and economic growth in developing economies (Lavine, 2005; Ayyagari et al., 2008; Cull & Xu, 2005). Entrepreneurship responds to financial development by way of increasing business startups and formation (Mueller, 2007; Brixiova et al., 2020; Aghion et al., 2007), increasing firms' productivity and performance (Baliamoune-Lutz et al., 2011; Griffith et al., 2006; Morris, 2018), and firm's growth (Beck et al., 2005; Ayyagari et al., 2008a; Adusei, 2016). The development of the financial sector determines the level of investment and stimulates other growth variables. The developed financial sector reduces financial irregularities associated with financial constraints, which many literatures have reported as a substantial obstacle to entrepreneurship development in developing countries (Boermans & Willebrands, 2018; Buera et al., 2015). Entrepreneurship development is critical to developing economies due to the employment capabilities that come with it and the tendency to reduce poverty (Brixiova et al., 2020).

Bank loans are prominent and reliable solutions to financial constraints. However, their availability is subject to other factors such as the level of development (innovation) of the banking sector, information asymmetries, collateral, size of firms, interest rates, government policies and others (Strahan & Weston, 1998; Berger & Udell, 1995). Loans to small businesses are often driven by the size of businesses and various forms of contact between businesses and banks to mitigate issues of information asymmetry. Global integration and technological innovation have expanded financial integration across regions in recent years, yet financial constraints persist in developing countries.

Entrepreneurship in Africa is developing fast, majorly due to the level of poverty and unemployment in the region. Poverty reduction (eradication) is one of the eight-millennium development goals of the United Nations. Successive African governments have used entrepreneurship development to eradicate poverty and push for economic growth. Although considerable economic growth has been recorded, the poverty level has been barely affected (Brixiova et al., 2020). There has also been a superficial level of success achieved with the level of productivity, which has been attributed to the level of financial inclusion of the continent (Baliamoune-Lutz et al., 2011; Brixiova et al., 2020). This has created a gap in the literature

about the continued low level of productivity in African countries compared to their developed counterpart.

Firm performance and improvement of financial institutions are popular research areas in entrepreneurship study and in Africa (developing economies), mainly due to the weak investment environment, property rights and financial institutions (Hallward-Driemeier et al., 2006; Svejnar & commander, 2007). Firm performance has been measured in several ways, ranging from sales revenues (Willebraands et al., 2012), growing numbers of startups (Agion et al., 2007) and number of employees (Coleman, 2007). This paper takes this literature further by testing the relationship between access to finance and firm performance while controlling for reverse causality (endogeneity). This makes sense within African and developing economies, where endogeneity issues have been treated within the context of omitted time-invariant variables (Svejnar & Commander, 2007).

Banks' use of collateral as a solution to information asymmetry is still dominant within the African region, which has grave consequences on productivity across the African continent. According to the World Bank Enterprise survey, entrepreneurs mentioned collateral requirements being too high as one of the reasons they did not consider getting credit facilities. This will reduce (affect) the allocation of resources to high-growth entrepreneurial activities and thus reduce (affect) productive capabilities. This has also led to a gap in the literature about searching for an alternative (penultimate) financial strategy in entrepreneurship study. The use of collateral is quite common in developing countries where financial institutions are weak and underdeveloped. This has also led to the use of informal financing means (Brixiova et al., 2020), of which friends and family are very popular in the African region. Capital markets are highly rated in advanced economies where financial institutions are developed and robust (Aghion et al., 2007). Due to weak financial institutions, stock markets are uncommon and poorly developed in developing countries.

The study observed that access to finance is economically significant for stimulating employment growth, improving sales and labour productivity, and increasing export intensity. This implies that increasing financial and credit services positively impacts entrepreneurship development. The study results also highlight policy implications for policymakers.

4.3 Measurement of Productivity and Firm Performance

The measurement of entrepreneurship has been a critical issue in entrepreneurship literature. This is expected due to the vast nature of the entrepreneurship discipline. The concept of entrepreneurship varies across disciplines (Acs et al., 2014). Irrespective of the variations, entrepreneurship has been seen to be essential and relevant to development (Ace & Audretsch, 1988; Blanchflower, 2000; Parker, 2018; Terjessen & Wang, 2013; Ace et al., 2009). Since the measurement issues persist with the definition of entrepreneurship, performance, which is the feedback from entrepreneurial activities, will not be left out. Entrepreneurship literature has used various terms to measure a firm's performance and sometimes used them interchangeably. The most common measurement of performance and productivity is growth. The impact of entrepreneurship on economic growth is a widespread debate in entrepreneurship studies (Baumol, 2014; Jiang et al., 2010; Van Stel et al., 2005; King & Lavine, 1993).

In this study, I used five measures of firm performance to expand African literature within the finance and firm performance debate. Firstly, the firm's performance was measured in terms of sales revenue. This is based on the opinion that the average revenue will give a picture of the firm's production capability. Secondly, the study used two employment variables to measure firm performance: the size of current employment and the growth rate in employment size. This is based on determining a firm's performance using the size of its labour and the rate at which more recruitment exercises are done to meet production demands. Also, firm performance was measured concerning labour efficiency and the ratio of annual sales to the number of employees.[13] This gives an overview of a firm's efficient utilisation and allocation of production means. Firms with high performance also have a high labour efficiency ratio and better allocation of (scarce) resources. Lastly, the study also used export intensity as a proxy for firm performance, based on the argument that firms set up for exportation purposes have higher production standards, hence higher firm performance[14]. They have foreign contacts that expose them to improved production technologies, access to cheaper finance (foreign current), and transfer of knowledge, which has been argued to improve firm performance.

Recent literature on entrepreneurship and firm performance has emphasised the significance of business environment, property rights, institutions, and financial constraints (Svejnar & Commander, 2007; Beck et al., 2005; Boermans & Willebrands, 2018). These factors collectively impact firms' efficiency and mode of operation. In the first place, startups, entry, exit

and life span of businesses are tied to these variables. This is more plausible in developing economies with weak financial and legal institutions. Weak financial institutions coupled with necessity-oriented entrepreneurship means investment in newer technology to improve production will be seriously affected.

Heshmati (2001) pointed out that the policy implications and estimation method used can also affect the measurement of firm performance in entrepreneurial studies. This will also have grave consequences on interpreting research results because a weak proxy can lead to biased results, often misleading conclusions. Nichter and Goldmark (2009) also view firm performance as growth in the number of employees and note that the personal qualities of entrepreneurs, firm characteristics, contact factors such as social networks, and contextual factors such as business environment are important determinants of firm performance. There are also issues associated with record keeping and aggregation of data (data availability) with (small) firms in developing countries (Mead & Liedholm, 1998). This is one of the reasons entrepreneurial research literature in developing countries is limited, and entrepreneurial research is mainly focused on developed countries. A recent World Bank report on ease of doing business also shows that investing in a business environment is critical to the economic growth of developing and transition economies. Nichter and Goldmark (2009) observed a dichotomy in the measurement of firm performance between developed and developing countries. Research on developed countries often used revenue and asset growth, while those of developing countries prefer employment growth. This is premised on small firms' inability to keep records in developing countries. Firm performance measures output and results; regardless of how it is measured, efficiency is essential in reducing excesses for the best output.

As pointed out in Chapter 2.6, one of the major causes of poor performance of small firms in most developing countries (including the SSA regions) is the issue of financial constraints leading to underinvestment. The inability to access external finance reduces the chances of investing in improved production techniques that could improve firm performance. This also increases the missed opportunities to invest in high-growth businesses and increases performance.

4.4 Methodology

This section presents the chapter's data description, estimation strategy and empirical specification. To investigate the impact of access to finance on the firm performance of small businesses, I used data from the World Bank enterprise survey and focused on twenty-one African countries. The countries are Benin, Burkina Faso, Cameroun, Cote d' Ivoire, Egypt, Ethiopia, Gambia, Ghana, Kenya, Mali, Mauritania, Mauritius, Morocco, Mozambique, Niger, Nigeria, Rwanda, Senegal, Tanzania, Tunisia, and Uganda. All the countries are low-income based on the IWA (International Water Association) classification. The twenty-one countries also belong to the African Union (AU) with a common goal of defending sovereignty and promoting good governance, peace, and international cooperation. All the countries have also significantly pushed to increase their ease of doing business ranking in recent years. These countries are signatories to the African Continental Free Trade Area (AFCFTA).

The World Bank Enterprise Survey is a firm-level dataset the World Bank collects to understand firms' characteristics and performance. Firm characteristics and performance are peculiar features that best describe local firms' daily operations and contacts and the environment in which they operate. These can be in the form of infrastructure, access to finance, law, and order. This is important because understanding these daily operations gives an informed notion of how best to tackle the challenges of local firms and fashion solutions for emerging problems. The World Bank enterprise survey is collected using standard and uniform sampling techniques from the manufacturing and service sectors. The survey was carried out in two stages. First, by phone calls to gather prior information about the firms, and lastly, by administering a questionnaire once participation eligibility is confirmed. The sampling size of the firm is pegged at micro firms with less than five staff, small firms with staff ranging between five and nineteen, medium firms with staff ranging between twenty and ninety-nine and large firms with staff above one hundred. Since this study is on entrepreneurship, the study restricted firm eligibility to participate in the study to firms with staff ranging from one to nineteen. This resonates with the small firms and necessity-oriented entrepreneurship in the study countries. Another essential eligibility restriction of the World Bank Enterprise Survey (WBES) is that it includes only firms with control over their workforce and management. These restrictions made the final data sixteen thousand nine hundred and thirty-six observations (16936). A further breakdown of the industry composition shows that the manufacturing sector comprises 73.73% of the total industry. Retail and

wholesale trading makes up 12.33 per cent and 2.08 per cent, respectively. Other sectors, such as transportation (1.72 per cent), construction (1.13 per cent), hotel and restaurants (3.87 per cent), IT (0.79 per cent), and other services (4.45 per cent), made up the remaining sectors of the industry. This composition underlines the importance of small businesses to the economies of the study countries as retail trading and hotels and restaurants have over 15 per cent share of the total industry.

Unlike other World Bank cross-country reports, the enterprise survey is a regional data that covers heterogeneity (econometric) issues common with datasets. Survey datasets are essential and suitable for research because they can be used to ask specific questions which are in line with the research objective, although there has been concern about the genuineness of the respondents (Svejnar & Commander, 2007; Hallward-Driemeier et al., 2006). The WBES also had responses on the ownership status of the study firms, and these responses showed that sole proprietorship accounted for over sixty-seven per cent of the total firms. In comparison, partnerships and limited partnerships accounted for 17.65 per cent of firms. Firms traded on the stock market accounted for two per cent of the total firms, reiterating the argument that the stock market is very undeveloped within the study region and not a good channel for sourcing finance, unlike in the developed countries. The WBES has responses on various topics and sections of the business environment and performance, such as management practices, innovation, capacity, land and permits, crime, and business-government regulations.

4.5 Measurement of Variables

I used four performance measurements in this empirical chapter that aligned with the extant literature. The study measured firm performance as sales employment, subdivided into current employment and employment growth, labour productivity and export intensity. Sales are also referred to in some literature as revenue. This was done first; respondents were asked to give their annual sales, which were in local currencies. This was followed by Diego's (2018) suggestion to convert local currency into dollars by dividing it with either the exchange rate or purchasing power parity (PPP). Lastly, the natural logarithm of sales values was also taken to reduce the skewness of significant figures to conform to measurement standards since it is a finance variable. The conversion is necessary so that measurements of firm performance are not affected by exchange rates or the purchasing power parity and a single currency format is

maintained. Labour productivity is another measurement of firm performance used in the study that followed a similar pattern. This measures the efficient utilisation of labour resources (Dethier et al., 2011; Boermans & Willebrands, 2018). This is achieved by dividing converted sales values by number of employees. Some literature also adjusted for various seasons (Negler & Naude, 2014), but I did not do that since I did not use such data.

Employment is another measure of performance that is common in literature. This is based on the hypothesis that firms' recruitment is driven by demand function. Increased demand will increase supply pressure; hence, more hands are needed to ensure clients get their products when due. More demand will translate to more employment and enhanced productivity. Also, a firm can revert and reduce its size when demand decreases since it costs more to keep a large workforce. This translates to a reduction in the firm's performance compared to an increasing workforce. I use two forms of measurement for employment. Firstly, I took the natural logarithms of the current number of permanent employees in the last fiscal year. This is a response to how many permanent full-time individuals worked in the establishment last fiscal year. I also used employment growth, derived by subtracting previous employment from current employment divided by previous employment (Nichter & Goldmark, 2009; Mead & Liedholm, 1998). The natural logarithm is also taken to conform to the standard of measurement. Coleman (2007) used this format to measure sales growth and understand the role of human and financial capital in women's businesses.

Using employee numbers and employee growth rate as a proxy for firm performance is consistent with extant literature. Henrekson and Johansson (2010) studied the employment rate of businesses and opined that small firm growth can either be an increase in total employment or a reduction and difference between them. This is based on the logic that the number (size) of employees can be used to determine firms' relative size and prospects (Storey, 2011). The employee growth rate is computed from the changes in the employee numbers. This also takes cognisance that firm performance can take various forms (Delmar et al., 2003). Deschryvere (2008) argued that firm growth can be measured in multiple ways, with turnover and number of employees being the most valid representations of performance. Bruderl and Preisendorfer (2000) used the total number of employees to investigate newly established businesses' employment effects and growth potential. The number of employees was computed as a proxy variable of growth and performance of new businesses. Delmar et al. (2003) investigated the

heterogeneity in firms' growth patterns using Swedish firms. They argue that what constitutes a high-growth firm depends on the growth used. They studied different employment and sales variables compositions and found that firm performance can be either organic growth or acquisition growth and does not follow a specific pattern. Organic growth is based on the number of employees, and it is associated with newer and smaller firms. In comparison, acquisition growth is based on takeover or backward integration and is associated with older and larger firms.

Export intensity is also used as a measure of growth, and this is based on the notion that exportation is a pull factor in the entrepreneurship context. Export intensity is associated with the spillover of knowledge (Ace et al., 2012) and internalisation contact, which has been proven crucial to business competitiveness, growth, sales, and access to finance (Hessels & Van Stel, 2011; Autio, 2005). Export intensity improves the standard and the quality of goods and services to meet local and international standards and demand. The study measured export intensity as the proportion of sales directly or indirectly exported. The WBES divides sales into three categories: national sales, indirect sales, and direct sales. The export intensity is derived by adding both direct and indirect sales.

Moreover, I measure access to finance by responding to whether firms have access to a line of credit. A line of credit is a form of finance readily available for firms to use whenever necessary. They are not as flexible as loans, with no predetermined expiration dates. The interest rate is calculated and paid monthly. A credit card is an excellent example of a line of credit that small firms can access in an emergency, and repayment can be spread across a period. Unlike loans, credit can be used, and repayment is available to use again. Although the interest rate is fixed, the interest payment is based on what is used or spent monthly and could be interest-free when properly used. It can come in various forms, such as personal credit cards, business cards, and home equity lines of credit. It can also be in secured lending, where landed properties or valuables are used as collateral for credit. They can be very efficient in developed countries and emerging market economies. It is becoming more popular within Sun-Saharan African countries. This was computed from the responses to the survey question 'If firms have lines of credit or loans from a financial institution'.

4.6 Control Variable

4.6.1 Age

The firm's age is derived by subtracting the year the firm began operation from the year the survey was taken. Extant literature has had mixed results on the relationship between the age of a firm and performance. What is more prominent is the notion that younger firms grow faster than older firms (Mead & Liedholm, 1998; Heshmati, 2001). This is based on the argument that younger firms may flourish at the entry point because of new production techniques. As they age, such techniques might become obsolete compared to other production means. The different developmental stages of firms also affect their priorities, impacting their performance (Heshmati, 2001; Nichter & Goldmark, 2009). Extant literature is also shaped by the definition of growth (sales vs number of employees). All things being equal, older firms have better structures to access finance and industrial structures than younger and newer firms. This makes the argument for the definition of performance and priorities more reasonable.

4.6.2 Experience

This measures the number of years of work experience that top managers have gained. The experience of top managers or owners is a vital component of an entrepreneur's characteristics and the firm's survival ability. Parker (1995) observed that seven years of work experience is necessary for a better firm performance in Kanya. Experienced managers can be more resourceful, especially during the early stage of firm formation. Experience also helps build networks and share ideas, especially in developing countries with weak institutions, information asymmetries, weak property rights, and poor creditor protection.

4.6.3 Human Capital

This measures the level of training and capacity of the labour. It is used in entrepreneurial research to measure the level of education, training, and capacity development of the entrepreneurs or management and their staff. Empirical evidence shows that human capital development in entrepreneurship literature improves performance (Nichter & Goldmark, 2009). Theoretically, firms with higher education and training have more chances of improved performance than firms with lower capacity. This is not always the case, as other factors affect

firm performance. The study measured human capital with the survey response to the question of full-time permanent workers' secondary school completion rate.

4.6.4 Court System

This is a measure of the level of fairness of the legal system. The study used this as a proxy for legal institutions, and it is a response to the survey question of whether the court system is fair, impartial, and uncorrupted. The legal institutions' fairness level will affect property rights and creditors' protection (Laplume et al., 2014). Property rights are positively associated with investment as investors want a haven for their investment.

4.6.5 Trade

This is the measure of the market that is available for firms to sell their products. This is based on the hypothesis that more and larger markets will provide opportunities for firms to sell their product and increase output. Foreign markets also provide foreign networks, foreign currencies, and internalisation effects for firms (Gonzalez-Pernia & Pane-Legazkue, 2015). It is usually calculated from the level of export and import capacity of firms. The study measured trade with a combined response from firms that export directly or indirectly and have also applied for import licenses.

4.6.6 Female Managers and Female Owners

Entrepreneurship has been seen to alleviate poverty and build the local economy and household income (Chatterjee et al., 2022; Nagler & Naude, 2014). The role of women in entrepreneurship in developing countries is also well documented. For instance, Mead and Liedholm (1998) noted that sixty-one per cent of small businesses in Africa and Latin America are owned by women. This has led to a debate about the performance of women-owned businesses compared to their male counterpart. Research has also found female entrepreneurs to be less competitive and thus return lower performance (Pastore et al., 2021; Coleman, 2007; Waston, 2003). However, female-owned businesses have been reported to employ more females (Pastore et al., 2021), which is also good due to the strategic position that women play in rural and household entrepreneurship (Prahalad, 2012; Nichter & Goldmark, 2009; Mead & Liedholm, 1998). Some of these challenges are efficient drivers of female entrepreneurship, but how they affect firm

performance is not well-established in extant literature. The study measured a female manager as a dummy if the top manager was a female, while it measured female owners as a dummy if females were among the owners.

4.6.7 Private and State Ownership

Discussion about the legal status of firms is often based on the relationship between businesses and institutions. Private owners tend to struggle to access external finance from financial institutions and deal with government agencies. Meanwhile, state-owned firms may not be concerned about these because they are government subsidiaries. This also affects the approach and the priorities of the management. Demiguc-Kunt and Maksimovic (1998) noted that small businesses react more to obstacles, including changes in legislation, financing, and corruption. The legal status of firms has consequences on their performance because, to a reasonable extent, it measures the social contacts and networks available for firms and the binding approaches that firms are wired to. Literature also shows that new private firms tend to be more productive. Firms with links to foreign contact are also more exposed to foreign and larger markets, making a compelling case for firm performance (Svejnar & Commander, 2007). The study measured private ownership as a portion of firms owned by private domestic individuals, while state ownership is measured as a portion owned by the state or government.

4.6.8 Unregistered Competition

The concept of competition of unregistered businesses being an obstacle to registered businesses is not backed by empirical literature but by theoretical presumptions (Williams & Kosta, 2020). An elaborate description of entrepreneurship will encompass formal and informal, opportunity and necessity entrepreneurship (Williams, 2009) activities without dichotomy. The activities of unregistered businesses are perceived to reduce the performance of registered businesses, maybe because they offer alternatives to the market. Williams and Kosta (2020), in their study of Bosnia and Herzegovina, did not find evidence of this but instead noted that the competition increased sales for registered businesses. The study measured unregistered businesses as a dummy if the firm competes against unregistered firms.

4.6.9 Government Regulation

This variable is a proxy for the business environment as investors move to countries with better ease of doing business than those with stringent laws. This also represents the efficiency of government institutions. This has consequences for firm performance as firms can tend to spend considerable time and resources dealing with government regulations. This has also been argued as the reason for increasing informal entrepreneurship in developing countries (Williams et al., 2013; Feige, 1990). The study measures government regulation as a portion of management time spent dealing with government regulations.

Table 4. 1: Firm-Level Perspective on Financial Development and Entrepreneurship

Variable	*Variable Description*
Dependent and Independent Variables	
Access to Finance 1	This refers to the availability of a line of credit. A line of credit is a form of finance readily available for firms to use whenever necessary. They are not as flexible as loans and have no predetermined expiration dates. The interest rate is calculated and paid monthly. This was obtained from firms' responses to whether firms have access to a line of credit.
Access to Finance 2	This referred to bank loans and was obtained from firms' responses on how they use bank loans to finance daily activities.
Sales	This is annual sales (revenue). It was obtained from respondents who were asked to give their annual sales in local currencies. It was later converted to USD.
Employment (log)	This refers to a firm's current number of permanent employees in the last fiscal year.
Change Employment	This refers to the growth rate in the number of employments, and this is derived by subtracting previous employment from current employment divided by previous employment.
Labor Productivity	This measures the efficient utilisation of labour resources. It is derived by dividing converted sales values by the number of employees.
Export Intensity	This measures the ability to engage in the exportation of goods and services. It is obtained by adding direct and indirect sales abroad.
Control Variables	

Age	This refers to the age of the business or firm, and it is derived by subtracting the year the firm began operation from the year the survey was taken.
Experience	This measures the number of years of work experience that top managers have gained.
Human Capital	This measures the level of training and capacity of the labour.
Court System	This is a measure of the level of fairness of the legal system. It is a response to the survey question of whether the court system is fair, impartial, and uncorrupted.
Trade	This measures the availability of the market to sell goods and services. This was gotten from a combined response from firms that export directly or indirectly and have also applied for import licenses.
Female Manager	The study measures the female manager as a dummy if the top manager is a female.
Female Ownership	The study measures female owners as a dummy if females are among the owners.
Private Ownership	This refers to the portion of firms owned by private domestic individuals.
State Ownership	This refers to the portion of firms owned by the state or government.
Unregister Competition	This refers to competition from unregistered or illegal firms. The study measured unregistered businesses as dummies if the firms competed against unregistered firms.
Govt Regulation	This variable proxy for the business environment as investors move to countries with ease of doing business than those with stringent laws.

4.7 Two-Stage Least Square Approach

In empirical research, endogeneity could mean measurement errors, reverse causality, unobserved heterogeneity (omitted variable) and autoregression (Semadeni et al., 2014; also see Kennedy, 2008). The issue in this study is reverse causality. Reverse causality occurs when the dependent variable and the independent variable have a bi-directional causal relationship, which means the effect of the dependent variable can cause a reaction (effect) on the independent variable and vice versa. In a regression model where endogeneity is present, the explanatory variable will be correlated with the error term, and as such, the OLS will be biased and

inconsistent. Due to the bias of the OLS, a different strategy is needed. The terms endogenous and exogenous are often associated with the reverse causality model.

Exogenous variables are not correlated with the error term and are determined outside the model. At the same time, endogenous variables are determined in a model and correlate with the error term (Wooldridge, 2009). Exogenous variables are seen to be independent of the error term but widely depend on the variable and coefficients of interest of the model. They also guide researchers about the focal point of the research and the interpretation of results. Since the measure of endogenous variables is determined within the system, they can be challenging. One way to deal with endogeneity is through introducing proxy variables, but again, it is exceedingly difficult to find a good proxy (Wooldridge, 2009). Another way to deal with endogeneity is the two-stage least square technique that uses instrumental variables.

The two-stage least square approach introduces an exogenous instrument to the model. For an instrumental variable to be valid, it must satisfy two conditions: the instrument must be uncorrelated with the error term. Secondly, the relationship between the instrument and the endogenous variable must be relevant, meaning it must not be zero (Wooldridge, 2009; Semadeni et al., 2014). This can be represented empirically using a baseline model for instrumental variables as follows:

$$y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + . \ . \ . + \beta_k N_k + U, \qquad \text{---------- } 9$$

Where,

$$E(U) = 0, \ Cov(X_j, U) = 0, \ \ j = 1, 2, . \ . \ . \ K - 1, \qquad \text{-------- } 10$$

N_k is the endogenous variable and correlated with **U**,

$X_1, X_1, . \ . \ . \ N_{k-1}$ are the exogenous explanatory variables.

First Instrumental variable assumption: Instrument must be uncorrelated with **u**.

$$\mathbf{Cov\ (Z_1, U) = 0} \qquad \text{------11}$$

Second instrumental variable assumption: The relationship between the Instrument and endogenous variable must not be zero and must be relevant.

$$\mathbf{N_k = \delta_0 + \delta_1 x_1 + \delta_2 x_2 + . \ . \ . + \delta_{k-1} x_{k-1} + \theta_1 z_1 + rk,} \qquad \text{-------12}$$

In the two-stage least square approach, equation 1 is the second stage of the regression model, while equation 4 is the first stage. Since the equation 1 model cannot be estimated with OLS due to endogeneity concerns, an instrument (N_k) is introduced, uncorrelated with the error term and relevant to the endogenous variable. In the first stage, a value is obtained for the instrument, which is then substituted for the instrumented variable in the second stage to resolve the reverse causality of a direct linear relationship. The instrument can only impact the dependent variable in the second regression stage through the endogenous explanatory variables.

Obtaining a good instrument for the two-stage least square model in econometric analysis is challenging (Wooldridge, 2009; Semadeni et al., 2014). Just like the proxy issue mentioned above, obtaining an instrument that fits the theoretical assumption of being uncorrelated with the error term yet having a strong association with the endogenous variable is almost impossible. Semadeni et al. (2014) argued that in practice, both assumptions of the two-stage least square are opposed to each other such that a solid instrumental variable tends to become more endogenous. This also makes it plausible to test for the presence of a good or weak instrument.

An instrumental variable is weak when it fails to meet the conditions for validity. These are the uncorrelation of the instrument and the error term (exogeneity) and the relationship between the instrumental variable and the explanatory variable not being zero (Wooldridge, 2009). Wooldridge noted that a weak instrument can lead to a scenario where we have large standard errors, which can adversely bias the model and interpretation. Exogeneity deals with the relationship between the instrument and the error term; thus, to determine a weak instrument, it will be essential to determine whether the endogenous variable is endogenous to the model. The Durbin-Hausman-Wu test for endogeneity is used to determine this. The null hypothesis is that the variable is exogenous, while the alternative is that the variable is endogenous. The null

hypothesis is rejected if the test has a low p-value of less than 0.05 (Hoetker & Mellewigt, 2009). Relevance depicts the non-zero relationship between the instrumental variable and the endogenous variable. A weak instrument will demonstrate a weak correlation between the instrument and the endogenous variable. This will be problematic for the model. Extant literature has used the F-statistic of the first-stage regression as a guide to establishing between a weak and robust instrument (Stock et al., 2002; Semadeni et al., 2014). A first-stage regression with a higher F-statistic (rule of thumb over 10) is significantly high enough to be considered a robust instrument and vice versa.

Another issue with two-stage least square estimation is that of negative R-square. This is so because when computing for R-square, the sum of the squared residuals and the sum of the total square of dependent variables are used. The sum of the square residuals can be exceptionally larger than the sum of the total square of the dependent variable, which can introduce a negative value of R-square (Wooldridge, 2009). Wooldridge also argues that the two-stage square technique deals with causal effects between dependent and independent variables, and the goodness fit of a model can be ignored.

4.8 Conceptual Framework

As noted earlier, the study investigates the relationship between finance access and small firms' performance. With the African continent struggling with rising unemployment levels and poor financial inclusion, the argument is that entrepreneurial activities within the region are necessity-oriented and small. The study measures small firms as having one to nineteen employees. The dependent variable is firm performance, while the independent variable is access to finance. The study captures firm performance based on annual sales, employment growth, labour productivity and export intensity. Employment growth was derived by subtracting previous employment from current employment and dividing it by previous employment. This measures the tendencies of employment figures to change over and gives a more precise figure for forecasting growth tendencies. Labour productivity was achieved by dividing total sales by the total number of employees. Sales variables are in local currency and are converted to dollars by dividing the exchange rate that the local currency was exchanged for the dollars that year. The study used these different forms of performance to capture a more robust result across different performance indicators.

The study used control variables related to the factors affecting growth in entrepreneurial activities. These factors include firm-specific factors of firm age, private ownership of firms, and state ownership of firms—individual factors such as experience of managers, human capital, and female managers. Institutional factors are becoming significant because they determine the ease of operating or firms' entry and exit. The study used variables of court system, trade, and government regulations. The study also expanded this literature by controlling for unregistered competition, which is competition from firms that are not registered. The baseline equation for this study is

$$Firm\ performance = A_0 + AAccess\text{-}finance_{it} + A\ Age_{it} + AExperience_{it} + AHuman\ capital_{it} + ACourt\ system_{it} + ATrade_{it} + AFemale\ managers_{it} + AFemale\ owners_{it} + APrivate\ ownership_{it} + AState\ ownership_{it} + AUnregistered\ competition_{it} + AGovt.\ Regulation_{it} + \epsilon_i \quad \ldots.13$$

As mentioned earlier, firm performance was measured using five performance indicators. The first firm performance indicator of sales was used in the regression result analysis table. In contrast, the second, third and fourth columns used employment in the last fiscal year, employment growth, and labour productivity, respectively. The fifth and sixth columns used export intensity. Export is a subset of trade, and to avoid any correlation between both variables, the trade variable was removed from columns five and six. Also, in column six, the study investigates the effect of private ownership on the model. So, other forms of legal ownership (state ownership and female ownership) were also dropped from the model.

The study reports the regression results with a country dummy. This is used to resolve issues of bias-variance (heteroskedasticity) of OLS. Since heteroskedasticity is common with cross-sectional analysis (Wooldridge, 2009) and tends to bias standard error and misleading R-square, the study did not report the OLS results. The study also used the two-stage least square technique to deal with the issue of endogeneity (please refer to the two-stage least square section for clarity of the technique). The study used land as the instrumental variable. Based on the condition for the validity of an instrument, the land is uncorrelated with the error term but has a relevant relationship with the endogenous variable. Land is related to the small firm's performance through access to finance. The study used a dummy variable of a firm with access to a line of credit to measure access to finance. Lines of credit are credit that are readily available for

establishment. They usually act as a last resort for the establishment; although rates can be higher, they are also flexible for repayment. Using land and firms' structures as collateral is also very popular in Africa. This makes land a relevant and ideal instrument for accessing finance variables. More land will not translate to increased performance in the form of more sales, employment, labour productivity, or export intensity. Land can be used as collateral to get funding from banks and other financial institutions that can be invested in the firm to improve performance. The study also carried out the endogeneity test to determine if the endogenous variable is endogenous to the model. The study also reported the F-statistic of the first-stage regression to confirm that the instrumental variable is not a weak instrument.

The study also used other measures of access to finance that are not reported in the study. This was done to further the subject study's findings on other aspects of access to finance. All other measurements of access to finance used conform with the study results.

4.8.1 Summary Statistics

Table 4. 2: Descriptive Statistics

Variable	Observation	Mean	Standard Deviation	Minimum	Maximum
Access to Finance	**16936**	**.153**	**.431**	**0**	**1**
Sales	**12767**	**15.033**	**2.855**	**0**	**28.58**
Employment (log)	**16735**	**2.099**	**.563**	**0**	**7.603**
Change Employment	**16282**	**2.041**	**1.043**	**0**	**30**
Labor Productivity	**15117**	**.546**	**.305**	**0**	**2.751**
Export Intensity	**16470**	**4.998**	**18.242**	**0**	**100**
Age	**12514**	**2.641**	**1.218**	**0**	**7.615**
Experience	**16928**	**14.966**	**10.348**	**0**	**70**
Human Capital	**16936**	**.918**	**.274**	**0**	**1**
Court System	**16926**	**2.447**	**1.009**	**0**	**4**
Trade	**16936**	**.031**	**1.069**	**0**	**100**
Female Manager	**16936**	**.105**	**.348**	**0**	**2.996**
Female Ownership	**16931**	**.378**	**1.594**	**0**	**17.854**
Private Ownership	**16936**	**89.875**	**28.245**	**0**	**100**
State Ownership	**16660**	**.339**	**3.708**	**0**	**100**
Unregister	**16314**	**.705**	**1.519**	**0**	**48**
Competition Govt Regulation	**16915**	**7.275**	**16.877**	**0**	**100**

The study's primary aim is to investigate the effects of finance on the performance of smaller entrepreneurs and firms in twenty-one African countries. This section presents a summary of the statistical variables used for the study. Table 4.2 gives a summary of all the variables used in the study. Table 4.2 shows that of 16936 small businesses participating in the study, only 15% have access to a line of credit or loan from a financial institution. This portrays the abysmal level of access to finance within the study countries and the African continent. This will conversely have a turn on the performance of the firms within the study region since finance for the efficient running of daily activities is either sparsely available or heavily limited. The table also shows that, on average, the firms have two permanent employees (1) and have increased their staffing level by recruiting at least two permanent staff within the last three years. This also shows the resilience of these firms with scarce resources and their importance to job creation within the study region. The firms also have an average labour productivity ratio of approximately 55%. This is evident in the 92 per cent secondary school completion rate of permanent employees. Table 4.2 also shows that only about 5% of the study firms can export and have applied for a license to import.

The average age of the small firms and businesses that participated in the study is approximately three years, and the top managers have 15 years of experience working in this sector. The legal status of the firms shows that private individuals own 91% of the firms, while 0.3% are state-owned. Females own 38% of the privately owned firms, while 11% have females as top managers (2). The trading ability of the firms to export and import shows that 0.03% of firms are positioned to exploit both local and international markets. This is expected as the firms are small, and 85% are heavily financially constrained. The firms presumably lack the financial capacity to exploit the international market.

Table 4.2 also shows the firm perception of unregistered firms and government institutions in their industrial sector. 71% of the firms perceived unregistered firms as competitors, while 7.3% of top management time was spent dealing with government regulations. With a 4-point Linkert scale, the firm's perception of the court system in the study region shows that the legal institutions are perceived as unfair, partial, and corrupted. This portrays the level of property rights, polity score (tolerance) and ease of doing business within the study countries. Weak

institutions have been widely reported as a constraint to the development of the financial sector (Levine, 1993) and entrepreneurship (Chowdhury et al., 2019).

4.8.2 Correlation Matrix

The correlation matrix shows the relationship between the variables used for the study. It gives a picture of the best possible relationship between variables. Table 4.3 shows the correlation matrix for the study. The primary function of a correlation matrix is to prevent the misspecification of a model with highly correlated explanatory variables. This is referred to as multicollinearity in statistical studies. Multicollinearity is a situation in which there is a high correlation (but imperfect) between two or more explanatory variables in a model (Wooldridge, 2009, p. P96). This can lead to bias and wrong causal relationships or inferences deduced from such a model. Although there is no benchmark for multicollinearity, statistical models are better off with fewer correlations between explanatory variables. When two highly correlated variables are essential to a model, the model and statistical relationship are better observed if both explanatory variables are tested on the dependent statistical model separately. One significant way to deal with collinearity issues is by collecting or adding more variables to the model.

Table 4.3 shows that the variables used for the study are moderately correlated, and there are no issues of collinearity or multicollinearity. The higher correlation coefficient between access to finance and the five measurements of firm performance is 0.142, while the lowest is 0.039, and they are all positively correlated. Since the study used five variables to measure firm performance, some variables are expected to be highly correlated. This will not have any collinearity issues since all the firm's performance variables will be tested on access to finance separately, as noted above. The most highly correlated pairs of firm performance variables are employment and employment growth, with a correlation coefficient of 0.997. Sales and labour productivity closely follow this with a correlation coefficient of 0.75. The pair between export intensity and sales have the lowest coefficient among the firm performance variables, with a 0.007 correlation coefficient.

The pair between labour productivity and employment and sales and export intensity are negatively correlated. This is expected with the study countries and with most developing countries. The negative relationship between labour productivity and sales is plausible because firms are small and try to maximise profit at all costs. Most likely, firms will exhaust the chances

of using unpaid family labour before hiring paid labour (Margolis, 2014). Some firms are private and family-owned businesses run by entrepreneurs and (or) family members. The negative relationship between sales and export intensity is also plausible because most firms are necessity-oriented or have extra income without the intention to expand (Naude, 2011). Most of the profits are spent on personal or family needs. Another premise is that profit from one firm can be used to set up another smaller firm in another sector to diversify risks (Nagler & Naude, 2014). The export intensity is also a form of sales that is exported abroad. If the target market is local and demand is also local, most firms will focus on the local market and vice versa. This is coupled with financial constraints that will restrict firms from allocating resources to explore other opportunities (foreign markets) when they struggle to meet local demand. Access to finances will increase firm performance by exploring more opportunities locally or internationally. However, there is also the willingness to expand or grow bigger to contend with.

The study also shows a correlation matrix of other variables used in the study. The correlation coefficient between female ownership and top female managers is 0.407, while the relationship between trade and export variables has a correlation coefficient of 0.228. The correlation matrix table also shows that experience and human capital variables have a negative relationship. This shows that less experienced managers complement their inexperience by recruiting highly educated or trained permanent staff. Private ownership is negatively correlated with state ownership and has a correlation coefficient of 0.21. This suggests a crowding-out effect of state-owned firms on private firms

Table 4. 3: Correlation Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
(1) Access to Finance	1.000																
(2) Sales	0.130	1.000															
(3) Employment	0.074	0.191	1.000														
(4) Employment Growth	0.071	0.187	0.997	1.000													
(5) Labor Productivity	0.142	0.750	-0.012	-0.017	1.000												
(6) Export Intensity	0.039	-0.007	0.057	0.055	0.041	1.000											
(7) Age	-0.007	0.039	-0.018	-0.018	0.035	0.011	1.000										
(8) Experience	0.025	-0.001	0.093	0.093	-0.066	-0.042	-0.013	1.000									
(9) Human Capital	0.032	-0.015	0.092	0.094	-0.038	0.015	-0.010	-0.014	1.000								
(10) Court System	-0.057	-0.108	0.056	0.059	-0.145	-0.003	-0.024	0.015	0.068	1.000							
(11) Trade	0.064	0.044	0.044	0.043	0.064	0.228	0.014	-0.016	0.011	-0.017	1.000						
(12) Female Managers	0.036	0.041	-0.045	-0.046	0.074	0.013	0.002	-0.090	0.004	-0.024	-0.008	1.000					
(13) Female Owners	0.099	0.036	0.027	0.025	0.035	0.106	0.000	0.008	0.023	-0.020	0.027	0.407	1.000				
(14) Private Ownership	0.028	0.007	-0.014	-0.009	-0.025	-0.151	-0.013	-0.004	0.020	0.010	-0.067	0.011	0.006	1.000			
(15) State Ownership	-0.008	-0.102	0.034	0.033	-0.030	0.169	0.008	-0.026	0.006	0.018	0.051	-0.011	0.018	-0.210	1.000		
(16) Unregistered Competition	0.038	0.078	-0.062	-0.062	0.113	-0.069	0.025	0.032	-0.025	-0.124	-0.009	0.018	0.013	0.026	-0.029	1.000	
(17) Govt Regulation	0.082	-0.006	0.045	0.042	0.013	0.120	-0.016	0.058	0.031	-0.000	0.030	-0.002	0.067	-0.033	0.062	0.017	1.000

Table 4. 4: Regression Results with Country Effects

	(1) Sales	(2) Employment	(3) Change Employment	(4) Labor Productivity	(5) Export Intensity	(6) Export Intensity
Access 2 Finance	0.449***	0.110***	0.104***	0.373***	0.670	1.094*
	(0.075)	(0.018)	(0.020)	(0.050)	(0.609)	(0.616)
Age	0.000	0.000	0.000	-0.000	-0.001**	-0.001**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)
Experience	0.013***	0.003***	0.003***	0.007***	-0.023	-0.012
	(0.002)	(0.001)	(0.001)	(0.002)	(0.017)	(0.017)
Human Capital	0.859***	0.142***	0.124***	0.695***	-0.805	-0.656
	(0.104)	(0.020)	(0.021)	(0.069)	(0.719)	(0.722)
Court System	0.005	0.006	0.008	0.013	0.071	0.066
	(0.030)	(0.006)	(0.007)	(0.018)	(0.214)	(0.215)
Trade	0.351	0.181***	0.187***	0.722***		
	(0.306)	(0.045)	(0.051)	(0.150)		
Female Managers	-0.262***	-0.081***	-0.080***	-0.153**	-2.146***	-0.353
	(0.098)	(0.020)	(0.022)	(0.061)	(0.748)	(0.636)
Female Ownership	0.143*	0.035**	0.034*	0.165***	3.590***	
	(0.075)	(0.016)	(0.018)	(0.049)	(0.650)	
Private Ownership	-0.000	-0.001***	-0.000*	0.001	-0.092***	-0.108***
	(0.001)	(0.000)	(0.000)	(0.001)	(0.009)	(0.009)
State Ownership	-0.062***	0.005***	0.006***	-0.020***	0.612***	
	(0.017)	(0.001)	(0.001)	(0.005)	(0.102)	
Unregistered Comp.	-0.279***	-0.041***	-0.046***	-0.192***	-3.474***	-3.560***
	(0.056)	(0.012)	(0.013)	(0.034)	(0.434)	(0.438)
Govt Regulation	-0.002	0.001***	0.001***	-0.000	0.066***	0.072***
	(0.002)	(0.000)	(0.000)	(0.001)	(0.013)	(0.013)
Obs.	8563	11506	11349	10058	11361	11485
R-squared	0.397	0.084	0.075	0.548	0.107	0.091

Standard errors are in parenthesis
*** *p<0.01, ** p<0.05, * p<0.1*

4.9 Baseline Estimation

OLS Estimation

This section begins with the OLS estimation analysis of the baseline equation for the study, as shown in Table 4.4. The study aims to empirically show the correlation between access to finance and firm performance while controlling for other variables that impact this relationship. There are five columns, each representing a measurement of firm performance: sales, employment, employment growth (change in employment), labour productivity, and export intensity.

Table 4.4, column 1 reports the OLS regression results between access to finance and sales. The results show that access to finance has positive and statistically significant effects on firm performance as measured by sales. The impact of access to finance on sales is significant at a 99% confidence level in economic terms. This means increasing the firm's access to finance by 10% will increase the firm's sales by 4.5% with a 99% confidence level. This is consistent with the findings of Beck et al. (2005) that financial constraints negatively impact firm performance as measured by growth in a firm's sales. Their findings also show that smaller firms are affected more by the inability to access finance when compared with bigger firms. The inability to access finance tends to reduce the investment in production materials, means of production and innovative technologies to improve production; hence, output and sales would be affected (Buera et al., 2011). Accessing more finance will increase the potential to exploit enormous foreign opportunities and increase investment in innovative technologies that can increase production to meet local and international demand.

This is also consistent with Colman's (2007) findings that having more access to finance is associated with firm performance, measured as return on a firm's sales. This confirms the study results that more access to finance will increase the firm performance of smaller businesses.

Table 4.4 column 2 shows the regression results between access to finance and the number of permanent employments. The regression shows that access to finance positively impacts firm performance as measured by the number of permanent employees, and this relationship is statistically significant at 1%. This shows that increasing a firm's access to finance by 10% will increase its employment capacity by 1.1% with a 99% confidence level. This is plausible since increased access to finance would increase the likelihood of exploring other opportunities to increase investment and diversify resources. This will increase the need for more labour to meet the corresponding increase in output, demand, and supply functions. This is consistent with the literature of Baliamoune-Lutz et al. (2011), who found that improving the quality of information on credit markets and legal rights for lenders increased employment in the private sector. This is also consistent with the findings of Brixiova et al. (2020). Their findings show that firms with more access to finance created more jobs than their counter path with less access to finance.

Table 4.4, column 3 shows the correlation between access to finance and the growth rate in the number of permanent employees. Table 4.4 column 3 results show a strong positive correlation

between access to finance and growth in the number of permanent employments. This is statistically significant at 1% in economic terms. There is a difference between column 2 and column 3. Column 2 is the number of permanent employees, including family members, at a given period. This does not take cognisance of the changes that occur over time. Column 3 measures the tendencies of employment figures to change over and gives a more precise figure for forecasting growth tendencies. The result shows that an increase in access to finance by 10% will increase the employment growth rate by 1%, and this forecast has a 99% confidence level. This is consistent with the findings of Ayyagari et al. (2021), Fowowe, 2017 and Brown & Earle, 2017 that smaller firms' ability to access more finance is associated with increased growth in employment. This confirms the importance of financing, especially for small firms in developing countries. Making more finance available for small firms will enable them to explore and exploit the numerous opportunities available in their locality, thereby providing more jobs locally and increasing social and economic activities. This also confirms the importance of micro and small firms in building local economies and socio-economic cohesion.

Table 4.4 and column 4 show the correlation between access to finance and labour productivity. The result in column 4 shows that access to finance has a positive and significant effect on firm productivity, which is significant at the 1% level of economic terms. This shows that increasing access to finance by a unit will increase firm productivity by 2.7 %. This result has a 99% confidence level. This is consistent with the findings of Coa and Leung (2020), Boermans & Willebrands, 2018, and Kuntchev et al. (2013) that access to finance increases firm labour productivity. Financial inadequacy impedes firms' productive capacity, hence a binding constraint to firm performance in developing countries. Accessing more finances will enable firms to invest in innovative technologies that can increase their production capacity. This is also consistent with the findings of Morris (2018), Griffith et al. (2006), and Audretsch & Belitski, 2020 that innovative-oriented firms are strongly associated with increased productivity.

Table 4.4 and column 6 show the regression results between access to finance and export intensity. Column 6 results show that access to finance has a positive and statistically significant effect on export intensity, which is significant at the 10% level of economic terms. This indicates that increasing access to finance by 10% will increase firms' export intensity by 1.1 %, which is correct at a 90% confidence level. This is consistent with the findings of Nguyen & Almodovar,

2018; and St-Pierre et al., 2018 that increased access to finance increases the export capacity of smaller firms. The ability to access bank loans and intra-firm finance is strongly associated with export intensity as a measure of firm performance. This is also consistent with Hessels and Van Stel's (2011) findings that export intensity is strongly associated with improved standards of goods and services for international trade in developed countries with developed financial institutions.

The results of Table 4.4 show that the control variables of experience, human capital, and female ownership are positive and statistically significant. Age and court system are positive but not significant. Age is negative and significant for export intensity, which signifies that the performance of export-oriented firms reduces as they spend more time in the industry. This could result from a lack of finance and investment in more efficient technology. Human capital and manager's experience are positive for all measures of entrepreneurship except export intensity. Export firms are probably set up to explore opportunities in foreign markets and may need a special requirement other than basic training and experience.

However, the control variables of female managers are private ownership, state ownership, unregistered competition, and government regulation. Private ownership, state ownership, and unregistered competition are negatively associated with entrepreneurship, and state ownership is statistically significant. Unregistered competitors increase healthy competition in the early stage of formation. However, survival will depend on how long the competition remains healthy. The spillover effect of state-owned businesses is beneficial to small businesses.

The results of Table 4.4 show that female managers are negative and highly significant to the model. This is consistent with extant literature, as female entrepreneurs are less competitive than their male counterparts. Beck et al. (2015), in their literature on finance and growth for microenterprises, observed that families with female leadership are less likely to manage small businesses. This is also consistent with Du Rietz and Henrekson's (2000) findings, who used Swedish data on 4,200 small businesses and found that female-owned businesses perform less well than male-owned businesses. They attributed the low performance to factors such as the smaller sizes of female-owned businesses, their less export-oriented nature, their low representation in the manufacturing sector, and their dependence mainly on households as customers. Amoroso and Link 2018 used the Knowledge-intensive entrepreneurial firms (AEGIS) dataset and measured entrepreneurship with a percentage growth rate in the number of

employees. Among other results, the authors found that female-owned businesses underperformed in the low-tech sector compared to men-owned businesses. They noted that women's concentration in fewer businesses and high concentration in less profitable industries are significant reasons for their low performance. Bates et al. (2013) used Kauffman firm survey data and the number of workers as a proxy for firm growth. They also observed that female-owned businesses underperformed relative to male-owned businesses. (Refer to sub-section 2.6.1 for more female-owned businesses and firm performance)

4.10 Two-Stage Least Square: First Stage

The study reports the result of the two-stage least square strategy. As noted earlier, the two-stage least square addresses the validity of the result against the bias of endogeneity (reverse causality). The first stage is the model with the instrument, while the second stage is primary regression, where the instrument from the first stage is substituted into the equation in the second stage. The two-stage least squares use the relationship between the instrument and the dependent variable to resolve the reverse causality bias. The two-stage least square estimation strategy assumes land's effect on firm performance is through access to finance.

The importance of land cannot be overestimated, especially in the SSA region, where it is used as collateral to access external finance. Due to the challenges of information asymmetries, the bank requires depositing collateral to grant a loan application. Land is the most popular form of collateral across the SSA region and has been cited as a plausible reason for the poor performance of smaller firms across the region. (Baliamoune-Lutz et al, 2011; Brixiova et al., 2020). The conditions are usually forfeiture of the collateral in the invent of default. The chances are that small businesses with access to more extensive landed property are more likely to access more external capital. The study's survey data, as shown in Tables 1.4 and 1.5, shows that 11% of respondents refused to access loans with collateral because of the high collateral demand. In comparison, 53% stated they had used land property (land and buildings) to access loans.

The first stage results deal with the validity of the instrumental variables and whether access to finance is correlated to other variables that have considerable effects on firm performance. In this section, I report the F-statistic and the Durbin scores, which often reflect the validity of the instrumental variable. The first-stage results of the two-stage least square estimation strategy in Table 4.5 show a strong positive association between access to finance and land (instrument), as shown by the P-value of all measurements of firm performance. The first stage, Cragg-Donald

Wald F-statistics in Table 4.5, also shows that all measurements of firm performance have F-statistics that are more than 10. This means the instrumental variable is strong, and the estimation model is not biased with weak instrumental variables. The Dubin (score) chi2 and Wu Hausman F-stats, although not reported in Table 4.5, also show that the P-value of all measurements of firm performance is less than 0.001. This confirms that access to finance variables is endogenous to the model.

Table 4. 5: First Stage Regression Result

	(1) Sales	(2) Employment	(3) Change Employment	(4) Labor productivity	(5) Export Intensity
Land	0.003***	0.001***	0.001***	0.004	0.022***
	(0.001)	(0.001)	(0.001)	(0.03)	(0.004)
Partial R-sq.	0.110	0.100	0.101	0.105	0.100
F statistic	35.665	42.789	42.789	39.562	42.557
Prob > F	0.000	0.000	0.000	0.000	0.000

Standard errors are in parenthesis.

**** p<0.01, ** p<0.05, * p<0.1*

Table 4. 6: Two-Stage Least Square

	(1) Sales	(2) Employment	(3) Change Employment	(4) Labor Productivity	(5) Export Intensity	(6) Export Intensity
Access to Finance	4.365***	0.141**	0.180***	0.153***	9.543***	10.956***
	(0.292)	(0.065)	(0.068)	(0.033)	(2.057)	(2.102)
Age	0.120***	0.028***	0.034***	-0.006	0.304	0.371**
	(0.042)	(0.006)	(0.006)	(0.004)	(0.186)	(0.185)
Experience	-0.005	0.004***	0.004***	-0.001***	-0.106***	-0.105***
	(0.003)	(0.001)	(0.001)	(0.000)	(0.019)	(0.019)
Human Capital	-0.423***	0.170***	0.160***	-0.045***	-0.993	-0.854
	(0.130)	(0.019)	(0.020)	(0.013)	(0.656)	(0.667)
Court System	-0.166***	0.031***	0.036***	-0.010***	0.036	0.032
	(0.039)	(0.006)	(0.006)	(0.004)	(0.214)	(0.218)
Trade	0.005	0.149***	0.147***	-0.031		
	(0.421)	(0.048)	(0.054)	(0.022)		
Female Managers	0.100	-0.102***	-0.100***	0.020	-1.814**	0.400
	(0.146)	(0.022)	(0.023)	(0.013)	(0.821)	(0.699)
Female Ownership	-0.035	0.044**	0.035*	-0.011	4.066***	
	(0.106)	(0.017)	(0.019)	(0.010)	(0.699)	
Private Ownership	-0.003**	-0.000	-0.000	-0.000***	-0.099***	-0.119***
	(0.001)	(0.000)	(0.000)	(0.000)	(0.009)	(0.009)
State Ownership	-0.086***	0.004***	0.005***	-0.001*	0.740***	
	(0.019)	(0.001)	(0.001)	(0.001)	(0.116)	
Unregistered Comp.	0.245***	-0.069***	-0.077***	0.003	-3.092***	-3.215***
	(0.070)	(0.012)	(0.013)	(0.007)	(0.425)	(0.431)
Govt Regulation	-0.009***	0.001***	0.001***	-0.000*	0.083***	0.092***
	(0.002)	(0.000)	(0.000)	(0.000)	(0.014)	(0.014)
Obs.	8098	10882	10738	9492	10738	10860
R-squared	-0.124	0.037	0.034	-0.023	0.056	0.026

Standard errors are in parenthesis.

****** p<0.01, ** p<0.05, * p<0.1***

Table 4.6 shows the results of the second stage of the two-stage least squares estimation strategy (2SLS). Table 4.6 column 1 shows that access to finance has strong and statistically significant effects on firm performance. A 10% increase in access to finance will increase firm performance by 44 % with a 99% confidence level. This is consistent with Fowowe's (2017) findings that access to finance is essential for firm performance. This also complements the finding of Beck et al. (2006) that the development of financial institutions and stock markets leads to firm performance (size).

Table 4.6 column 2 shows the 2SLS correlation between finance access and the number of permanent employments. The regression result shows a positive and statistically significant relationship between access to finance and the number of permanent employees. This relationship is significant at a 5% level in economic terms. This means a 10% increase in access

to finance will increase the number of permanent employees by 1.4% with a 95% confidence level. This result complements the finding of Ayyagari et al. (2021), who find that improving access to finance for smaller firms translates to growth in employment.

Table 4.6, column 3 shows the 2SLS correlation between access to finance and growth in employment. The results show a strong positive and significant relationship between access to finance and change in employment. This also indicates that a 10% increase in access to finance for smaller firms will lead to a growth in employment figures of 1.8% with a 99% confidence level. This is also consistent with the findings of Fafchamps & Schundeln (2013) that the development of financial institutions locally is strongly associated with firm growth.

Table 4.6 and column 4 regression results show the 2SLS regression results between access to finance and labour productivity. The result shows a strong and statistically significant relationship between access to finance and labour productivity. This means that a 10% increase in access to finance will increase firm productivity by 1.5% with a 99% confidence level. This is consistent with the findings of Pietrovito and Pozzolo (2021) that financial constraint impedes firm productivity. The development of financial institutions will reduce the difficulties that clog the availability of finance for smaller firms and industries. This will allow smaller firms to subscribe to financial products and services that can make significant changes to their allocation of scarce resources and be able to explore perceived opportunities. Financial constraints are the primary cause of low productivity in developing countries.

Table 4.6 and column 6 show the 2SLS regression results between access to finance and export intensity. The results show a strong and positive association between access to finance and the intensity of exports, and this relationship is 99% significant. This also shows that a 10% increase in access to finance will lead to an 11% increase in the firm's ability to export with a 99% confidence level. This is consistent with Pietrovito and Pozzolo's (2021) findings that the inability to access finance reduces a firm’s ability to export. This also complements the findings of Chaney (2016), who observed that their financial ability drives the behaviour of export firms.

A critical look at the 2SLS results shows that the overall results did not change from the OLS results in Table 4.4. The results show that access to finance remained significant for all measurements of firm performances at a 99% confidence level, and they somehow have more significant effects in absolute value. This also explains the assumption of the 2SLS estimation

strategy as it deals with the issue of reverse causality. Firm performance is related to the instrument in a U-shaped relationship. Land use as collateral influenced the more significant coefficient of firm performance. This also confirmed the importance of collateral in accessing finance in developing countries. The 2SLS results suggest that firms with collateral assets are more likely to perform better than their counterparts without collateral assets.

4.11 Discussion and Conclusion

All African leaders have the development of the private sector as a priority in their agenda due to entrepreneurship's significant role in job creation and fostering peace and socioeconomic development of the country (DeGhetto et al., 2016). Entrepreneurship presents the most feasible route to the industrialisation of the African region. It stimulates an ecosystem where entrepreneurs match and recreate available opportunities to create jobs and increase high-growth start-ups, export intensity and productivity. However, the development of the financial sector is crucial to the attainment of entrepreneurial goals. The development of financial institutions is the trigger that stimulates entrepreneurial activities and coordinates the transfer of knowledge, training, start-ups, and productivity to the point of attaining entrepreneurial success, firstly for the entrepreneurs and firms and lastly for the country's economic development.

The findings of this empirical chapter confirm that entrepreneurship as a form of industrialisation is valid and feasible with improved funding for small firm activities. The study results show that increased access to finance increased small business sales and their employment, labour productivity, and export intensity. Resolving issues of financial constraints is a prerequisite to the attainment of entrepreneurial success. Hence, the increment in small firms' productivity is due to increased access to finance. The results also show that the chances of creating jobs by entrepreneurship will increase with more access to finance. If smaller firms employ family and unpaid labour, increased access to finance will also increase the chances that the small firm will expand beyond family and unpaid labour into fully paid jobs for non-family members.

The study results portray an optimistic view of entrepreneurship backed with proper funding and plans to attain entrepreneurial goals. Planning can include policy, infrastructure, alternative financing plans, venture capital, training, development of legal institutions, subsidies, and political will to promote the private sector. Although extant literature has reported financial constraints as an obstacle to entrepreneurship development within the African region, there must

also be a plan to support smaller firms to attain entrepreneurial success. Government policies must be tailored to specific needs and peculiar to sectors.

The African region has not also benefited from the latest trends of global financial integration. Although there is improvement in financial inclusion, much work must be done to correct the anomalies within the financial sector. There ought to be a concrete plan to improve the financial sector, education, and entrepreneurship relationship. The financial sector must develop innovative ways of resolving information asymmetry problems and using collateral to secure loans. In the absence of financial development, financial constraints will continue to challenge smaller firms, which will reduce productivity, cause firms to struggle and operate below their capacity, and lead to the loss of jobs, the basics that entrepreneurship does not want. This also forms the basics of this study.

The study found that increased access to finance increases the firm performance of sales revenue, employment and employment growth, labour productivity and export intensity of smaller firms. The use of land as an instrumental variable to resolve issues of reverse causality did not alter the result of the study. It thus confirmed the validity and robustness of the results. Secondly, the instrumental variables result in a U-shaped relationship between land (collateral assets), access to finance, and firm performance. Thus, the implication of the study results confirms that deliberate efforts must be made in financing entrepreneurial projects if entrepreneurial success is desired.

Policy-wise, there must be a concrete effort by the government, private individuals, and entrepreneurial households to plan and budget for entrepreneurial activities if they are to be successful. The government must make policy decisions to solve particular and peculiar industrial problems. African leaders and policymakers should seek to move away from general business policies to sector and industry-specific policies if entrepreneurship is to transform into the new industrialisation agenda for the study regions.

CHAPTER 5

The Role of Institutions on Entrepreneurship Development in Africa

5.1 Chapter Overview

Institutional climate and quality constitute the most significant constraints plaguing entrepreneurship development in developing or low-income countries (Doh et al., 2017). Institutional quality influences diverse aspects of governance, ranging from allocation of resources, resource control, property rights, taxation, sharing revenue, policies, and others that have severe consequences on entrepreneurial activities, especially for lower-income countries. The level of entrepreneurial activities reacts to changes in institutions irrespective of the level of development in that region. The nature of entrepreneurship is also not spared, as a weak institutional climate would create more informal entrepreneurship, unproductive entrepreneurship, and necessity entrepreneurship, all things being equal (Baumol, 1990: Sobel, 2008; Smallbone & Welter, 2012; Chowdhury et al., 2019).

Strong property rights are another indicator of institutional quality often linked to fostering entrepreneurial activities. Investors (foreign or local) prefer economies with low investment risks where the security of their assets and capital are guaranteed. they are happy to comply with the rules if they perceive transparency and a better rule of law. Intellectual property rights are also not protected where institutional quality is weak. This could lead to a massive loss of revenue and discourage investment in innovative activities. Weak institutional quality can also create a level of distrust, especially where there is weak enforcement of contracts, laws, and order. This has consequences for competition when healthy promotes economic activities and growth (Mizaei & Moore, 2014).

This chapter also looked at the grease and sand-the-wheel hypothesis of corruption and used quantile regression to evaluate the role of institutions in entrepreneurship activities. It found support for the resilience of small businesses, which often do not get much attention in entrepreneurship literature.

5.2 Study Background

Entrepreneurship research and literature in recent times has been seen as a game changer by many emerging market economies, majorly due to its correlation with economic growth (Carree & Thurik, 2003; Van Stel et al., 2005). This has increased the literature on entrepreneurship and the factors that drive entrepreneurship. Although there is a surge in entrepreneurial research, especially in developed countries, the story differs for developing and African countries (Alvarez & Barney, 2014; Barasa et al., 2017). This has led to a gap in the empirical enquiry of the role of institutional climate on entrepreneurial activities of small businesses, especially in the African continent, where there is a deficit of institutional and infrastructural quality (Tebaldi & Elmslie, 2013; Chowdhury et al., 2019). In this empirical chapter, I attempt to fill this gap by focusing on the role of institutional climate on entrepreneurship using firm-level data analysis.

Entrepreneurial research often discusses institutional climate to represent property rights, legal court (the rule of law) system, taxation, ease of doing business, good government policies, absence of corruption and insecurity challenges (Sobel, 2013; Barasa et al., 2017; Asongu et al., 2018; Chowdhury et al., 2019; Demirguc-Kunt et al., 2006). This gives a fair indication of the multidimensional nature of the institutional climate, which is as broad as entrepreneurship. Audretsch et al. (2021) argue that most of these proxies in extant literature have failed to give a holistic measurement of institutional climate. Nevertheless, these proxies have laid a framework for institutional quality research (Tebaldi & Elmslie, 2013). Audretsch et al. (2021) also opined that the problem of having good proxies for institutional climate has led to scanty empirical research on institutional climate and quality. This empirical study extends institutional climate literature by using various proxies to capture the quality of institutions, cost implications, policies, obstacles, and cultural (corruption) perceptions regarding institutional climate.

The issues with measuring institutional climate notwithstanding, its relevance to entrepreneurial activities is demonstrated by the research interest it has garnered. All forms of entrepreneurship measurement are clearly defined within the institutional context. The number of registered businesses, the number of patients applied for, and formal and informal entrepreneurship are subject to institutional context. Institutional climates initiate the rules of engagement for entrepreneurial activities (North, 1990). Laws are also subject to enforcement. Thus, it is almost impossible to achieve the stated objectives of laws without the power of enforcement. Where the

laws and enforcement are weakly upheld, entrepreneurial activities are adversely affected compared to places where they are established. Since institutions can be in various forms ranging from legal, financial, tax, property rights, and political (Sobel, 2008), synergy is required to ensure an institutional climate-friendly environment for businesses and other entrepreneurial activities to thrive.

Institutional climates tend to interact with entrepreneurs' cognition of business and profit opportunities since they set the rules of engagement. Prospects and graduates of entrepreneurship programs and business faculties can easily be swerved into unproductive activities if they feel the institutional process is weak and designed to frustrate their efforts (Sobel, 2008; Chowdhury et al., 2019). Adverse institutional climate justifies greasing the wheels as the abnormal attributes are distorted and become desirable (Meon & Sekkat, 2005). This cannot be separated from the birth and death of small businesses, which is the focus of this empirical study. Small businesses suffer most from changes in institution climate compared to more prominent and established firms (Demirguc-Kunt et al., 2006).

This empirical chapter contributes to entrepreneurship, economic and institutional quality literature in Africa and developing countries. The study finds that weak institutional climate retards entrepreneurial activities and that this result holds both in less and high entrepreneurial areas. The study also finds evidence of the grease-the-wheel hypothesis in the studied countries. The study's result also demonstrated that reduced corruption speeds up entrepreneurial activities but becomes an obstacle to entrepreneurship when it becomes high and surpasses the mean. The study also contributes to small business literature by formulating a new definition of small business. The study defines small businesses as newly registered businesses that have paid salaries for 36 months and have employees ranging from 1 – 19.

As pointed out in Chapter 2, the interaction between entrepreneurship and institutional climate cannot be captured in simple rhetoric. The level of firm performance depends heavily on the level of the institutional climate in which it operates. The effects of corruption can either grease entrepreneurship activities or sand them. The term grease the wheel of corruption narrative does not justify corruption. Still, it refers to situations where corruption accelerates the work speed that should ideally function optimally but is sabotaged. Timeliness of operations is crucial to businesses, and a heavy bureaucratic governance system could be detrimental. In specific scenarios, there could be a complete breakdown of the process of getting things done. This is

where the greasing-the-wheel hypothesis can be helpful and inject pace into the process. The time it takes to get licenses, permits, and queues could disappear with a bribe and make things faster.

5.3 Methodology

This section presents the data, estimation strategy, model framework and results of this empirical chapter.

5.3.1 Data

This empirical study used the World Bank Enterprise Survey (henceforth WBES) dataset to estimate the relationship between institutional climates and entrepreneurship in 21 African countries. The World Bank enterprise survey data is firm-level and a cross-sectional dataset collated by the World Bank since 2005. The primary aim of the WBES dataset is to give an extensive view and global coverage of economic data, economic and business climate, ease of doing business, innovation, strength of institutions and other socioeconomic variables associated with businesses (Barasa et al., 2017). The latest update from the WBES website shows that the WBSE now has economic data on 191,000 firms from 154 countries (www.enterprisesurveys.org). Businesses and firms are sampled according to their size, characteristics of ownership (business legal status), and the sectors in which they operate. Firm sizes are organised as micro (less than five employees), small (between 5-19 employees), medium (between 20-99 employees), and large firms (above 100 employees), while some of the sectors captured by the survey are manufacturing, construction, wholesale and retail trade, transportation and service industries. Some business-related data collected by the WBES include access to finance, financial obstacles, firm performances and characteristics, crime, corruption, labour force, regulations and taxes, gender, and general business obstacles. These data are aggregated at various periods (years) and across countries with standard and uniform sampling techniques.

The WBES is organised in two phases. Firstly, phone calls are sent to qualified participants to seek consent and prior information about participation, and lastly, the enterprise survey questionnaire is administered to businesses. Business owners and high-ranking managers are often targeted to answer survey questions; however, the firm's accountant and human resources managers can also be called in to answer sales and labour force-related questions. Firms 100%

owned by the government and unregistered firms are not eligible to participate in the survey. Recent surveys by the WBES have also focused on capturing the same set of businesses that have participated in the survey in previous years. This attempts to capture time (in) variants observation and trends across regions. The significant advantage of survey data over other types of datasets is that the survey allows for collecting quality information by asking pertinent questions with direct impacts on research objectives, although the genuineness of respondents has been questioned (Svejnar & Commander, 2007; Hallward-Driemeier et al., 2006).

The WBES also covered topics like business obstacles, corruption, crime, regulation, and taxes, which form the basics of this empirical study. There are questions about respondents' perception of the fairness of the court system and obstacles caused by customs and government agency officials. These are relevant topics in institutional climate literature and constitute the ease of doing business for economies. This reinforced the critical advantage of survey data, where respondents could provide information about research questions. The quality of the respondents can also be determined with surveys to give quality feedback. The WBES used private contractors to conduct surveys to achieve quality management of the survey process and quality information.

5.4 Quantile Regression

Quantile regression in statistical analysis is used to resolve minimisation problems (outliers), especially with different quantiles of the dependent variable. These are special cases where the key interest is in the quantile distribution of the dependent variable when the independent variable is given (Wooldridge, 2010). Quantile regression expands the statistical concepts of conditional quantile functions whereby the quantiles of the dependent variable's conditional distribution are estimated as a function of observed covariates (Koenker & Hallock, 2001). It allows the estimation of the dependent variable at various points, meaning it can estimate the regression at lower and higher distributions of the dependent variable. The linear regression model (henceforth LRM) of ordinary least squares (henceforth OLS) techniques is like the quantile regression model (henceforth QR/QRM). The difference between both regression techniques is how they estimate the absolute values. Koenker et al. (2018) argued that QR gives more robustness compared to LRM regarding absolute values of outliers and non-normality of error terms. Quantile regression is preferable when the research interest is to understand how

various distributions of the dependent variable react to the changes in explanatory variables. It is also very efficient when data-related issues such as heteroscedasticity and outliers suggest that the assumption of OLS is violated. In this chapter, we analyse how the various distributions of entrepreneurial activities react to the changes in the institutional climate level. Quantile regression takes its name from percentile distribution.

Percentiles in statistics connote how data are distributed, ranging from lowest to highest value. It usually ranges from 1-100 so that the pth (quantile) takes the value of the pth and below. For instance, the 25^{th} quantile will take the value of 1-25. In statistics, the median is the middle number corresponding to the 50th percentile and is often called the second quartile. The first quartile connotes the 25^{th} percentile, the third quartile connotes the 75^{th} percentile, and the fourth quartile connotes the 100^{th} percentile. In determining the relationship between the dependent and independent variables, the QRM can estimate the relationship across all quartiles of the dependent variables. This makes it possible to obtain more details of the regression analysis across the dependent variable function.

The recent history of quantile regression can be traced to the work of Koenker and Bassett (1978), and the primary argument is the condition for determining the regression analysis. Meanwhile, LRM uses the conditional mean function to determine regression analysis, whereas QRM uses the conditional quantile function for analysis (Koenker & Bassett, 1978; Wenz, 2019). The point of departure was the composition of the error term (distribution) regarding outliers and robustness. Since the RLM uses the conditional mean function, it minimises the sum of the squared residuals, making it sensitive to outliers and making its robustness questionable (Wooldridge, 2010). However, the QRM, conditioned on the quantile or median function, minimises the sum of the weighted absolute residuals, making it non-sensitive to outliers (Wenz, 2019; Wooldridge, 2010). This does not reduce the LRM in regression analysis, but it points out another alternative and the priority of the researchers. Wooldridge (2010) argued that if the priority of research is the impact of the conditional mean, then QRM is not a good estimator; hence, robustness would be an issue. In the same vein, if the priority is the conditional median function in the presence of outliers, the LRM becomes a bad estimator and the need for an alternative (Koenker & Bassett, 1978).

This chapter's main objective is to examine how entrepreneurial activities react to variations in institutional quality at different levels of entrepreneurial development. Consequently, how

institutional climate affects small entrepreneurs in high and low entrepreneurial areas differently. This also means investigating the effect of institutional climate on different quantiles of entrepreneurship. One significant advantage of quantile regression over OLS regression is based on how both estimation strategies relate to the absolute values of the outlier and the non-normality of the error term. The research objective makes other regression strategies like OLS and fixed effects unfit, increasing the chances of biased results. Since the priority of research is the impact of the conditional median function, OLS is not a good estimator; hence, robustness would be an issue (Wooldridge, 2010). The fixed effects model addresses omitted variable bias and unobserved heterogeneity, and the two-stage least square estimation technique, the other regression method used in this study, addresses endogeneity issues. In this situation, the independent variable is correlated with the error term. However, none of these methods adequately addresses issues of conditional median distribution of the dependent variables and outliers.

5.4.1 Assumptions of Quantile Regression

The study looked at the assumption that the QRM and the LRM could be estimated to be the same. This is termed the random draw model. In the random draw model, the subject of discussion is based on the sensitivity of both the QRM and LRM to outliers. The relationship between the dependent variable's conditional mean and median should be consistent and always sustained in the regression model (Wooldridge). This is represented as

$$y_i = \alpha_0 + x_i\beta_0 + u_i \text{ ----------14}$$

If we consider the conditional mean and conditional median to be consistent around zero, then,

$$E(u_i|x_i) = Me\,d(U_i|x_i) = 0 \text{ ----------15}$$

Where ME is the mean and Med is the median.

The assumptions above depict the similarity between QRM and LRM, and in both cases, the conditional mean condition is of significant interest. Koenker and Bassett (1978) noted that the QRM is based on the conditional quantile model, and since the quantiles are often presumed to be linear parameters (Wooldridge, 2010 pp450) and can have a linear function in predicting both

the dependent variable and the error term (Wenz, 2019). The QRM can be expressed in equation 16, while the population function of the q^{th} quantile is in equation 17.

$$y_i = x_\tau \beta + \varepsilon_{i\tau} \text{----------16}$$

$$Q_\tau(y_i|x_i) = x_1\beta_\tau \text{ ------17}$$

Where r, $0 < q < 1$

As mentioned earlier, the QRM minimises the sum of the weighted absolute residuals, making it less sensitive to extreme values. It is important to state if the QRM delivers on the critical objective of less sensitivity with outliers (extreme values), which can either be under-prediction or over-prediction. Then, the sum of the weighted absolute residuals is represented as

$$\Sigma_t \, q|e_t| + \Sigma_t \, (1-q) \, |e_t| \text{ ---------- 18}$$

Then, the q^{th} quantile can be represented as

$$min_{b \in R^K} \sum_{t \in (t:y_t \geq x_t'\beta)} q\left|y_t - \, x_t'\beta_q\right| + \, \sum_{t \in (t:y_t < x_t'\beta)} (1-q)|y_t - x_t'\beta_q| \text{ -------- 19}$$

Where, $0 < q < 1$.

$q\left|y_t - \, x_t'\beta_q\right|$ and $(1-q)|y_t - x_t'\beta_q|$ represent the absolute value of positive and negative residual (under-prediction and over-prediction), and

q and $1-q$ are the weights assigned to the absolute value of the positive and negative residual, respectively.

5.5 Data Description

5.5.1 Dependent Variables

In this chapter, I measured entrepreneurship following the studies of Reynolds et al. (2002), McMullen et al., 2008 and Chowdhury et al. (2019), which measured entrepreneurship as a new business ownership rate. The new business ownership rate is defined as owners of new businesses that have paid salaries for a period ranging from 3-42 months (about three and a half years). Since the WBES dataset only measured the age of businesses in years and not months, in this empirical chapter, we used businesses that are 36 months (about three years) and below and 48 months (about four years) and below as an ideal age for new businesses. In addition to the ages of businesses, the study also accounted for the size of the businesses to reflect micro and small businesses, meaning businesses with a few staff ranging from 1 to 19. This chapter defines

the new business ownership rate as small firms that have paid salaries for 36 months (about three years) and have staff ranging from 1 –19. Moreover, we used another measure of entrepreneurship, using 48 months (about four years) instead of the three years used for the first measurement of entrepreneurship. This measurement of entrepreneurship is designed to capture the age and size of small firms. This goes a long way in reflecting entrepreneurial behaviour and how these firms relate to institutional quality in the country where they are located. There is a tendency for small businesses to struggle more with weak institutional quality (Beck et al., 2005). Nevertheless, small firms improve with challenges as they grow older and can build on their social network to deliver robust performances (Toft-Kehler et al., 2014; Park & Sung, 2016).

The study also accounted for the variation in the sizes and ages of small businesses. Since the WBES have four categories of sizes and ages, the study constructed an entrepreneurship variable that reflects the share of small businesses with staff ranging from 1-19 that are 3 and 4 years old, respectively. This was constructed by dividing the total number of small firms with staff ranging from 1-19 less than three years old (also four years old) by the total number of firms in the industry. The total number of small firms in the industry have staff ranging from 1 to 19 of various ages. The study dataset shows there are 57 small firms whose ages are between 100 and 211 years old. However, these small firms were excluded from the study based on how the dependent variable was constructed.

5.5.2 Independent Variable

The study believed that most social interaction between institutions and small businesses is more complex than what is being documented by most literature (Morris, 2018). These interactions could vary based on the local environment's size and political and economic conditions. Most of these interactions are latent and could be felt when their effects antagonise business operations. It is challenging to capture institutional quality with a single proxy or variable (Kuncic, 2014). Kuncic (2014) classified institutions into legal, political, economic, and social institutions.

This empirical study, in line with extant literature (Chadee & Roxas, 2013; Barasa et al., 2017), used responses from the WBES to construct variables that proxy weak institutional variables and are captured as obstacles. The study captured weak regulatory institutions as obstacles to access to water connection. The survey response to the number of days it took to get a water connection

was constructed with numbers above the mean number of days to get a water connection to reflect access to water connection obstacles. Electrical connection is crucial to new business formation and existence. Access to electrical connection obstacles was also constructed similarly, with the number of days to get electrical connections above the mean reflecting an obstacle to getting electrical connections. The study also used the percentage of annual sales paid for security in the last 12 months to reflect weak political institutions. Percentages above the mean of annual sales paid for security were used to reflect security obstacles. The study used the percentage of annual total sales lost because of power outages as insufficient or electricity obstacles.

Another obstacle this empirical study uses is the respondent's perception of institutional quality as an obstacle to their daily operations. Respondent's perception was measured using a 5-point Likert scale ranging from (0) no obstacle to (4) very severe obstacles. The study used respondent perceptions ranging from 2 (minor obstacles) to 4 (very severe obstacles) to capture institutional obstacles. This measurement of institutional quality was used to capture taxation, corruption, and business license obstacles. Respondents were asked to what extent they felt taxation, corruption and obtaining business licenses were obstacles to their daily operations. The study used the taxation obstacle to capture the influence of government on the operations of small businesses. In contrast, the corruption obstacles reflect the influence of corrupt government officials on the operations of small businesses, and business license obstacles are used to capture the role government institutions play in the entry and exit of small businesses.

The study also constructed institution quality for clearance and importation obstacles. Survey respondents were asked the number of days it takes to clear imported goods from customs. The number of days above the recorded mean was captured as clearance obstacles. Importation obstacles were captured by the number of days it takes to obtain an importation license, with numbers above the mean regarded as importation obstacles. The study also captured informal payments made to corrupt government officials and percentages of contract value paid to government officials to secure government contracts. Both were constructed similarly, with numbers above the mean reflecting informal and contract payment obstacles. Both obstacles were used for grease the wheel theory of entrepreneurship. This theory presupposes that corrupt government officials take bribes to quicken bureaucratic processes.

5.5.3 Control Variables

Age

The study used a firm's age to capture its operational capacity since its capacity to manage obstacles improves with time and as it grows older (Chadee & Roxas, 2013). This is also true for firms' capacity to invest in innovation to meet demand (Ayyagari et al., 2012). Smaller and younger firms find coping challenging in the initial stages where survival is of prior interest. As they age, they build a more resilient capacity to manage prior challenges with the firm's objectives. Smaller firms grow faster early due to better production alternatives and strategies (Heshmati, 2001). This means they can develop more social networks to increase capacity as they age.

Trade

The study captures the firm's market share with a trade variable. Firms with more access to markets (including foreign markets) have more sales revenues and can boost productive means (Chadee & Roxas, 2013). This will impact their operations significantly. Foreign markets also enhance the internalisation effects of smaller businesses, which offer them a wide range of opportunities ranging from importation capacity and technology to improving exchange rates and production capacity (Gonzalez-Pernia and Pena-Legazkue (2015). A firm's market share is critical to its existence since marketing has been seen as an efficient vehicle towards attaining its objectives (Morris & Paul, 1987).

Access to Finance

The study captured the finances of the small businesses with access to finance. The source of finance is essential to the daily activities of small businesses. Their survival depends heavily on their sources of finance and, consequently, how they manage their financial constraints. Extant literature has reported a positive relationship between access to finance and performance (Becks et al., 2005; Ayyagari et al., 2012; Brown & Earle, 2017). This largely determines how many of the firm's objectives are being attained. Access to finance and alternative means of financing are essential issues in entrepreneurship studies. The variable is the share of small businesses that reported using bank loans as working capital.

Experience

Just like age, the experience that top management staff acquire before and on the job is essential to the daily operation of small businesses. The study captures the experience variable via a response to survey enquiries on the numbers of working experience of top manager(s) in that sector. Building capacity and network is valuable and necessary for small businesses, and this often comes with experience and doggedness in staying committed to a firm's objectives despite the challenges. Paker (1995) reported a positive relationship between work experience and firm performance in Kenya. Peni (2014) reported a significant relationship between the quality and experience of chief executive officers and firm performances. The study used this variable to capture the level of human resource development and the quality of top management and employees. Experience management is most likely to employ quality staff and be able to communicate the firm's goals and how they intend to achieve them to employees.

Product Innovation

The study used this variable to capture the innovative capabilities of small firms. It is well documented in the economic literature that the most innovative firms are more productive than firms that do not innovate (Hashi & Stojcic, 2013; Morris, 2018). The study used a response to the survey question of firms that introduced new products or services within the last three years to reflect the share of the industry that has introduced a new product or service in the last three years. Most small businesses use new production means or services to gain market share and stay competitive. This makes their innovative strategy crucial to their profitability and even their existence.

Infrastructural Development

This empirical study used access to quality water and electricity supply as indicators of basic infrastructure facilities available to small businesses. This also reflects the presence and level of governance in the locality where the firm is situated. The study chose these based on the hypothesis that these two forms of infrastructure are within the reach of small businesses. Other infrastructure like road networks, public transportation networks and even internet facilities are provided by the government and are also not within the reach of small businesses. However, other infrastructures are in short supply so that small businesses can make provision for themselves. The usage of generators to stand in during periods of power outages is high in the

African region. Infrastructural development leads to the growth of entrepreneurial activities (Audretsch et al., 2015; Woolley, 2014), although Bennett (2019) argued that the type of infrastructure is also crucial to the relationship between them. To capture this variable, the study used survey questions on the frequency of power outages and water shortages.

Informal Competition

The activities of unregistered firms, usually called informal competition, have been seen to be antagonistic. This is because informal firms operate outside the laws and typically do not bear the total production cost of registered firms (Amin, 2023). This has grievous consequences on the activities and performance of small businesses, hence the reason the informal economy and its competition have been influential in entrepreneurship studies. Piperopoulos et al. (2021) study finds that competition from unregistered firms negatively affects the performance of small businesses, while Amin (2023) noted that the development of institutions (business environment) reduces the adverse effects of informal competition on registered firms. This empirical study used the response to the survey enquiry if small businesses compete with unregistered firms to control the informal competition of small businesses. Considering the quality of institutions in the study region, informal competition is enormous and can be a determinant factor in the survival of small businesses. Ayyagari et al. (2012) also find evidence that the number of competitors reduces firms' chances to expand.

Labor Size

This empirical study used the number of permanent full-time employees (labour size) to capture the firm's size. It is well established that in extant literature, small firms are less innovative than more prominent, more established ones. This is because bigger firms can easily access loans, enjoy economies of scale, and attract more qualified workers. Innovation capacity is essential to entrepreneurship, so some literature uses both synonymously. Ayyagari et al. (2012) find that the bigger the firms, the more their innovative capacity. Controlling for firm characteristics in num in entrepreneurship study and firm size (labour size) is one of those firm characteristics that is often used.

Foreign Technology

The study also controlled for the improved production techniques, foreign contact, and partnerships that small (and new) firms often adopt to remain competitive and have market share. There are lots of advantages that come with foreign alliances. Ayyagari et al. (2012) find evidence that having a foreign employee positively impacts having a joint venture with a foreign partner and outsourcing significant activity. Foreign contact allows small businesses to internalise foreign technology, which could have spillover effects on the activities of the small firm (Anwar & Sun, 2015). The spillover effects include training, foreign markets (export opportunities), access to external finance, foreign currency, and better exchange rates. This empirical study used a survey to determine if a firm used the technology license of a foreign-owned firm to capture foreign contact of small firms. A negative relationship would mean small businesses in the study region do not have enough foreign contacts to transform their activities, internalise innovation, and spill over knowledge. External finance has a positive association with establishing a new product line, upgrading an existing product line, establishing a new plant and entering a joint partnership (Ayyagari et al., 2012)

Ownership Status

Ownership status is another firm characteristic often controlled for in traditional entrepreneurship and finance studies. This is based on the level of control, agency cost and returns on investment (Nguyen et al., 2021;). The most popular ownerships are family, private, government/state, and foreign ownership (Ayyagari et al., 2012). Although different factors determine a firm's success, ownership is one of them. Nguyen et al. (2021) find that state ownership in Hybrid firms (part-ownership with the state) has a positive association with performance; however, state interference with firm management diminishes the prospects of state ownership. Ayyagari et al. (2012) study finds that state ownership is negatively associated with firm innovation. When the line of control is inefficient, it encourages and leads to lapses, corruption, less innovative activities, and conflict of interest (Zahra, 1996). Zahra's (1996) study finds that executive stock ownership and long-term institutional ownership have a positive relationship with corporate entrepreneurship. This empirical study used survey responses to determine whether a private individual owns the firm to capture the private sector. The study also

captured the portion of female firm owners with survey responses to the percentage of the firms owned by females.

Table 5. 1: Entrepreneurship and Institutional Climate

Variables	*Variables Description*
Dependent and Independent Variables	
Entrepreneur (New Business Ownership Rate).	This refers to small firms that have paid salaries for 36 months (about three years) and have staff ranging from 1 –19
Entrepreneur 2	This refers to small firms that have paid salaries for 48 months (about four years) and have staff ranging from 1 –19.
Institutional Index	A composite aggregate of all variables of institutional climate.
Institutional Climate I (Water)	This refers to the mean number of days to get a water connection. The number of days above the mean reflects obstacles to access to water connection. It was obtained from the survey response to the days it took to get a water connection.
Institutional Climate 2 (Electricals)	This refers to the number of days it takes to get electrical connections. The number of days above the means reflects an obstacle to getting electrical connections. It was obtained from the survey response to the days it took to get an electrical connection.
Institutional Climate 3 (Security)	This refers to the percentage of annual sales paid for security in the last 12 months. Percentages above the mean of annual sales paid for security were used to reflect security obstacles.
Institutional Climate 4 (Electricity)	This refers to the percentage of annual total sales lost due to power outages.
Institutional Climate 5 (Taxation)	This refers to respondents' perception of taxation as an obstacle. The study used respondent perceptions ranging from 2 (minor obstacles) to 4 (very severe obstacles) to capture institutional obstacles. This is a response to the survey question of to what extent firms feel taxation is an obstacle to their daily operations.
Institutional Climate 6 (Corruption)	This refers to respondents' perception of corruption as an obstacle. The study used respondent perceptions ranging from 2 (minor obstacles) to 4 (very severe obstacles) to capture institutional obstacles. This is a response to the survey question of to what extent firms feel corruption is an obstacle to their daily operations.

Institutional Climate 7 (Business License)	This refers to respondents' perception of business licenses as an obstacle. The study used respondent perceptions ranging from 2 (minor obstacles) to 4 (very severe obstacles) to capture institutional obstacles. This is a response to a survey question of to what extent firms feel business license is an obstacle to their daily operations.
Other Variables	
Informal Payment	This refers to informal payments made to corrupt government officials, with payments above the mean regarded (reflecting) informal payment obstacles.
Contract Payment	This refers to the percentages of total contract value paid to government officials to secure government contracts with numbers above the means reflecting contract obstacles.
Clearance	The clearance obstacle was captured by the number of days it takes to clear goods from the customs (ports), with numbers above the mean regarded as clearance obstacles.
Importation	Importation obstacles were captured by the number of days it takes to obtain an importation license, with numbers above the mean regarded as importation obstacles.

5.6 Model Framework

The focal point of this empirical study is to assess the impact of institutional climate on entrepreneurship within the study countries. Although the study used the study countries to mirror the situation in most African countries, care must be taken not to generalise the study's intention because every region and, to a more considerable extent, countries are unique and tend to have regional barriers and unique approaches to challenges and resolution. This also informs the choice of the estimation strategies adopted by the study. The quantile regression allows the study to assess the institutional climate and entrepreneurship relationships from areas with high entrepreneurial and industrial activities to areas with low entrepreneurial activities. Institutions within the study countries are weak (Barasa et al., 2017; Asongu et al., 2018), hence the reason for the study to find empirical solutions to business climate challenges. There exists a considerable disparity between capital cities where policies are made and smaller cities in what Barasa et al. (2017) referred to as national and regional levels. The study considers the level of entrepreneurship activities and the varying entrepreneurial climates in various regions.

The study measures entrepreneurship as a new business ownership rate with fewer than nineteen employees who have been paying salaries for three years. The study used this measurement to capture the level of entrepreneurial activities regarding the sizes of businesses. Also, the study used various firms' operational activities to capture the institutional climate in which these businesses operate. The study used the number of days to get water and electrical connections to capture the strength of regulatory and licensing institutions. Business owners' perceptions of business licensing institutions were used to countercheck the quality of the regulatory institutions. The study also used the percentage of annual sales lost due to insufficient electricity and security to capture the cost of operation of small businesses due to these obstacles. The percentage of annual sales lost due to security payments also reflects the strength of legal and law enforcement (security) institutions and the importance attached to issues of property rights. The level of corruption and payment of taxes was captured from the business owner's perspective. All these generally reflect the level of infrastructural development and the commitment to reforms to improve the entrepreneurial climate for better ease of doing business within the study countries. Lastly, the study used all these measurements to build an index to reflect small businesses' obstacles to survival and existence within the study countries. They also reflect the essential requirement for the entry and exit of smaller businesses within the host country (Djankov et al., 2002).

The study used the OLS (ordinary least squares) estimation method since the World Bank enterprise survey data is a cross-sectional dataset, and the quantile regression estimation method was used to capture the regional variation of the impact of institutional climate on entrepreneurial activities of small businesses. The study model is designed to capture the influence of a firm's characteristics in the industry, country, and year they operate. Some of the firm's characteristics are age, market size captured with trade, access to finance, level of research and development captured with product innovation, and labour size. The model also captures the effects of foreign influence and competition from unregistered businesses, including the foreign technology license and competition variables. The effect of government presence was captured with the level of infrastructure development, while the firm's owner characteristics were also reflected in the manager's experience and ownership status.

The baseline model is thus:

$$ENTREPRENEURSHIP_{ikt} = \alpha + \beta_1 Institution\ Climate_{ikt} + \beta_2 Age_{ikt} + \beta_3 Trade_{ikt} + \beta_4 Access2Finance_{ikt} + \beta_5 Experience_{ikt} + \beta_6 ProductInnovation_{ikt} + \beta_7 Infrastructure_{ikt} + \beta_8 Competition_{ikt} + \beta_9 laborSize_{ikt} + \beta_{10} ForeignTech_{ikt} + \beta_{11} Privateownership_{ikt} + \beta_{12} FemaleOwnership_{ikt} + \epsilon_{ikt} \quad \text{-------20}$$

Where

β_1 is the coefficient of interest.

i is industry.

k is country

t is time

ϵ is the error term

Since the WBES data is survey data, the study expanded the literature by constructing the variables to capture the share of the industry with the response to the survey questionnaire. This was done by dividing the responses to survey questions by the total number of firms in the industry. The constructed variables thus represent a fractional share of the total industry that responded to a particular question. The total number of firms takes the value of 1. This was done to avoid the assumption that a response to a particular question represents the total industry. For every response, the study tried to capture the share of the total industries that responded to that question. For instance, an enquiry seeking to know the form of external finance that firms accessed for their daily operations would have various forms of response. That some firms accessed venture capital does not mean that all the firms in the industries accessed venture capital. By constructing variables like this, the study captured the share of the total industry in every response.

As mentioned, the study used two forms of entrepreneurship (only differentiated by age) and eight variables to proxy institutional climate in localities (countries) where firms operate. The study presents the results in a table with eight columns. In the first column, Institutional Climate 1 is a water obstacle. At the same time, Institutional Climate 2 is an electrical connection obstacle; Institutional Climate 3 is a security obstacle; Institutional Climate 4 is an insufficient electricity obstacle; Institutional Climate 5 is a taxation obstacle; Institutional Climate 6 is corruption obstacle; Institutional Climate 7 is a business license and permit obstacle and Institutional climate 8 is an institutional index.

The institutional climate index was constructed by combining all the institutional climate obstacles. This follows the same step as the work of Gwartney and Lawson (2005), the publishers of the Economic Freedom of the World index, to condense different variables into a single and broader concept. These different variables could also represent subcomponents of the broader term. The institutional index reflects the small businesses most affected by these obstacles. The study captures obstacles of regulatory institutions through water and electrical connection obstacles, and operations cost obstacles through the cost of security and power outages, perception of government through business licensing obstacles, excessive (double) taxation obstacles and corruption obstacles. Hence, the institutional climate index reflects three subcomponents of institutional climate obstacles: the regulatory, cost, and governance components. The institutional climate index takes the value of 1 if a small business is heavily affected by all obstacles, and the value tends to be 0 if a small business is partially affected by all obstacles. The index is constructed such that any business unaffected by all obstacles is left out of the index (has a lower index ranking) and hence tends to 0. The study checked how the index reflects the individual variables by conducting a correlation text and Cronbach alpha. The Cronbach alpha measures the reliability of indices and ranges from 0 to 1. A rule of thumb is that the higher, the better and 0.7 tends to be the threshold for reliability. The correlation results show that all variables of institutional climate are positively correlated, with the lowest being 0.1 between corruption and security, while the highest is 0.6 between security and taxation. The Cronbach's alpha is 0.77, indicating that the institutional climate index fits the individual obstacle variables well. The positive correlation indicates that for a small business to be affected by one obstacle, there is a high tendency for it to be affected by other obstacles.

The study presented the regression results with country effects to cancel out issues of heteroskedasticity of OLS. Heteroscedasticity is a variance bias consistent with cross-sectional data (Wooldridge, 2009). Variance bias often leads to bias standard errors and a misleading R-square. Instead, the study reported the OLS results with country effects to prevent the issue of heteroskedasticity. The study also reported regional variation with the quantile estimation method. The study began the results section by analysing summary statistics and correlation matrix.

5.6.1 Descriptive Statistics

Table 5. 2: Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Entrepreneur	27965	6.944	8.461	0	66.667
Entrepreneur2	27965	10.004	10.396	0	80
Institutional Index	27965	47.286	6.352	6.163	63.574
Water	27965	96.129	4.158	0	99.51
Electricals	27965	91.743	6.749	0	99.398
Security	27965	82.238	11.695	0	98.571
Electricity	27965	66.736	15.529	0	98.507
Taxation	27965	55.625	15.508	0	95.833
Corruption	27965	51.372	21.749	0	95.238
Business License	27965	34.602	15.86	0	90.909
Informal Payment	27965	.382	.271	0	.999
Contract Payment	27965	.839	.127	0	.993
Corruption	27965	.398	.25	0	.983
Clearance	27965	86.353	11.895	0	99.537
Importation	27965	93.229	7.115	0	99.329
Electricity2	27965	4.479	4.692	0	80
Sales	21676	12.503	2.85	.587	27.28
Employment Growth	10710	1.07	.434	.099	1.944
Age	27959	285.652	679.142	0	2019
Trade	27965	16.612	21.413	0	97
Access2Finance	27965	5.921	7.504	0	90
Experience	27965	14.937	7.32	0	60
Product Innovation	27965	.254	.239	0	1
Infrastructure	27965	2.259	4.671	0	62.503
Competitors	27965	.476	.24	0	1
Labor Size	27965	2.627	1.139	0	7.313
Foreign Tech	27965	.075	.11	0	1
Private Ownership	27965	84.411	13.074	0	99.95
Female Ownership	27965	8.374	9.545	0	99

The study reports the descriptive statistics and the correlation matrix of all data used to estimate the relationship between institutional climate and entrepreneurial activities in the study region. As presented in Table 5.2, the results show that approximately 6.9% of the surveyed participants have paid salaries for 36 months and have staffing levels ranging between 1 and 19. Similarly, 10% of the participants noted having paid salaries for 48 months with the same staffing level. Interestingly, firms reported more obstacles with regulatory institutions. Remarkably, about 96%

of businesses reported obstacles to obtaining water connections, and 91.7% had challenges securing electricity connections. This means some small businesses provide water and generate electricity entirely without relying on public or government power and water supply. This is plausible mainly when the businesses operate outside bigger cities and in villages.

The survey report reveals that 82.2% of total annual sales losses could be credited to security issues, with a maximum of 98.6%. Moreover, the obstacle of insufficient electricity accounted for 66.7% of the total annual sales loss. This represents a massive start-up constraint for small businesses since the registration process is integral to the entry stage. These constraints, high cost, and prolonged registration processes often drive some businesses to switch from formal to informal entrepreneurial setups.

The perception of institutional climate by survey participants also exposes some major concerns of participants. Taxation obstacles were 55.6%, with a maximum of 95.8%, while business licensing obstacles stood at 34.6%, with a maximum perception of 90.9%. The corruption obstacle stood at 51.4%, representing the perception of top managers that view corruption as either a moderate, major, or severe obstacle to daily operations, with the maximum being 95.2%. A critical look at the survey reveals that taxation and corruption rank as the primary obstacles to small businesses, considerably affecting their production and operational costs.

Moreover, the survey also reveals obstacles from informal payments to government officials to get better services, which stood at 38.2%, with the maximum being 100%. The challenges of securing government contracts were also overwhelming. Sometimes, small businesses may pay 100% (maximum) of the contract value as gifts to secure the contracts and other gifts from government officials. The average contract payment obstacle stood at 80%, representing a massive challenge to small businesses.

The survey report shows that importation and clearance obstacles stood at 93.2% and 86.4%, respectively. The maximum scores of both obstacles are over 99%. These figures reenact small businesses' challenges when expanding into foreign markets or importing raw materials. Above all, the institutional climate index has an average mean of 0.47, which skews toward 0.5 rather than 0. This means that small businesses are moderately affected by all forms of obstacles.

5.6.2 Correlation Matrix

The correlation matrix presents the correlation between variables in the model specification. This is to prevent a situation of high correlation between independent variables or multicollinearity. This is where two or more regressors are highly identical (correlated) but not the same. The correlation tends to be one but not 1 (not the same). Although a regression bias and error is associated with multicollinearity, it is unclear at what level correlations among regressors become an issue. Wooldridge (2015) stated that high multicollinearity is not perfect collinearity and does not violate the OLS assumption of no perfect collinearity.

A look at Table 5.3 shows that there is no problem of multicollinearity with the model. The lowest correlation is between the age and water connection variables at 0.002, while the highest is between the business license and corruption variables at 0.59. The study did not include the license and corruption variables in the same model. A look at the table also shows a correlation between the two entrepreneurship variables at 0.95, indicating that both variables can easily be substituted and used interchangeably. There is also a higher correlation between the independent variables and the institutional climate index, ranging from 0.02 to 0.81, which is a good indicator of fitness. Additionally, all the independent variables positively correlate with the institutional climate index except for security obstacles. This indicates that all the independent variables would have the same sign when regressed against the dependent variable. The correlation between business licenses, permit obstacles, and taxation obstacles is 0.6, reflecting double taxation for small businesses. The two variables used to measure corruption also have a high correlation at 0.54, which is another indicator of fitness as both can be substituted to mean the same thing. In all cases, the study did not include any highly correlated variables in the same model.

Table 5.3 also shows a positive correlation between insufficient electricity obstacles and informal payment, with a coefficient of 0.49. This is moderately high and reflects the grease-wheel hypothesis and the situation of electricity in the SSA region. This indicates that small businesses make informal (and other) payments in an attempt to have steady electricity, which increases the cost of production.

Table 5. 3: Correlation Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1) Entrepreneurship	1.000														
(2) Entrepreneurship 2	0.948	1.000													
(3) institutional index	-0.193	-0.215	1.000												
(4) Institution Quality 1	-0.072	-0.062	0.232	1.000											
(5) Institution Quality 2	-0.068	-0.067	0.254	0.537	1.000										
(6) Institution Quality 3	0.212	0.194	-0.017	0.256	0.320	1.000									
(7) Institution Quality 4	-0.280	-0.314	0.166	0.076	0.109	0.158	1.000								
(8) Institution Quality 5	-0.190	-0.195	0.735	0.058	0.086	-0.108	0.148	1.000							
(9) Institution Quality 6	-0.039	-0.069	0.802	0.044	0.016	-0.073	0.017	0.348	1.000						
(10) Institution Quality 7	-0.252	-0.270	0.814	0.039	0.036	-0.054	0.219	0.553	0.520	1.000					
(11) Informal Payment	-0.161	-0.192	0.165	-0.036	-0.147	-0.069	0.486	0.186	0.035	0.298	1.000				
(12) Contract Payment	0.175	0.160	0.200	0.169	0.308	0.238	-0.000	0.157	0.043	0.171	0.042	1.000			
(13) Corruption 2	0.277	0.347	-0.587	-0.070	-0.061	0.038	-0.425	-0.332	-0.544	-0.524	-0.497	-0.048	1.000		
(14) Clearance Obst.	0.117	0.123	0.011	-0.009	-0.087	0.144	-0.064	-0.046	0.028	0.077	0.229	0.013	-0.068	1.000	
(15) Importation Obst.	0.100	0.099	0.008	0.092	0.056	0.155	0.087	-0.001	-0.018	-0.003	0.055	0.097	0.029	0.302	1.000

**** p<.01, ** p<.05, * p<.1.* Institutional *climate 1 is water obstacle, Institutional climate 2 is electrical connection obstacle, Institutional climate 3 is security obstacle, Institutional climate four insufficient electricity obstacle, Institutional climate 5 is taxation obstacle, Institutional climate 6 is corruption obstacle, Institutional climate 7 is business license and permit obstacle.*

The graph below basically shows the direction of linear regression. The graph from Figure 1 – 4 shows a negative relationship between all measurements of institutional climate and entrepreneurship. This indicates that a weak institutional climate is associated with decreased entrepreneurial activities. This is consistent with the findings of Sobel (1998), Barasa et al. (2017), and Chowdhury et al. (2019). Chadee and Roxas (2013) also find that poor institutional quality reduces a firm's innovative capabilities.

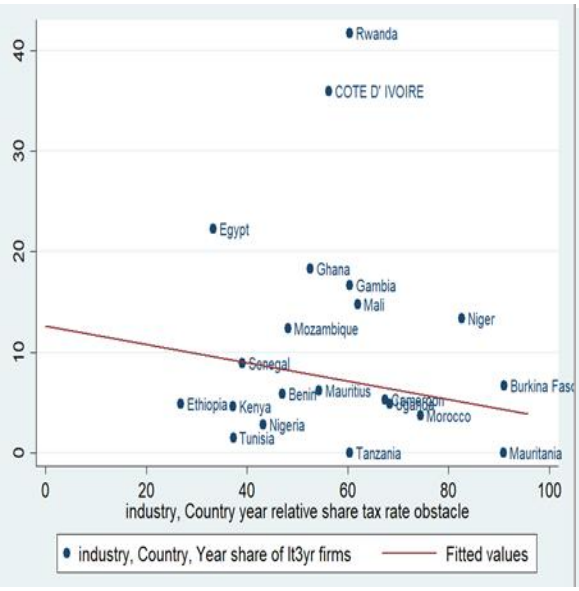

Figure 1:Taxation Obstacle

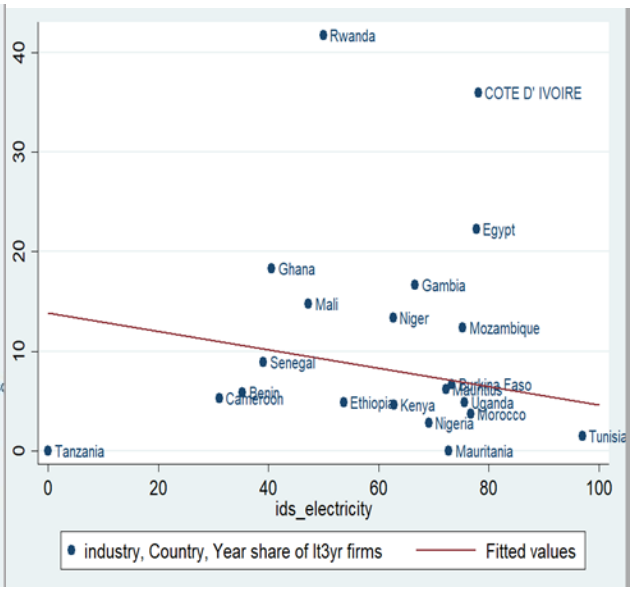

Figure 2:Electricity Obstacle

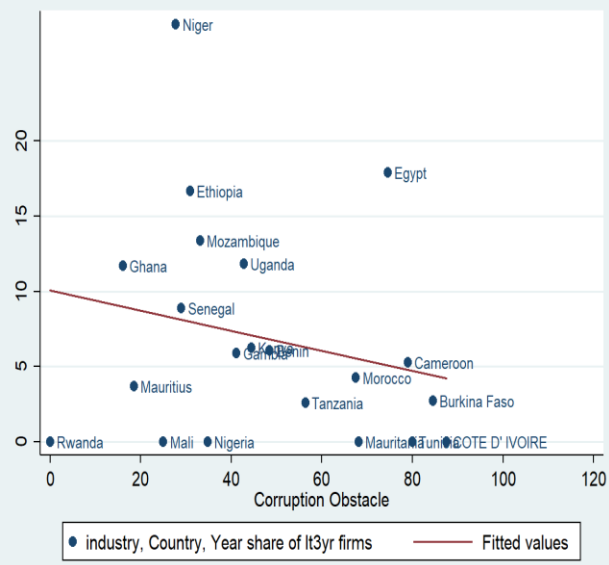

Figure 3:Corruption Perception Obstacle

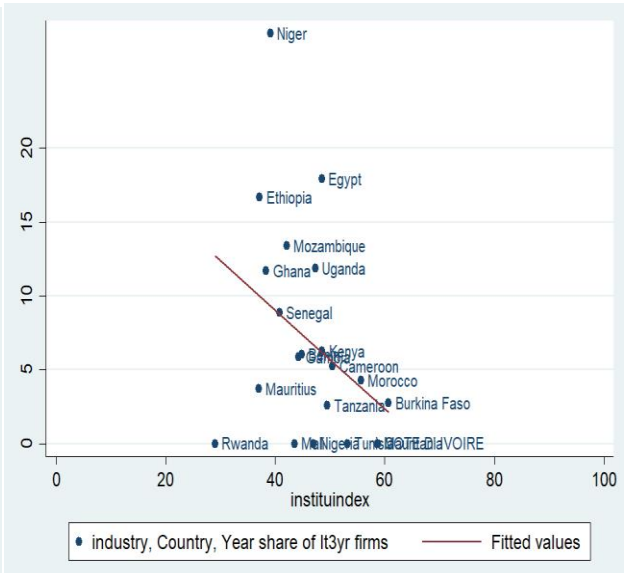

Figure 4: Institutional Obstacle Index

5.7 Results and Analysis

5.7.1 OLS Results

Table 5. 4: OLS Estimation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Entrepreneurship	Entrepreneurship	Entrepreneurship	Entrepreneurship	Entrepreneurship	Entrepreneurship	Entrepreneurship	Entrepreneurship
Institution Quality1	-0.203***							
	(0.022)							
Institution Quality 2		-0.226***						
		(0.014)						
Institution Quality 3			-0.106***					
			(0.011)					
Institution Quality 4				-0.054***				
				(0.004)				
Institution Quality 5					-0.097***			
					(0.005)			
Institution Quality 6						-0.031***		
						(0.004)		
Institution Quality 7							-0.079***	
							(0.004)	
Institutional Index								-0.279***
								(0.01)
Age	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***	-0.002***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Trade	-0.089***	-0.083***	-0.094***	-0.08***	-0.088***	-.098***	-0.092***	-0.075***
	(0.004)	(0.004)	(0.004)	(0.004)	(.004)	(0.004)	(0.004)	(0.004)
Access2finance	-0.048***	-0.045***	-0.065***	-0.049***	-0.005	-0.037***	0.007	0.023**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.011)	(0.011)	(0.011)	(0.011)
Experience	-0.425***	-0.421***	-0.438***	-0.414***	-.437***	-0.416***	-0.447***	-0.424***
	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)

Product Innovation	-5.457***	-5.314***	-5.355***	-4.8***	-5.063***	-5.484***	-6.202***	-5.826***
	(0.369)	(0.375)	(0.367)	(0.37)	(0.373)	(0.368)	(0.386)	(0.377)
Competitors (Inf)	4.775***	4.375***	3.676***	3.472***	4.87***	4.331***	4.219***	4.315***
	(0.46)	(0.456)	(.467)	(0.468)	(0.472)	(0.467)	(0.472)	(0.466)
Labor Size	-0.376***	-0.35***	-0.339***	-0.422***	-.42***	-0.136	-0.207**	-0.669***
	(0.09)	(0.091)	(0.092)	(0.093)	(0.092)	(0.091)	(0.091)	(0.091)
Foreign Tech	-3.66***	-4.144***	-4.034***	-3.876***	-2.4***	-4.083***	-3.177***	-2.648***
	(0.494)	(0.525)	(0.498)	(0.499)	(0.524)	(0.496)	(0.516)	(0.52)
Private Ownership	-0.015***	0.002	-0.016***	-0.019***	-0.006	-0.022***	-0.023***	-0.017***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Female Ownership	-0.135***	-.132***	-0.123***	-0.128***	-0.137***	-0.129***	-0.126***	-0.121***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Year Effects	YES	YES	YES	YES	YES	YES	YES	YES
Observations	27959	27959	27959	27959	27959	27959	27959	27959
R-squared	0.434	0.445	0.43	0.433	0.446	0.428	0.438	0.453

Robust standard errors are in parentheses

**** p<.01, ** p<.05, * p<.1.* Institutional *climate 1 is water obstacle, Institutional climate 2 is electrical connection obstacle, Institutional climate 3 is security obstacle, Institutional climate 4 insufficient electricity obstacle, Institutional climate 5 is taxation obstacle, Institutional climate 6 is corruption obstacle, Institutional climate 7 is business license and permit obstacle*

The study interprets its results and findings based on the baseline equation, and its primary aim is to explore the impact of institutional climate on entrepreneurial activities. Table 5.4 presents the OLS results in eight columns of institutional climate and reports the direction and strength of the interplay between institutional climate and entrepreneurship. In the first column, Institutional Climate 1 is a water obstacle; Institutional Climate 2 is an electrical connection obstacle; Institutional Climate 3 is a security obstacle; Institutional Climate 4 is an insufficient electricity obstacle; Institutional Climate 5 is a taxation obstacle; Institutional Climate 6 is corruption.

Institutional Climate 7 is a business license and permit obstacle, and Institutional Climate 8 is an institutional index. The results in Table 5.4 for all the columns show that a weak institutional climate reminiscent of obstacles negatively affects entrepreneurial activities, and the effects are critically significant at 1%. This underlines the grievousness of the business climate that plays host to small businesses in the study countries.

Table 5.4, column 1 shows that weak institutional climate and weak regulatory institutions have negative and statistically significant effects on entrepreneurial activities. The negative effect is statistically significant at 1%. This also means that a 10% increase in institutional climate obstacles would reduce entrepreneurial activities by 2% with a 99% confidence level. Additionally, Table 5.4 and Column 2 show that obstacles to electricity connection as a proxy of weak institutional climate have a negative and highly significant association with entrepreneurship. This relationship is significant at 1%. Increasing institutional climate obstacles by 10% would reduce entrepreneurship by 2.3% at a 99% confidence level in economic terms. Ultimately, any attempt to improve the weak institutional climate would increase entrepreneurial activities with the same margins and confidence level. These results are consistent with the findings of Sobel (1998), Barasa et al. (2017), and Chowdhury et al. (2019). This literature argues that there is a positive relationship between institutional quality and entrepreneurial activities. This is also consistent with the school of thought that increased access to quality and quantity of electricity positively influences entrepreneurship (Atiase et al., 2018). Geginat and Ramalho (2018) find that electricity connectivity is more problematic in countries with weak institutional climates and complex regulatory procedures and practices.

Table 5.4, column 3 shows that a weak institutional climate of insecurity has a negative and significant relationship with entrepreneurial activities, with a substantial level of 1%. This indicates worsening insecurity would make small businesses lose market share and reduce their net annual sales. This also means that increasing the weak institutional climate measured by insecurity by 10% would reduce the annual sales of small businesses by 1.1% with a confidence level of 99% in economic terms. This result is consistent with the findings of Ko & Dorantes (2006), Amodio & Di Maio (2018), and Ksoll et al. (2021), whose works have also found strong evidence that weak institutional climate of violence and insecurity have a negative impact on the activities of small businesses. Ksoll et al. (2021) found that violence during a Kenyan election negatively impacted firm performance through reduced production output, shortages of workers

and a reduction in export activities. The study by Amodio and Di Maio (2018) found that insecurity could lead to a fall of over 70% in the total production of firms in conflict-affected zones. This demonstrates that entrepreneurial activities and performance utterly depend on the institutional climate in which they operate.

Table 5.4 column 4 shows that insufficient electricity as a measure of weak institutional climate led to a 5.2% loss of total annual sales of small businesses. This shows a negative and statistically significant relationship with a significant level of 1%. In economic terms, increasing the intensity of electricity obstacles by 10% would reduce entrepreneurial activities by a 52% loss in the total annual revenue of small businesses with a confidence level of 99%. This is consistent with the findings of (Arnold et al. (2008), Abeberese (2017), Atiase et al., 2018, and Geginat and Ramalho (2018). Abeberese observed that the increased cost of electricity led to reduced productivity in India. Reduced productivity would subsequently lead to low turnover revenue. This is also consistent with the findings of Allcott et al. (2016) that insufficient electricity not only reduces plant productivity but also distorts plant distribution efficiencies. This comes with many irregularities in planning, procurement, strategies, and production processes, ultimately manifesting as reduced production and total annual sales.

Table 5.4 column 5 shows that taxation obstacles as a measure of institutional climate have a negative and statistically significant relationship with entrepreneurship with a significant level of 1%. Taxation in the study countries often comes as a double taxation nexus. This means that increasing the intensity of taxation obstacles by 10% would reduce entrepreneurship by 1%, with a confidence level of 99% in economic terms. This is consistent with the findings of Chauvet & Ferry (2021), who find a positive relationship between taxation and firm performance in developing countries but becomes negative when taxation is complemented by corruption. This depicts a situation where taxation changes from being an instrument of wealth distribution by the government to becoming an obstacle to small businesses. This also complements the findings of Shevlin et al. (2019) that taxation has a robust negative relationship with economic growth, and this relationship is observed better in countries with weak control of corruption.

Table 5.4 column 6 shows that corruption has negative and statistically significant effects of 1% on entrepreneurship. This implies that increasing corruption intensity by 10% would reduce entrepreneurial activities by 0.3% with a confidence level of 99%. Other variables and governance obstacles have been traced to corruption, which shows corruption's influence over

other governance indicators. This result is consistent with Van Vu et al. (2018) findings, which find that corruption negatively affects firm performance. Like every other obstacle, corruption would exert negative pressure on a firm's performance. These results complement the findings of Djankov et al. (2002) that regulatory procedures (improvement in regulatory procedure) are negative and significantly associated with corruption. This demonstrates that countries with less government presence (bureaucracy) are associated with fewer and more transparent regulatory processes.

Table 5.4 column 7 also shows that obstacles to business license as a measure of institutional climate have a negative and statistically significant relationship with entrepreneurship with a significant level of 1%. This also means that increasing business licensing obstacle intensity by 10% would set back entrepreneurship by 0.8% with a confidence level of 99% in economic terms. The study used this set of obstacles, including corruption, to portray the absence of governance. The results show a negative and significant relationship with a weak institutional climate, indicating that weak governance reduces entrepreneurship activities. This is consistent with the findings of Geginat and Ramalho (2018), who find that electricity connection is endemic in countries with weak institutional climates where other regulatory agencies and procedures are clumsy. Chadee and Roxas (2013) also find that weak regulatory institutions, corruption, and weak rule of law reduce a firm's innovative capabilities.

Table 5.4, column 8 shows that the institutional climate index is negative and statistically significant, with entrepreneurship at a significant level of 1%. This indicates that a 10% increase in the institutional index is associated with a 2.8% reduction in the activities of small businesses with a confidence level of 99% in economic terms. Sobel (2008) opined that how the institutional climate index is interpreted should reflect how the index was created. The index in this empirical study was designed to reflect a weak institutional climate and obstacles. As noted earlier, the index takes the value of 1 if small businesses face all the obstacles that make up the index and 0 otherwise. The result shows that the (weak) institutional climate index has a 2.8% chance of reducing entrepreneurship with a 99% confidence level. This is consistent with the findings of Sobel (2008), Chadee and Roxas (2013), Barasa et al. (2017), and Chowdhury et al. (2019). All these studies find that the quality and quantity of entrepreneurship depend on the institutional quality level. Hence, there is a positive association between entrepreneurship and a strong institutional climate.

Table 5.4 also shows the results of the control variables. All the variables, except for informal competitors, are negative and statistically significant. These results are expected and consistent with extant literature. The variables are highly statistically significant, which shows their relevance to small businesses in the study countries. Table 5.4 shows that the longer a firm stays (age) and explores more trading opportunities (importation and exportation), the less it becomes a smaller business. The study sets the threshold for smaller businesses as having 1-19 employees and paying salaries for 36 months. As smaller firms expand their capacity to attain more exportation and importation capabilities, they have more prospects to become medium and large firms with 20 or more employees. Thus, their status as small firms is reduced, and they transit to medium and large firms. This is consistent with the theory of creative destruction, where businesses momentarily enter and exit, allowing small businesses to invest in high-growth opportunities. This is also consistent with the findings of Hull and Arnold (2008) and Storey (2011), who argued that small firms hardly grow but could be more stable over time and have more chances of shrinking than being stable. Henrekson and Johansson (2010) also observed that small business growth could be organic or acquired and that high-growth firms are found majorly in the service industry.

The same interpretation for experience, access to finance, product innovation, labor size, foreign technology, and private and female ownership. However, female-owned businesses have been noted to underperform relative to male-owned businesses (Du Rietz and Henrekson, 2000; Beck et al., 2015)

Informal competition is positive and statistically significant with entrepreneurship. This means that informal competition increases with increasing entrepreneurial activities. This is consistent with the findings of McCann & Bahl (2017) and Dwibedy (2022), who found a positive relationship between entrepreneurship and the innovative performance of formal firms.

5.7.2 Quartile Regression

Table 5. 5: Quantile Regression (25th percentile)

	(1) Entrepreneur	(2) Entrepreneur	(3) Entrepreneur	(4) Entrepreneur	(5) Entrepreneur	(6) Entrepreneur	(7) Entrepreneur	(8) Entrepreneur
Institution Quality 1	-0.002							
	(0.013)							
Institution Quality 2		-0.041***						
		(0.01)						
Institution Quality 3			-0.112***					
			(0.008)					
Institution Quality 4				-0.07***				
				(0.003)				
Institution Quality 5					-0.036***			
					(0.004)			
Institution Quality 6						-0.024***		
						(.004)		
Institution Quality 7							-0.061***	
							(0.004)	
Institutional Index								-0.148***
								(0.008)
Age	-0.003***	-0.003***	-0.003***	-0.002***	-0.003***	-0.003***	-0.003***	-0.003***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Trade	-0.022***	-0.02***	-0.035***	-0.008**	-0.026***	-0.025***	-0.03***	-0.012***
	(0.005)	(0.005)	(0.004)	(0.004)	(0.004)	(0.005)	(0.004)	0(.004)
Access2finance	-0.011	-0.011	-0.006	-0.015*	0.01	0.012	0.031***	0.022**
	(0.01)	(0.011)	(0.009)	(0.009)	(0.01)	(0.011)	(0.009)	(0.009)
Experience	-0.254***	-0.269***	-0.257***	-0.272***	-0.264***	-0.264***	-0.333***	-0.318***

	(0.015)	(0.015)	(0.013)	(0.013)	(0.013)	(0.015)	(0.012)	(0.012)
Product innovation	-2.133***	-2.678***	-1.97***	-3.739***	-2.534***	-2.492***	-3.518***	-4.247***
	(0.347)	(0.359)	(0.302)	(0.299)	(0.315)	(0.353)	(0.294)	(0.287)
Competitors (Inf)	3.675***	3.731***	2.985***	5.112***	4.815***	4.298***	4.665***	5.363***
	(0.424)	(0.436)	0(.369)	(0.363)	(0.384)	(.428)	(0.354)	(0.348)
Labor Size	-0.324***	-0.212**	-0.647***	-0.54***	-0.385***	-0.299***	-0.018	-0.132
	(0.101)	(0.104)	(0.089)	(0.087)	(0.092)	(0.102)	(0.084)	(0.084)
Foreign Tech	-2.597***	-2.672***	-2.065***	-2.413***	-2.64***	-2.857***	-2.995***	-2.648***
	(0.549)	(0.568)	(0.478)	(0.471)	(0.501)	(0.558)	(0.462)	(0.455)
Private Ownership	0.031***	0.032***	0.035***	0.024***	0.034***	0.022***	0.028***	0.034***
	(0.005)	(0.006)	(0.005)	(0.005)	(0.005)	(0.006)	(0.005)	(0.004)
Female Ownership	-0.054***	-0.055***	-0.05***	-0.04***	-0.059***	-0.059***	-0.064***	-0.056***
	(0.007)	(0.007)	(0.006)	(0.006)	(0.006)	(0.007)	(0.006)	(0.005)
Year Effects	YES	YES	YES	YES	YES	YES	YES	YES
Observations	25572	25572	25572	25572	25572	25572	25572	25572

Standard errors are in parentheses

**** p<.01, ** p<.05, * p<.1. .* Institutional *climate 1 is water obstacle, Institutional climate 2 is electrical connection obstacle, Institutional climate 3 is security obstacle, Institutional climate 4 insufficient electricity obstacle, Institutional climate 5 is taxation obstacle, Institutional climate 6 is corruption obstacle, Institutional climate 7 is a business license and permit obstacle*

This section of the study presents the quantile regression results (QR). As mentioned earlier, the study used this estimation strategy to give another dimension to the study's results. The study used the QRM to investigate if the effect of institutional climate differs across different entrepreneurial zones, allowing for other quantile points of institutional climate (Agostino et al., 2020). The study used the 25^{th} quartile to represent areas with the least entrepreneurial activities and the 75^{th} quartile for highly entrepreneurial and industrial areas. The quantile regression result is presented in Tables 5.5 and 5.6.

Table 5.5 shows the quantile results for the least entrepreneurial zone denoted with the 25^{th} quantile, while Table 5.6 shows the quantile results for highly entrepreneurial areas indicated with the 75^{th} quantile. The critical inspection of Tables 5.5 and 5.6 shows that the weak institutional climate negatively impacts entrepreneurial activities in the least and highly entrepreneurial areas, with the highly entrepreneurial areas being the most affected. The institutional climate index for the highly entrepreneurial area is 0.4 compared to the least entrepreneurial areas of 0.2, which indicates that smaller firms in a highly entrepreneurial area are more likely to have more obstacles and challenges (in this case, double) dealing with weak institutional climate than smaller firms in less entrepreneurial area. This finding is consistent with the findings of Agostino et al. (2020), who found that improvement in institutional quality has more positive effects on less productive firms than highly productive firms. These results also complement the findings of Lasagni et al. (2015), who find that a developed regional institutional climate is relevant for firm productivity. D'Ingiullo and Evangelista (2020) also find a positive association between firm performance and institutional climate, and this relationship is responsible for the innovative gaps within Italian regions.

Another variation in Tables 5.5 and 5.6 shows that regulation, especially water connection obstacles, although negative, is not significant in less entrepreneurial areas. Also, obstacles due to insecurity challenges are positively associated with entrepreneurship in highly entrepreneurial areas, but this association is insignificant. In both cases, these are known challenges and entrepreneurs and business owners are well prepared to mitigate these obstacles before entry. This is consistent with Agostino et al.'s (2020b) findings that the institutional climate becomes irrelevant to determining entry during a crisis period. This also shows the resilience of small businesses in developing countries, which has not been well documented in the literature. This will be discussed later in this section.

Also, the control variables did not change except for private ownership, which has changed from negative to positive for small entrepreneurial regions. This is consistent with the theory of organic growth. Small businesses in less entrepreneurial regions are not expected to achieve significant growth. Their expansion is likely to be organic, with the number of employees increasing as the number of private businesses in these regions increases.

5.7.3 Quantile Regression (75th Percentile)

Table 5. 6: Quantile Regression (75th percentile)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Entrepreneurship	Entrepreneurship	Entrepreneurship	Entrepreneurship	Entrepreneurship	Entrepreneurship	Entrepreneurship	Entrepreneurship
Institution Quality 1	-0.186***							
	(0.015)							
Institution Quality 2		-0.254***						
		(0.013)						
Institution Quality 3			-0.004					
			(0.011)					
Institution Quality 4				-0.121***				
				(0.002)				
Institution Quality 5					-0.156***			
					(0.002)			
Institution Quality 6						-0.056***		
						(0.004)		
Institution Quality 7							-0.091***	
							(0.005)	
Institutional Index								-0.383***
								(0.006)
Age	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Trade	-0.073***	-0.073***	-0.089***	-0.096***	-0.075***	-0.083***	-0.082***	-0.07***
	(0.005)	(0.006)	(0.006)	(0.002)	(0.002)	(0.004)	(0.006)	(0.003)

Access2Finance	**-0.015**	**-0.001**	**-0.054*** **	**0.028*** **	**0.093*** **	**0.084*** **	**0.116*** **	**0.199*** **
	(0.012)	**(0.014)**	**(0.012)**	**(0.004)**	**(0.006)**	**(0.01)**	**(0.014)**	**(0.007)**
Experience	**-0.457*** **	**-0.442*** **	**-0.547*** **	**-0.429*** **	**-0.406*** **	**-0.468*** **	**-0.526*** **	**-0.404*** **
	(0.017)	**(0.019)**	**(0.018)**	**(0.006)**	**(0.008)**	**(0.014)**	**(0.019)**	**(0.009)**
Product Innovation	**-9.102*** **	**-9.175*** **	**-9.517*** **	**-8.168*** **	**-7.221*** **	**-8.489*** **	**-10.848*** **	**-11.213*** **
	(0.394)	**(0.453)**	**(0.416)**	**(0.148)**	**(0.185)**	**(0.321)**	**(0.446)**	**(0.219)**
Competitors	**6.735*** **	**6.823*** **	**8.499*** **	**6.477*** **	**6.567*** **	**6.688*** **	**8.216*** **	**6.564*** **
	(0.482)	**(0.551)**	**(0.508)**	**(0.18)**	**(0.226)**	**(0.389)**	**(0.537)**	**(0.266)**
Labor Size	**-0.071**	**-0.082**	**0.767*** **	**0.663*** **	**0.15*** **	**0.178***	**0.582*** **	**-0.013**
	(0.115)	**(0.131)**	**(0.122)**	**(0.043)**	**(0.054)**	**(0.093)**	**(0.128)**	**(0.064)**
Foreign Tech	**-1.406** **	**-2.87*** **	**-2.278*** **	**-2.691*** **	**-2.162*** **	**-2.139*** **	**-3.48*** **	**-1.65*** **
	(0.624)	**(0.717)**	**(0.659)**	**(0.234)**	**(0.295)**	**(0.507)**	**(0.701)**	**(0.347)**
Private Ownership	**-0.028*** **	**-0.032*** **	**-0.055*** **	**-0.033*** **	**-0.042*** **	**-0.048*** **	**-0.098*** **	**-0.077*** **
	(0.006)	**(0.007)**	**(0.007)**	**(0.002)**	**(0.003)**	**(0.005)**	**(0.007)**	**(0.003)**
Female Ownership	**-0.067*** **	**-0.073*** **	**-0.043*** **	**-0.072*** **	**-0.105*** **	**-0.048*** **	**-0.04*** **	**-0.029*** **
	(0.007)	**(0.009)**	**(0.008)**	**(0.003)**	**(0.004)**	**(0.006)**	**(0.008)**	**(0.004)**
Year Effects	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	**25572**	**25572**	**25572**	**25572**	**25572**	**25572**	**25572**	**25572**

Standard errors are in parentheses

*** p<.01, ** p<.05, * p<.1.* Institutional *climate 1 is water obstacle, Institutional climate 2 is electrical connection obstacle, Institutional climate 3 is security obstacle, Institutional climate 4 insufficient electricity obstacle, Institutional climate 5 is taxation obstacle, Institutional climate 6 is corruption obstacle, Institutional climate 7 is a business license and permit obstacle*

5.8 Grease the Wheel of Corruption

This section presents the grease-the-wheel theory of corruption. As mentioned earlier, the notion of greasing the wheels hypothesis is not that corruption increases the number of potential entrepreneurs but increases the speed at which bureaucratic procedures are carried out. Hypothetically, it increases the pace of "regulatory fuel," where regulatory procedures, licenses, and permits are granted. It also creates a prolonged culture of getting things done even when it is not deliberate. For instance, corruption can be a better buffer for the financial sector and create healthy competition, leading to improved service delivery (Cooray & Schneider, 2018). This empirical study finds evidence for grease the wheel theory as variables of corruption have a positive association with entrepreneurship. The study used informal payments to government officials, the value of contracts paid back to government officials to secure government contracts, and small business owners' perception of corruption as an obstacle to measuring corruption. The study also used two measures of entrepreneurship as a proxy for entrepreneurial activity. The difference between both forms of entrepreneurship is that one has paid salaries for 36 months while the other is for 48 months. Both have employees ranging from 1 to 19. The study also investigated the regional variations to determine if the impact of grease-the-wheel of corruption is the same in less and highly entrepreneurial areas.

Table 5. 7: OLS Regression (Grease the Wheels of Corruption)

	(1)	(2)	(3)	(4)	(5)	(6)
	Entrepreneurship	Entrepreneurship	Entrepreneurship	Entrepreneurship2	Entrepreneurship2	Entrepreneurship2
Informal Payment	0.045***			0.053***		
	(0.004)			(0.005)		
Contract Payment		0.095***			0.127***	
		(0.005)			(0.006)	
Corruption 2			0.105***			0.128***
			(0.004)			(0.005)
Age	-0.003***	-0.003***	-0.002***	-0.004***	-0.004***	-0.003***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Trade	-0.106***	-0.112***	-0.069***	-0.136***	-0.146***	-0.091***
	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)
Access2Finance	-0.077***	-0.053***	0.00	-0.099***	-0.072***	-0.006
	(0.011)	(0.01)	(0.011)	(0.013)	(0.012)	(0.013)
Experience	-0.447***	-0.416***	-0.401***	-0.567***	-0.528***	-.512***
	(0.016)	(0.017)	(0.017)	(0.02)	(0.021)	(0.021)
Product Innovation	-4.767***	-4.166***	-6.178***	-4.932***	-4.126***	-6.654***
	(0.397)	(0.397)	(0.397)	(0.469)	(0.472)	(0.465)
Infrastructure	0.111***	0.045***	-0.006	0.12***	0.036**	-0.022
	(0.014)	(0.013)	(0.014)	(0.016)	(0.015)	(0.015)
Competitors (INF)	4.353***	3.298***	2.989***	6.64***	5.302***	4.996***
	(0.473)	(0.472)	(0.462)	(0.57)	(0.568)	(0.551)
Labor Size	-0.082	-0.055	-0.704***	-0.07	-0.002	-0.82***
	(0.094)	(0.094)	(0.093)	(0.114)	(0.113)	(0.111)
Foreign Tech	-5.088***	-4.823***	-2.807***	-8.252***	-7.894***	-5.468***
	(0.543)	(0.547)	(0.548)	(0.675)	(0.683)	(0.676)
Private Ownership	-0.025***	-0.03***	-0.045***	-0.027***	-0.035***	-0.052***
	(0.005)	(0.005)	(0.005)	(0.007)	(0.007)	(0.007)
Female Ownership	-0.125***	-0.13***	-0.133***	-0.142***	-0.148***	-0.151***
	(0.006)	(0.006)	(0.006)	(0.007)	(0.007)	(0.007)
Year Effects	YES	YES	YES	YES	YES	YES
Observations	27959	27959	27959	27959	27959	27959
R-squared	0.433	0.438	0.453	0.471	0.478	0.491

Robust standard errors are in parentheses

**** p<.01, ** p<.05, * p<.1*

Table 5.7 results show that all measurements of corruption have positive and very significant effects on entrepreneurship. Table 5.7 Column 1 shows that informal payment has a positive and

significant effect on entrepreneurship, with a significant level of 1%. This also means that a 10% increase in informal payment would increase entrepreneurial activities by 0.5% with a confidence level of 99% in economic terms. Also, Table 5.7 Column 2 shows that contract payment has a positive association and a significant effect on entrepreneurship with a significant level of 1%. This also means that a 10% increase in contract payment would increase entrepreneurial activities by 1% with a confidence level of 99% in economic terms. Lastly, Table 5.7 Column 3 shows that corruption has a positive and significant effect on entrepreneurship, with a significant level of 1%. This also means that a 10% increase in corruption would increase entrepreneurial activities by 1.1% with a confidence level of 99% in economic terms. These results are consistent with the findings of Meon & Weill (2010), who also find evidence for grease the wheel theory. Aidt et al. (2008) find a negative relationship between economic growth and corruption in countries with improved institutional quality but a weak and positive relationship in countries with poor institutional quality. The study's findings contradict the findings of Meon and Sekkat (2005), who found a negative and significant relationship between corruption and investment and economic growth. Their study finds evidence for sand the wheel hypothesis, which suggests that corruption is a clog in the wheel of growth and investment. The results did not change when the study used the second measure of entrepreneurship. These results are presented in Table 5.7, columns 4, 5 and 6. The difference between this corruption variable and the one in Table 5.4 is that one is a corruption obstacle (table 5.4) measured above the mean. In contrast, this corruption is corruption measured at the mean. This result suggests that when not excessive, corruption speeds (grease the wheel) up entrepreneurial activities but becomes detrimental to entrepreneurial activities when it is extreme and widespread.

The control variables are consistent with the results of 5.7.1.

Table 5. 8: Quantile Regression 25th and 75th Quantile

	(1) Entrepreneurship (25th)	(2) Entrepreneurship (25th)	(3) Entrepreneurship (25th)	(4) Entrepreneurship (75th)	(5) Entrepreneurship (75th)	(6) Entrepreneurship (75th)
Informal Payment	0.008***			0.02***		
	(0.002)			(0.006)		
Contract Payment		0.085***			0.107***	
		(0.004)			(0.007)	
Corruption 2			0.079***			0.141***
			(0.002)			(0.003)
Age	-0.002***	-0.003***	-0.001***	-0.001***	-0.001***	-0.001***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Trade	-0.03***	-0.032***	-0.007***	-0.091***	-0.139***	-0.06***
	(0.003)	(0.003)	(0.002)	(0.008)	(0.006)	(0.004)
Access2finance	0.007	-0.032***	0.05***	0.01	-0.002	0.124***
	(0.007)	(0.007)	(0.004)	(0.018)	(0.014)	(0.008)
Experience	-.249***	-0.307***	-0.308***	-0.347***	-0.425***	-0.424***
	(0.01)	(0.01)	(0.006)	(0.024)	(0.02)	(0.012)
Product Innovation	-0.781***	-0.166	-1.043***	-8.373***	-8.335***	-8.952***
	(0.251)	(0.257)	(0.154)	(0.596)	(0.486)	(0.286)
Infrastructure	0.299***	0.205***	0.191***	0.086***	-0.031*	-0.079***
	(0.01)	(0.01)	(0.006)	(0.023)	(0.019)	(0.011)
Competitors	4.242***	3.325***	5.605***	9.939***	9.055***	5.75***
	(0.296)	(0.301)	(0.18)	(0.703)	(0.571)	(0.333)
Labor Size	-0.731***	-0.164**	-0.679***	0.531***	0.888***	-0.006
	(0.071)	(0.073)	(0.044)	(0.17)	(0.138)	(0.081)
Foreign Tech	-5.719***	-6.91***	-4.448***	-4.793***	-3.31***	-1.234***
	(0.404)	(0.412)	(0.249)	(0.962)	(0.781)	(0.461)
Private Ownership	0.02***	0.027***	0.022***	-0.062***	-0.059***	-0.069***
	(0.004)	(0.004)	(0.002)	(0.009)	(0.007)	(0.004)
Female Ownership	-0.049***	-0.027***	-0.029***	-0.039***	-0.035***	-0.027***
	(0.005)	(0.005)	(0.003)	(0.011)	(0.009)	(0.005)
Year Effects	YES	YES	YES	YES	YES	YES
Observations	27959	27959	27959	27959	27959	27959

Standard errors are in parentheses

**** p<.01, ** p<.05, * p<.1*

Table 5.8 shows the quantile regression result that the study used to determine the regional variation of the "grease the wheel of corruption". The results of Table 5.8 show that the

phenomime of greasing the wheels of corruption is the same for both the least entrepreneurial areas and the highly entrepreneurial areas. The results for all measurements of corruption show a positive and statistically significant relationship with entrepreneurship, with a significant level of 1%. This also means that increasing the informal payment to corrupt officials by 10% would increase entrepreneurial activities by 0.1% in the least entrepreneurial areas and 0.2% in highly entrepreneurial areas, with a confidence level of 99% in economic terms. Additionally, increasing the value of contract payments to corrupt officials by 10% would increase entrepreneurial activities by 0.9% in the least entrepreneurial areas and 1.1% in highly entrepreneurial areas with a confidence level of 99% in economic terms. Lastly, increasing the perception of corruption among small business owners by 10% would increase entrepreneurial activities by 0.8% in the least entrepreneurial areas and 1.4% in highly entrepreneurial areas, with a confidence level of 99% in economic terms. These results complement the findings of Lasagni et al. (2015), who find that a developed regional institutional climate is relevant for firm productivity. This is also consistent with Mendez and Sepulveda's (2006) finding of a positive relationship between corruption and economic growth, which noted that the relationship between growth and corruption depends on the type of government in a country.

5.9 Resilience of Small Businesses

The study also investigated how small businesses, especially those that export their products or import raw materials from abroad, manage their challenges and production output. With a weak institutional climate within the Sub-Saharan African countries, firm performance and production strategies must be efficient to remain competitive and reach production targets (Arnold et al., 2008). Most often, the resilience of small firms in African countries and other developing economies is transient, and how they manage these obstacles, including issues of access to finance, electricity and innovation strategy, are not well documented in the literature (Diego, 2018). Exportation and importation procedures are common challenges for export-oriented firms. The study used importation and clearance obstacles and issues of insufficient electricity to investigate the resilience of these small businesses. The study seeks to understand the effects of these obstacles on entrepreneurship. The results are presented below.

Table 5. 9: OLS Results Resilience of Small Business

	(1)	(2)	(3)	(4)	(5)	(6)
	Entrepreneurship	Entrepreneurship	Entrepreneurship	Entrepreneurship2	Entrepreneurship2	Entrepreneurship2
Clearance	0.025***			0.02***		
	(0.004)			(0.005)		
Importation		0.101***			0.12***	
		(0.009)			(0.01)	
Insufficient Electricity			0.336***			0.457***
			(0.017)			(0.023)
Age	-0.003***	-0.003***	-0.002***	-0.004***	-0.004***	-0.003***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Trade	-0.09***	-0.095***	-0.087***	-0.119***	-0.123***	-.112***
	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)
Access2finance	-0.051***	-0.048***	-0.046***	-0.066***	-0.064***	-0.062***
	(0.011)	(0.01)	(0.011)	(0.013)	(0.012)	(0.013)
Experience	-0.423***	-0.422***	-0.456***	-0.542***	-0.538***	-0.583***
	(0.017)	(0.017)	(0.017)	(0.021)	(0.021)	(0.021)
Product Innovation	-4.462***	-4.58***	-6.013***	-4.685***	-4.71***	-6.624***
	(0.411)	(0.396)	(0.4)	(0.49)	(0.47)	(0.474)
Infrastructure	0.086***	0.071***	0.052***	0.092***	0.073***	.044***
	(0.013)	(0.013)	(0.013)	(0.015)	(0.015)	(0.015)
Competitors	3.665***	3.305***	3.265***	5.916***	5.4***	5.244***
	(0.475)	(0.478)	(0.476)	(0.574)	(0.573)	(0.572)
Labor Size	-0.194**	-0.122	-0.334***	-0.231**	-0.115	-0.378***
	(0.095)	(0.095)	(0.094)	(0.114)	(0.114)	(0.113)
Foreign Tech	-4.881***	-3.698***	-5.078***	-8.09***	-6.598***	-8.234***
	(0.54)	(0.578)	(0.547)	(0.672)	(0.706)	(0.68)
Private Ownership	-0.02***	-0.022***	-0.008	-0.022***	-0.023***	-.004
	(0.005)	(0.005)	(0.005)	(0.007)	(0.007)	(0.007)
Female Owners	-.133***	-0.138***	-0.152***	-0.15***	-0.157***	-0.178***
	(0.006)	(0.006)	(0.006)	(0.007)	(0.007)	(0.007)
Year Effects	YES	YES	YES	YES	YES	YES
Observation	27959	27959	27959	27959	27959	27959
R-squared	0.428	0.432	0.442	0.466	0.471	0.484

Robust standard errors are in parentheses

**** p<.01, ** p<.05, * p<.1*

In this section, we find evidence of resilience among small firms. There is a positive and significant relationship between all variables of obstacles and entrepreneurship. Table 5.9 model

1 shows a positive association between clearance obstacles and entrepreneurship with a significant level of 1%. This means that increasing clearance obstacles by 10% would increase entrepreneurial activities by 0.3% with a confidence level of 99% in economic terms. Also, Table 5.9 Column 2 shows that importation obstacles positively and significantly affect entrepreneurship, with a significant level of 1%. This also means that a 10% increase in importation obstacles would increase entrepreneurial activities by 1% with a confidence level of 99% in economic terms. Lastly, Table 5.9 Column 3 shows that insufficient electricity has a positive and significant effect on entrepreneurship, with a significant level of 1%. This also means that a 10% increase in insufficient electricity would increase entrepreneurial activities by 3.4% with a confidence level of 99% in economic terms. These findings are consistent with the findings of Bas & Strauss-Kahn (2014), who found a positive and significant relationship between importation and a firm's productivity. Bas and Strauss-Kahn's (2014) work suggests that the spillover effects of this association act as a buffer to obstacles and firm's challenges, especially concerning cost. Firms can quickly pay (buy) their way through challenges and obstacles when there are enough resources to compensate for the extra cost. The study results also complement the findings of Smeets and Warzynski (2013), who found a positive and significant relationship between importation and productivity and that the most productive firms engage in importation and exportation. The work of Smeets and Warzynski (2013) is interesting because their results further show that controlling price variation reduces the impact of importation and exportation on a firm's productivity. Price variation is a function of tariffs and institutional climate.

Table 5. 10: Quantile Regression 25TH and 75TH Quantile

	(1)	(2)	(3)	(4)	(5)	(6)
	Entrepreneurship	Entrepreneurship	Entrepreneurship	Entrepreneurship	Entrepreneurship	Entrepreneurship
Clearance	0.044***			-0.019***		
	(0.004)			(0.006)		
Importation		0.106***			0.018*	
		(0.005)			(0.01)	
Insufficient Electricity			0.002***			0.002***
			(0.00)			(0.00)
Age	-0.002***	-0.002***	-0.001***	-0.001***	-0.001***	-0.001***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Trade	-0.023***	-0.027***	-0.024***	-0.106***	-.111***	-0.092***
	(0.004)	(0.003)	(0.003)	(0.005)	(0.005)	(0.006)
Access2finance	0.016**	0.031***	0.031***	0.005	-0.026**	-0.029**
	(0.008)	(0.007)	(0.008)	(0.012)	(0.012)	(0.014)
Experience	-0.207***	-0.228***	-0.24***	-0.454***	-0.465***	-0.439***
	(0.012)	(0.01)	(.011)	(0.017)	(0.018)	(0.02)
Product Innovation	0.295	-1.077***	-1.627***	-10.689***	-10.097***	-9.543***
	(.288)	(0.239)	(0.273)	(0.427)	(0.432)	(0.489)
Infrastructure	0.306***	0.295***	0.276***	0.052***	0.032*	0.081***
	(0.011)	(0.009)	(0.01)	(0.016)	(0.016)	(0.018)
Competitors (INF)	4.346***	4.547***	4.322***	9.674***	9.602***	7.168***
	(0.335)	(0.283)	(0.317)	(0.497)	(0.511)	(0.568)
Labor Size	-0.594***	-0.492***	-0.486***	0.792***	0.788***	0.556***
	(0.081)	(0.068)	(0.076)	(0.12)	(0.123)	(0.136)
Foreign Tech	-4.749***	-5.155***	-6.443***	-2.686***	-2.678***	-4.065***
	(0.458)	(0.393)	(0.434)	(0.68)	(0.711)	(0.778)
Private Ownership	0.033***	0.031***	0.033***	-0.081***	-0.072***	-0.061***
	(0.004)	(0.003)	(0.004)	(0.006)	(0.006)	(0.007)
Female Ownership	-0.05***	-0.051***	-0.067***	-0.042***	-0.038***	-0.046***
	(0.005)	(0.004)	(0.005)	(0.008)	(0.008)	(0.009)
Year Effects	YES	YES	YES	YES	YES	YES
Observations	27959	27959	27959	27959	27959	27959

Standard errors are in parentheses

**** p<.01, ** p<.05, * p<.1*

Table 5.10 presents the regional variation results using the 25th and 75th quantiles to depict the least and highest entrepreneurial areas, respectively. Table 5.10 Column 1 results show that the clearance obstacle is positive and statistically significant in the least entrepreneurial areas but becomes negative and statistically significant in high entrepreneurial areas. This is plausible since government institutions are in bigger cities, the most entrepreneurial regions. The effects of

importation obstacles and insufficient electricity did not change as one moved from least entrepreneurial to high entrepreneurial areas. The impact of inadequate electricity in Table 5.10, Columns 3 and 6, is the same. This means that a 10% increase in insufficient electricity would increase entrepreneurship by 0.02% in the least and highly entrepreneurial areas. This is evidence of the resilience of small businesses in the study countries, as these results are somehow abnormal because common intuition should let us know that obstacles should reduce entrepreneurial activities. These results make the findings of Bas & Strauss-Kahn (2014) more relevant as the spillover effects and large of engaging in foreign transactions cover up for the challenges that come with it. Arnold et al. (2008) noted that imperfect service delivery has become a norm in most African countries that should be ousted for African firms to be competitive locally and internationally.

The study went further to test the impact of these obstacles on firm performance to determine if the positive association with entrepreneurial activities also transforms to increase firm performance. As noted earlier and as shown by the other study results, a weak institution climate should negatively affect entrepreneurial activities. The study used the last section to investigate the resilience of small businesses, and the next plausible step would seek to understand the performance of these small businesses. The study used changes (growth) in the number of employees and sales performance to measure firm performance. The results are presented in Table 5.11.

Table 5. 11: OLS Regression (Weak Institution and Performance)

	(1)	(2)	(3)	(4)	(5)	(6)
	Sales	Employment Growth	Sales	Employment Growth	Sales	Employment Growth
Clearance	-0.019***	-0.001**				
	(0.002)	(0.001)				
Importation			-0.026***	0.00		
			(0.002)	(0.001)		
Insufficient Electricity					-0.092***	-0.002
					(0.006)	(0.001)
Age	0.00	0.00	0.00	0.00	0.00*	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Trade	-0.017***	-0.001	-0.014***	-0.001	-0.013***	-0.001
	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)
Access2finance	-0.011***	-0.001	-0.015***	-0.001	-0.014***	-0.001
	(0.003)	(0.001)	(0.003)	(0.001)	(0.003)	(0.001)
Experience	-0.001	-0.001	0.003	-0.001	0.011**	0.00
	(0.004)	(0.001)	(0.004)	(0.001)	(0.004)	(0.001)
Product innovation	-0.609***	0.075***	-0.389***	0.083***	-0.028	0.09***
	(0.125)	(0.028)	(0.122)	(0.028)	(0.123)	(0.028)
Infrastructure	0.044***	0.003***	.047***	0.003***	0.05***	0.003***
	(0.005)	(0.001)	(0.005)	(0.001)	(0.005)	(0.001)
Competitors	-0.527***	-0.09**	-0.563***	-0.095***	-0.634***	-0.096***
	(0.14)	(0.036)	(0.139)	(0.036)	(0.137)	(0.036)
Labor Size	0.993***	0.173***	1.013***	0.177***	1.036***	.177***
	(0.037)	(0.011)	(0.037)	(0.011)	(0.036)	(0.011)
Foreign Tech	-0.587***	-0.039	-0.799***	-0.032	-0.352*	-0.027
	(0.188)	(0.051)	(0.193)	(0.051)	(0.189)	(0.051)
Private Ownership	0.004**	-0.001	0.005***	-0.001	0.003	-0.001
	(0.002)	(0.00)	(0.002)	(0.00)	(0.002)	(0.00)
Female Owners	-0.034***	-0.001**	-0.035***	-0.001**	-0.032***	-0.001**
	(0.002)	(0.00)	(0.002)	(0.00)	(0.002)	(0.00)
Year Effects	YES	YES	YES	YES	YES	YES
Observations	21672	10707	21672	10707	21672	10707
R-squared	0.319	0.067	0.318	0.066	0.324	0.066

Robust standard errors are in parentheses

****** p<.01, ** p<.05, * p<.1***

Table 5.11 shows that all measurements of weak institutional climate have a negative association with both forms of firm performance. The clearance obstacle is negative and significantly affects 1% of sales performance and 5% of employee growth. Importation obstacles have a negative association and a significant effect of 1% with sales performance but no relationship with employment growth. Insufficient electricity has a negative and significant effect of 1% on sales performance and a negative relationship with employment growth. The impact of inadequate electricity on employee growth is not significant. These results are consistent with every strand of literature that finds that a weak institutional climate hinders entrepreneurial activities and firm performance. These results also complement the study's findings that a weak institutional climate negatively affects entrepreneurship.

5.10 Robustness Check

Table 5. 12: OLS REGRESION (Less Nigeria)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Entrepreneurship	Entrepreneurship	Entrepreneurship	Entrepreneurship	Entrepreneurship	Entrepreneurship	Entrepreneurship	Entrepreneurship
Institutional Quality 1	-0.214***							
	(0.027)							
Institutional Quality 2		-0.232***						
		(0.017)						
Institutional Quality 3			-0.01					
			(0.006)					
Institutional Quality 4				-0.055***				
				(0.004)				
Institutional Quality 5					-0.096***			
					(0.005)			
Institutional Quality 6						-0.04***		
						(0.004)		
Institutional Quality 7							-0.079***	
							(0.004)	
Institution Index								-0.278***
								(0.01)
Age	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Trade	-0.075***	-0.073***	-0.081***	-0.068***	-0.077***	-0.082***	-0.079***	-0.063***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Access2Finance	-0.037***	-0.041***	-0.043***	-0.035***	0.004	-0.016	0.02	0.038***
	(0.011)	(0.011)	(0.011)	(0.011)	(0.012)	(0.012)	(0.012)	(0.012)
Experience	-0.445***	-0.437***	-0.443***	-0.423***	-0.448***	-0.425***	-0.461***	-0.439***

	(0.017)	(0.017)	(0.017)	(0.018)	(0.017)	(0.017)	(0.018)	(0.017)
Product Innovation	-5.746***	-5.347***	-5.611***	-5.091***	-5.326***	-5.785***	-6.53***	-6.125***
	(0.391)	(0.398)	(0.388)	(0.391)	(0.396)	(0.388)	(0.41)	(0.399)
Competitors (INF)	3.646***	3.819***	2.979***	2.264***	3.945***	3.124***	3.158***	3.229***
	(0.497)	(0.501)	(0.501)	(0.504)	(0.508)	(0.502)	(0.509)	(0.502)
Labor Size	-0.481***	-0.479***	-0.369***	-0.581***	-0.55***	-0.326***	-0.35***	-0.801***
	(0.098)	(0.1)	(0.106)	(0.101)	(0.101)	(0.1)	(0.1)	(0.099)
Foreign Tech	-3.866***	-4.592***	-4.13***	-4.064***	-2.733***	-4.247***	-3.419***	-2.883***
	(0.524)	(0.556)	(0.533)	(0.527)	(0.55)	(0.525)	(0.544)	(0.547)
Privat Ownership	-0.001	0.001	-0.006	-0.006	0.004	-0.007	-0.012*	-0.005
	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)	(0.006)	(0.007)	(0.006)
Female Ownership	-0.163***	-0.158***	-0.162***	-0.154***	-0.165***	-0.157***	-0.153***	-0.145***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Year Effects	YES	YES	YES	YES	YES	YES	YES	YES
Observations	22896	22896	22896	22896	22896	22896	22896	22896
R-squared	0.389	0.399	0.381	0.389	0.402	0.384	0.394	0.41

Robust standard errors are in parentheses

**** p<.01, ** p<.05, * p<.1. .* Institutional *climate 1 is water obstacle, Institutional climate 2 is electrical connection obstacle, Institutional climate 3 is security obstacle, Institutional climate 4 insufficient electricity obstacle, Institutional climate 5 is taxation obstacle, Institutional climate 6 is corruption obstacle, Institutional climate 7 is a business license and permit obstacle*

The study used the second measure of entrepreneurship to check for the robustness of the study's results. The second measurement classifies entrepreneurship as a small business that has paid salaries for about 48 months and has employees ranging from 1-19. The estimation model of Table 5.4 was re-estimated, and the result is presented in Table 5.13. The results in Table 5.13 did not show any changes, as all variables of weak institutional climate, including the index, have a negative relationship with entrepreneurship. All of them have a significant effect of 1% in economic terms. All the control variables are highly significant, just like the study's primary regression model.

A similar robustness test was also carried out by removing Nigeria to check if the results were affected by outliers. The survey shows that Nigeria contributed more respondents than other study countries. The estimation model of Table 5.4 was re-estimated, and the result is presented in Table 5.12. The results in Table 5.12 did not show any changes, as all variables of weak institutional climate, including the index, have a negative relationship with entrepreneurship. This shows that the study results are robust.

Robustness Check 2: OLS Regression with Entrepreneurship 2

Table 5. 13: OLS Regression with Entrepreneurship 2

	(1) Entrepreneurship2	(2) Entrepreneurship2	(3) Entrepreneurship2	(4) Entrepreneurship2	(5) Entrepreneurship2	(6) Entrepreneurship2	(7) Entrepreneurship2	(8) Entrepreneurship2
Institutional Quality 1	-0.18***							
	(0.024)							
Institutional Quality 2		-0.261***						
		(0.017)						
Institutional Quality 3			-3.646***					
			(0.7)					
Institutional Quality 4				-6.861***				
				(0.486)				
Institutional Quality 5					-0.102***			
					(0.006)			
Institutional Quality 6						-0.012**		
						(0.005)		
Institutional Quality 7							-0.076***	
							(0.005)	
Institutional Index								-0.3***
								(0.015)
Age	-0.004***	-0.003***	-0.004***	-0.003***	-0.003***	-.0004***	-0.004***	-0.004***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Trade	-0.117***	-00.107***	-.12***	-0.104***	-0.115***	-0.123***	-0.12***	-0.117***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Access2finance	-0.057***	-0.049***	-0.066***	-0.056***	-0.011	-0.056***	-0.006	0.016

	(0.013)	(0.013)	(0.012)	(0.013)	(0.013)	(0.013)	(0.014)	(0.014)
Experience	-0.545***	-0.541***	-0.558***	-0.53***	-0.557***	-0.544***	-0.566***	-0.543***
	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)
Product Innovation	-5.162***	-4.9***	-5.22***	-4.437***	-4.835***	-5.059***	-5.976***	-5.941***
	(0.473)	(0.475)	(0.468)	(0.475)	(0.478)	(0.477)	(0.499)	(0.493)
Infrastructure	0.078***	0.099***	0.095***	0.069***	0.067***	0.085***	0.063***	0.031**
	(0.015)	(0.015)	(0.015)	(0.016)	(0.016)	(0.016)	(0.015)	(0.016)
Competitors	6.729***	6.389***	5.993***	5.35***	6.967***	6.214***	6.28***	7.116***
	(0.563)	(0.556)	(0.565)	(0.568)	(0.575)	(0.569)	(0.574)	(0.575)
Labor Size	-0.469***	-0.526***	-0.427***	-0.598***	-0.538***	-0.277**	-0.302***	-0.411***
	(0.113)	(0.113)	(0.118)	(0.114)	(0.114)	(0.114)	(0.114)	(0.114)
Foreign Tech	-7.803***	-8.56***	-7.993***	-7.845***	-6.28***	-8.213***	-7.126***	-6.483***
	(0.671)	(0.706)	(0.682)	(0.679)	(0.707)	(0.678)	(0.698)	(0.709)
Private Ownership	-0.019***	0.00	-0.025***	-0.023***	-0.009	-0.024***	-0.027***	-0.017**
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Female Owners	-0.15***	-0.146***	-0.145***	-0.142***	-0.152***	-0.146***	-0.142***	-0.143***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Year Effects	YES	YES	YES	YES	YES	YES	YES	YES
Observations	27959	27959	27959	27959	27959	27959	27959	27959
R-squared	0.47	0.483	0.467	0.473	0.481	0.466	0.473	0.481

Robust standard errors are in parentheses

**** p<.01, ** p<.05, * p<.1.* Institutional *climate 1 is water obstacle, Institutional climate 2 is electrical connection obstacle, Institutional climate 3 is security obstacle, Institutional climate 4 insufficient electricity obstacle, Institutional climate 5 is taxation obstacle, Institutional climate 6 is corruption obstacle, Institutional climate 7 is a business license and permit obstacle*

5.11 Discussion and Conclusion

The study results show that a weak institutional climate reduces entrepreneurial activities and productivity in the study countries. Weak institutional climate obstacles of water and electrical connection, cost of security and power generation, government bureaucratic procedures and poor policies have a 99% confidence level of reducing entrepreneurial activities and firm performance in the study countries. The study results in Table 23 show that all the measurements of weak institutional climate are significant at 1%, which shows how relevant these obstacles are to the activities of small businesses. The regional results presented in Tables 7 and 8 also give credence to the fact that a weak institutional climate hinders the activities of small businesses irrespective of where they operate. The coefficient of the high entrepreneurial areas (75^{th} quantile) is more significant than that of the least entrepreneurial areas. This is plausible since the more entrepreneurial areas would also have more obstacles. It could also be that the presence of government is felt more in highly entrepreneurial areas, hence the more obstacles and weak institutional climate. Governance bureaucratic procedures are lethargic and apply to small businesses as a challenge. This is in line with the work of Chadee & Roxas (2013), who found the state of Russia repressive to firms' innovation and performances. This is also consistent with the theory of Baumol and the work of Sobel (2008), whose works suggest that the quality of institutional climate is proportional to the type of entrepreneurship dominant in a country. A weak institutional climate would make small businesses spend more resources dealing with regulations and survival when such resources could be channelled into productive and innovative activities to improve capacity. This usually results in smaller firms choosing to operate informally and an increasing number of politically motivated entrepreneurial activities that are not productive. A better institutional climate, on the other hand, would enable small businesses to invest in innovative and productive activities that would translate to real wealth for all stakeholders and a more competitive formal economy that leads to economic development (Chowdhury et al., 2019).

Like other extant literature on institutions, this empirical study sees corruption as a product of a weak institutional climate. Government bureaucratic procedures can lead to payment of tips to get around queues and paperwork (Cooray & Schneider, 2018). These antecedents have become the ground corruption and corruption network that has become a global norm and constraints to

doing business. Despite the cancerous effect of corruption, the grease-the-wheel of corruption hypothesis justifies it in developing economies where institutions are weak. This empirical study finds evidence of grease-the-wheel-the-wheel corruption in the study countries. Informal payments to corrupt government officials are positively associated with entrepreneurial activities. The coefficients of these associations are more significant in highly entrepreneurial areas than in the least entrepreneurial areas, but the confidence level remains the same at 99%. This explains the endemic and the deep-rooted network of corruption across regions. Another relevant dimension of corruption is the level of wealth being transferred from a sector of an economy to a very few individuals and the crowding-out effects it has on industrial competitiveness and firm performance.

In line with Baumol's (1990) entrepreneurship theory, small businesses in developing countries develop survival strategies to manage weak institutional climates, which in most cases lead to an informal economy. This can also cause the thriving informal economy in most African countries. Many entrepreneurial ideas never see the light of day, and others that scaled through initial regulation and production stage often incur debts and go bankrupt. This side of small businesses in developing countries has been well presented in the literature, and a gap waiting to be filled. The study results of Tables 11 and 12 show the tenacity of small businesses in the study countries. Their survival strategies could mean they sometimes operate without rewards or enough resources to guarantee production. Partial production is another option, but economies of scale are lost, and the production level that translates to economic growth would not be attained. A high rate of exit (maybe entry and exit) of small businesses and a high level of informal economy reduces economic growth. One way to mitigate these unproductive cycles would be to strengthen institutional quality and provide incentives for a better institutional climate for small businesses.

All the analyses carried out by this empirical study show the importance of institutional climate in the study region. To a more considerable extent, this symbolises the experience of small businesses in most African countries. The study results show that the weak institutional climate is responsible for the low productivity of firms within the African region. One could imagine and be thrilled that the global interconnectivity of financial services and doing business has not been reflected in the level of productivity in African countries. The increasing ties with developed countries and democratic influence have not been able to push productivity and entrepreneurship

to the level where it translates to the wealth of the average citizens. The quality of the institutional climate where small businesses operate is not developed enough to support the level of productivity that most stakeholders crave.

Conclusively, the study examines the impact of a weak institutional climate on entrepreneurship and finds that a weak institutional climate has a negative and significant association with entrepreneurship. Regional variation has little impact on this relationship as the relationship remains statistically significant in less and highly entrepreneurial areas. The study also finds evidence of grease the wheel of corruption theory. Study results suggest that at its initial stage, corruption might speed up entrepreneurial processes (activities) but, when fully blown, becomes an obstacle to entrepreneurial activities.

Given the findings of this empirical study, policymaking should be aimed towards improving the institutional climate. Institutional procedures such as permits, licenses and registration should be designed to reduce rigid bureaucratic processes to their lowest. A hybrid-small business-centred approach should be pursued where the survival of small businesses is at the centre of the policies. Policymaking in most developing countries is politically motivated to suit the political manifestos and governing party's interest, which may not align with best practices. Policymakers should strive for hybrid and small business-centred policies specifically made to solve the challenges of small businesses. The study described a Hybrid small business-centred approach as a technological approach where decision-making is shared between locals and at the centre to eliminate intermediaries and bureaucracy with the performance of small businesses as the policy focus. Decision-making should not be located at the centre where approval takes days and weeks for someone to sign or give room for lobbying. Conditions for approval should be clear, transparent, and smart enough to answer the fundamental question if it reduces the challenges of small businesses and improves performance.

Chapter 6

Findings, Conclusion and Policy Implications

6.1 Chapter Overview

This section of the study presents the empirical findings of all three empirical chapters. It contains the empirical results of financial development and entrepreneurship at the macro level in Africa, a firm-level Perspective on financial development and entrepreneurship, and the role of institutions on entrepreneurship in the African region. A section of the study on the role of institutions in entrepreneurship also contains the results of the grease-the-wheels hypothesis of entrepreneurship. Given the region's economic development level, the study's objective is to analyse further the role of finance and institutional climate on entrepreneurship development.

6.2 The Empirical Findings of Financial Development and Entrepreneurship

This section presents the impact of the development of the financial sector on entrepreneurship in 17 selected African countries using self-employment and newly registered firms as a proxy for entrepreneurship and a composite bank index as a proxy for the development of the financial sector. The results show that the development banking sector (improvement of financial services and supply) has a positive relationship with entrepreneurial activities of newly registered businesses and self-employment. As mentioned earlier, the OLS result could produce biased results due to the unobservable time-invariant factor. The Hausman test preferred the fixed effects estimation strategy to random effects; the study also presented the fixed effects results. The fixed effects result also reveals that improving financial services and supply has a positive relationship with the entrepreneurial activities of newly registered businesses and self-employment. This implies that an improvement and increase in the banking sector's financial services and activities would consistently improve and increase the entrepreneurial activities of newly registered businesses and self-employment. Furthermore, the study also tested the marginal impact of the development of the financial sector on entrepreneurship brought about by an additional unit of financial development by interacting the development of the financial sector with trade for the final analysis. This is used to ascertain the level of marginal growth that an

improved financial sector would have on entrepreneurship through increased access to market and trading opportunities. The results show that the interaction between financial development and trade has a positive marginal effect on the entrepreneurial activities of newly registered businesses and self-employment. This is logical as more access to credit facilities would allow firms to extend their searchlights and trading opportunities to new markets. This is consistent with the findings of Akoten et al., 2006; Bewaji et al., 2015; Naeem & Li, 2019; Uddin et al., 2022.

These results are robust, as the introduction of another bank index composition did not change the significance of the results. Another test for robustness was also carried out by removing the country with the highest number of newly registered businesses to test if the results were not affected by outliers. Again, the results did not change as improvement of financial services and supply has a positive and significant impact on entrepreneurial activities of newly registered businesses and self-employment.

6.3 A Firm-Level Perspective on Financial Development and Entrepreneurship

This section presents the relationship between access to finance and firm performance in 21 African countries. In this chapter, I used five measurements of firm performance (sales, number of employees, employee growth rate, labour intensity and export intensity) and access to credit as a proxy for access to finance. The pooled OLS study results show that access to finance is positive and statistically significant to all measures of firm performance. Regarding sales, the results show that increasing the firm's access to finance (external credit) has a positive relationship with annual sales revenue. This is consistent with Beck et al. (2005), Colman (2007), and Buera et al., 2011) findings. I also report the result of other measurements of firm performances. The results show that an increase in a firm's access to finance also positively influences the number of employees and employee growth rate. This is possible if small businesses can expand their capacity. This is consistent with the literature of Baliamoune-Lutz et al. (2011), Fowowe, 2017, Brown and Earle, 2017, Brixiova et al. (2020), and Ayyagari et al. (2021), whose studies found a positive relationship between access to credit and employment. Furthermore, the results show that increasing access to finance positively affects firm productivity and export intensity. This is also consistent with the findings of Griffith et al. (2006), Morris, 2018, Nguyen and Almodovar, 2018, St-Pierre et al., 2018, and Audretsch &

Belitski 2020 that innovation and export-oriented firms are strongly associated with increased productivity. Due to the inconsistency of OLS due to issues of endogeneity and reverse causality, the study also used the two-stage least squares (2SLS) estimation approach to increase the validity of the results.

The 2SLS estimation approach uses instrument and exclusion techniques to resolve endogeneity bias. The study used land as a viable instrument, having fulfilled all the criteria of an instrument based on the results of the endogenous test. The land is often used as collateral to secure loans in the study region. Thus, small firms with more landed property stand a better chance of securing loans. Also, the bigger your land, the larger the quantity of loans available. The 2SLS first stage results show that the Cragg-Donald Wald F-statistics is more than ten, confirming that the instrument is strong and the model is not biased with a weak instrumental variable. Also, the Dubin (score) chi2 and Wu Hausman F-stats confirm that access to finance variables is endogenous to the model. The 2SLS second stage results also confirm the OLS results and show that access to finance has a positive and significant relationship with all measurements of firm performances. The study also did a robustness check by using access to bank loans to proxy for access to finance, and the results did not change from the pooled OLS and 2SLS results given above.

6.4 The Role of Institutions on Entrepreneurship Development in Africa

This section presents the impact of institutional climate on entrepreneurship of 21 African countries using eight measurements of institutional climate (water obstacles, electrical connection obstacles, security obstacles, insufficient electricity obstacles, taxation obstacles, corruption obstacles, business license and permit obstacles and institutional index) and businesses that have paid salaries for 36 months and have staffs ranging from 1-19 as a proxy for The pooled OLS study results show that all measures of weak institutional climate are negative and statistically significant to entrepreneurship. The study viewed institutional climate from the weak institutional concept. The pooled OLS results show that all the proxies of weak institutional climate have a negative and significant relationship with entrepreneurial activities. Once there is poor management of water and electrical connections, security issues and poor perception of the court system, investors are scared and discouraged from investing. Thus, entrepreneurial activities are negatively affected. These results are consistent with the

findings of Ko and Dorantes (2006), Sobel (1998), Barasa et al. (2017), Abeberese (2017), Amodio and Di Maio (2018), Atiase et al. (2018); Geginat and Ramalho (2018); Chowdhury et al. (2019). and Ksoll et al. (2021). These studies found a negative association between weak institutional quality and entrepreneurship.

In this chapter, I created an institutional obstacle index from all the weak institutional obstacles used. The index was constructed to take the value of 1 if small businesses faced all the obstacles that made up the index and 0 otherwise. The pooled OLS result shows that the (weak) institutional climate index negatively correlates with entrepreneurial activities. The study also used quantile regression to investigate if the effect of institutional climate differs across different entrepreneurial zones, allowing for different quantile points of institutional climate (Agostino et al., 2020). I represent areas with the least entrepreneurial activities by the 25^{th} quartile, while highly industrialised areas were represented by 75%. The study results show that a weak institutional climate negatively impacts entrepreneurial activities in the least and highly entrepreneurial areas, with the highly entrepreneurial areas being the most affected. The institutional climate index for the highly entrepreneurial area is 0.4 compared to the less entrepreneurial areas of 0.2, indicating smaller firms in a highly entrepreneurial area. The study also supported grease the wheel of entrepreneurship theory, which relates corruption and entrepreneurial activities to organisational and bureaucratic processes. The study also tested the impacts on entrepreneurial regions. The study results confirmed that greasing the wheels of corruption is the same for the least and the most highly entrepreneurial areas. The results for all measurements of corruption show a positive and statistically significant relationship with entrepreneurship, with a significant level of 1% at a 99% confidence level. This result suggests that corruption speeds up entrepreneurial activities when it is moderate but becomes detrimental to entrepreneurial activities when it is excessive and widespread. The study also supported the resilience of small businesses within the SSA region. The study results show a positive and significant relationship between weak institutional climate and entrepreneurship, but this positive association does not improve firm performance.

I also conducted a robustness check of the impact of institutional climate on entrepreneurship by using another measurement of entrepreneurship. The results did not change from the main study results, as all measurements of weak institutional climate had a negative and significant relationship with entrepreneurship.

6.5 Contributions to Literature

Entrepreneurship literature has struggled to create a unanimous definition of entrepreneurship in its multidimensional discipline. This has led to the formation and adoption of various datasets, yet it remains an unsolved puzzle in entrepreneurial literature. The introduction of the GEM data (Reynolds et al., 2002) gave leeway but has also been criticised for its conceptual framework. The GEM data defines entrepreneurship as the TEA rate, which is engaging in nascent activities and paying salaries for 42 months, while the established business ownership rate is managing a business and paying salaries for 42 months (Reynolds et al., 2005). The World Bank Enterprise survey defines small businesses as businesses with 6-19 employees, while micro businesses have employees ranging between 1-5. These definitions have been the foundation of most entrepreneurial literature. This empirical study contributes to entrepreneurship literature by introducing entrepreneurship definition that combines both the definitions of the GEM dataset and the World Bank enterprise survey. This empirical literature defines entrepreneurship as newly registered businesses that have paid salaries for 36 months and have employees ranging from 1 – 19. This definition is novel and has not been used in any entrepreneurship or economics literature. I also make a methodological contribution to the literature by assembling various country-level datasets. This data set includes World Bank governance indicators, World Bank Entrepreneurship data, Global Financial Development data, Systemic peace data, and Heritage Foundation data. The study merged these datasets to investigate the impact of the developed banking sector (access to finance) on entrepreneurship in 17 SSA countries. This is the first time these countries have merged in entrepreneurship literature (refer to the appendix for study countries).

6.6 Implication for Theory and Practice

The exponential growth in population and unemployment has exacerbated the poverty level within the Sub-Saharan African regions, increasing the need for economic renaissance within the region. Entrepreneurship development has been seen and used as a critical framework to drive this pathway and unlock the economic potential to create job and wealth opportunities to alleviate poverty (Brixiova et al., 2020). However, a weak institutional climate impedes this course. Hence, this study needs to apply a theoretical approach to economic problems.

The findings of this study have important implications for theory and practice as they further highlight the role of the relationship between entrepreneurship, small businesses, and institutions in the economic growth nexus. Institutional quality is critical to economic resurgence, transition, and entrepreneurship development. For small businesses to perform, they ultimately need an environment that enables them to thrive, supported by quality financial services. Government policies and a good rule of law have critical signalling effects on the financial market, helping to boost (foreign) investors' confidence (North, 1990). This, in turn, will strengthen institutional quality and trigger a spillover effect on the entire entrepreneurship ecosystem. A developed banking system benefits small businesses in ways beyond loan services. Smaller businesses, with the help of the financial sector, can optimise risk options, encourage saving and improve their investment capacity. The spillover effect from these options is instrumental to their survival, innovative capacity, and economic growth. Improving access to finance will increase the performance of small businesses, create job opportunities and increase their investment capabilities to explore high-growth opportunities. When sustained over time, these qualities can effectively contribute to economic growth through job creation, improve tax structure for infrastructural development and attract more foreign investors.

In recent years, formal and informal entrepreneurship has attracted more literature to understand how entrepreneurship leads to economic growth and development. However, much of this research skewed to the conclusion that only formal entrepreneurship contributes to economic growth. This has practical implications for the plans to industrialise the SSA regions through entrepreneurship development. A recent report by ILO (2023) of the informal sector in Africa showed that over 60 per cent of total employees are in the informal sector, while over 78 per cent of total employers operate in the informal sector. This constitutes 20 per cent of global informal

employment. It becomes challenging to develop the economies of African countries with this sizeable informal sector. Consequently, alleviating poverty becomes tough since most informal entrepreneurs resort to informal entrepreneurship to take advantage of the wage structure to pay below the minimum wage threshold. Fostering an improved institutional climate is imperative to create an enabling environment that eliminates constraints for entrepreneurship development. This would reduce the number of informal entrepreneurs, thereby contributing to sustainable economic growth.

Therefore, this study's findings encourage further research investigating collaboration between entrepreneurship, financial markets, and the institutional climate (rule of law) within the study countries. Future research will examine the level of protection and the protectionist framework suitable for the Sub-Sahara region to foster small business performance, entrepreneurship development, and sustainable economic growth.

6.7 Conclusion and Policy Implication

This section highlights the conclusions and policy implications of each of this study's three empirical chapters. The policy implications are drawn following the study results and findings.

6.7.1 Conclusion

The result of the study reveals that the bank index positively impacts entrepreneurship. A direct and significant relationship exists between the developed financial system and entrepreneurship. Evidence, including rectifying the African continental free trade, suggests plenty of entrepreneurial opportunities in the African region (UNCTAD, 2018; Signe, 2018). Most entrepreneurial finance literature expressed financial constraints mainly on the demand for entrepreneurial finance without much discussion on the supply of finance. This study investigates the supply of finance to understand the challenges and inefficiencies of the supply of bank finance that led to financial constraints (inability to access finance). Baliamoune-Lutz et al. (2011) argued that the banking sector in the SSA region is very liquid, yet entrepreneurs and business owners cannot access it. Entrepreneurship is important to African countries due to its ability to create job opportunities, set up enterprises, improve firm performances, develop private sector-government partnerships, and reduce gender inequality, thereby increasing

household wealth and reducing poverty. This perception of entrepreneurship and its framework makes it viable for sustainable economic growth, which is the objective of most economies that have embraced entrepreneurship, including those of Africa, in recent years. Developing the banking sector would be the gateway that launches and develops other financial intermediaries and creates a platform that manages risks (Levine, 1997). This reduces the incidence of defaults in loan repayment, especially in the SSA, where other financial intermediaries are either absent or weak. This would increase the availability of entrepreneurial finance and help unburden the binding constraints of accessing finance that negatively impact a firm's level of investment and performance. The potential for economic growth in the SSA region is significant, offering a hopeful outlook for the future.

This study reveals that access to finance positively impacts firms' sales performance, current employees, employee growth, labour productivity, and export intensity. The results of this study highlight why many developing economies have embarked on entrepreneurship as a concept of economic growth. Developing entrepreneurship presents the most feasible route to the industrialisation of the SSA region. It provides a framework where entrepreneurs match and recreate available opportunities to create jobs, increase high-growth start-ups, and increase household wealth, export intensity, and productivity. Financial development is an important factor in entrepreneurship. Increased access to finance and external financing facilitates other determinants of entrepreneurship. The development of financial institutions is the trigger that stimulates entrepreneurial activities and coordinates the transfer of knowledge, training, start-ups, and productivity to the point of attaining entrepreneurial success, firstly for the entrepreneurs and firms and lastly for the country's economic development. The study results show that the coefficients of export intensity are high, which is consistent with the high-growth entrepreneurship literature. This also emphasises the benefits of investing in high-growth opportunities and adopting innovation to improve quality and performance. Importation, foreign partnerships, and markets have been known to have spillover effects that increase performance and reduce the incidence of financial constraints. Most of the firms could have started small with a necessity approach. However, if they could access finance and make a suitable investment, there is a high chance of moving from necessity orientation to opportunity entrepreneurship. These have been the conditions of most entrepreneurs in the SSA region. The economic situation of the region makes them to start small businesses. The chances of job creation by

entrepreneurship also increase with more access to finance. If smaller firms employ family and unpaid labour, increased access to finance will also increase the chances that the small firm will expand beyond family and unpaid labour into fully paid jobs for non-family members. The study results portray an optimistic view of entrepreneurship backed with proper funding and plans to attain entrepreneurial goals. Planning can include policy, infrastructure, alternative financing plans, venture capital, training, development of legal institutions, subsidy, and political will to promote the private sector. Although extant literature has reported financial constraints as an obstacle to entrepreneurship development within the African region, there must also be a plan to support smaller firms to attain entrepreneurial success. Government policies must be tailored to specific needs and peculiar to sectors. The importance of reducing financial constraints is a cause that should inspire determination and commitment in all stakeholders.

The study results show that a weak institutional climate reduces entrepreneurial activities and productivity in the study countries. Weak institutional climate obstacles of water and electrical connection, cost of security and power generation, government bureaucratic procedures and poor policies have a 99% confidence level of reducing entrepreneurial activities and firm performance in the study countries. The regional results also give credence to the fact that a weak institutional climate affects small businesses' activities in the least entrepreneurial and highly industrial areas. It could plausibly be a situation where the level of institutional climate depends on the presence of government such that regions with more government presence have weaker institutions. Governance bureaucratic procedures are lethargic and apply to small businesses as a challenge. This is in line with the work of Chadee and Roxas (2013), who find the state of Russia repressive to firms' innovation and performances. This is also consistent with the theory of Baumol and the work of Sobel (2008), whose works suggest that the quality of institutional climate is proportional to the type of entrepreneurship dominant in a country. A weak institutional climate would make small businesses spend more resources dealing with regulations and survival when such resources could be channelled into productive and innovative activities to improve capacity. This usually results in smaller firms choosing to operate informally and an increasing number of politically motivated entrepreneurial activities that are not productive. A better institutional climate, on the other hand, would enable small businesses to invest in innovative and productive activities that would translate to real wealth for all stakeholders and a

more competitive formal economy that leads to economic development (Chowdhury et al., 2019).

Like other literature on institutions, this empirical study sees corruption as a product of a weak institutional climate. Government bureaucratic procedures can lead to payment of tips to get around queues and paperwork (Cooray & Schneider, 2018). These antecedents have become the ground corruption and corruption network that has become a global norm and constraint to doing business. Despite the cancerous effect of corruption, the grease-the-wheel of corruption hypothesis justifies it in developing economies where institutions are weak. This empirical study finds evidence of grease the wheel of corruption in the study countries. Informal payments to corrupt government officials are positively associated with entrepreneurial activities. The coefficients of these associations are larger in highly entrepreneurial areas compared to the least entrepreneurial areas, but the confidence level remains the same at 99%. This explains the endemic and the deep-rooted network of corruption across regions. Another relevant dimension of corruption is the level of wealth being transferred from a sector of an economy to a very few individuals and the crowding-out effects it has on industrial competitiveness and firm performance. The study results show that the weak institutional climate is responsible for the low productivity of firms within the African region. One could imagine and be thrilled that the global interconnectivity of financial services and doing business has not been reflected in the level of productivity in African countries.

Conclusively, the study examines the impact of a weak institutional climate on entrepreneurship and finds that a weak institutional climate has a negative and significant association with entrepreneurship. Regional variation has little impact on this relationship as the relationship remains statistically significant in less and highly entrepreneurial areas. The study also finds evidence of grease the wheel of corruption theory. Study results suggest that at its initial stage, corruption might speed up entrepreneurial processes (activities) but, when fully blown, becomes an obstacle to entrepreneurial activities.

6.7.2 Policy Implication and Recommendation

I make policy recommendations based on the findings of the study. Financial development and entrepreneurship findings depict policymakers' need to be proactive rather than reactive with policies. Developing Entrepreneurship, especially in the SSA region, would need a clear operational framework with clearly stated policies. There should be re-orientation and a change of approach from generalised business policies to business-specific policies. As in most developed economies, protectionist policies should be used to protect, nurture, and provide financial information to businesses. This also means making different policies for different sectors depending on the constraints peculiar to each sector. A move from one-size-fits-all to a result-oriented approach where reforms are horizontal rather than vertical (Morris, 2018). There should also be policies for banks to set aside a certain amount of their annual earnings for entrepreneurship development. There should be policies that establish a bank for small businesses with clear lines of operation that serve small businesses and entrepreneurship.

The banking sector indicator shows that SSA banks are not doing badly or struggling. Transforming such performance into a partnership with entrepreneurship would be an initiative beneficial to small businesses. Policies that monitor and promote financial sector activities of accessing information credits will help vitalise entrepreneurship. There is much literature on financial constraints, but nothing seems to happen, and one wonders if there are no policies for financial constraints. Policies should also be tailored to unburden limitations and difficulties of securing loans and better implementation strategies to check performance. Policies and implementation strategies should be clear and not contradict other policies or existing institutional functions. There is a need for more investment in the synergy of all institutions and collaborations of all stakeholders to attain boundless entrepreneurship opportunities. There is a need for policies that encourage the formation of financial intermediaries and private-sector partnerships for special banking functions. This will also help reduce the pressure on commercial banks.

Based on the findings of the firm-level perspective on financial development and entrepreneurship, I recommend the need for robust policies that empower firms to sustain their performance through healthy competitiveness. There must be a concrete effort by the government, private individuals, and entrepreneurial households to plan and budget for entrepreneurial activities if they are to be successful. The government must make policy

decisions to solve particular and peculiar industrial problems. Policymakers should be deliberate in making policy decisions that affect the importation and exportation of goods and services so that the spillover effects and venture benefits are prioritised. This would increase foreign direct investment, exchanges, and foreign currency, which would help stabilise local currencies. The financial sector must develop innovative ways to resolve information asymmetry problems and use collateral to secure loans. The use of collateral is counterproductive, and there is a need to create other forms of external financing to move away from the use of collateral. There should also be policies that reward firm performance through taxation and subsidies, which has been found useful. Policymakers should make policies that encourage greater synergy between the financial sector, education, and entrepreneurship. All stakeholders in the private sector must understand their role and work towards the sector's development.

Given the findings of the role of institutions on entrepreneurship development, policymaking should be aimed towards improving the institutional climate. Institutional procedures such as permits, licenses and registration should be designed to reduce rigid bureaucratic processes to their lowest. A hybrid-small business-centred approach should be pursued where the survival of small businesses is at the centre of the policies. Policymaking in most developing countries is politically motivated to suit the political regimes and governing party's interests that may not align with best practices. Policymakers should strive for hybrid and small business-centred policies specifically made to solve the challenges of small businesses. The hybrid small business-centred approach is a technological and performance-focused approach where decision-making is shared between locals and at the centre to eliminate intermediaries and bureaucracy with the performance of small businesses as the policy focus. The intermediaries increase agency costs and the likelihood of potential delays. Thus, the more intermediaries you get, the more it gets into the mud and increases the chances of corruption. Decision-making should not be located at the centre where approval takes days and weeks, waiting for someone to sign or give room for lobbying. Conditions for approval should be clear, transparent, and smart enough to answer the fundamental question if it reduces the challenges of small businesses and improves performance. Policymakers should aim at reducing the number of days it takes for businesses to get licenses and permits. This would allow more entrepreneurs to get licenses into businesses to create healthy competition that drives that sector into efficiency. This also gives good signals to both local and foreign investors. Access to quality electricity and security is at the heart of

entrepreneurship. Policymakers should develop policies and reforms that tackle and resolve these issues and open the private sector. Reforms that encourage technological adoption to improve the accountability of public officials because inefficient electricity problems supply and security could be traced to negligence and failure of public officials. The study also advocates for policies that enforce a structure of rewards and punishment systems in bureaucratic processes to reduce the widespread corruption culture across the SSA region.

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Appendix

Appendix 1: Study Countries

Study Countries
Benin
Burkina Faso
Cameroun
Cote d’ Ivoire
Egypt
Ethiopia
Gambia
Ghana
Kenya
Mali
Mauritania
Mauritius
Morocco
Mozambique
Niger
Nigeria
Rwanda
Senegal
Tanzania
Tunisia
Uganda