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Developing entrepreneurship in Africa: investigating critical resource challenges

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Developing entrepreneurship in Africa: Investigating critical resource challenges

Abstract

Purpose – By drawing upon institutional theory, this study investigates the role of four critical resources (credit, electricity, contract enforcement and political governance) in explaining the quality of entrepreneurship and the depth of the supporting entrepreneurship ecosystem in Africa.

Design/methodology/approach – A quantitative approach based on ordinary least squares regression analysis was used. Three data sources were employed. Firstly, the Global Entrepreneurship and Development Index (GEDI) of 35 African countries was used to measure the quality of entrepreneurship and depth of the entrepreneurial ecosystem in Africa which represents the dependent variable. Secondly, the World Bank's data on access to credit, electricity and contract enforcement in Africa was also employed as explanatory variables. Thirdly, the Ibrahim Index of African Governance was used as an explanatory variable. Finally, country-specific data on four control variables (GDP, FDI, population and education) were gathered and analysed.

Findings – To support entrepreneurship development, Africa needs broad financial inclusion and state institutions that are more effective at enforcing contracts. Access to credit was non-significant and therefore did not contribute to the dependent variable (entrepreneurship quality and depth of entrepreneurial support in Africa). Access to electricity and political governance were statistically significant and correlated positively with the dependent variables. Finally, contract enforcement was partially significant and contributed to the dependent variable.

Research limitations/implications – A lack of GEI data for all 54 African countries limited this study to only 35 African countries: 31 in sub-Saharan Africa and 4 in North Africa. Therefore, the generalisability of this study's findings to the whole of Africa might be limited. Secondly, this study depended on indexes for this study. Therefore, any inconsistencies in the index aggregation if any could not be authenticated. This study has

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practical implications for the development of entrepreneurship in Africa. Public and private institutions for credit delivery, contract enforcement and the provision of utility services such as electricity are crucial for entrepreneurship development.

Originality/value – The institutional void is a challenge for Africa. This study highlights the weak, corrupt nature of African institutions that supposedly support MSME growth. Effective entrepreneurship development in Africa depends on the presence of a supportive institutional infrastructure. This study engages institutional theory to explain the role of institutional factors such as state institutions, financial institutions, utility providers and markets in entrepreneurship development in Africa.

Keywords: Contract enforcement; Credit; Electricity; Entrepreneurship; Governance; Quantitative approach

Paper Type: Research paper

Introduction

Over the past three decades, most African countries have experienced positive economic growth, which is encouraging. Despite these positive trends, however, the livelihoods and unemployment conditions of most Africans needs much to be desired (Frederick and Machuma, 2010). Because entrepreneurship can create jobs, provide decent livelihoods, and contribute to GDP, developing and promoting entrepreneurship in Africa must be given the attention and support it deserves (Ozgen and Minsky, 2007; Balkienė and Jagminas, 2010).

To develop entrepreneurship in Africa, the role of micro, small and medium-sized enterprises (MSMEs) cannot be overstated. As in many other countries, most African businesses are MSMEs, and these businesses contribute to GDP, poverty reduction and job creation (Abor and Quartey, 2010; Frimpong, 2013). Consequently, entrepreneurship in Africa cannot develop without a specific focus on MSMEs (Agyapong, 2010). For instance, in Ghana, MSMEs account for 92% of businesses, provide 85% of all manufacturing jobs and generate 70% of GDP. Similarly, in South Africa, MSMEs account for 91% of all businesses, provide 61% of all employment and generate between 52% and 57% of GDP (Abor and Quartey,

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2010). MSMEs provide 85% of employment in Kenya and account for 67% of Tanzania's GDP (Frimpong, 2013). On average, MSMEs deliver 70% of job creation and provide 60% of GDP in most African countries (Agyapong, 2010; Ali *et al.*, 2014). Examining the development crisis that faces Africa, Robson *et al.* (2009) noted that the development of these MSMEs would help alleviate poverty, generate employment and develop the economy. Regulatory institutions, which provide critical entrepreneurial infrastructure, are also essential for developing entrepreneurship in Africa (North, 1990; Scott, 1992). For example, financial institutions in Africa must support MSMEs to create jobs and contribute to the African economy. Likewise, regulatory institutions that support African MSMEs' registration, growth and contract enforcement must be effective. Institutions that provide essential utilities such as electricity, telecommunications and water must also deliver on their mandate of providing essential services to enterprises. More importantly, the overall quality of political governance affects the quality and depth of the entrepreneurial ecosystem in Africa.

In the last decade, the entrepreneurship ecosystem has become an interesting area of entrepreneurship research. The entrepreneurship literature refers to an entrepreneurship ecosystem as an intentional collaborating network of dynamic socioeconomic structures with interacting systems and subsystems that are geared towards developing entrepreneurship in a given geographical context (Acs *et al.*, 2008; Fernández Fernández *et al.*, 2015). For Africa to build an effective entrepreneurship ecosystem, critical resources such as credit, electricity, good political governance and contract enforcement are essential.

Access to affordable credit, which can make MSMEs competitive, remains one of the hurdles that face entrepreneurs in Africa (Bruton *et al.*, 2005; Aldén and Hammarstedt, 2016). Orser *et al.* (2006) noted that besides access to basic financial capital, MSMEs also need other forms of external financial capital such as commercial debt, leasing, supplier financing and equity financing, all of which are important for MSMEs' strategic direction and performance. For instance, Bastiéa *et al*. (2016) affirm that the availability of financial capital influences the way a firm makes market entry decisions and the type of networks they join to pursue their financial goals.

Gaining access to efficient, reliable, cost-effective electricity for production purposes is difficult for enterprises in some African countries. As an input to the production process, electricity is important for developing the quality and depth of the entrepreneurial ecosystem and the general economy in Africa (Adenikinju, 1998; Winkler *et al.*, 2011). The International Energy Agency (2014) estimates that at least 620 million people in sub-Saharan Africa live without electricity. Therefore, various African state institutions that are responsible for generating and distributing electricity need to be productive in supplying electricity to enterprises.

Research has shown that the quality of democratic governance in Africa influences entrepreneurship growth, entrepreneurial opportunity exploitation and the nature of the supporting entrepreneurial ecosystem (Rotberg, 2009; Munemo, 2012). Although political governance in Africa has improved over the past decade, certain countries remain undemocratic, thereby hindering the growth of entrepreneurship. This situation could undermine Africa's entrepreneurship quality and the depth of Africa's entrepreneurial ecosystem (Alence, 2004).

Business contract enforcement is often seen as weak or almost non-existent in Africa. The products and services that enterprises offer their clients are shoddy, arrive late and are usually paid for late or not at all (Fafchamps, 1996). Most regulatory institutions that are supposed to help enterprises enforce contracts are either weak or undermine the process themselves. Accordingly, contract enforcement for African businesses is expensive (Ahlquist and Prakash, 2010).

In light of the issues that have been discussed thus far, this study makes two primary contributions. First, entrepreneurship research that focuses on Africa, particularly the nature of the African entrepreneurship ecosystem, is scarce (Naude, 2010; Sheriff and Muffatto, 2015). Therefore, this study contributes to our understanding of the entrepreneurship ecosystem in Africa by highlighting the role of critical resources such as credit, electricity, contract enforcement and political governance in creating an effective, dynamic entrepreneurship ecosystem in Africa. As indicated above, access to adequate, cost-effective credit in Africa remains a major hurdle for MSMEs (Abor and Quartey, 2010). Similarly, the success of many African MSMEs depends on access to efficient and cheap energy such as

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electricity (Davidson and Mwakasonda, 2004). In addition to these two resource constraints, contract enforcement and political governance issues further dampen African entrepreneurs' enthusiasm to pursue entrepreneurial goals (Fafchamps, 1996). Research on how access to all these critical resources (i.e. credit, electricity, contract enforcement and political governance) drives entrepreneurship development in Africa is lacking. This study fills this gap by comprehensively investigating the role of these resources.

Second, this study contributes to our understanding of the vital role of African regulatory institutions, which provide an entrepreneurial environment that is conducive to an effective entrepreneurship ecosystem (North, 1990; Scott, 1992). Similarly, the study contributes to the understanding of the institutional void in Africa, which negatively affects the development of entrepreneurship (Aidis *et al.*, 2008; Sutter *et al.*, 2013).

Background

Entrepreneurship ecosystem and its impact on entrepreneurial development in Africa

Research on entrepreneurship ecosystems in Africa is scarce. Nevertheless, the assumption is that entrepreneurship development in Africa is only possible in an efficient entrepreneurship ecosystem that is dynamic and resource endowed. All entrepreneurial ecosystems are supposed to have self-organisation, scalability and sustainability (Acs *et al.*, 2008). There should be an embedded interaction between the entrepreneur's attitudes, abilities and aspirations, which eventually drive the allocation of resources through the creation and operation of new ventures. Therefore, an entrepreneurial ecosystem consists of entrepreneurs, institutions, systems, subsystems and ecosystem management services (Acs *et al.*, 2008). A healthy entrepreneurial ecosystem will drive resource allocation and sharing towards productive uses (Nambisan and Baron, 2013). It will also drive total factor productivity through process innovation. The greater the total factor productivity, the bigger the economy's capacity to create employment and wealth (Fernández Fernández *et al.*, 2015; Sheriff and Muffatto, 2015; Acs *et al.*, 2017). Sheriff and Muffatto (2015) examined the state of the entrepreneurship ecosystem in four African countries (Botswana, Egypt, Ghana and Uganda). They observed that institutional environmental factors account for differences

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between countries in terms of economic growth, entrepreneurship development and the quality of the entrepreneurship ecosystem.

Unemployment in Africa and the need for entrepreneurship development

The current unemployment rate in Africa should encourage entrepreneurship development. In sub-Saharan Africa, the youth unemployment rate is 21%, which is the second highest in the world (Nafukho and Muyia, 2010). Africa is still mired in numerous economic and political challenges, including ineffective transportation systems, low agricultural productivity, a lack of suitable, efficient technology for development purposes and geopolitical factors (Ahmed and Nwankwo, 2013). Accordingly, many researchers have called for the development of entrepreneurship in Africa. In fact, the need to recognise the importance of entrepreneurship for economic development cannot be delayed further. Naude (2010) indicated that entrepreneurship development is indispensable to economic development and is the engine of growth in developing economies such as the African economy. In other words, entrepreneurship is an avenue for innovation, job creation and, ultimately, poverty reduction in Africa (Sander and Thurik, 1999; Chowdhury, 2007; Nieman and Nieuwenhuizen, 2009; Bruton *et al.*, 2013). Unsurprisingly, therefore, many view owning a small business as a path to self-employment and income generation (Alvarez *et al.*, 2011). This realisation has led many African governments to strengthen their public policy and research activity in entrepreneurship development. However, Naude (2010) argues that there are two gaps in our understanding of the role of entrepreneurship in developing countries and that these gaps hinder entrepreneurship's contribution to economic development. First, scholarly contributions fail to reflect reality. Second, development economists have neglected entrepreneurship as an important factor in the drive towards economic development.

The Global Entrepreneurship Monitor (GEM) has identified factors such as supportive government policy, efficient legal infrastructure and good political governance as essential ingredients for effective entrepreneurship development in Africa. These factors arguably provide the motivation for potential entrepreneurs to tap into existing entrepreneurial opportunities (Baughn and Neupert, 2003).

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Theory and hypotheses development

Institutional theory and entrepreneurial development

Many entrepreneurship studies have analysed the environmental conditions under which entrepreneurship thrives. An integrated framework is needed to analyse the environmental conditions that are conducive to entrepreneurship development and the growth of enterprises (Gnyawali and Fogel, 1994). Institutional theory gives researchers the opportunity to examine how different institutional settings affect behaviours in different markets and how these institutions themselves change over time in these settings (Bruton *et al.*, 2009). Therefore, emerging economies such as the African economy offer interesting contexts to study the effect of environment on entrepreneurship development. Institutional theory has become a lens through which numerous researchers have accounted for environmental influences on entrepreneurship, particularly in studies that relate to start-ups (Su *et al.*, 2016). Naude (2010, p.1) intimated that a country's institutional framework – the 'rules of the game' – are important for understanding entrepreneurship growth.

According to institutional theory, the role of environmental forces in the creation, design and management of a venture is essential not only in a critical sense, but also in terms of socio-cultural dimensions. Thus, the beliefs, values and attitudes of a given society largely determine the entrepreneurial behaviour of individuals in that society (Alvarez *et al.*, 2011). These institutional environmental factors include the state, trade associations, cultural dynamics, social norms, educational institutions, professional associations and markets (Scott and Meyer, 1984). The goal of institutional theory is to inform the way in which institutions that are external to the firm enforce standards of desirable, proper, appropriate behaviour within certain socially constructed norms, values and beliefs (Scott and Meyer, 1984; Scott, 1992).

The ability of individuals and firms to exploit entrepreneurial opportunities in their environment depends on various institutional factors that encourage or hinder their entrepreneurial initiative (North, 1990; Scott, 1992). Entrepreneurial behaviour can, therefore, be shaped positively or negatively depending on these factors (Wright and Zammuto, 2013). Empirical studies in developed countries have revealed that favourable regulatory, cognitive and normative institutions positively influence the rate and type of

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entrepreneurial development (Bruton *et al.*, 2013). Studies have shown that a universal environment outside the entrepreneur's mind influences an individual's entrepreneurial behaviour by establishing the rules and norms that affect the way entrepreneurial opportunities are exploited (Alvarez *et al.*, 2015). Building on this theory, Bruton *et al.* (2010) explain that these institutional factors influence the attitudes of entrepreneurs and either hinder or help individuals to start, manage and grow businesses. In addition, these factors determine the pace and type of entrepreneurial development in a given country (Manolova *et al.*, 2008).

One challenge in institutional theory is how to classify the environmental factors or institutions that influence entrepreneurship development. In one study, DiMaggio and Powell (1983) classified these institutions into coercive, normative and mimetic. Scott (2001) classified these institutions into regulatory, normative and cognitive. This study centres on the regulatory dimension because of the issues that are being addressed.

Regulatory institutions are public or private institutions that provide the regulatory framework for the creation, management and delivery of goods and services. These institutions enact laws and regulations that provide an environment where entrepreneurs can succeed. The adoption of favourable policies, regulations and entry conditions enhances the entrepreneur's confidence and removes many business entry barriers (Khavul *et al.*, 2013). For instance, to meet government requirements to start a venture in Mozambique, an entrepreneur must complete 19 formal procedures, which takes 149 business days, whereas the two necessary procedures to start a venture in Canada can be completed within two business days (Djankov *et al.*, 2002). Many studies have shown that countries that keep rules and regulations to a minimum, offer incentives to entrepreneurs and provide entrepreneurial training to entrepreneurs observe an increase in the emergence of start-ups (Gnyawali and Fogel, 1994).

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Institutional void in Africa

As discussed above, an entrepreneur's institutional environment is crucial for successful entrepreneurial development. The three institutional dimensions – regulatory, normative and cognitive – should be active and effective to provide the required support for entrepreneurs to thrive (Khavul *et al.*, 2013). In African countries, however, many of these institutions are ineffective, weak, incapable of performing their functions or else completely non-existent. This void affects the type and rate of entrepreneurial development (Aidis *et al.*, 2008; Sutter *et al.*, 2013).

Effective markets are vital to the development of entrepreneurial opportunities. Many Africans are unable to participate effectively in markets because of institutional shortcomings (Mair and Marti, 2009). An institutional environment is considered weak and ineffective when it cannot ensure that markets run effectively or when their actions or inactions undermine these markets. Accordingly, many African businesses remain unsupported, informal and unregistered (Kistruck *et al.*, 2015). Unsurprisingly, therefore, the state institutions in Africa that supposedly support business formalisation processes have generally failed to do so. Usually, formal rules and regulations affect entrepreneurs differently, and entrepreneurial firms adapt their activities and strategies to the opportunities and limitations that are available in the formal and informal institutional framework. Thus, dysfunctional institutions foster unproductive and even destructive entrepreneurship (Aidis *et al.*, 2008).

Access to credit and entrepreneurship development in Africa

Microeconomic theory treats finance as a factor of production regardless of the firm's age and size. Finance is used for capital investment, for either start-up or expansion (Kuzilwa, 2005). Financial capital is therefore the most important form of entrepreneurial capital (Baughn and Neupert, 2003). It is widely accepted that a sound financial system can help promote economic growth, especially in developing countries, where access to credit is limited (Andrianova *et al.*, 2008). Access to credit also influences MSMEs' business decisions and financial goals (Bastiéa *et al.*, 2016). However, the reality is that MSMEs, which, as a group, represent the primary engine of growth in Africa, are constrained by inadequate access to the credit they need to support that growth (Asiedu *et al.*, 2013).

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Although MSMEs' access to credit is a global challenge, the magnitude of the challenge in Africa is greater, which hinders the development of entrepreneurial opportunities (Bowen *et al.*, 2009; Klyton and Rutabayiro-Ngoga, 2017). In fact, Africa has the lowest financial penetration of any region in the world. Excluding South Africa, the percentage of bankable Africans remains less than 20% of the population (Popoola, 2009). Notably, commercial banks in Africa have neglected MSMEs in their lending activities, instead focusing on large businesses that can provide collateral to support their loan applications (Kuzilwa, 2005). Mahmood *et al.* (2014) have intimated that apart from collateral challenges, MSMEs must overcome information asymmetries and other moral hazards that prevent them from accessing formal credit. In some cases, such credit is obtained at a higher interest rate, which increases the cost of doing business (Fatoki, 2011). Thus, the cost of credit has remained the single most important barrier to entrepreneurship growth in Africa (Deb and Suri, 2013). Many African governments have achieved little progress towards making credit affordable, accessible and timely for entrepreneurial development (Shibia and Barako, 2017). The lack of credit has forced most MSME owners to depend on financial support from family and friends, which might not be a sustainable source of financial capital (Ahmed and Nwankwo, 2013). Accordingly, Fatoki and Odeyemi (2010) argue that the availability of trade credit opportunities in Africa could enhance entrepreneurial development in terms of cutting operating costs for MSMEs. Based on the above discussion and the general findings in the literature, the following hypothesis is proposed:

H_1: *Access to credit is positively related to entrepreneurship development in Africa.*

Access to electricity and entrepreneurship development in Africa

In the production process, energy is combined with other inputs such as the factors of capital and labour. As an energy source, electricity is an important input for the growth of any economy (Winkler *et al.*, 2011). Access to efficient, reliable electricity contributes to entrepreneurship development, economic growth and poverty reduction (Sihag *et al.*, 2004). However, the lack of accessible electricity prevents most African countries from achieving their development goals (Davidson and Mwakasonda, 2004). Despite huge investment and numerous reforms to make electricity accessible to all, sub-Saharan Africa, in particular, has failed to increase its citizens' access to electricity (Onyeji *et al.*, 2012). Approximately two-

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thirds of the African population lives without electricity (IEA, 2014). Comparatively, in 2009, the average rates of access to electricity in Latin America, the Middle East and Developing Asia were 93%, 89%, and 81%, respectively, while in sub-Saharan Africa, it was 31% (IEA, 2011). However, North African countries such as Morocco and Tunisia have enjoyed tremendous success in terms of the rate of access to affordable electricity, which rose from less than 30% in 1996 to more than 96% of the population in 2009 (Onyeji *et al.*, 2012). On average, general electricity access in Africa is 25%. Chad, Somalia, Uganda, Sierra Leone and Rwanda have access rates of 5% whiles Mauritania, Ghana and South Africa have electricity access of more than 50% (Brew-Hammond, 2010). Mauritius is the exception, with access to electricity for 94% of its population (Brew-Hammond, 2010).

The literature lacks studies that consider the relationship between access to electricity and entrepreneurship development in Africa. A review of the literature on electricity access in Africa indicates that institutional and demographic factors have caused the energy crises that currently face African countries. D'Amelio *et al.* (2016) indicate that the lack of adequate infrastructure for the production, distribution and transmission of electricity has remained the most visible challenge facing the energy sector in Africa. Africa also suffers from limited capital investment, a lack of technological knowledge, expensive electricity generation and the use of unreliable equipment in electricity generation (Suberu *et al.*, 2013). Domestic investment is therefore needed to modernise the energy sector in Africa. Good institutional governance, rural electrification and renewable energy systems are also recommended to meet this challenge (Onyeji *et al.*, 2012). Sihag *et al.* (2004) recommend commercialising the sector and setting up independent energy sector regulators. Therefore, foreign direct investment (FDI) in the African energy sector is needed. Madubansi and Shackleton (2006) argue that government policies have not yielded the necessary returns to revitalise and maintain the African energy sector. Africa therefore needs workable institutional and structural reforms to improve the energy sector. Based on the above discussion and the general findings in the literature, the following hypothesis is proposed:

H_2: *Access to electricity is positively related to entrepreneurship development in Africa.*

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Contract enforcement and the development of entrepreneurship in Africa

In Africa, the perception is that business contract enforcement is weak. Too often, business supplies are delivered late, product and service quality is compromised and payments are received late or not at all (Fafchamps, 1996). Contracts between commercial actors are also difficult and expensive for businesses to enforce because of weak enforcement institutions. As Ahlquist and Prakash (2010) indicate, however, contracts must be monitored and enforced to deliver good results.

Efficient allocation of entrepreneurial resources requires institutions that are equipped to enforce contracts and property rights (North, 1990; Koeppl *et al.*, 2014). This ability to enforce agreements varies across countries depending on the legal system. The ability of entrepreneurs and institutions to enter into a binding agreement to supply or purchase goods or services is essential for entrepreneurship development in Africa (Seitz and Watzinger, 2017). Chinn and Ito (2006) argue that an economy where the legal system does not clearly define property rights and guarantee contract enforcement prevents entrepreneurs from accessing business opportunities that could contribute to economic growth. Sutter *et al.* (2013) affirm that in countries that offer no assurance of contract enforcement because of weak, corrupt or absent formal institutions, informal or illegal institutions emerge to provide the missing support. In addition, because formal contract enforcement is scarce in Africa, firms usually resort to informal means to enforce contracts, a practice that affects the reputation of the parties to the agreement (Djankov *et al.*, 2002). Bruton *et al.* (2009) report that the existence of inadequate regulatory regimes to enforce contracts obliges firms to rely on informal mechanisms such as personal relationships and private security arrangements to ensure that contracts are fulfilled. Thus, effective institutions in Africa are required so that business contracts are enforced. By extension, efficient national institutions that enforce property rights and contractual agreements between businesses are important for the growth and development of entrepreneurial opportunities in Africa (Koeppl *et al.*, 2014). Based on the above discussion and the general findings in the literature, the following hypothesis is proposed:

H_3: *Contract enforcement is positively related to entrepreneurship development in Africa.*

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Political governance and entrepreneurship development in Africa

The quality of governance in Africa has a bearing on entrepreneurship development and MSME growth. It is therefore a prerequisite for entrepreneurial opportunity exploitation, growth and development (Munemo, 2012). Effective government policies coupled with efficient institutions promote enterprise growth and enable entrepreneurs to tap into entrepreneurial opportunities in Africa (Rotberg, 2009). Alence (2004) argues that the reasons for Africa's poor economic performance go beyond economic factors such as adverse world market conditions and structural economic rigidities. Instead, weak policy formulation, ineffective public administration and corruption play a major role in Africa's weak economic performance. Therefore, advocates of good governance in Africa argue that building and strengthening appropriate national institutions to support the rule of law, property rights, contract enforcement, accountability and good governance are essential for entrepreneurship development (Naude, 2010).

Government policies that influence market mechanisms and make them function efficiently are important to create an environment that is conducive to entrepreneurship development in Africa. African governments can do so by removing conditions that create imperfect markets and administrative rigidities. Governments must create an 'enterprise culture' that encourages firms to take risks and seek profits (Gnyawali and Fogel, 1994, p. 46). Based on the above discussion and the general findings in the literature, the following hypothesis is proposed:

***H_4**: Political governance is positively related to entrepreneurship development in Africa.*

The previous discussion and the findings in the literature explain how access to credit, access to electricity, contract enforcement and political governance are crucial resources for the promotion of entrepreneurship in Africa. The conceptual framework in Figure I captures the previously stated hypotheses.

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Figure I: A hypothesised model of critical resources for entrepreneurship development in Africa

>>>Insert Figure I here<<<

Research methodology

Sample and data sources

This study investigated how access to credit, access to electricity, political governance and contract enforcement relate to the quality and depth of the current entrepreneurship ecosystem in Africa, which was measured by the Global Entrepreneurship Index (GEI). The GEI was the dependent variable. Access to credit, electricity, contract enforcement and political governance in Africa were the predictor variables. The study controlled for GDP, population, FDI and education. Indices were the sole source of data that were used to understand this relationship.

The sample for this study consisted of data for 35 African countries that are covered by the Global Entrepreneurship and Development Institute (GEDI). Using data from the Global Entrepreneurship Monitor (GEM), the GEDI measures entrepreneurial performance for the 35 African countries that were used in this study. The study used three sets of secondary data. First, the 2017 GEI, which was published by the GEDI, was used as the dependent variable. The GEI is an aggregate data measure of inter-country entrepreneurial performance in terms of quality and depth of the entrepreneurship ecosystem. In this study, data were gathered for 35 African countries. In total, the GEDI covers 508,009 individuals from 137 countries.

Second, four explanatory variables were considered. Access to credit, access to electricity and contract enforcement were gathered from the Doing Business Report (World Bank, 2017), and quality of political governance was gathered from the Ibrahim Index of African Governance (Mo Ibrahim Foundation, 2016). The variables from the World Bank's 2017

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Doing Business Report and the 2016 Ibrahim Index of African Governance are aggregate measures. In this study, they were used to measure institutional factors and the quality of political governance in Africa, respectively. Finally, the study used country specific data on GDP, population, FDI (taken from the United Nations Conference on Trade and Development, 2015 and 2017) and education (taken from the United Nations Educational, Scientific and Cultural Organisation, 2015), which is also aggregate data. Table I summarises the sources and types of data that were used in this study.

Table I: Summary of data sources and variables

>>>Insert Table I here<<<

Constructs and measures
Dependent variable

The dependent variable, GEI 2017, is based on aggregate data. The GEI is captured using three main constructs (sub-indices) measuring attitude, abilities and aspiration of African entrepreneurs in an institutionally embedded environment. These sub-indices are broken down into 14 'pillars' (sub-constructs). These pillars are measured using 12 institutional-level and 19 individual-level variables adopted from the GEM survey. The GEI is calculated by taking the average of the three sub-indices. Similarly, each sub-index is the average of four or five normalised pillar scores (Acs *et al*. 2017). The score identifies weak and strong aspects of entrepreneurship in African countries by showing how each country ranks on the overall index and the three sub-indices.

The first sub-index, 'entrepreneurial attitudes', indicates the entrepreneur's attitudes towards entrepreneurship. It is measured by five constructs: opportunity recognition, start-up skills, risk perception, networking and cultural support of the entrepreneur. The second sub-index, 'entrepreneurial abilities', reflects the entrepreneur's characteristics that determine the

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growth potential of a venture. It is measured by four constructs: opportunity start-up, technology absorption, human capital and competition. The third sub-index, 'entrepreneurial aspiration', refers to the distinctive strategy that relates to the entrepreneurial activity itself. It is measured by five constructs: product innovation, process innovation, high growth, internationalisation and risk capital. The GEM data collection procedure is briefly described below.

The GEM Adult Population Survey (APS) uses a questionnaire with a binary scale (yes/no) to survey both nascent entrepreneurs and owner-managers of new businesses. These individuals are randomly selected across these African countries and are aged between 18 and 64 years (Reynolds *et al*., 2005). Nascent entrepreneurs are individuals who are actively involved in setting up a business they would own or co-own. This business should not have paid salaries, wages or any other payments to the owners for more than three months. A new business owner is currently owner-manager of a new business that has paid salaries, wages or any other payments for more than 3 months but not more than 42 months to the owners (Sambharya and Musteen, 2014).

To ensure international data comparability, GEM collects primary data using three principal data collection methods: Adult Population Survey (APS), National Expert Survey (NES) and National Expert Interviews (NEI) (Reynolds *et al*., 2005). The APS, which is a representative population survey, is conducted as either a telephone or a face-to-face survey, while the NES involves the use of standardised questionnaires to investigate the national framework for entrepreneurship development. The NEI is conducted to ascertain a deeper understanding of strengths, weaknesses and other major issues regarding entrepreneurship in each country. The data collection instrument has five principal sections. Respondents answer questions on the following areas: section 1 (screening items concerning entrepreneurial activity of respondents), section 2 (questions for respondents who are currently trying to start a new business), section 3 (questions for owner-managers of existing businesses, irrespective of the company's age), section 4 (questions for people who work as informal investors) and section 5 (questions for people who gave up or quit a business in the last twelve months).

Cronbach's alpha was used to check the internal consistency of the 14 pillars. For the adjusted pillar values, the Cronbach's alpha scores were 0.92 (attitude pillars), 0.91 (ability

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pillars) and 0.93 (aspiration pillars), all of which were greater than the threshold of 0.7, which indicates strong internal consistency. The Kaiser-Meyer-Olkin measure of sampling adequacy and Bartlett's test of sphericity were conducted for the 14 pillars. The Kaiser-Meyer-Olkin measure was 0.94 for the original pillar values and 0.96 for the adjusted pillars, which was well above the threshold of 0.50. The Bartlett's test was significant at the 0.000 level, refuting the possibility that the pillars are not interrelated. Table IV (see Appendix) provides full details of specific variables that were used to calculate the GEI.

Independent variables

This study employed four explanatory variables: access to credit, access to electricity, contract enforcement and quality of political governance. Access to credit, access to electricity and contract enforcement were sourced from the World Bank's Doing Business Report (World Bank, 2017). The political governance variable was sourced from the Ibrahim Index of African Governance (Mo Ibrahim Foundation, 2016). These four explanatory variables represent the regulatory dimension of institutional theory. They were chosen because these critical resources still hinder entrepreneurship development and MSME growth in Africa (Davidson and Mwakasonda, 2004).

The World Bank's Doing Business Report 2017 investigates country regulations, laws and administrative requirements that promote or constrain business activity. The report presents quantitative data on 11 businesses areas, including access to credit, access to electricity and contract enforcement. The report covers 190 countries, including the 35 African countries that were used in this study. The methodology for measuring each variable is discussed below.

The access to credit index, which captures the collateral laws and information on credit systems, is measured by two constructs: availability of movable collateral laws and availability of credit information systems. Data are collected for 133 countries, all of which have populations of 1.5 million or greater. Four variables (strength of legal rights, depth of credit information, credit bureau coverage and credit registry coverage) are used to measure access to credit.

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The access to electricity index, which captures the procedures, time and cost to connect to electricity services, is measured by five constructs: procedures for connection, time spent on connection procedures, cost of supply, reliability of electricity supply and transparency of tariffs (World Bank, 2017). Data are collected from utility distribution firms, independent professionals such as electricians, electrical engineers and construction companies in each country. The index covers 183 economies (47 high income, 50 upper-middle income, 54 middle-income and 32 low-income economies). The index convers 46 economies in sub-Saharan Africa and 4 in North Africa. The data are constructed using responses from more than 12,500 respondents. A standardised case study of small and medium-sized enterprises that seek electricity connections is used across 183 countries to ensure data comparability. The primary utility distribution company serving enterprises is also interviewed to ascertain the time and cost for obtaining such a service. The procedure is further verified through email and telephone interviews (Geginat and Ramalho, 2015).

The governance index captures the political, social and economic provisions that citizens have a right to expect from the state and that the state has a responsibility to provide to its citizens. The index is measured by four constructs: safety and rule of law, participation and human rights, human development and sustainable economic opportunity. In total, 166 variables from 34 data sources combine to form 95 indicators and 14 constructs that measure governance concepts. The governance index provides data for the 35 countries that were used in this study. The variables are measured on a five-point Likert scale to capture the views of respondents in each country.

The contract enforcement construct, which captures the time and cost of resolving commercial disputes and the quality of judicial processes in Africa, is measured by three variables: time in resolving disputes, the cost of dispute and quality of judicial processes. Table V (see Appendix) describes each independent variable.

Description of control variables

This study controlled for GDP, FDI, population and education, which could potentially influence the development of entrepreneurship in Africa. These control variables were included because these factors have been observed to affect entrepreneurship development in

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Africa (Winkler *et al.*, 2011; Onyeji *et al.*, 2012; Ahmed and Nwankwo,2013). Although these factors were not used as explanatory variables in this study, understanding their impact on entrepreneurship development in Africa is important. Table VI (see Appendix) summarises the sources and describes each control variable that was used in this study.

Statistical analyses and results

Table II presents the descriptive statistics (i.e. means and standard deviations of the dependent and independent variables). The results of the regression analysis for the GEI and the explanatory and control variables appear in Table III. The model was used to examine the impact of credit supply, access to electricity, contract enforcement and political governance on the quality and depth of the entrepreneurial ecosystem in Africa, so linear regression was employed. A restricted model (Model 1) that comprised only the control variables (i.e. population, GDP, FDI and education) was built. The independent variables were then added to Model 1 to assess the overall fitness of the model. In the full regression model (Model 2), access to electricity (p = 0.004, β = 0.077) was statistically significant at the 5% level. Accordingly, a unit increase in access to electricity increases the quality and depth of the entrepreneurship ecosystem in Africa by 7.7%. Thus, our hypothesis regarding the impact of access to electricity on entrepreneurial development is accepted. The quality of political governance (p = 0.006, β = 0.033) was also statistically significant at the 5% level. Accordingly, a unit increase in the quality of governance increases the quality and depth of the entrepreneurship ecosystem in Africa by 3.3%. Thus, our hypothesis regarding the impact of political governance on entrepreneurship is also accepted. Similarly, contract enforcement (p = 0.059, β = 0.062) was partially signifcant at the 10% level. Accordingly, a unit increase in contract enforcement increases the quality and depth of the entrepreneurship ecosystem by 6.2%. However, access to credit (p = 0.992, β = 0.004) was non-significant. Access to credit therefore does not explain any relationship with the quality and depth of the entrepreneurial ecosystem in Africa. Thus, our hypothesis regarding the impact of access to credit on the entrepreneurial ecosystem in Africa is rejected.

The results for the control variables were as follows: population (p = 0.094, β = -0.049), FDI (p = 0.079, β = -0.010), education (p = 0.839, β = 0.044) and GDP (p = 0.003, β = 0.000). The results indicate that although population and FDI were partially statistically significant at the 10% level, they were negatively related to entrepreneurship development in Africa.

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Education was non-significant. GDP was significant at the 5% level. R^2 indicates the overall fitness of the regression model. For the full regression model, the R^2 value was 0.962, and its adjusted value was 0.951, thereby indicating that the full model explained 95.1 percent of the variance of the dependent variable. Tables II and III present the descriptive statistics and results of the regression analysis respectively.

Table II: Summary of descriptive statistics

>>>Insert Table II here<<<

Table III: Regression analysis of GEDI and critical entrepreneurship resources in Africa

>>>Insert Table III here<<<

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Discussion of empirical results

Table III displays the results of the regression analysis. This analysis was conducted to determine the impact of four critical resources (credit, electricity, contract enforcement and governance) on the GEI. First, as indicated in Table V (see Appendix), access to credit was measured by considering the legal rights of borrowers and lenders with respect to secured transactions and reports of credit information through credit reporting service providers such as credit bureaus or credit registries. The results indicate that access to credit was non-significant. Access to credit therefore fails to explain the quality of entrepreneurship and the supporting ecosystem in Africa. Most entrepreneurs, particularly those in the micro and small enterprise (MSE) sector in Africa often lack access to credit information, which prevents them from accessing credit from financial institutions (World Bank, 2017). Thus, most entrepreneurs disregard financial institutions or the government as sources of credit. The prospect of failing to obtain such credit is high because of these entrepreneurs' inability to provide the necessary collateral to secure such loans. This finding reflects the extreme difficulty that entrepreneurs (including potential entrepreneurs) face in getting credit information as well as financing. Even those who can access sources of credit usually face high interest rates and short repayment periods, so they struggle to obtain sustainable working capital (Fatoki, 2011). Entrepreneurs therefore largely rely on financial assistance from family and friends, who may offer an insufficient and unreliable source of credit (Baughn and Neupert, 2003). African MSMEs face major financial challenges, which prevent numerous entrepreneurs from exploiting entrepreneurial opportunities (Asiedu *et al*., 2013). Most MSMEs are therefore excluded from the formal financial system. This exclusion affects the growth of entrepreneurship in Africa.

Certain scholars have argued that, actually, while many MSMEs can access credit, most of this credit is allocated to non-business purposes such as consumption rather than enterprise creation (Bateman, 2010; Rodman, 2012). Whatever the case, credit access has little impact on the entrepreneurship ecosystem in Africa (as measured by the GEDI). When credit is channelled away from investment in entrepreneurial ventures, it is unlikely to help entrepreneurial development in Africa. Therefore, credit should be properly directed to support entrepreneurship development. Credit should be channelled for a specific purpose in the venture creation process, either as start-up capital or to ensure a positive outcome among

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African enterprises (Armendáriz de Aghion and Morduch, 2005; Carsamer, 2012; Annim and Alnaa, 2013; Ksoll et al., 2016). Kuzilwa (2005) also argues that although the impact of credit on entrepreneurial development might seem obvious, the availability of credit does not necessarily create entrepreneurial opportunities; rather, the availability of the entrepreneurial 'mind' or specialised human resources is the most important success factor in entrepreneurship development. Kent and Dacin (2013) affirm that without adopting an entrepreneurial approach in the supply and use of credit, this credit is unlikely to deliver the desired results such as job creation and poverty reduction in developing countries. Although the results imply that credit is non-significant, access to credit cannot be ignored in entrepreneurship development in Africa. Credit must be made more accessible to MSMEs for entrepreneurial activities. Credit institutions in Africa also need to control the direction of credit flows to enterprises. Strict credit monitoring would deliver the right outcomes for African financial institutions and enterprises and would eventually lead to entrepreneurship development in Africa. While providing an inclusive financial system in Africa, African governments need to intervene with legislative instruments that oblige formal financial institutions such as banks to allocate part of their credit portfolios to MSMEs. Other institutions such as African central banks and bankers' associations could also play a major role in advocating an inclusive financial system in Africa (Sarma and Pais, 2011).

Electricity supply was significant for $p < 0.05$, which implies a positive relationship between electricity supply and entrepreneurship development ($p = 0.004$, $\beta = 0.077$). The model indicates that a unit increase in electricity would lead to 7.7% growth in entrepreneurship development in Africa. This result was to be expected because most African governments acknowledge the importance of energy for enterprise development. For instance, Kenya has streamlined access to electricity by using a geographic information system to eliminate the need for site visits and thereby reduce the time that businesses require to access electricity. Similarly, Senegal and Ghana have computerised electricity connection processes, making the application process less time consuming (World Bank, 2017). Therefore, access to a fair, affordable electricity supply is a prerequisite for any meaningful entrepreneurial development in Africa (Davidson and Mwakasonda, 2004; Winkler *et al.*, 2011; Onyeji *et al.*, 2012). Electricity institutions in Africa should improve their service delivery to enterprises because their actions or inactions could dramatically affect entrepreneurship development in Africa. This result is unsurprising because most African countries have improved access to electricity

for business and domestic use. However, the political will of African governments is required to extend reliable electricity to individuals in rural areas, where most micro and small businesses are located.

Good governance is another important variable for entrepreneurship development in Africa. The relationship between governance and entrepreneurship development was found to be positive and significant at the 5% level (p = 0.006, β = 0.033). This result implies that a unit increase in good governance in Africa would lead to 3.3% growth in entrepreneurship. There is growing interest in democratic governance in almost all African countries. In countries with democratic governance, entrepreneurs are able to fully exploit opportunities without restriction. Such an environment leads to enterprise growth and, ultimately, entrepreneurial development. Good political governance is a prerequisite for the development of entrepreneurial opportunities and MSME growth (Alence, 2004). Hence, the GEI scores for Botswana (34.4%), South Africa (32.6%), Ghana (22.0%) and Nigeria (19.9%), all of which seem to have stable democratic governance, are higher than the GEI scores for war-torn African countries such as Cote d'Ivoire (17.0%), Burundi (11.0%) and Sierra Leone (11.0%), whose GEI scores are below the average of 19.1% (Acs *et al.*, 2017).

Contract enforcement was found to be partially significant at the 10% level (p = 0.059, β = 0.062). This result implies that a unit increase in contract enforcement in Africa would lead to a 6.2% increase in entrepreneurship. Contract enforcement therefore affects the entrepreneurship ecosystem in Africa. Formal contract enforcement is a challenge in Africa (Macleod, 2007). Institutions such as legal systems that are supposed to enforce contracts in Africa are weak, corrupt and sometimes unavailable. Therefore, contracts remain routinely unenforced (Fafchamps, 1996). In other cases, contract enforcement becomes expensive for the entrepreneur, thereby increasing the cost of business. Fafchamps (1996) argues that contract enforcement in Africa relies primarily on the illegal use of force and coercion. In most cases, courts and police are bribed to enforce contracts. Institutional void therefore contributes to the ineffective contract enforcement in Africa.

In summary, the findings from this study imply that there has been a considerable improvement in electricity provision, good governance and contract enforcement across Africa. However, accessing credit for entrepreneurship development in Africa is still a challenge. Most financial institutions overlook smaller enterprises and instead focus on big

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businesses that can provide the required collateral for their loans. State institutions such as courts, police forces and other legal institutions that supposedly enforce contracts in Africa are currently ineffective. These institutions undermine their integrity through bribery and corruption.

Research limitations, implications and future research direction

A lack of GEI data for all 54 African countries limited this study to 35 African countries (31 in sub-Saharan Africa and 4 in North Africa). Therefore, generalisations of our findings to the whole of Africa might be limited. In addition, the study used secondary data. An index was used to analyse the way access to credit, access to electricity, contract enforcement and quality of political governance related to the development of entrepreneurship in Africa. The model used in this study is also parsimonious in the sense that much more predictors could have been explored.

This study has implications for practice. First, African governments need to provide a sound institutional environment in terms of access to credit, affordable electricity supply, good political governance and effective enforcement of business contracts. Doing so will provide the necessary support to develop entrepreneurship in Africa. Second, African governments should consider embracing alternative renewable energy sources such as biomass and biogas to supplement electricity provision in locations where supply is still insufficient. The implementation of contract enforcement laws must be reconsidered. African institutions that enforce contracts should be seen to work effectively to support business growth. African governments are also expected to endeavour to improve their democratic credentials to increase entrepreneurs' confidence and FDI. Finally, the following policy recommendations could help entrepreneurial development in Africa: the provision of venture capital funds, tax-based incentives, protection for proprietary ideas and innovations, investment in education and research, recognition and support for entrepreneurship by government institutions, provision of communication networks, and transport infrastructure (Gnyawali and Fogel, 1994).

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Conclusion

This paper investigates the effect of credit, electricity, governance and contract enforcement on the quality and depth of the entrepreneurship ecosystem in Africa. The findings indicate that access to credit currently fails to support entrepreneurship development in Africa. Financial inclusiveness and credit control would yield positive outcomes. Contract enforcement, electricity provision and governance would contribute to the development of the entrepreneurship ecosystem in Africa. This study contributes to the entrepreneurship literature, particularly the literature that focuses on Africa, where institutions that supposedly support entrepreneurship development are either weak or non-existent. This study also contributes to the entrepreneurial capital literature by showing that focusing on access to critical resources such as credit, electricity, contract enforcement and good governance is critical for the development of entrepreneurship in Africa.

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Figure I: A hypothesised model of critical resources for entrepreneurship development in Africa

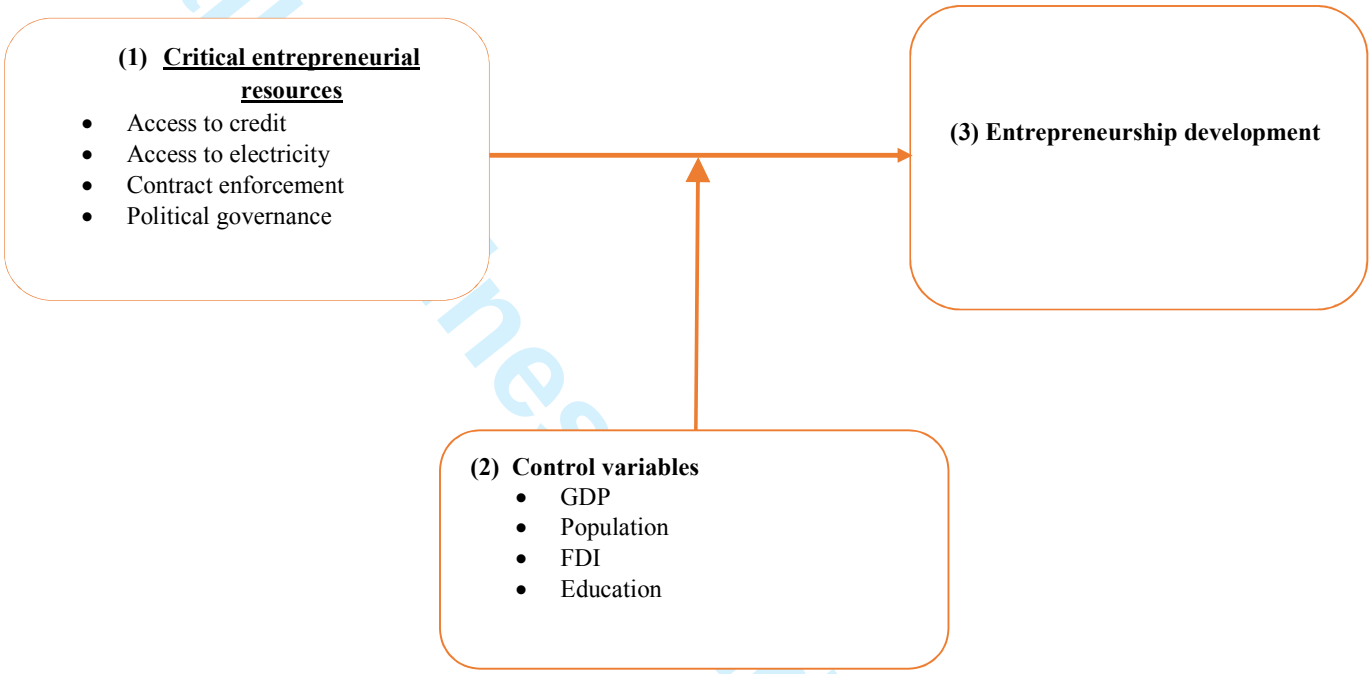

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Table I: Summary of data sources and variables

Indicator	Unit	Data sources
GEDI	Index	GEDI, 2017
Access to credit	Index	World Bank, 2017
Access to electricity	Index	World Bank, 2017
Contract enforcement	Index	World Bank, 2017
Governance	Index	IIAG, 2016
Population	Millions	UNCTAD, 2017
GDP	$	UNCTAD, 2015*
FDI	$	UNCTAD, 2015*
Education development	Index	UNESCO, 2015*

***These are the most recent data available**

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Table II: Summary of descriptive statistics

Variable	Obs.	Mean	Std. Dev.
GEI Index	35	18.74286	7.445262
Access to credit	35	40.28571	21.85994
Access to electricity	35	50.59714	15.33799
Contract enforcement	35	48.57971	9.938147
Quality of political governance	35	52.74	9.6862
Foreign direct investment	35	1335.2	1923.996
Gross domestic product	35	53725.17	88420.39
Quality of education	35	0.7791714	0.781554
Population	35	29313.76	37155.46

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Table III: Regression analysis of GEDI and critical entrepreneurship resources in Africa

	GEDI					
	Model 1			Model 2		
	ß	**Std. error**	**Sig.(*p*)**	***ß***	**Std. error**	**Sig.(*p*)**
Access to credit				0.004	0.047	0.992
Access to electricity				0.077**	0.070	0.004
Contract enforcement				0.062*	0.104	0.059
Political governance				0.033**	0.107	0.006
Foreign direct investment	-0.005	0.006	0.396	-0.010*	0.000	0.079
Gross domestic product	0.000**	0.000	0.002	0.000**	0.000	0.003
Education	0.070****	1.709	0.000	0.044	1.576	0.839
Population	-0.001**	0.000	0.014	-0.049*	0.000	0.094
N	35			35		
R^2	0.924			0.962		
Adjusted R^2	0.915			0.951		
F change	95.42			85.92		

Note: *p<0.1;**p<0.05;***p<0.01

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Appendix

Table IV: Description of dependent variables

Sub-Indices	Pillar	Description	Variables
Attitudes	Pillar 1: Opportunity perception	Opportunity perception refers to entrepreneurial opportunity potential of population and this weighs against freedom of a country and property rights	Opportunity recognition, freedom of economic and property rights
	Pillar 2: Start-up skills	Start-up skill captures perception of start-up skills in population and weighs against quality of education	Skill perception, tertiary education and quality of education
	Pillar 3: Risk acceptance	Risk acceptance captures inhibiting effect of fear, failure of population on entrepreneurial action combined with a measure of country's risk	Risk perception, country risk
	Pillar 4; Networking	Combines two aspects of networking: (1) a proxy of ability of potential and active entrepreneurs to access and mobilise opportunities and resources and (2) ease of access to reach each other	Know entrepreneurs, agglomeration urbanisation, and infrastructure
	Pillar 5: Cultural support	Cultural support pillar combines how positive a country's inhabitants view entrepreneurs in terms of status and career choice and how level of corruption in that country affects this view	Career status, corruption
Abilities	Pillar 6: Opportunity start-up	Individuals pursue potentially better-quality opportunity-driven start-ups weighing against joint effect of taxation and government services quality	Opportunity motivation, Governance, Taxation, good governance
	Pillar 7: Technology absorption	This pillar reflects technology intensity of start-up activity combined with capacity for firm-level technology absorption	Technology level, technology absorption
	Pillar 8: Human capital	Focus on quality of entrepreneurs as weighing percentage of start-ups by individuals with higher than secondary education with a qualitative measure of propensity of firms to train staff combined with freedom of labour market	Educational level, labour market, staff training, labour freedom
	Pillar 9: Competition	Measures product or market uniqueness of start-ups combined with market power of existing businesses and business groups as well as with effectiveness of competitive regulation	Competitors, Competitiveness, market dominance, regulation
Aspiration	Pillar 10: Product innovation	Captures tendency of entrepreneurial firms to create new products weighed by technology transfer capacity of a country	New product, technology transfer
	Pillar 11: Process innovation	Captures use of new technologies by start-ups combined with gross domestic expenditure on R&D and country potential to conduct applied research	New technology with average quality of scientific institutions, scientists and engineers
	Pillar 12: High growth	Measure of (1) percentage of high-growth businesses that intend to employ at least 10 people and plan to grow more than 50% in five years (2) availability of venture capital and (3) business strategy sophistication	Gazelle Finance and strategy, venture capital and business sophistication
	Pillar 13 Internationalisation	Captures degree to which a country's entrepreneurs are internationalised as measured by businesses' exporting potential weighted by level of economic complexity of the country	Export Economic complexity
	Pillar 14: Risk capital	Combines two measures of finance: informal investment in start-ups and a measure of the depth of capital market. Availability of risk capital is to fulfil growth aspirations	Informal investment, Depth of capital market

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Table V: Description of independent variables

Index	Description	Variables
Access to credit	Measures legal rights of borrowers and lenders with respect to secure transactions and reporting of credit information through credit reporting service providers such as credit bureaus and credit registries	Strength of legal rights, depth of credit information, credit bureau coverage, credit registry coverage
Access to electricity	All procedures necessary for a business to obtain a permanent electricity connection and supply for a standardised warehouse. These procedures include applications and contracts with electricity utilities, all necessary inspections and clearances from distribution utility and other agencies, and external and final connection works	Procedures to obtain electricity, time required to complete each procedure, cost required to complete each procedure, reliability of supply and transparent tariff, price of electricity
Contract enforcement	Measures time and cost for resolving a commercial dispute through a local first-instance court and quality of judicial processes, evaluating whether each economy has adopted a series of best practices that promote quality and efficiency in the court system	Time required to enforce a contract through court, cost required to enforce a contract through courts
Quality of politics and governance	Provision of political, social and economic goods that citizens have rights to expect from state and that state has responsibility to deliver to citizens	Safety and rule of law, participation and human rights, human development, sustainable economic opportunity

Table VI: Description of control variables

Index	Description	Variables
FDI	Measures level of foreign direct investment into various African enterprises	Level of foreign direct investment
GDP	Measures growth of gross domestic product of African countries	Growth of gross domestic product
Population	Measures growth of African population	Population growth
Education development	Measures four easily quantifiable goals: universal primary education, adult literacy, quality of education and gender parity and equality	Primary adjusted net enrolment ratio, adult literacy rate, survival rate to grade 5, gender parity indices of gross enrolment ratio

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