

Institutional Quality and Entrepreneurship Development in Africa: New Evidence from Africa

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Abstract: Extant literature depict institutional framework of a nation as main determinant of its entrepreneurial outcome. This study seeks to contribute to advancing institutional theory and its application in entrepreneurship. Specifically, the study answers the question “how does changes in institutional quality explain entrepreneurship in Africa. The study uses panel data from trusted secondary source like the UNDP, Transparency International, The Worldwide Governance Indicators (WGI) etc. The data is analysed using pooled OLS, Fixed effect. Our study revealed that 32% of the variations in entrepreneurship are caused by changes in institutional quality. Specifically corruption and absence of voice and accountability have negative and significant relationship with entrepreneurship. African countries need to improve on their legislation as a means of promoting entrepreneurship. Entrepreneurship will only flourish in a enabling environment of economic freedom.

Keywords: Entrepreneurship, Institutional Quality

1. Introduction

Entrepreneurship affect economic and non-economic conditions of a nation (Dimovski, Znidarsic & Penger 2006) and the interaction between institutions and entrepreneurship is essential determinant of economic conditions of a nation (Elert & Henrikson, 2017). Extant literature depict entrepreneurship as an engine of economic growth (Schumpeter 1911; Khosii 2010; Parker 2005; Gerlach 2014; Audretsch, 2007). This is because entrepreneurship fosters job creation, increases wealth and income (Venkataraman, 1997), and ultimately help to connect local economies to the larger global economy (Henderson, 2002). For entrepreneurship to perform the role of an engine of growth, the existing institutions have to enable entrepreneurship (Bosma, Content, Sanders, & Stam, 2018; Stack, 1978) such as shaping human interaction (North, 1990; Huntington 1993), and regulating social order, (Bruinshoofd 2016) in a nation.

An avalanche of persons around the globe especially youths are willing to start new ventures (Bull & Gary, 1993). In doing so, they must align their activities and strategies to fit the opportunities and constraints provided by the institutional framework governing entrepreneurship (Aidis & Estrin, 2013; Elert & Henrikson, 2017). These institutions act as hub of interlocked organizations and rules that serve to coordinate and constraint behaviour (Little, 2008). Institutions governs the behaviour of individuals within a group through constraints and enablement (Schimid, 2004). Institutions enforce laws, guarantee the maximization in tax revenue, and check corrupt behaviour thereby improving efficiency in the delivery of service (Little, 2008). An efficient institutional framework can reduce the

fear of failure(Johnson, 2013) and guarantee the creation of payoffs to make the entrepreneurial opportunities attractive (Boettke &Coyne, 2009). For instance, institutional quality variables of property right, state sector and financial sector directs entrepreneurial activity (Baumol, 1990), just as much as institutional quality variables of political freedom, competition and education (Dheer, 2017). These institutions as we know are not chosen most of the time in the common interest of society but imposed by groups with political power for their economic gains (Acemoglu, Johnson & Robinson, 2005). These institutional qualities variables can further be split into tax policy, business regulations, fair and balanced judicial system(Sobel, 2008).The enduring institutional, political and social features in any nation, shape entrepreneurial behaviour but cannot be changed easily or instantly, (Waylen, 2014).When the rights of the minority shareholders is not properly protected it affects the performance of the firm (Peng & Jiang 2010 and Jiang & Peng 2011). Hence any improvements in institution quality such as property rights, business freedom, fiscal freedom; labour freedom financial capital, educational capital, benefits opportunity driven entrepreneurship and damages necessity-driven entrepreneurship, (Fuentelsaz et al, 2014).In all the existence of high-quality institutions in a country raises the probability of the effective usage of foreign aid(Dollar & Levin 2005) while bad institutions increases net returns to a non-productive entrepreneurial activity (Sobel, 2008)

Entrepreneurship scholars such as Estrin et al., (2013; and Stenholm et al., (2013) and institutional economists like North, (1990); Baumol, (1990); Sobel, (2008) have also argued that institutions can play an important role in driving entrepreneurial activities. Galang (2012), Zhu et al. (2012) Ahn and York (2011); and Schneider et al. (2010) furtherexplained that efficiency in government institutions, coupled with strong legal, educational and financial institutions improve technological development and innovation. This is possible according to them only when these institutions reduce barriers to innovation. Another school of taught advocated by Lee et al. (2011); Stephan and Uhlander (2010); and Peng et al. (2010) argues that institutions with a high human orientation and assertiveness imbedded with entrepreneurship-friendly laws favours the growth of entrepreneurship in a nation. Aidis(2017) explains that entrepreneurial activities will only flourish in conducive conditions of entrepreneurship that include but are not limited to property rights, a functioning free market and good governance. This brings to fore Williamson (2009) phrase “Getting the institutions right” which seeks to explain a body of literature that demonstrates that institutions matter in shaping economic outcomes, What this means according to Chiles et al., (2007)is that the institutional framework of any nation has a major effect on the nurture and nature of its entrepreneurial activities.

Another area of research interest on the link between institutions and entrepreneurship has been to explain how institutions improve innovation. For instance, Galang (2012), Zhu et al. (2012) Ahn and York (2011); and Schneider et al. (2010), have shown that efficiency of government institutions, coupled with strong legal, educational and financial institutions improve technological development and innovation. This is possible following their view only when these institutions reduce barriers to innovation. Institutions with a high human orientation and assertiveness imbedded with entrepreneurship-friendly laws favour the growth of entrepreneurship in a nation (Lee et al. 2011; Stephan & Uhlander 2010; and Peng et al. 2010).

Entrepreneurs are constrained to act within the rules of the game as determined by the existing institutions (Aidis & Estrin 2013). These rules of the game create payoff that make certain entrepreneurial activities more attractive than others (Boettke & Conye 2009). Efficient allocation of resources, reduces productivity and retard economic growth and recovery (Karlsson & Acs 2001). Despite the increasing understanding of the relationship between institutional quality and entrepreneurial outcomes in recent years. Given the amoebic nature of entrepreneurship in different context, couple with that fact that the continents of Africa is littered with informal entrepreneurial activities it becomes imperative to examine the nature of the relation between informal entrepreneurship and institutional quality in Africa.

2. Literature Review

The phrase “institutional quality” is made up of two words; institutions and quality. In order to understand the phrase therefore, there is a need to start by examining the two terms in isolation before bringing out their combined meaning in literature in the field of economics. The original use of the term institutions can be credited to Verblen (1891) who defined institutions as the structure and mechanism of social order. The use of the term institution is very common in social sciences (Hodgson 2006) yet interpreted differently. The expanded notion of institution includes norms, rules and constraints devised by man to reduce uncertainty and control the environment. Examples are (i) written rules and agreements that govern contractual relationships and the governance of corporations (ii) constitutional laws and rules that govern politics, government, finance and society in general and (iii) unwritten codes of conducts, norms of behaviour and beliefs (Menard & Shirley 2008). In another dimension, institutions are made up of rules and organizations designed specifically to guide human action (Islam, 2018). Furthermore, institutions are social rules and structures of social interactions that are established and prevalent in a community or group (Hodgson, 2006).

In economics, for example, institutions are man-made constraints that structure the political, economic and social interaction between agents. These constraints comprise formal and informal rules that limit the behaviour of economic agents. The formal constraints include the constitution, laws and property rights while the informal constraints are sanctions, customs, traditions, taboos and codes of conduct (North, 1990). Informal institutions are by nature private constraints (Williamson, 2009), that matter in development. They range from bureaucratic and legislative norms to clientelism and patrimonialism, influence political behaviours and outcomes (Helmke & Levitsky, 2004). Informal rules are in general socially-sanctioned norms of behaviour inbuilt with self-enforcing mechanisms of obligation, expectation of reciprocity, gossip, shunning, boycotting, shamming, threats and the use of violence, (De Soysa, & Jütting, 2007).

The term institutional quality according to Bruinshoofd (2016) comprises seven key dimensions that includes voice and accountability, political stability and the absence of violence, government effectiveness, regulatory quality, rule of law, control of corruption; and ease of doing business. The interlink between the seven dimensions is shown in the form of a cobweb as displayed in figure 2.1.

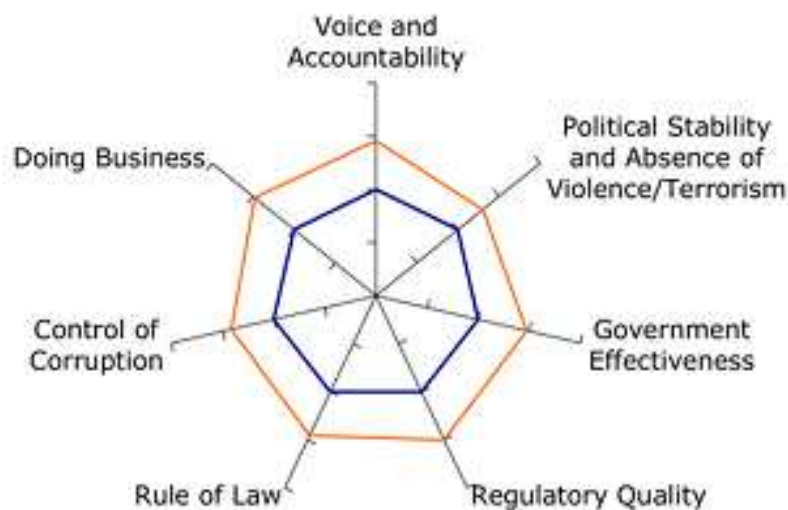


Figure 2.1: The European Institutional Quality Cobweb
Source, World Bank, Rabo bank

Corruption

Corruption at all levels remains one of the biggest challenges in contemporary times because it changes form and scope in different societies and groups, (He, 2003). Corruption has been defined differently by different persons and institutions (Bussell 2015). For instance, corruption according to the European Union Commission is the use of power for private gain. Transparency international on its part defines corruption as the abuse of entrusted power for personal gain.

According to the World Bank, corruption covers a broad spectrum of human actions and measuring corruption remains a complex issue. The most widely and regularly used proxy in social sciences to capture corruption is the Corruption Perception Index (CPI) published annually by Transparency International. The data are publicly available and are specifically designed to capture the institutional characteristics of a market, (Garrido et al., 2014). It is the most comprehensive qualitative indicator of cross-country corruption, (DiRienzo et al., 2007). It measures the perception of international business persons and financial journalists at the level of corruption in the public sectors of respective countries. It takes into consideration the perception of bribery of public officials, kickbacks in public procurements and the effectiveness of anti-corruption efforts of nations. It is employed to analyse the extent to which firms' decisions are influenced by the level of corruption in a nation, (Habib & Zurawicki 2002), and the level of Foreign Direct Investment (FDI) penetration in a country, (Pajunen, 2008).

The rule of law is another element in the Bruinshoofd cobweb of institutional quality. Choi (2019) defines the rule of law as the mechanism, practice, institution, process or norm that supports equality before the law, prevents the arbitrary use of power, and is a nonarbitrary form of government. The rule of law project on its part, defines the rule of law as a durable system of laws, institutions and community commitment that delivers four universal principles of (i) accountability (i.e. that private people and governments are accountable under the law) (ii) Just Laws (this requires the laws to be clear, publicized and stable, and applied evenly to protect fundamental rights such as the security of persons and contracts, human right and property), (iii) Open Government (fairness, accessibility and efficiency in the process of enacting laws, administering and enforcing them) and (iv) Accessible and impartial Dispute Resolution (this ensures the timely delivery of justice by competent, ethical and independent representatives and neutral persons. They should have adequate resources and reflect the sociological composition of the community that they serve).

Anan (2004) defines the rule of law as a principle of governance in which all persons are accountable to the laws that are publicly promulgated, independently adjudicated and equally enforced and which are consistent with international human right norms and standards. What this means is that the rule of law should enforce justice with equality. Haggard, & Tiede, (2011) suggested that the rule of law should guarantee the security of persons and property, act as checks on the government and control corruption. Hence advancing rule of law at the national level is essential to inclusive growth, sustained development, and the eradication of poverty.

Next to the rule of law in Bruinshoofd cobweb of institutional quality is regulatory quality. It is worthy of note that better regulation provides a focus on efficiency that goes beyond efficiency. They equally facilitate the process of economic growth, the attainment of social welfare and the protection of the environment. Regulatory quality, therefore, measures the perception of the ability of government to formulate and implement sound policies and regulations that permit and promote private sector development (OECD, 2015). Regulatory quality is also looked upon as the extent to which impact assessment, consultation, simplification and access are embedded in the wider regulatory policy process, (Radaelli, & Fransceso, 2004).

Government effectiveness is another component of Bruinshoofd's cobweb of institutional quality variables. This variable according to a World Bank definition depicts the perception of the quality of public services, the degree of its independence from political pressure, the quality of policy and civil service, the quality of policy formulation and implementation and the credibility of government commitment to its policies. Government effectiveness is determined by some factors

Entrepreneurs are strategic thinkers whose efforts end in the introduction of new goods, original methods of production, the opening up of new markets, and the introduction of new sources of supply or industrial re-organization, and distribution (Jennings, 1994). Entrepreneurship can take the form of (i) Buying low and selling high, (ii) the discovery and diffusion of lower-cost technology in production, (iii) the introduction of new products, (iv) learning how to better deliver goods and services to customers at lower costs, and (v) the creation of new opportunities to alert potential buyers of the availability and desirability of new products (Boettke & Coyne, 2009).

Since the introduction of the term entrepreneurship to describe who buys the means of production and combines them to finish good in the 18th century, by the French economist Richard Cantillon, Economists are still to agree on the nature, drives and constitution of entrepreneurship. According to Cantillon, entrepreneurs are those who undertake to bear and overcome uncertainty while hoping for a return after investing, and paying expenses. J.B Say expands the function of entrepreneurs to include leadership. In Say's opinion, an entrepreneur is a person who brings other people together with the purpose of building a production system (Schumpeter, 1951). The French economist described entrepreneurship as the function that organizes the other factors of production, while the British economist in the light of Adam Smith, David Ricardo and JS Mill baptised entrepreneurship as "business Management". Smith and Ricardo suggested that the importance of entrepreneurship was likely undervalued. On his part Mill's focus was on the contribution of entrepreneurship to economic growth, (Schumpeter, 1951).

The stipulation of entrepreneurship as a fourth factor of production was first echoed by Alfred Marshall in 1890. Schumpeter (1947) introduced the concept of innovation to entrepreneurship in the 20th century, describing entrepreneurs as innovators who drive change in the economy by serving new markets or creating new ways of doing things. He argued that the essence of entrepreneurial activities lay in the creation of new combinations that disrupt the competitive equilibrium of existing markets, products, processes and the organization. Drucker expanded this by emphasising opportunities as an entrepreneurial drive. In Drucker's opinion, in turbulent times such as recession, innovation is critical since socio-demographic shifts provide opportunities. Hence he held the view that innovation, resources and entrepreneurial behaviours are fundamental to entrepreneurship.

Several decades after an intensive study of the phenomena of entrepreneurship, researchers are yet to come to a consensus on the types, characteristics and importance of entrepreneurship as well as the process thereby bringing to the fore the complexity of this field of study, (Blenker et al, 2006). To further expand on the complexity of arriving at an acceptable definition of entrepreneurship, some authors have identified entrepreneurship with its function of uncertainty bearing, others with the coordination function, others as innovators and others as persons who provide capital (Kirzner, 1983). The literature on entrepreneurship studies can be summarized under three main headings; these include value creation, opportunity exploitation and business growth maximization.

The goods and services consumed in our society must be created before taken to the market. Entrepreneurs play an instrumental role in the value creation process. Say, (1803) considered an entrepreneur as a person who shifts resources from an area of low productivity to an area of high productivity. To Cole (1968), entrepreneurship represents the utilization of one or another productive factor to create an economic good. What is noticeable from this definition is that entrepreneurs are profit seeking agents who produce goods and services to make profit and in this process create value

for themselves and the community. Gartner (1988), does not look at entrepreneur (that is the person) but pay attention to entrepreneurship that is the process. As such he defines entrepreneurship as the creation of organizations.

Appropriate institutions facilitates business opportunity identification, new business start-up, innovation growth and new product development. Institutional theories on their part have explained how regulations, social and cultural norms promote the survival and legitimacy of organizations (Roy, 1997). Entrepreneurial actions are regulated by formal and informal rules of the game (Boettke & Coyne, 2009), and this influences the allocation of different types of entrepreneurship (Baumol, 1990). Drawing from North's (1990) distinction of institutions as formal and informal rules of the game that govern behaviour and restrict actions, literature relating to institutions and entrepreneurship have identified some formal institutional factors such as governance, economic freedom, property right and financial capital, regulations of entry and control of corruption as key institutional factors linking institutions with entrepreneurship. Meanwhile, the informal institutions also include the trait or character of the entrepreneur, entrepreneurial intention, the social dimension of entrepreneurship, culture to mention but these. In this regard, Reynold, Hay & Camp (1999) have put up a general framework to assess the main empirical relationship between institutions and entrepreneurship. The framework sprouts from the argument that national economic growth is a function of activities associated with major established firms and activities directly related to the entrepreneurial process and that these activities are interrelated.

3. Materials and Methods

This is a deductive study which intends to capture how one economic variable affects another across time in difference countries. It adopts a prospective cohort longitudinal study design (Panel Data) to capture how institutional quality explain fluctuations in entrepreneurship. The choice of model is motivated by the fact that panel data allows for the use of variables that change over time but not across entities. Further, panel data accounts for individual heterogeneity and generates a more accurate prediction for individual outcomes by pooling the data on the individuals in question. It also allows one to learn the behaviour of an individual by observing the behaviour of others (Hsiao et al., 1993, 1998). This study design is suitable for the study since the countries under investigation are different in terms of levels of economic development, geography and levels of endowment. In addition, the variables of the study are collected over time. The prospective cohort longitudinal study design allows for the examination of multiple effects of a single variable in this case, institutional quality. A general framework for studying institutions is to look at institutions as the rules of the games that restraint behaviour, (North 1990). We argue that variations in entrepreneurship in countries and across time are shaped by the institutional framework of the country.

The study area for this paper is the African continent. The continent has 54 countries divided into eight regional economic communities recognized by the African Union. Furthermore, the continent is culturally very diverse with each country as well as regions of one country having their own unique culture. The countries under consideration for this study were selected first in a way as to represent the respective regions and secondly, based on the availability of secondary data. The countries include: Cameroon, Ethiopia, Ghana, Madagascar, Malawi, Nigeria, Senegal, South Africa, Uganda and Zambia.

The data for dependent, independent and control variables in this study were collected from trusted and reliable databases that have been used in over three thousand publications worldwide. Institutional quality in the study is captured by the Corruption Perception Index (CPI) and the data are collected from the website of Transparency International. The index has been published annually since 1995. It is used to rank countries by their perceived levels of corruption as determined by expert and business people. It is perhaps the most widely recognized measure of corruption, (Gilman,

2018) that measures the misuse of public power for private benefits. It measures corruption on a scale of 0 to 100, where 0 is highly corrupt and 100 is very clean. Delia Ferrira Rubio, chair of Transparency International has noted that “*Corruption is likely to flourish where democratic foundation (institutions) are weak*”. The Corruption Perception index has also been used in researches that explain policy or administrative issues in different fields of study.

The dependent variable for this study is entrepreneurship measured by self-employment rate of the countries under consideration. This is consistent with Acs et al, 1994; OECD, 1998; Le, 1999; Parker and Robson, 2004. The measure of entrepreneurship using self-employment is compatible with entrepreneurship theories of Knight (1971) and Kirzner (1973) that consider entrepreneurs as uncertainty bearer and finders of business opportunities. Although the definition of entrepreneurship as self-employment is not compatible with Schumpeterian definition of entrepreneurs as innovators it remains an extensively used indicator of entrepreneurship owing to the availability of data for most countries and partly due to the comparability across countries (Iversen et al, 2008). To test the robustness of our findings we run the model using Self-employment rate as dependent variable.

Table 1: Variables Employed in the Panel Data Analysis

| Name | Definition | Source |
|-------------------------|---|---|
| Entrepreneurship | Entrepreneurship is the dependent variable in the model. It is captured by self-employment rate of the country | |
| Human Development (HDI) | Human Development Index measures achievement in the basic dimensions of human development across countries. It is a statistic composite index measured on three variables (life expectancy index, education index and GNI index). It is used to measure a country's overall achievement in its social and economic dimensions and to classify countries into three development groups; low human development for countries with a HDI score between 0.0 to 0.5; Medium human development defines countries with a HDI score ranging between 0.5 to 0.8 and; high human development for countries with scores ranging from 0.8 to 1.0. | United Nations Development Program (UNDP) |
| Corruption (CPI) | Corruption measures the extent to which international businessmen and financial journalist perceive corruption in the public sector of a given country. It is depicted by the Corruption perception index which measures the level of corruption in public sector of country. The index values range from 0 very clean to 100 meaning highly corrupt | Transparency International |

| | | |
|---|--|---|
| Economic Freedom (ECF) | The measurement of economic freedom is based on 12 quantitative and qualitative factors, grouped into four broad categories, or pillars, of economic freedom: Rule of Law Government Size, Regulatory Efficiency and Open Markets. The index is calculated on a scale of 0 to 100. A higher value means the country is economically free. A country's overall score is derived by averaging these twelve economic freedoms, with equal weight being given to each. | Heritage Foundation |
| Voice and Accountability (VAC) | Voice and accountability reflects perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media. Estimate of governance (ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance) | The Worldwide Governance Indicators (WGI) |
| Political Stability and Absence of Violence/Terrorism (POT) | Political Stability and Absence of Violence/Terrorism measures perceptions of the likelihood of political instability and/or politically-motivated violence, including terrorism. Estimate of governance (ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance) | The Worldwide Governance Indicators (WGI) |
| Government Effectiveness (GOE) | Reflects perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy. Estimate of governance (ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance) | The Worldwide Governance Indicators (WGI) |
| Regulatory Quality (REQ) | It reflects perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. Estimate of governance (ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance) | The Worldwide Governance Indicators (WGI) |
| Rule of Law (RUL) | This reflects perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. Estimate of governance (ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance) | The Worldwide Governance Indicators (WGI) |

| | | |
|---|--|-----|
| Mobile cellular telephone subscriptions (MCS) | These are subscriptions to a public mobile telephone service that provide access to the PSTN using cellular technology. The indicator includes (and is split into) the number of postpaid subscriptions, and the number of active prepaid accounts (i.e. that have been used during the last three months). The indicator applies to all mobile cellular subscriptions that offer voice communications. It excludes subscriptions via data cards or USB modems, subscriptions to public mobile data services, private trunked mobile radio, telepoint, radio paging and telemetry services | WDI |
|---|--|-----|

Source: Research Results

North (1990, 2005) noted that institutional quality and institutional frameworks affect economic and social development. Meanwhile Boettke and Coybe (2009), have explained the mechanism by which institutions develop and concluded that institutions create payoffs that make certain entrepreneurial opportunities more attractive than others. The institutional quality variables reflected in the model are Corruption Perception Index (CPI), Economic Freedom (ECF), Voice and Accountability (VAC), Political Stability and Absence of Violence/Terrorism (POT), Government Effectiveness (GOE), Regulatory Quality (REQ) and Rule of Law (RUL). Economic control variables include; Mobile Cellular Subscriptions (MCS) and Human Development (HDI)

$$ENT_{it} = \beta_0 + \beta_1 CPI_{it} + \beta_2 ECF_{it} + \beta_3 POL_{it} + \beta_4 HDI_{i,t-1} + \beta_5 MOM_{it} + \beta_6 VAC_{it} + \beta_7 POT_{it} + \beta_8 GOE_{it} + \beta_9 REQ_{it} + \beta_{10} RUL_{it} + e_{it} \dots \dots \dots (1)$$

Where i and t denote the country and year for each variable. Following extant literature on the determinants of entrepreneurship, Human development is lagged one year to clarify the causality relationship. β_0 is a constant that determine how entrepreneurship will change without a change in any of the explanatory variables. β_1 to β_{10} are the respective coefficients of determination. From apriori they are all expected to be negative

This study employed the Pairwise Correlation, the Panel unit **root** test, the Pooled Ordinary least square regression model (OLS) as benchmark. Next we draw on the panel fixed effect (FE) model. In the first instance, we present descriptive statistics of mean, minimum, maximum, standard deviation, to summarize the characteristics of the data used in the study. Next, a pairwise correlation is used to compare the main variables in pairs to judge if the two variables are identical. This study considers correlation coefficients of less than or equal to 0.6. This is because they are nontrivial and will likely display an important relationship between the main variables in the study.

The, Im Pesaran and Shin (IPS hereafter) which is based on the well-known Dickey-Fuller procedure. The ISP (2003) test the null hypothesis that all the panels are trend stationary. It has the advantage that it allows for unbalanced panels. The IPS proposed a tests for the presence of unit roots in panel that combine information from the time series dimension with that from the cross section dimension such that fewer observations are required for the test to have power. Given that the IPS test has superior test power to analyse long-run relationships in panel data according to researchers in economics, this procedure was employed in this study.

The fixed-effect general specification can be described by the following equation

$$ENT_{i,t} = \alpha_i + \beta X_{i,t} + \varepsilon_{i,t} \dots \dots \dots (2)$$

Where $ENT_{i,t}$ is the dependent variable observed for country i at time t . $X_{i,t}$ is the time-variant regressor matrix, β_i represents an unknown country-specific constant (the “fixed effect”) and $\varepsilon_{i,t}$ is

the Stochastic error term. The Hausman test was used to check the appropriateness of the fixed effect panel data estimation,

4. Results and Discussion

A. Descriptive Statistics and Correlation

Table 2 shows the descriptive statistics for the full unbalanced panel dataset with ten countries and 190 country-time observations. The standard deviation for entrepreneurship is 14.13 indicating how diverse our sample is with respect to number of registered companies. Mobile cellular subscription has a standard deviation of 40.6 also indicating the diverse nature of the number of mobile cellular subscribers in the continent.

Table 2: Descriptive Statistics

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|------------------------------|-----|--------|-----------|-------|--------|
| Entrepreneurship | 190 | 69.846 | 24.26 | 14.13 | 91.21 |
| Human Development | 190 | 49.889 | 7.828 | 29.8 | 70.9 |
| Corruption | 190 | 31.174 | 8.137 | 10 | 51 |
| Mobile Cellular Subscription | 190 | 46.249 | 40.649 | .04 | 158.88 |
| Economic Freedom | 180 | 57.146 | 4.323 | 48.4 | 67.1 |
| Voice and Accountability | 180 | -.343 | .6 | -1.44 | .72 |
| Political Stability | 180 | -.558 | .725 | -2.21 | .66 |
| Government Effectiveness | 180 | -.514 | .445 | -1.3 | .69 |
| Regulatory Quality | 180 | -.44 | .45 | -1.35 | .8 |
| Rule of Law | 180 | -.465 | .434 | -1.43 | .26 |

Source: Research Results

The variables (ie Voice and Accountability, Political stability, Government effectiveness, regulatory quality and rule of law) have standard deviation less than one. This indicates that the sample countries are very closed together in terms of institutional quality.

Table 3 presents the correlation matrix of the dependent and independent variables. Entrepreneurship has an average inverse relationship with all the independent variables in the model while the independent variables have a positive correlation between them. This is expected since they all measure institutional quality. Corruption has a very high positive correlations with voice and accountability indicating that corruption flourishes when there is no government accountability. The pairwise correlation also show strong positive correlation between government effectiveness, regulatory quality, and rule of law corruption. The negative correlation between the dependent and the independent variables is in line with the apriori expectation that bad institutions deter the growth of entrepreneurial activities.

Table 3: Matrix of correlations

| Variables | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
|-----------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| (1) ent | 1.000 | | | | | | | | | |
| (2) hdi | -0.420 | 1.000 | | | | | | | | |
| (3) cpi | -0.544 | 0.611 | 1.000 | | | | | | | |
| (4) msc | -0.390 | 0.809 | 0.644 | 1.000 | | | | | | |
| (5) ecf | -0.246 | 0.539 | 0.473 | 0.328 | 1.000 | | | | | |
| (6) vac | -0.564 | 0.611 | 0.755 | 0.523 | 0.592 | 1.000 | | | | |
| (7) pot | -0.409 | 0.335 | 0.506 | 0.190 | 0.322 | 0.653 | 1.000 | | | |
| (8) goe | -0.588 | 0.519 | 0.763 | 0.395 | 0.525 | 0.736 | 0.425 | 1.000 | | |
| (9) req | -0.535 | 0.607 | 0.706 | 0.469 | 0.797 | 0.812 | 0.512 | 0.835 | 1.000 | |
| (10) rul | -0.551 | 0.377 | 0.777 | 0.345 | 0.566 | 0.801 | 0.652 | 0.802 | 0.784 | 1.000 |

Source: Research Results

A common assumption in studies which data are collected over time is that the data are stationary. Stationarity remains the best way of modelling the dependence structure. Also, tools used in panel analysis and forecasting assume stationarity. . Using a non-stationary variable in a model might lead to spurious regressions (Granger & Newbold, 1977). It is therefore necessary to check if data are stationary before proceeding to estimating the model. The test is usually done at levels and at difference because if variables are non-stationary at level they must usually be stationary at difference, (Ramanathan, 1992). In this study, all variables are tested first at levels and then at difference using a variety of first generation panel unit root tests. These test were chosen because they assume the independence between cross section units. Specifically the tests of Levin, Lin and Chu (2002) (LLC), Im, Pesaran and Shin (2003) (ISP), Breitung (2000) and Hadri (2000) were used. The IPS test is preferable to LLC test because it takes into account the heterogeneity of various section. The IPS test also considers the heterogeneity amongst the sections and eliminates serial correlation and has a strong ability in testing even with small samples. The results shows that all the variables were either stationary at level or at difference.

B. Empirical Results

Table 5 reports the results of the estimation of the effect of institutional quality on entrepreneurship using the pooled OLS. Our results show a positive relationship between economic freedom and entrepreneurship. The other institutional quality variable (ie Voice and accountability, political stability, government effectiveness regulatory quality and rule of law have a negative relationship with entrepreneurship. This is in line with North (1990) findings that institutions structure the economic, political and social interaction in a country and the findings of Bowen and De Clercq (2008) that entrepreneurial activity directed by the quality of the existing institution in a nation.

Table 5: Empirical Results

| Variables | Pooled OLS | Fixed Effect | Random Effect |
|------------------------------|------------|--------------|---------------|
| (1) | (2) | (3) | (4) |
| L. Human Development | -.647 | -.189** | -.647 |
| | (.448) | (.072) | (.448) |
| Corruption | .081 | -.1** | .081 |
| | (.402) | (.044) | (.402) |
| Mobile Cellular Subscription | -.01 | -.05*** | -.01 |
| | (.082) | (.009) | (.082) |
| Economic Freedom | 2.354*** | .208*** | 2.354*** |
| | (.717) | (.075) | (.717) |
| Voice and Accountability | -3.898 | -3.033*** | -3.898 |
| | (5.315) | (.859) | (5.315) |
| Political Stability | -.765 | .766 | -.765 |
| | (3.298) | (.563) | (3.298) |
| Government Effectiveness | -8.241 | -.697 | -8.241 |
| | (8.837) | (1.115) | (8.837) |
| Regulatory Quality | -18.946* | -.254 | -18.946* |
| | (10.366) | (1.082) | (10.366) |
| Rule of Law | -12.921 | -1.417 | -12.921 |
| | (8.798) | (1.147) | (8.798) |
| _cons | -55.173 | 71.021*** | -55.173 |
| | (39.628) | (5.234) | (39.628) |
| Observations | 170 | 170 | 170 |
| Pseudo R ² | .z | .z | .z |

Source: Research Results. Note: Standard errors are in parentheses; *** $p < .01$, ** $p < .05$, * $p < .1$

According to the fixed effect panel model, table 5 a one point increase in the level of corruption is associated with 11% decrease in entrepreneurship. The study reaffirms the popular opinion that corruption exerts a strong negative impact on entrepreneurial activity in the long run. This finding in the current study is in line with that of Bologna and Ross (2015) who suggested that the effect of corruption on entrepreneurial activities becomes larger over time, suggesting an inverse relationship between long-run corruption and the level of economic activity in a country. According to Carraro, et al (2016), Government corruption decreases incentives that if channeled to entrepreneurship can boost entrepreneurial activities. Boudreaux, Nikolaev and Holcombe (2018) have equally explained that corruption ushers in an institutional environment that warrants a gravitation from productive to destructive activities. On the other hand a one point increase in rule of law, regulatory quality and voice and accountability, will bring result to over 100% decrease in entrepreneurship. Our fixed effect results show a negative significant relationship between human development and entrepreneurship.

5. Conclusion

The results ascertained that corruption and voice and accountability exerts significant negative impact on entrepreneurial in African. Hence corruption as perceived by business persons decreases entrepreneurial activity in African. Mobile phones have come to stay in this generation, as more people subscribe to telephone facilities, entrepreneurship decline. African countries need to improve on their legislation as a means of promoting entrepreneurship. Entrepreneurship will only flourish in a enabling environment of economic freedom.

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