

IMPACT OF ICT AND INSTITUTIONAL QUALITY ON THE GROWTH OF SMALL AND MEDIUM SCALE ENTERPRISES IN AFRICA

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Abstract

The paper examines the impact of ICT and institutional quality on SMEs growth in Africa. Using pool OLS technique to estimate a cross-sectional panel data comprising of 43 African countries, the results revealed that institutional quality and ICT exhibit a significant positive impact and a positive but insignificant impact on SMEs growth respectively. The result further revealed that innovation and experience are also important factors necessary for firms' performance in the region. Therefore, the results emanating from the paper is indicative of the fact that technology advancement in itself is not sufficient for the growth of SMEs in Africa but require the existence of a qualitative and effective institution if the opportunities presented by the growth of ICT in term of wider market and reduction in marketing cost is to be optimized.

Keywords: *Institution; ICT; SMEs, Africa; Cross-sectional Panel*

Introduction

The upsurge in the development of information and Communication Technology henceforth refers to (ICT) and its adoption by all spheres of society for all activities clearly revealed that the marginal social benefits of ICT by far outweigh its marginal private benefits, particularly in the business sector. The acceptance of ICT and its exploitation has not only caused a change in existing business structure and ways of communication, but also enhance competitiveness and growth of firms, organisations and countries. As such, most developing economies, including private organisation have made it a matter of priority allocation of a certain percentage of their annual budget to research and development in ICT (Asta & Rimantas, 2014). The competitive enhancing role, plays by ICT and the breaking of barriers in communication has not only improved the performance of large firms but also provide the SMEs opportunity to compete with large firms in their relative markets.

Small and Medium Scale Enterprises (SMEs) occupy an important economic position of most developing countries particularly in Africa. This is predicated on the fact that out of about 35-40 million non-agricultural SMEs in the world, approximately 65 percent (25-30 million) of the total number operates in developing countries, while 3.5 -4.3 million of the 25-30million found in Sub-Saharan Africa (SSA). In terms of its economic importance, SMEs account for more than half of total employment in the region, serve as drivers of economic diversification, source of innovations and hub of labour market dynamics (Ruchira, 2017; Africa Development Bank, 2018).

The adoption of ICT as a means of easing business activities is expected to serve as impetus to the growth of SMEs through enlarging the market, reducing cost of marketing, resource planning and providing SMEs with the opportunity of competing effectively with large firms among others. Ironically, the contribution of SMEs to productivity growth remains low despite being the largest employer of labour. A study carried out by Page & Soderbom (2012) cited by Ruchira, (2017) revealed that firms in Africa with 30 employees were found to have twice as much value added per worker than firms with 5 employees while that of firm with 100 employees tends to triple the productivity of the smaller firms. Therefore, the performance of SMEs in Africa particularly those in SSA remain worrisome despite being the largest employer of labour in the region. Some of the major constraints behind this poor performance have been attributed to finance and institutional problems. For SMEs, political instability and cost of doing business matter more than taxes while lack of property rights and/or their enforceability hinders SMEs from accessing finance required for expansion (Ruchira, 2017). This is evidenced by the result of a recent study carried out by Asma, Diabate and Othman (2015) in Algeria in which legal and regulatory framework and business environments are some of the problems that hampered SMEs performance. Therefore, optimising the growth advantages presented by the availability of ICT, required the existence of effective institutions.

There are several empirical studies on the impact of ICT and investment (Ruchira, 2017; Yao, 2016; Roghieh, Sang-Yong & Almas, 2005) on one hand and on the institution and investment performance (Puruwetti, 2017; Hadhek, 2012; Rick, Ian & Natalia, 2009) on the other. For instance, Ruchira (2017) examines the direct and indirect influence of ICT on SMEs, his theoretical analysis suggests positive impact of ICT on the overall performance while Yao, (2016) concludes that the most significant factors that enhance SMEs growth is access to finance. Therefore, neglecting the complementary role played by institutions in optimising the benefits of ICT. For those on institutions and investment performance, Puruwetti, 2017 empirical study revealed that weak institutions hinder SMEs growth and its overall contribution to the development of Russian economy. The major shortcomings associated with these studies is their inability to capture the joint influence of ICT and institutional quality in a single framework as well as testing for the stability of the positive impact of ICT on SMEs in an environment of weak institution. Therefore, the present study aimed at investigating the joint impact of ICT and institution on SMEs growth in Africa using different measures of firm's growth. This is important, considering the significant roles SMEs play in the economic development of countries, particularly when it comes to employment creation, and serving as a catalyst for structural diversification. Following this introduction, section 2 reviews the relevant literature, section 3 dwells on methodology while section 4 analyses the empirical results and the paper concludes with section 5.

Conceptual Clarification and Literature Review

A one cap fits all Conceptualisation of Small and Medium Scale Enterprises (SMEs) has been a bit difficult due to its heterogeneity in relation to individuals' country. Therefore, SMEs have been conceptualised differently by different individuals and organizations in such a way that an enterprise that is considered small and medium in one country is viewed differently in another country. But for simplification, there has been some common indicators employed in the various definitions include total assets, size of the labor force employed, and annual turnover and capital investments (Baenol, 1994). For instance, World Bank defines SMEs as enterprise with not more than 100 employees and a maximum revenue of 15,000,000. while the African Development Bank conceptualise, SMEs as firm with employees that are not above 50 (Asma, Diabate & Othman, 2015). Institution on the other hand has been conceptualized to be humanly devised constraints

that shape human interaction which can be formal or informal (North 1990). Formal institutions represent laws, rules and regulations, and administrative apparatus that together, organize economic, political, and legal systems. Institutional environment can be unfriendly to entrepreneurial development and can equally serve as a “push” for private entrepreneurship development depending upon its quality and effectiveness.

There are several theories that have been developed to explain factors that are relevant to the firm's growth. Gibrat (1931) developed a theoretical model called law of proportionate effect to measure the relationship between firm growth and its initial size. Gibrat's Law, or the “Law of Proportionate Effect,” states that firm growth is independent of initial size. While the results of some studies concur with Gibrat's Law, especially the early studies (e.g., Hart and Prais, 1956 but recent empirical evidences show that smaller and younger firms grow faster than larger firms (e.g., Pasanen, 2007). Penrose (1959) also developed a theory in explaining the growth of the firm. In her book, *The Theory of the Growth of the Firm*, she claimed that firms have a bundle of internal and external resources that help a firm to grow and to realize a competitive advantage. According to Penrose, firm size is incidental to the growth process, whereas firm growth is determined by the effective and innovative managerial resources within the firm. She further explained that the availability of top managerial and technical talent serves as an engine to a firm's growth.

There are several empirical studies on the factors that influence SMEs growth, for instance, Tarutė and Gatautis (2014) using systematic, logic and comparative analysis to study the impact of ICT on growth in Lithuania, the study revealed that ICT impact positively on the improvement of external and internal communication of enterprises and that for best performances it is important to align ICT investments with internal capabilities and organizational processes. Molz, Tabbaa, and Totskaya (2009) using exploratory field research in St. Petersburg, Russia on the impact of enabling institutional environment and internal firm capabilities in the information technology sector. Their findings revealed that the emerging institutional environment remains weak, unpredictable and unstable, creating challenges for SMEs to contribute to the growth and development of the Russian economy

Lee and Heshmati (2005) also adopted panel data for the period of 1976 to 1999 in Singapore, to investigate the simultaneous causal relationship between investments in information and communication technology (ICT) and flows of foreign direct investment (FDI), with reference to its implications on economic growth. The study revealed that there is a causal relationship running from ICT to FDI in developed countries, indicating that a higher level of ICT investment leads to an increase inflow of FDI.

Bouazza, Ardjouman and Abada (2015) analyse the factors influencing the growth rate of small and medium-sized enterprises (SMEs) in Algeria. The study uses descriptive statistical analysis and finds out that the growth of SMEs in Algeria is hampered by several interrelated factors, such as business environmental factors (that can be likened to institutions) that are beyond the SMEs' control and internal factors of the SMEs. A more recent study by Siyakiya (2017) using a panel data set of 108 European Union Member's State and 8 prospective members of the block for a period of 1996 – 2016 to examine the extent institutional quality (governance index) and its sub-indicators (control over corruption, government effectiveness, political stability, regulatory quality, rule of law and voice and accountability) can influence overall economic performance measured by gross value added per capita. The results show a positive and significant relationship between economic performance and the quality of the institution.

It needs to be noted studies specifically looking at the impact of institutional quality on the growth of SMEs are scarce, for example Afonso and Jalles (2011) estimated a panel model comprising of

108 countries for the period 1970-2008 to investigate the link between the institution and growth. The study revealed that quality of institutions plays a consistent and statistically significant role in stimulating real gross domestic product. Specifically, they establish that a 1-unit improvement in the quality of institutions results in 0.22 units increase in per capita GDP holding other things constant.

Looking at the nature of the relationship between the institution and investment growth Zouhaier (2012) adopted a dynamic panel model in Mena for the period 2000 to 2009. The study revealed a significant relationship between institutional variables and investment on the one hand and economic growth on the other hand, the study also revealed a positive interaction between political institutions and investment and a negative interaction between political instability and investment. Gholami and Wang (2016) used cross country data drawn from 119 developing countries, to investigate obstacles to the growth of SMEs in developing countries. The study uses the Enterprise Survey from the World Bank to conduct the analysis and the result revealed that SMEs perceive access to finance as the most significant obstacle which hinders their growth. In sum, based on existing empirical literature, there is consensus of opinions on the efficacy of ICT in the growth of firms while empirical studies on the roles play by institutions in firm's growth, though scanty and but still growing, remains inconclusive. Conclusion.

Data and methods

The data for this study were sourced from World Bank Enterprise Survey conducted at different years. The survey aimed at assisting the World Bank in achieving its objectives of building an investment friendly environment, creation of jobs among others. Therefore, data for this study is a cross country data comprising of 44 Sub-Saharan African Countries. By the nature of the data at hand we are constraints to estimate a cross-sectional model using OLS since the dependent variables proxy by total output of SMEs are continuous variables. We are not ignorant of the shortcomings associated with the use of cross-section data in form of heterogeneity of individual country conditions which could lead to "identification" problems in regression analysis (Yao, 2016). But we are constraints by the nature of data at hand.

Model Specification

To estimate the impact of ICT and institution on SMEs growth, the following model will be specified

$$y_i = \alpha + \beta_1 webfac_i + \beta_2 inst_i + \beta_3 bank_loan_i + \beta_4 inoi_i + \beta_5 xfetmgri_i + \beta_6 exp_i + \beta_7 powsup_i + u_i; \text{ Where } i = 1, 2, \dots, N. \quad (1)$$

Y is a vector of variables used to capture firms' growth. In the present study, firm growth was measured by two different proxies, these are capacity utilization (Cap_utii) and productivity growth (Prod_grw). As a measure of ICT development, the percentage of firms having their own web site (Webfac) were used as proxy while bribe incidence (inst) in firms was used as a measure of the quality of the institution. Other control variables are finance (Bank_loan) proxy by number of firms with a bank loan, while infrastructural facilities were captured by the average duration of electrical outage experienced by firms measured in hours. Innovation (inoi) which usually serves as the bedrock for firm survival in a competitive world was measured by percentage of firms that introduce a new product or service. Empirical literature have also established the importance of experience (exp) and gender (fetmgri) issue in firm's performance, these were captured by years

of top managers' experience working in the firm and the percentage of firms with female top manager respectively. Apriori, we expect all explanatory variable to be a positive function of SMEs growth.

The Results

This section presents the result of the impact of ICT and institution, on the growth of firms. From table 4.1, it was revealed that bribery, proxy for institutional quality has a positive significant influence on the growth of SMEs. A unit increase in the quality of institutions will result in about 24% increase in the growth of SMEs. It needs to be noted that an efficient institution provides a conducive environment for growth to thrive. Institution goes a long way in determining freedom and the cost of doing business, stable polity needed for uninterrupted business activities in line with Rick, Ian and Natalia (2009). Rick, Ian and Natalia (2009) conclude that the Russian weak institutional environment creates challenges for SMEs to contribute to the growth and development of the Russian economy.

Table 4.1: OLS Results for Model I and II

	Model I: Capacity Utilisation		Model II: Productivity Growth	
Ins	.24680***	(2.10)	.15022	(0.335)
Bank_loan	-.13112	(-0.91)	-.26117	(0.172)
powsup	-.19162	(-0.84)	-.18901	(0.527)
Inoi	.33529*	(1.92)	-.39397*	(0.093)
Webfac	.06222	(0.42)	.19323	(0.309)
Fetmgri	-.25707*	(-1.61)	.20793	(0.168)
Exp	1.0079***	(2.48)	.52985	(0.423)
R-squared	0.7482		22.65%	
Adj R-squared	0.6993		0761	
F- Value	15.28		1.51	
	(0.000)		(0.1966)	

Source: Authors' Computation Using Stata 14.0

Note: Values in parentheses represent the P-values while *** & * stand for level of significance at 1% and 10% respectively

The coefficient of finance proxy by bank loan, has an insignificant declining impact on the growth of SMEs. Finance has been confirmed to be major problems inhibiting the growth of SMEs in most developing countries. This may be due to the fact that SMEs are "cash hungry" machines as noted by Brush et al., (2009). Their rapid growth depends on greater demand for funds, since funds are necessity for business expansion (Asma et al., 2015; Yao, 2016). Infrastructural facilities proxy by availability of power supply (powsup) and gender (measured by the number of firms with females as top managers) are having an insignificant negative influence on the dependent variable. It needs to be noted that power outages have been a major factor inhibiting growth of firms in most developing economies while in Africans females are categorised as weak, particularly in running medium scale business since they have many activities competing for their time.

The variable ICT, one of our focus variables tends to be a push factor for the growth of SMEs, ironically this impact remained insignificant. This implies the growth of information and Communication Technology could be an important factor necessary for firms' growth, but this

positive influence can only be optimised in an environment with efficient institution. The adoption of ICT by an enterprise influences its flexibility and visibility to business enterprises, facilitate financial transactions and breaks traditional trade barriers (Asta & Rimantas, 2013). The results of model I further revealed that innovation and experience of the top managers of SMEs have positive significant impacts on the growth of enterprise. This result is in contradiction with empirical evidence of Yao (2016) where managers experience has been found to be an insignificant determinant of SMEs growth. Innovation has been the major determinants of firm's share of the market and possibility of remaining relevant in a dynamic and competitive world. Therefore, the positive impact of innovation on growth of firms is in line with Schumpeter theory.

The picture emerging from the evaluation of the impact of our explanatory variables on productivity growth which serves as a second proxy for SMEs as shown in model II tends to confirm the negative impact of finance, infrastructures and gender as revealed in model I, while experience still exerts a positive impact on growth, though the impact turns insignificant. Webfac proxy for ICT still maintains its positive, but insignificant impact as reported in model I. Disappointedly, the impact of institutional quality on the growth of SMEs turns insignificant in model II. This notwithstanding, the results of both models tend to provide empirical evidence in support of the critical role institutions play in the optimisation of the benefits of other factors that serve as determinants of growth for SMEs. It is worthy to note that the effectiveness of any policy or facilities aimed at improving the performance of SMEs rest on the quality of institutions which provide an enabling environment for Small firms to strive.

The diagnostic statistics for model I were found to be robust. The R- square which explains the explanatory power of the model is quite high and appropriate, while the significant probability F-value indicates that all the explanatory variables are jointly significant in explaining the growth of SMEs

Conclusion

The study aimed at providing empirical evidence on the impact of ICT and institutions on the growth of SMEs in SSA using World Bank Enterprise Survey data. Using a cross-sectional model comprising of 43 African countries, the paper revealed that institutional quality has a positive significant impact on the growth of SMEs while the positive impact of ICT remains insignificant in both models. This indicates that adoption of ICT by SMEs is a necessary condition for firms' growth, but this will remain insufficient in a region where there is institutional failure. Other major findings of this study are that experience and innovation are necessary for firms' growth most especially in the present dynamic world due to ICT development. Above all, the results of the present study need to be interpreted with caution based on some reasons; one, the sample size of 43 in a cross-sectional study is a bit small which might distort its error term and thus the policy relevance of the paper. Two, the paper aimed at covering all developing countries hence, the paper is still work in progress and the behaviours of most of the variables might change when the sample size increases.

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