

# **INSTITUTIONAL QUALITY INDICATORS AND ECONOMIC GROWTH IN SELECTED SUB-SAHARAN AFRICAN COUNTRIES**

**Fredrick Onyebuchi Asogwa<sup>1</sup>; Nicholas Attamah<sup>2</sup>, Joseph I Amuka<sup>1</sup>; Sunday Virtus Agu<sup>2</sup>, and Romanus Onyeka Ugwuanyi<sup>1</sup>**

1. Department of Economics, University of Nigeria, Nsukka

2. Department of Economics, Enugu State University of Science and Technology (ESUT).

Enugu

asogwafred@gmail.com

## **Abstract**

*This paper examined institutional factors and economic growth in selected Sub-Saharan African countries. The study employed the corruption perception, government effectiveness, regulatory quality, voice and accountability, political stability and rule of law as institutional quality indicators as provided by the World Governance Indicators, WGI (2019). A panel data set of 16 selected Sub-Saharan African countries from 2005 to 2019 was estimated using the Pooled Ordinary Least Square (POLS), Panel Fixed effect (FE), and the panel two-stage least square technique. The result showed that institutional quality indicators as corruption perception, political stability and rule of law aggravates economic growth both in the fixed effect and the panel two-stage least square technique. Similarly, financial deepening tends to contribute to economic growth in SSA. The study concludes that an effectively institutional quality will stimulate economic activities leading to an overall growth in the economy.*

**Keywords:** Institutional Quality, Economic Growth, Panel Data Analysis, Sub-Saharan African countries

## **Introduction**

The poor economic performance of economies in Sub-Saharan Africa (SSA) has attracted a considerable debate on the institutional quality and economic growth in the region. Despite the positive growth record of SSA over the last three decades, the region lag behind most of developing regions in the world such as, south Asia and Latin America. World Bank data show that from 1980 to 2005, the average growth rate of GDP per

capita in SSA was  $-0.9\%$  compared to  $4.9\%$  in East Asia,  $0.6\%$  in Latin America and  $4.1\%$  in South Asia.

Despite the works on institutions as rule of the game for economic growth, most economies particularly in developing countries face low economic growth and deterioration of institutional qualities (Adedokun, 2017). Low-income growth and higher income gap is the main challenge in the world. The economic and social situation in Sub-Saharan Africa remains insecure, vulnerable to both domestic and external shocks, and the region still has a long way to go to make up for lost ground over the last two decades (Akpan, 2020). Despite tremendous progress in economic development, poverty remains widespread and severe across much of Africa. Inadequate investment has hampered efforts to diversify economic structures and boost growth. Furthermore, several nations have recently emerged from civil wars that have impeded their development efforts, and new armed conflicts have erupted in other parts of the continent (Aliyu, 2018). These wars, as well as other negative factors like poor weather and worse trade terms, have resulted in a slowing of the region's economic growth over the last ten years.

Institutional quality in low-income countries (like in SSA) is very weak while a political aspect is given more priority in these countries. Sub Saharan Africa receives aid from developed countries and international organizations like IMF and WB that are expected to address the challenge of low economic growth. The Official Development Assistance (ODA) reached USD 142.6 billion in 2016 due to huge increase in the number of refugees owing to political instability and lack of economic opportunity. Net ODA to Africa was USD 27 billion from which 24 billion was for Sub-Saharan Africa (OECD, 2017).

However, the economic performance between higher income and low-income countries are far apart. In addition to low economic growth and development, the structure of institutions in developing countries does not encourage entrepreneurship, innovation, and investment. They are manipulated by officials, politicians and higher income individuals for their own interest. For economic and political reasons, a large number of young people travel to wealthy countries in search of a better life. Low income growth and inadequate institutional quality contribute to sovereign state instability and failure. Different studies have come up with different conclusions about the significance of institutions in economic growth. Institutional reform and political institutions are crucial in determining per capita GDP Ficher and Schreiber, (2010); Efendic and Pugh, (2015).

However, according to Simon, (2010), Siddiqui, and Ahmed (2013), there is no link between political institutions and economic progress, the quality of bureaucratic services is poor in Sub-Saharan African countries, and the cost of doing business is high due to social structural problems, and there is a high unemployment rate, high inflation rate, low human development index, and low standard of living, and there is a high unemployment rate, high inflation rate, low human development index, and low standard of living. This is owing to the fact that institutions in this region have historically been ineffective.

As a result, Sub-Saharan African countries confront significant hurdles in terms of increasing growth, reducing poverty, and integrating into the global economy.

Economic growth rates are still insufficient to make a significant dent in widespread poverty and allow these countries to catch up with other developing countries. There have been numerous research on the topic of institutional quality and economic growth in different regions, including country-specific and cross-country analyses. However, by focusing on variables that tend to effect economic growth and institutional quality that have not been included in earlier literatures, this study tends to add to existing literature by evaluating the impact of institutional quality and factors affecting economic growth. These variables shall include financial deepening indicators (money supply and credit to private sector), Corruption perception and trade openness shall also be considered as a major influence of economic growth and institutional quality within the sub-Saharan African region. As limited by other studies as (Epaphra&Kombe; Kilishi et al; Olanrewaju, Tella&Adesoye etc.) where only three or less institutional quality variables indicators was used, this study tends to cover the gap by including five institutional quality variable. These indicators that will be included in the study shall include: Political Stability, Government Effectiveness, Rule of Law, Regulatory Quality, Voice and Accountability.

## **Review of related literature**

### **1.1. Theoretical Literature**

The underpinning theory that links institutional quality and economic growth is drawn from the Solow growth model developed by Solow (2008), this theory takes into consideration the role played by institutions from a theoretical glance. However, through the works of Tebaldi & Mohan (2008) the Solow model was developed to include the role of institutions in output determinant which includes the level of production and growth rate in production. By changing the aggregate production function which includes the capital accumulation within the Solow model, while allowing the model to cover the effects of institutions quality on output. The model notes that institutions are mostly determine by the relative cost of transaction in the economy which is often spurred by certain developments in the economic in the form of risk and uncertainty, contract and its enforcement, increase in the level of information. The model further shows that institutions play crucial role in ascertaining factors that tends to affect productivity as well the adoption of technology. The production function below further shows the role of institutions in output determination.

$$Y = f[A(T, t)K(t, T)L(T, t)] \dots \dots \dots (1)$$

Where L is labour which also shows the level of technology, K represents capital, T becomes an index that shows the various institutional quality while t becomes the time variants. This model shows that institutions have the ability to affect technology use and capital. Tebaldi & Elmslie (2008) further buttress the institution have a long stray in affecting developing countries or poorer countries as institution variant tends to hinder the available technological progress thereby limiting their efficiency. Whereas, when the institution quality are good technical progress is increased while labour and capital are greatly increased in productivity. This shows that institutions could be worst and good depending to the economy. Upon the discourse of institution and economic growth Tebaldi & Mohan,(2008), rewrite the production function to be;

$$Y = A^{T-1}K^{\alpha T}(AL)^{1-\alpha T} \dots \dots \dots (2)$$

This equation reflects the impact of institutions in the production function. The model shows that an economy is free to adopt any possible technology in the area of production, yet its institutions can hinder technological adoption and reduce productivity in factors of production labour and capital when such institution in such economy is not efficient

enough. Thus, institutions have the capacity to influence marginal product of capital, capital accumulation and investment. In relation to capital Tebaldi & Mohan (2008) derives an equation to be;

$$MP_k \frac{\partial y^*}{\partial k^*} = \alpha T k^{\alpha T - 1} = \alpha T \frac{y^*}{k^*} > 0 \dots\dots\dots(3)$$

$MP_k$  is marginal production of capital, T is institutions,  $k^*$  is capital in steady state and  $y^*$  is the per output of workers. In a constant state, the model indicates that an increase in institutional quality has an overwhelming proportionate influence on capital marginal productivity. In other words, an efficient and sound institution will lead investment returns to rise, causing capital accumulation to rise as well. Bad institutions have an indirect effect on capital accumulation, according to empirical studies (Mauro, 1995).

## **1.2. Empirical Literature**

From 1996 through 2015, Iheonu, Ihedimma, and Onwuanaku (2017) studied Institutional Quality and Economic Performance in West Africa.

The fixed effect model, random effect model, and fixed effect model are all used in the panel two-stage least square technique. Institutional elements boosted economic performance in West Africa, according to the study's findings, with a greater emphasis on government effectiveness.

Adegboye, Osabohien, Matthew, and Olokoyo, (2020), The volume of FDI input to the Sub-Saharan Africa sub-region was affected by institutional quality, which resulted in underutilization of local resources and, as a result, irregular development of local sector investment. For pooled data from 30 Sub-Saharan African nations from 2000 to 2018, a fixed and random effect regression model was utilized. Akpan (2020) looked into governance, growth and economic development in Sub-Saharan Africa from 1980 to 2018. From the panel regression result, there is need for upgrade in majority of the components of governance in Sub-Saharan Africa. The result indicated that growth and income per capita in this period has causal relationship with governance indicators.

Trade openness, institutions, and economic growth were all priorities for Akinlo and Okunlola (2021). Between 1986 and 2015, 38 countries in Sub-Saharan Africa were investigated. Pooled OLS, fixed effect, and dynamic GMM were among the estimation

methodologies used. Law and order, corruption, bureaucratic quality, government stability, and democratic accountability are all variables that impede economic development. Economic growth was boosted by the interaction of institutional quality characteristics and trade openness. Afolabi (2019) investigated the influence of sustainable development governance in West Africa from 2002 to 2016. The study used the Generalized Method of Moment (GMM) technique, which included regulatory quality, voice and accountability, political stability, rule of law, government effectiveness and corruption control as six government indicators. According to the findings, in the short run, corruption control and regulatory quality have an inverse relationship with economic growth, whereas voice and accountability, political stability, rule of law, and government effectiveness are all directly related to economic development, with government effectiveness having the greatest impact. From 2005 to 2013, Ejuvbekpokpo and Hassan (2019) investigated the impact of institutional quality on educational achievement in low-income Sub-Saharan African countries.

The fixed effect technique and the Generalized Method of Moments were used in the research (GMM). In terms of institutional quality, the countries analyzed revealed a wide range of results. They advocated strengthening the rule of law and the educational sector, as well as reducing corruption at all levels of the economy in low-income Sub-Saharan African countries. Olanrewaju, Tella, and Adesoye, (2019) examined the causal interaction among the institutional, financial and inclusive growth: causality from Nigeria from 1998 to 2017. The TY granger non-causality test was employed within the augmented VAR framework. From the test result, all the variables except financial inclusion index, Granger-caused inclusive growth, but with no proof of feedback. However, a two-way causal correlation was found between the interplay of institutional quality and financial inclusion.

Epaphra and Kombe (2018) investigated the impact of institutions on African economic growth. From 1996 to 2016, they used Generalized Method of Moment (GMM), Fixed Effect (FE), and Random Effect (RE) models on a sample of 48 countries. Institutions are critical for Africa's economic success, according to the findings. However, strengthening the quality of institutions may not be enough to boost Africa's economic growth. Improved economic growth will be achieved by policies aimed at improving the quality of institutions, lowering trade barriers, increasing foreign investment, and raising the labor force's standard of living.

The impact of institutional quality on the external debt-growth relationship in Sub-Saharan Africa is investigated by Mensah, Godfred, and Eric (2018). From 1996 to 2013, a sample of 36 Sub-Saharan African nations was employed. The Generalized Method of Moment (GMM) methodology reveals that institutional quality has a significant impact on the external debt-growth connection. As a result, the impact of external debt on growth is determined by the host country's institutional quality.

The impact of governance on economic growth in Sub-Saharan Africa was investigated by Adzima and Baita (2019). For 33 Sub-Saharan African nations, the study used Pooled OLS, Fixed Effect (FE), and Random Effect (RE) methodologies from 2002 to 2017. The findings suggest that good governance has a significant impact on economic growth in Sub-Saharan Africa. Economic growth is largely determined by effective governance and the rule of law. Institutional determinants that drive entrepreneurship potential to accomplish economic growth were investigated by Aparicio, Urbano, and Audretsch (2015). Using unbalanced panel data and a three-stage least square approach for 43 nations from 2004 to 2012. Informal institutions had a greater impact on opportunity entrepreneurship than formal institutions, according to the data. According to the findings, economic growth might be boosted by encouraging relevant organizations to enhance entrepreneurial opportunities.

The impact of governance on economic growth was investigated by Samarasinghe (2018). The findings show that corruption control is a key component of economic growth, with a 1% improvement in corruption control leading to a 6.9% increase in economic growth. To achieve economic progress, however, it is critical to successfully manage the indices of corruption, political stability, and the lack of violence. The study used Pooled OLS, Fixed Effect (FE), and Random Effect (RE) estimate methods to collect data from 145 countries between 2002 and 2014.

## **2. Model specification, data and methods of analysis**

### **2.1. Model specification and data**

Following Iheonu, Ihedimma, & Onwuanaku, Institutional (2017), this paper tends to examine institutional quality and economic growth by employing panel data set for selected countries in Sub Saharan African from 1996 to 2018. Selected countries shall be made based on data availability. Thus, the model is here specified as

$$GDP_{it} = \alpha_0 + \alpha_1 INS_{it} + CX_{it} + \mu_{it} \dots \dots \dots (1)$$

Where

GDP = Gross domestic product per capita in constant US\$ which serves as proxy for economic growth.

INS = Institutional quality (Corruption Perception, Rule of Law, Government effectiveness, Political stability Voice and Accountability and Regulatory quality)

CX = Control variables (Foreign Direct Investment (FDI), Financial Deepening (FD), Gross Capital Formation (GCF), Trade Openness (TOP)

Likewise, in the model above I is the cross sectional indicator, t the time variant and  $\mu$  the error term. The model in equation (1) is further modified as:

$$GDP_{it} + \alpha_0 + \alpha_1 FDI_{it} + \alpha_2 TOP_{it} + \alpha_3 FD_{it} + \alpha_4 GCF_{it} + \alpha_5 INS_{it} + \mu_{it} \dots \dots \dots (2)$$

$$GDP_{it} + \alpha_0 + C_j X_{it} + \alpha_2 CP_{it} + \alpha_3 RL_{it} + \alpha_4 GE_{it} + \alpha_4 PS_{it} + \alpha_5 VA_{it} + \alpha_{46} RQ_{it} \mu_{it} \dots \dots \dots (3)$$

From equation (2) and (3) economic growth is proxy by GDP per capita. While FDI is the measure on investment inflows by the ratio of GDP, Trade openness is the sum of import and export by GDP, Financial deepening (FD) the measure of the total expenditure of government, Gross Capital formation (GCF) the measure of physical capital in production. The world governance indicator WGI (2018) defines the following institutional quality indicators as Government effectiveness (GE) as the quality of civil and public service and the independence derive from pressure groups, again the quality of policy plan implementation and the credence to such policies by government. Corruption Perception (CP) measure as the perception of how public power is gained and controlled for the purpose of controlling resources, Rule of law (RL) measures the perceptions of various agents that has confidence of keeping to the rules of the society with respect to rights, court procedures as crime and contract with respect to enforcement. Political stability (PS) measures the perceptions of stability within the country’s political climax. The study utilized balance panel dataset on 16 SSA countries over a 15 years with a period of 2005-2019. The list of selected countries is provided in the appendix

## 2.2. Estimation methods

The paper employs the fixed effect model and random effect estimation technique with respect to this study. The fixed effect model shall account for heterogeneity among the various variables in the study this is possible by allowing each indicator to generate its own intercept. Individual changes in the intercept as calculated for each independent



cross sectional observation will be reflected by the error term, which will be accounted for by the panel random effect. As a result, the panel fixed and random effects will mostly account for variation within the selected Sub-Saharan African nations. To solve the problem of endogeneity that may arise in the model the two stage least square technique is employed.

### 3. Estimation results

The features of the variables used in this paper were examined using descriptive statistics as shown with the aid of table 1. The variables were representing institutional quality factor and economic growth in selected Sub-Saharan African countries.

**Table 1: Descriptive Statistics**

	<b>Mean</b>	<b>Maximum</b>	<b>Minimum</b>	<b>Std. Dev.</b>	<b>Obs</b>
<b>GDP</b>	3.62	4.77	1.63	9.32	240
<b>GCF</b>	7.77	7.82	2.13	1.49	240
<b>FDI</b>	4.82	39.45	-3.37	7.07	240
<b>TOP</b>	391.54	3203.82	9.97	546.86	240
<b>FD</b>	2.32	1.02	-2.19	2.47	240
<b>CP</b>	2.92	3.5	1.5	0.49	240
<b>RL</b>	-0.704	0.128	-1.49	0.35	240
<b>PS</b>	-0.6255	0.626	-2.211	0.701	240
<b>RQ</b>	1.491	39.903	-1.364	8.016	240
<b>VA</b>	-0.468	0.409	-1.708	0.49	240
<b>GE</b>	-0.788	0.266	-1.535	0.372	240

**Source: Author's Compilation**

The descriptive statistics for the various variables applied in the study showed that the mean value for gross domestic product (GDP) and gross capital formation (GCF) were 3.62 and 7.77 respectively with a minimum of 4.77 and 7.82 while the maximum values are 1.63 and 2.13 respectively. Foreign direct investment (FDI) had a mean value of 4.82 with a 7.07 standard deviation, a minimum value of -3.37 and a maximum value of 39.45 within the estimated time. Financial deepening (FD) and Trade Openness (TOP) across countries in the region had a maximum value of 1.02, and 3203.82, a minimum of -2.19, 9.97 and a mean value of 2.32 and 391.5 all respectively. Furthermore, the featured value for the institutional quality variables showed that the mean value of corruption perception

(CP) was 2.92, with a minimum value of -1.5 and a maximum value of 3.5. The mean values for rule of law (RL) and Political stability (PS) were -0.704 and -0.6255 while their standard deviations were 0.35 and 0.701 respectively. For government effectiveness (GE), its mean value was -0.788, with a maximum value of 0.266 and a minimum value of -1.535. The mean score for regulatory quality (RQ) and voice and accountability was given as 1.49 and -0.468 while their standard deviations were 8.01 and 0.49 respectively. The characteristics of all the variables showed that they were normally distributed and thus fit for the purpose of analysis.

The Correlation analysis as shown in Table 2 below revealed that there was a strong correlation that existed among the institutional quality variables.

**Table 1: Descriptive Statistics**

	Mean	Maximum	Minimum	Std. Dev.	Obs
<b>GDP</b>	3.62	4.77	1.63	9.32	240
<b>GCF</b>	7.77	7.82	2.13	1.49	240
<b>FDI</b>	4.82	39.45	-3.37	7.07	240
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**Source: Author`s Compilation**

**Table 1B: Correlation Analysis**

	GDP	GCF	FDI	TOP	FD	CP	RL	PS	RA	VA	GE
<b>GD</b>	1										
<b>P</b>											
<b>GC</b>	0.6525	1									
<b>F</b>											
<b>FDI</b>	-0.1300	-0.1106	1								
<b>TO</b>	-0.1823	-0.2384	0.1650	1							
<b>P</b>											
<b>FD</b>	-0.2933	-0.2184	-0.1145	-0.0415	1						

<b>CP</b>	0.0435	0.0705	-0.2172	-0.2172	-0.2969	1					
<b>RL</b>	-0.2473	-0.1774	-0.1688	-0.1444	-0.0269	0.7591	1				
<b>PS</b>	-0.5212	-0.4732	0.1341	0.1878	0.0112	0.3718	0.5276	1			
<b>RQ</b>	-0.0973	0.1554	-0.0473	-0.1886	0.3722	0.2038	0.3596	0.2231	1		
<b>VA</b>	-0.1497	-0.0041	-0.0953	-0.0089	-0.1704	0.6383	0.5376	0.3633	0.2609	1	
<b>GE</b>	-0.1438	-0.0993	-0.1769	-0.3472	-0.2515	0.7269	0.7827	0.3651	0.2045	0.3343	1

**Source: Author's Compilation**

The results from the correlation results is expected as institutional quality variables are formed among themselves. Thus, at every econometric regression the various institutional quality variables are employed with the aim of establishing the impact of institutional quality and economic growth in selected Sub-Saharan African countries.

**Pooled OLS and Fixed Effect Panel Results**

**Table 2: Institutional Quality and Economic growth (Pooled OLS Results)**

	<b>Pooled OLS</b>
<b>LFDI</b>	-0.0557(0.000)
<b>LTO</b>	-0.1151(0.000)
<b>LFD</b>	-0.3097(0.000)
<b>LGCF</b>	0.6034 (0.000)
<b>CP</b>	-0.0404 (0.531)
<b>RL</b>	0.2681 (0.010)
<b>PS</b>	-0.1073 (0.001)
<b>RQ</b>	-0.0780 (0.000)
<b>VA</b>	0.0950 (0.000)
<b>GE</b>	-0.0582 (0.506)
<b>C</b>	4.6510 (0.000)
<b>No of Country</b>	16
<b>Hausman</b>	Yes
<b>R-Squared</b>	0.966
<b>No of Obs</b>	240
<b>F- Statistics</b>	642.14 (0.000)

**Source: Author's Compilation**

**Notes: Dependent Variable: GDP per Capita; \* denotes significance at 5%. Probability value of t statistics are presented in parenthesis.**

## **Pooled OLS Results**

Results from table 4.2 showing the pooled OLS reveals that foreign direct investment (FDI) is statistically significant to economic growth either at 5%, 1% or 10% level of significance within the selected countries of interest this reasons could be explained by the deposition of other variables in the model. However, they happen to be a negative relationship between FDI and economic within the selected countries of interest. The coefficient of FDI in the Pooled OLS results is -0.055 suggesting that a percentage change in FDI leads to a drop in economic growth. Although, this results neglects theory stands as FDI is a good indicator of economic growth, the negative influence of FDI to economic growth could be for other reasons other than theoretical deposition within Sub-Saharan African countries.

The coefficient of trade openness (TO) is -0.1151 which shows that trade openness is statistically significant to economic at all level of significance. The outcome of trade openness in the results shows that as trade openness tends to change will lead to a possible decrease in economic by 11 percentages for countries within the SSA. This outcome could possible represent the condition of the economies of most SSA countries that are low income countries whose trade comparative strength in mainly on exports. Gross capital formation (GCF) which serves as a proxy for physical capital in the model is positive and statistically significant to economic growth at 5%, 1% and 10% level of significance. Thus, suggesting that a percentage change in capital will cause economic growth to rise by 60%. The outcome of this capital from this results shows that capital is a good indicator for economic growth.

The value coefficient for financial deepening (FD) in the economy is -0.3097 this suggest that a sudden change in financial deepening will cause economic growth to decrease by 30%. Even at a time where financial deepening shows to be a good indicator to economic as FD is statistically significant to economic growth. The institutional quality variables are explained individually with the aim of establishing a defined relationship and impact with economic growth is SSA with extract estimate the pooled OLS. The coefficient of corruption perception (CP) is -0.0404 with a p value of 0.000 which indicates that CP is a good indicator to economic growth in SSA as CP is statistically significant at all level of significance. However, the outcome suggests that a percentage change in CP will cause economic growth in SSA to decrease by 4% within the period of review. The existence of

rule of law as a institutional quality variables show a good strength been statistically significant to economic growth at all levels of significance also suggesting that a unit change in rule of law in SSA will boost the economy of SSA countries by 26%. Similarly, the coefficient of voice and accountability (VA) is positive and statistically significant to economic growth at 5% and 1% level of significance. The position of voice and accountability suggests that a percentage change in VA will aid to accelerate the economies of SSA by 9%. Institutional quality variables as regulatory quality (RQ) and government effectiveness (GE) explains their unique roles as a good indicator to economic growth as both variables were statistically significant to economic growth at all levels of significance. However, the relationship that holds between regulatory quality, government effectiveness and economic growth is negative, suggesting that a percentage change will cause economic growth to decrease by 7% and 5% respectively.

### **Fixed Effect Panel Results**

**Table 3: Institutional Quality and Economic growth (Fixed Effect Results)**

	<b>Fixed</b>	<b>Random</b>
<b>LFDI</b>	-0.00972 (0.212)	-0.00905 (0.320)
<b>LTO</b>	-0.0060 (0.890)	-0.0312 (0.418)
<b>LFD</b>	-0.1291 (0.000)	-0.2286 (0.000)
<b>LGCF</b>	0.4483 (0.000)	0.5030 (0.000)
<b>CP</b>	-0.0815 (0.043)	-0.1199 (0.011)
<b>RL</b>	0.2028 (0.004)	0.1847 (0.022)
<b>PS</b>	-0.0872 (0.000)	-0.0708 (0.011)
<b>RQ</b>	0.0060 (0.271)	-0.0169 (0.003)
<b>VA</b>	0.01288 (0.806)	0.0391 (0.511)

<b>GE</b>	-0.0294 (0.675)	-0.0704 (0.388)
<b>C</b>	11.0665 (0.000)	8.0908 (0.000)
<b>No of Country</b>	16	16
<b>Hausman</b>	Yes	Yes
<b>R-Squared</b>	0.769	0.739
<b>No of Obs</b>	240	240
<b>F- Statistics</b>	69.41(0.000)	694.36 (0.000)

**Source: Author`s Compilation**

**Notes: Dependent Variable: GDP per Capita; \* denotes significance at 5%. Probability value of t statistics are presented in parenthesis.**

Table 4.2 presents the estimation results showing the static (fixed effects) and (random effects) panel analysis. However, the fixed effects will explain given that the Hausman test rejected the null hypothesis for fixed effect while accepting the alternate as the estimation for discourse. From the fixed effects the coefficients of the institutional quality variables are explained. The coefficient of corruption perception (CP) is negative but statistically significance to economic growth at all levels of significance; suggesting that a change in percentage of corruption perception will cause economic growth in SSA to drop by 8% the outcome of the findings however, shows that though corruption perception in SSA seems vital and crucial to economic growth yet enough needs to be put in place to control corruption in the purview of the public. Rule of law with 0.2028 has a positive relationship with economic growth in SSA countries and likewise is statistically significance at all levels of significance either at 1%, 5% and 10% respectively, suggesting, that a unit increase caused by rule of law will boost economic growth in SSA by 20%. Again, political stability proves to be a good indicator in improving economic growth with a coefficient value of -0.0087 though negative but statistically significance at 1%, 5% and 10% level of significance. This outcome suggests that a percentage change in political stability will lead to a drop in economic growth in SSA this outcome confines to theoretical expectation as a negative change in political stability observed in a country or region will destabilize the economy and cause fall in output. Voice and accountability value is represented by 0.0128 which sets up a positive relationship with economic growth in SSA but, regrettably it is not statistically significant to economic growth in

SSA countries suggesting that even though a unit change may cause economic growth to increase by 1% however, there is no significant impact felt.

In like manner the coefficient value of regulatory quality is 0.006 which is positive but statistically insignificant at all levels of significance, suggesting that a percentage change in regulatory quality will cause economic growth to improve by 6% even though the impact is not felt in the economy. Swiftly, government effectiveness is valued at -0.029 which shows that government effectiveness has a negative relationship with economic growth and shows no sign of impact statistically both at 1%, 5% and 10% level of significance in SSA countries. The outcome suggests that even when government effectiveness as institutional quality variables influences economic growth by 2% yet it plays no role in the economy of SSA countries.

The fixed effect estimates shows the dynamic influence and impact of the control variables and economic growth in SSA countries; the coefficient of foreign direct investment is -0.0097 which shows that FDI has a negative relationship with economic growth in SSA by 9% which is somewhat expected as most SSA have significantly witnessed a drop in foreign investments thus, the outcome of the results shows that FDI although a good indicator based on theoretical expectation yet have no significant impact on economic growth in SSA countries. In like manner the coefficient of trade openness in the fixed effect estimate is given as -0.006 which shows a negative relationship in response to economic growth in SSA and is statistically insignificant at all levels of significance the outcome of the results suggests that a percentage change in trade openness leads to a drop in economic growth in SSA countries.

Remarkably, the results of gross capital formation is 0.4488 which reveals that capital is a good indicator to economic growth in SSA and its statistical significant at all levels the outcomes suggests that a possible change in capital will help in boosting economic growth in SSA countries. Again, the coefficient of financial deepening in negative by -0.129 but is statistically significant at all levels of significance, suggesting that as financial deepening increase, economic growth tends to increase by 12% for SSA countries.

The R-squared of the fixed effect is 0.769 this represents 77% of the economic growth and shows a good fitness in the regression line while the remaining 23% could be attributed to other factors affect the economy such as low productivity amongst others. The joint level of significance established by the F statistical test and its probability

shows that the joint influence of the model is positive and statistical significance to economic growth amongst SSA countries.

### Two Stage Least Square Panel Results

To solve the problem arising from endogeneity in the model as a results of foreign direct investment and gross domestic product in the same model the two stage least square is employed for the purpose of solving these problems.

**Table 4: Institutional Quality and Economic growth (2SLS Results)**

	Two Stage Least Square
LFDI	-0.00972 (0.211)
LTO	-0.0060 (0.890)
LFD	-0.1291 (0.000)
LGCF	0.4483 (0.000)
CP	-0.0815(0.042)
RL	0.2028 (0.004)
PS	-0.0872 (0.000)
RQ	0.0060 (0.270)
VA	0.1294 (0.806)
GE	-0.0294 (0.675)
C	11.0665 n(0.000)
No of Obs	234
No of Country	16
R-Squared	0.769
F- Statistics	60.52 (0.000)

**Source: Author`s Compilation**

**Notes: Dependent Variable: GDP per Capita; \* denotes significance at 5%. Probability value of t statistics are presented in parenthesis.**

The two stage least square tends to agree with the result of the fixed effect and random effect estimation both in magnitudes and level of impact. The results of the 2SLS shows that the coefficient of foreign direct investment shows an inconsistent impact on economic growth in SSA countries the outcome from evidence of this finding is obvious with SSA with suggesting that a one percent increase in FDI will cause economic growth to drop by 9% within the period of review in SSA countries. Trade openness is -0.0060 which reveals that there is a negative relationship between trade openness and economic growth in SSA suggesting that a percentage change will cause economic growth to drop



by 6% in the same vein there is no significance impact with trade openness and economic growth in SSA countries as the probability value failed to be significant at either 1%, 5% or 10% level of significance percent this finding contradicts with the study by Jude & Levieuge(2015) while confirming the results of Nguyen, Su, & Nguyen(2018) that FDI contributes to economic growth with countries that have higher institutional factors while countries with lower institutional factor FDI tends to contribute less to economic growth Herrera-Echeverri, Haar, & Estévez-Bretón(2014).

More so, the coefficient of financial deepening is exerts a positive influence on economic growth in SSA and likewise shows that it's statistically significant at 5% level of significance the outcome suggests that a percentage change in financial deepening will cause economic growth to increase by 12% this findings supports the previous studies as (Onwe, Adeleye, & Okorie, 2019) that financial activities in the economy through credit and money supply helps to boost the economy. Going forward the coefficient of gross capital formation of 0.4483 completes the cycles of been positive and been statistically significant at all level of significance across all the results, suggesting that capital strongly affects economic growth positively such that a unit increase in capital will lead cause a boost in economic growth of SSA countries.

The institutional quality variables hold a similar view in terms of magnitude and impacts levels with economic growth as in the former. However, the coefficient of corruption perception is -0.0815 shows that corruption perception negative affects economic growth in SSA although corruption perception remains a good indicator to economic growth the outcome of the results shows that as corruption perceptions increases economic growth seems to dwindle by 8%. The coefficient of rule of law of 0.2028 seems to positively influence economic growth in SSA and a good indicator as well the outcome suggests that a percentage increase in rule of law will boost economic growth in SSA countries by 20. Similarly, political stability though negative at -0.0872 but is statistical significant at five percent level of significance. This outcome suggests that a percentage change in political stability will negatively affect economic growth by 8% drop in gross domestic product in SSA countries. The coefficients values for regulatory quality and voice and accountability is 0.006 and 0.1294 respectively, which goes down that regulatory quality and voice and accountability both has a positive relationship with economic growth in SSA such that a change in the both will cause economic growth to improve by 6% and 12% respectively. Regrettably, none of them are statistically significant to economic growth either at 1%, 5% or 10% level of significance. Finally, the coefficient of

government effectiveness is -0.0294 which is negative and not statistically significant at all level of significance in relation to economic growth. The outcome of this results shows that a percentage change in government effectiveness will cause economic growth to decrease by 2% in SSA countries for the period under review.

The F test of 60.52 and p value of 0.000 shows that the entire variables a jointly positive and statistically significant to economic growth in SSA. The R-squared of 77% shows a good fitness of the regression line accounted by economic growth for all SSA while the remaining 23% could be attributed to low economy or recession in the economy.

## **Conclusion and Policy recommendations**

The paper examined institutional quality and economic growth in Sub-Saharan African from 2005 to 2019. The study concludes by noting that institutional quality is an all important factor that affects economic activities and helps to stimulate growth in the economy especially within developing economics as here used Sub-Saharan Africa. The study concludes that through the application of two stage least square estimate only three institutional qualities as corruption perception, rule of law and political stability display a significant impact with economic growth within the Sub-Saharan African region. However, institutional quality factors such as government effectiveness, voice and accountability and regulatory quality all failed to significantly impact economic growth within region within the period under review. Again, trade openness and foreign direct investment been an improvement variable based on theoretical justification both failed to impact economic growth within the region. Financial deepening and capital proved to be a good contributor to economic growth as the both control variable positively influenced economic growth in Sub-Saharan African countries. The following policy direction is drawn from the findings of the study. Thus the study recommends to policy makers that; Should as matter of urgency work of voice and accountability especially among public office holders as public holder who fails to be prudent and accountable should be brought to book according the stipulated laws. Regulatory agencies should be strengthen so as to make them effective enough in carrying out their functions as this will strength the quality of institutions and stimulate growth in the economy, and finally, corruption still remains a strong enemy that impedes economic growth. Thus, government of Sub-Saharan African countries should strengthen various institutions fighting the corruption as this will stimulate economic growth.

## **Appendix**

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### **List of selected Sub-Saharan African Countries**

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Congo rep.	Rwanda
Togo	Senegal
Madagascar	Mali
Burkina Faso	Nigeria
Kenya	Mozambique
Cameroon	Benin
Lesotho	Burundi
Niger	Sierra Leone

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### **Source Authors Compilations**

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