Institutional Drivers of Economic Growth in Sub-Saharan Africa: Empirical Evidence from Panel Data Analysis

Tajudeen Ajamu Ismaila[1] & Williams Nyijime Yaji[2]

[1]Department of Accounting and Finance, University of Ilorin, Nigeria
[2]Department of Economics, Federal University of Lafia, Nigeria
Corresponding Email: ismailatajudeena@yahoo.com

Abstract
The study examined the basic institutional concepts that drive economic growth in sub-Saharan Africa over 10 years by linking the economic growth nexus with the institutions. This study employed panel data analysis from the World Bank Development Index (WDI) database from 2014 to 2023. Based on the Autoregressive Distributed Lag (ARDL) panel data analysis, the results show a stronger relationship between economic growth and the rule of law. For instance, the higher the confidence of foreign investors in a nation's judiciary and adherence to the terms of contracts, the higher the FDI in such a country. Also, the study shows that a direct relationship exists between foreign direct investment, control of corruption, and economic growth. This implies that the higher the control of corruption, the higher the economic growth of such a country, and vice versa. However, there is an insignificant relationship between economic growth and political stability. The study recommends a stronger control of corruption and adherence to the rule of law in attracting FDI and boosting economic growth. Additionally, there should be strong accountability and economic openness in encouraging local production. Lastly, the study recommends the creation of employment opportunities to reduce social vices in the country.
Keywords: Economic Growth, Institution, Sub-Saharan
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1.   Introduction

Modern theories of growth in an economy can be traced back to the early 1930s and late 1940s. The ancient economists in this field

are David Ricardo, Paul Romer, Robert Malthus, Robert Solow, etc. Malthusian theory on the one hand argued that if the labour force grew faster than the rate of technological development in an economy, the wage rate would reduce, and as the wage rate reduces, consumption fall while the employment rate increases. Also, Solow (1956) argued in favour of population change, savings, and technological development. Romer (1994), identified the significance of technological innovation, research, and investment in human capital in creating economic advancement, growth and development.

Economic growth in SSA has been underdeveloped despite abundant human and material resources largely due to poor monetary allocation in research and human development. Another factor attributed to low economic growth in Sub-Saharan African countries is the lack of proper institutional quality (Kohli, 2004). The argument was based on political instability in most African countries which may be largely characterized by poor institutional quality and Neo-patrimonial effect on these countries.

World Bank (2018) reported the GDP growth ranking of some Sub-Saharan West African countries shows the top five as Ghana, Nigeria, Cape Verde, Cote d'Ivoire, and Guinea while the rest show a poor rating. The critical question is why there is low economic growth in most of these countries, given their abundant human and material resources. The objective of this study therefore, is to analyse some of the key institutional factors like the rule of law, control of corruption, political stability, foreign direct investment, and property rights to determine their extent of influence on economic growth in Sub-Saharan African countries between 2014-2023.

The value added of this study is in two folds: the study makes use of a panel data set with recent data on all Sub-Saharan countries, and the checking of the results with the model specification. The study specifically examines the relationship between the dependent variable against all independent variables. The rest of this study is organized into five sections: section 1 deals with the introduction, section 2 gives insight into the empirical literature reviews that are relevant to this study; Section 3 encompasses the research methodology of the study while Section 4 focuses on the analysis of the result of the findings; section 5 gives the conclusion and recommendations of the study.

2.   Review of Related Literature
2.1   Theoretical Review
2.1.1   Institutional Economics Theory

Institutional economics is an economic theory that describes and analyses institutions. The theory focuses on how rules, norms, and social structures (formal and informal) influence economic growth (North, 1990). This theory explicitly studies the institutional roles in shaping economic growth, unlike Neo-classical theories that are implicitly in nature. Institutional economic theory is, therefore, based on four assumptions. Firstly, it influences behaviour; institutions affect the behaviour of economic actors, which may lead to different economic performances and outcomes. Secondly, it is based on formal and informal rules; institutional economics is based on formal rules (rules, regulations, and law) and informal rules (including social norms, and customs) as crucial elements of the theory. Thirdly, the theory emphasizes dynamism and evolution in nature. Lastly, the theory offers a broader perspective than the mainstream economic theories that focus on individual rationality and market interactions or freedom.

2.1.2   Neo-liberal Theory

The theory of Neoliberalism is an economic philosophy that drives economic globalization and industrialization (Moring & Leino, 2016). Assumptions in this theory are the belief in the power of individual liberty, the importance of an open market economy, and the belief that government intervention in the economy could be detrimental. This theory is anchored on the assumption that economic growth and consumerism are essential for the well-being of society. In general, the five basic assumptions of the theory are: Neo-liberalism emphasizes individual freedom and self-reliance. This means that individual should pursue their economic interest with little government intervention. Existence of a free market; the fundamental assumption of this theory is that there should be a free market with minimal government interference. With this, resources would be efficiently allocated and in return, promote economic growth. Economic development and consumerism: Neo-liberalism places a high premium on economic growth and assumes it would benefit society. Fourth, limited government intervention: the theory assumes that government intervention in an economy could be counter-productive, stifle innovation, and hinder individual freedom. And

lastly, private property rights are essential for economic growth and personal liberty.

In summary, the principles of Neo-classical economics or Neo-liberalism suggest that the government can promote economic growth by reducing protectionism or undue interference and allowing for individual economic freedom, and self-reliance. In contrast, the theory does not explicitly analyse how different institutional arrangements can shape economic behaviour. Institutional economics theory on the other hand provides a more comprehensive framework for appreciating the role of institutions in shaping economic growth. Theoretically, the regime choice influences economic growth patterns through its indirect effects on investment, productivity, and global trade (Manuk, 2013).

2.2   Empirical Literature

In developing nations especially the SSA countries, the empirical literature on the institutional drivers of economic growth is few, and there are no consensus results on their findings. While some studies have shown that institutions drive economic growth, others have shown no correlation between economic growth and these institutions. This study reviewed several pieces of literature but findings varied significantly, for instance in investigating the link between institutions and economic growth nexus in Sub-Saharan Africa, Milkessa (2022), employed a panel data set for a group of 43 SSA countries and found no significant effect linking the institution and economic growth in those countries. However, Becherair (2014) investigated the impacts of institutional factors on economic growth in Middle Eastern and North Africa (MENA) countries using a panel data analysis from 1995-2012 the result shows that institutions significantly influence growth in an economy in MENA countries.

Roy (2014) explored the institutional role in determining the economic growth of the Indian state using Principal Component Analysis (PCA) and found that three key institutional components: legal, political institutions, and state intervention are all significant in shaping the country's economic performance. Similarly, Jaunky (2013) examined the link between democracy and economic development of a group of 28 countries in SSA from 1980-2005, using panel data and cointegration tests. The study results show that democracy and the GDP have a positive link. Manuk and Janet (2013), examine the drivers of growth in SSA using fixed and random effects

models and found that private and public investments can boost economic growth.

Sarwar (2013) also investigated the link between institutions and economic growth in some Asia countries using data from 1995-2010 on Fixed Effects Estimation and Generalised Method of Moment. The study found a positive and significant impact of physical, and human capital and regulatory institutions on economic growth and development in Asian countries. Pattilo, Grupta, and Carey (2006) examine some basic factors that sustain growth accelerations and development in Africa. The study seeks to determine the types of growth strategies that contribute the most to reducing poverty in Africa using panel data analysis. The study results suggest growth is evident, but remains insufficient for significant poverty reduction, and it highlighted the need for strategies to sustain and accelerate pro-poor growth. Other literature in this field includes Hodgson (2006); and Haggard (2004).

Several pieces of literature have tried to examine the economic growth trajectory of developing countries especially in Sub-Saharan Africa with disparate findings. However, no consensus findings have emerged on what factor is responsible for driving the economy and sustaining growth in an economy. It thus appears that there are combinations of factor(s) that idiosyncratic the growth of the economy of any nation. Economic factors including poor investment in human and physical capital, inflation rate fluctuation, and foreign exchange rate instability have once been taught as the key hindrances to economic growth. However, with the research over the past decade on some of these factors, other factors are beginning to emerge as key drivers and hindrances to economic growth. This study would contribute to the existing literature by examining the institutional drivers of economic growth in Sub-Saharan countries.

3.   Methodology
3.1   Data and Sources

The study uses a panel data set covering the Sub-Saharan countries over 10 years (2014-2023). The data sources are secondary and are from the World Governance Indicators [WGI], (2023) and the World Bank database. The explanatory variables used are control variable and institutional variables. The study also uses the indicators that measure institutional qualities (rule of law, control of corruption,

et cetera) and not factors that merely describe the attributes of political institutions (type of government).

3.2   Model Specification

The empirical model adopted in this study is drawn from Becherair (2014) as shown in equation (1). This model is within the framework of the Neo-classical growth model of Solow (1956); Mankiw (1995); Armstrong and Read (2003) augmented to include the measures of institutional qualities. The following model is specified in order to measure the economic growth in Sub-Saharan countries.

$$Y_{it} = A(K) * f(K_i, L_i) \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots 1$$

Where Y_{it} represents the country's aggregate economic output at year t., i is a country-specific variable that is serially independent and assumed to be constant. K is the aggregate capital stock and A(K) is the rate of technological advancement. Here, the capital stock is assumed to be composed of two components: domestic and foreign-owned capital (Net FDI). While L represents the labour force.

Docquier (2014) specified the significant use of appropriate techniques to obtain robust estimates for parameter capturing. The alternative expression in equation (1) allows the research to consider the growth concept of the response variables as follows:

$$Y_{it} = A_{it} + K_{hit} + K_{mit} + \alpha L_{it}\beta + H_{it} \dots\dots\dots\dots\dots\dots\dots\dots 2$$

Y_{it} represents the aggregate economic output at period t, K_{hit} and K_{mit} represent the domestic and foreign-owned capitals in a country, $L_{it}\beta$ represents the labour, H_{it} is the human capital stock, and A_{it} represents the total factor productivity which explains the output growth and   denotes technological advancement.

Given equation 2 and the established standards in the literature, such as the model adopted by Adeolu (2007); Ekpo (1995); Olatundun and Nafisat (2018); Rasha, Constantinos, and Persefoni (2011) is applied. Hence, the growth rate would be specified from the equation (2) in the following way:

$$Y_{it} = \beta1 H_{it} + \beta2 Contr_{it} + \beta3 RL_{it} + \beta4 Unemp_{it} + \beta5 Exp_{it} + \beta6 Con. Exp_{it} + \beta6 Pol. Stab_{it} + \beta7 CPIA_{it} + \dots \Sigma_{it} \dots\dots\dots\dots\dots 3$$

Where "i" represents the control dimension (i = 1 … N) and t is the time dimension (t= 1…T) Y_{it} equal the real GDP growth rate. H_{it} represents human capital development. $Contr_{it}$, represents the control of corruption in a country. R_{Li}, is the measure of the rule of law. $Unemp_{it}$, represents the country's unemployment rate. Exp_{it},

represent a country's export. $Con. Exp_{it}$, represents the country's consumption expenditure. $Pol. Stab_{it}$, represents a country's political stability. $CPIA_{it}$, is the foreign investor's perception of the trading rate in terms of their policy and institutional assessment. Σ_i, represents error term control β_i (i = 0, 1, 2, 3, 4...) is the representative of the parameters; i represent the cross-section of countries and t is the time series (in years). Where, Σ_{it} represents the control of error of the equation. Furthermore, the data were sourced through secondary means (such as data from the World Bank development indicators, V-Dem, and WGI)

As argued by Baltagi (2007) panel data analysis is suitable for identifying and measuring the effects of the independent variable against the dependent variables which ordinarily may not be obtained using other techniques like time series or cross-sectional data. The technique, therefore, is adopted because it is a better estimation method for studying the dynamics of change over time. In addition, panel data analysis is an appropriate method to test determinants of growth trajectories in different territorial units. In this case, annual data has been collected on fifteen West African countries from the period of 2014-2023.

4. Results and Discussion
4.1 Descriptive Statistics
Table 1: Descriptive Statistics Result

	GDP	Net FDI	Property Right	Unemp	Contr Corrupt	Rule of law	CPIA	Pol. Stab.
Mean	4.1798	3.8311	2.9968	4.4297	-0.5451	-0.637	3.9781	-0.632
Std error	0.3072	0.3635	0.0442	0.2452	0.0420	0.0347	0.0278	0.060
Median	4.7962	2.5722	3	3.4105	-0.6603	-0.659	4	-0.517
Mode	#N/A	#N/A	3	3.066	#N/A	#N/A	4	#N/A
Std Dev.	3.8871	4.5983	0.5593	3.1024	0.5310	0.4395	0.3518	0.760
Sample								
V.	15.109	21.145	0.3129	9.6248	0.2820	0.1932	0.1237	0.577
Kurtosis	19.8797	4.9605	-0.5213	1.4804	1.4408	0.6271	0.2083	0.034
Skew	-3.213	1.6532	0.231	1.4191	0.9385	0.6392	-0.378	-0.435
Range	36.649	35.190	2	14.272	2.6124	2.1995	1.5	3.656
Min	-20.805	-11.192	2	0.418	-1.5960	-1.537	3	-2.729
Max	15.844	23.999	4	14.69	1.0164	0.6619	4.5	0.927
Sum	668.77	612.99	479.5	708.76	87.230	102.00	636.5	-101.1
Obs.	160	160	160	160	160	160	160	160

Sources: Author's calculation (2025)

Table 1 shows the results of the descriptive statistics of the variables used in the model. From the table, it can be observed that the

average GDP growth rate is 4.18 with maximum and minimum values of 15.84 and -20.81 respectively. The standard deviation of the growth rate indicates 3.89 which indicates that the data are well spread out. The skewness of the distribution shows -3.21 which indicates that the distribution is unskewed. Control of corruption, rule of law, and political stability show a mean value of -0.5451, -0.637, and -0.6315 respectively and this indicates that the three variables' average values are less compared to the other variables in the distribution. This signifies that the variables greatly impact on the GDP growth rate in an economy compared with other variables in the distribution. The observable sample size is 160 which shows that all relevant variables are well represented.

4.2   Correlation Matrix
Table 2: Correlation Matrix Result

	GDP	Net FDI	Property Right	Unemp	Contr Corrupt	Rule of law	CPIA Trad.	Pol. Stab.
GDP	1							
Net FDI	-0.0527	1						
Property Right	0.0583	0.0436	1					
Unemployment	-0.1772	0.2621	0.3254	1				
Contr Corruption	0.0366	0.1051	0.8191	0.4233	1			
Rule of Law	0.01432	0.0876	0.8807	0.427	0.9132	1		
CPIA Trad.	0.1894	-0.0618	0.6150	0.188	0.6334	0.6075	1	
Political Stability	-0.0131	0.3345	0.5524	0.417	0.5246	0.4957	0.3883	1

Source: Author's calculation (2025)

Table 2 shows the correlation coefficients of the independent and the dependent variables. As indicated in the regression analysis above, the coefficient values in this correlation test are almost the same. For example, the coefficient of the property right is 0.0583, indicating a positive relationship with the GDP growth. Also, the coefficients of control of corruption, rule of law, and CPIA trading are 0.0366, 0.0143, and 0.1894, respectively. And they all indicate a positive relationship with the economic growth of any particular nation.
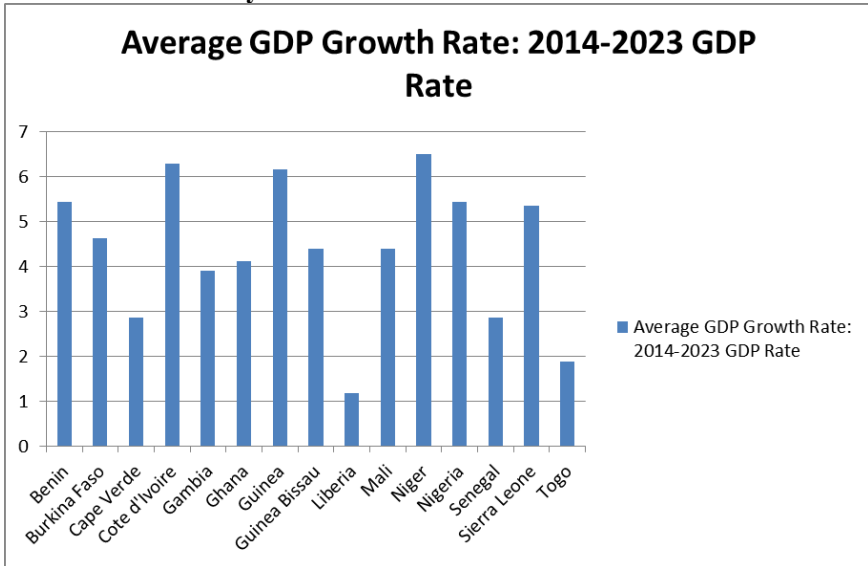
4.3 Trend Analysis

Figure 1: Average GDP Growth Rate among Sub-Saharan Countries
Source: Author's calculation (2025)

Figure 1 shows the mean GDP growth rate of the Sub-Saharan countries between the years under review. From the figure, it is observed that the countries with the highest average GDP growth rate are Cote d'Ivoire, Guinea, Niger, Benin, Nigeria, Sierra Leon, and Burkina Faso. Gambia, Ghana, Guinea Bissau, and Mali have mild growth rates. Countries with the lowest growth rates are Cape Verde, Senegal, Togo, and Liberal. The significance of this figure is to show which of the countries has a consistent growth trend over time, and this would assist foreign investors in making an informed decision on which location is best in terms of investment.
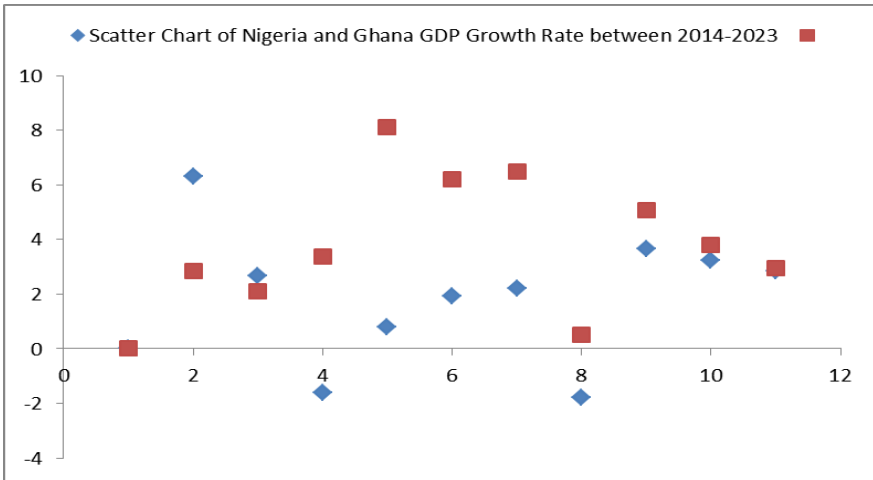
Figure 2: Mean Chart for Nigeria and Ghana GDP Growth Rate between 2014-2023
Source: Author's calculation (2025)

Figure 2 shows the comparison of the GDP growth trajectory between Nigeria and Ghana. The Y axis shows the average growth rate between the countries while the X axis indicates the years under review. As can be observed from the chart 1 above, the turning points from the GDP trend are peaks and troughs (high and low). Persistent positive trends show booms while persistent negative trends show recessions. The green colour symbolises Nigeria while the red colour symbolises Ghana. The chart also indicates Nigeria's two recession periods of 2016 and 2020.

4.4   ARDL Regression Results
Table 3: Regression Statistics

Regression Statistics	
Multiple R	0.295535
R Square	0.087341
Adjusted R Square	0.045311
Standard Error	3.797979
Observations	160

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	-8.6749	6.542671	-1.3259	0.18686	-21.60122	4.25141
Net FDI	0.026698	0.072764	0.366909	0.71420	-0.117062	0.17046
Property Right	0.594031	1.237014	0.480213	0.63177	-1.849931	3.03799
Unemployment	-0.24993	0.115519	-2.16357	0.03206	-0.478165	-0.0217
Contr Corruption	0.462128	1.46289	0.315901	0.75251	-2.428094	3.35235
Rule of Law	-1.54776	2.102054	-0.73631	0.46268	-5.700772	2.60526
CPIA trading	2.82463	1.157992	2.439248	0.01587	0.5367915	5.11247
Political Stab	-0.17079	0.538796	-0.31698	0.75169	-1.235284	0.89371

Note: t-statistics are in parenthesis *$P<0.05$, **$P<0.01$
Source: Author's calculation 2025

Table 3 shows the result of the auto-regression analysis and explains how well the model fits the data in terms of the link between independent and dependent variables. And the statistical significance of the coefficients. From the table, it can be observed that the coefficients of Net FDI, property right, control of corruption, and CPIA trading rate are all positive which indicates that as the value of the independent variables increases, the mean of the dependent variable (GDP growth rate) increases as well. This means that as any of the independent variables increase by an extra unit, it will shift the dependent variable upward direction. Also, the p-value of unemployment is 0.03 less than the significance level ($P < 0.05$) ($0.03<0.05$), which means that unemployment is statistically significant to economic growth. CPIA trading is statistically significant as the p-value is less than 0.05 ($0.01<0.05$).

4.5   Discussion of Findings
We start our analysis by studying how the GDP growth behaves toward the observed variables. The results from the statistical analysis of the observed variables from 2014-2023 show that the

average GDP growth rate within the period under review is statistically important as the control of corruption, rule of law, and political stability are all less than 1. The standard deviation of the growth rate also indicates that the data are well spread out.

The p-values of unemployment and CPIA trading indicate statistical significance as the p-value is less than 0.05. The coefficient values in the test statistics indicate positive values for most observed variables. For example, the coefficient of property rights, control of corruption, rule of law, and CPIA trading have a positive relationship between the variables and the GDP. This finding corroborates the earlier results by Becherair (2014), Roy (2014), and Jaunky (2013), who found that institutions have a significant effect in influencing economic growth in SSA countries. Similarly, the positive value of coefficient of Net Foreign Direct in the analysis supported the earlier claim by Manuk and Janet (2013) that private and public investments can boost economic growth. However, there is a sharp contrast with the finding by Milkessa (2022), who found no significant cause-effect linking the institution and economic growths of the countries.

5.   Conclusion and Recommendations

The analysis of the results shows that some significant relationships do exist between the GDP growth and the country's institutions. The coefficients of some of these independent variables such as Net FDI, property rights, control of corruption, and CPIA trading rate are all positively correlated and statistically more significant, especially on variables such as unemployment and CPIA trading. Meaning that a unit increase or improvement in those independent variables would have a significant effect on the economic growth rate. Some countries have higher GDP growth than others, in these countries, there are certain mechanisms in place to checkmate corruption in their system, obedience to the rule of law, and protection of property rights, investors' confidence in terms of CPIA trading rate, control of unemployment in the country and the ability to attract foreign direct investment into their economy.

With these findings, some recommendations are being made to improve the economic growth of Sub-Saharan African countries. Firstly, it is recommended that there should be an improvement in their institutional settings and efficient use of macroeconomic variables in this part of the world; improvement in the area of obedience to the rule of law, political stability, control of corruption, and sustained

improvement policies that are aimed at attracting FDI inflow into the country and reduction in the unemployment rate.

Secondly, improvement in the provision of social amenities such as good roads, and constant and stable electricity supply especially in areas where industries are concentrated is a way of encouraging production as this will help to reduce production costs and help to create access to more markets among other benefits.

Thirdly, the economy should be open to encourage every potential investor to invest their capital. And there should be checks and balances on the economic regulator to ensure accountability in their dealings.

Lastly, reduction of unemployment through the creation of various skills acquisition programs and training for teeming youths who are unemployed. Technical skills acquisition would help reduce social vices and create employment opportunities

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