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INSTITUTIONAL QUALITY VARIABLES AND ECONOMIC GROWTH IN SUBSAHARAN AFRICA: EVIDENCE FROM LOW-AND MIDDLE-INCOME COUNTRIES

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Abstract
The world has made astounding progress in improving living standards during the last thirty-four years. Despite these remarkable progresses, the struggle against decline in the standard of living continues and, in some respects, it is becoming difficult to achieve, especially in Sub-Sahara Africa. SSA is made up of 48 countries and out of 25 low-income countries in the world 22 are in SSA, 20 SSA countries belong to the middle-income group. This means that out of 48 countries of SSA, 42 are among the low- and middle-income groups of the world. SSA has become home for low-income groups even with its abundant resources. In view of this, this study empirically investigated the impact of institutional quality variables on economic growth in low-middle income groups in SSA countries. The study used annual data from World Bank development indicators and World Governance Indicators from 2002 to 2022. Twenty-eight SSA countries were selected for the study. This study compares the effect of institutional quality variables on economic growth, in low- and middle-income SSA countries. Panel unit root test

was conducted using Levin, Lin and Chu (2002) method and all variables were integrated of order zero 1(0) with intercept. Hausman test result chose fixed effect method of estimation as the best fit for the regression. The results show that both low- and middle-income countries suffer weak institutional settings although in the middle-income groups, institutional quality is better than the low-income groups.
This is among the first studies to compare institutional quality variables and economic growth in SSA using evidence from low-middle income countries of SSA. The study therefore recommends that SSA countries should improve their institutional quality to embrace a higher standard of living.

Keywords: institutional quality variables, Economic Growth, low-middle income group, Sub-Saharan Africa

JEL Codes: O43, O40, Q32, F13

1. INTRODUCTION

The world has made astounding progress in improving living standards during the last thirty-four years (World Bank, 2024). Strong worldwide growth and the rise in wealth of several developing nations, including those in South Asia, East Asia and Pacific, were the main drivers of this advancement. Despite these remarkable progresses, the struggle against decline in the standard of living continues and, in some respects, is becoming difficult to achieve, especially in Sub-Sahara Africa (SSA). SSA is made up of 48 countries and out of 25 low-income countries in the world 22 are in SSA, 20 SSA countries belong to middle-income group, 5 belong to upper middle-income group and only 1 country belongs to the high-income group (World Bank 2025). This means that out of 48 countries, 42 are among the low- and middle-income groups.

Many well-known economists have concluded that a key factor clarifying cross-country development disparities in comparative growth studies is the strength of institutions (Ideba, et al, 2025; Orji, et al 2025; Ogbuabor et al, 2025; Ogbuabor et al, 2024; and Frederic, 2014). North (1992) defines institutions as the humanly devised constraints that structure economic, political, and social interaction. They are made up of formal rules (constitutions, laws, and property rights) as well as informal ones (sanctions, taboos, conventions, traditions, and conduct codes). He further explained that; “it is institutional analysis that connects change in economies over time, ties the past to the present and future, and relates the separate parts of an economy to each other” (North, 1994, p. 359). Nevertheless, the subject of formal institutions (good governance) has grown in importance in discussions of international development and public policy (Ekeocha, et al, 2023; Ogbuabor, et al, 2023; Orji, et al, 2023; Ekeocha, et al, 2023; Bichaka & Nsiah, 2013). Over time, the operational meaning of good governance has changed. According to Dori (2024), Successful governance supports a country's growth and development by delivering a high standard of living, full employment, economic prosperity, smart policies, and democratic dividends. However, the United States Agency for International Development (USAID, 2024) opine that good governance entails strengthening the legislative and executive branches at all governmental levels to deliver inclusive, efficient, and citizen-responsive services that effectively and openly mobilize and allocate public funds to support inclusive economic growth and locally owned development. In addition, competent leadership

is becoming a more important element for foreign investors when making investment choices (Ogbuabor, et al, 2020a; Ogbuabor, et al, 2020b; Ogbuabor, et al, 2020c; Anthony-Orji, et al, 2019 and Bichaka & Nsiah, 2013).

The problem of low per capita income and institutional failure has been cited as a critical factor undermining the growth and development strides of developing countries, especially in Sub-Sahara Africa. For example, statistical evidence showed that about thirty-six percent of people worldwide were within the low-income group (living in extreme poverty) in 1990 (World Bank, 2018). This means that this number of the global population was surviving on or less than $1.90 daily. By 2013, that share of the population came down to 11.2 and to 10 percent in 2015. The population of those who are extremely poor reduced from 1.9 billion in 1990 down to 736 million in 2015. Credit to East Asia and Pacific where China's economic growth has contributed to millions of individuals emerging from severe poverty, from 987.1 million in 1990 to as low as 47.2 million people in 2015. South Asia also made impressive progress to reduce extreme poverty further. Compared to half a billion in 1990, there were only 216 million impoverished individuals in this region in 2015. See table 1 below:

Table 1:1 The number of poor at $1.90 a day (million)

Regions Year	East Asia & pacific	Europe & central Asia	Latin America & Caribbean	Middle East & North Africa	South Asia	Sub-Sahara Africa	World
1990	987.1	….	62.6	14.2	535.9	277.5	1,894.80
1993	902	23.4	61.3	16.6	542.1	327.3	1,877.50
1996	712.9	33.8	67.7	15.3	518	350.7	1,703.20
1999	695.9	36.7	69.7	10.6	….	376.1	1,728.60
2002	552.5	27.6	63.2	9.4	554.3	398	1,609.90
2005	361.6	22.9	54.9	9.4	510.4	387.7	1,352.20
2008	292.8	13.3	39.9	8.8	467	396.4	1,223.20
2010	220.6	11.4	35.6	7.9	400.8	408.5	1,090.60
2011	169.6	9.8	33.8	9.2	328	406.4	963
2012	144.6	8.9	28.6	9.4	304.7	406.1	908.4
2013	73.1	7.7	28	9.5	274.5	405.1	804.2
2015	47.2	7.1	25.9	18.6	216	413.3	735.9

Source: World Bank PovcalNet, (2018)

Despite this impressive progress in the world, there are still 736 million individuals who are extremely poor. Unlike other parts of the globe, there were 413 million extremely poor people living in SSA in 2015, up from 278 million in 1990 (World Bank 2018a). As at 2024 about 464 million people are still living in extreme poverty (World Bank, 2024b). This means that there is no visible improvement in lifting SSA nations from low per capita income to a better standard of living. According to World Bank (2018), a plausible rationale could be that the region's economic growth has not proved as successful in improving income per capita as it has in other areas. Furthermore, Rapid global economic decline brought on by the COVID-19 epidemic has

resulted in severe recessions in numerous nations. Per capita incomes in the great majority of emerging markets and developing economies (EMDE's) shrank in the year 2020, which resulted in millions of people falling back into low-income groups.

SSA possesses an abundance of natural resources ranging from arable land to various solid minerals including gold, diamonds, copper, iron, and other energy resources including oil, gas, coal, and uranium among others, but it has not been able to capitalise on these resources: Its people languish in suffering, its economy is weak and underdeveloped, and its infrastructure is feeble (Constanza & John, 2012). The study is motivated by the degree of low income per-capita and the huge natural resources endowment in SSA when compared to other parts of the world. This contradiction strengthened the need to enquire why SSA is not advancing. It is important to break off the wide-ranging decline of per-capita income in SSA. Acemoglu and Robinson (2012) explain that the rich usually live-in countries where the government does not arbitrarily detain or harass them; rather, it offers services like law enforcement, healthcare, education, and transportation. Also noteworthy is the fact that people can influence their country's political course by casting ballots in elections. "This inequality does not just have consequences for the lives of individual people in poor countries; it also causes grievances and resentment, with huge political consequences" (Acemoglu & Robinson 2012, p.41).

New growth theories advocate that apart from the conventional factors of production and technology and other range of variables such as trade openness, inequality, government size, unemployment, etc, there could be other factors influencing economic performance between countries and regions, such as institutional quality (Almeida, Esperidiao & Fabio, 2024; Acemoglu, Johnson & Robinson, 2005, Chomen, 2022). Therefore, the significance of institutions in influencing a nation's economic progress has received a lot of attention. As a result, several empirical investigations have been carried out to gather further proof of the impact of institutions and the ways in which they may influence development. This paper aims to compare institutional variables and economic growth in SSA using evidence from low and middle-income countries. The rest of the study is structured as follows: Section 2 and 3 focus on literature review and methodology, section 4 is on results and discussion, while section 5 provides the conclusion, and recommendations.

2.1 LITERATURE REVIEW

This section reviews empirically literature as they relate to institutions and growth. Mohammed, Kassem and Ali (2023) examine financial inclusion, institutional quality, and economic growth in Sub-Sahara African Countries. A twenty-country sample was used. The region was divided into four sub-regions to create the sample (Southern, Eastern, Western, and Central). The selection of the timeframe was based on real GDP and GDP growth rate fluctuations that occurred between 2000 and 2002, together with the notable fall in GDP from 2003 to 2020. To explore the relationship between financial inclusion, institution quality, and economic growth, System GMM estimator was employed. The results show a strong connection between institutional quality and economic growth, especially when GDP rate and real per capita are used as indicators of growth. Nevertheless, upon regressing it against real GDP, GDP rate, and real per capita. It was shown that the relationships between institutional quality index

and different indicators of economic growth vary. The results also indicated that strong institutions significantly hinder economic growth when measured by real GDP.

Almeida, Esperidiao and Fabio (2024) examined how institutions affect economic growth in developed nations, Latin America and the Caribbean. They estimated orthogonalized impulse response functions using a panel VAR model in 42 nations between 1970 and 2019 to evaluate the effect of economic and political institutions on the economy. Trade openness and gross capital formation are also considered. According to the findings, exogenous shocks to the quality of institutions are beneficial to average growth rate. The Caribbean and Latin America have more responsive political structures than more developed economies. Additionally, in the Caribbean and Latin America, they discover proof of both a bidirectional causal relationship between growth rate and economic institutions and unidirectional Granger causality between political institutions and economic growth. The researchers found that enhanced institutional environments yield superior economic outcomes, with these endeavors varying based on the socioeconomic bracket of the respective economies.

The scope extended to the BRICKS as Ayushi and Tridisha (2021) use a panel fixed effect model to investigate how institutional quality affects economic success in the BRICS countries from 2002 to 2019. The analysis included traditional growth drivers like human capital, physical capital, government spending, and inflation in addition to the six indicators of institution from World Bank governance indicators. Results showed that, whereas other institutional variables proved to be unimportant, government efficacy, regulatory quality, and the control of corruption are favorable and significant in the BRICS countries. In the same line of research and methodology, Ukwueze, Ogbonna, Nwodo and Urama (2019) determine the impact of social infrastructure on economic growth of SSA countries. The control variables selected for the study were trade, FDI, labour supply and government expenditure. Out of the six governance indicators, voice and accountability, regulatory quality and control of corruption were selected from 2002-2016. The outcome of Hausman test favoured fixed effect method of estimation for the study. The result reveals that voice and accountability and regulatory quality are statistically insignificant whereas control of corruption and other control variables selected are significant. They conclude with much emphasis on the need to work around policies that can create confidence in private investors by eliminating every form of corruption. The above two findings reveal that regulatory quality is significant in the BRICS countries whereas in SSA it is insignificant.

In Ranjpour, Kazerooni, Beheshti, and Ghorbani (2021), institutional elements and their importance on economic growth of oil-producing developing countries are examined and estimated. Based on the available information, the study period was selected to span from 2002 to 2014. Four divisions were created out of this period: 2002–2004, 2005–2007, 2008–2010, and 2011–2014. Initial and the average of the variables throughout various periods were the two ways in which dependent variables were measured. 22 nations were selected while 17 were examined considering the characteristics that were available, according to the UNCTAD division (2008). The weight important of the variables under study was determined using Johnson's weight importance technique. The estimation results indicated that, in terms of their

influence on growth of emerging nations that produce oil, government effectiveness, regulatory quality, and corruption control had the highest weight value among other institutional elements. Additionally, after determining how important institutional elements were, the weighted average of these factors was used to generate the institution index. Afterwards, using the Dawson Model and dynamic panel data (GMM), impact of institutions on growth were calculated. The impact of the institution index was demonstrated by the results. Policymakers should therefore use the Control of Corruption processes to consider these implications and repercussions. Likewise, Iskandar, et al (2023) investigate the effect of institutions on economic growth in East Asian. Data was sourced from five East Asian countries between 2005 and 2020. A dynamic panel data model analysis with Arellano-Bond GMM approach was used. Results showed that growth was not impacted by the elements of voice and accountability, political stability, rule of law, and effective government. Meanwhile, effective corruption control and regulatory quality have made a major contribution to East Asia's growth. Regulatory quality has an elastic long-run influence on economic growth in East Asia.

Sen (1999) expressed a novel observation about evaluating the impact of institutional development and economic progress. He opined that, ‘‘destitute countries with per capita income lower than that in the more affluent economies have nevertheless a greater social wealth owing to a uniform distribution of incomes. A more uniform income distribution may be attained through a sound system of social welfare and insurance. As a result, a poorer country with a small per capita income may have greater life expectancy and higher literacy rate. A crucial condition for such behaviour is the availability of a proper institutional structure of the economy and efficient economic policy implemented in the country’’. The study has extended the discussion on the comparative effects of institutional factors on economic growth of low- and middle-income countries of SSA. This study has indeed elucidated the effect of institutional factors on income levels and general economic growth in the selected SSA countries.

3. METHODOLOGY

3.1 Theoretical Framework

The theoretical framework for this study is based on the New Growth Theory pioneered by Romer (1986) and Lucas (1988), which aims to endogenize the accumulation of knowledge as the fundamental cause of long-run rises in per-capita income. Societies learn through various means such as formal schooling, training programs, field research, learning by doing, process and product innovation, and basic scientific research (Aghion & Howitt, 1992). The New Growth Theory, often referred to as endogenous growth, posits that long-run growth is driven by forces inherent to the economy, particularly those that control the incentives and possibilities for the creation of technological knowledge.

3.2 Model Specification

The basic form of an endogenous growth model can be expressed as:

$$Y = A.K^{\propto}.L^{1-\propto} \qquad (3.1)$$

where Y is the total output (GDP), A is the total factor productivity (TFP), which is influenced by knowledge, technology, and institutions. K is the physical capita stock, L is labour input, and $\propto$ is the output elasticity of capital ($0 < \propto < 1$).

To specify the model for this study, the endogenous growth model is expanded and transformed to incorporate institutional factors and other key variables as follows:

$$PCI_{it} = \beta_0 + \beta_1 TRD_{it} + \beta_2 FDI_{it} + \beta_3 LFP_{it} + \beta_4 GEF_{it} + \beta_5 VAC_{it} + \beta_6 REQ_{it} + \beta_7 POS_{it} + \beta_8 ROL_{it} + \beta_9 COC_{it} + \varepsilon_{it} \quad (3.2)$$

Where:

β_0 is the intercept,

$\beta_1 - \beta_9$ denotes the estimated coefficients,

i and t denote the i^{th} country and t^{th} time period, respectively. PCI is the real GDP per capita, TRD is trade as a percentage of GDP, FDI is foreign direct investment flow, LPF is the labour force participation rate, GEF is Government Effectiveness, VAC is Voice and Accountability, REQ is Regulatory Quality, POS is Political Stability, ROL is Rule of Law, COC is Control of Corruption.

For a robust estimation, and to avoid the issue of serial correlation, the study incorporates principal component analysis to integrate the institutional variables into an index. Hence eq. 3.2 was transposed to:

$$PCI_{it} = \beta_0 + \beta_1 TRD_{it} + \beta_2 FDI_{it} + \beta_3 LFP_{it} + \beta_4 INSQ_{it} + \varepsilon_{it} \quad (3.3)$$

Where INSQ is institutional quality, which is the index of the six indicators of institutional variables. INSQ will represent the overall institutional effect.

Thereafter each of the institutional variables shall be estimated along with other control variables of eq. 3.2. Thus.

$$PCI_{it} = \beta_0 + \beta_1 TRD_{it} + \beta_2 FDI_{it} + \beta_3 LFP_{it} + \beta_4 GEF_{it} + \varepsilon_{it} \quad (3.3a)$$

$$PCI_{it} = \beta_0 + \beta_1 TRD_{it} + \beta_2 FDI_{it} + \beta_3 LFP_{it} + \beta_4 VAC_{it} + \varepsilon_{it} \quad (3.3b)$$

$$PCI_{it} = \beta_0 + \beta_1 TRD_{it} + \beta_2 FDI_{it} + \beta_3 LFP_{it} + \beta_4 REQ_{it} + \varepsilon_{it} \quad (3.3c)$$

$$PCI_{it} = \beta_0 + \beta_1 TRD_{it} + \beta_2 FDI_{it} + \beta_3 LFP_{it} + \beta_4 POS_{it} + \varepsilon_{it} \quad (3.3d)$$

$$PCI_{it} = \beta_0 + \beta_1 TRD_{it} + \beta_2 FDI_{it} + \beta_3 LFP_{it} + \beta_4 ROL_{it} + \varepsilon_{it} \quad (3.3e)$$

$$PCI_{it} = \beta_0 + \beta_1 TRD_{it} + \beta_2 FDI_{it} + \beta_3 LFP_{it} + \beta_4 COC_{it} + \varepsilon_{it} \quad (3.3f)$$

In this case INSQ is replaced with each of the institutional variables for estimation. This is to avoid estimating two institutional variables at the same time. The study estimates the parameters of the explanatory variables of Eq. 3.3 above by fixed-effects and random-effects models using panel data. An empirical representation of the model is specified as follows:

$$Y_{it} = \delta_i + \Gamma_t + (X_{it})\Phi + \Psi_{it} \quad (3.4)$$

Y_{it} is the real GDP per capita for country i at year t.

X_{it} is a vector of the explanatory variables (TRD, FDI, LFP, INSQ, thereafter, GEF, VAC, REQ, POS, ROL, and COC). For country i =1,2……, N and at time t = 1, 2…..T;

Φ is a scalar vector of parameters of β_1……. β_4;

Ψ_{it} is a classical stochastic disturbances term with $\Sigma(\Psi_{it}) = 0$ and $var(\Psi) = 0_{\varepsilon}^2$;

δ_i and Γ_t are country and time specific effects, respectively.

The study objective is grouped into two sets. This is so doing to be able to compare each group with another within the objective. The study adopts the same model to make a comprehensive compare. The study subjects panel data regression to Hausman test to determine the best fit between Fixed effect and Random effect method.

Table 2. Sub-Sahara Africa Income Groups

Sub-Sahara Africa Income Groups	
Low-income countries (objective 3a)	Middle-income countries (objective 3b)
Benin	Angola
Burkina Faso	Botswana
Burundi	Cameroon
Central African Republic	Congo Republic
Chad	Cote d'Ivoire
Comoros	Equatorial Guinea
Democratic Republic of Congo	Gabon
Ethiopia	Ghana
Gambia	Kenya
Guinea	Mauritania
Guinea Bissau	Namibia
Sierra Leone	Nigeria
Tanzania	South Africa
Zimbabwe	Zambia

Source: IMF, 2023.

3.3 Estimation procedure

The study subjected all the variables for estimation to unit root test to determine the stationarity as well as the order of integration of the variables. A panel co-integration test was conducted to determine the long run relationship among variables. Due to the nature of the variables involved, the study suspected the possibility of multi-collinearity among the institutional variables. A multi-collinearity test was conducted to see how high the variables are correlated with each other. To avoid the multi-collinearity issue, the study incorporated principal component analysis to integrate the institutional variables into an index which will represent the overall institutional effect. Then the estimation was conducted separately by inserting each

of the institutional variables into the model. The study estimated the parameters of the explanatory variables by fixed-effects models using panel data. The study employed Hausman test to identify the optimal approach between random and fixed effects method of estimation. The decision of the Hausman test was adopted for the estimation.

3.4 Data Sources and Econometric Software

Secondary data was used for the research. The frequency of the data is annually from 2002 to 2022. The data were sourced from the SSA data extract from database World Development Indicators and the Worldwide Governance Indicators. The econometric software used for the study is E-views 12.0.

4. PRESENTATION AND ANALYSIS OF RESULTS

The study presents different test results carried out on the data to determine their time series properties. It begins with the descriptive statistics to view the overall information contained in the sample. Then followed by the stationarity test results, Hausman test and the discussion of the empirical results of the specified models.

4.1 Descriptive statistics

The summary of the basic features of the study data set are presented in table 5.1 below.

Table 4.1: Descriptive Statistics

	PCI	FDI	TRD	LFP	COC	GEF	POS	REQ	ROL	VOC
Mean	2008.95	3.69	61.83	65.74	-0.72	-0.80	-0.62	-0.68	-0.74	-0.60
Median	920.94	2.42	57.13	65.86	-0.80	-0.85	-0.51	-0.73	-0.79	-0.68
Maximum	19849.72	46.27	156.86	89.45	1.24	1.15	1.20	1.20	1.02	0.94
Minimum	110.46	-17.29	0.000	41.41	-1.65	-1.88	-2.70	-2.20	-1.87	-1.99
Std.Dev.	2719.18	5.47	27.12	10.88	0.58	0.59	0.87	0.60	0.60	0.68
Skewnes	2.85	3.06	0.56	0.000	0.84	0.80	-0.18	0.58	0.58	0.28
Kurtosis	13.04	18.11	3.17	2.51	3.29	3.52	2.33	3.50	3.07	2.28
Jarque-Bera	4430.59	8833.66	42.54	7.83	96.77	94.85	19.08	53.94	44.56	27.90
Prob.	0.000	0.000	0.0000	0.019	0.000	0.0000	0.0000	0.0000	0.0000	0.0000
Sum	1603144	2944.64	49319.28	52460.32	-576.29	-639.03	-495.45	-545.60	-588.97	-478.85
Sum Sq. Dev.	5.89E+09	23840.51	586282.0	94285.88	265.30	276.03	596.87	282.20	285.57	367.69

Source: authors' computation using E-views 12.0. Please note that numbers were reduced to two decimal places.

From the results of the descriptive statistics in table 4.1 above the measure of central tendency showed the mean which is the average value of each variable and median is the middle value sorting from the highest to the lowest value. The mean of per capita income of the selected countries is 2008.94 while the median per capita income is 920.94. The mean and median of the institutional variables ranges from -0.60 to -0.80 and -0.51 to -0.85 respectively. The measure of dispersion reveals the maximum, minimum and the standard deviation values show

how far the observations are from the sample average. The maximum per capita income is 19,849.42 and minimum is 110.46. The maximum values of the institutional variables range from 0.94 to 1.24 while the minimum values range from -1.65 to -2.70. On measures of normality, the skewness and kurtosis are considered. The kurtosis reveals the peak or flatness of the distribution of the series. The skewness measures the degree of the asymmetric of the series. Normal skewness implies that the degree of distribution is symmetric around the mean and the skewness value is zero. Positive skewness implies that this distribution will have a long right tail, which means that there are higher values than the sample mean, while negative skewness implies that this distribution will have a long-left tails with lower values than the sample mean. The Jarque-Bera statistic measures the difference between the skewness and kurtosis of each of these variables with its probability value. The null hypothesis is that the distribution is normal, and the alternative is that the distribution is not normal. This means to reject Ho if the probability value is significant at 0.05. These show that all the variables are not normally distributed judging from the probability values of less than 0.05.

4.2 Pre-Estimation Test Analysis

4.2.1 Multi-collinearity

Because of the nature of the variables for estimation, the study suspected the possibility of multi-collinearity among variables. However, the result of the correlation matrix is presented in table 4.2 below.

Table 4.2 Multi-collinearity result

Included observations: 798.

Correlation cases	PCI	FDI	TRD	LFP	COC	GEF	POS	REQ	ROL	VOC
PCI	1.0000									
FDI	0.0007	1.0000								
TRD	0.4798	0.3389	1.0000							
LFP	0.2770	0.0018	0.1559	1.0000						
COC	0.2406	0.0027	0.1640	0.0395	1.0000					
GEF	0.3796	0.0071	0.2254	0.0570	0.8608	1.0000				
POS	0.4401	0.0722	0.4088	0.1389	0.6340	0.6264	1.0000			
REQ	0.3010	-0.141	0.1934	0.0429	0.8482	0.9066	0.6013	1.0000		
ROL	0.3627	0.0053	0.1907	0.1822	0.8863	0.9117	0.7108	0.8992	1.0000	
VOC	0.1648	0.0090	0.1681	0.0388	0.7390	0.7360	0.6116	0.7912	0.7983	1.0000

Source: Authors' computation from Eviews 12.0. Please note that numbers were reduced to four decimal places.

According to Kim (2019), a variable is highly correlated when the coefficient number of the variable relating to the other variable is within 0.8. From the result of the correlation matrix, GDP per capita, Foreign Direct Investment, Trade and Labour Force do not have any correlation issue with each of the institutions variables. Rather Institutional Quality, Control of Corruption, Government Effectiveness, Political Stability, Regulatory Quality, Rule of Law

and Voice and Accountability are highly correlated with each other. This means that the estimation result may not be robust if all the institutions variables are estimated together. Therefore, the study relies on equation 4 for the estimation to avoid multi-collinearity problems.

4.2.2 Panel unit root test results

To avoid spurious regressions, the variables of the study were subjected to a unit root test to know their stationarity status and order of integration. The results of the unit root test conducted are shown in table 4.3 below.

Table 4.3 Levin, Lin and Chu unit root test results

Variables	t* statistics	probability	Remark	Order	Decision rule
PCI	-4.26695	0.0000	With intercept	1(0)	No unit root
FDI	-7.53028	0.0000	With intercept	1(0)	No unit root
TRD	-2.70234	0.0034	With intercept	1(0)	No unit root
LFP	-7.06907	0.0000	With intercept	1(0)	No unit root
COC	-4.52830	0.0000	With intercept	1(0)	No unit root
GEF	-5.75394	0.0000	With intercept	1(0)	No unit root
POS	-5.58336	0.0000	With intercept	1(0)	No unit root
REQ	-3.70472	0.0000	With intercept	1(0)	No unit root
ROL	-4.37750	0.0000	With intercept	1(0)	No unit root
VOC	-3.45301	0.0003	With intercept	1(0)	No unit root
INSQ	-4.58778	0.0000	With intercept	1(0)	No unit root

Source: Authors' compilation from Eviews 12.0 results.

The pooled unit root test results indicated that all the variables are integrated of order zero 1(0). This means that these variables are stationary at level with intercept. This is based on the probability value of less than 0.05 level of significant. The decision rule according to Levin, et al (2002) is to reject the null hypothesis of common unit root process if p-value is less than 0.05. The study therefore rejects the null hypothesis of common unit root and accepts the alternative that there is no unit root in all the variables.

4.2.4 Hausman Test Results

The null hypothesis for Hausman test is that the Random effect model is the appropriate estimator, while the alternative is Fixed effect model. The decision rule is to accept the null hypothesis if the p-value is greater than 0.05 otherwise accept the alternative. The procedure is to run the fixed effect model, followed by random effect model and then Hausman test. The result of Hausman test is presented in 3 phases, (i) the overall decision rule from the p-value which is the most important part, (ii) the comparisons between Random and Fixed effect results and (iii) a repeat of the result of the preferred model. Table 4.5 below presents the result of the tests.

Table 4.4 Hausman test results

Objectives	Chi-Sq statistic	p-value	Decision rule	Accepted method
	19.324237	0.0007	Reject Ho	Fixed effect

Source: Author's compilation from Eviews 12.0

Based on the result of Hausman test, the study adopts fixed effect model for estimation. The use of one method of estimation will be good for comparisons, which is what the study shall dwell more on.

4.2.5 Cross-section dependency test results

The decision rule is to reject the null hypothesis of no cross-sectional dependency if p-value is less than 0.05% otherwise accept the null hypothesis. Table 5.6 below presents the result of the test.

Table 4.5 Cross-section dependency test results

Test	Statistic	Prob.value
Breusch-pagan LM	34.92293	1.0000
Pesaran scaled LM	-4.156709	0.0000
Pesaran CD	0.563107	0.5734

Source: Author computation from eviews 12.0.

From the result table above, three tests were performed: The Breusch-pagan Lagrange Multiplier, the Pesaran Scaled Lagrange Multiplier, and the Pesaran Cross-sectional Dependence. The decision rule is to reject the null hypothesis of no cross-sectional dependence if probability value is less than 0.05 otherwise accept the null hypothesis. Evidence from the results suggests the non-rejection of the null hypothesis of no cross-sectional dependence. This means that there is cross-sectional independence among the selected SSA countries. According to Baltagi (2005), in a situation where there is cross-sectional independence, Levin et al (2002) panel unit root test is appropriate for unit root test.

4.3 Presentation of the Results

This section presents the results of the objective of the study. The model for the estimation was based on the verdict of the Hausman test conducted, in which fixed effect model was chosen for all the estimations. The objective is "To compare effect of institutional factors on economic growth of low- and middle-income countries in SSA" and the result is in two parts (low- and middle-income countries).

4.3.1 Regression Results

Table 4.6 Low-income countries

Variables	Panel 1	Panel 2	Panel 3	Panel 4	Panel 5	Panel 6	Panel 7
FDI	-5.717 (1.64)	-4.414 (-1.29)	-2711 (-0.80)	-4.687 (-1.37)	-7.285** (-2.21)	-5.806*** (-1.70)	-5.829*** (-1.70)
TRD	0.089 (0.07)	-0.120 (-0.11)	-0.274 (-0.25)	-0.006 (-0.01)	0.382 (-6.52)	0.095 (0.08)	-0.289 (-0.26)
LFP	-33.96* (-6.35)	-36.30* (-6.65)	-36.70* (-7.03)	-35.35* (-6.68)	-33.06* (-6.52)	-33.48* (-6.31)	-34.76* (-6.62)
INSQ	33.66 (1.48)						
COC		-58.36 (-0.73)					
GEF			-240.7** (-3.1)				
POS				13.78 (0.37)			
REQ					442.9* (5.13)		
ROL						180.7** (2.20)	
VOC							127.7** (2.18)
constant	2976	3085	2899	3083	3349	3133	3153
R-squared	0.699	0.697	0.706	0.696	0.723	0.701	0.701

Source: Authors' compilation from Eviews 12. Please note that *, **, and *** represent levels of significance at 1%, 5% and 10% respectively while numbers in parenthesis are t-statistics.

The t-statistic shows the degree of significant of the variables. R-squared shows that about 70% of the variation in per capita income in the low-income countries of SSA is explained by this regression. The overall institutional quality is positive but not statistically significant. This means that GDP per capita increases with an improvement in Institutional Quality. Regulatory Quality, Rule of Law and Voice and Accountability are positive and statistically significant. This means that a 1% improvement in Regulatory Quality, Rule of Law and Voice and Accountability increases GDP per capita by 4.2, 1.8 and 1.3% respectively. Meanwhile, Government Effectiveness is negative but statistically significant. This means that governance in this group of countries is ineffective, however, its role is relevant in improving GDP per capita. This means that a 1% ineffectiveness of governance causes about -2.4% decrease in GDP per capita. This shows how inefficient and ineffective governance is in this class of countries. Where there is ineffective or bad governance, their focus is to extract from the people to enrich themselves instead of improving on the people there are elected to serve. This is

accompanied by corruption which will now become the order of the day. Control of Corruption is negative and insignificant. Negative and insignificant control of corruption means weakness, and where Control of Corruption is weak, it has a bad effect on GDP per capita. Political Stability is positive but insignificant. Other control variables like Foreign Direct Investment and Trade are not significant. Labour Force is negatively significant. This may be because of high unemployment due to bad governance and weak Control of Corruption in this class of countries.

Table 4.7 Middle income countries

Variables	Panel 1	Panel 2	Panel 3	Panel 4	Panel 5	Panel 6	Panel 7
FDI	-43.20** (-2.55)	-45.66* (-2.68)	-44.01** (-2.58)	-36.51** (-2.22)	-45.03** (-2.64)	-36.46** (-2.25)	-44.51* (-2.61)
TRD	42.91* (7.90)	41.29* (7.66)	39.47* (7.21)	43.32* (8.35)	39.94* (7.42)	46.25* (8.93)	40.84* (7.40)
LFP	-45.29 (-0.87)	-39.90 (-0.76)	-26.93 (-0.51)	-109.1** (-2.08)	-26.88 (-0.51)	-4.256 (-0.09)	-30.90 (0.45)
INSQ	423.2** (2.38)						
COC		790.5 (1.56)					
GEF			-440.3 (-0.74)				
POS				1541* (4.93)			
REQ					-386.5 (-0.81)		
ROL						2890* (5.77)	
VOC							270.0 (0.45)
constant	3550	3841	2372	8105	2406	2432	2924
R-squared	0.806	0.804	0.803	0.818	0.802	0.823	0.802

Source: Author's compilation from Eviews 12. Please note that *, **, and *** represent levels of significance at 1%, 5% and 10% respectively while numbers in parenthesis are t-statistics.

The t-statistics measure the degree of significant of the variables. R-squared shows that about 80% of the variations in income per capita in the middle-income countries are explained by this regression. The overall institutional quality is positive and statistically significant. This indicates that an improvement in the quality of institutions in this class of countries will increase GDP per capita positively. Rule of Law and Political Stability are positive and statistically significant. This indicates that an improvement in the quality of Rule of Law and

Political Stability will impact positively on GDP per capita. Voice and Accountability and Control of Corruption are positive but insignificant. This means that Voice and Accountability and Control of Corruption are too weak to make a significant impact on GDP per capita in this class of countries. Regulatory Quality and Government Effectiveness are negative and insignificant. This means that Regulatory Quality and Government Effectiveness are too weak in these countries. When Government Effectiveness is inefficient GDP per capita decreases. This is because bad governance has a negative effect on per capita income (Bichaka & Nsiah, 2013). The insignificant Regulatory Quality and Voice and Accountability is in line with Ugwueze et al (2019). Foreign Direct Investment is significant with a negative effect on GDP per capita, which may be due to bad governance. Trade is positively significant on GDP per capita. This means an increase in Trade will increase GDP per capita positively. Labour Force is negative and insignificant. This may be due to an increase in unemployment.

Summary of Low- and Middle-income country results.

Both low- and middle-income countries suffer weak institutional settings although in the middle-income group, institutional quality is better than the low-income groups. This validates the fact that better institutions improve the quality of life of people (Acemoglu et al, 2001, 2005). The results also show that these groups of countries have similar problems of bad governance and corruption. Government Effectiveness is negative in both groups, perhaps it is the reason for this stunted growth. Another common factor between them is Rule of Law which in both are positive and significant. In some aspect, a particular institutional factor is better off in one group than the other. This is so because no group has got it all right in terms of building strong institutions.

5. RECOMMENDATIONS AND CONCLUSION

5.1 Policy Recommendations

The finding of the study revealed that no group or class has complete functional institutions in SSA. Some are significant with a positive relationship with per capita income which means that their effect is impactful amidst weakness while others are too weak to make a meaningful impact on per capita income. The study gave the following recommendations based on the empirical results and policy implications.

1. For Government Effectiveness and Control of Corruption, the study recommends that every aspect of the governing body should introduce transparency as a basic principle in every decision making. Corrupt practices should be dealt with decisively, by strengthening the institution on corruption with a new law that provides them with power to uphold their duty without fear, favour or undue personal consideration. A strict law should also be set up to penalize any corrupt staff of the institution.
2. For Political Stability, the study recommends that people should come out in mass and choose who to lead them. Decision on who to elect should not be influenced by corrupt aspirants.
3. For Rule of Law, the study recommends that improving knowledge of the relationship between the rule of law, the effectiveness and human-centeredness of the legal system,

good governance, and institutional trust could support the argument and encourage public debate on the rule of law throughout the nations.

4. For Regulatory Quality, the study recommends that rather than reacting to regulatory shortcomings, the government should be proactive in ensuring the quality of regulation.
5. For Voice and Accountability, the study recommends that SSA should look for ways to link more voice to the appropriate and pertinent actors in state institutions. Select experienced allies with a grassroots connection who can connect with leaders outside of typical NGOs, such as trade unions, religious organizations, and social movements, to reach isolated and marginalized people.

5.2. Conclusion

The study covers income level groups. The results revealed that no group of countries in SSA has a complete institutional setting. Few of the institutional factors have taken steps to influence growth while few are still too weak to make a meaningful impact. The difference in institutional settings is the reason for the difference in per capita income. Factors like Government Effectiveness and Control of Corruption are generally weak in SSA and affect every other factor in one way or the other. Therefore, even when one factor is significant, the weaker ones make it weak through a direct or indirect influence. The difference between a particular group and the other in achieving sustainable growth depends on the strength of the institutions. This validates that institution is the bed rock of economic growth. The study also revealed that institutional failure is the root cause of low per capita income in SSA. Therefore, no single institution can get it well for SSA, every institution must be strengthened to achieve a sustainable growth path.

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