Research Paper

# An Empirical Analysis on Institutional Quality, Fiscal Policy and Debt Sustainability in Sub-Saharan Africa (SSA)

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**Abstract**

Many Sub-Saharan African (SSA) countries are finding it difficult to fulfill their massive debt repayment obligations, which bilateral financial institutions have declared to be unmanageable. Government institutions are to blame for such disparities in the budgetary components, which have been empirically confirmed to be detrimental. Part of the reason for SSA's income generation and debt management problems is related to fiscal policy components where there has been an unwarranted exaggeration of government expenditure. Accordingly, the current study used a panel Autoregressive Distributed Lag (ARDL) to examine how fiscal policy and institutional quality affected the sustainability of debt in 48 SSA nations between 2008 and 2022. The study's findings suggested that the elements of fiscal policy (expenditure and revenue) as well as indicators of institutional quality (governance), such as control of corruption, effectiveness of government, political stability, absence of violence, regulatory quality, the rule of law, voice, and accountability, were important in explaining the long-term sustainability of public debt. The speed of adjustment to the long-run equilibrium was slow, which may be related to the unstable governance in each of the cross-sectional nations. Hence, the study concluded that the interactive effects of institutional quality and fiscal policy significantly influenced debt sustainability in the long run. The study's conclusions can be very helpful to policymakers, particularly in those nations where major fiscal and external imbalances are being generated by low ratings for key institutional quality indices.

**Keywords:** *Institutional Quality; Fiscal Policy; Debt Sustainability; Government; SSA; Panel-ARDL/PMG*

## INTRODUCTION

The provision of quality institutional resources significantly propels a nation's economic advancement and serves as the cornerstone for fostering entrepreneurial innovation and enduring development. A number of factors, including the government's capacity to efficiently manage its resources—which include both borrowed funds and internally generated revenue—determine the positive effects of institutions. Regrettably, the phenomenon of sub-Saharan Africa (SSA) being classified as one of the most heavily indebted regions is not a matter for celebration; as reported by the International Monetary Fund (IMF), the economic metrics in SSA nations have not exhibited a significant enhancement, even amidst the escalating public debt (International Monetary Fund, 2023).

The concept of debt sustainability entails that the government pay off all of its debt with its own generated revenue without the need for additional financial aid. According to the IMF, the dearth of robust, autonomous, and virile institutions that could have stopped the excessive accumulation and inefficient use of borrowed funds for unproductive investments is what causes public debt to be unsustainable (International Monetary Fund, 2018). This is consistent with the situation in SSA, where the IMF had issued a warning that debt risks remained high and that at least twenty (20) of the SSA economies were either in a debt trap currently or were at high risk of being so (International Monetary Fund, 2021).

While developed economies have made great strides in financial sustainability, developing economies are finding it more difficult due to insufficient capital, which is a direct result of fiscal imbalances as shown by low revenue-generating capacity and rising expenditures, which in turn


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leads to excessive public debt (Masenya & Mthombeni, 2023). Despite having an abundance of natural and human resources, certain SSA nations—such as Nigeria, Ghana, Gabon, Angola, and so on—have been unable to generate enough funds to finance public investments that would have allowed for sustainable growth and development. Consequently, public debt has emerged as a substitute funding option for SSA countries.

Even though the various governments have implemented some measures to improve revenue generation, there is rising concern about the impact of fiscal imbalances on debt sustainability. This study aims to determine the linkages between institutional quality, fiscal policy and public debt sustainability in SSA, given the perception that the underdevelopment and indebtedness of the region are due to its poor institutional quality, which has resulted in fiscal deficits and debt burden. The region's poor institutional quality is usually reflected in a high degree of corruption, a weak legal system, growing social unrest, incessant political instability, and the aftereffects of armed conflict (Halkos & Papageorgiou, 2020).

Empirically, it has been discovered that a nation with viable institutional characteristics has a higher tendency of effective debt sustainability (Croi & Diaw, 2020; Tarek & Ahmed, 2017; Ubi & Udah, 2014). Also, it has been argued that good institutions manage public debt efficiently and that bad institutions destabilize the borrowing decisions of the country, divert the borrowed funds to potentially meaningless projects, and have a higher likelihood of debt defaulting and poor economic performance, which further worsens the debt burden (Onyele et al., 2023; Mthombeni et al., 2023; Nguyen & Luong, 2021). Although empirical literature lacks consensus on the relationship between institutional quality, fiscal policy and debt sustainability, the SSA's rising public debt has continued to generate divergent opinions among researchers.

In light of the foregoing, this study improved upon the earlier empirical studies in some notable ways. It examined how institutional quality and fiscal policy directly affect the sustainability of public debt in SSA. Adding to the work Mehmood et al. (2022), this study's core objective was to estimate how debt sustainability has been impacted by various dimensions of institutional quality (rule of law, regulatory quality, political stability, government effectiveness, voice and accountability, and control of corruption) and fiscal policy measures (expenditure and revenue) in forty-eight (48) SSA economies. The period from 2008 to 2022 was chosen to bridge the time-period gap observed in prior empirical studies. Hence, a pertinent question that arose was; to what extent do institutional quality and fiscal policy affect debt sustainability in selected SSA countries within the period under review?

## LITERATURE REVIEW

### Public Debt, Institutional Quality and Fiscal Policy in the SSA: Stylized Facts

The SSA economies are faced with a number of difficulties, such as a protracted period of slow growth known as the "lost decade," consistently low per capita income, growing budgetary pressures brought on by the debt burden and low-income generation. To address these complex problems and create possibilities for long-term macroeconomic stability, extensive changes must be implemented in SSA (World Bank, 2023).

SSA debt as a percentage of gross national incomes (GNI) showed a declining trend for most of the 2000s. However, this trend started reversing around 2008, with the SSA's debt service-to-GNI ratio rising sharply, meaning that a large proportion of GNI goes to debt servicing. The average debt ratio in SSA, as indicated in Figure 1, has more than doubled in just a decade—from 18.65 percent of GNI at the end of 2013 to almost 52.00 percent of GNI by the end of 2022. Repaying this debt has also become much more expensive, hindering debt sustainability (African Development Bank, 2021).

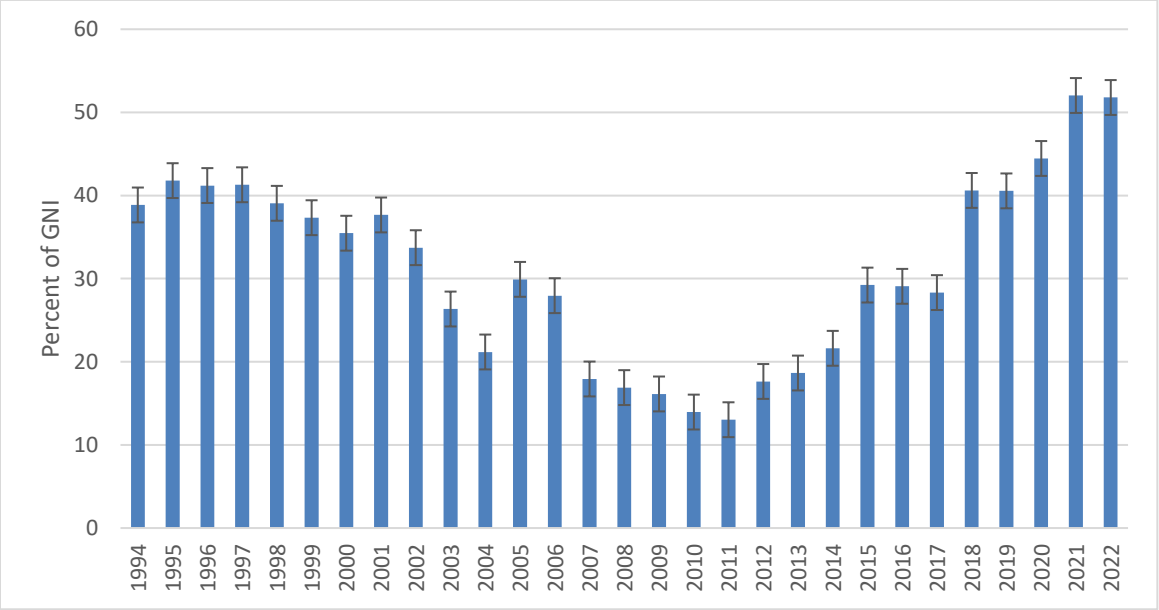


**Figure 1.** Debt service to GNI ratio in the SSA region

**Source.** World Development Indicators (WDI)

Regarding institutional quality, it has been reported that the efficient use of public resources is made possible by accountable institutions, preventing excessive debt accumulation and prudently employing debt (Sebola, 2023; Yildirim & Gokalp, 2016). The SSA institutional quality trend is determined by the average of six (6) indicators, namely, Political Stability, Regulatory Quality, Rule of Law, Government Effectiveness, Voice and Accountability, and Control of Corruption. As plotted in Figure 2, it revealed that the trend was negative, meaning that the rating of SSA's institutional quality was extremely poor. This poor institutional quality is held accountable for the widening budget gap and debt burden in the SSA region (Onyele et al., 2023).

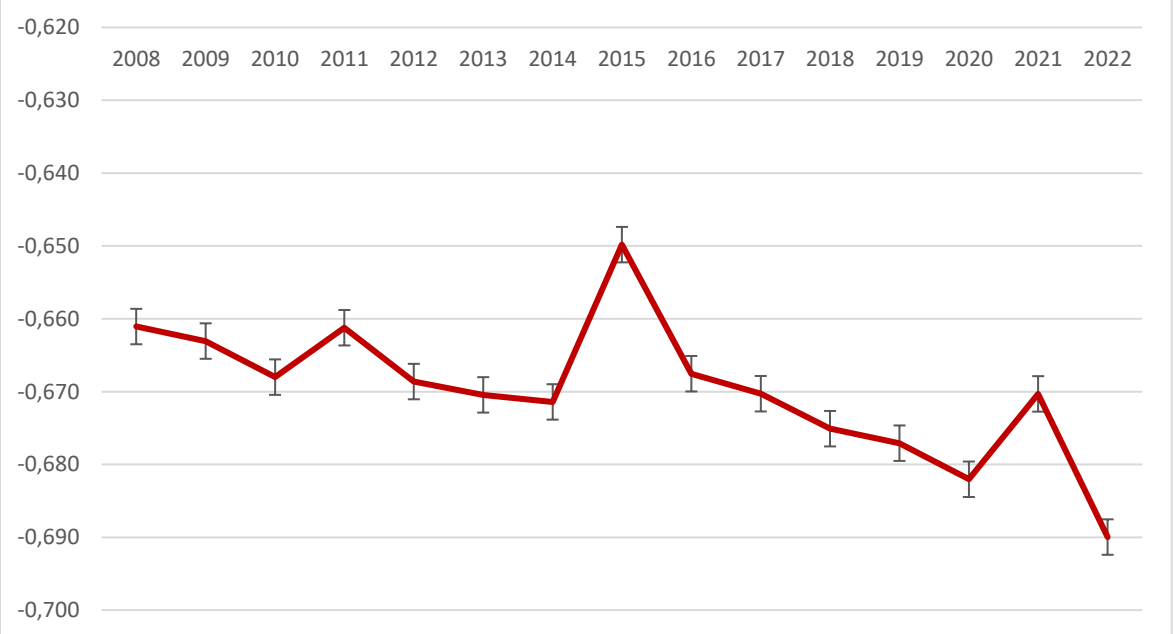


**Figure 2.** Institutional quality of the SSA

**Source.** World Governance Indicators (WGI)

Regarding fiscal policy, the SSA has historically prioritized revenue mobilization as a means of financing the region's development. Nonetheless, tax collections in SSA remain low compared to expenditures (Figure 3), with tax revenue averaging 10.71 percent of GDP from 2011 to 2022 and expenditure averaging 15.57 percent of GDP throughout that time. This suggests that tax revenue has been insufficient to meet the SSA's spending requirements, which triggers more public debt. Notwithstanding recent advances, development has been sluggish and inconsistent among SSA nations due to enduring structural problems, high rates of informality, low national income, and insufficient reform initiatives (International Monetary Fund, 2018). Specifically, tax systems in the SSA region are still beset with incentives and exemptions that reduce their capacity to generate revenue coupled with the fact that administration and compliance are still inadequate.

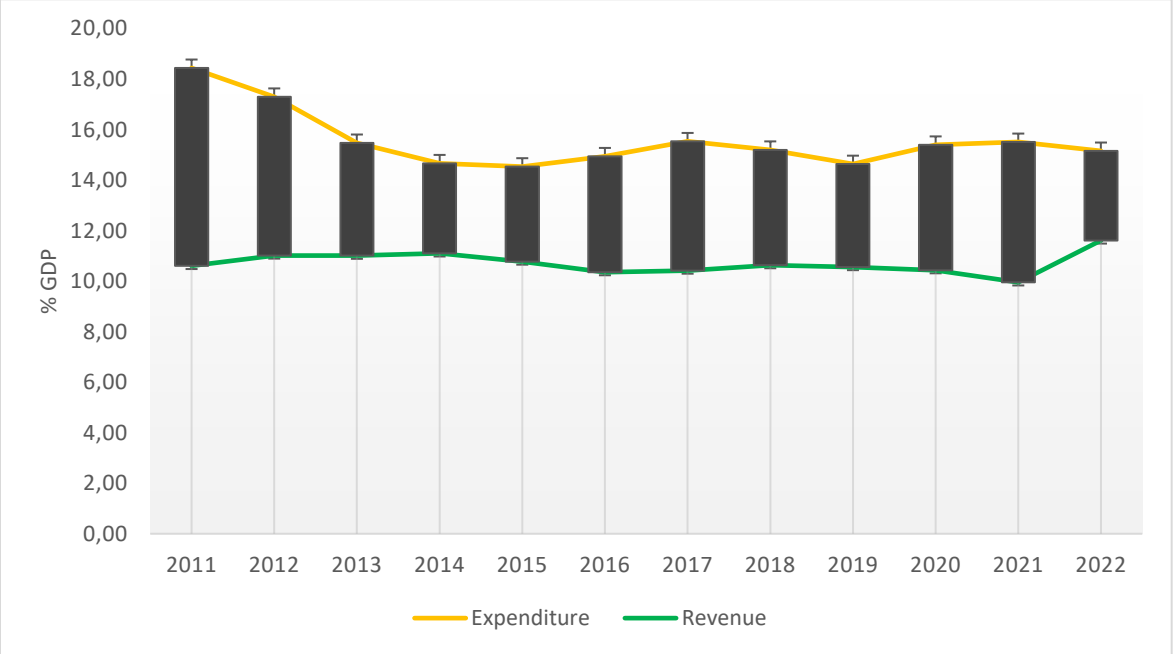


**Figure 3.** Government expenditure-revenue in SSA
**Source.** World Development Indicators (WDI)

**Theoretical Framework**

Romer (2018) modified the generic formula, Equation (1), to reflect how institutional quality affects the growth of public debt. These viewpoints offer preliminary evidence for the inverse relationship—also established by Woo (2003)—between public debt and institutional quality. Therefore, Equation (1)'s coefficient "b" is less than zero.

$$D_{i,t} = a + bWEAK_{i,t} + cX_{i,t} + e_{i,t} \ldots(1)$$

where: $D_{i,t}$ denotes the level of the budget deficit in time t of nation I, which is represented by the percentage of the debt account in GDP; $WEAK_{i,t}$ implies the observed countries' institutional quality variables and $X_{i,t}$ is a set of other affected elements. The elements of institutional quality have been discussed as follows:

Control of Corruption (CC) measures the degree to which people are aware that government (public) resources can be utilized for private gain. This is demonstrated by actions associated with bureaucracy and organized corruption, such as when the private sector carries out government operations for personal gain (Ubi & Udah, 2014; Kaufmann et al., 2011; Friedman et al., 2000). It is

largely believed that uncontrolled corruption hinders government effectiveness (D'Agostino et al., 2016; Ivanyna et al., 2018; Cie´slik & Goczek, 2018; Jalles, 2011).

Government effectiveness (GE) is concerned with evaluating public service quality, how it relates to political motivation, the standard of public policies, and how reliable the government is at enforcing these policies. Sanchez et al. (2013) concluded that the government effectiveness index captured the distinctive features of the performance of public organizations, systems and laws, as well as the evolution of the economy and the annual income of citizens.

Political stability is the state in which there are no major upheavals or changes over a prolonged period of time, and the government or political system remains intact and operates smoothly. The majority of studies established a negative correlation (Imaginário & Guedes, 2020; Tarek & Ahmed, 2013; Roubini & Sachs, 1989).

Regulatory Quality (RQ) refers to the ability of the government to establish and implement efficient laws and policies in the public sector to promote the growth of the private sector (La Porta et al., 1999). According to Tarek and Ahmed (2017), improved regulation leads to increased production, which facilitates private growth. Similarly, Masenya and Mthombeni (2023) contended that regulatory quality had a favorable impact on government debt.

The rule of law (RL) addresses the likelihood of criminal activity and violence, the efficacy of contract enforcement, wealth rights, and public domain agencies associated with the police and courts (Weingast, 2008). According to Briceño and Perote (2020), the government adheres to public finance policies when they offer stronger institutional quality through compliance with the rule of law. Consequently, government borrowing would be used efficiently when the rule of law is upheld.

Voice and Accountability (VA) capture perceptions of the degree to which citizens of a country are able to participate in selecting their government, as well as freedom of expression, a free media and freedom of association. VA, two democratic qualities that enhance governance transparency, may help curb corruption and lower the amount of public debt. According to Mehmood et al. (2022), a nation subject to democratic constraints needs to manage its public debt in a more efficient manner than other regimes by adhering to an agreed expenditure plan.

**The Moderating Role of Government Spending—Revenue**

In the early days of macroeconomic studies, proponents of Keynesian theory argued that government revenue and expenditure can be used to regulate fiscal policy. When government expenditures completely offset its revenue, the budget is said to be in a balanced state while an imbalance arises when revenue falls short of expenditure, a situation that results in the accumulation of public debt. To be more precise, the following equation illustrates this:

$$B_t = T_t - G_t \ldots (2)$$

In this case, $T_t$ represents the total government revenue at time t, which is commonly referred to as tax revenue, $G_t$ stands for aggregate national expenditure, and $B_t$ represents the balanced budget for the period t. When tax revenue exceeds government spending, a budget surplus is generated. If spending is more than revenue, the government budget is in deficit. As such, the introduction of government debt coincides with the budget deficit.

$$D_t = (1 + r)D_{t-1} + G_t - T_t \ldots (3)$$

In this equation, the relationship between fiscal policy and public debt is represented by the difference between expenditure and revenue plus the delayed debt from prior periods. Romer

(2018) established public debt in the context of the government's intertemporal budget constraint, meaning that the government's allotment for investments, goods, and services may have a present value that is equal to or less than the net present value of government revenue after debt obligations are paid off. This is represented in equation 4:

$$\int_{t=0}^{\infty} e^{-R(t)}G(t)dt \leq \int_{t=0}^{\infty} e^{-R(t)}T(t)dt - D(0) \ldots (4)$$

Where D(0) is the initial real liabilities outstanding; $e^{-R(t)}$ is a discount factor corresponding to the interest rate R(t). Equation (2) is rearranged as follows:

$$D(0) \leq \int_{t=0}^{\infty} e^{-R(t)}T(t) - G(t)dt \ldots (5)$$

Equation (5)'s budget constraint means that the government must continue to generate more revenue to cover this value of its expenditure and debt. In addition, the real interest on debt plus the exception of expenditure from government revenue is used to measure the budget deficit, which is defined as the percentage of volatility in the stock of public debt at time t.

$$D(t) = [G(t) - T(t)] + r(t)D(t) \ldots (6)$$

The relationship between tax revenue, government spending, and public debt is not only present in these notions but has also been shown in the literature (Alaweh, 2017; Oladokun, 2015). Nonetheless, some factors, including institutional quality, have emerged as key drivers of sustainable growth. The institutional framework that governs how economic agents interact in an economy impacts economic sustainability. In fact, the "second best theory of institutional quality" originally formalized by Lipsey and Lancaster (1956), lends credence to this assertion by stating that "in the presence of constraints that prevent the attainment of the optimum, satisfying a larger number of optimization conditions is not guaranteed to be superior to a situation in which fewer requirements are fulfilled. Based on the "second best theory of institutional quality", it is implied that the government must seek to embrace every aspect of good institutional quality and fiscal policy toward ensuring debt sustainability in SSA.

**Empirical Review**

Using the ARDL technique, Ramzan et al. (2023) investigated the effect of institutional quality on the debt-growth connection in Pakistan from 1996 to 2020. The findings indicated that improved institutional quality helped to lessen the detrimental effects of public debt on Pakistan's economic expansion.

In a similar study, Kedir et al. (2023) investigated the relationship between public debt and economic growth in Africa, focusing on the mediating function of institutional quality. Employing longitudinal data for 48 African nations from 1991 to 2018, they discovered that the impact of public debt on growth was contingent on the caliber of institutions.

A study carried out between 1981 and 2021 by Ashogbon et al. (2023) looked at how public debt and institutional quality affected the expansion of the Nigerian economy. ARDL was used to demonstrate how institutional quality limited the anticipated growth-promoting impact of Nigeria's public debt.

Again, Kongo (2023) examined how institutional quality affected Kenya's ability to service its national debt. The current account balance did not seem to have a significant impact on public

debt sustainability, while institutional quality had a beneficial impact. Debt sustainability was negatively impacted by the interplay between institutional quality and the current account balance.

With emphasis on the South African public sector, Masenya and Mthombeni (2023) illustrated the repercussions of corruption, recognizing the importance of ethical control to enhance good governance. Using the literature review, the study concluded that unethical practices by public servants were detrimental, requiring the enforcement of ethics to promote public service delivery.

In Bangladesh, Bhutan, India, Nepal, Pakistan, and Sri Lanka, Mehmood et al. (2022) examined the impact of institutional quality on government debt between 2002 and 2018. The panel ARDL model was utilized. The study's conclusions indicated that the index of political stability and the ability to combat corruption had a detrimental impact on the sustainability of public debt. The effectiveness of government and the rule of law had advantageous consequences.

Additionally, Nguyen and Luong (2021) modeled institutional quality affected public debt in 27 transitional nations between 2000 and 2018. The research, which used Random effects and two-step GMM methods, showed that a lack of corruption control contributed to a higher amount of public debt accumulation, while funding to enhance government effectiveness, regulatory quality, and rule of law was necessary after those countries' regime changes increased the amount of public debt.

Analogously, Croi and Diaw (2020) examined the role of institutional quality in the West African Economic and Monetary Union (WAEMU) debt–growth connection between 1980 and 2019. The outcomes showed a significant impact of institutional quality on public debt management.

Additionally, Keghter et al. (2020) looked at the relationship between institutional quality and economic growth in Nigeria via the lens of health spending in a study that covered the years 1984–2019. The ARDL method was used. The authors provided proof that the fight against corruption had a substantial and detrimental impact on economic expansion.

In a related development, Sani et al. (2019) used a sample of 46 SSA nations applying the Generalized Method of Moments (GMM) technique to evaluate the influence of public debt and institutional quality on economic growth over the period 2000–2014. The effectiveness of the government, corruption prevention, and regulatory quality were found to have the biggest effects on reducing the detrimental effects of public debt on economic growth in SSA.

Likewise, Mensah et al. (2018) considered governance as a factor that lessens the detrimental effects of debt on economic growth. Using annual data from 1996 to 2013, the study examined 36 SSA countries using the system generalized method of moments (SYS-GMM), an econometric methodology. The study discovered that the nonlinear relationship between external debt and economic growth was reduced by institutional quality.

In a similar vein, Cooray et al. (2017) examined the connection between government debt, the shadow economy, and corruption between 1996 and 2012. The research found that corruption had a greater effect on public debt due to the shadow economy and that their effects were mutually reinforcing.

In addition, Tarek and Ahmed (2017) investigated the theory that in the MENA area, weak institutions cause state debt to increase. The study found that the region's debt accumulation was significantly impacted by political stability, the absence of violence, high-quality regulations, and the rule of law.

In a related study, Daud and Podivinsky (2014) investigated the connections between Malaysia's debt, economic freedom, and economic growth using a threshold approach. The outcome showed a contingency effect of institutional quality on debt growth.

A survey of the literature indicates that there is little research on the contribution of

institutional quality to the relationship between fiscal policy and debt sustainability in SSA. However, while threshold effects, governance disparities among nations, and debt sustainability receive enough attention, SSA and institutional variables have not been well captured in the study of debt sustainability. This calls for a thorough investigation of the impact of institutional quality and fiscal policy on debt sustainability, an area that is rarely studied, especially in SSA, where the public debt crisis has long been a problem. By examining the relationship between institutional quality and debt sustainability in selected SSA countries, this research aims to close this gap.

## RESEARCH METHOD

### Data and Variables

This study obtained its data from the databases of the World Development Indicators (WDI) and Worldwide Governance Indicators (WGI)" (World Development Indicators, 2022; Kaufmann & Kraay, 2023). Data on forty-eight (48) SSA countries were compiled for further analysis from 2008 to 2022. These SSA countries are among the highly-indebted SSA countries in the books of the International Monetary Funds (IMF). In this study, the dependent variable was debt sustainability (measured as public debt service to income ratio), which was sourced from WDI. Six institutional quality measures were used in this study as the explanatory variable: control of corruption (CC), government effectiveness (GE), political stability and absence of violence (PS), regulatory quality (RQ), rule of law (RL), and voice and accountability (VA). For these institutional quality variables, the standardized values lie between +2.5 and -2.5 (Kaufmann & Kraay, 2023). Positive values indicate a "strong index" while -2.5 is an indicator of "weak index".

### Model specification

The Romer (2018) model as adopted by Mehmood et al. (2022) was used in estimating the model specified for this study. The model is expressed in Equation (7):

$$PD_{it} = \alpha_i + \beta_1 CC_{it} + \beta_2 GE_{it} + \beta_3 PS_{it} + \beta_4 RQ_{it} + \beta_5 RL_{it} + \beta_6 VA_{it} + \varepsilon_{it} \ldots (7)$$

This study re-modified Equation (7) by including government expenditure and revenue as expressed in Equation (8):

$$DBR_{it} = \alpha_i + \beta_1 CC_{it} + \beta_2 GE_{it} + \beta_3 PS_{it} + \beta_4 RQ_{it} + \beta_5 RL_{it} + \beta_6 VA_{it} + \beta_7 GEX_{it} + \beta_8 GRV_{it} + \varepsilon_{it} \ldots (8)$$

DBR is the debt-to-income ratio (measure of debt sustainability), CC is the control of corruption, GE is government effectiveness, PS is political stability, RQ is regulatory quality, RL is rule of law, VA is Voice and accountability, GEX is the government expenditure-to-GDP ratio (used to measure public investment), and GRV is the government revenue-to-GDP ratio (used to measure the extent of revenue generation in the public sector).

The transformation of Equation (8) as an error correction equation gives Equation (9):

$$\Delta DBR_t = \delta_o + \sum_{i=1}^{p} \delta_1 \Delta DBR_{t-i} + \sum_{i=0}^{p} \delta_2 CC + \sum_{i=0}^{p} \delta_3 \Delta GE_{t-i} + \sum_{i=0}^{p} \delta_4 \Delta PS_{t-i} + \sum_{i=0}^{p} \delta_5 \Delta RQ_{t-i} + \sum_{i=0}^{p} \delta_6 \Delta RL_{t-i} + \sum_{i=0}^{p} \delta_7 \Delta VA_{t-i} + \sum_{i=0}^{p} \delta_8 \Delta GEX_{t-i} + \sum_{i=0}^{p} \delta_9 \Delta GEX_{t-i} + \theta ecm_{t-i} \ldots (9)$$

Where,

$DBR_t$ = debt ratio (debt to income ratio)

$\delta_0$ = constant

$\delta_1$ - $\delta_8$ = short-run elasticities (coefficients of the first-differenced explanatory variables)
$\beta_1$ - $\beta_8$ = long-run elasticity (coefficients of the explanatory variables)
θ = speed of adjustment
$ecm_{t-i}$ = error correction term lagged for one period
Δ = first difference operator
p = lag length

**Method of Data Analysis**

This paper used two panel unit root test methods: the Im, Pesaran, and Shin (IPS) technique introduced by Im et al. (2003) and the Levin, Lin, and Chu (LLC) method proposed by Levin et al. (2002). In addition, the Fisher-ADF and Fisher-PP statistics were also used for the unit root testing (Choi, 2001).

Given that the panel's dynamics and error variances exhibit heterogeneity, Pedroni (2004) suggested the use of the heterogeneous panel co-integration test, which permits cross-sectional inter-dependence with numerous effects. Equation (10) illustrates this test's application.

$$Y_{it} = \alpha_{it} + \delta_i t + y_{1i}E_{it} + y_{3i}K_{it} + \varepsilon_{it} \ldots (10)$$

where the time period is denoted by t = 1,.., and each country in the panel is represented by i = 1,.., N. The likelihood of deterministic trends and country-specific fixed effects are allowed for by the parameters $\delta_i$ and $\alpha_{it}$, respectively. The symbol $\varepsilon_{it}$ stands for the estimated residuals, which indicate departures from the long-term connections. The $y$ parameters of the model are called elasticities because the variables are expressed as natural logarithms.

To test the null hypothesis that there is no cointegration, $\rho_i$= 1, the residuals are subjected to the following test:

$$\varepsilon_{it} = \rho_{i\varepsilon it-1} + W_{it} \ldots (11)$$

Two sets of cointegration tests are available. Both Pedroni (2004) and Kao (1999) suggested tests were employed in this investigation. Kao (1999) cointegration test was computed by pooling all of the panel's cross-section residuals, in contrast to Pedroni's cointegration tests. The test assumes that each cross-section's cointegrating vectors are the same. This study incorporated both Kao (1999) and Pedroni (2004) tests to assess robustness.

The panel ARDL estimator yields estimate for the intercept, the adjustment speed, and the heterogeneous error variances in the short run. The prevalence of long-term relationships is more consistently and efficiently captured by this method. The lags (p, q) for the independent (q) and dependent (p) variables can be included to satisfy these conditions. Large T and N sizes are required to employ this strategy, with T being larger than N.

**FINDINGS AND DISCUSSION**

**Panel Unit Root Tests**

Unit root tests are performed to ensure that none of the variables are integrated of order two. Table 1 indicates whether the variables used are stationary at the level with constant and trend, and without constant and trend. At the level, both unit roots tests of the LLC and IPS indicated that some variables are significant. Since some of the variables chosen were not stationary at the level, all the variables were tested to see if they were integrated at order one. The results summarized in Table 1 showed that there was a mixture of stationarity since some variables are stationary at level I(0), while others are stationary at first difference I(1). **In** other words, it is possible to rely on the

dataset to conclude and draw policy implications. In panel ARDL estimation, it is desired that the data only be stationary, either at level or at first difference. Hence, the panel ARDL is applicable based on the aforementioned findings.

**Table 1.** Panel unit root tests

| | **Levin, Lin & Chu t** | | **Im, Pesaran and Shin W-stat** | |
|---|---|---|---|---|
| **Level: I(0)** | | | | |
| **Variable** | **Constant** | **Constant and Trend** | **Constant** | **Constant and Trend** |
| DBR | 1.19260 | -3.43835*** | 1.89612 | -2.38164*** |
| CC | -1.94730** | -1.10082 | 0.89613 | 1.49963 |
| GE | -1.55035* | -1.66160** | 0.13580 | 0.80224 |
| PS | -4.44119*** | -4.58329*** | -1.71257** | -1.03756 |
| RQ | -2.79802*** | -2.71475*** | 0.52772 | 0.41333 |
| RL | -2.26814** | -0.08154 | -0.03880 | 1.28066 |
| VA | -1.04778 | -1.69218** | 0.55513 | 0.77184 |
| GEX | -4.77138*** | -4.87737*** | -3.07815*** | -1.15324 |
| GRV | -1.46570* | -7.81341*** | -1.15724 | -8.22135*** |
| First Difference: I(1) | | | | |
| DBR | -5.12756*** | 5.16450*** | -11.6754*** | -7.72817*** |
| CC | -6.51057*** | -6.61803*** | -6.99966*** | -4.39852*** |
| GE | -8.41430*** | -5.87488*** | -8.59873*** | -4.87970*** |
| PS | -10.9821*** | -8.07896*** | -9.92546*** | -5.91309*** |
| RQ | -10.0306*** | -9.68963*** | -8.25203*** | -4.69152*** |
| RL | -5.68495*** | -3.51468*** | -6.64509*** | -2.82543*** |
| VA | -7.38944*** | -6.69220*** | -6.19835*** | -3.15360*** |
| GEX | -10.2724*** | -9.19582*** | -9.34492*** | -5.64671*** |
| GRV | -15.2562*** | -14.4168*** | -12.1870*** | -8.22135*** |

**Source: Extracts from the EViews 10 Output**

**Note:** ***p < 0.01, **p < 0.05, *p < 0 .1

**Panel Cointegration Tests**

The estimations of the "panel cointegration test" for Pedroni (2004) and Kao (1999) are shown in Table 2. Four tests from the panel cointegration analysis rejected the null hypothesis that there was no cointegration at the 1% and 5% significance levels, according to Pedroni's tests.

**Table 2.** Panel cointegration tests

| **Pedroni test** | | | | **Kao test** | |
|---|---|---|---|---|---|
| Within dimension | | Between dimension | | | |
| Test statistics | | | | Test statistics | |
| Panel v-Statistic | -0.340734 | Group rho-Statistic | 6.245744 | ADF | -2.616569*** |
| Panel rho-Statistic | 2.552019 | Group PP-Statistic | -10.84469*** | | |
| Panel PP-Statistic | -11.47638*** | Group ADF-Statistic | -1.902984** | | |

**Source: Extracts from the EViews 10 Output**

**Note:** ***p < 0.01, **p < 0.05, *p < 0 .1

Likewise, Kao (1999) residual-based cointegration test strongly rejected the null hypothesis of no cointegration at the 1% significance level. Thus, this investigation provided compelling evidence for the cointegration of the series. This concluded the evidence of a long-term relationship between debt sustainability, institutional quality (CC, GE, PS, RQ, RL, and VA) and fiscal policy (GEX and GRV).

**Panel ARDL Estimation**

The Hausman test was used in this paper to assess the pooled mean group's (PMG's) fit for the data. The Hausman (1) test did not reject the null hypothesis when comparing PMG to dynamic fixed effects (DFE), suggesting that PMG is preferred over DFE. The preference for the PMG over the mean group (MG) is also implied by the Hausman (2) test result for the PMG against the mean group (MG), which fails to reject the null hypothesis. Thus, the study moved on to interpret the panel ARDL estimation result based on the PMG technique, as detailed in Table 3.

**Panel A:** Long-run equation

Table 3 presents the PMG estimators, which suggested that control of corruption (CC), regulatory quality (RQ) and rule of law (RL) all had a positive effect on debt sustainability in SSA countries and with their probability values being less than 0.05, these variables were seen to exert a considerable effect on debt sustainability. This implied that the better institutional quality indicated by the ratings of CC, RQ and RL enhanced debt sustainability in the long run. This finding did not corroborate with Nguyen and Luong (2021), Keghter et al. (2020) and Mehmood et al. (2022), who reported that CC caused debt accumulation in selected South Asian countries and Nigeria, respectively. On the other hand, Cooray et al. (2017) showed that effective control of corruption improved debt management. It aligned with Nguyen and Luong (2021) and Sani et al. (2019), who found that an improved RQ enhanced the impact of public debt on economic growth.

Government effectiveness (GE), political stability (PS), and voice and accountability (VA) had long-term and significant negative effects on debt sustainability. The significance of these variables was reflected in their respective p-value < 0.05. This implied that an increase in these variables decreased debt sustainability. This was in consonance with Mehmood et al. (2022), Nguyen and Luong (2021) and Imaginário and Guedes (2020) who found that weak institutional quality in relation to government effectiveness increased the size of public debt. The negative association between GE, PS, VA and public debt sustainability was in line with Tarek and Ahmed (2017). Furthermore, investigations confirmed that the characteristics of government groups influenced the effect of PS on debt sustainability (Briceño & Perote, 2020). In particular, Imaginário and Guedes (2020) pointed out that while there was a negative relationship between PS and debt in low-income countries, no correlation was found in the high-income group. Additionally, Ogunniyi et al. (2020) found that a country with democratic constraints must manage public debts based on an approved expenditure plan to ensure optimality in debt sustainability.

Regarding the control variables, it was observed that both government expenditure (GEX) and government revenue (GRV) positively enhanced debt sustainability in SSA. GEX turned out with a coefficient of 0.041325 and GRV had a coefficient of 0.026141 with both variables having a probability value of 0.0000. This aligns with the viewpoint of Romer (2018), who advocated the positive roles that GEX and GRV play in moderating the level of debt sustainability.

**Panel B:** Short-run equation

It was evident from Panel B of Table 3 that the error correction mechanism (ECM) was negative and significant at the 1% level of significance, showing that the temporary deviation from

the equilibrium path was corrected slowly (27.43% yearly) before the long-run equilibrium was restored. The coefficients showed that all the indicators of institutional quality and government expenditure and revenue turned out with probability values that were greater than 0.05, meaning that institutional quality, expenditure and revenue had a marginal effect on public debt sustainability in SSA in the short-run. This entails that the effects of institutional quality and fiscal policy on debt sustainability were not instantaneous.

**Table 3.** PMG estimation

| **Variable** | **Coefficient** | **Std. Error** | **t-Statistic** | **Prob.*** | |
|---|---|---|---|---|---|
| **Panel A:** Long Run Equation | | | | | |
| CC | 0.328534 | 0.145502 | 2.257934 | 0.0247 | ** |
| GE | -1.160283 | 0.098641 | -11.76272 | 0.0000 | *** |
| PS | -1.032977 | 0.064140 | -16.10502 | 0.0000 | *** |
| RQ | 1.049890 | 0.176263 | 5.956392 | 0.0000 | *** |
| RL | 1.125788 | 0.238230 | 4.725643 | 0.0000 | *** |
| VA | -0.884156 | 0.110896 | -7.972869 | 0.0000 | *** |
| GEX | 0.041325 | 0.007984 | 5.175623 | 0.0000 | *** |
| GRV | 0.026141 | 0.005918 | 4.417431 | 0.0000 | *** |
| **Panel B:** Short Run Equation | | | | | |
| ECM | -0.274346 | 0.081202 | -3.378547 | 0.0008 | *** |
| D(CC) | -5.561770 | 5.222340 | -1.064996 | 0.2878 | |
| D(GE) | -3.907880 | 3.874600 | -1.008589 | 0.3141 | |
| D(PS) | -0.568515 | 1.365295 | -0.416405 | 0.6774 | |
| D(RQ) | 3.104357 | 5.526328 | 0.561740 | 0.5748 | |
| D(RL) | 1.271295 | 2.054816 | 0.618691 | 0.5366 | |
| D(VA) | 3.942600 | 3.142055 | 1.254784 | 0.2106 | |
| D(GEX) | -0.259204 | 0.262579 | -0.987147 | 0.3244 | |
| D(GRV) | 15.65075 | 15.72674 | 0.995168 | 0.3205 | |
| Hausman 1: | 27.393775 | | | | |
| Hausman 2: | 23.670331 | | | | |

**Source: Extracts from the EViews 10 Output**

**Note:** ***p < 0.01, **p < 0.05, *p < 0 .1

Theoretically, based on the long-run significance of all the estimates, the findings supported the second-best theory, which holds that if a country is away from the optimal conditions on more than one dimension, getting closer to some, but not all of them, is not necessarily beneficial. This also justified the Romer (2018) model, which established a link between institutional quality and fiscal sustainability based on the significant coefficients obtained for the six institutional quality measures in the long run. Again, the findings from this study agreed with the Keynesian theory that government revenue and expenditure can be a sustainable tool for fiscal policy following the significance of expenditure and revenue in the long-run.

## CONCLUSIONS

The study sought to analyze the extent to which institutional quality and fiscal policy had impacted public debt sustainability in SSA. The results showed that institutional quality and fiscal policy (expenditure – revenue) had, to a greater extent, impacted debt sustainability in the long run due to weak institutions and excessive expenditure and low revenue generation. Therefore, it was determined that governments that mishandle public debt will force future generations to bear the burden of repaying accumulated debt. The researcher provided policymakers with useful

implications of concentrating on improving institutional quality, including governance, openness, and efficiency in public debt management, based on the findings and conclusions. Stronger financial self-control, prudent debt management techniques, and increased debt sustainability can all result from quality institutions. Policymakers should prioritize fiscal reforms, such as comprehensive tax reforms, effective tax administration, anti-tax evasion measures, and investigating new revenue streams to diversify the revenue base to further enhance debt sustainability in the years ahead.

The theoretical implication of this is that institutions in SSA countries must be optimal in all respects to ensure effective debt sustainability, and theories such as the Romer (2018) model for institutional quality, Keynesian theory and "second best theory of institutional quality" are interwoven as they adequately align with the findings of this study. Also, some of the empirical studies reviewed did not agree with the findings of this study due to geographical differences, methodological approaches used, system of governance, time period covered and choice of variables.

## LIMITATION & FURTHER RESEARCH

This study has limitations that necessitate future researchers to address issues that were not covered by the present research. Future studies may zero in on the impact of institutional quality and fiscal policy by applying either a quantitative or qualitative approach to individual countries within the SSA region.

## REFERENCES

African Development Bank (2021). *African economic outlook 2021: From debt resolution to growth: The road ahead for Africa.* Côte d'Ivoire: African Development Bank Group. https://afdb-org.cn/wp-content/uploads/2021/05/AfDB21-01-AEO-main-English-highlights-1.pdf

Alaweh, A, (2017). The Impact of Public Expenditure and Public Debt on Taxes: A Case Study of Jordan. *Accounting and Finance Research, 6*(3), 1-10. https://doi.org/10.5430/afr.v6n3p10

Ashogbon, F.O., Onakoya, A.B., & Omokehinde, O.B. (2023). Public Debt, Institutional Quality and Exchange Rate Volatility: Evidence from Nigeria. *International Research Journal of Economics and Management Studies, 2*(2), 1-9. https://doi.org/10.56472/25835238/IRJEMS-V2I2P101

Briceño, H.R., & Perote, J. (2020). Determinants of the Public Debt in the Eurozone and its Sustainability amid the Covid-19 Pandemic. *Sustainability, 12,* 6456. https://doi.org/10.3390/su12166456

Choi, I. (2001). Unit Root Tests for Panel Data. *Journal of International Money and Finance, 20*(2), 249-272. https://doi.org/10.1016/S0261-5606(00)00048-6

Cie´slik, A., & Goczek, Ł. (2018). Control of Corruption, International Investment, and Economic Growth—Evidence from Panel Data. *World Development, 103*, 323–335. https://doi.org/10.1016/j.worlddev.2017.10.028

Croi, K. F., & Diaw, A. (2020). Debt and Growth in West African Economic and Monetary Union (WAEMU): The Role of Institutional Quality. *Modern Economy, 11*, 1505- 1521. https://doi.org/10.4236/me.2020.119107

Cooray, A., Dzhumashev, R., & Schneider, F. (2017). How does Corruption affect Public Debt? An Empirical Analysis. *World Development, 90*, 115-127. https://doi.org/10.1016/j.worlddev.2016.08.020

D'Agostino, G., Dunne, J.P., & Pieroni, L. (2016). Government Spending, Corruption and Economic Growth. *World Development, 84*, 190–205. https://doi.org/10.1016/j.worlddev.2016.03.011

Daud, S. N. M., & Podivinsky, J. (2014). Government Debt and Economic Growth in Malaysia: The Role of Institutional Quality. *Applied Economics Letters, 21*(17), 1179-1183. https://doi.org/10.1080/13504851.2014.916378

Friedman, E., Johnson, S., Kaufmann, D., & Zoido-Lobaton, P. (2000). Dodging the Grabbing Hand: The Determinants of Unofficial Activity in 69 countries. *Journal of Public Economics, 76*, 459–493. https://doi.org/10.1016/S0047-2727(99)00093-6

Halkos, G.E., & Papageorgiou, G.J. (2020). Public Debt Games with Corruption and Tax Evasion. *Anal of Economic Policy, 66,* 250–261. https://doi.org/10.3390/su151411116

Im, K. S., Pesaran, M. H., & Shin, Y. (2003). Testing for Unit Roots in Heterogeneous Panels. *Journal of Econometrics, 115*(1), 53-74. https://doi.org/10.1016/S0304-4076(03)00092-7

Imaginário, J., & Guedes, M.J. (2020). Governance and Government Debt. *Risk Governance* and *Control*: *Financial* Markets & Institutions, *10*(3), 34-49*.* https://doi.org/10.22495/rgcv10i3p3

International Monetary Fund (2023). *Debt Dilemmas in Sub-Saharan Africa: Some Principles and Trade-offs in debt Restructuring.* Regional Economic Outlook: Sub-Saharan Africa Analytical Note. www.imf.org

International Monetary Fund (2021). How to Avoid a Debt Crisis in Sub-Saharan Africa. https://www.imf.org/en/News/Articles/2023/09/26/cf-how-to-avoid-a-debt-crisis-in-sub-saharan-africa

International Monetary Fund (2018). Regional Economic Outlook: Sub-Sahara Africa. https://www.elibrary.imf.org/display/book/9781484339862/9781484339862.xml?rskey=wMucFX&result=8

Ivanyna, M., Moumouras, A. & Rangazas, P. (2016). The Culture of Corruption, Tax Evasion, and Economic Growth. *Economic Inquiry, 54*, 520–542. https://doi.org/10.1111/ecin.12228

Jalles, J. T. (2011). The Impact of Democracy and Corruption on the Debt-Growth Relationship in Developing Countries*. Journal of Economic Development, 36*(4), 41-55. https://doi.org/10.35866/caujed.2011.36.4.003

Kao, C. (1999). Spurious Regression and Residual-Based Tests for Cointegration in Panel Data. *Journal of Econometrics, 90*(1), 1-44. https://doi.org/10.1016/S0304-4076(98)00023-2

Kaufmann, D., & Kraay, A. (2023). Worldwide Governance Indicators, 2023 Update. Retreived October 19, 2023 from www.govindicators.org

Kaufmann, D., Kraay, A., & Mastruzzi, M. (2011). The Worldwide Governance Indicators: Methodology and Analytical Issues. *Hague Journal of Rule of Law, 3,* 220–246. https://doi.org/10.1017/S1876404511200046

Kedir, A., Ouma, D., Anguyo, F., & Mpuga, P. (2023). *Africa's Growing Sovereign Debt and Growth: Which Institutional Quality Indicator(s) Matter?* Working Paper Series N° 374, African Development Bank, Abidjan, Côte d'Ivoire. https://www.afdb.org/sites/default/files/documents/publications/wps_no_374_africas_growing_sovereign_debt_and_growth_which_institutional_quality_indicators_matter_.pdf

Keghter, K. K. Oliver, E. O., & Afamefuna A. E. (2020). Health Expenditure and Economic Growth Nexus in Nigeria: Does institutional quality matter? *Journal of Economics and Allied Research, 4*(4), 1-15. https://jearecons.com/index.php/jearecons/article/view/159

Kongo, Y.O. (2023). Moderating Role of Institutional Quality on Public Debt Sustainability in Kenya. *Journal of Economics, Finance and Management Studies, 6*(8), 3891-3897. https://doi.org/10.47191/jefms/v6-i8-38

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. (1999). The Quality of Government. *Journal of* Law, Economics *and Organization, 15*, 222–279. https://scholar.harvard.edu/files/shleifer/files/qualilty_govt_jleo.pdf

Levin, A., Lin, C.-F., & Chu, C.S. J. (2002). Unit Root Tests in Panel Data: Asymptotic and Finite-Sample Properties. *Journal of Econometrics, 108*(1), 1-24. https://doi.org/10.1016/S0304-4076(01)00098-7

Lipsey, R. G., & Lancaster, K. (1956). The General Theory of Second Best. *The Review of Economic Studies*, *24*(1), 11–32. https://doi.org/10.2307/2296233

Masenya, M. J., & Mthombeni, A. (2023). Governance, Ethics and Public Service Delivery: The Ramifications of Corruption. *Journal of Governance Risk Management Compliance and Sustainability*, *3*(2), 39–48. https://doi.org/10.31098/jgrcs.v3i2.1893

Mehmood, W., Mohd-Rashid, R., Khalid, A., Aman-Ullah, A., & Abbas, Y.A. (2022). Empirical Analysis of Country-Level Institutional Quality and Public Debt: Perspective of South Asian Countries. *Journal of Economic Cooperation and Development, 43*(1), 103-132. https://jecd.sesric.org/pdf.php?file=ART21041602-2.pdf

Mensah, L., Bokpin, G., & Boachie-Yiadom, E. (2018). External Debts, Institutions and Growth in SSA. *Journal of African Business, 19*(4), 475-490. https://doi.org/10.1080/15228916.2018.1452466

Mthombeni, A., Obert, S., Rangarirai, M., & Masenya, M. (2023). The Impact of Implementing the Public Entities Corporate Governance (PECG) Act Chapter 10:31 by State Owned Enterprises (SOEs) in Zimbabwe. *Journal of Governance Risk Management Compliance and Sustainability*, *3*(2), 1–16. https://doi.org/10.31098/jgrcs.v3i2.1531

Nguyen, T.A.N., & Luong, T.T.H. (2021). Corruption, Shadow Economy and Economic Growth: Evidence from Emerging and Developing Asian Economies. *Montenegrin Journal of Economics, 16,* 85–94. https://doi.org/10.14254/1800-5845/2020.16-4.7

Ogunniyi, A.I., Mavrotas, G., Olagunju, K.O., Fadare, O., & Adedoyin, R. (2020). Governance Quality, Remittances and their Implications for Food and Nutrition Security in Sub-Saharan Africa. *World Development, 127*(C). https://doi.org/10.1016/j.worlddev.2019.104752

Oladokun, O.O. (2015). Causal Relationship between Public Debts and Public Expenditure in Nigeria. *International Journal of Management and Applied Sciences, 1,* 68–79. https://www.iraj.in/journal/journal_file/journal_pdf/14-186-144178134468-79.pdf

Onyele, K.O., Ikwuagwu, E.B., & Opara, C.C. (2023). Government Debt Sustainability and Investments in Nigeria: Trends and Risk Thresholds amidst Macroeconomic Swings. *Pan African Journal of Governance and Development, 4*(1), 18-52. https://doi.org/10.46404/panjogov.v4i1.4481

Pedroni, P. (2004). Panel Cointegration: Asymptotic and Finite Sample Properties of Pooled Time Series Tests with an Application to the PPP Hypothesis. *Econometric Theory, 20*(3) 597-625. https://doi.org/10.1017/S0266466604203073

Ramzan, M., HongXing, Y., Abbas, Q., Sumbal, F., & Hussain, R.Y. (2023). Role of Institutional Quality in Debt-Growth Relationship in Pakistan: An Econometric Inquiry. *Heliyon, 9*(8), 1-21. https://doi.org/10.1016/j.heliyon.2023.e18574

Romer, D. (2018). *Advanced Macroeconomics;* McGraw-Hill/Irwin: New York, NY, USA.

Roubini, N., & Sachs, J. D. (1989). Political and Economic Determinants of Budget Deficits in the Industrial Democracies. *European Economic Review, 33*(5), 903-933. https://doi.org/10.1016/0014-2921(89)90002-0

Sanchez, I.M., Frias-Aceituno, J., & Cuadrado-Ballesteros, B. (2013). Determinants of Government Effectiveness. *International Journal* of *Public Administration*, 36(8), 567-577. https://doi.org/10.1080/01900692.2013.772630

Sani, A., Rusmawati S., Ismail N.W., & Mazlan N.S. (2019). Public Debt, Institutional Quality and Economic Growth in Sub-Saharan Africa. *Institutions and Economies, 11*(3), 39-64. https://ijie.um.edu.my/index.php/ijie/article/view/18613

Sebola, M. (2023). The Commissioner for Conciliation, Mediation and Arbitration Office in South Africa: Serving the Interest of the Powerful or the Powerless? *Journal of Governance Risk Management Compliance and Sustainability*, *3*(2), 28–38. https://doi.org/10.31098/jgrcs.v3i2.1877

Tarek, B.A., & Ahmed, Z. (2017). Institutional Quality and Public Debt Accumulation: An Empirical Analysis. *International Journal of Economics, 31*, 1–21. https://doi.org/10.1080/10168737.2017.1354906

Tarek, B.A., & Ahmed, Z. (2013). Governance and Economic Performance in Developing Countries: An Empirical Study. *Journal of Economic Studies and Research, 4*(3), 39-51. https://doi.org/10.5171/2013.390231

Ubi, P., & Udah, E.B. (2014). Corruption, Institutional Quality and Economic Performance in an Emerging Economy: Lessons from Nigeria. *British Journal of Economics, Management & Trade, 4*(11), 1708-1722. https://doi.org/10.9734/BJEMT/2014/11091

Weingast, B.R. (2008). *Why are Developing Countries so Resistant to the Rule of Law?* Working Paper, No. 382; Stanford University: Stanford, CA, USA. Available at: https://jenni.uchicago.edu/WJP/Vienna_2008/Weingast_ROL_MS_2%2000_08-0519.pdf

Woo, J. (2003). Economic, Political, and Institutional Determinants of Public Deficits. *Journal of Public Economy, 87,* 387–426. https://doi.org/10.1016/S0047-2727(01)00143-8

World Bank (2023). Global Economic Prospects: Sub-Saharan Africa (SSA). https://thedocs.worldbank.org/en/doc/c7292ee84f0635b28721419e3b367d0e-0350012023/related/GEP-January-2023-Regional-Highlights-SSA.pdf

World Development Indicators (2022). Washington, D.C.: The World Bank. Retrieved November 21, 2023 from https://databank.worldbank.org/source/world-development-indicators

Yildirim, A., & Gokalp, M.F. (2016). Institutions and Economic Performance: A Review on the Developing Countries. *Procedia Economics and Finance, 38,* 347-359. https://doi.org/10.1016/S2212-5671(16)30207-6