FISCAL INDISCIPLINE, POLITICS AND ECONOMIC GROWTH IN SUB-SAHARAN AFRICA

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Abstract

In this paper, the effects of fiscal indiscipline, politics, and economic growth are examined in 16 sub-Saharan African countries (Nigeria, Ghana, Angola, Congo, Cote d'Ivoire, Ethiopia, Gabon, Kenya, Equatorial Guinea, Burkina-Faso , Mali, Senegal, Togo, Guinea, Gambia, Sierra-Leone) from 2000 to 2021 using panel data analysis. Levin and Lin tests are used to confirm the unit root of selected variables. Based on the stationarity test, the real gross domestic product, the control of correction, the political stability, the exchange rate, and government effectiveness are integrated as orders I(0), I(1), and I(2). Investment and total government consumption are integrated as orders I(1), whereas financial indiscipline is integrated as orders I(2). A Kao Panel Co-integration test also confirmed a long-term relationship between the variables. A study conducted in sub-Saharan Africa shows that fiscal indiscipline, measured by debt to GDP, does not affect economic growth in the first objective. Additionally, the study found that corruption control leads to positive economic growth, while political stability and government effectiveness have no impact. According to the study, the government of this region should maintain fiscal discipline in order to maintain macroeconomic stability, reduce vulnerabilities, and improve aggregate economic performance.

1. Introduction

The impact of fiscal policies on economic growth has been examined in both neoclassical growth models and endogenous growth models (Barro, 1990; Rebelo, 1991; Jones, Manuelli & Rossi, 1993). The fiscal policy of a country plays a critical role in the development and growth of its economy. However, the relationship between fiscal policy and economic growth is significantly impacted by political factors, where government

spending and taxation often determine whether economic growth speeds up or slows down. Since gaining independence, many countries in the Sub-Saharan African (SSA) region have made gradual progress in economic growth, reflecting the efforts of different governments to foster economic development. Economic plans have been formulated over the years, varying across countries and time periods, making the annual budget a vital component of African economies. Emenike & Edirin (2017) argue in their study that budgets may influence the trajectory of economic growth, but the reciprocal relationship between the two remains a subject of debate. Political transformations have occurred in numerous Sub-Saharan African countries, with some transitions towards democracy. Consequently, democratic governance allows for fluctuations in macroeconomic policies while also supporting economic progress by creating a conducive environment for such initiatives.

Burchard (2014) argues that procedural democracies are often seen as a reflection of the number of countries that have shifted from autocratic to democratic rule, without necessarily considering the quality of democracy or the actual benefits gained from it. He suggests that the procedural aspect of democracy has been remarkable but inadequate, especially when considering the electoral competition in Africa. Foresti & Marani (2013) define fiscal indiscipline as the inconsistent fiscal policies practiced by different countries. It is crucial for governments to uphold a fiscal stance that promotes macroeconomic stability and sustainable economic development, while avoiding excessive borrowing and debt accumulation, as highlighted by the IMF in 2018.

In order to fully comprehend and assess the recent developments in fiscal policy in the sub-Saharan Africa region, it is essential to consider certain factors. Siebrits & Calitz (2006) highlight the importance of regional and global contexts, including the economic performance of the region, differing perspectives on the government's role, and the consequences of fiscal policy implementation. The early stages of the SSA's history, both pre- and post-colonial era, saw growth until the mid-1970s (Fosu, 2002). However, real output experienced a decline from an average growth rate of 5.4% (1960-1974) to 2.0% (1975-1999), with annual GDP per capita growth rates of 2.6% and -0.9% respectively during these periods (WGB, 2016). Siebrits & Calitz (2006) argue that these growth rates and the type of growth were not sufficient in addressing poverty in the region. Sub-Saharan Africa has some of the lowest university enrollment rates globally. While governments are investing in education, there is a need to focus on expanding access and enhancing the quality of education to meet the demands of the current workforce. Businesses in Africa often face challenges due to a lack of skilled labor. By investing in technical and vocational education and training, local economies can cultivate a skilled workforce that boosts production and contributes to economic growth (African Development Bank and Organisation for Economic Cooperation and Development, 2008).

Nevertheless, technical and vocational education and training programs in many African nations have struggled to fully recover from the financial constraints faced in the 1980s. Only a small portion, ranging from 2-6%, of educational budgets is allocated to technical and vocational skills development. A study by The African-American Institute on the State of Education in Africa (2015) revealed that a one-year increase in average tertiary education levels in Africa could lead to a 0.39 percentage point rise in annual Gross Domestic Product growth, ultimately resulting in a 12 percent increase in GDP. Over the years, the government has gradually increased education expenditures, from an average of 3.4% in 1999 to approximately 4.5% in 2013, and from an average of 14.61% in 2019 to 14.33% in 2022 (WGB, 2022).

The SSA region saw an increase in the government's final consumption expenditures from 11.7% in 2019 to 12.2% in 2021. Concurrently, the external debt burden in the region is on the rise due to the escalating government expenditures. For instance, in 2016, the debt service in the region surged from 2.5% to 7.14%, and in 2017, it increased from 3% to 4.6% (WGB, 2021). SSA countries exhibit high debt profiles, largely stemming from their elevated debt levels. The region seems to be grappling with prolonged deficits due to the apparent spending patterns in Africa. This points towards an inefficient planning process in the SSA region. Failing to adhere to a disciplined and quality spending plan could hinder the development of the desired fiscal culture, ultimately impacting the economy and national finances. Onakoya & Somoye (2013) attribute spending discrepancies over the years more to misalignment rather than inadequate provisioning. This is evident from the fluctuations in spending observed over time. Significant disparities in spending indicate fiscal irresponsibility, as public funds are not being utilized in line with government budgets, as noted by Granof & Mayper (1991).

In 2005, Nigeria was among the nations that received lender forgiveness, as stated by the IMF (2012). The implementation of the Heavily Indebted Poor Countries Initiative and Multilateral Debt Relief Initiative in 2008 resulted in a two-thirds reduction in sub-Saharan Africa's debt (Gill & Karakulah, 2018). By 2012, the median debt level in the SSA stood at 30% of GDP. The availability of credit enabled the development of infrastructure and implementation of economic policies. In 2017, Chad, Mozambique, South Sudan, Sudan, and Zimbabwe faced severe economic challenges, prompting multilateral organizations to address debt management issues. Several economies, including Ethiopia, Cameroon, Ghana, Kenya, Mauritania, and Zambia, have been cautioned to limit their public expenditures (Gill & Karakulah, 2018). Currently, the median debt-to-GDP ratio exceeds 50%. Although this may appear relatively low compared to global economies, it reflects the poor debt repayment capacity of African economies due to the accumulation of high interest rates. Consequently, they struggle to service these debts (IMF, 2018).

Figure 1 − Sub-Saharan total debt service % GNI
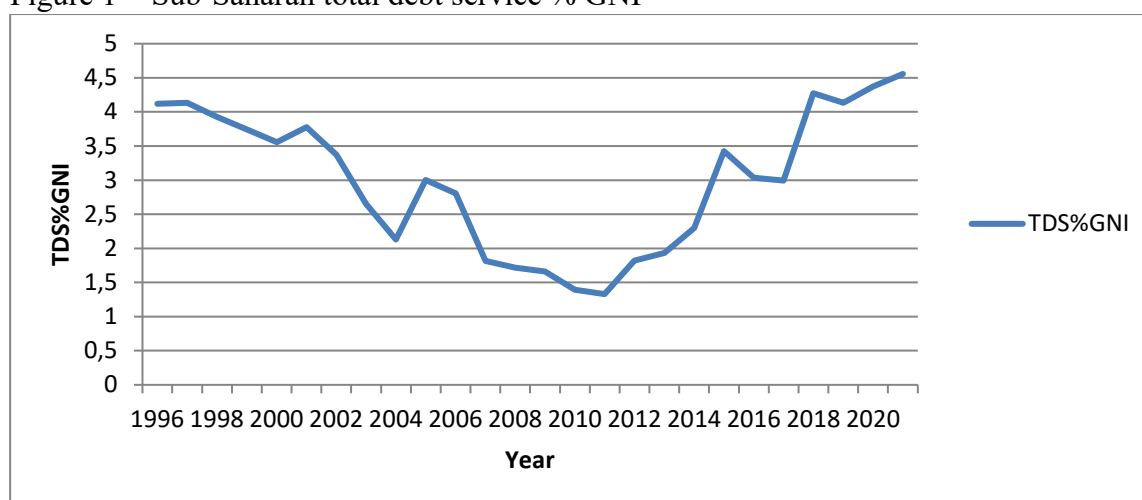
Source: (WDI, 2021)

SSA countries face an increased market risk due to a noticeable rise in debt sources and difficulties in the debt recovery process if they fail to effectively manage their debt burdens (IMF, 2018). Public debt can be measured in three distinct ways. The initial

measure is the static measure of the government's indebtedness, which calculates the ratio of gross public debt to gross domestic product. The second measure is a dynamic assessment of how rapidly the ratio of public debt to gross domestic product changes, while the third measure focuses on the sustainability of the debt, specifically the difference between the interest rate and the rate of economic growth (Gill & Karakulah, 2018). It is important to note that each method has its own restrictions. Sub-Saharan African nations have not been able to generate a surplus since 2012, which is necessary to reduce domestic public debt. This is due to worsening debt dynamics in Africa, including increasing deficits, slow growth, and rising interest rates. In 2016, per capita growth in sub-Saharan Africa was negative for the first time in nearly two decades, and there is no sign of a positive growth rate in 2018 (Gill & Karakulah, 2018).

Various authors, such as Macek & Janku (2015), Babalola (2015), Abubarkar (2016), Benanaya, Khaled, Rachid & Badreddine (2014), Alex & Ebieri (2014), Muritala & Taiwo (2011), Adefeso, Hakeem & Salawu (2010), Emranul & Osborn (2007), Kalle (2007), Babalola & Aminu (2011), Bose, Emranul & Osborn (2007), and Osborn (2007), have conducted studies on fiscal policy in a specific country, as well as in West African and sub-Saharan countries. While a minority of studies has shown a negative impact of fiscal policy on economic growth, the majority have found a positive impact. This study aims to explore the relationship between budget implementation, politics, and economic growth, taking into account factors such as debt levels, exchange rate stability, and other macroeconomic indicators in SSA countries.

This study will analyze the economies of 16 sub-Saharan African countries from 2000 to 2021. The countries included are Nigeria, Ghana, Angola, DRC, Cote d'Ivoire, Ethiopia, Gabon, Kenya, Equatorial Guinea, Burkina-Faso, Mali, Senegal, Togo, Guinea, Gambia, and Sierra-Leone. The study will focus on indicators such as the debt-to-GDP ratio and the deviation of expenditures from revenues to measure fiscal discipline. Other factors like exchange rates, GDP growth rates, and governance indicators will also be considered, with data sourced from the World Bank's World Development Indicators and World Governance Indicators.

The objective of the study is as follows:

1) To investigate the nexus between sub-Sahara Africa's fiscal indiscipline and her economic growth.

2) To examine if the political performance of the sub-Sahara Africa region in the face of debt actualization account for economic growth.

2. Politics and fiscal policy indiscipline

The term politics encompasses various meanings that are descriptive and non-judgmental. However, it is often associated with unethical conduct (Joseph, 2014). Political activities involve governing a country, exercising power over a community, and promoting one's political views through negotiations, legislation, and sometimes force (Hammarlund, 1985; Hawkesworth & Kogan, 2002; Steven, 2012; Blanton & Kegley, 2016; Brady, 2017). Politics is present at different social levels, from traditional societies to modern governments, companies, and even international relations. Decisions are typically made to

benefit members of sub-Saharan African groups, although some African nations do not follow democratic governance.

The African continent is still grappling with severe political and socioeconomic disparities despite numerous ongoing challenges, including ethnic divisions, poverty, and debt. Some African nations have struggled to implement reforms due to issues like corruption, weak institutions, internal conflicts, and an unresponsive political system. In recent years, there has been notable progress in achieving political stability in post-colonial African politics. The fiscal discipline in Sub-Saharan Africa is greatly impacted by the interplay between political decisions and fiscal policies. Both fiscal and monetary policies are subject to political influences globally. It is commonly observed that governments tend to increase spending during election periods, thereby manipulating fiscal policies (Drazen, 2001). Campos & Pradhan (1996) have identified key factors essential for sound fiscal management. It is acknowledged that budgeting and financial management cannot be completely shielded from political pressures. Developing and implementing institutional frameworks that enhance political engagement and encourage fiscal responsibility is crucial in managing the intersection between politics and budgeting. Fiscal mismanagement can arise in the absence of a robust framework for sound fiscal policies.

3. Review of literature

3.1 Theoretical literature

The classical view
The issue of fiscal deficit may appear novel, but it has actually been extensively studied for over two centuries. In his book "An Inquiry into the Nature and Causes of the Wealth of Nations" published in 1776, Adam Smith (1723-1790) delved into the concept of deficit. Smith argued that budgets should be balanced and this equilibrium should serve as a benchmark for government budgets. However, he acknowledged that this standard could be violated during times of war or other necessary circumstances. To address the deficit, Smith proposed the utilization of borrowing instead of taxation. He believed that governments' ability to borrow would lead to a greater inclination towards engaging in warfare. Smith emphasized that if governments raised funds through taxes rather than borrowing, they would not only reduce the deficit but also avoid the negative consequences of excessive borrowing (Smith, 1776). Smith analyzed various factors that contributed to government fiscal deficits, including the desire of government officials to spend, the difficulty in increasing taxes and the reluctance to do so, as well as the willingness of capitalists to lend. According to Smith, fiscal deficits result in public debts that ultimately undermine the prosperity of all great nations in Europe. Prior to Keynes' General Theory of 1936, the prevailing economic thought did not support government spending for stabilization purposes.

Smith (1776) argues that a distortion occurred in the allocation of a certain portion of the yearly output, which was originally intended for maintenance labor. This distortion was addressed by borrowing funds from the public to finance government expenditures. According to Smith, saving and spending are interconnected, as one person's saving becomes another person's investment. In the classical scenario, an increase in government spending leads to a rightward shift in the IS curve. As a result, the equilibrium interest rate rises, while the velocity of money income remains unchanged. In this situation, the higher

interest rate diminishes private investment spending. However, the increase in government expenditure is exactly counterbalanced by this effect.

According to Smith, it's important to keep a balanced budget to make sure the government spends money responsibly. This rule was created because in the past, governments spent too much money and went into debt. However, there are times, like during a war, when it's okay for the government to spend more money than it has. If we don't stick to a balanced budget, spending could get out of control. Even though our economy is growing, we always want more than we can afford. It's important to have simple rules for managing money, but just balancing the budget every year isn't always enough. Sometimes unexpected events can affect the budget and cause deficits, like changes in trade or natural disasters.

Aristotle's view on politics
Aristotle, who lived from 384 BCE to 322 BCE, was a renowned Greek philosopher, logician, and scientist. During the years 335 to 323 BCE, he penned some of his most significant works, such as the Politics. Those who are well-versed in this body of knowledge can utilize it effectively. The task of drafting a city-state's constitution is crucial for a politician acting as a lawgiver. Citizens must abide by laws, customs, and institutions, including monetary and fiscal policies, as well as moral education systems. Political leaders must uphold the constitution, implement reforms when necessary, and prevent any actions that could destabilize the political system. Aristotle places greater value on legislative science than on routine political activities like passing decrees. He believes that having a ruling authority is essential for maintaining order in any community. The governing principle, as outlined in the constitution, guides political offices, especially the sovereign office. Aristotle argues that every community aims for some good, with the community possessing the most authority striving for the greatest good.

Aristotle thought that politics should focus on helping people achieve their best outcomes and become better individuals. But in many Western countries today, like the United States, Canada, Germany, and Australia, people disagree with this idea. They believe politics is mostly about gaining wealth and power, rather than aiming for the best results. Many also think that politics shouldn't influence people's morals, as it could limit their personal freedom. In Western societies, people rely on the government to keep them safe through police and military forces, so they can freely pursue their own goals.

Fiscal policy is really important in a democratic government because it involves finding a balance between different groups who want to use the government's money for their own benefit. The government uses things like taxes and borrowing to help manage the economy, but it's not always easy to see how these actions are affecting the country's finances. We need to look at all the ways the government is spending and making money to get a true picture of how well they are doing. Just looking at how much money the government has isn't enough to understand the whole situation. We need to think about how the government's choices are impacting people and the economy as a whole.

Solow's growth model
The Solow neoclassical growth model made a significant contribution to the theory of economic growth, earning Robert Solow the Nobel Prize in economics. Unlike the Harrod-Domar model, the Solow model includes both labor and technology as factors in explaining long-term growth. It demonstrates diminishing returns to labor and capital individually, but

constant returns when they are combined. Technological progress is seen as the main driver of long-term growth in this model, with the level of technology considered to be determined externally from other factors.

The standard neoclassical growth model of Solow makes use of an aggregate production function in which

$$Y = K^\alpha (AL)^{1-\alpha}$$

In the context of economic analysis, Y denotes the gross domestic product, K stands for the stock of capital (which encompasses human and physical capital), L represents labor, and A signifies labor productivity, which experiences growth at a predetermined rate. Developed nations typically have this rate pegged at around 2% annually. However, for developing countries, this rate may vary depending on whether they are stagnant or progressing towards catching up with developed nations. Given that technological advancements are considered exogenous (at a rate of 2% per year, for instance), the Solow neoclassical model is often referred to as an "exogenous" growth model, in contrast to the endogenous growth approach. The parameter α denotes the elasticity of output concerning capital (indicating the percentage increase in GDP resulting from a 1% increase in human and physical capital). With the assumption that α is less than 1, and private capital is remunerated based on its marginal product, neoclassical growth theory predicts diminishing returns for both capital and labor.

Advancements in technology play a crucial role in boosting a country's economy by enhancing production efficiency. As technology improves, more output is generated through technological advancements, leading to economic growth. Fiscal policies also play a significant role in managing the economy by impacting the level of output, such as gross domestic product. Fiscal expansions can increase demand for goods and services, resulting in higher output and prices. Additionally, political and economic institutions directly influence economic development by affecting investments in capital, technological advancements, and production organization.

3.2 *Empirical literature*

Ayana (2023) studied how policy-governance indicators and economic growth are connected in 36 Sub-Saharan African (SSA) countries from 2011 to 2021. The research used two-system Generalized Method of Moment (GMM) estimation techniques for panel data analysis. The findings show that the direct economic impact of fiscal policy is negative and significant in SSA countries. On the other hand, the combination of fiscal policy with governance indicators has a positive and significant impact on economic growth. Dikeogu & Bredino (2022) analyzed the fiscal discipline of Nigeria from 1980 to 2015. According to recent fiscal data, the current fiscal situation of the nation suggests a lack of sustainability due to fiscal indiscipline. Evans (2020) utilized the ARDL bounds testing methodology to investigate the impact of ARDL bounds testing on financial development and economic growth in Nigeria from 1980 to 2017, taking into account factors such as corruption, budgeting reforms, fiscal policy sustainability, and crowding-out. The findings suggest that in the short and long term, policy uncertainty, corruption, and fiscal deficits have a detrimental effect on financial development and economic growth. The presence of increased uncertainty, corruption, and fiscal deficits can hinder financial development and

economic growth. Tasnia (2018) utilized the ADRL model and ECM to analyze pooled cross-section time series and panel data spanning from 1980 to 2016. The study focused on investigating the influence of fiscal policy on economic growth in four South Asian countries. Interestingly, government expenditures and tax revenues did not have a significant impact on the real GDP growth of these nations. The economic performance and fiscal discipline are analyzed in Gale & Orszag (2003). The findings reveal two aspects. Initially, there is a decrease in budget surpluses (or an escalation in budget deficits), leading to a reduction in national savings. Secondly, long-term interest rates increase with the rise in projected deficits.

Macek & Janku (2015) studied the impact of fiscal policy on economic growth in OECD countries from 2000 to 2012. Their findings suggest that the effects of government expenditures on economic growth vary depending on the level of fiscal transparency and institutional conditions. In countries with low fiscal transparency, government spending has a positive effect on economic growth, while in countries with high transparency, it has a negative impact. The study also highlights that in countries with inadequate institutional conditions; government spending can have negative effects on taxation and hinder economic growth. Babalola (2015) conducted a study on Nigerian economic development from 1980 to 2013, analyzing the effects of fiscal policy on both short- and long-term growth. Through various statistical methods, it was found that government recurrent expenditures and investments have significant impacts on economic development. While capital expenditures showed some short-term benefits, tax revenue was found to have a negative impact on economic growth in both the short and long term. In Abubakar (2016), the impact of government spending on economic growth in Nigeria was examined using the VECM methodology. According to the findings of his study, public expenditures influenced economic growth in a mixed manner. Public expenditures had a negative impact on economic growth in Nigeria in some areas, while positive effects were observed in others. Obayori (2016) utilized the error correction model approach to analyze the influence of fiscal policy on unemployment in Nigeria. The research findings indicated that both government's capital expenditures and recurrent expenditures had an adverse effect on unemployment in Nigeria. In a study conducted by Osinwo in 2015, the impact of fiscal policy on sectoral growth in Nigeria from 1970 to 2013 was analyzed using the ARDL and ECM methods. The results showed that government expenditures had a positive effect on the output of most sectors, with the exception of agriculture.

Benanaya, Khaled, Rachid & Badreddine (2014) conducted a dynamic panel data analysis to investigate the impact of fiscal policy on economic growth in MENA countries. The study revealed a positive long-term association between fiscal policy and economic growth. The correlation between GDP and budgetary revenue suggests a causal relationship between economic growth and fiscal revenues. However, isolating the specific effects of taxes was challenging in the empirical analysis. Alex & Ebieri (2014) examined the impact of fiscal policy on economic growth in Nigeria using the ARDL method. They found that there is a long-term relationship between Nigerian economic growth and fiscal policy. Government capital and recurrent expenditure have a significant impact on economic growth, while oil taxes, non-oil taxes, and government debt do not have a significant effect on real GDP. Short-term economic growth is mainly influenced by capital expenditures. Arnelyn, Gemma, Minsoo & Donghyun (2014) examined how fiscal policy impacts economic growth in developing Asian countries. They found that the level of taxes and government spending in the region has a greater impact on economic growth compared to

advanced economies. Investments in education positively affect economic growth, while property taxes have a less significant impact. Nathan (2012) studied the relationship between money supply, fiscal deficits, exports, and economic growth in Nigeria from 1970 to 2010. He found that economic growth in Nigeria is closely linked to these factors, suggesting that fiscal policy can be a valuable tool for promoting economic growth in the country.

Adefeso, Hakeem & Salawu (2010) conducted a study on the impact of Nigerian fiscal policy on economic growth between 1970 and 2005. They utilized the error-correction method to test the predictive ability of the endogenous growth model. The study's findings were in line with earlier empirical research conducted in other countries, indicating that government expenditures aimed at productivity enhancement have a positive effect on economic growth Babalola & Aminu (2011) conducted a study on the relationship between public expenditure and economic growth in Nigeria from 1977 to 2009. They used the Engle-Granger test and variables such as real GDP, income tax, capital expenditure, and government consumption expenditure. Their findings showed that productive government expenditure had a significant positive effect on economic growth. Cogan, Taylor, Wieland, & Wolters (2013) identified the measures of fiscal policy to ensure economic growth both in the short and long run. A positive influence of fiscal policy instruments on economic development is indicated in the studies of such domestic scholars as Zapatrina (2007), Lisyak (2009), Boholib (2015), Chugunov (2015); Chugunov&Makogon (2016), etc.

3.3 Contribution to knowledge

A comprehensive examination of literature utilizing empirical evidence was carried out for this research. Upon reviewing the literature, it was discovered that the majority of studies focused on the impact of fiscal policy and government institutions or indicators on economic growth, both as individual and cross-country studies employing various analytical methods. As a result, the researchers can assert with confidence that there are limited studies that have explored the relationship between fiscal indiscipline and economic growth independent of politics. Therefore, this study contributes to the existing body of knowledge by investigating fiscal indiscipline, politics (political performance), and economic growth in sub-Saharan Africa using Panel data analysis from 2000 to 2021.

4. Research methodology

There are many variations of Wagner's theory, including those modified by Peacock and Wiseman (1967), Goffman (1968), Gupta (1967), Michas (1975), Musgrave (1969) and then Peacock and Wiseman as modified by Mann (1980), which all explain why there is a deficit in government spending. While considering the divergence of government expenditure from its revenue course, this research adopts an implied relationship between economic growth and government expenditures.

$rge = f(rgdp)$ by Peacock and Wiseman (1976):

$$rge_t = \alpha_0 + \alpha_1 rgdp_t + u_t \quad \dots (3.1)$$

$$\alpha_1 rgdp_t = \alpha_0 + rge + u_t$$

$$rgdp_t = \frac{\alpha_o}{\alpha_1} + \frac{1}{\alpha_1}rge + \frac{1}{\alpha_1}u_t$$

$$rgdp = \beta_0 + \beta_1 rge + v_t \quad \ldots (3.2)$$

where $rgdp$ is the real GDP, rge is the real government consumption expenditure.

The above model is modified to accommodate measures of fiscal indiscipline. This gives room for the next section.

4.1 Model specification

The model to be estimated is specified here, drawing from the above theoretical framework of Wagner's theory. The modified version of Peacock and Wiseman's (1967) model is given in equation (3.2). Modifications are made to this in the equation (3.3) as a Panel model for the SSA region. This is given explicitly below as:

$$rgdp_{it} = \alpha_0 + \alpha_1 fndx_{it} + \alpha_2 tgcx_{it} + \alpha_3 invs_{it} + \alpha_4 exch_{it}$$
$$+ \alpha_5 gov.ind(cc, ge \ and \ ps) + \mu_{it} \quad \ldots (3.3)$$

where $rgdp$ is the Real GDP, $fndx$ is the fiscal indiscipline index measured by a ratio of debt to GDP, $tgcx$ is the total government consumption expenditure, $invs$ is the gross fixed capital, $exch$ is the exchange rate with the dollar as foreign currency, $gov.ind$ is the interaction of governance indicator (control of corruption, government effectiveness and political stability) (proxy of the political structure).

4.2 Estimation Procedure

Levin and Lin (LL) test
This panel unit root test was created by Levin and Lin (1992). Levin and Lin adopted a test that can literally be viewed as an extension of the DF test. The model form is as follows:

$$\Delta Y_{i,t} = a_i + \rho Y_{it-1} + \sum_{k=1}^{n} \phi_k \Delta Y_{i,t-k} + \delta_{it} + \theta_t + \mu_{it} \ldots (3.4)$$

The model permits for two-way fixed effects, one form the a_i and the other from the θ_t .which makes both unit-specific fixed effects and unit specific time trends. The Unit specific fixed effects are very crucial component due to the permit for heterogeneity because the coefficient of the lagged Yi is deprived to be homogeneous over all units of the panel. The LL test also assumes that the individual processes are independent in cross sectional data.

The null hypothesis of this test states that:

$$H0: \ \rho = 0 \qquad H0: \ \rho = 0$$

Kao test

The Kao (1999) revealed Dick-Fuller (DF) and Augmented Dick-Fuller (ADF)-type tests for co-integration in panel data. According to Kao, the residual-based co-integration test can be adopted.

$$\mu it = euit - 1 + vit$$

Kao (1999) also proposes an ADF test, where one can run the following regression:

$$\mu_{i,t} = \rho\mu_{i,t-1} + \sum_{j=1}^{n} \phi_j\Delta\mu_{i,t-j} + vi_t ...(3.5)$$

Hausman Test

In this test, we determine which of the pre-assumptions of the model holds true between the fixed effect and the random effect. By doing so, it confirms that the above model can be estimated using the appropriate technique. Below is the null hypothesis to be tested:

H0: Difference in coefficients not systematic (the preferred model is the random effect)

The fixed effect model is preferred because of a p-value less than 0.05 that rejects the null hypothesis. While fixed effect estimates are consistent regardless of whether the difference in coefficients is systematic or not, random effect estimates are inconsistent when the difference in coefficients is systematic but efficient when it is not. If the Hausman test p-value is less than 0.05, then the fixed effect model should be preferred because the coefficient difference is systematic.

$$H = (\hat{\beta}^{FE} - \hat{\beta}^{RE})'[Var(\hat{\beta}^{FE}) - Var\hat{\beta}^{RE})]^{-1}(\hat{\beta}^{FE} - \hat{\beta}^{RE}) \sim \chi^2(\kappa) ....(3.6)$$

5. Results and Discussion

5.1 Panel Unit Root/ Stationarity Test

In each test, if H0: $\rho = 0$ will accept the null hypothesis say that the variable has a unit root or is not stationary and if H0: $\rho < 0$ will reject the null hypothesis thereby accepting the alternative, saying that there is no presence of unit root or the variable is stationary.

Specification level are noted as * unit root present and ** no unit root present. From Table 1 using the Levin, Lin &Chu (LLC) to test for unit root, real gross domestic product (RGDP), real exchange rate (REXR), political stability (PS), control of corruption (CC) and government effectiveness (GE) are integrated of order I(0), total government consumption expenditure (TGC) and investment (INV) are integrated of I(1) while ratio of debt to GDP (FND) is integrated of order I(2). As a result of these we can proceed to test for co-integration of the variables.

Table 1 − Levin, Lin and Chu (2002), test (individual intercept and trend)

	Level Diff	First Diff	Second Diff	Probability	Order of integration
RGDP	-3.27526**			0.0005	I(0)
FND	0.75100*	-0.19842*	-3.94171**	0.0000	I(2)
TGC	1.55528*	-2.91758**		0.0018	I(1)
INV	0.15006*	-7.86636**		0.0000	I(1)
REXR	-11.9128**			0.0000	I(0)
PS	-8.12248**			0.0000	I(0)
CC	-13.3105**			0.0000	I(0)
GE	-18.5260**			0.0000	I(0)

Source: E-views 10

5.2 Co-integration Test Using the Kao Panel Co-integration Test

The null hypothesis is that there is no co-integration and the alternative hypothesis is that there is co-integration, meaning that the variables have a long-run relationship. If the probability level is less than 5%, the null hypotheses are rejected, otherwise accepted.

From Table 2 is possible to see that the probability of an ADF test is less than 0.05 (5%) which means the null hypothesis must be rejected and the alternative hypothesis accepted. As a result, we conclude that the variables have a long-term relationship. In the regression, we can determine the long-run and short-run relationships.

Table 2 − Co-integration Test

	t-Statistic	Prob.
ADF	-4.101700	0.0000
Residual variance	37.70110	
HAC variance	15.15310	

Source: E-views 10

5.3 Hausman Test

From the Hausman test (Table 3), since the probability is 0.0000 and it is less than 5% (0.05), it means that we reject the null by using the fixed effect for analysis i.e., the fixed effect is consistence and effective.

Table 3 − Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. df	Prob
Cross-section	37.962720	7	0.0000

5.4 To investigate the nexus between sub-Sahara Africa's fiscal indiscipline and its economic growth

From the panel regression (Table 4), fiscal indiscipline index measured by a ratio of debt to GDP and tgc which is total government consumption expenditure is seen to be negative and insignificant to economic growth in sub-Saharan African countries. While $invs$ which is proxy by gross fixed capital and $exch$ which is exchange rate with the dollar as foreign currency are statistically positively and negatively to economic growth in sub-Saharan African countries. That is to say one percent change in investment (inv) brought about 0.266% increases to economic growth in sub-Saharan African countries and a percentage change in real exchange rate brought about 6.9% decreases to the economic growth in sub-Saharan African countries. From the result above, it can be seen that in sub-Saharan as a whole there has been mismanagement of government revenue and excess of government expenditure that does not contribute to the economic. That is to say there has been fiscal indiscipline in the region, this result confirm to that of Evans (2020), Tasnia (2018), Gale & Orszag (2003), Dikeogu & Bredino (2022), Macek & Janku (2015), Abubakar (2016), and Obayori (2016).

Table 4 − Panel regression (dependent variable: RGEDP; method: panel EGLS cross-section weights**)**

Var	Coefficient	Std. Error	t-Statistic	Prob.
D(D(FND))	-0.007848	0.008554	-0.917555	0.3596
D(TGF)	0.000171	0.000101	1.694405	0.0912
D(INV)	0.000266	7.84E-05	3.34579	0.0008
REXR	-0.069812	0.026298	-2.654591	0.0084
C	8.565389	1.479526	5.789278	0.0000
Adjusted R^2	0.211704			
Durbin-Watson	1.535431			

Source: E-views 10

5.5 To examine if the political performance of the sub-Sahara Africa region in the face of debt actualization account for economic growth.

From Table 5, the result shows that political stability (PS) and government effective (GE) is seen to insignificant to economic growth in sub-Saharan African countries, that is to say there is no political stability and government effectiveness in political performance in increase the economic growth when it comes to the region of sub-Saharan African countries. The control of corruption (CC) is statistically positively significant to economic growth in the region that is a percentage change in control of corruption brought about an increase in economic growth. This shows that if the control of corruption increases in the region, it will definitely increase the economic growth of sub-Saharan African countries. The fiscal indiscipline also shows a negative significant level to the economic growth in the region, one percentage change in fiscal indiscipline brought about a decrease in

economic growth in the region. These findings also conform to Evans (2020) and Dikeogu & Bredino (2022) results.

Table 5 − Dependent variable: RGDP; method: Panel EGLS (Cross-section weights)

Var	Coefficient	Std. Error	t-Statistic	Prob.
D(D(FND)	-0.039959	0.01463	-2.762949	0.0061
PS	0.751079	0.397410	1.889935	0.0598
CC	2.614229	1.140981	2.291271	0.0227
GE	2.492286	2.523013	0.987819	0.3241
ECM(-1)	-0.267786	0.052030	-5.146796	0.0000
C	8.496409	1.066363	7.967655	0.0000
Adjusted R^2	0.294393			
Durbin-Watson stat	2.013904			

Source: E-views 10

5.6 *Discussion of Findings*

The results from the first objective indicate that there is an insignificant correlation between fiscal indiscipline, government consumption expenditure, and economic growth in sub-Saharan Africa. This suggests that the mismanagement of government revenue and excessive government spending do not positively impact the economy. This aligns with the findings of Evans (2020), Tasnia (2018), Gale & Orszag (2003), Dikeogu & Bredino (2022), Macek & Janku (2015), Abubakar (2016), and Obayori (2016), but contradicts the results of Ayana (2023). Moving on to the second objective, the results reveal that political stability and government effectiveness do not have a significant relationship with economic growth, whereas the control of corruption shows a positive and significant association with economic growth. This implies that political stability and government effectiveness do not necessarily lead to economic growth in sub-Saharan African countries, while an increase in the control of corruption can boost economic growth in the region. This finding is consistent with the studies of Evans (2020) and Dikeogu & Bredino (2022).

6. Conclusions and policy recommendations

In this research, panel data analysis was conducted and following the Hausman test, the fixed effect method was utilized for estimation in order to assess the influence of fiscal indiscipline and politics on economic growth in sub-Saharan nations from 2000 to 2021. The countries included in the sample were Nigeria, Ghana, Angola, DR Congo, Cote d'Ivoire, Ethiopia, Gabon, Kenya, Equatorial Guinea, Burkina Faso, Mali, Senegal, Togo, Guinea, Gambia, and Sierra Leone. The initial objective indicated that fiscal indiscipline, represented by the debt to GDP ratio and government consumption spending, did not significantly impact economic growth in the region. Only investment was found to have a positive and significant effect on economic growth, while the real exchange rate had a negative impact. The second objective revealed that political stability and government effectiveness were not significant, but control of corruption had a positive and significant

relationship with economic growth in sub-Saharan African countries. Additionally, fiscal indiscipline was shown to have a negative impact on economic growth in the region.

Based on the findings, the study recommends that:

(1) To maintain macroeconomic stability, lessen vulnerabilities, and boost overall economic performance, this region's government must practice financial responsibility.

(2) Fiscal restraint is necessary for countries if they want to improve their long-term economic prospects by taking advantage of the opportunities presented by expanding free trade and an open capital market.

(3) The sub-Saharan government likely uses its discretion to carry out its mandates through tax and expenditure decisions, since if it were utilized improperly, it may lead to deficit bias and pro-cyclical policies. These, in turn, may result in fiscal positions, increasing debt levels, and eventually, a decline in the credibility of policy.

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