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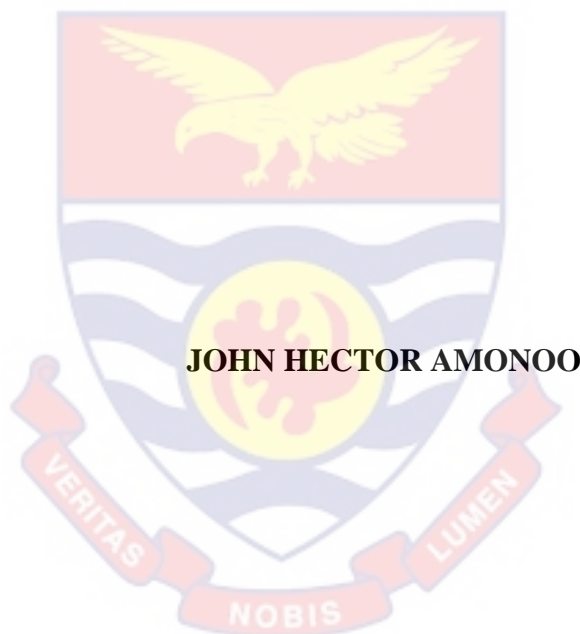
CORRUPTION, INSTITUTIONAL ENVIRONMENT AND FISCAL

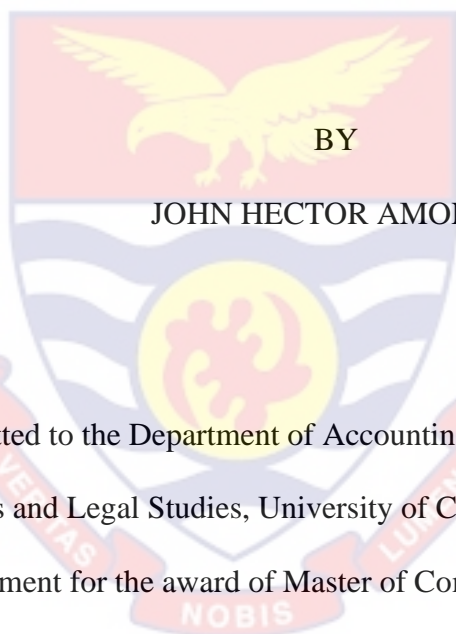# SUSTAINABILITY IN SUB-SAHARAN AFRICA

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UNIVERSITY OF CAPE COAST

CORRUPTION, INSTITUTIONAL ENVIRONMENT AND FISCAL

SUSTAINABILITY IN SUB-SAHARAN AFRICA

BY

JOHN HECTOR AMONOO

Thesis submitted to the Department of Accounting, School of Business, College of Humanities and Legal Studies, University of Cape Coast, in partial fulfilment of the requirement for the award of Master of Commerce Degree in Accounting

AUGUST, 2023

DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the results of my own original research and that

no part of this has been presented for another degree in this university of

elsewhere.

Candidate's Signature ……………………………… Date ………………………..

Name: John Hector Amonoo

Supervisor's Declaration

I hereby declare that the preparation and presentation of the thesis were

supervised in accordance with guidelines on supervision of thesis laid down by

the University of Cape Coast.

Supervisors Signature ……………………………… Date ………………………....

Name: Dr. James Tuffour

KEY WORDS

Corruption

Fiscal Sustainability

Generalised Method Moment

Institutional Environment

Moderating Effect

Sub-Saharan Africa

ACKNOWLEDGEMENTS

DEDICATION

To my wife Mrs. Esther Amonoo

ABSTRACT

Many Sub-Saharan African governments have struggled to achieve fiscal sustainability. Empirical literature argued that corruption impedes efforts to achieve fiscal sustainability. Moreover, there is evidence in the literature that corruption will be more widespread and severe in achieving fiscal sustainability in economies with poor institutional environments. The study investigated moderation of institutional environment between corruption and fiscal sustainability in SSA countries by utilizing system Generalised Method of Moment estimation technique and 39 SSA countries. According to the study, a weak institutional environment exacerbates the effect of corruption on the fiscal sustainability of Sub-Saharan African economies. Consequently, SSA should countries implement efforts to strengthen their institutional framework in order to reduce high levels of corruption and achieve fiscal sustainability. Corruption can be addressed in order to promote fiscal sustainability through improving government performance, eliminating corruption, improving regulatory quality, adhering to the rule of law, and providing for voice and accountability. Also, improved institutional environment will have a positive influence on fiscal sustainability.

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FS	Fiscal Sustainability
CORR	Corruption
INE	Institutional Environment
GE	Governance Effectiveness
RL	Rule of Law
RQ	Regulatory Quality
PSAV	Political Stability and Absence of Violence
VA	Voice of Accountability
PB	Primary Balance
FB	Fiscal Balance
TR	Tax Revenue
GDP	Gross Domestic Product
WDI	World Development Indicators
WGI	World Governance Indicators
TI	Transparency International
GMM	Generalised Method Moment

CHAPTER ONE

INTRODUCTION

Introduction

Fiscal sustainability is relevant in maintaining a stable and growing economy. Thus, governments are able to finance fiscal deficits without generating explosive increases in public debt (Ngo & Nguyen, 2020). The rise of public debt in Sub-Saharan African (SSA) economies especially post COVID-19 pandemic-induced lockdown, is a cause for worry among policymakers due to irregularities in payment. Corruption has been a critical issue of concern in SSA economies because of its deleterious impact on economic growth and stability (Addai, Odame-Amoah, & Oguejiofor, 2022). However, with strong institutional environment corruption can be minimised to achieve the desired level of fiscal sustainability. This study adds to the existing literature on corruption, institutional environment, and fiscal sustainability in SSA as results of utilising multiple elements of institutions as a measure of institutional environment. In reality, this study will be critical for policymakers as they strive to minimize corruption in SSA.

Background of the study

SSA Region consists of countries south to the Saharan desert. According to World Bank (2021) data, the overall population is 1.18 billion people. The history of SSA economies, particularly in the nineteenth and twentieth centuries, is dominated by European colonialism, in which white minority governments dominated economic and political activities in the majority of countries. Early 20th Century witnessed struggle for independence (see for example, Jackson, 1983;

Tough, 2009). However, since the millennium's turn, countries across the continent have made tremendous advances in the social, political, and economic realms (Van Donge, Henley, & Lewis, 2012).

African countries have also expressed a willingness to collaborate in the pursuit of shared prosperity. For example, the African Union's Agenda 2063: The Africa We Want is a roadmap for the continent's political, social, and economic development (African Union Commission, 2015). This development agenda outlined Africa's goals for important topics such inclusive economic growth and development, regional integration, good governance, human rights, and a peaceful and secure Africa (AUC, 2015). Furthermore, African countries are participating in the United Nations 2030 Agenda for Sustainable Development Goals (SDGs). According to the United Nations Secretary-General's Special Advisor for Africa (as stated by Kuwonu, 2015), Agenda 2063 is mutually supportive and cohesive with the SDGs, and as such, minor variations do not prevent both agendas from being implemented concurrently. Nonetheless, corruption poses a significant barrier to SSA's economic, social, and political initiatives and developments.

According to Hope (2017), the corruption pandemic in SSA has reached malignant proportions, prompting global concern. Despite this prevalence, there are different perspectives to what corruption entails. Osoba (1996) claimed that corruption is an antisocial conduct that imposes false gains on its perpetrators, which is contrary to established legal norms and prevalent moral ethos. Similarly, Yeboah-Assiamah, Asamoah, & Osei-kojo, (2014) revealed the corruption occurs where public funds are not utilised for it intended purpose.

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Moreover, Zidi and Ahmed (2013) dentified bribery and extortion of money for the delivery of free services to the public as common corrupt practices among SSA countries. Also, thievery, misappropriation and misuse of state resources has become a norm among SSA leaders ((Amadou, Konte, & Shimeles, 2020). For example, Zimbawe and Ghana lost $10m and GHc 100m respectively as a result of payroll fraud in 2021 (World Bank, 2021).

SSA has the lowest ranked region on the 2019 Corruption Perceptions Index (CPI), with a regional average score of 32% compared to a global average score of 43% (Transparency International, 2020). Furthermore, six SSA countries namely Angola, Burundi, Chad, Equatorial Guinea, Sudan, and Somalia were classified Berlin-based organisation as most corrupt among the SSA countries. Rating countries on 10-point scale, with zero being the least corrupt, 44 of the 47 African nations surveyed scored less than five on the index, indicating serious levels of corruption. With a score of 5.8 for Botswana indicates the severity of corruption in SSA.

Debatably, SSA's low score reflects how corrupt the region's public sector is seen to be. Many African countries have adopted democratic norms in the last two decades, resulting in the establishment of anti-corruption institutions. Despite establishment of anti-corruption institutions, corruption appears to thrive in this region (Gyimah-Brempong, 2002; Mungiu-Pippidi, 2015).

According to empirical studies, there is a high amount of corruption in revenue mobilization and inefficient government expenditure in SSA economies (Alagidede, Baah-Boateng, & Nketiah-Amponsah, 2013; Alhassan & Nwagbara,

2021). Tax revenue mobilisation serves as the main source of funds for most SSA government's. However, due to weakness in institutional environment, there have been leakages of tax revenue in the region (Amadou, Konte, & Shimeles, 2020). According to Tax Transparency in Africa Initiative Report (2022), SSA looses in excess of $50m tax revenue. Thus, irreguarities in tax revenue mobilisation such a tax evasion contributes to major leakages of revenue which hampers SSA government's to finance their budget.

Additionally, the region is also characterised by inefficient government's spending which manifest in infrastructural procurement as indicated by (Awojobi, 2014). International Monetary Fund (2020) report indicated that it cost SSA $45 billion a year to address infrastructural problems losing $17 billion due to hidden cost of corruption in procurement for poor qaulity infrastruture. This cost represent 30% investment in public infrastructure worldwide.

According to Bohn (2005), fiscal sustainability is the ability of governments to smoothly finance their budgets without excessive accumulation of public debt in the long run. As a result, governments must be solvent in order to repay their debts when they become due (Camarero, Carrion-i-Silvestre, & Tamarit, 2015). Furthermore, fiscal policy is said to be sustainable when the ratio of public debt to productivity remains essentially consistent throughout time (Adams, Ferrarini, & Park, 2010; Bevan & Fjeldstad, 2018).

To respond to external shocks, governments have often responded by easing monetary and fiscal policies to positively affect financial and trade flows (IMF, 2020). That is, even when there are emergent economic shocks, the debt to

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productivity ratio should not increase abnormally. Rather, the increment should quickly return to its normal levels. Therefore, governments must be in the position to ensure discipline in spending and mobilise sufficient revenues to cover future debt burdens, instead of undertaking rigorous debt exchange programs. Transparency in the management of public accounts enhances fiscal performance and reduces corruption while improving the economic outlook (Addai *et al*., 2022; Hope, 2017; Kassouri & Altntas 2021).

However, as a result of the economic downturn from 4.6% in 2014 to 3.7 percent in 2015, SSA economies saw a historic increase in their debt-to-GDP ratio of 29.1%. This brought into question the ability of the SSA government to accommodate substantial adverse economic shocks without entering a payment crisis (World Bank, 2021). This has generated worries about the fiscal sustainability of SSA economies (World Bank, 2021; Kassouri & Altntas, 2021).

Similarly, the spread of the new COVID-19 has had a severe impact on national economies and households alike. Significantly, many efforts to ensure cheap health care and access, as well as acquiring personal protective equipment and improving contact tracing, were hampered by widespread corruption in SSA economies (Arkorful, Abdul Rahaman, Ibrahim, & Arkorful, 2022).

Recent study focuses on the importance of non-economic variables and the impact of the institutional environment on fiscal sustainability in SSA economies (Bourn, 2007; Amoh & Ali-Nakyea, 2019). These institutional environment includes governance effectiveness, control of corruption, political stability and absence of violence, regulatory quality, rule of law, and voice of accountability.

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According to Law and Azman-Saini (2012), market processes and monetary policy cannot be relied on only to stimulate the economy unless the institutional framework plays a complementary role. The premise is that, rather than needing a mix, the institutional framework worked as a complimentary tool to achieve economic goals.

Unfortunately, successive governments in SSA nations such as Nigeria, Ghana, Somalia, and the Gambia have failed to recognize the influence of institutional environment due to extractive institutions hence, uncontrolled wastages, funds embezzlement, lack of political will, nepotism, and overspending (Graaf, Huberts,& Strüwer 2018). Thus, institutional environment is a potent tool to combat corruption and achieve fiscal sustainability, therefore the need to make institutional environment more inclusive and incentivised (Adams & Klobodu, 2016). Similarly, in the absence of inclusive institutional environment it will result in stifled economic growth (Addai, Odame-Amoah, & Oguejiofor, 2022). A broad spectrum of the literature noted that lax institutional environment deters fiscal sustainability (Ngo & Nguyen, 2020; Arif & Rawat, 2018; Azeez, 2018). As a result, unscrupulous public officials take seized the opportunity to amass personal wealth (Addo, 2021). Perhaps, if maximum attention is given to inclusive institutional environment, corruption can be minimised. Empirical research is required to explore the link between corruption and fiscal sustainability in SSA, along with how the institutional environment influences this relationship in SSA context.

Statement of the Problem

Many SSA economies are resource-rich, yet the least developed around the world (Alhassan & Nwagbara, 2021; World Bank, 2018). In this vein, corruption has been observed as a crucial role player when viewing SSA's inability to achieve fiscal sustainability after their political independence (African Development Bank, 2020). Thus, corruption is a clear breaking of administrative and moral rules, generating losses to the public treasury as counterpart for the performance of the wrongful act (Jain, 2001). Meanwhile, there are few research studies identified in SSA on the effect of corruption on fiscal sustainability within SSA context. Also these few empirical studies conducted did not focus on the direct link between corruption and fiscal sustainability and also the relevance of institutional environment. For example, Ahlin and Pang (2008), Adams and Klobodu (2016), and Song, Chang, and Gong (2021) indicated that corruption has a major impact on financial development in SSA economies. In contrast, Biru (2010) and Ondo (2017) discovered that corruption had a short-run positive influence on financial development. Furthermore, the International Monetary Fund (2021) claimed that over $148 billion, or 25% of GDP, was lost due to corruption each year, and that money laundering costs between 2% and 5% of global GDP, or $1 trillion to $2 trillion, with SSA economies constituting the larger share of the cost. Also, Cameroon, Malawi, Kenya, Uganda, and Zimbabwe, for example, misappropriated $333 million, $1.3 million, $400 million, $71.96 million, and $528 million earmarked for pandemic response in 2020 due to procurement irregularities.

Also Mackey , Vian, and Kohler (2018) revealed corruption consistently wounds efforts to achieve the UN sustainable development goals. Others authors, Amoh and Ali-Nakyea, (2019); Amadou, Konte, and Shimeles, (2020) found a negative association between tax income and corruption. However, Kéïta and Laurila (2021) found no direct significant relationship between corruption and tax revenue. Clearly, no interaction term of institutional environment was introduced by any of the authors. Clearly, the differernces in findings are as a results of absence institutional environment in the analysis of prior studies.

Gerring and Thacker (2004) argued that corruption in SSA economies are enhanced by weak institutions. Thompson (2018) indicated that sustainability can be achieved when institutions are strenghtened to combat corruption. Van de Walle and Migchelbrink (2022) studies revealed that reduced level of corruption will translate into achieving fiscal sustainability when the required levels of institutional environment are established. Moreover, these studies were carried out in Europe. Also Van de Walle and Migchelbrink proxied institutional environment by using European Quality Government Index, hence, making its application in the context of SSA economies impracticable.

Based on this context, this study makes use of a wide proxy for institutional environment namely, "government effectiveness, political stability and absence of violence, regulatory quality, rule of law, and voice and accountability (Azeez, 2018)". These indicators are sourced from institutions such as the World Markets Research Centre, World Bank, policy think tanks, and business and political risk-rating organizations (Awan, Akhtar, Rahim, Sher, & Cheema, 2018).

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Fiscal sustainability is a priority of every government, however, among SSA countries, it has been hindered by high levels of public debt, tax evasion, and corruption. Given the inadequacy of literature within the SSA context, it therefore remains obscure whether the recommendations in previous studies can be used by policymakers. This analysis thus fills a gap in the existing literature by examining the links between corruption, institutional settings, and fiscal sustainability in SSA economies using an elaborate proxy for institutional environment. Additionally, the interaction term between corruption and fiscal sustainability helps to determine the net effect of corruption on fiscal sustainability in SSA context.

Purpose of the study

The purpose of this study was to investigate the moderating effect of institutional contexts on the connection between corruption and fiscal sustainability in SSA economies.

Research Objectives

The study specifically intends

1. Examine the relationship between corruption and fiscal sustainability in Sub-Saharan African economies

2. Examine the relationship between institutional environments and fiscal sustainability in Sub-Saharan African economies

3. Examine the relationship between institutional environments, corruption and fiscal sustainability in Sub-Saharan African economies

Hypotheses

1. H_o: there is no significant relationship between corruption and fiscal sustainability in Sub-Saharan Afrian economies

2. H_o: there is no significant relationship between institutional environment and fiscal sustainability in Sub-Saharan African economies

3. H_o: there is no significant relationship between institutional environments, corruption and fiscal sustainability in Sub-Saharan African economies

Significance of the Study

This study examines how the institutional environment in SSA influence the relationship between corruption and fiscal sustainability. It also has both empirical and social importance. This study's empirical value adds to the existing literature on the links between corruption, fiscal sustainability, and institutional environment in the context of SSA economies. In terms of societal significance, this study will encourage SSA policymakers to solve problems by identifying appropriate policies that will assist the country in achieving fiscal sustainability.

Furthermore, this research contributes to achieving Sustainable Development Goals (SDGs) 16.5 to drastically reduce corruption and bribery in all forms, and 16.6 to develop effective, accountable, and transparent institutions at all levels. Furthermore, donor organizations such as the World Bank and the International Monetary Fund (IMF) will be better educated on how to help SSA states in achieving fiscal sustainability. It will also serve as a foundation for further research and offer insights for future scholars who may wish to explore similar characteristics in other regions.

Delimitation

The actual tax (as a percentage of GDP) was used as a proxy for fiscal sustainability because it has been frequently used in the literature. Furthermore, corruption perception index scores were used as proxies for corruption. Again, the institutional environment was examined using a composite of five institutional indicators. Furthermore, in order to attain the intended results, the study ignored macroeconomic variables such as real GDP, government expenditure (% GDP), inflation rate, and investment rate (Gross capital Formation). The study did, however, adjust for fiscal balance (% GDP), primary balance (% GDP), and tax revenue (% GDP) because these variables can have a major impact on the results.

Limitation of the Study

This study is restricted to Sub-Saharan Africa, therefore countries from other parts of the world are excluded. Due to data accessibility in the chosen areas and to overcome the post-Covid 19 estimation effect, the focus was on panel data from 39 selected SSA nations spanning the period 2011 to 2020.

Although additional panel estimation techniques such as the fixed effect model and polled ordinary least squares estimation techniques exist, the study's use of Generalised Methods of Moment in its estimate is limited. However, the two-step Generalised Method Moment (GMM) approach is more effective for panel data analysis and helps resolve the endogeneity issue common in panel estimations. Again, due to data availability, the study is limited to the time period under consideration. Furthermore, because corruption was the dominant independent variable, the broad proxy for institutional environment excluded control of

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corruption. Nonetheless, its is possible to generalise the findings to other periods with similar characteristics.

Definition of Terms

Fiscal Sustainability

According to the Institute for Security Studies (2021), fiscal sustainability is a government's ability to keep public finances credible and functional over the long run. SSA countries sshould engage in ongoing strategic forcasting of future revenues and liabilities in order to achieve fiscal sustainability.

Corruption

Corruption, according to Transparency International (2020), is the misuse of entrusted power for personal gain. Bribery, embezzlement, and misappropriation of funds are all examples of corruption. As a result, trust is eroded, democracy is weakened, economic progress is hampered, and inequity, poverty, social division, and environmental crises are exacerbated.

Institutional Environments

Kauffmann, Kraay, and Mastruzzi (2010) characterized the institutional environment as the collection of customs and systems that govern power dynamics within a nation. This includes overseeing, and altering the government's capacity to create and execute rational policies in the interest of the public.

Organisation of the Study

The research is categorised to five main chapters. Chapter one is the introduction, providing background of the study, problem statement, research purpose, objectives, hypotheses, significance, study boundaries, limitations,

definition of terms, organizational structure, and a summary of the chapter. Chapter two encompasses a literature review, theoretical justifications, and an empirical examination of existing research literature relevant to the study. Chapter three is dedicated to discussing research methodologies, including research design, data sources, variables and their measurement, data processing and analysis, and a summary of the research methodologies employed. Chapter four focuses on presenting regression results, conducting a thorough analysis of the proposed hypotheses, and summarizing the chapter's content. Finally, chapter five provides a summary of the entire research, draws conclusions, offers recommendations, and suggests directions for future research.

Chapter Summary

Economies in Sub-Saharan Africa (SSA) have witnessed a notable increase in perceived corruption levels and a substantial debt-to-GDP ratio when compared to other global regions. Consequently, this chapter initiates by setting the backdrop for the emerging issue and establishes the context for the problem statement. The primary focus of this research is to examine the importance of institutional environments in attaining fiscal sustainability within SSA economies. This is driven by the recognition that the impact of corruption control on fiscal sustainability in SSA is contingent upon the prevailing institutional conditions. The chapter wraps up with the clarification of key terminology utilized and a description of how the remainder of the study is structured.

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CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter investigated and analysed prior research findings on corruption, the institutional environment, and fiscal sustainability in Sub-Saharan African economies. The primary goal of this chapter is to describe the justification for this studies, both theoretically and empirically. The analysis is based on three key theories: the institutional theory of corruption, public choice theory, and good governance theory. A thorough evaluation of existing empirical literature that is relevant to the objectives are also presented. The chapter finally provides theoretical and empirical explanations for the selection and application of control variables in the study.

Theoretical Review

This research was founded on institutional theory of corruption, new institutional economics, public choice theory and good governance theory given their applicability to the study's objectives.

Institutional theory of corruption

According to Hellmann (2017) institutional theory of corruption continues to be a prominent method for investigating the underlying causes and reasons behind corruption. This theory is based on the rational choice framework (Tolbert & Zucker, 1996; Scott, 2001; Luo, 2005; Rose-Ackerman, 2010). Corruption happens when a logical person weighs the risks and rewards of engaging in corrupt activity. If the perceived benefits outweigh the perceived risks, the rational agent is

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likely to participate in corrupt behavior. On the other hand, if the risks outweigh the benefits, the agent will choose not to engage in corruption.

According to Awan *et al.* (2018), governance is designed and operated to meet societal expectations because its actions are transparent to the public. Further, Lumumba (2014) argued that governments are built on structures that define the rules, procedures, standards, regulations, routines, and norms that guide behavior, likewise the SSA governance system. According to Asiedu and Deffor (2017) risk faced for engaging in corrupt practices tends to be lower. This is because the institutions responsible for holding them accountable are often weak or non-existent. As argued by Jain (2001), the prevalence of corruption in such an environment can lead individuals to view it as a norm or standard practice. Consequently, each individual may perceive it as rational to exploit others and effectively free-ride on the corrupt system.

Rajan and Zingales (2003) concluded that strong institutional environment is essential, because it can improve economic growth. Thus, when incumbents engage in highly corrupt practices, strong institutional environment can prosecute and punish them. Therefore, institutional environment is key in SSA economies to strategically minimise corruption in order to improve fiscal sustainability. Specifically, strategic measures such as transparency and accountability, institutional empowerment, regulatory frameworks and integrity. Consequently, the theory unequivocally highlights the critical role performed by institutional environments to control corruption towards achieving fiscal sustainability.

The theory focuses on how SSA government can adhere to institutional environment with regards to public spending in order to achieve fiscal sustainability based on the objectives of the study.

Public choice theory

Public choice theory originated from the analysis of how taxes are levied and public resources are allocated, and is considered as a subfield of economics which was developed by (Shaw, 1986). Public choice theory utilizes the same principles that economists use to examine how individuals behave in the marketplace, and applies them to how people act in making collective decisions. Rees, Tenbrunsel, and Bazerman (2019); Addison and Chowdhury (2019) indicated that in the isolated marketplace, economists accept that people are mainly driven by their self-interest, though they may also consider the interests of others.

Shaw (1986) recognised that executives arm of government are expected to act in the interest of the public. Thus, resources allocation decision should prioritise the interest of the public because some of these resources such as tax revenue are provided by taxpayers. However, Appiah-Agyekum, Boachie, Danquah, and Sakyi (2016) argued that while incumbents may have the intention of spending tax revenue judiciously, they prioritise their self interest. Hence, no efficient decision will serve the interest of the general public. This subsequently breeds corruption as opportunities to amass personal gain exist within the institutional framework detrimental to achieving fiscal sustainability (Ohemeng & Anebo, 2012). The theory assert that fiscal unsustainability therefore arises when policymakers

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prioritise short-term gains such as increasing government spending in accordance with their self-interest.

Good governance theory

This theory revolves around the role of public sector institutions in improving productivity levels. Bojang (2017) suggests that good governance is crucial for effectively managing these institutions. It involves establishing robust administrative structures, promoting public involvement, and implementing effective rules and measures to ensure that public institutions can fulfill their responsibilities. This study is strengthened by the good governance theory, which highlights how public services can be enhanced through the implementation of appropriate institutional policies, efficient regulatory measures, and efforts to combat corruption (Chowdhury, 2005; Forson, Buracom, Chen, and Baah-Ennumh 2017; Berhane, 2018).

Likewise, Appiah-Thompson (2020) also specified that good governance ensures fiscal discipline as SSA governments execute expediture based on planned and approved budeget. Subsequently, loopholes within SSA economies that leaks revenues and create opportunities for over-expenditure are congested to achieve fiscal sustainability. Hence, presence of a robust institutional environment will ensure achievement of fiscal sustainability. While SSA governments may employ various measures to combat corruption, a strong institutional framework remains essential for ensuring long-term fiscal stability.

Conceptual Review

Fiscal sustainability in African economies

Fiscal sustainability, according to Neto (2020), is the condition in which the sum of present discounted primary surpluses matches current level governmental debt. In simpler terms, government can finance its fiscal or budgetary deficits without causing a significant and unsustainable rise in public debt over the long term (Lau & Lee, 2018; Ngo & Nguyen, 2020; Bui, 2020).

Government revenue forms a critical component of fiscal sustainability in Africa (Alhassan & Nwagbara, 2021). Hence, weakness in fiscal policies leaks revenue thereby making it very difficult for governments to meet their expenditure needs. Amoh and Ali-Nakyea (2019) suggested that policies that promote tax compliance, broaden the tax base, and reduce tax exemptions to increase revenue collection should be prioritized in African continent. On the contrary, Ofori-Abebrese, Baidoo, and Essiam (2020) argued that tax administration reforms continues to have inherent ineffectiveness which makes it challenging for most African governments, specifically in SSA economies, to meet their revenue target, hence over reliance on debt. Therefore, translating into fiscal unsustainability as debt level begins to rise above normal.

In SSA economies, fiscal sustainability has been a major concern due to the region's high debt levels, limited fiscal space and weak economic growth (Garg & Prabheesh, 2021; Gemmel, Kneller, & Sanz, 2016). Studies Addison and Chowdhury (2019); Afonso and Furceri (2020),   examines fiscal sustainability in SSA economies, with a focus on different aspects of fiscal policy. Results indicated

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that indiscipline and inconsistency of fiscal policies are major drivers of fiscal unsustainability in SSA economies.

Corruption Perception Index

Figure 1: Showing Corruption Perception Index for 2020
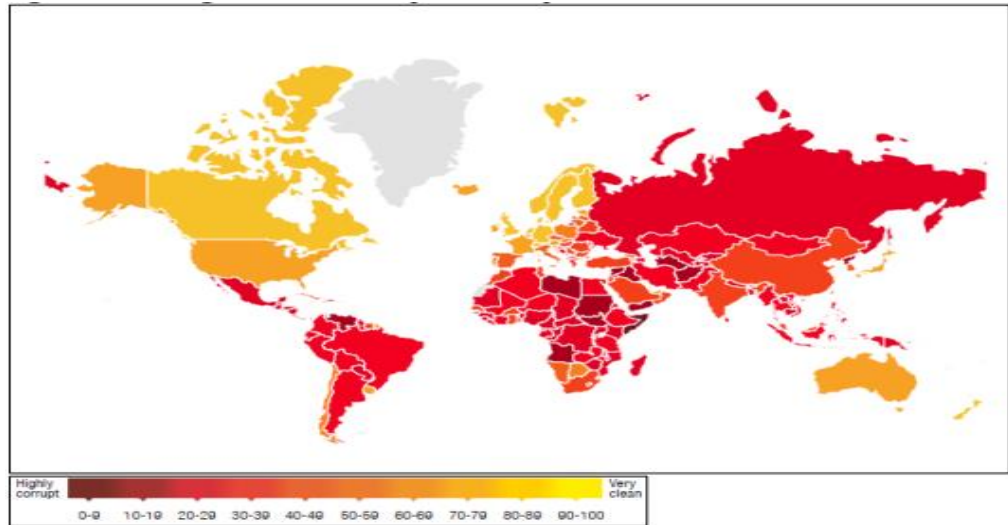
Source: Transparency International (2020)

Based on the provided figure, it can be inferred that Africa experiences a significant and pronounced level of corruption. According to the 2020 Transparency International Corruption Perception Index, Somalia, South Sudan, and Equatorial Guinea were identified as the most corrupt countries globally, scoring 12, 13, and 17, respectively. The overall corruption score for Sub-Saharan Africa was also notably low, at 32. While corruption is present in other regions such as Asia, Latin America, and the Pacific, their strong governance systems and corruption watchdogs play a crucial role in ensuring that those involved in corrupt practices are held accountable (Mungiu-Pippidi, 2015). While, weak institutions and ineffective corruption watchdogs make corruption a common occurrence in SSA economies as indicated by Dza, Kyeremeh, Dzandu, and Affran (2018).

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Corruption, institutional environment and fiscal sustainability in Sub-Saharan Africa economies

Regrettably, public service in SSA has been plagued with mal-administrative challenges that foster corruption (Ayee, 2013). For this reason, efforts have been made to instill professional values such as honesty, responsibility, and effectiveness within the public sector (Akosa *et al*., 2019).   Nevertheless, SSA economies still suffers from a poor reputation and low public trust (Agbota *et al*., 2017). Similary, Trabelsi and Trabelsi (2021) posited that corruption directly increaes transactional cost which retards economic growth. Simultaneously, the study by Boikos (2016) discovered detrimental effects of corruption on indicators of economic development such as physical capital, public spending.

Addo (2021) also confirmed that corruption reduces citizens' quality of life and impedes economic growth. Furthermore, Amoh and Ali-Nakyea (2019) established a link between corruption and tax evasion, explaining that corruption negatively affect tax institutions and behaviors, resulting in inadequate tax revenue in SSA (Asiedu & Deffor, 2017).

Inadvertently, other strands of literature contends that corruption grease the wheel to sustainable economic growth. Ondo (2017) holds that corruption encouraged and viewed as an unavoidable means to achieve effective and expedient public services. Shittu *et al*. (2018) affirmed that where institutional enovironments creates unecessary queues corruption becomes the only alternative means to overcome it, thereby speeding economic activities as transactional cost is significantly declines. According to Biru (2010), corruption can actually improve

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bureaucratic efficiency by reducing barriers to economic growth. This establishes a positive correlation between corruption, institutional environment economic growth. Hence, a strong institutional environment can foster corruption, leading to higher levels of economic growth.

Berdiev, Saunoris, and Schneider (2018) contended that cumbersome state institutions and unmotivated bureaucrats, corruption can serve as speed money to expedite processes and reduce red tape. This allows incumbents to bypass rigid regulations and costly delays, gaining an advantage in accessing public services. Several other studies, including Aidt, Dutta, and Senna (2008), Ebben and Vaal (2011), and Ruzek (2015) also expressed that corruption has a positive effect on economic growth.

Similarly, Hamra (2000) argued that in bureaucratic institutions, corruption can lead to a more efficient allocation of limited resources. By allowing each economic sector to receive a fair share of scarce resources, corruption may facilitate better management of these resources. Zaman and Goschin (2015) also found that corruption can ensure the continuous provision of essential services like healthcare, education, water, and sanitation to rural areas, contributing to sustainable development. Anderson and Tverdova (2003) and Meon and Weill (2010) also asserted that even in cases where corruption has negative effects, its impact is significantly mitigated in countries with weak government institutions. In such contexts, corruption may even spur economic growth to some extent.

According to Lavallée, Razafindrakoto, and Roubaud (2008), the detrimental impacts of corruption can be mitigated if residents are satisfied with the

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government services they receive. They went on to say that when citizens are content with present economic growth policies and have hope for a better future, they are more likely to tolerate corruption, showing a direct positive association between corruption and economic satisfaction. Additionally, Lee and Guven (2013) suggested that cultural norms heavily influence corruption. In certain societies, corruption is considered a normal part of the system rather than a crime, leading to widespread acceptance and tolerance of corrupt practices (Turex, 2011). Sahakyan and Stiegert (2012) also concluded that citizens who try to stop corrupt networks are often stigmatized and victimized, hence corruption is allowed to perpertuate as it becomes part of systems.

Yet, Rothstein, and Teorell (2013) rejected the idea that corruption has any positive function and concluded that its a violation of basic human rights because it involves paying for services that citizens have a right to receive. Therefore establishing a negative relationship between corruption and sustainability of human right. Despite being widely condemned by the general public, corruption continues to persist as a significant problem, particularly concerning the establishment of strong institutional environments, economic growth, and sustainability, especially within SSA economies.

Akosa *et al*., (2019) identified a noteworthy adverse impact of corruption on resources allocation such as revenue in public service of Ghana and concluded that corruption results to misallocation and diversion of public resources, thereby reducing the amount of funds available for investment in public infrastructure,

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institutions and social programs. Consequently hampering governments efforts towards achieving fiscal sustainability and economic growth.

Appiah-Agyekum *et al*., (2016) pinpointed that corruption negatively impact economic growth. Amadou, Konte and Shimeles (2020) affirmed that corruption creates environments of uncertainty and high risk, thereby reducing investors confidence in institutional environments thereby increases cost of transacting business in the region. Awojobi (2014) also argued that governments policies and programes directed to promoting fiscal sustainability is undermined because investment flow is declined as a results of corruption which reduces government revenue as weak institutional persist, making it difficult to finance public projects and programes.

Empirical Review

In this section, prior literature has been reviewed in relation with the three objectives underpinning the study.

Corruption and fiscal sustainability

According to Amin, Ahmed, and Zaman (2013) public sector adheres to the intertemporal budget constraint, requiring that the anticipated future primary surpluses (excess of revenue over expenses) equate present public debt in order to ensure government's respond timely to their financial commitments. Mackiewicz (2020) conducted a study on fiscal policy sustainability using novel time-varying analysis in Sourthern Africa. The study identified that Namibia has not been able to fulfill the formal condition of solvency. However, it is unclear that the country has been able to maintain sustainable fiscal policies overtime. Further analysis may

be required to draw more conclusive findings about the country's fiscal situation. Again no corruption variables were included in the study to examine whether corruption could contribute to Namibia inability to fulfil solvency conditions.

Furthermore, Igbinovia and Ekwueme (2020) examined corruption and effects on tax revenue policy efforts of SSA economies. Panel regression approach was employed to analyse data of 31 SSA economies from World Bank and Amnesty International from 2010 to 2016. Results indicated that level of corruption is significant but negatively related to tax revenue generation in SSA economies. Igbinovia and Ekwueme further argued that corruption massively leaks tax revenue. However, the findings did not clearly specify whether the leakages in tax revenue could results to fiscal sustainability or unsustainability.

Chibi, Chekouri, Benbouziane and Boulila (2022) found that despite all efforts made to reorganize spending and income priorities of Algeria, the results showed a clear indication of fiscal fatigue, as evidenced by the loss of control over debt growth and the decrease in available fiscal space. The study employed Ostry (2010) fiscal space and public debt limits framework to analyze fiscal sustainability. Fiscal sustainability as measured using debt (% GDP). The authors use Fully Modified Least Squares and threshold models to estimate Algeria's fiscal reaction function between 1990 and 2020. Additionally, findings suggest that above 61.1 threshold of debt ratio Algerian fiscal policymakers must take corrective measures to avoid insolvency. Arguably, this findings were not generalized for all SSA economies. Also no link was established to determine the magnitude of corruption to public debt.

According to Forson *et al*. (2017), the level of corruption has no clear and consistent influence on economic growth due to inefficient tax revenue mobilisation procedures. Regardless of the many repercussions, it is widely agreed that corruption is a social evil that harms overall economic growth (Dissou & Yakautsava, 2012). Furthermore, Nandelenga and Ellyne (2020) investigated fiscal regulations in 20 Sub-Saharan African economies from 1997 to 2016. They used a logistic model to assess the efficiency of these budgetary policies.

The research discovered notable variations in the adherence to specific regulations at the national level. The analysis indicated that the likelihood of complying with the debt rule was higher when compared to adhering to the balanced budget and revenue criteria.

Furthermore, fiscal laws supported by independent monitoring agencies and applied to the central government were more likely to be violated. According to Nandelenga and Ellyne, noncompliance with fiscal norms was primarily due to corruption and corrupt acts inside the central government.

An autoregressive distributed lag (ARDL) model was used in a study undertaken by Gyasi (2020) to explore impact of budget deficits on economic growth. The study's findings suggested that democracy and government spending had no independent effects on economic growth, both in the short and long run. Combined democracy and unbudgeted spending retards economic growth. Nonetheless, the study did not specify whether the higher public spending observed was due to corruption or budget indiscipline.

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Amoh and Ali-Nakyea (2019) investigated the association between corruption and tax evasion using Structural Equation Modeling. They acquired data on corruption and tax evasion triggering variables from the World Economic Forum Executive Opinion Survey and World Development Indicators. The results of their analysis indicated a notable and positive impact of corrupt activities on the occurrence of tax evasion in Ghana. Besides, the study concluded that since tax forms a major component of fiscal policies, its evasion can hamper governments effort to achieve fiscal sustainability. Undoubtedly, tax evasion triggered factors could differ within SSA economies, thus the study was focused in Ghanaian economy thereby making it difficult to generalised and apply the findings in SSA economies by policymakers.

Amadou, Konte, and Shimeles (2020) investigated the impact of government policy quality (as evaluated by perceived corruption) on people's views about taxation. They used data from Afrobarometer surveys conducted between 2011 and 2015 in 36 African nations. According to the study's findings, a view of minimal corruption at various levels of government had a favorable and significant impact on tax morale. In other words, when people saw little corruption in government, they were more inclined to be optimistic about tax compliance. However, according to Luttmer and Singhal (2014), there may be a reverse causation of attitude towards tax payment and view about good governance practices. However, Shimeles *et al*. (2017) found good view about governance practices will influence payment of taxes by the citizens.

Between 1996 and 2015, Tarek and Ahmed (2017) investigated how governance affects public debt accumulation in Middle Eastern and North African (MENA) nations. They used six Worldwide Governance indicators to assess governance quality and debt as a proportion of GDP to assess public debt in these countries. The data substantially confirmed the premise that in the MENA region, bad governance is associated with greater levels of public debt buildup. Woo (2003) also revealed that governance has a major impact on the degree of public debt accumulation, despite the fact that no direct effect on budgetary sustainability has been established. This shows that increased public debt may have a detrimental influence on fiscal sustainability.It should be noted, however, that the study did not extend its analysis to all countries in Sub-Saharan Africa (SSA), and the specific data analysis method used was not mentioned.

The relationship between the quality of governance and government debt was investigated in a study undertaken by Imaginário and Guedes (2020). The study examined data from 164 nations between 2002 and 2015, and it analyzed it using the system GMM estimator. The findings revealed a significant inverse relationship between governance quality and government debt. In particular, a better governance environment was connected with lower levels of public debt in low-income nations, but not in high-income countries. The findings raise questions about the long-term viability of debt ratios that are constantly increasing. According to empirical evidence, both industrialized and developing countries have acquired significant levels of debt, and fiscal deficits have become unsustainable, as fiscal

stance is intimately tied to the strength of government institutions (Woo, 2003). As a result, institutions play an important role in fiscal policy management.

Nguyen and Luong (2021) employed Ordinary Least Squares (OLS) to examine the the economic effects of fiscal policy and institutional quality on public debt across 27 transition nations from 2000 to 2018. Their results indicated that institutional quality significantly influences public debt levels. In particular, poor governance in regulating corruption was linked to a higher accumulation of public debt.

Law and Azman-Saini (2012), as well as Nandelenga and Ellyne (2020), obtained similar conclusions, emphasiing the importance of fiscal policy and institutional quality in manaing public debt. Corruption is predicted to take the shape of rent-seeking activities in countries with generally excellent institutional environments, as suggested by (Nguyen & Dang, 2022). Ubi and Udah (2014) used Augmented Dickey-Fuller and co-integration econometric techniques to investigate the impact of corruption and institutional environment on economic performance in Nigeria. Their findings revealed that corruption and institutional environment have a significant impact on the country's economic performance. Furthermore, because this outcome is country specific, it cannot be applied to other SSA economies.

Furthermore, Afonso and Jalles (2016) examined the effects of corruption on economic activity by assessing the significance of government size in 48 countries worldwide. Their panel analysis conducted between 2012 and 2019, the research utilised dynamic models and Generalised Method Moments (GMM)

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technique. For a panel analysis from 2012 to 2019, the study used dynamic models and the Generalized Method of Moments (GMM) approach. The findings revealed that corruption adversely affected GDP per capita growth. According to Berhane (2018), institutions in society form an incentive framework that influences economic activities. However, a bad institutional environment may enhance corruption with least economic.

In addition, Ozegbe and Kelikume (2022) utilised the Autoregressive Distributed Lag (ADRL) approach to investigate the connection between corruption and institutional quality in relation to economic performance. They gathered data from 1970 to 2020 from sources including the World Development Indicators (WDI), Transparency International (TI), and the Central Bank of Nigeria. Their results highlighted the significant negative impact of the interplay between corruption and institutional quality on economic performance. Clearly, Nigeria is severely lacking and heavily affected by widespread corruption and individual power dynamics. Consequently, Nigeria's economic performance suffers from elevated levels of corruption and subpar institutional quality.

Alhassan and Nwagbara (2021) emphasized that slow economic growth cannot be solely attributed to corruption alone but is rather closely connected to institutional weaknesses. Similarly, Asghar, Qureshi, and Nadeem (2015) argued that institutional weaknesses and corruption are intrinsically linked. As a result, tackling corruption can assist overcome other institutional shortcomings, and lowering other institutional weaknesses can help combat corruption. However, each

country's approach to eliminating institutional deficiencies is unique, making it difficult to directly apply the findings to other SSA nations.

Ebben and Vaal (2011) developed a framework to elucidate the connection between corruption and economic advancement, considering the impact of institutions. When factors like political stability, property rights, and political systems are integrated into the analysis, the link between corruption and growth becomes less clear-cut, as indicated by their research. Conversely, corruption exerts a detrimental effect on economic progress when the degree of political stability or protection of property rights surpasses a specific threshold.

Amanullah, Arfeen, and Ahmad (2012) used panel data from 71 nations and the system generalized method of moments (GMM) to study the corruption-growth relationship. According to the empirical findings, having a corruption level of zero is not required to optimize growth. The nature of the relationship between corruption and long-run growth, on the other hand, is hump-shaped, and the quality of public institutions is critical for long-term economic growth.As a result, it is widely understood that the relationship between corruption and institutional elements is critical in determining how corruption affects economic growth.

Epaphra and Massawe (2017) used random effects (RE) models to examine the impact of institutional variables such as corruption and governance, as well as structural variables, on total tax revenues in 30 African countries from 1996 to 2016. The findings indicated that corruption and governance are the two main factors influencing tax revenue in Africa. It was determined that corrupton has a

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considerable negative impact on tax revenue, whereas good governance had a significant positive effect.

Arguably, higher institutional capacity and a conducive environment can reduce corruption. Interestingly, Zidi and Ahmed (2013) argued that to boost tax revenue, governments should focus on establishing strong institutions to effectively curb corruption.

Ouédraogo (2017) carried out a study analysing data from 23 SSA countries to explore the relationship between governance, corruption and informal economy's size. The results revealed that corruption, governance quality, institutional settings and unemployment rates are critical factors affecting informal economy. In particular, the study concluded that high levels of corruption and weak institutional frameworks contribute to the growth of the informal economy.

Awan *et al*. (2018) conducted a study a study using fixed effects model to explore the relationship between governance institutions, corruption, and economic growth in five South Asian Association for Regional Cooperation (SAARC) countries, namely Bangladesh, India, Nepal, Pakistan, and Sri Lanka, using panel data from 1996 to 2014. The findings reveald that two institutional indicators namely, government effectiveness and political stability had a positive and significant effects on economic in the countries studied. In contrast, corruption was found to negatively impact economic growth which aligns with established economic theories. Furthermore, the results indicated that among governance factors, government effectivenessexerted strongerinfluence on GDP growth in these SAARC nations.

Graaf, Huberts, and Strüwer (2018) used empirical evidence acquired through unstructured interviews with government employees and the net-work sampling method to perform a study. Their study focuses on the institutional problems that the Netherlands has in decreasing corruption and achieving good governance. According to the study's findings, administrative corruption and policy-level corruption were identified as the key barriers to achieving good governance in the Netherlands.

Corruption, institutional environments and fiscal sustainability

Montes and Luna (2021) conducted a survey that included 82 nations from 2006 to 2014. They employed panel data methods to investigate the relationship between the rule of law and perceptions of corruption control. Here, the impact of the rule of law on the perception of corruption control becomes more substantial as fiscal transparency increases. Furthermore, the study found that a strong legal system contributes to a positive opinion of effective corruption control.

Albassam (2020) did research on the effectiveness of government spending. They analyzed data from 71 nations from 1996 to 2017 using partial least squares structural equation modeling (PLS-SEM). According to the research findings, poor economic development and ineffective governance are indicators of inefficient public spending. As a result, the outcomes of programs aimed at promoting economic growth and enhancing governance effectiveness and efficiency play a considerable impact in deciding the form and quantity of government project spending. However, it is vital to emphasize that the study's suggestions cannot be immediately applied to countries that were not included in the analysis.

Asghar *et al*. (2015) conducted a study from 1990 to 2013 to analyze the impact of institutions on the economic growth of 13 Asian nations. Using panel autoregressive distributed lag (ARDL) analysis, they discovered that institutional quality had a favorable effect on economic growth. As a result, countries in the study region are encouraged to strengthen and improve their institutional environments. Alternatively, whether this conclusion can be applied to SSA economies is a difficult and complex subject, as variances between the two regions may result in different outcomes.

Results shows that institutional quality positively affect economic growth. However, the study used Global Competitiveness Report Executive Opinion Survey to proxy institutional quality, these indicators may not apply to all SSA econmies. Nonetheless, Kamah, Riti, and Bin (2021) assert that institutional quality is critical to improving growth-environmental sustainability. Meanwhile, David, Mlachila and Moheeput (2014) agues that due to relatively weak institutions is SSA countries usually distorts financial market which negatively influence economic growth.

Ceschel, Hinna, and Homber (2022) put forth the argument that institutional reforms in developing countries are instrumental in promoting sustainable fiscal policies. In particular, the presence of sound institutions such as an effective legal system and governance effectiveness are crucial for ensuring financial sustainability. As a result, institutional environment has a substantial impact on relationship between economic growth and implementation of sustainable fiscal policies.

Control variables

Adeosun and Adedokun (2019) investigated the impact of public debt on fiscal balance while controlling for macroeconomic variables such as primary balance, fiscal balance and tax revenue all as (% GDP). Fiscal deficits contributed to a 120% growth in debt stock in Sub-Saharan Africa over a ten-year period, according to the findings. This means, to control fiscal deficit, good governance is required.

Moreover, Addai *et al*. (2022) supported the notion that Sub-Saharan African economies are still facing challenges in adequately addressing fiscal imbalances. A positive primary balance to GDP ratio indicates that a government is generating sufficient revenue to cover its non-interest spending and is making progress in reducing its debt burden (Aloryito *et al*., 2016). On the contrary, a negative primary balance to GDP ratio suggests that a government is running a budget deficit and may need to borrow more to finance its spending

Yi and Sayono (2014) observed that there is an inherent conflict between maximizing tax revenue and maximizing GDP. They argued that high taxes can negatively impact economic growth, leading to fiscal unsustainability. Brender and Navon (2010) also supported this view, suggesting that an increase in tax revenue can have a negative effect on economic growth. Similarly, Iriqat and Anabtaw (2016) concluded that aggressive tax policies may actually reduce tax revenues, undermining fiscal policy efforts. According to Bahl (2004), in nations with fast rising populations, tax systems may struggle to keep up with collecting new taxpayers, resulting to tax revenue loss. Dahal (2020) examined tax revenue and

GDP ratios nexus, findings indicated that within developing countries tax revenue as a percentage of GDP is relatively low.

Amadou *et al*. (2020), on the other hand, claimed that tax revenue as a percentage of GDP is critical for obtaining greater fiscal space and providing a sustainable supply of financial resources to pay long-term development objectives. Bird, MartinezVazquez, and Torgler (2014) and Yohou, Goujon, Michal, and Ouattara (2016) agreed, arguing that improving institutional quality can motivate higher tax revenue performance and achieve a higher tax revenue-to-GDP ratio, thereby contributing to long-term fiscal policies.

Gaps in existing literature

Fiscal sustainability is a top priority for governments worldwide, but it faces challenges such as high levels of debt, tax evasion, and corruption, with particular relevance to Sub-Saharan Africa (SSA). However, the existing literature on this topic within the SSA context is limited, making it uncertain whether the recommendations from previous studies can be directly applicable to policymakers in various SSA countries.

Furthermore, Gani and Ngassam (2008) discovered trade openness and financial development are influence by institutional quality in SSA. Addai *et al*. (2022) discovered that governments' restricted fiscal capacity could stymie economic progress and poverty reduction efforts. Similarly, Asiama, Akosah, and Owusu-Afriyie (2014) proposed that deliberate policies such as fiscal discipline to prevent expenditure overruns and promote less expensive borrowing sources to maintain fiscal sustainability in the long-run.

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Clearly, not all the six governance indicators are fully adhered to in some SSA countries. Moreover, in Shittu *et al*., (2018) sources data from Worldwide Governance Indicators (WGI) but the period of their studies expands from 1990 to 2015, however, WGI data begins from 1996, this suggests that there will be missing data point and as such findings and conclusion is not likely to be valid.

Moreover, empirical research shows that factors affecting corruption and fiscal sustainability have been discovered to vary between countries. Hence no unanimous agreement in findings highlighted by researchers regarding corruption and fiscal sustainability. Again, studies showed no moderating role of institutional environment between corruption and fiscal sustainability.

Awan *et al*. (2018) explored the relationship between corruption and economic growth without addressing the relationship between corruption and fiscal sustainability. Assumed the importance of fiscal sustainability to economic growth and development, conducting this research on corruption and fiscal sustainability while interacting with the institutional environment will assist policymakers in SSA countries in strengthening fiscal measures to achieve fiscal sustainability.

Contribution to existing research

This study adds to previous studies within SSA by employing a thorough assessment of the institutional landscape. It aims to examine how this assessment influences the connection between corruption and fiscal sustainability in SSA. Notably, this study addresses a previously unexplored concepts by introducing an interaction variable that considers both corruption and the institutional environment

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in the regression model. This enables an evaluation of how the institutional environment shapes the correlation between corruption and fiscal sustainability.

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┌─────────────────────────────────┐
│      Interacting Variable       │
│                                 │
│   • Institutional Environment   │
└─────────────────────────────────┘

┌──────────────────────────┐          ┌──────────────────────────────┐
│ Independent Variables    │          │ Dependent Variable           │
│                          │   →      │                              │
│   • Corruption           │          │   • Fiscal Sustainability    │
└──────────────────────────┘          └──────────────────────────────┘

                             ┌──────────────────────────────────┐
                             │ Control Variables                │
                             │                                  │
                             │   • Primary Balance (% GDP)      │
                             │   • Fiscal Balance (% GDP)       │
                             │   • Tax revenue (% GDP)          │
                             └──────────────────────────────────┘
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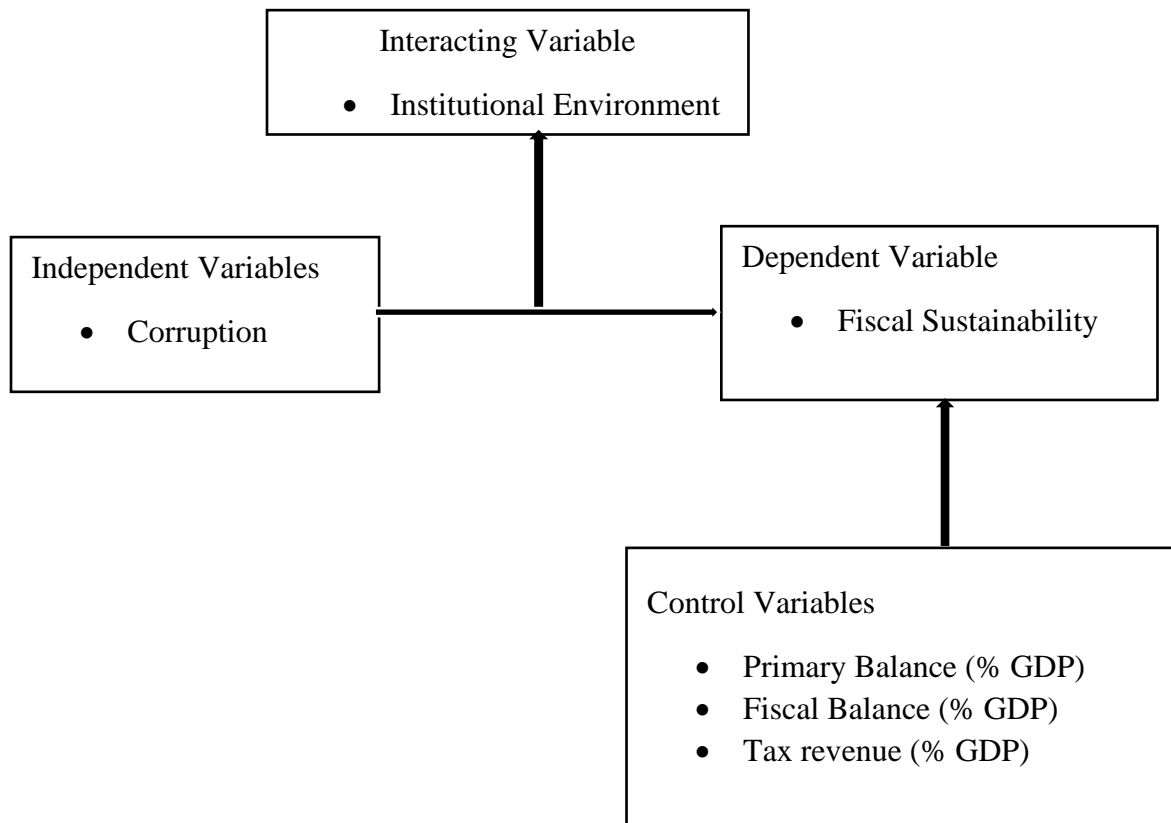
Figure 2: Conceptual Framework

Source: Authors' Construct, (2023)

From figure 2, the study's conceptual framework examines the relationship between variables of study i.e., corruption, fiscal sustainability and institutional environment.

Chapter Summary

The chapter began by introducing and explaining the research ideas, which included the institutional theory of corruption, public choice theory, and good governance theory. Following that, the chapter presented empirical evidence to demonstrate the links between corruption, fiscal sustainability, and institutional environment. Furthermore, empirical arguments on control variables was included. Finally, a conceptual framework was included to provide a visual depiction of the primary parts of the study and their interrelationships.

CHAPTER THREE

RESEARCH METHODS

Introduction

The chapter is structured on approaches to investigate the role of institutional environment in achieving fiscal sustainability in SSA. It delves into various aspects, such as the research paradigm, research approach, research design, model specifications, definition and measurement of variables used in the model, data sources, estimation techniques, data analysis tools and summary of the key findings.

Research Paradigm

Research paradigm is a depiction of the underlying philosophy and approach to scientific that best corresponds with a certain research aim (Hallebone &Priest, 2008). It reflects the fundamental principles guiding scientific investigations and determines the most suitable approach for conducting the research. There are two traditional paradigms for conducting research: positivist and constructivist. These paradigms play a significant role in accounting and business research (Saunders, Lewis & Thornhill, 2009). In the perspective of Buchanan and Bryman (2009), the positivist paradigm is characterized as an objective epistemological approach that utilizes the techniques employed in natural science to investigate social reality and other realms beyond it.

Supporters of the positivist approach assert that knowledge is obtained through deductive reasoning based on theoretical or hypothetical frameworks (see for example Collins, 2010; Scotland, 2012). Here, theories are put to hypothetical

testing with the goal of either validating or refuting them. This method involves subjecting phenomena to logically developed theories by testing their applicability through inductive and deductive hypotheses (Wahyuni, 2012).

Positivist research paradigm was used for this study since it required data collection to determine the relationship between corruption, fiscal sustainability, and institutional environment. The correlations between the variables listed above were established using statistical tests of significance in this study. The study's ultimate goal was to accept or reject hypotheses to evaluate institutional environment between corruption and budgetary sustainability in SSA. Furthermore, the study was based only on quantifiable facts and was free of the researcher's personal bias.

Research Approach

Creswell (2014) defined three types of primary research methods: quantitative, qualitative, and mixed. Quantitative methods allow for objective and numerical examination to generalise findings, whereas qualitative research focuses on the experiences of study respondents and is typically textual in character (Crowther & Lancaster, 2008). Creswell and Creswell (2017) indicated that combination of quantitative and qualitative research methods are classified as mixed approach.

As mathematical models were applied to objectively analysed the data. The quantitative method is suitable for this investigation. As a result of using a quantitative strategy, statistical results were exact, decisive, and standardised (Sukamolson, 2005). Usually, quantitative research generally favors a deductive

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approach aiming to confirm, validate, and test hypotheses related to a theory underpinning a study.

Research Design

A research design is a thorough blueprint that guides a study toward its goals. According to Saunders *et al*. (2009), study designs are classified into three types: explanatory, descriptive, and exploratory. This study employed an explanatory research design, also refered to as causal research. In a theoretical model, this design is focused on examining the cause-and-effect of independent and dependent variable (Saunders *et al*., 2009). Explanatory research design emphasizes investigating a scenario to determine the links between variables.

Explanatory design, according to Zikmund, Babin, Carr, and Griffin (2012), provides various advantages. Firstly, it can be used to determine the causes behind various processes and assess the effects of changes on other variables. Also, explanatory design allows for easy replication of the study if needed. Finally, because the participants were chosen in a systematic manner, it has higher internal validity. Meanwhile, other researchers have pointed up flaws in this research design. Zikmund *et al*. (2012), for example argued that susally, it is challenging to distinguish coincidences from actual cause-and-effect relationships. The authors submitted that drawing definitive conclusions can be challenging due to the complex interplay of various factors and variables within the social and economic environment. Debatably, although causality can be inferred, it cannot be conclusively proven with absolute certainty. Additionally, establishing a

correlation between two variables is possible, but discerning which variable is the cause and which is the effect can be intricate (Zikmund *et al*., 2012).

The study used this approach to gain a better understanding of how corruption impacts fiscal sustainability and the extent to which the institutional environment moderates such a relationship.

Data Collection Procedures

The study investigate corruption, fiscal sustainability, and institutional environments within SSA. Secondary data from two agencies were utilised for the study, thus Transparency International and the World Bank. The former included the Corruption Perception Index, whilst the latter included the World Development Indicators (WDI) and Worldwide Governance Indicators (WGI) databases. The WDI data comprised of fiscal sustainability measures, whereas the WGI data consisted of governance indicators. Data analyses were restricted to 39 of the 48 SSA nations. As a result of missing data during the research period, nine nations were removed from the analysis.

The timeframe for this study was 10 years (2011 to 2020). This time frame was considered appropriate for achieving the research objectives due to availability of data for the variables under study and also apply the finding broad range of economies.

Specification of model

Two prevalent models namely times series and panel models exist in data analysis. In the context of this research, a dataset spanning a decade was employed, making it essential to construct a panel data model. According to Adam and Owusu

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(2017) a panel study is suitable when the dataset under scrutiny encompasses multiple entities over a specified period. In this study, the dataset comprises multiple entities, specifically SSA countries, and the data spans from 2011 to 2020. Consequently, a panel model was selected as the analytical framework. The study delves further into the exploration of two distinct panel models.

Model 1: The relationship between corruption, fiscal sustainability and institutional environments in SSA economies

The regression models for objectives (1) and (2), referred to as Model 1, is based on the regression equations proposed by Afonso and Alves (2020). In line with the findings of Chinn and Ito (2006) and Baltagi (2009), the variable representing Actual Tax (%GDP) used as a proxy for fiscal sustainability. As a result, the dynamic Generalized Method of Moments (GMM) panel model for equation (1) is written as follows:

$$InFS_{it} = \beta_1 InFS_{it-1} + \beta_2 CORR_{it} + \beta_3 INE_{it} + \sum_{i=4}^{n} \beta_1 Z_{it} + \mu_{it}$$

………………………… (1)

Where

- lnFS　represent the natural log of fiscal sustainability
- $InFS_{it-1}$ is the natural log of the lag of fiscal sustainability
- CORR represent corruption
- INE represents the institutional environments
- lnZ represents the natural log of the control variables
- β represent coefficient

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- μ represent error term

- $\mu_{it} = \alpha_i + \gamma_i f_t + \varepsilon_{it}$

α_i denotes country-specific fixed-effects that are intended to account for long-term country features such as institutional context. Again, f denotes an intermittent common cause that affects all countries at the same time but cannot be immediately witnessed. The term ε_{it} refers to the model's white noise or random error component.

Model 2: Role of institutional environment between corruption and fiscal sustainability of SSA countries.

An interaction between corruption and fiscal sustainability was established to study the influence of institutional contexts on the link between corruption and fiscal sustainability (the third purpose of this research). In the model, this interaction term was handled as an additional independent variable. The goal of this interaction term was to see if the institutional context exacerbated the influence of corruption on fiscal sustainability. A positive and substantial coefficient for the interaction term would imply that the institutional environment is important in minimizing the impact of corruption on budgetary sustainability. As a result, Model 2 describes the specifics of this interaction term in the analysis.

$$InFS_{it} = \beta_1 InFS_{it-1} + \beta_2 CORR_{it} + \beta_3 INE_{it} + \beta_4 (CORR * INE)_{it}$$

$$+ \sum_{i=4}^{n} \beta_1 InZ_{it} + \mu_{it}$$

……………………………….. 2

Where:

- lnFS   is the natural log of fiscal sustainability

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- InFS_{it-1} represent natural log of the lag of fiscal sustainability

- CORR represent corruption

- INE represents the institutional environments variables

- CORR*INE represent the interacting term of the corruption and institutional environments variable

- lnZ represent the natural log of the control variables

- β denotes the coefficient

- μ represents the error term

- $\mu_{it} = \alpha_i + \gamma_i f_t + \varepsilon_{it}$

α_i represents country-specific fixed-effects designed to account for enduring country characteristics such as institutional environment. Again, f refered to an intermittent common factor that impacts all countries simultaneously but cannot be directly observed. The term ε_{it} represents the white noise or random error component in the model

Expected Signs

Table 1 illustrates the predicted directions of the independent variables. These variables were derived from the review of theoretical framework and empirical studies presented in chapter two.

Table 1: Expected signs of the independent variables

Variable	Model 1	Model 2
CORR	+	
INE	+	
CORR*INE		+

Source: Author's construct, (2023)

Data Processing and Analysis

In the study, Stata 17.0 was used for data processing. The models were estimated using the GMM panel estimator. Arellano and Bond (1991) introduce the GMM. This approach involved estimating a panel data equation by using first-differences and lagged values of time-varying variables as instruments for the equation.

Arellano and Bover (1995) revealed that GMM approach might bring inaccurate predictions, particularly when regressors becomes stable. This issue is relevant to the present stud, as institutional environment indicators tend to remain consistent once established within a society (Ayee, 2013). Consequently, Blundell and Bond (1998) suggested using the system GMM estimation, which combines level equations with first-difference equations. This approach utilises lagged difference of the regressors as additional instrument for the levels equation in the system equation.

The GMM also well-suited for this study due its ability to address reverse causality by isolating the exogenous component of endogenous variables or those with simultaneity bias (Miletkov & Wintoki, 2012). Also, GMM estimator manages potential endogeneity between the independent and dependent variables.

Theoretically, two-step GMM is more efficient comparable to one-step. However, two-step GMM estimator has the potential of instrument proliferation when employing both independent and dependent lags as instruments, especially when the time series dimension is modest in comparison to the cross-sectional dimension (Roodman, 2009). To address this issue, the study used Roodman's

(2009) technique, limiting the moment conditions to a maximum of two lags of the dependent variable, using panel data from 39 nations over a 10-year period.

To Diagnostic tests, which are required for the GMM estimator, were performed to ensure the model's appropriateness. These tests include evaluating for "serial correlation using the Arellano-Bond (1991) serial correlation test and examining instrument validity with the Hansen test. According to Mileva (2007), the Arellano-Bond test for autocorrelation has a null hypothesis of no autocorrelation and is applied to differenced residuals. Typically, the null hypothesis for the test of an AR (1) process in initial differences is expected to be rejected. The more crucial test is for AR (2) in first difference, as it detects autocorrelation in levels" therefore, the full hypothesis should be accepted.

Researchers emphasis that for "the GMM to be effective, the instrument used in the analysis must be valid (for example, Arellano & Bond, 1991; Arellano & Bover, 1995; Blundell & Bond, 1998). The hypothesis posits that the instrumented variables are exogenous and not correlated with the error term. If the null hypothesis, which states that the instruments are valid, is not rejected", it suggests that the instrument are indeed valid and can be utilised in the analysis.

Measurement of variables

Dependent, independent, interaction, and control variables were included. These variables will be examined further below.

Dependent variable

The actual tax-to-GDP ratio can be computed at different horizons to determine fiscal sustainability. A positive indictaor suggests the necesity of either

raising taxes and or reducing spending in the future. The indicators also assesss the magnitude of the required adjustment. It is assumed that this adjustment is made without and delay. This ratio is derived by dividing the different countries' actual total tax by their GDP. Here, GDP is the total gross value added by all resident producers within the economy, along with any product taxes, minus any subsidies not accounted for in the product value. It is worth mentioning that GDP calculations did not account for asset depreciation or natural resource depletion. The actual tax-to-GDP ratio is an important indication of a country's economic health and ability to satisfy debt commitments (Gyasi, 2020).

A lower ratio is generally regarded as good since it indicates a smaller level of debt relative to the size of the economy, implying a higher possibility of debt service without default. What defines a safe or sustainable actual tax -to-GDP ratio, on the other hand, might vary depending on factors such as a country's economic stability, demographic trends, and level of economic growth (Gyasi, 2020). Actual tax-to-GDP ratio is often used by economists and policymakers to analyze a country's fiscal sustainability and creditworthiness (Afonso & Furceri, 2020).

Independent variables

Corruption (CORR)

Corruption (CORR) is characterised extent corrupt activities prevalent within economies. Corruption is quantified in this study by employing corruption perception index scores ranging from 0-100, which indicate the perceived amount of corruption in the public sector as determined by expert opinions and surveys. With 0 and 100 signifying highly corrupt and very clean, respectively. The illegal

nature of corruption makes it highly riskier and uncertain, as emphasized by Shleifer and Vishny (1993), and it often leads to unnecessary delays in the provision of service to the public (Cuervo-Cazurra, 2008). Additionally, Epaphra and Massawe (2017) highlight corruption as a significant factor that can impact the fiscal sustainability of a country negatively.

Interacting variable

The institutional environment plays a crucial role in determining government's capacity to ensure political stability, encourage economic growth and development, and protect residents' rights and wellbeing. Numerous research works have highlighted the significant influence of institutional environments on fiscal sustainability (Addo, 2021; Agbota *et al*., 2017; Akosa *et al*., 2019).

Control variables

Several variables are included in the analysis to control for the impact of other factors that may influence the connection between the independent and dependent variables. Three macroeconomic indicators are among these variables: tax income, primary balance, and fiscal balance as a percentage of GDP. The below table indicates variables used in the study were measured.

Table 2: Description of Variables and Source of Data

Variable	Measurement	Data Source	Justification
Fiscal Sustainability	Actual Tax (% of GDP)	WDI 2010-2020	Afonso and Alves (2020); Afonso and Furceri (2020)
Corruption	Corruption Perception Index (CPI) scores ranging from 0-100	Transparency International 2011-2020	Law and Azman-Saini (2012); Kaufmann, Kraay, and Mastruzzi (2011)
Institutional Environment	Simple average from estimate of the fivr Worldwide Governance Indicators	WGI 2011-2020	Kacho and Dahmerdah (2017); Kaufmann *et al*. (2011)
Government Effectiveness (Estimate)	Estimates ranging approximately -2.5 to 2.5	WGI 2011-2020	Law and Azman-Saini (2012); Asghar *et al*. (2015)
Political Stability and Absence of Violence/Terrorism	Estimates ranging approximately -2.5 to 2.5	WGI 2011-2020	Alhassan and Nwagbara (2021); Kaufmann *et al*. (2011)
Regulatory Quality	Estimates ranging approximately -2.5 to 2.5	WGI 2011-2020	Alhassan and Nwagbara (2021); Kaufmann *et al*. (2011)

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Table 2, continued

Rule of Law	Estimates ranging approximately - 2.5 to 2.5	WGI 2011-2020	Law and Azman-Saini (2012); Kaufmann *et al*. (2011)
Voice and Accountability	Estimates ranging approximately - 2.5 to 2.5	WGI 2011-2020	Alhassan and Nwagbara (2021); Kaufmann *et al*. (2011)
Fiscal Balance	Fiscal Balance (% GDP)	WDI 2011-2020	Afonso and Alves (2020); Prowd (2018); Kim (2020)
Primary Balance	Primary Balance (% GDP)	WDI 2011-2020	Afonso and Furcer (2020)
Tax Revenue	Tax Revenue (% GDP)	WDI 2011-2020	Amadou *et al*. (2020)

Source: Author's Construct, (2023)

Data Type and Source

The research utilised pre-existing data from WDI and WGI. These datasets have been previously collected, compiled, analysed for different purpose, and made available for re-use (Zikmund *et al.,* 2012). It is worth re-emphasing that the data relate to corruption and institutional environments were sourced from the Transparency International whiles the WGI and WDI database were organised by the World Bank.

Chapter Summary

Several variables are included in the analysis to control for the impact of other factors that may influence the connection between the independent and dependent variables. Three macroeconomic indicators are among these variables: tax income, primary balance, and fiscal balance as a percentage of GDP. The study's scope encompasses 39 out of the total 48 SSA economies for a ten-year period (2011 to 2020).

The research objectives demanded the estimation of two models. The initial model sought to comprehend the relationships between corruption, budgetary sustainability, and the institutional environment in SSA economies. The second model investigated the effect of institutional environment in the relationship between corruption and fiscal sustainability in SSA economies. The study primarily used GMM estimation approaches to estimate these models, which are particularly beneficial for controlling endogeneity difficulties.

CHAPTER FOUR

RESULTS AND DICUSSION

Introduction

Empirical analysis results are thoroughly explained here. This chapter starts with descriptive statistics for all the variables by providing insights into the current level of corruption, budgetary sustainability, and the institutional environment in SSA economies. A correlation matrix is also offered to address potential multicollinearity difficulties in the empirical formulation. The following part goes through the models that were estimated for the study.

Descriptive Statistics

This study's descriptive data are based on 39 SSA economies sampled. The sample size was influenced by data availability and to offset potential estimating effects caused by the Covid-19 epidemic, as detailed in chapter three of the thesis. It is worth noting that Gyasi (2020) obtained consistent results using a sample of 38 SSA nations. Appendix A contains the SSA economies used in the study.

The descriptive statistics offered include many measures for each variable. Here, the mean represent average value, standard deviation, which represents the degree of variability, and the minimum and maximum values observed are among these measurements. For a better comprehension of the available data, the number of observations in the sample is also provided.

Table 3: Descriptive Statistics Results

Variable	Observation	Mean	Standard	Minimum	Maximum

		Deviation			
FS	380	48.547	29.208	6.272	263.372
CORR	390	44.026	19.047	8	92
INE	390	-.656	.629	-2.384	1.011
GE	390	-.782	.638	-2.445	1.161
RQ	390	-.658	.613	-2.332	1.197
RL	390	-.677	.642	-2.418	1.024
PSAV	390	-.608	.875	-3.084	1.111
VA	390	-.554	.737	-2.197	.974
PBGDP	388	-1.873	3.26	-14.707	24.832
FBGDP	388	-3.354	3.49	-15.29	23.527
TRGDP	276	14.552	6.382	0	34.629

Source: Author's Construct, (2023) (data from World Bank, 2021; Transparency International, 2021)

L.FS represents lag of Fiscal Sustainability, CORR represents Corruption, INST represents the aggregate of Institutional Environment, Government Effectiveness (GE), Political Stability and Absence of Violence (PSAV), Regulatory Quality (RQ), Rule of Law (RL), and Voice and Accountability (VA), FPBGDP represents Primary Balance (%GDP). FBGDP represents Fiscal Balance (%GDP). TRGDP represents Tax Revenue (% GDP).

From the descriptive statistics, fiscal sustainability is averaged 48.547% within the ranges of 6.272% and 263.372%, indicating a substantive deviation from the mean. This significant difference suggests that SSA economies' efforts to

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achieving fiscal sustainability has not been fruitful (ADB, 2020). However, among the 39 economies in the SSA region, the average corruption value recorded was 44.026, falling within the range of 8 to 92. The results suggests that most SAA economies have lower corruption perception scores. This is an indication that SSA countries are generally corrupt and that fiscal sustainability has been impeded. Thus, corruption depletes the region's resources meant for developmental activities, therefore, hampering the effort to achieving fiscal sustainability (Amoh & Ali-Nakyea, 2019).

For the institutional environment variable, an average value of -.656 was recorded, ranging between -2.384 and 1.011. This clearly depicts that institutional environment of SSA economies are weak and inadequate to prevent corruption. Table 3 indicates that Governance Effectiveness of -.658 is the weakest among the institutional environment indicators in most SSA economies due to mismanagement of public resources as indicated by Afonso & Jalles (2016), while Voice of Accountability is the strongest, at -0.554, this could be attributed to citizen exercising their democratic right such voting during elections.

Primary Balance (% GDP) recorded averages of -1.873% within the range of -14.707% and 24.832% while Fiscal Balance (% GDP) and Tax Revenue (%GDP) recorded averages of -3.354% and -15.29% within the ranges of 23.527% and 14.552%, and 0% and 34.629% respectively. Despite marginal variation in Primary Balance (% GDP) and Fiscal Balance (%GDP) from Table 3, SSA economies generally record deficit on annual basis (Addai *et al*., 2022). For

instance Ghana has consistently recorded deficits of $4.5 billion and $12.2 billion

between 2018 and 2021 (World Bank, 2021).

Correlation Analysis

Table 4: Pairwise Correlation Matrix

Variables		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) L.FS	1.000											
(2) FS	0.957	1.000										
	(0.000)											
(3) CORR	-0.056	-0.070	1.000									
	(0.303)	(0.173)										
(4) INE	-0.014	-0.022	0.042	1.000								
	(0.800)	(0.664)	(0.410)									
(5) GE	0.006	0.002	0.015	0.932	1.000							
	(0.907)	(0.966)	(0.770)	(0.000)								
(6) RQ	-0.085	-0.088	0.055	0.930	0.920	1.000						
	(0.115)	(0.085)	(0.275)	(0.000)	(0.000)							
(7) RL	0.040	0.036	-0.004	0.958	0.936	0.909	1.000					
	(0.458)	(0.489)	(0.930)	(0.000)	(0.000)	(0.000)						
(8) PSAV	-0.014	-0.027	0.084	0.838	0.685	0.652	0.738	1.000				
	(0.790)	(0.605)	(0.100)	(0.000)	(0.000)	(0.000)	(0.000)					
(9) VA	-0.010	-0.021	0.024	0.860	0.720	0.778	0.776	0.611	1.000			
	(0.857)	(0.685)	(0.632)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)				
(10) PBGDP	-0.034	-0.166	0.148	-0.078	-0.094	-0.056	-0.107	-0.018	-0.090	1.000		
	(0.526)	(0.001)	(0.004)	(0.125)	(0.064)	(0.271)	(0.035)	(0.730)	(0.078)			
(11) FBGDP	-0.172	-0.301	0.166	-0.223	-0.224	-0.186	-0.247	-0.137	-0.224	0.933	1.000	
	(0.001)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.007)	(0.000)	(0.000)		
(12) TRGDP	-0.068	-0.045	-0.162	0.536	0.427	0.421	0.445	0.537	0.558	-0.123	-0.197	1.000
	(0.284)	(0.460)	(0.007)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.040)	(0.001)	

Source: Author's Construct, (2023) (data from World Bank, 2021; Transparency International, 2021)

L.FS represents lag of Fiscal Sustainability, CORR represents Corruption, INST represents the aggregate of Institutional Environment, Government Effectiveness (GE), Political Stability and Absence of Violence (PSAV), Regulatory Quality (RQ), Rule of Law (RL), and Voice and Accountability (VA), FPBGDP represents Primary Balance (%GDP). FBGDP represents Fiscal Balance (%GDP). TRGDP represents Tax Revenue (% GDP).

The correlation matrix serves the purpose of determining if there is any multicollinearity present among the variables. Addressing and recognizing multicollinearity was critical to ensuring the reliability and validity of the regression results, since multicollinearity can lead to increased standard errors, making estimate and interpretation of the regression results more difficult (Adam, 2015). After careful investigation, it is clear that none of the correlation coefficients between the variables exceed 0.90, supporting Brooks' (2019) claim. High correlation between variables occurs when the correlation coefficient surpasses 0.80 or 0.90, according to Brooks (2019). Using a 0.90 threshold to identify multicollinearity, it is possible to infer that there is no significant multicollinearity among the variables of interest. The regression analysis can employ both dependent and independent variables.

This part is followed by a presentation and discussion of the empirical results relevant to the study's aims.

Relationship between corruption, institutional environment and fiscal sustainability

The regression findings are shown in two tables: Tables 5 and 6. Table 5 focuses on the individual effects of corruption and the institutional environment on SSA economies' fiscal sustainability. Table 6, in contrast, examines how the institutional environment influences the relationship between corruption and fiscal sustainability in SSA economies. The results reported in the model 1 column correlate to objectives one and two of the study, illustrating combined influence of corruption and the institutional environment on fiscal sustainability. Furthermore,

Table 6 delves deeper into the impact of each institutional factor on SSA nations' fiscal sustainability. This is shown in sub-models 1a through 1e.

Table 5: Individual effect of Corruption and Institutional Environment on Fiscal Sustainability of SSA Countries

	Model 1	Model 1a	Model 1b	Model 1c	Model 1d	Model 1e
L.FS	0.527***	0.571***	0.533***	0.574***	0.436***	0.594***
	(0.0282)	(0.0364)	(0.0233)	(0.0288)	(0.0331)	(0.0586)
CORR	-0.174***	0.200***	0.166***	0.168***	0.267***	0.0705
	(0.0535)	(0.0389)	(0.0477)	(0.0394)	(0.0386)	(0.0599)
INE	-10.36***					
	(2.612)					
GE		-8.955***				
		(1.954)				
RQ			-9.433***			
			(2.735)			
RL				-7.931***		
				(2.096)		
PSAV					-9.961***	
					(1.331)	
VA						0.514
						(1.175)
Control Variable						
PBGDP	7.797***	7.170***	7.816***	7.018***	8.594***	7.058***
	(0.822)	(0.726)	(0.647)	(0.597)	(0.776)	(1.214)
FBGDP	-8.790***	-8.128***	-8.741***	-7.897***	-9.448***	-7.727***
	(0.837)	(0.787)	(0.615)	(0.664)	(0.785)	(1.180)
TRGDP	0.371**	0.350**	0.443**	0.250**	0.821**	-0.132
	(0.180)	(0.164)	(0.196)	(0.135)	(0.185)	(0.207)
Constant	-11.52*	-13.67***	-11.44*	-8.662**	-19.47***	5.937
	(5.774)	(4.672)	(5.912)	(3.770)	(2.021)	(6.058)
Diagnostics						
Observations	247	247	247	247	247	247
No. of instruments	30	30	30	30	30	26
Table 5, continued						
AR1 (p-value)	0.0307	0.0273	0.0381	0.0421	0.0153	0.0397
AR2 (p-value)	0.0850	0.0907	0.0676	0.0822	0.0872	0.0917

| Hansen-J (p-value) | 0.457 | 0.434 | 0.507 | 0.467 | 0.330 | 0.175 |

Dependent Variable: Fiscal Sustainability

Source: Author's Construct, (2023) Source: Author's Construct, 2023 (data from World Bank, 2021; Transparency International, 2021)

L.FS represents lag of Fiscal Sustainability, CORR represents Corruption, INST represents the aggregate of Institutional Environment, Government Effectiveness (GE), Political Stability and Absence of Violence (PSAV), Regulatory Quality (RQ), Rule of Law (RL), and Voice and Accountability (VA), FPBGDP represents Primary Balance (%GDP). FBGDP represents Fiscal Balance (%GDP). TRGDP represents Tax Revenue (% GDP).

Standard errors in parentheses, * p<0.10, ** p<0.05, *** p<0.010. The estimation was done using xtabond2 command stata.

Corruption and Fiscal Sustainability in SSA Economies

Table 5, model 1 investigated the relationship between corruption and fiscal sustainability in SSA economies. The findings demonstrated that, at a 1% level of significance, corruption had a considerable detrimental influence on the fiscal sustainability. The coefficient of -0.174 suggests that a 1% rise of corruption is connected with a 0.174% decline in fiscal sustainability. As a result, the data refute the first hypothesis, which argues that corruption has no major influence on fiscal sustainability. Instead, the findings show that corruption has a negative impact on the fiscal health and sustainability of SSA economies. According to Hope (2017), increasing levels of corruption lead to fiscal insolvency.

Meanwhile, the above findings are consistent with Amoh and Ali-Nakyea (2019), and Trabelsi and Trabelsi's (2021) studies on tax evasion and corruption. These researchers discovered that resource waste is a direct cost of corrupt behaviors, and that corruption distorts resource allocation by diverting funding away from projects that support economic growth and toward unproductive

sections of the economy. For example, the budget line for national defense and other unproductive sectors provide ample opportunities for bribery. Debatably, these unproductive expenditures lead to a decline in socio-economic activities, such as access to education and public health, thereby hampering governments' efforts to achieving fiscal sustainability. This was evidenced during the outbreak of COVID-19 pandemic as funds disbursed by the World Bank and other developmental partners to most SSA governments were misappropriated (World Bank, 2021). Arguably, misappropriation of public funds is a critical contributory factor to the rising and high levels of unstainable debt to GDP in most SSA economies.

Furthermore, in many SSA economies, corruption tends to be concentrated within the legal system and law enforcement sectors (Asomah, 2021). This concentration of corruption in these crucial institutions is particularly harmful to economic development, as it might erode the institutional environment. Therefore, while transaction costs rise, transaction efficiency declines (Adams & Klobodu, 2016). These undermine the fundamental basis of long-term fiscal sustainability (Agbota *et al*., 2017). Thus, the prevalence of corruption in these vital sectors disrupts the effective functioning of economies, hindering their ability to achieve long-term fiscal stability. Again, the study's findings confirm Mauro's (1998) claim that corruption impedes economic growth. The findings agree with those of Gyimah-Brempong (2002), Amin, Ahmed, and Zaman (2013), and Forson *et al*. (2017). According to these research, an increase in corruption corresponds to a drop in the economic growth of SSA economies.

The practice of offering bribes and general engagement in corrupt activities by private sector agents, such as firms, to certain bureaucrats has a detrimental impact on growth and fiscal sustainability in SSA economies (Ayee, 2013). This shows that corruption has a negative effect on these economies wellbeing. Addo (2021) argued that this practice becomes even more damaging when corruption is prevalent among bureaucrats and politicians rather than being predominantly carried out by the private sector. State capture by these public officials and politicians exacerbates the adverse effects of corruption, making it exceedingly detrimental to the larger economy.

However, the findings contradict those of Biru (2010), Zaman and Goschin (2015), Berdiev *et al*. (2018), and Ondo (2017), who suggested that corruption can improve bureaucratic efficiency and lower barriers to economic progress. These academics believed that in developing countries with burdensome state regulations and unmotivated officials, corruption could serve as speed money to cut through red tape. It enables incumbents to dodge burdensome and time-consuming rules, avoid costly delays, and get preferential treatment in long lines for public services. Ondo further stated that bureaucrats may not intentionally cause administrative delays in order to collect bribes; instead, when bribes are permitted, they may be driven to speed up service provision, which stimulates economic growth and adds to budgetary sustainability.

Furthermore, Shittu *et al*. (2018) proposed that in SSA economies with weak structures, corruption becomes an alternative means to accelerate growth by circumventing rules and regulations governing the provision of public service. This

thesis emphasizes how weak institutions and the rule of law, internal conflicts, excessive debt, and economic and political instability have exacerbated the situation in the majority of SSA economies. Consequently, for these economies to attract financial aid and investment, hence, achieve fiscal sustainability, there is the need for structural reforms and political stability (Camarero *et al*., 2015).

In summary, while the findings of this study demonstrate that corruption has a detrimental influence on fiscal sustainability within SSA economies, some earlier research has argued that, in certain circumstances, corruption can lead to greater bureaucratic efficiency and assist economic progress. These opposing viewpoints highlight the intricacies and nuanced relationship between corruption, institutional efficiency, and fiscal sustainability in SSA economies. This leads to the achievement of the study's objectives one and two

Institutional environment and fiscal sustainability in SSA economies

Table 5, model 1 are reported the effect of institutional environment on fiscal sustainability in SSA. At a 1% level of significance, the institutional environment has a significant negative impact on budgetary sustainability. The extent of this negative effect is shown by the coefficient value of -10.36, indicating that a degradation in the institutional environment is related with a significant fall in fiscal sustainability across SSA economies. The findings support Adams and Klobodu's (2016) study of corruption and income disparity. The researchers discovered that inadequate institutional environments in SSA economies related to budgetary insufficiency.

Alhassan and Nwagbara (2021) affirmed that weak institutions do not facilitate the enforcement of rules and regulations. Therefore, corrupt behaviours usually go unpunished, looping the resources of most SSA economies. The loss of these resources to corruption is a key factor for many SSA countries' high borrowing from international organisations to support economic growth (Porta, Lopez-de-Silanes, Shleifer &Vishny, 1998). Beck *et al*. (2003) and Apergis (2021) also revealed that differences in country specific fiscal policies is a major contributing factor to fiscal unsustainablity. According to Aluko and Ajayi (2017) weak institutional framework is a probable explanation for the slower economic growth witnessed in both the financial and non-financial sectors in many SSA economies. Consequently, no relationship between the institutional environment and fiscal sustainability in SSA is rejected.

Table 5 also includes the results of sub-models 1a–1e, which allow for a closer look at the individual effects of five institutional indicators on fiscal sustainability in SSA. The findings of model 1a in Table 5 demonstrate that at 1% significance level, the coefficient of -8.955 for governance effectiveness indicates a very weak level of governance effectiveness in SSA economies. This suggests that the governance systems in these countries are faced with significant challenges (such as bureaucracy) that do not contribute to effective fiscal sustainability.

Model 1b showed that at 1% significant level, a coefficient of -9.433 was for regulatory quality indicates a very weak compliance to regulations in SSA economies. This is consistent with Amadou *et al*.'s (2020) argument that there is less compliance to tax rules, resulting to leakage of tax revenue meant for economic

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development. The results from model 1c showed that at 1% significant level, a coefficient of -7.931 was for rule of law. The results from model 1d indicated that, at a 1% significance level, there was a coefficients of -9.961 for political stability and absence of violence. Meanwhile, voice of accountability showed insignificant coefficient of 0.514.

Corruption is a major impediment to establishing fiscal sustainability in SSA economies (Asomah, 2021). Previous research has shown that high levels of corruption correlate to a weak institutional environment (Ayaydin & Baltaci, 2013; Roe & Siegel, 2011). The study's findings emphasize the necessity of combating corruption through enhancing the institutional environment, particularly in the areas of political stability, governance effectiveness, political stability, and the lack of violence.

The following part examines the macroeconomic variables crucial to determining fiscal sustainability, as shown in Table 5.

The control variables for assessing corruption, institutional environment, and fiscal sustainability

Three macroeconomic variables were controlled for in all of the models shown in Table 5: primary balance, fiscal balance and tax revenue all as (% GDP). At a 1% significance level, primary balance (% GDP) indicated a coefficient of 7.797 in model 1. This means that a one-point rise in primary balance (% GDP) translates to an increase in fiscal sustainability of 7.797%.

The consistency of these results is observed across sub-models 1a to 1e for the various institutional indicators. This is coherent with Aloryito *et al.*'s (2016)

suggestion that an increase in the primary balance is crucial for governments to cover their non-interest spending. As a result, this can reduce the likelihood of debt accumulation, contributing to improved fiscal sustainability. In essence, this study's results demonstrate that maintaining a positive primary balance and effective institutional indicators are essential factors for achieving fiscal sustainability and managing government finances in SSA economies.

In model 1, fiscal balance (% GDP) displayed a significant coefficient of -8.790 at a 1% significance level. This finding is consistent with all of the institutional markers in sub-models 1a–1e. The negative coefficient implies that a one-point increase in fiscal balance (% GDP) leads to an 8.326% decrease in fiscal sustainability. The results highlighted that a negative fiscal balance (% GDP) results in fiscal deficits, thus, government expenditures exceed revenues. This situation may lead to unsustainable financial conditions and contribute to fiscal challenges in SSA economies. This is an indication that most SSA economies experience high levels of fiscal deficit. Oyeyemi, Adegbie, Adegboyega, and Siyanbola (2020) posited that higher fiscal deficit has left legacy of huge debt and growing interest payments, hence, hampering the effort to achieving fiscal sustainability. Adeosun and Adedokun (2019) also concluded that when fiscal systems become inviable, any attempt to achieve fiscal sustainability becomes unrewardable.

At a 5% significance level, tax revenue (% GDP) revealed a positive coefficient of 0.371 in model 1. This implies that a one-point rise in total revenue (% GDP) over time translates in a 0.371% gain in fiscal sustainability for SSA

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economies. Similar results were observed in sub-models 1a to 1d except sub-model 1e, which observed an insignificant coefficient of -0.132.

The results aligned with the conclusions of Samir and Sayed (2021). They emphasised that tax instruments can have significant impacts on production, consumption, savings, and investment decisions at the margin. A strong fiscal institution ensures that the government generates sufficient revenues to finance its expenditure without heavily relying on debt. These results indicated that in the past decades SSA governments have been meeting their tax revenue targets, an essential indication for fiscal sustainability. For example, the government of Ghana has in the past posted balance of payment surplus as aresults of increased tax revenue. Debtably, irregularities in public spending derials the mobilised funds. By effectively managing tax revenue and maintaining a strong fiscal institution, governments in the SSA region can mitigate the reliance on debt financing and ensure a more stable financial position. In summary, the study's findings underscore the importance of adequate tax revenue generation as a key factor for promoting fiscal sustainability and sound fiscal management in SSA economies.

Diagnostics of the models assessing the effect of corruption and instutitional environment on fiscal sustainability in SSA economies.

Mileva (2007) state that the null hypothesis for the AR (1) test in first difference should be rejected, whereas the null hypothesis for the AR (2) test in the first difference should not be. At 5% significance level, p-values for the AR (1) process showed rejection of the null hypothesis of no autocorrelation, while the p-

value for the AR (2) process did not reject the null hypothesis, indicating no autocorrelation. This suggests that autocorrelation is absent in the models.

Furthermore, there was no rejection of the null hypothesis based on the Hansen test, hence the instruments in Table 5 are valid. However, when the Hansen test indicate insignificance, then the GMM calculations have sufficient exclusions constraints.

Corruption and fiscal sustainability: The moderating role of institutional environment

Model 2 is shown in Table 6. It investigates the function of aggregate institutional environment variables as moderators in the link between corruption and budgetary sustainability in SSA economies. Meanwhile, models 2a–2e show the unique moderating functions that each institutional indicator plays in this relationship. To put it another way, this study looked at how the entire institutional environment, as well as each institutional indicator, influences the impact of corruption on budgetary sustainability in SSA economies. The outcomes of these models provide important insights into the region's intricate relationships between corruption, the institutional environment, and budgetary sustainability.

Table 6: Role of Institutional Environment between Corruption and Fiscal Sustainability

Dependent variable: Fiscal Sustainability

	Model 2	Model 2a	Model 2b	Model 2c	Model 2d	Model 2e
L.FS	0.574***	0.563***	0.603***	0.646***	0.571***	0.581***
	(0.0235)	(0.0337)	(0.0246)	(0.0205)	(0.0487)	(0.0552)
CORR	-0.745***	0.353***	0.210***	0.142***	0.121**	-0.850***
	(0.182)	(0.0641)	(0.0671)	(0.0490)	(0.0541)	(0.124)
INE	-30.14***					
	(6.344)					
GE		-24.96***				
		(2.503)				
RQ			-15.82***			
			(3.417)			
RL				-5.240*		
				(2.747)		
PSAV					-15.82***	
					(1.784)	
VA						21.79***
						(5.733)
Interaction	0.643***	0.286***	0.139*	-0.133**	0.241***	-0.615***
	(0.151)	(0.0602)	(0.0758)	(0.0584)	(0.0539)	(0.104)
Control Var						
TRGDP	0.652***	0.409***	0.730***	0.150*	0.636***	-0.859***
	(0.173)	(0.105)	(0.111)	(0.0799)	(0.203)	(0.207)
PBGDP	7.572***	7.379***	5.933***	5.121***	5.565***	5.705***
	(0.729)	(0.775)	(0.608)	(0.656)	(0.884)	(1.672)
FBGDP	-8.244***	-8.182***	-6.833***	-6.035***	-7.693***	-6.988***
	(0.660)	(0.718)	(0.543)	(0.687)	(0.894)	(1.761)
Constant	-34.72***	-21.41***	-17.23***	-7.786**	-12.22***	56.02***
	(7.099)	(4.549)	(5.063)	(3.238)	(4.190)	(7.721)
Diagnostics						
Observations	247	247	247	247	247	247
No. of instruments	34	34	34	34	29	22
AR1 (p-	0.0244	0.0377	0.0322	0.0530	0.0118	0.0665

value) AR2 (p-value)	0.0689	0.0909	0.0882	0.0991	0.151	0.162
Table 6, continued Hansen-J (p-value)	0.472	0.412	0.482	0.483	0.398	0.335

Source: Author's Construct, (2023) (data from World Governance Indicators, Worldwide Development Indicators and Transparency International)

L.FS represents lag of Fiscal Sustainability, CORR represents Corruption, INST represents the aggregate of Institutional Environment, Government Effectiveness (GE), Political Stability and Absence of Violence (PSAV), Regulatory Quality (RQ), Rule of Law (RL), and Voice and Accountability (VA), FPBGDP represents Primary Balance (%GDP). FBGDP represents Fiscal Balance (%GDP). TRGDP represents Tax Revenue (% GDP).

Standard errors in parentheses, * $p<0.10$, ** $p<0.05$, *** $p<0.010$. The estimation was done using xtabond2 command stata.

In Table 6, the findings of model 2 revealed an unusual phenomena. The interaction between corruption, and institutional environment demonstrated positive coefficient of 0.643 at 1% significant level. When compared to model 1 in Table 5, this interaction term has a significant impact on the coefficients of both corruption and the institutional environment. The corruption coefficient in model 2 increased to -0.745 from -0.174 in model 1. Similarly, the coefficient for the institutional environment in model 2 increased to -30.14 from -10.36 in model 1. This interaction term provided light on the true character of SSA economies' institutional environments. It implies that the institutional environment's inadequacy complements corruption, posing a significant barrier to achieving fiscal sustainability in these economies.

The net effect of corruption on fiscal sustainability is -0.745 + 0.00643*INE, which equals -0.9388 (calculated as -0.745 + 0.00643 * -30.14), whereas it was just -0.174 in model 1. This means that corruption may not have a substantial influence on fiscal sustainability on its own. However, in a weak institutional context, corruption becomes more pronounced, amplifying its negative consequences on budgetary sustainability. The study emphasized the critical role of the institutional context in shaping the impact of corruption on budgetary sustainability in SSA economies. It emphasized that the institutional environment in SSA is weak, which contributes to perverse and malignant corruption.

The result is consistent with Hope (2017), and Chinn and Ito's (2006) assertion that weak institutional environment influences fiscal sustainability. Furthermore, Dza, Kyeremeh, Dzandu and Affran (2018) emphasised that corruption is likely to be rampant in a very weak institutional environment. Nevetheless, fiscal sustainability can still be hampered where there is no or low level of corruption but weak institutional environment (Ouédraogo, 2017). Contrary, Hamra (2000); Ruzek (2015) found that informal institutional environment propels sustainability.

In sub-model 2a, the introduction of the interaction term between governance effectiveness and corruption has intriguing consequences. The corruption variable obtained a coefficient of 0.353 in this sub-model, which is equivalent to the value of 0.200 in model 1 in Table 5. Furthermore, the interaction between institutional environment, and corruption revealed a positive value of 0.286, which is statistically significant at 1%, demonstrating that governance

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effectiveness supplements corruption in SSA economies. This finding supports Afonso and Jalles' (2016) contention that strong institutions can fuel corruption and undermine budgetary sustainability. However, a constantly monitored and strengthened institutional system can offset the harmful consequences of corruption and encourage fiscal stability in the region. As a result, a strong institutional environment can function as a buffer against the negative impact of corruption, helping to SSA's overall economic progress and stability.

In sub-model 2b, the interaction term of regulatory quality and corruption exhibited 0.139 positive coefficient at 10% significant level. In sub-model 1, the corruption variable had a positive coefficient of 0.210, whereas in sub-model 2, it had a negative coefficient of 0.166. This result is consistent with Rose-Ackerman (2010) who posited that strong institutions contribute to compliance of established regulations within SSA economies. However, the result deviates from Hamra's (2000) finding that corruption prevails in the presence of strong institutions.

According to sub-model 2c, improved rule of law is critical in reducing corruption and increasing fiscal sustainability in SSA economies. In sub-model 1c, the coefficient of corruption was 0.142, but in sub-model 1a, it was 0.168. Furthermore, interaction coefficient between rule of law and corruption was -0.133, which is significant at the 5% level. This meant that the rule of law acted buffer against the detrimental impacts of corruption on fiscal sustainability. This finding is similar with Amoh and Ali-Nakyea (2019), who stated that rigorous adherence to legislation ensured timely and adequate resource allocation, preventing the leakage of public monies.

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In sub-model 2d, interaction between corruption, and political stability and absence of violence was found to be significant at the 1% level, with a coefficient of 0.241. As a result of this interaction, the corruption variable attained a correlation coefficient of 0.121 compared to 0.267 in sub-model 1d. This suggests that when SSA economies experience high political stability and absence of violence, corruption declines, resulting in fiscal sustainability. Therefore, a more stable political environment can revert the negative impact of corruption on fiscal outcomes. Debatably, in a stable political environment, growth is inevitable as the economy continually responds to sustainable development goals, hence, effort towards achieving fiscal sustainability becomes fruitful and rewarding.

Corruption had a value of -0.850 in sub-model 2e compared to 0.0705 in sub-model 1e. At the 1% significant level, interaction between corruption and voice and accountability showed a coefficient of -0.615. These findings contradict Roe and Siegel's (2011) claim that accountability could aid in the reduction of corruption in SSA economies. In this situation, the findings show that the presence of voice and accountability had no substantial moderating influence on the relationship between corruption and budgetary sustainability in the region. The disparities in the outcomes emphasize the complexities of the connections between corruption, voice and accountability, and budgetary sustainability. It implies that other factors or mechanisms may be at work in influencing the influence of corruption on regional budgetary results.

Results of the control variables

The same control variables were used for all the models. Model 2 includes a variable for tax revenue-GDP. However, the results show that tax revenue (% GDP) is significant at the 1% level, with a positive coefficient of 0.652. Thus, a percentage point increase in tax income (%GDP) results in a 0.65% rise in fiscal sustainability. Sub-models 2a to 2d yielded similar results. Except for sub-model 2e, which exhibited a negative coefficient of -0.859 at the 1% significant level. According to sub-model 2e, the SSA government is not raising enough revenue to cover its existing expenditures. This could be attributable to a shortcoming in most SSA economies' tax generating method. The conclusion contradicts the findings of Amadou *et al*. (2020), who suggested that tax revenue is an important component of fiscal sustainability and that achieving fiscal sustainability correlates to an increase in tax revenue.

Model 2 found a coefficient of 6.120 at the 1% significance level, indicating that a point increase in primary balance (% GDP) correlates to a 6.120% rise in fiscal sustainability. This is similar from model 2a to 2f. Thus, SSA governments are spending less on goods and services provided for the citizens and same time mobilizing revenue for future expenditure. This results is consistent with Mackiewicz (2020) who indicated that fiscal sustainability is optimal when governments are able to minimise expenditure and mobilisation of revenue.

Furthermore, at the 1% significance level, model 2 showed that fiscal balance (% GDP) had a coefficient of -8.770. This is similar from model 2a to 2e. Consequently, a point increase in fiscal balance (% GDP) leads to 8.770% decrease

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in fiscal sustainability. Undoubtedly, SSA governments are spending more than what they receive in terms of revenue. This results is consistent with Bui (2019) who postulated that fiscal sustainability becomes difficult to achieve when government spends in excess budgeted expenditure. Accordingly, accumulated debt is inevitable as governments want to finance excess expenditure.

Diagnostics tests on the models assessing the moderating role of institutional environment between corruption and fiscal sustainability of SSA economies.

Mileva (2007) notes "that the test for AR (1) process in initial difference often leads to the null hypothesis being rejected to indicate presence of autocorrelation. In contrast, the test for the AR (2) process in first difference typically does not reject the null hypothesis, suggesting a lack of autocorrelation. At 10% significance level, the p-values for the AR (1) process reject the null hypothesis of no autocorrelation across all models presented in Table 6, indicating that autocorrelation is present. Conversely, the p-value for the AR (2) process do not reject the null hypothesis of no autocorrelation", suggesting that these models do not exhibit autocorrelation.

Furthermore, the Hansen test findings validate the instruments utilized in each model in Table 6. The GMM estimations had sufficient exclusion constraints when null hypothesis was not rejected in the Hansen test, hence the instrument can be utilised. This indicates that the models' instruments are valid and assist handle potential endogeneity issues, ensuring the accuracy of the estimates. Furthermore, the statistical tests performed in this study show the absence of autocorrelation in

all models and validate the instruments utilized, offering confidence in the trustworthiness of the GMM estimate results.

Aggregating all the models

For partial adjustment of the fiscal sustainability towards the long-term equilibrium and also for prior level to influence the current level, its lagged version was added to all the models.

In all models, the coefficient of the lagged fiscal sustainability variable is positive and statistically significant at the 1% level. The coefficient's positive sign shows that fiscal sustainability in prior eras contributes favorably to fiscal sustainability in contemporary periods. This shows that SSA economies tend to maintain some level of consistency in their efforts to achieve fiscal sustainability across time. The relevance of lagged dependent variables promotes the adoption of the GMM estimator and gives confidence in the dependability of the empirical data for statistical inference. Accounting for the lagged fiscal sustainability variable allows the models to better capture the changing nature of fiscal sustainability within SSA economies and increase the accuracy of estimates derived by utilizing GMM.

Chapter Summary

The finding for the study were examined and discussed. The descriptive statistics indicated SSA economies suffered high levels of corruption perception during the study period. This finding is an indication that corruption is a persistent challenge in these economies, hence, hindering the achievement of fiscal

sustainability. The descriptive statistics also revealed that SSA economies have weak institutional environment. The chapter also explored the independent implications of corruption and the institutional environment on the budgetary sustainability of SSA economies. The study found that institutional environment are very weak and that when strengthened, fiscal sustainability can be achieved. In addition, the impact of the institutional environment in mediating corruption and budgetary sustainability was investigated. It was revealed that the presence of weak institutional environment complements corruption. Therefore, to achieve fiscal sustainability, institutional environment should be strengthened by SSA governments.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

The chapter provides an overview of findings and conclusions. Furthermore, recommendations from the results are presented. Thus, the chapter highlights key insights and directions for policy implications. Furthermore, suggestions for further research to explore additional related topics are submitted.

Summary of the Research

The institutional theory of corruption, public choice theory, and good governance theory all served as foundations for the study. These theories contributed to a better understanding of the relationship between corruption, institutional environment, and fiscal sustainability in SSA economies. The review dug into current research to gain insights into how these factors interact and influence one another in influencing fiscal outcomes in the region. According to the empirical review, the conclusions in the relationship between corruption and fiscal sustainability are ambiguous.

This study differs from prior research as it investigated the interaction between corruption and institutional environments in SSA economies. It hypothesises that the institutional environment moderates between corruption and fiscal sustainability in the region. This approach was aimed at gaining a deeper insights into how these factors collectively influence fiscal outcomes.

The study was aimed at attaining the following objectives:

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1. To examine the impact of corruption on fiscal sustainability in SSA economies.

2. To investigate the relationship between institutional environment and fiscal sustainability in SSA economies.

3. To explore the moderating role of the institutional environment between corruption and fiscal sustainability in SSA economies.

To achieve the objectives of this study, the positivism research paradigm and the quantitative research approach were used. Due to data availability limits, the study concentrated on 39 of the 48 SSA economies. The explanatory research design was used to estimate the various models. For analysis purposes, three models were developed: model one looked at the impact of corruption on fiscal sustainability, model two looked at the relationship between the institutional environment and fiscal sustainability, and model three looked at the role of the institutional environment in moderating the relationship between corruption and fiscal sustainability. To eliminate endogeneity, the GMM estimation technique was used to estimate all three models in this investigation. To meet the research aims, three hypotheses were developed (see Table 7).

Table 7: Summary of the results on the hypotheses

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Hypothesis	Confirmation
H_o: There is no significant effect of corruption on fiscal sustainability of SSA economies	Rejected
H_o: There is no significant relationship between institutional environment and fiscal sustainability of SSA economies	Rejected
H_o: There is no significant moderating effect of institutional environment on the relationship between corruption and fiscal sustainability of SSA economies	Rejected

Source: Author's Construct, (2023)

Conclusions

Based on objective one, the study found that corruption significantly and negatively affect fiscal sustainability in SSA economies. Thus, a higher level of corruption lead to fiscal unsustainability. Furthermore, the results of goal two show that the institutional environment has a strong negative impact on budgetary sustainability in SSA economies. This implies that a weak institutional environment hampers SSA governments' efforts to achieve fiscal sustainability. Objective three showed that weak institutional environment intensifies the impact of corruption to fiscal unsustainability in SSA economies. Each institutional indicator's specific function in the relationship between corruption and budgetary sustainability was investigated. Except for voice and accountability, the coefficients of the interaction variables of corruption with government effectiveness, regulatory quality, rule of law, political stability, and absence of violence were all negative and significant. This means that key institutional factors, particularly government efficacy,

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regulatory quality, rule of law, political stability, and lack of violence, strengthen the link between corruption and fiscal sustainability in SSA economies.

Recommendations

Based the conclusion the following recommendations were made: With regards to objectives one and two, SSA governments should institute aggressive strategies and policies to promote transparency and accountability. Transparency for example could be improved through publication of central government account of SSA governments. Additionally, it is recommended that SSA governments and their development partners provide resources to policy Think tanks for the analysis of information relating to public finance (such as budgets and other fiscal policies). Such information will be a good resource for the empowerment of the citizenry to monitor government business. Public accountability can be achieved through training public officials, improving current rules governing the management of public finances, and routinely informing the general public about changes that promotes accountability. If these guidelines are followed, corruption will be reduced, and SSA nations will be able to achieve fiscal sustainability.

To attain fiscal sustainability, it is advised that governments of SSA economies develop the institutional framework of governance systems. Specifically, enhancing independence of anti-corruption and judiciary institutions will promote fiscal accountability. Thus, strong institutional environment may improve government effectiveness, and enhance regulatory quality. Judicial independence for example, will promote rule of law and public accountability.

Suggestion for Further Research

Future research can build on this work by investigating the impact of institutional environment in mitigating the relationship between corruption and budgetary sustainability in other emerging nations. Furthermore, investigations can assess how corruption affects debt sustainability as well as the moderating role of the institutional framework. Researchers can supplement the institutional environment variables with data from other sources (such as the International Country Risk Guide, African Governance Indicators, and the World Bank's Country Policy) to improve the analysis.

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APPENDICES

Appendix A- A list of 39 SSA economies used for the study

Eastern Africa	Central Africa	Western Africa	Southern Africa
Burundi	Equatorial Guinea	Benin	Botswana
Comoros	Angola	Burkina Faso	Namibia
Kenya	Cameroon	Cote D'ivoire	Republic South Africa
Madagascar	Chad	Gambia	Swaziland
Malawi	Democratic Republic of Congo	Ghana	
Mauritius	Gabon	Guinea-Bissau	
Mozambique		Liberia	
Rwanda		Mali	
Seychelles		Mauritania	
South Sudan		Niger	
Tanzania		Senegal	
Uganda		Sierra Leone	
Zambia		Togo	
Zimbabwe		Cape Verde	
Sudan			

Source: Author's Construct, 2023

Appendix B - A list of 9 SSA economies not included in the study

Eastern Africa	Central Africa	Western Africa	Southern Africa
Ethiopia	Central African Republic	Nigeria	Lesotho
Somalia		Guinea	Namibia
Sudan			
Eritrea			

Source: Author's Construct, 2023

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