

**IBN HALDUN UNIVERSITY
SCHOOL OF GRADUATE STUDIES
DEPARTMENT OF ECONOMICS**

MASTER THESIS

**INTER-DYNAMICS BETWEEN CORRUPTION,
GOVERNMENT EFFECTIVENESS, AND ECONOMIC
GROWTH: A CASE STUDY FOR WEST AFRICA**

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**THESIS SUPERVISOR
ASSIST. PROF. ASAD UL ISLAM KHAN**

ISTANBUL, 2024

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GROWTH: A CASE STUDY FOR WEST AFRICA**

by

SALIFU MANNEH

**A thesis submitted to the School of Graduate Studies in partial
fulfillment of the requirements for the degree of Master of Arts in
Economics**

**THESIS SUPERVISOR
ASSIST. PROF. ASAD UL ISLAM KHAN**

ISTANBUL, 2024

APPROVAL PAGE

This is to certify that we have read this thesis and that, in our opinion, it is fully adequate, in scope and quality, as a thesis for the degree of Master of Arts in Economics.

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I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

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ÖZ

YOLSUZLUK, DEVLET ETKİLİLİĞİ VE EKONOMİK BÜYÜME ARASINDAKİ DİNAMİKLER ARASINDAKİ DİNAMİKLER: BATI AFRİKA İÇİN BİR ÖRNEK ÇALIŞMA

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Afrobarometer ve Uluslararası Şeffaflık Örgütü Yolsuzluk Algılama Endeksi tarafından yürütülen veri araştırmaları, Batı Afrika'daki yolsuzluk seviyesinin ve hükümetin düşük performansının son derece endişe verici seviyelere ulaştığını gösteriyor. Çalışmanın amacı, panel veri analizi kullanarak 2003-2021 yılları arasında on altı Batı Afrika Ülkesinde yolsuzluk, hükümet etkinliği ve GSYİH büyüme eğilimleri arasındaki karmaşık ilişkiyi araştırmaktır. Çalışmada, modelin fonksiyonel ve regresyon formunun oluşturulmasında nedensellik sonuçlarından yararlanılarak özgün bir teknik kullanılmıştır. Bu sonuçlar üzerine çalışmada, Arellano ve Bond'un dinamik panel veri tahmini, iki adımlı Genelleştirilmiş Moment Yöntemleri sistemi kullanılmıştır. Bu yöntem, örneklem büyüklüğü, otokorelasyon, heterojenlik, endojenlik gibi potansiyel sorunları etkili bir şekilde ele alır ve normal tek adımlı GMM'den asimptotik olarak daha güçlüdür. Bu yöntem kullanılarak bölgede yolsuzluk ile GSYİH büyümesi arasında negatif bir ilişkinin olduğu tespit edilmiştir. Ayrıca, hükümetin etkinliği ile yolsuzluk arasında da önemli bir negatif ilişki bulunmaktadır. Bulgular ayrıca bölgede GSYİH büyümesi ile Hükümet etkinliği arasındaki ilişkinin pozitif ve anlamlı olduğunu gösterdi. Bu sonuçlar “Tekerleklerdeki Kum Hipotezini” desteklemektedir. Bu nedenle çalışma, etkin ve kaliteli kurumsal yapıyı sağlamak için idare içinde acil yapısal değişiklik yapılmasını, yönetim organı içinde sistematik yolsuzlukla mücadele etmek ve hesap verebilirliği sağlamak için etkili yolsuzlukla

mücadele kurumlarının oluşturulmasına odaklanılmasını ve çağdaş bağlamlara uygun kalkınma stratejileri oluşturulmasını önermektedir. modası geçmiş sömürge dönemi sistemleri.

Anahtar Kelimeler: Büyüme, Dinamikler, Etkinlik, GMM, Reformlar, Yolsuzluk.



ABSTRACT

INTER-DYNAMICS BETWEEN CORRUPTION, GOVERNMENT EFFECTIVENESS, AND ECONOMIC GROWTH: A CASE STUDY FOR WEST AFRICA

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The data surveys conducted by Afrobarometer and Transparency International Corruption Perception Index indicate that the level of corruption and government underperformance in West Africa has reached extremely concerning levels. The study aimed to investigate the complex relationship between corruption, government effectiveness, and GDP growth trends across sixteen West African Nations from 2003-2021 utilizing panel data analysis. The study employed a unique technique using the causality results to form the model's functional and regression form. Upon these results, the study utilized a dynamic panel-data estimation, a two-step system Generalized Methods of Moments by Arellano and Bond. This method effectively addresses potential issues such as sample size, autocorrelation, heterogeneity, and endogeneity and is asymptotically more potent than the regular one-step GMM. Using this method, it was found that a negative relationship exists between corruption and GDP growth in the region. Also, a significant negative relationship exists between government effectiveness and corruption. The findings also showed that the relationship between GDP growth and government effectiveness within the region is positive and significant. These results support the "Sand in the Wheels Hypothesis". Therefore, the study recommends urgent structural change within the administration to ensure effective and quality institutional structure, focus on building effective anti-corruption agencies to fight against systematic corruption within the governing body

and ensure accountability, and establish development strategies tailored to contemporary contexts rather than outdated colonial-era systems.

Keywords: Corruption, Dynamics, Effectiveness, GMM, Governance, Growth.



DEDICATION

This dissertation is dedicated to my parents, including:

My beloved mother, I express profound gratitude for your countless sacrifices to provide me with the foundation and tools for pursuing this academic endeavor. Your unwavering care and confidence in me kept me persevering, even during the most challenging research obstacles. I share this achievement with you.

My respected father - Your wisdom and practical guidance have shaped my scholarly interests and approach towards positively impacting the world. You taught me that excellence stems from character. I feel blessed that these lessons guide my journey.

And to my cherished wife – You walked alongside me daily throughout this MA marathon, reassuring me during the lowest moments while celebrating small wins. Your companionship filled this adventure with profound meaning. Without you as an anchor to more than research, I could not have crossed the finish line.

I also dedicate this work to God Almighty, as the divine presence extensively guided my research journey through unseen challenges. By channeling a spirit of grace and purpose during difficult phases, my faith provided nurturing sustenance that aided the achievement of this academic milestone. The glory remains His alone.

Finally, thanks to my broader family and community of friends who embraced my growth through this intensive program with care and encouragement that lifted my spirits during fog times. Each conversation, message of support, or practical assistance contributed to my advancement - I remain deeply grateful for that gift of reliability. I share this milestone as an honor to their investment.

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To begin with, I sincerely thank God for all of his favors, constant direction, and resolute support, which have allowed me to start and finish this thesis journey. Without the Almighty's blessings, this accomplishment would not have been possible.

I profoundly thank my supervisor, Professor Dr. Asad Ul Islam Khan, whose unmatched dedication and constructive feedback propelled my MA progress. His patience encouraged me to evolve as I balanced studies alongside competing demands. Making time where none existed for guiding must be credited for the achievement of this milestone. Through a rigorous yet compassionate mentorship style fusing high expectations with support, I lacked deserving, gradual improvements compounded towards a finished dissertation despite endless imperfections. My MA success stands on his shoulders.

Finally, I sincerely thank the University for granting vital financial aid and enabling my participation when personal means fell short. This generosity turned aspiration into reality. Equally invaluable was my family's foundation - through moral reinforcement during challenging periods, their invisible strength grew mine. By channeling hope and affirmation whenever mine depleted, their motivation kindled perseverance. My advancement bears their fingerprints alongside institutional opportunity. To both cornerstones, I share this milestone as a collective emblem of vision plus sacrifice, revealing potential in circumstances where limitations shout loudest. By amplifying my voice, I hope to pay their gift forward.

Salifu Manneh
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LIST OF SYMBOLS AND ABBREVIATIONS

WA	West Africa
CFA	African Financial Community
GDP	Gross Domestic Product
GEE	Government Effectiveness Estimate
CCE	Control of Corruption Estimate
RQ	Regulatory Quality
RL	Rule of Law
GMM	Generalized Methods of Moment
DC	Direction of the Country
DT	Democracy Today
PCE	Present Condition of the Economy
GP	Government Performance
CCO	Crimes Committed by Officials
OCC	Crimes Committed by Ordinary People

CHAPTER I

INTRODUCTION

1.1. Background of the Study

The West African region possesses tremendous inherent assets that provide immense potential for economic development, including abundant natural resources, a large youthful population entering the workforce, and a strategic geographic location well-positioned for global trade. Countries across West Africa have access to extensive reserves of oil, gas, minerals, metals, and agricultural commodities (ADB, 2007). The region's population is young compared to much of the world, with over 60% under 25 years old in some nations. This creates an opportunity for a substantial demographic dividend if the workforce is educated and job opportunities expand (African Development Bank, 2018). Additionally, the coastal proximity to European and emerging markets should make West Africa a hub of global commerce.

However, despite these advantages, the region has persistently struggled to translate such potential into tangible and sustainable improvements in living standards, income growth, poverty reduction, and human development for most citizens. West Africa contains some of the most struggling nations in the world, as decades of government mismanagement, instability, and corruption have hindered economic progress (Emmanuel et al., 2019). Tapping the region's immense natural and human capital to foster inclusive growth and improved welfare remains an elusive challenge. Unlocking this promise will require addressing the institutional and policy constraints holding West Africa from rising to heights befitting its youthful dynamism and resources (Akinbode et al., 2020).

This study empirically examines the relationship between corruption, quality of governance, and GDP growth trends in the West African region. The aim is to enumerate the relationships between systemic corruption, government effectiveness,

and economic performance using panel data on indicators across West African countries over time. The analysis intends to determine the magnitude and statistical significance of the impacts of corruption on growth and assess how improving governance competencies could accelerate development. The West Africa-centered scope enables the generalization of context-specific insights into how pervasive corruption has or has not impeded progress across nations with shared historical and institutional challenges. The findings can validate or refute assumptions about corruption's role in the region's underdevelopment. Overall, by concentrating squarely on West Africa, this study seeks to support policy and civil society initiatives targeting the kinds of anti-corruption and state reforms that would most effectively unlock the region's immense dormant promise. While many complex factors contribute to development challenges in West Africa, one issue that appears to play a significant role is corruption, which has become systemic and widespread in some countries due to gaps in institutional quality and governance effectiveness (Emmanuel et al., 2019).

Corruption and weak governance structures continue to pose significant challenges to economic growth and development in many countries across West Africa. High levels of corruption—defined broadly as the abuse of public office for private gain—undermine government effectiveness and economic performance (Lambsdorff, 2001). At the same time, ineffective governance can create opportunities for corrupt activities to flourish across the public and private sectors (Afonso & de Sá Fortes Leitão Rodrigues, 2022). Understanding the complex two-way relationship between corruption, government effectiveness, and economic growth is thus critical for promoting positive development outcomes in the region.

This study examines the relationships between corruption, quality, and performance of governments, and GDP growth in sixteen West African countries over the past two decades. The inter-dynamics between these three variables may initially present themselves as seemingly unrelated phenomena in some instances; however, upon conducting an in-depth analysis and thorough examination, one can ultimately deduce the complex intricacies that lie within them and comprehend the profound impact that each of these three variables can exert upon one another within the economic context. To begin with, corruption becomes apparent in the association between individuals and institutions, as it is ingrained in market dynamics, emphasizing personal gain

rather than collective welfare (Ullan Awan et al., 2018). They noted that the free-market system has produced a greater sense of individualism, which has compelled society to prioritize personal gains. Consequently, this undermines the objectives and ambitions of communities and overall national progress.

Various indicators are utilized to measure perceived levels of corruption, government effectiveness in areas like political stability, regulatory quality and rule of law, and overall economic performance as measured through GDP statistics. A comparative approach reveals considerable diversity across West Africa regarding corruption control, governance capacity, and growth trends. Countries like Ghana developed a government body called the Office of the Special Prosecutor (OSP). This body's primary responsibility is to investigate specific incidents of alleged or suspected corruption or offenses related to corruption involving public officials and people who have been given critical public positions in Ghana. Also, Senegal has made strides in reducing corruption and strengthening government institutions, leading to accelerated economic expansion. Meanwhile, other resource-rich states, like Nigeria, continue to grapple with high corruption rates that enhance the momentum of broad-based development.

Examining the strengths and weaknesses of different national approaches can help identify priorities for governance reforms tailored to the local context. This is crucial because the extent of corruption in this region contains local and international prospects. Building more effective and accountable institutions of governance is critical for unlocking the development potential of West African economies. Corruption works against development objectives by diverting public resources into graft activities, distorting private sector incentives, and eroding trust in state authorities. From routine bribery to high-level embezzlement of funds, corrupt practices impede the delivery of critical services like healthcare, education, and infrastructure (Lambsdorff, 2001).

However, rooting out entrenched patterns of corruption requires not just disciplinary measures but all-inclusive efforts to increase transparency and accountability at all levels of government. There are no quick fixes, but sustained incremental efforts focused on building technical capacity, encouraging civic engagement, and closing off

opportunities for office abuse can shift incentives in a positive direction. How West African governments respond to these governance challenges will shape trajectories of inclusive growth and poverty reduction for future generations.

Only when standard quality institutions are established across all government authorities to guarantee efficiency and accountability will future generations enjoy sustainable and economic growth. This means that the government must operate more effectively and efficiently. Long-term economic growth is also significantly influenced by the effectiveness of the government. A thorough literature assessment has revealed a consensus regarding the significance of effective governance for long-term economic success. (Ogbebor & Ighodaro, 2019). Unlocking the economic potential of West African economies requires creating more efficient and transparent institutions of governance. To put it more clearly, what constitutes an effective governance structure? Who established this framework? And how they function to guarantee accountability and responsibility.

First and foremost, effective governance has a complex, multifaceted structure and is essential to all forms of human and economic growth. It is necessary to evaluate the effectiveness of good governance based on how well the relevant organization performs. Therefore, this institutional framework's primary goal must be precisely specified (Rahim, 2019). This thesis seeks to understand why most of these government structures in the region concerned have failed to achieve what is needed for their citizens.

The author argues that high levels of poor governance, inefficient administration, and endemic corruption in West Africa have deeper roots beyond institutional structure or quality. These systemic governance issues are ingrained in the region's cultural backgrounds, lack of moral responsibility, colonial legacies, widespread informal institutions, and deficiencies in patriotism or civic duty.

Despite recent advances in technical capabilities, quality research, and greater awareness of the need for economic reforms, many leading West African economies still need help achieving sustainable and inclusive development trajectories. The author questions what critical matters are being recklessly ignored or deliberately

overlooked due to personal self-interest by people in positions of power and authority. Even in countries that have tried implementing public administrative enhancements and anti-corruption measures, there has been little noticeable progress or success from these interventions. In some cases, the policy solutions have become tainted by the same destructive corruption afflicting the public sector (Bloom & Reenen, 2013).

To tackle these systemic governance and corruption challenges, the author advocates for policy approaches that appeal to moral values and pragmatic cost-benefit considerations. Creating functioning institutions demands not just formal rules but also the cultivation of shared integrity and commitment to ethical public service from citizens and leaders alike. As stakeholders in our respective nations, we all have a duty as moral agents to uphold specific standards related to human dignity, identity, and community regard. By instilling this baseline of individual and social responsibility throughout society and the political-administrative system, the author argues that institutional reforms will be able to overcome endemic corruption.

There must be a significantly heightened awareness of personal accountability for any private or public office. Most research analyses focus on the detrimental impacts of poor governance and corruption, but tracing the underlying structural and cultural factors that enable corruption to persist requires sensitive yet resolute confrontation. Through multifaceted dialogue and engagement, African scholars must uncover these problematic truths for West African countries to reinvent governance frameworks and foster new development models grounded in moral purpose and civic empowerment.

1.2. Brief Background of the West African States

The region features both Anglophone and Francophone nations, though all experienced exploitative colonialism. As numerous scholars describe, colonial legacies significantly shaped development, often negatively (Iverson & Dervan, 2019). Yet decades after formal independence, neocolonial ties persist for many West African states due to systemic corruption and governance failures enabling ongoing external interference (Trnovec, 2020). Political elites benefit from preserving post-colonial systems at citizens' expense. Despite rhetorical sovereignty, France maintains extensive financial and military sway over former colonies through the CFA franc

currency and defense pacts. Unless West African nations implement homegrown reforms to increase accountability and reduce leader corruption, they will remain restricted by institutional frameworks not entirely of their own making or interests (Simson, 1972). Accelerating development requires breaking from foreign-imposed models.

A study by Ocheni and Nwankwo (2012) on democracy in Africa concluded that most West African nations' primary roles as exporters of raw materials and importers of manufactured goods stem from colonial exploitation and enduring imperialist systems. Longstanding foreign domination has engrained economic dependence and underdevelopment. Furthermore, widespread corruption perpetuated by West African leaders seeking indefinite power stems from colonially imposed governance structures that concentrated authority in the hands of local elites loyal to colonial interests rather than citizens. The legacies of external exploitation have thus cultivated corruption, poor leadership, and lack of accountable institutions, hindering development decades after formal independence.

This is a classic example of France's ongoing economic colonization of 14 African countries. Among the countries considered in this study, eight are from West Africa. The CFA Franc was implemented as a monetary policy primarily to regulate the financial independence of 14 nations, which collectively have a population of around 200 million people. Although these nations display their flags at the United Nations, it is evident that the essence of imperialism remains unchanged. Nevertheless, how business is conducted has predominantly stayed unchanged. The primary distinction lies in the fact that imperialism was formerly spread through military forces and tanks; it is presently propagated through financial institutions such as banks and other financial schemes. While it is theoretically possible for anyone to make money, the challenging aspect is gaining acceptance of that money by others. Several African societies used cavalry and seashells as currency during the pre-colonial era. By 1800, these seashells had been so widely traded that they had an established exchange rate with the French franc. However, as they expanded their colonization efforts, they gained exclusive control over the production chain and imposed taxes. They achieved this by deploying armed troops to markets and forcing merchants to accept French money (Siradağ, 2014). In the 1930s, France exerted significant control over currency

circulation in French-speaking Africa. This facilitated their acquisition of African labor and raw materials at prices below the market rate while selling finished items back to Africa at prices over the market rate. This system was and still is ruthless by the French.

After World War II, the French Franc was devalued after a fixed exchange rate set to the US dollar due to adapting to the Bretton Woods system. Eventually, a weaker currency only added more problems to the African state that adopted the currency. In 1945, France introduced the CFA franc and forced all colonies to adjust it. In 1958, they established local collaborators and granted them statehood. These collaborations became custodians of Franc's Neo-colonial empire by maintaining the Franc Zone and deploying French military bases across the region (Lounnas, 2013). Without accepting this system, Franc typically responds by pension cuts to war veterans, cutting power supply, and even attempting to block the UN membership. Following the economic domination by the French, the CFA franc was split into two currencies covering the Central and West African states. In the mid-1970s, their respective central banks were established in Dakar and Yaoundé. This helped them maintain a veto power over banks, including a requirement that member states deposit 50% of their exchange reserves at the French treasury plus another 20% of their financial liabilities. Meaning member states retained access to only 30% of their money. Also, all foreign exchange conversation was to pass through the French treasury. This fiscal policy is set so that denominations are in Euros. Still, when accounts are in credit, the African Central Banks effectively placed their foreign exchange reserves in France. But when the central Bank's accounts are in debt, they must pay interest to the French treasury. In other words, the CFA member state pays France to hold on to their money.

France implemented a distinct colonial policy in Africa compared to England's approach. The British sought primarily to economically exploit resources and protect settlers' interests, with minimal integration. By contrast, France pursued a cultural and political assimilation strategy designed to fully integrate colonies (Sıradağ, 2014). However, despite rhetoric about spreading French culture, the overriding objectives were still resource extraction and boosting French international power. England pursued pluralist indirect rule, whereas France imposed centralized governance to assimilate elites into a national French identity (Francis & Ph, 2019). In reality, both

systems were exploitative, albeit via different structures. The English approach created ethnic divisions, while the French strategy fostered centralized corruption. West Africa continues dealing with the legacy effects of these misaligned institutions today.

Fundamental changes that allow citizens to once again define their countries' destinies based on local priorities and resourcefulness rather than external interests are necessary to break free from post-colonial corruption and resource reliance. To address political and socioeconomic challenges, the people and the governing body must build their distinct national identity, culture, economy, education, technology, etc., through effective administration, considering the many points of view.

1.3. Motivation of the Study

The motivation for this dissertation stems from West Africa's immense unrealized economic potential amid underdevelopment and governance failures rooted in historical legacies of colonialism. Theoretically independent but practically still constrained by post-colonial systems, the urgent need for structural economic reforms across West African nations drives this research endeavor. With abundant natural and human resources, West Africa should be able to maintain its position as a major hub for global growth. But the reality that exists now is depressing; it is rife with poverty, instability, and glaring disparities in living conditions. Decades after decolonization, the status quo still exists, with former colonial powers maintaining disproportionate influence over financial institutions and the direction of economic policy throughout their former territories. Practical sovereignty remains abstract.

The governing institutional frameworks and economic policy approaches inherited from the colonial era have continued to fail ordinary West Africans. What prevails is a structure of extractive institutions that concentrate wealth and power amongst small domestic elites with deep ties to external ex-colonial interests. Breaking this cycle requires systematic change centered on African imperatives, not unthinkingly following Western development models.

A primary motivating challenge for the author's dissertation is dissecting this intricate institutional exploitation topography through a uniquely West African analytical lens.

How many alternative frameworks for governance reconstruct post-colonial economies and dysfunctional states from the bottom up? Can a disagreeing body of research questioning dominant Western conceptions arise to allow fresh, Africa-centric development theory to emerge? Developing autonomous routes to prosperity based on inclusive economic institutions and accountability to marginalized groups requires addressing West Africa's current reality on its terms. That intellectual activity serves as the motivation for this work.

1.4. Research Gap

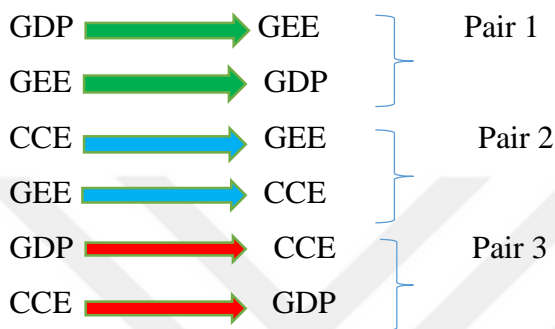
The study aims to address the following:

- Many studies have explored the relationship between corruption and economic growth or government effectiveness and development. They have frequently examined how each of the relevant variables affects growth separately. However, very little is known about the inter-dynamics and causality between the three variables, specifically for West African Nations.
- For most of the countries in this region, it was difficult to properly analyze the impact of the variables due to a lack of data. Afro-barometer summary survey data has been incorporated into this study to offer more insights into these factors.
- Minimal research examining how colonial history and institutional legacies may influence contemporary corruption and state capacity differences across West Africa.

1.5. Objectives and Hypothesis of the Study

This study aims to empirically examine the relationship between corruption, government effectiveness, and economic growth trends in the 16 countries constituting the West Africa region between 2003 and 2021. The analysis seeks to enumerate the magnitude and direction of causality linking systemic graft, institutional quality, and growth trends using panel data techniques. A core objective is determining the impacts of corruption on administrative systems and the resulting consequences for regional macroeconomic outcomes over time.

Beyond the analytical insights, the research highlights the urgent need for enhanced civic awareness and patriotism toward improved governance, especially among West Africa's youthful populations. By publicizing the high costs of corruption, the study hopes to galvanize public engagement and demand for increased transparency and accountability. The quantitative evidence aims to reinforce that reducing corruption is essential for unlocking West Africa's immense promise. To start with, the pair-wise analysis of the causality is as follows:



1.6. Research Hypothesis

This research examines the relationship between government effectiveness, corruption, and growth in the West African region. The study employed a multivariate causality testing method for all possible cases to ascertain the inter-dynamics between the relevant variables.

Case 1:

H₀: Corruption does not cause GDP

H₁: Corruption cause GDP

Case 2:

H₀: Government Effectiveness does not cause GDP

H₁: Government Effectiveness cause GDP.

Case 3:

H₀: Government Effectiveness does not cause Corruption.

H₁: Government Effectiveness Cause Corruption.

Case 4

H₀: Corruption and Government Effectiveness does not cause GDP

H₁: Corruption and Government Effectiveness cause GDP

Case 5:

H₀: Government effectiveness and GDP does not cause Corruption.

H₁: Government effectiveness and GDP cause Corruption.

Case 6:

H₀: GDP and Corruption does not cause Government Effectiveness

H₁: GDP and Corruption Causes Government Effectiveness

1.7. Significance of the Study

This study is essential as the first comprehensive empirical analysis explicitly focused on evaluating the relationships between corruption, governance effectiveness, and economic growth trends across the 16 major West African economies between 2003 and 2021. The panel data econometric approach will contribute to the literature by generating new evidence on the statistically estimated magnitudes and directions of causality connecting endemic corruption to weakened state capacity and hindered development in a region already struggling with poverty. Quantitatively demonstrating corruption's high costs can catalyze much-needed policy reforms.

The research will also provide actionable insights to inform regional bodies, national governments, civil society, and development partners in focusing anti-corruption efforts for maximal impact. Tackling corruption remains critical to achieving inclusive prosperity. This study aims to provide an essential empirical foundation for coordinated strategies tailored to West Africa's needs.

Moreover, the dissertation brings deserved scholarly attention to development issues in countries largely overlooked and under-prioritized in past academic works. Shedding light on persistent governance and corruption challenges afflicting lesser-discussed West African states can expand the consciousness of their struggles.

Finally, this study uniquely incorporates Afrobarometer survey data reflecting ordinary citizens' views across West Africa. This primary qualitative evidence highlights ground realities and struggles often overlooked in secondary statistical datasets. Capturing citizen perspectives provides crucial insights into how corruption and state ineffectiveness shape daily lives and frustrate aspirations. The on-the-ground

depictions amplify marginalized voices to reveal corruption's impacts rather than macro indicators alone more comprehensively. Including this grassroots lens significantly expands the research scope and thus contributes to the literature. In summary, this study can equip reformist movements with robust data demonstrating why a structural change to contemporary methods must become a reality.

1.8. Research Structure

This dissertation adopts the following structure:

Chapter 1 introduces the research context, objectives, and organization. Chapter 2 reviews relevant theoretical paradigms and empirical literature underpinning the analysis. Chapter 3 details the panel data and elaborates the econometric strategies employed. Chapter 4 presents results from the regression modeling and discusses key findings. Finally, Chapter 5 concludes by summarizing significant insights, reflecting on study limitations, and outlining evidence-based policy recommendations and promising avenues for future research.

CHAPTER II

LITERATURE REVIEW

2.1. Overview

This chapter consists of two sections. The theoretical review of government effectiveness, corruption, and growth is presented in the first section. The empirical study of this research is shown in the following section of this chapter.

2.2. Theoretical Framework

Governance and its concepts are not new; they have existed since the dawn of human civilization. Generally speaking, governance has existed in human civilization since the beginning of time when individuals learned how to live in a society by making decisions and establishing rules, laws, and policies to ensure a stable and peaceful environment. (Rahim, 2019). However, in the twenty-first century, the concept of good governance regarding democracy and economic growth became a research topic.

The definition of good governance evolves throughout time. Both social and political aspects influence government, as evidenced by modern literature. The term "*Governance*" is complex and subject to a wide range of examinations, making a final, conclusive definition challenging to come up with. In the 21st century, however, all of the notions of governance have slightly varying meanings and interpretations depending on the area of concern and how they are implemented. However, to be regarded as an excellent governing body, every administration must possess the following characteristics: " Constitutional Human rights and judicial protection, Political liberty, a stable currency, universal access to education and health care, and executive accountability to a democratically elected legislature (Rahim, 2019). Control of corruption, government effectiveness, political stability, and the absence of violence or terrorism are among the current World Bank governance indicators. Regulatory

quality, the rule of law, and the voice of accountability are all important factors. Thus, "Governance" is defined as "the process of making decisions and the process of implementing (or not implementing) those decisions." (Nations, 2013).

Both formal and informal contexts are involved in governance. As a result, both structures exist to apply certain laws and achieve a specific goal. Eight key attributes characterize good governance. The system is indicated by democracy, consensus-building, accountability, transparency, responsiveness, effectiveness, efficiency, equity, inclusivity, and adherence to the rule of law. It guarantees the reduction or eradication of corruption, the inclusion of minorities' viewpoints, and the representation of society's most vulnerable individuals in decision-making processes. It is pertinent to society's present and future needs (Nations, 2013). A significant number of the specified characters above only apply to the current governing body of most of these nations included in the study.

Corruption is another correlated variable. What is the relationship between governance, economic development, and sustainability? Understanding corruption will aid in determining who and where corruption has caused harm and what it implies for individuals, businesses, and the government. Finally, how is an act judged to be corrupt or not? The concept of corruption and how it is described in modern literature, particularly in governance and economic growth, has evolved dramatically in recent years. It has now reached a point where corruption is universally acknowledged as a global issue. It can be found in developing and developed countries, in both the commercial and public sectors and humanitarian and non-profit institutions (Myint, 2000). The prevalence of testimonies and claims of corruption in politics today surpasses any previous period. Governments have collapsed, the careers of globally recognized public figures have been harmed, and the reputations of esteemed organizations and corporate entities have been significantly disfigured. *Corruption is generally described as the abuse of entrusted power for personal gain. In other words, it is the misuse of public power for private or individual benefits.* Corruption erodes confidence, undermines democracy, stifles economic development, and exacerbates inequality, poverty, social division, and environmental crises (IMF, 2015). Corruption is similar to 'poverty' in that it seeks to explain something that exists in the actual world and can make people's lives unpleasant, however imperfectly (Harrison, 2007).

Following this definition, according to Myint (2000), a behavior or an act considered corrupt includes nepotism, embezzlement, fraud, extortion, bribery, cronyism, appropriation of public assets and property for private use, and influence peddling. Nonetheless, the definition of corruption can vary depending on the culture, event, or process in which it is seen. Corruption's effects and measurements of (poor and good) governance are linked to a country's per capita GDP and human development (Salihu, 2022).

Corruption is a significant hindrance to sustained economic growth and progress. A country's susceptibility to various socio-economic issues increases in proportion to its exposure to corrupt practices, especially among individuals responsible for overseeing public resources. According to Salihu (2022), Systemic corruption is widely regarded as the most detrimental force to society, as it incentivizes individuals to pursue fast and effortless wealth while eroding their motivation to work diligently and uphold principles of integrity and honesty. Corruption undermines transparency, accountability, and adherence to the rule of law. Furthermore, it negatively impacts the integrity of governmental organizations and authorities, eroding trust in good governance. Many academicians and researchers have illustrated how corruption weakens and supports poor governance. A study conducted by Salihu (2022) showed that countries with high levels of corruption allocate a smaller proportion of their resources towards human capital, including education, health, and other social services that directly benefit their population. In 2009, the African Union estimated that approximately \$140 billion was lost annually to corruption in Africa. To put that massive amount of money into perspective, Nuhu Ribadu (2009), a former Nigerian anti-corruption official, indicated that \$140 billion represents about 25% of the entire official gross domestic product (GDP) of all African nations combined (Ighodaro & Igbinedion, 2020).

While many studies have examined the connection between corruption and economic growth across various groups of countries over time (panel data), there still needs to be a clear scholarly consensus on the empirical relationship. Additionally, specific research analyzing corruption and growth within countries in West Africa has not been as extensive as studies in other geographical areas. So, more investigation is needed to

determine the precise effects of corruption on economic performance in West African nations, both separately and collectively.

As such, Theobald and Williams (1999) argue that defining corruption is complicated since it crosses disciplinary boundaries. For instance, Seldadyo and De Haan (2006) define public sector corruption as abusing delegated power within official institutions to illicitly benefit selected private individuals or groups. So, while many notions surrounding corruption are abstract and open to interpretation based on one's perspective, analyzing misconduct in the public arena tends to focus squarely on officials wrongfully exploiting public office privileges and resources to serve personal agendas rather than honor the public trust. Though definitions remain flexible, the public sector dimension encompasses violating authorities' mandated duty to serve community-centered interests ethically and equitably.

Corruption materializes across different economic sectors, including deceitfulness, fraud, bribery, embezzlement, extortion, nepotism, and favoritism. Two competing academic perspectives regarding the relationship between such corrupt behaviors and economic growth exist. On one side are those contending that some corruption may be intrinsic within specific political-economic frameworks. Thus, some manifestations can coincide with fiscal expansion, especially in autocratic state structures, such as the "Grease the Wheels Hypothesis" (Leff, 1964). They argue that bribery can serve beneficial purposes in bureaucratic environments burdened by substantial red tape and administrative inefficiency. Red tape refers to burdensome, time-consuming procedures and regulations that make completing essential government services or business activities difficult and slow. The other perspective argues that prevalent corruption impedes economic growth by reducing efficiency in production and obstructing innovation. This is known as the "sand in the wheel" (Mauro, 1998).

There are several other dimensions of corruption. Granovetter (1992) moralist perspective on corruption examines the principal-agent relationship. Principals refer to senior government decision-makers who dictate policies and oversee departmental activities. Agents indicate junior personnel like cleaners, messengers, clerks, drivers, and artisans who may access privileged information. The moralist view holds that agents may sell classified data illegally to outside principals willing to pay for

unauthorized access. So it conceives corruption as occurring when insider government employees improperly profit by providing restricted knowledge to external actors seeking undisclosed details they are not meant to possess through official channels, violating institutional confidentiality for personal gain. Booth (2012) expands on the principal-agent dilemma arising when principals cannot effectively monitor agents' work due to information imbalances favoring agents. Since agents directly handle implementation, they gain more excellent knowledge concerning policy details and programs. Meanwhile, principals in oversight roles need more full visibility. This asymmetry means agents can conceal incompetence, mismanagement, overbilling, or fraud due to principals' limited transparency into agents' activities. Essentially, agents exploit being the better-informed party to serve selfish interests rather than principals' directives. The monitoring impediment due to information accessibility thus enables agents' corruption by impeding full accountability for agents' decisions and performance per principals' objectives.

The moralists see corruption fundamentally as misdeeds disregarding ethical standards and provoking societal condemnation (Gould, 2002). For instance, Nye (2011) observed that corruption often involves abusing authority to improperly allocate favors, contracts, or resources towards connected associates like close family members or private colleagues. This clashes with merit-based administrative rules. So, from a moralist standpoint, the core issue with systemic corruption is undermining the integrity and fairness norms through self-serving actions prioritizing personal affiliations rather than public duties or qualifications. Such unethical practices explain the loss of social respect accompanying corruption.

In contrast to the moralist viewpoint, the *functionalist* perspective regards corruption as an essential governance mechanism serving necessary societal purposes in some contexts (Johnston, 2000). Specifically, functionalists see informal bribery, inducements, and similar rule-bending as practical means of accelerating weighty bureaucratic procedures that frequently hinder business activities or citizen services in developing and developed states. Rather than an ethical failing, systematic corruption is rationalized as an unavoidable byproduct of inefficient institutions, which corruption can help "lubricate" through illegal shortcuts. From this lens, informal workarounds

fueled by bribery may boost economic dynamism even while technically unlawful, highlighting functional values of corruption and supplementing formal processes.

However, a significant criticism of the functionalist view on corruption is its failure to account for political authority dynamics, personal incentives, and structural conditions that historically enabled graft to take root. Functionalists need to pay more attention to how power imbalances, self-interest, and social frameworks shape corrupt systems, assuming bribery uniformly speeds procedures without addressing why inefficiencies exist or how they become rooted. They thus disregard greed motives, exclude marginalized groups, neglect accountability, and poor institutional quality resulting from pervasive corruption over generations. In absolving corruption as merely smoothing operations, functionalists provide justifications without analyzing causes or cumulative societal impacts. A decontextualized perspective, therefore, limits functionalism's ability to explain why certain cultures and places struggle more than others with systemic corruption. This perfectly describes why most of these nations in the region work to handle corruption or establish anti-corruption agencies.

Another view of corruption traces it to "bad apple" individuals imposing selfish tendencies upon institutions. Often termed the "bad apple metaphor," this perspective regards greed, deception, and lack of integrity as innate human flaws held in check only through personal ethics and adequate safeguards. When wicked individuals inevitably assume power, they spread individual moral failings system-wide by prioritizing self-enrichment over responsibilities. Institutional corruption thus arises from the rotting influence of bad actors promoting personal agendas once they obtain positions that enable broader harm through graft and dishonesty. So this view perceives individual venality and shortcomings as the origin point that infects structures and cultures changed to accommodate corruption from the top down (De Graaf, 2007).

The organizational theory examines macro-level corruption from a sociological perspective, focusing on systemic and institutional factors rather than individual motives. This macro-level perspective sees corruption arising from lone unethical actors and as a cultural phenomenon ingrained within specific groups and organizational structures. Even well-intentioned new agents gradually assimilate

corrupt behaviors as the localized status quo in organizations where corruption and misconduct are normalized and rooted in regular operations. The culture perpetuates and spreads corruption to members once they adapt to an internal system rewarding and normalizing graft. In essence, failing to assimilate means betraying the organization's established patterns. So, corrupt institutions exclude and penalize principled non-conformity in effect. This imposes intense compliance pressures upon new personnel to actively participate in corruption once an organization reaches systemic levels (Punch, 2000).

Furthermore, the public choice theory, noted by Rose–Ackerman (2008), regards corruption as a rational calculation by public servants weighing potential personal gains against risks and penalties. This view sees officials as self-interested actors who elect to engage in corrupt practices like bribery, embezzlement, or fraud when they feel the rewards for themselves or associates outweigh prospective costs if caught. The public choice perspective recognizes that corruption reflects predictable human behavior responding to cost-benefit calculations around violating the public trust. For more emphasis, Klitgaard (1988) also noted that people will continue to engage in corrupt practices when the benefits of being corrupt are greater than the disadvantages.

The last theory discussed in this part is the Policy-oriented theory, which was introduced by (Nas et al., 1986). Their stance on corruption mainly revolves around political science and economic domains, focusing on government corruption. They also determined that a lack of thorough corruption monitoring contributes to increased corruption, and if high-level corruption is not addressed, it can impede economic progress.

The theories above illustrate corruption's extensive intricacy and influence on governance and economic development. After studying many viewpoints and reasons, one might conclude that corruption, as an unjustifiable behavior or act, stems from cultural, individual, political, and economic factors (Gründler & Potrafke, 2019). Thus, disorganized societies, like those found in West African countries, suffer from uncontrolled criminal activities, mismanagement of resources, poor institutional quality, and severe criminal behaviors due to formal and informal social disintegration (Mo, 2001). Consequently, neighborhoods with weak social structures may have

negative consequences such as inadequate health and educational services, changes in ethnicity or culture, a rise in unemployment, and inefficient government. Tackling widespread corruption requires addressing its numerous underlying causes, from individual ethics to the highest government levels, to reinforce socioeconomic integrity at all levels.

2.3. Empirical Analysis

There has been a considerable debate between governance and corruption for many years. For the record, many researchers found a negative relationship between governance and corruption. For example, in 1998 and 1999, surveys in four Latin American nations (El Salvador, Nicaragua, Bolivia, and Paraguay) revealed that people exposed to corruption had lower political credibility and interpersonal trust (Rose–Ackerman, 2008). Some of the participants in the Latin American countries were asked if bribing facilitates getting things done. Participants who agreed that corruption gets things done were those who had a wrong impression of their current political institution and government system. Even at the corporate level, this unbalanced transaction method exists. Firms tied to or have a proper network with the government are more successful than those just running a business (IMF, 1998). Overall, the author believes that a lack of competition affects the efficiency and effectiveness of an industry.

As a result, citizens and businesses avoid paying taxes and engage in illegal transactions and bribery in an economy with poor government authority or credibility (Rose–Ackerman, 2008). Under certain situations, Gupta et al. (2001) discovered that corruption promotes social inequality and uneven distribution of income/wealth, resulting in an arrogant and undemocratic society. The disparity is low in a society with minimal corruption because income distribution appears moderate, with little concentration in one social group. Conversely, more significant levels of corruption indicate increased inequality and low per capita income (Salihu, 2022). Payment of taxes and proper use of public funds to deliver and manage fundamental services are two examples of how the government provides for its citizens. When people lose faith in the system or a government loses public legitimacy, the end effect is tax avoidance and evasion, as well as underground dealings such as corporations and individuals

paying bribes to avoid bureaucratic burdens and hiding income (Salihu, 2022). This was the case in The Gambia, particularly under the previous administration. Citizens have lost faith in government institutions and have lost hope: massive resource mismanagement and poor management. Corruption severely reduces the effectiveness and efficiency of government (Robinson, 2020). Recent empirical studies using panel data on multiple countries over time have found evidence confirming an inverse correlation between the two factors. Specifically, Boussalham (2018), employing particular panel estimation techniques, established an inverse relationship for a sample of 160 countries. Likewise, Gründler and Potrafke (2019) attained an inverse relationship in an analysis encompassing 175 countries. Tidiane (2019) also reached similar conclusions in research focused solely on the West African Economic and Monetary Union region. So, although theoretical justifications remain ambiguous, these empirical examinations utilizing diverse panel data methodologies on country sets - including an analysis specific to West Africa - consistently demonstrate that higher corruption levels correlate to lower GDP growth rates. More research is still warranted, but the empirical trend across these studies conclusively points to corruption hampering development among the countries investigated.

Mo (2001) conducted an empirical study on Hong Kong from 1970-1985 utilizing ordinary least squares and two-stage least squares analysis. The findings revealed that political instability is the primary way corruption hinders economic growth. Corruption was also shown to diminish human capital development and private investment levels. Ahmad et al. (2012) conducted separate studies on 60 and 71 countries to assess corruption's impact on economic growth, employing random effects modeling and Generalized Method of moment estimations. Though the timespan was unspecified, both methodologies produced comparable results. The findings revealed an inverted U-shaped relationship between corruption and growth, indicating corruption initially rises with income up to a point before decreasing. Additionally, secondary school enrollment and foreign direct investment positively influenced growth, while primary enrollment had an unexpected adverse effect. Overall, their cross-country analysis concluded that the relationship between corruption and economic performance follows a parabolic Inverted-U pattern, with schooling and foreign investment as key determinants. However, primary schooling showed a counterintuitive negative association. Amin, Ahmed, and Zaman (2013) studied the

corruption-growth relationship in Pakistan from 1985-2010. Using variables integrated of order one, they found education spending and population growth had significant positive correlations with economic growth, measured by per capita income. Conversely, domestic investment and corruption showed a substantial negative relationship. This implies that corruption and inadequate domestic capital undermined Pakistan's economic performance despite investments in education and a growing population base during the period analyzed.

Another interesting study conducted by Odi (2014) presented a comprehensive analysis of the impact of corruption on Nigeria's economic growth. The writers acknowledged a substantial decrease in corruption in Nigeria due to implementing anti-corruption measures, although they did not provide any scientific or statistical evidence to support this claim. They additionally observed that corruption tarnishes the reputation of a nation and results in financial losses. Mikaelsson et al. (2014) also studied the impact of growth in corruption on developing countries from 2002-2010. They found corruption had an insignificant effect while democracy negatively impacted growth, contrary to expectations. Furthermore, the human capital proxies of primary education completion and life expectancy were positive but insignificant determinants. So, for this dataset, corruption did not demonstrate the substantial detrimental associations found in many analyses of developing countries. The authors posit that corruption may impose fewer constraints in lower-income contexts than in more advanced emerging economies. The insignificant effects of education also diverge from typical findings. Overall, their counterintuitive results underscore the complexities of corruption's growth linkages within heterogeneous developing country groups. The paper emphasizes the importance of contextual and methodological factors in empirical corruption studies. D'Amico (2015) analyzed corruption and growth across China using unbalanced panel data and the Generalized Method of Moments as an estimation technique. The findings showed that corruption and population growth negatively impacted economic growth at the 1% level. Conversely, illiteracy, life expectancy, population, exports, and foreign direct investment demonstrated statistically significant positive associations with growth as expected.

Thach et al. (2017) studied 19 Asian countries from 2004 to 2015 to assess the effect of corruption on economic growth using panel data models. Their fixed effects,

random effects, and dynamic GMM estimations found that corruption significantly hinders growth in Asian economies. However, they noted that bribery can shortcut bureaucratic red tape. The comprehensive methodology provides robust evidence of corruption's negative impacts despite potential efficiency gains from informal payments. By analyzing different Asian developmental contexts, the study underscores corruption's consistent drag across the region's economies. The paper highlights the importance for Asian countries to curb corruption to unlock their full growth potential. Ondo (2017) investigated the relationship between corruption and economic growth in the Economic and Monetary Community of Central Africa during 2005–2015. The findings revealed that corruption, civil liberties, human capital, and public expenditure exhibit inverse relationships with growth. On the other hand, there is a positive relationship between private investment and trade openness. The analysis generally emphasizes the detrimental connection between corruption and inadequate governance, education, and poor distribution of public resources.

Gründler & Potrafke (2019) conducted an extensive cross-country empirical analysis on 175 countries during 2012-2018 utilizing the generalized method of moments estimation. They found significant adverse effects of corruption and its lagged values on economic growth. Additionally, rail infrastructure, net migration flows, interpersonal globalization, and trade openness showed a significant positive relationship with economic growth; however, overall economic globalization related negatively. The extensive sample provides robust evidence of the damaging impact of corruption by confirming its persistent drags on growth across diverse country contexts. Meanwhile, the results highlight constructive roles for targeted globalization, immigration, and trade in spurring growth if corruption can be controlled.

Hoinaru et al. (2020) tested the competing "sand the wheels" and "grease the wheels" hypotheses on corruption's economic impacts using a 185 country panel from 2005-2015. Correlation analysis showed strong interrelationships among variables. Fixed and random effects estimations found inconsistent corruption-growth correlations. However, corruption and shadow economy size demonstrated a significant negative relationship with economic development. The inverse corruption relationships support the "sand the wheels" theory that systemic corruption obstructs economic

performance. Though not definitive, the large sample provides evidence of corruption's predominantly detrimental effects.

However, not all studies have found an inverse relationship between corruption and economic growth. Notably, Saha & Sen (2019) have conducted research that revealed instances where corruption can have a positive relationship with economic growth instead, especially in particular autocratic nation-states. This contrasts with the inverse relationships typically found in democratic governments. So, while most empirical findings suggest corruption usually hampers productive output across varied samples of countries, exceptions exist under autocracies in which some forms of corrupt activities like bribery and cronyism may counterintuitively correlate to higher short-term growth results. The forms and incentives behind these positive autocratic relationships require further investigation. But Saha and Sen analysis highlights that corruption does not automatically or uniformly deter growth under all political systems or regimes. Instead, they conclude there is nuance and variation in the corruption-economy dynamism based on the type of government in place. A more targeted study of which structural and situational factors may enable corruption to obstruct or boost fiscal expansion will be valuable. However, those critical of the idea that corruption can benefit autocratic states contend that over more extended periods, normalized corruption is still likely to impact national governance and economic development negatively. They argue that widespread corruption fosters a detrimental culture of lawlessness and a lack of accountability. When bribes, kickbacks, and elite favoritism are commonplace, it progressively erodes adherence to rules and regulations in both the public and private sectors. Regardless of potential irregular short-term growth, critics maintain that the outcome of highly corrupt systems is undermining fair and equitable institutions, property rights, business contracting, and public services. As already established, conceptualizing corruption depends on the researcher's perception and viewpoint.

Bitterhout and Simo-Kengne (2020) also conducted a panel analysis of BRICS countries from 1996 to 2014 using fixed effects and GMM estimation. They found that corruption had a significant direct relationship with economic growth. The variables also demonstrated long-run equilibrium relationships. This BRICS-focused study contradictorily indicates that corruption may not hinder and could potentially boost

growth, unlike most cross-country analyses. The authors suggest this result stems from BRICS contextual factors enabling corruption to play a more functional role, especially in the period examined earlier.

Also, Ighodaro and Igbinedion (2020) found that the variables were integrated in order one and cointegrated. The direct corruption-growth relationship supports the "grease the wheels" rather than the "sand the wheels" hypothesis for the West African countries examined. The results imply that certain forms of corruption may enable faster growth to some degree but highlight that corruption should not be encouraged at any level of government. The key objective of this paper is to empirically determine the relationship between corruption, governance, and economic growth within the West African region. As evidenced by the varying theoretical perspectives and empirical results discussed, there still needs to be a definitive scholarly consensus established regarding the impact of corruption on economic development, and rigorous examinations focused on West Africa remain limited. Therefore, this study aims to help fill the gap in understanding the effects of corruption in the West African context through an empirical analysis of the correlation between corruption, effective governance, and growth trends across nations in the region. The quantifiable findings will provide more precise conclusions on whether and how corruption has hindered development in a region afflicted by governance challenges. The literature review reveals conflicting perspectives and findings regarding corruption, governance, and growth relationships. While arguments exist on both sides, the predominant view is that widespread corruption hampers development. However, most existing studies utilize data beyond West Africa, leaving this region relatively under-examined, especially about all three variables. Minimal research has delved into the impact of colonialism on recent institutional inheritances across West Africa.

The ambiguous and context-dependent relationships found underscore the need for a focused analysis of how corruption, state capacity, and growth interact within West African nations to inform targeted reforms. As things stand, the corruption-governance-development nexus remains to be empirically clearer for many countries in the region. Overall, the literature synthesis highlights a significant gap and opportunity to generate new evidence and insights tailored to the West African context through rigorous empirical analysis of the inter-dynamics between.

CHAPTER III

METHODOLOGY

3.1. Overview

This chapter describes the vital methodological strategies utilized to empirically examine the complex interrelationships between economic growth, corruption, and governance effectiveness across West Africa. Grounded in a review of relevant estimation techniques in the literature, the analysis employs Panel data on real GDP growth rates and composite indices of perceived corruption levels and government effectiveness for the 16 countries constituting the region.

3.2. Data Source and Sample Size

This study employs exclusively secondary panel data from the World Bank's World Governance Indicators and World Development Indicators to investigate the complex interrelationships between corruption, governance effectiveness, and economic growth across 16 West African countries from 2003 to 2021. The sample encompasses the following states: Benin, Burkina Faso, Guinea-Bissau, Cape Verde, The Gambia, Ghana, Guinea, Ivory Coast, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, and Togo. Selecting these 18 years for the 16 countries balances the objective of maximizing temporal and geographic coverage for robust statistical analysis while working within data availability constraints, as some missing values require careful consideration.

The primary outcome variable in the dataset is annual Gross Domestic Product (GDP) growth rates for measuring broad economic performance. The two explanatory variables of primary interest are Control of Corruption estimates (CCE) and Government Effectiveness estimates (GEE) compiled by the World Bank using composite survey-based perception indicators from multiple observers and expert

assessments. Additionally, the regression modeling employs instrumental variables - Regulatory Quality (RQ) and Rule of Law (RL) - to account for possible endogenous relationships when estimating the impact of corruption and state capability on growth.

Leveraging this comprehensive data compilation spanning 16 West African countries over 18 years, the ensuing quantitative analysis evaluates the hypothesized dynamic linkages and directional causality between changing real GDP expansion rates, perceived public sector corruption control, and governmental institutional effectiveness over the study period. Both institutionalist and classical economic theories motivate examining how governance and corruption indicators may influence economic outputs.

3.3. Cross-Sectional Dependence Test

Cross-sectional dependence tests analyze whether relationships exist across observation units (such as countries) within a dataset for a given period. Specifically, the statistical analysis evaluates if the data values for one country demonstrate correlation or co-movement with those of other countries in the sample. This tests for the presence of spatial interdependencies reflecting interconnectedness.

Applying cross-sectional dependence testing is imperative for panel data assessments involving multiple countries. Economic shocks or developments in one state can propagate outward through trade, financial, or confidence channels, creating economic spillovers. Crises rarely remain localized. Thus, assuming full cross-country independence risks overlooking these interlinkages in what may be an inherently dependent system, invalidating findings. By formally checking dependence first, subsequent model choices for dealing with possible ripple effects across countries can be informed.

While panel data analysis extends time series methods to a cross-section of countries, that multi-country dimension may feature latent relationships wherein observations are not truly separate. Cross-sectional tests help diagnose whether predictors co-evolve across units in some dependent fashion due to the transmittal of economic shocks and disruptions. The results shape the ensuing analytical steps.

For example, economic performance in The Gambia exhibits interdependence with neighboring Senegal due to trade and financial linkages. A growth surge in one can affect the other, while a crisis transmits adverse impacts. Thus, accurately determining the presence and degree of cross-sectional dependence is imperative before selecting appropriate econometric models to estimate the relationships between variables across countries. The preliminary test for correlation across panel data observations utilizes a Lagrange multiplier statistic that Breusch and Pagan developed to check for dependence by examining if error terms are correlated.

The famous preliminary test for correlation across panel data observations utilizes a Lagrange multiplier statistic that Breusch and Pagan (T. S. Breusch & A. R. Pagan, 1980) developed to check for dependence by examining if error terms are correlated. Pesaran expanded on this method by making it applicable to datasets with limited cross-sectional units and a finite number of countries. The Pesaran cross-sectional dependence test thus suits typical panel data environments in macroeconomic analyses. By running this diagnostic test, we obtain information that guides subsequent model specifications estimating drivers of national growth trajectories and related variables. The equation supporting the test statistic takes the following form:

$$CD_{lm} = T \sum_{i=1}^{N-1} \sum_{j=i+1}^N \hat{\rho}_{ij}^2$$

In the equation $\hat{\rho}_{ij}^2$ denotes the sample estimate reflecting the correlation between the error terms for each pair of countries i and j in the panel data. Calculating all possible combinations of this residual correlation coefficient provides an overall test statistic. However, this Breusch-Pagan LM test suffers reduced reliability when applied to panels with smaller sample sizes, as is typical with country-level data. Therefore, Pesaran formulated an improved cross-sectional dependence test better suited for panels featuring finite numbers of cross-sectional units N . It works by directly utilizing the pair-wise correlation coefficients $\hat{\rho}_{ij}$ themselves instead of their squares as in the LM test. This helps stabilize test performance for limited N cases. By correlating residuals, it still effectively checks if errors demonstrate interrelationships across panel units, indicative of cross-sectional dependence in the data. Hence, the Pesaran test

(Pesaran, 2021) delivers more accurate dependence diagnostics suitable for a country-level macroeconomic analysis with restricted sample size dimensionality. This is formulated as follows:

$$CD = \sqrt{\frac{2T}{N(N-1)}} \left(\sum_{i=1}^{N-1} \sum_{j=i+1}^N \hat{\rho}_{ij} \right)$$

In the Pesaran cross-sectional dependence test equation, the null hypothesis assumes errors are independent across panel data units, reflecting a lack of correlation amongst countries. If we fail to reject this null case, subsequent modeling assumes cross-sectional independence.

However, rejection implies the existence of dependence, meaning errors demonstrate significant interrelationships between panel observations. This verification of dependence must then inform model specifications accounting for the cross-sectional dependence.

Unlike the Breusch-Pagan LM test limitations, Pesaran's formulation reliably accommodates data environments inclusive of between-unit heterogeneity, non-stationarity from unit roots, dynamic adjustment effects, and constrained sample sizes arising with country panel data. Thus, it is a flexible diagnostic check well-equipped for macro-econometric evaluations of interdependencies amongst national time series. The results guide analytical approaches and perfectly suit our scenario where $N = 16$ and $T = 18$. The two tests were employed for comparison purposes, and the results suggest a significant cross-sectional dependence in the following chapter.

3.4. Slope Homogeneity Test

A slope homogeneity test formally examines whether the estimated relationship between a predictor and outcome variable, as measured by regression slope coefficients, significantly differs across subgroups in the panel data. The technique of testing for homogeneity of regression slope coefficients across groups within a panel was pioneered by P. A. V. B. Swamy (1970) to examine uniformity in the estimated

impacts of a variable in panel data environments through slope analysis on cointegrating equations. Based on Swamy's groundbreaking methodology, Pesaran and Yamagata developed augmented slope homogeneity tests more appropriate for finite sample numbers. In addition to $\tilde{\Delta}_{adj}$ variations that improve stability for settings with greater cross-sectional dimensions, they presented $\tilde{\Delta}$ statistics for small N panel data (Hashem Pesaran & Yamagata, 2008). These test measurements made it possible to conclude coefficient heterogeneity that was more exact and thorough.

$$\tilde{\Delta} = \sqrt{N} \left(\frac{N^{-1}\tilde{S} - k}{\sqrt{2k}} \right) \sim \chi^2_k$$

$$\tilde{\Delta}_{adj} = \sqrt{N} \left(\frac{N^{-1}\tilde{S} - k}{var(T, k)} \right) \sim N(0, 1)$$

N denotes the number of cross-sectional units, while k reflects the number of individual coefficients within a parameter. The null hypothesis assumes slope homogeneity across panel groups. However, base $\tilde{\Delta}$ formulations require error terms serially uncorrelated for validity, a strong assumption. Blomquist & Westerlund (2013) introduced Heteroscedasticity and Autocorrelation Consistent (HAC) variants, termed Δ_{HAC} and $(\Delta_{HAC})_{adj}$, to overcome limitations of slope homogeneity tests requiring homoscedasticity and serially uncorrelated errors. These robust formulations allow the relaxation of restrictive statistical assumptions. As a result, the Δ_{HAC} and $(\Delta_{HAC})_{adj}$ were employed for more reliability.

$$\Delta_{HAC} = \sqrt{N} \left(\frac{N^{-1}\tilde{S}_{HAC} - k}{\sqrt{2k}} \right)$$

$$(\Delta_{HAC})_{adj} = \sqrt{N} \left(\frac{N^{-1}\tilde{S}_{HAC} - k}{var(T, k)} \right) \sim N(0, 1)$$

Implementing both tests allows confirmation of slope heterogeneity findings through multiple robust diagnostics. As elaborated in the next chapter, results for key variables pointed towards coefficient non-uniformity across West African economies, violating

assumptions of homogeneity. Reported statistics reject slope uniformity, thereby necessitating the existence of heterogeneity in subsequent modeling.

3.5. Unit Root Test

The preliminary cross-sectional dependence tests revealed significant correlations amongst the error terms across different country units in the panel data. This suggests material economic and financial interlinkages, wherein developments in one nation impact others. Additionally, slope coefficient estimates differed substantially between models, indicating across-country heterogeneity - a lack of uniformity in relationships.

These findings carry implications for properly evaluating stationarity, the order of integration for variables, and non-spurious associations. First-generation panel unit root tests assume cross-sectional independence and coefficient homogeneity, which is violated here. Instead, second-generation unit-root tests must be leveraged to check stationarity in these dependencies and parameter variations between panel data units. The appropriate diagnostic statistics can determine integration orders while considering transmission mechanisms causing interconnectedness observed across West African economies.

Given the verified cross-sectional dependence in the data, we implemented advanced panel unit root tests designed to accommodate interconnectedness. The Fisher-type approach combines p-values from individual cross-sectional augmented Dickey-Fuller (CADF) tests run separately on each country series. This allows for heterogeneity while checking stationarity jointly. Meanwhile, the CIPS test proposed by Pesaran directly constructs a panel test statistic based on averaging CADF statistics across countries, assessing serial correlation in the residual terms (Pesaran, 2014).

Unlike first-generation tests assuming cross-sectional independence, the Fisher and CIPS diagnostics for non-stationarity are compatible with economic and financial interlinkages observed between West African economies. By accounting for dependence and heterogeneity, they avoid distorted inferences on variable stationarity that could undermine causality assessments. The results help determine orders of integration to avoid spurious regressions.

The mathematical function is written as:

$$\Delta y_{i,t} = \alpha_i + b_i y_{i,t-1} + c_i \bar{y}_{t-1} + d_i \bar{y}_t \varepsilon_{i,t}$$

In the CADF test equation above, $\Delta y_{i,t}$, reflects the change in the cross-sectional mean across the panel. This accounts for common factors and potential spatial dependence. The term α_i is predetermined, and ρ denotes the lag parameters. Meanwhile, \bar{y}_t represents the cross-sectional average across panel units at each point in time t . The widely known Cointegrating Augmented Dickey-Fuller (CADF) statistic is associated with the ratio of α_i is $t_i(N, T)$. Aggregating the entire panel's set of individual CADF metrics generates an overall test statistic for evaluating joint stationarity in the presence of cross-sectional dependencies amongst the panel data observations (Westerlund et al., 2016). By quantifying integration orders through this approach, subsequent regression modeling can avoid drawing misleading interpretations. Following the regression analysis, all concerned variables are stationary at level I (0).

3.6. Causality

As one of the central themes of this research, the study also conducted a panel causality test to assess the inter-dynamics between our variables. A statistical analysis known as a causality test is employed to ascertain if a one-time series variable has a causal influence on another variable across time. To be more precise, it determines if the current value of one variable (Y) is statistically significantly impacted by the past or present values of another variable (X). This examines whether variations in X lead to and aid in forecasting changes in Y. However, the panel features cross-sectional units (counties) over periods. So basically, there are two dimensions: a cross-sectional time dimension. The most common approach to these methods is the Granger test, which analyzes the causality's direction (e.g., either one-way or binary). When causal linkages exist, cross-spectral analysis is a valuable method for describing lead-lag interactions between variables.

By breaking down correlated events into the frequency domain, it measures the strength (coherence) and timing (phase shift) of relationships between different spectral bands (Granger, 2008). Evidence for causal links, where the leader "Granger-

causes" the lagged, is shown by solid coherence at specific cyclical components and phase shifts verifying one series leading the other. Cross-spectral approaches improve economic investigations aiming at modeling causal drivers by reducing the prediction trends and lag to a minimum and validating causation hypothesis across frequencies. Determining frequency-specific metrics such as phase and coherence makes examining potential differences in causal linkages over short-, medium-, and long-term oscillations easier. For more evaluation, this study employed two distinct causality tests, namely, the noncausality test in heterogeneous panel data developed by Dumitrescu & Hurlin (2012) and a bias-corrected Granger causality test improved by (Xiao et al., 2023). Their model specifications and estimation techniques are discussed below, respectively.

The first model by Dumitrescu and Hurlin is specified;

$$y_{i,t} = \alpha_i + \sum_{k=1}^K \gamma_{ik} y_{i,t-k} + \sum_{k=1}^K \beta_{ik} x_{i,t-k} + \varepsilon_{i,t}$$

The panel vector autoregression model specifies the observation of two stationary variables $x_{i,t}$, and $y_{i,t}$ for each cross-sectional variable i over period t . The coefficients linking lagged values of x and y to current outcomes can vary across individual units i as denoted by the i subscripts. However, the coefficients are assumed to be time-invariant. The panel is considered balanced with identical lag length K across all units. By regressing x on its lags and those of y , plus regressing y on its own and x 's lags, Granger causality can be tested for in both directions, exploiting the dual dimensions of the panel data structure. The country-specific coefficients provide estimates summarizing the distribution of causal effects across the panel.

The model specification by Xia et al. takes the following dynamic panel-data model.

$$y_{i,t} = \phi_{0,i} + \sum_{p=1}^P \phi_{p,i} y_{i,t-p} + \sum_{p=1}^P \beta_{p,i} x_{i,t-p} + \varepsilon_{i,t}$$

Where $i = 1, \dots, N$ and $t = 1, \dots, T$. The equation $x_{i,t}$ is written as a scalar for simplicity and applicability. The term $\phi_{0,i}$ captures individual country effects. $\varepsilon_{i,t}$ represents the error terms. $\phi_{p,i}$ denotes the autoregressive coefficients linking the p lags of x to current x , which vary across countries. Finally, $\beta_{p,i}$ shows the feedback effects from the lagged y to current x , which also differ across countries. These $\beta_{p,i}$ coefficients are key for checking if changes in y predict changes in x across time lags p . Estimating them allows testing Granger causality running from y to x in the panel data. Juodis et al. (2021) previously developed the same estimation technique before the modified version with Xia highlighted above. Both models follow similar patterns in testing for Granger causality. This paper employed Dumitrescu-Hurling and Juodis et al. for more evaluation and reliability. For emphasis, Juodis et al. model specification takes the following form;

$$y_{i,t} = \phi_{0,i} + \sum \phi_{p,i} y_{i,t-p} + \sum \beta_{q,i} x_{i,t-q} + \varepsilon_{i,t}$$

The key distinction between the causality testing techniques centers on estimation efficiency tied to convergence rates. The enhanced approach put forward by Xiao et al. leverages a pooled estimator with a faster convergence rate proportional to the square root of the cross-sectional dimension N multiplied by the periods T . This faster convergence speed for the pooled effect aggregating information across panel units fuels superior performance in detecting actual causal links, measured through size and power metrics. This multivariate causality testing approach demonstrates additional advantages, including applicability for systems with more than two variables, maintained power against a spectrum spanning both homogeneous and heterogeneous causal relationship alternatives, and compatibility with panels exhibiting forms of cross-sectional dependence and heteroscedasticity. Which perfectly suits our modeling based on the data set available.

3.7. GMM (Two-Step Estimator)

A dynamic panel estimator is an advanced econometric approach well-suited for panel data analysis exhibiting three primary features - a lagged dependent variable as a predictor, explanatory variables demonstrating endogeneity, and unobserved

heterogeneity. These techniques explicitly model temporal dependencies and causal lags, allowing previous outcomes to influence current ones. Additionally, they address the likelihood of correlation between explanatory indicators and error terms, which biases conventional methods. Finally, they control for omitted fixed characteristics that could skew findings when comparing across panel members.

Through instruments and data transformations, dynamic panel estimators bypass the substantial shortcomings of applying basic pooled OLS techniques to rich panel data. OLS fails to account for serial correlation induced by lagged dependent variables, remains vulnerable to endogenous regressors, and disregards time-invariant country-specific effects. Yet simply incorporating lags, tackling endogeneity concerns, and adding fixed effects remain beyond OLS capabilities. This makes OLS inconsistent.

In response, methodological innovations like the Arellano-Bond estimator Arellano & Bond (1991) and Blundell & Bond (2003) System GMM estimator provide pathways for unbiased estimation in dynamic panel settings. By leveraging internal instruments crafted from previous observations and converting the data into differential formats, these estimators obtain consistent and efficient coefficient estimates even in the presence of dynamics, endogeneity, and heterogeneity. Their methods align well with modeling economic relationships using country-level panel data where autocorrelation, non-exogenous predictors, and unobservable are intrinsic features, not aberrations. Thus, for macro-econometric investigations, dynamic panel approaches drive more precise insights.

The basic concept of the dynamic panel estimator initially followed the simple regression below.

$$\Delta y_{it} = \alpha \Delta y_{i,t-1} + \Delta \mathbf{x}'_{it} \beta + \Delta v_{it}$$

$u_{it} = \mu_i + \varepsilon_{it}$ and $\varepsilon_{it} \sim N(0, \sigma^2_\varepsilon)$, α is the autoregressive parameter, $y_{i,t-1}$ is the lagged dependent variable, \mathbf{x}_{it} is the vector of independent variables.

The Arellano-Bond dynamic panel estimation approach involves first differencing all predictor variables in the model to eliminate time-invariant fixed effects. With the data converted to reflect changes over time, the method then employs a generalized method of moments (GMM) estimation strategy building on instrumental variable techniques developed by (Hansen, 1982). Specifically, past lags of the endogenous regressors are utilized as instruments for the differenced variables. This difference in GMM allows consistent estimation in the presence of endogenous explanatory indicators correlated with the errors. Combining variable transformations and instrumentation, the Arellano-Bond estimator provides an efficient means for unbiased modeling of dynamic relationships between economic variables in panel data environments where omitted fixed effects and endogeneity issues would otherwise undermine analysis.

Building on the advances of difference and system GMM estimators for dynamic panel data analysis, Roodman (2009) highlighted potential limitations tied to the time dimension T and the number of cross-sectional units N in the panel. Specifically, as the periods T grow, the instrument count can expand exponentially under conventional difference and system GMM specifications, lowering estimation efficiency and weakening standard hypothesis tests. Moreover, invoking cluster-robust standard errors or Arellano-Bond serial correlation tests for panels with smaller N could further undermine inference. Thus, while difference and system GMM marked improvements through managing endogeneity and unobserved heterogeneity, their properties related to instrument specifications and reliability of diagnostic testing require attention. Roodman's research stimulated refinements in dynamic panel data modeling techniques (`xtabond2`) considering the finiteness of both T and N , paving the path for subsequent enhancements better designed for shorter macro panels with limited cross-sections. His caution on estimation diagnostics remains an important consideration.

Subsequently, the identity matrix is used as the weighting matrix in the first step estimation of the two-step GMM technique to provide an initial consistent estimate. The efficient GMM estimator then adds efficiency in the second iteration by using the estimated variance-covariance matrix from the first step rather than the identity. The second step, which appropriately weights the moment conditions to achieve asymptotic efficiency—to come as close as feasible to unknown actual parameter values in vast samples—is hence the key novelty. However, this conventional method

could suffer from the downward bias proposed by (Windmeijer, 2005). Through simulations, Windmeijer confirmed that the two-step efficient generalized method of moments estimators produces coefficient estimates that are moderately improved than those of one-step estimators in dynamic panels. These estimators also have lower distortions and increased precision. Furthermore, the reported standard errors obtained from the two-step approach show improved reliability after employing his correction algorithm. Based on the comparison evidence, two-step estimation with adjusted standard errors is marginally better than cluster-robust one-step GMM estimation. As a result, our research model selection eventually followed this estimation technique. Results and discussion are displayed in the following chapter.

3.8. Afrobarometer Summary Results Round 9 (2022)

While the empirical results have provided vital quantitative insights into the relationships between corruption, governance, and growth trends in West Africa, this study also aims to incorporate direct citizen perspectives on corruption and institutional performance within their nations. The Afrobarometer round 9 (2022) primary survey data summarized above offers on-the-ground representations of the impact of corruption and governance realities from ordinary West Africans' experiences. This grassroots qualitative view enriches the statistical findings by highlighting how widespread bribery, public sector mismanagement, and abuse of power undermine service delivery, entrepreneurship, and trust in authorities, as reported by citizens. By including the voices and stories of individuals, we can highlight how quantitative methods may underestimate or completely overlook some types of corruption. The synthesis of data-driven and lived experiences creates a more comprehensive understanding of the far-reaching ways systemic corruption and poor governing bodies affect daily lives and economic potential across West Africa.

The survey questions are carefully selected based on their relevance to the variables included in the study. Participants provided perspectives on the direction of the country, the impact of democracy today, current economic condition, crimes committed by both officials and ordinary people go unpunished, people involved in corrupt practices (mainly presidents and their officials), and government performance in terms of managing the economy, creating jobs, and fighting corruption within the government institutions.

CHAPTER IV

RESULTS AND DISCUSSIONS

In this section of the thesis, it is crucial to carefully look at the descriptive statistics of the dataset to have an overall idea about the data examination. With that perspective, the main objective of the research is to evaluate the relationship between corruption, governance, and growth rate within the West African states. This research also highlighted differences in economic performances and methods of administration. This includes from the colonial system to the modern-day ruling methods. Having that in mind as a primary goal, it is necessary to conduct an initial analysis of the available data and information to make an informed decision to understand the research concept. The preliminary test analysis includes summary statistics, determining the panel cross-sectional dependence, slope homogeneity, unit root, and causality. Findings from this analysis will aid in determining the method that is best suited for this data set. Eventually, this initial information can be utilized to make a well-informed statistical inference and provide insights for policy recommendations. The final objective of this research is to enlighten more broadly about the profound level of corruption and ineffective government system and how to encounter this problem. More broadly, providing rigorous quantitative evidence around the economic costs of corruption and poor governance can motivate urgently needed policy actions. Illuminating the billions lost annually to corrupt practices and poor administration helps transmit the profound human impacts of misallocated resources that stall inclusive development. Proving this new perspective can help develop new anticorruption strategies and improve institutional quality within our administrative system.

4.1. Summary and Descriptive Statistics

Undertaking descriptive statistical analysis is essential before conducting more complex data analysis. Descriptive statistics summarize overall trends and distributions within the research data set. An overview of the primary variables,

including their summary statistics, such as central tendency and dispersion measures, provides insight into the key relationships and findings. Discussion of these summary statistics lays the groundwork for subsequent evaluation and interpretation.

Table 4.1. Summary and Descriptive Statistics

Variable	Obs	Mean	Std. dev.	Min	Max
CCE	304	-1.608	.519	-2.581	.035
GEE	304	.194	.026	.161	.361
GDP	304	3.311	4.293	-31.145	19.716
RQ	304	-.651	.361	-1.855	.267
RL	304	-.676	.503	-1.612	.662

The summary statistics table reveals preliminary insights. Real GDP growth rates exhibit the highest mean at 3.311%; however, this remains a dull expansion pace, demonstrating the broader development struggles across the region. Among governance proxies, regulatory quality and the rule of law indices carry negative average values, sharply conveying institutional weaknesses and failures in securing basic social contracts. Yet corruption's relatively elevated standard deviation of 0.519 highlights widespread corruption variations between better and worse-performing countries - disparities that severely obstruct convergence over time. Ultimately these initial metrics foreground the urgency for anti-corruption reforms to build accountability and effectiveness while warning that corruption, in the long run, will retard growth and compromises all governing bodies.

4.2. Cross-Sectional Dependence

The table presents results from several cross-sectional dependence tests well-suited for macroeconomic panel data environments. The Pesaran CD metric detects correlation across panel units. Meanwhile, the Juodis-Reese CDw test and Fan-enhanced CDw+ variant improve detection accuracy for smaller samples. Finally, the Pesaran-Xie CD*

demonstrates particular applicability for limited cross-section dimensions, as is common when analyzing interdependencies between countries over time.

Table 4.2. Cross-Sectional Dependence

	<i>CD</i>	<i>CD</i>	<i>CD_{w+}</i>	<i>CD*</i>
CCE	4.20	3.01	1.62	179.98
	(0.000)	(0.003)	(0.106)	(0.000)
GDP	0.38	4.20	0.41	91.10
	(0.703)	(0.000)	(0.679)	(0.000)
GEE	3.01	35.80	-2.57	389.65
	(0.003)	(0.000)	(0.010)	(0.645)

The parenthesis represents the P-values, (***) (**), and (*) represents the statistical significance at 1%, 5%, and 10% respectively.

Based on the data mentioned above, one can deduce that, overall, there exists a pronounced interdependence across various variables, a logical occurrence given that the countries under consideration originate from a common geographical region and engage in comparable economic and administrative management. Therefore, we reject the null hypothesis that there is weak cross-sectional dependence.

4.3. Slope Homogeneity Test

The slope homogeneity test evaluates if estimated relationships between variables diverge across panel members, with rejection implying parameter heterogeneity. Assuming homogeneous slopes when underlying coefficients prove heterogeneous risks severely biased, inconsistent findings. Thus, formally assessing slope variations via Blomquist & Westerlund (2013) and test statistics constitutes a vital test before model selection.

Table 4.3. Slope Homogeneity Test

Test	Delta	Delta _{adj}
Pesaran, Yamagata	69.187***	6.367***
Blomquist, Westerlund	84.736***	7.493***

Notes: (***), (**), and (*) represent statistical significance at 1%, 5%, and 10% levels, respectively. Similarly, while *Delta* and *Delta_{adj}* represent the “simple” and “mean-variance bias adjusted” slope homogeneity tests.

From the findings, we reject the hypothesis that states that slope coefficients are homogeneous. The data results are statistically significant at a 1% level, showing the non-uniformity of the slope coefficients. Since heterogeneity is concluded, the final estimation techniques must consider this factor for reliability.

4.4. Unit-Root Test (Second Generation)

The initial diagnostics revealed significant variances in slope coefficients and cross-country error correlations, suggesting both heterogeneity and economic and financial interdependencies. This goes against the independence and homogeneity standards required for first-generation panel unit root testing to determine stationarity correctly. It is now necessary to use advanced second-generation tests resistant to found dependencies and parameter variations to assess integration order accurately. Regression modeling can be guided by credible statistics analyzing variable non-stationarity, even after considering shock transmission pathways and relationship diversity between countries. The below outlines the order of integration and the estimation techniques used.

Table 4.4. Unit-Root Test (Second Generation)

Variable	CADF		CIPS	
	Constant	Constant Trend	Constant	Constant Trend
CCE	-2.897***	-3.394***	-2.897***	-3.494***

Table 4.4. (cont.)

GDP	-3.519***	-3.622***	-3.419***	-3.722***
GEE	-2.668***	-3.180***	-2.668***	-3.080***
RQ	-4.573***	-4.549***	-4.473***	-4.649***
RL	-4.063***	-4.063***	-4.163***	-4.063***

Note: The numbers in the table represent the critical T-bar value of test statistics. (***), (**) and (*) represent the statistical significance at 1%, 5%, and 10%, respectively.

The panel unit root test results from the cross-sectionally augmented Dickey-Fuller (CADF) and cross-sectionally augmented IPS (CIPS) diagnostics indicate consistent stationarity for all model variables in levels form. Across the board, test statistics reject the null hypothesis of a unit root at high significance levels for corruption control, government effectiveness, GDP growth, regulatory quality, and the rule of law indices after accounting for cross-sectional dependencies.

This verification of joint stationarity avoids spurious regression concerns that could undermine causal analysis since trending non-stationary series often exhibit high descriptive correlations absent underlying meaningful relations. By rigorously confirming stationarity using a range of metrics and robust cross-country correlations, we ensure that asymptotic properties necessary for unbiased hypothesis tests apply in this dataset spanning 16 West African economies over 18 years at annual frequency. Parameter consistency and efficiency rely on the established overall stability of statistical moments central to the indicators utilized in the study.

4.5. Causality Tests

To assess causal relationships between time series variables, causality tests examine whether lagged values of one variable X significantly predict or improve forecasts of another variable Y over time. In a panel data setting, this underlying principle also extends across the additional cross-sectional dimension of units like countries. Panel causality techniques thus leverage the dual dimensions to evaluate predictive relationships over time and across entities. The predominant approach applies principles of Granger-causality through vector autoregressive frameworks,

quantifying the strengths and lags of connections in either one-way or bidirectional causal paths. This paper employed two different estimation techniques outlined below for more evaluation.

Table 4.5. Causality Test 1

Null-Hypothesis/ Methods	Dumitrescu and Hurlin (2012)	
	Z-Bar	Probability
GDP <i>does not cause</i> GEE	3.351***	0.000
GEE <i>does not cause</i> GDP	1.775*	0.075
CCE <i>does not cause</i> GEE	2.122**	0.033
GEE <i>does not cause</i> CCE	1.356	0.174
GDP <i>does not cause</i> CCE	0.136	0.891
CCE <i>does not cause</i> GDP	1.174	0.240

(***), (**), and (*) represents the level of significance at 1%, 5%, and 10% respectively.

We discovered a bidirectional causing relationship between GDP growth and government effectiveness across all panels, although at varying significant levels, based on the Dumitrescu and Hulin Granger causality test. Based on the data results, we can deduce that the level of government effectiveness in the past and present has an impact on the current GDP growth value, which is statistically significant. This is consistent with the body of research suggesting that economic development or growth is predicted to rise in conjunction with an increase in institutional quality and government effectiveness and vice versa. While there is a one-way causal relationship between corruption and government performance, there is no evidence of a direct relationship between GDP growth and corruption. This only suggests that corruption's past or present values statistically impact the degree of government effectiveness across all panes. Highlighting once more how pervasive corruption is and how it undermines our administrative structure.

Table 4.6. Causality Test 2

Null-Hypothesis/ Methods	Juodis et al, 2021	
	Z-Bar	Probability
GDP <i>does not cause</i> GEE	1.95***	0.051
GEE <i>does not cause</i> GDP	-1.68*	0.093
CCE <i>does not cause</i> GEE	-3.83**	0.000
GEE <i>does not cause</i> CCE	0.99	0.321
GDP <i>does not cause</i> CCE	1.84*	0.066
CCE <i>does not cause</i> GDP	0.45	0.651

(***), (**), and (*) represents the level of significance at 1%, 5%, and 10% respectively.

Like Dumitrescu and Hurling, we found similar results from the improved Granger non-causality test by Juodis et al. (2021). The table above provides compelling evidence of a bidirectional causal relationship between GDP growth and government effectiveness, supported by both analyses. Using the most recent estimating method, we discovered that the levels of corruption statistically influenced the GDP rate past or present values across panels for at least one panelvar. Corrupt practices and the effectiveness of government are showing similar trends, with a unilateral causal relationship. These findings led to the development of the modeling strategies and the linear structure of the relevant variables in this study.

4.6. Empirical Model Specification

Upon all causality testing, the study employed the following model estimation;

$CCE = f(GDP, GEE)$ Model 1

$GEE = f(GDP)$ Model 2

Equations (1) and (2) were re-specified to include the parameters as follows:

$CCE_{it} = \beta_0 + \beta_1GDP_{it} + \beta_2GEE_{it} + \epsilon_{it}$ 3

$GEE_{it} = \beta_0 + \beta_1GDP_{it} + \epsilon_{it}$ 4

Where:

GDP = Growth Domestic Product (Percentage of annual growth)

CCE = Control of Corruption Estimate

GEE = Government Effectiveness Estimate

ε = Error Term

β = Slope Coefficient

4.7. Estimation Results – Two-Step Generalized Methods of Moments

After rigorously examining the panel dataset along an array of diagnostic dimensions, including summary statistics, tests for cross-sectional dependence and slope heterogeneity, checks for non-stationarity through second-generation procedures, and contemporary causality approaches, appropriate modeling specifications can be tailored to the revealed data attributes. These comprehensive preliminary analytics inform the ultimate selection of a two-step generalized moment dynamic panel data estimator method for the research objectives.

Contextual clarity guides adopting a flexible but robust framework by identifying noticeable features of the data encompassing cross-country relationships, parameter variations, lead lag, and relationship feedback reversals. Seeking to unravel the intertwined two-way and multidirectional connections between corruption, government effectiveness, and growth rates necessitates a technique to handle endogeneity concerns, heterogeneity in responses across countries, and standard macro-financial shocks or policy ripples spreading across borders. Among available estimators designed for finite sample macro data contexts, the two-step efficient GMM approach proves well-suited for consistent estimation and precise inference even as the complex correlations verified through diagnostics require accommodation that is not feasible under strict assumptions.

Table 4.7. Dynamic Panel-Data Estimation, Two-Step System GMM 1

Variables	Model1 (coefficients)
CCE lag	-0.880***
GEE	-0.760***
GDP	-0.005**
AR1 (Coefficient) for weak instruments	-2.91***
Hansen test statistics	-0.411***

(***), (**), and (*) represents the level of significance at 1%, 5%, and 10% respectively.

Table 4.8. Dynamic Panel-Data Estimation, Two-Step System GMM 2

Variables	Model1 (coefficients)
GEE lag	0.908***
GDP	0.008**
AR1 (Coefficient) for weak instruments	-3.19***
Hansen test statistics	-1.311***

(***), (**), and (*) represents the level of significance at 1%, 5%, and 10% respectively.

We determined corruption as the dependent variable in the first table to analyze the causal relationship. The causality findings from the previous chapter serve as a guide for the selection process. Clearly, at a significance level of 1%, there is a negative correlation between corruption and GDP growth and government effectiveness. This is in complete accordance with the literature emphasizing how serious corruption is in West Africa. In terms of percentage, corruption will drop by about 76% for every 1% rise in government efficiency. This highly significant figure highlights the value of a high-quality institutional system. In general, corruption within the system can be significantly reduced for a better country if governance quality increases. In basic terms, the results from the AR1 and Hansen tests indicate how strong or weak the instrumental variables are. These two proxies are undoubtedly essential in the fight against corruption and in promoting development. Minimizing corruption, strengthening government effectiveness, and accelerating economic expansion may potentiate a virtuous cycle, granting urgent priority to policy reforms.

Model two is a straightforward regression designed to provide more evidence regarding how the governing body's effectiveness can influence the regional economy's success. Based on the tabulated data, a strong statistically significant positive correlation exists between GDP growth rates and government effectiveness ratings across West African countries. This indicates that within this analysis, nations with higher scores on metrics of government effectiveness, such as quality of public and civil services, policy formulation, public sector independence from political pressures, and credibility of government commitments, also experienced higher GDP growth. Conversely, countries with lower government effectiveness ratings exhibited slower annual economic growth.

This positive relationship and high significance suggest that improving the quality, credibility, and independence of governmental institutions and policymaking corresponds to more robust economic performance in the West African context. A practical, functional public sector facilitates economic prosperity rather than impeding it. Therefore, the data affirm that West Africa's developmental progress over the measured period has relied substantially on enhancements in governance and state institutional quality across the region. Initiatives to reduce corruption, increase accountability, and refine public sector competencies in West African nations are further supported by the evidence of this empirical linkage between effective governance and economic growth.

Table 4.9. Let the People Have a Say

Country	DC	DT	PCE	GP			Corruption (POA)			CC O	OCC
				ME	CJ	FCG	Some	Most	All		
BEN	40	27.6	17.5	39	45	57.1	54.9	21	8.3	24.3	60.7
BFA	80.6	37	24.4	24.2	43	27.9	41.3	31.4	10	47.3	33.2
CPV	63	42	29	20	32	18	34	11	9	25	50
CIV	44.1	30.4	22.9	25.9	37	28.7	46.2	21.7	14	43.3	27.1
GMB	78.5	42.0	64.8	71.3	75	72.0	35.0	29.4	21	34.2	42.9
GHA	87.7	32.6	68.6	62.6	63	63.8	39.6	32.1	22	37.1	50.9
GIN	63.3	41	37.8	41	68	26.5	47.3	18.4	10	33.1	36.8

Table 4.9. (cont.)

LBR	74	32.5	48.5	62.5	73	71.3	31.3	31.2	31	39	54.7
MLI	30.7	51	40.9	21.9	30	19.9	35.7	16.2	10	32.8	27
MRT	44.3	19.4	22.3	36.8	51	36	41	19.5	17	34	34.3
NER	53.3	33.0	28.4	38	32	31	56.9	15.6	6	36.8	34.9
NGA	88.7	50.5	62.3	62.5	62	56.4	34.4	37.7	21	30.7	46.7
SEN	71.1	42.0	41.7	42.4	52	39.5	42.7	29.6	12	42.6	26.5
SLE	66.8	21.5	48.5	49	50	24.4	46.8	20.8	10	33.6	58.5
TGO	56.3	28.7	34	37	47	27	42.4	24.7	15	34.6	39.2
Average	63	35	38	42	51	40	42	24	14	33	42

Notes: DC denotes the direction of the country, DT represents Democracy today, PCE denotes the present economic condition, and GP denotes government performance in terms of managing the economy (MC), Creating Jobs (CJ), and Fighting corruption. POA denotes corruption within the admin, CCO denotes crimes committed by officials, and OCC denotes crimes committed by ordinary people and go unpunished.

Whereas the empirical results showed vital quantitative insights into the relationships between corruption, governance, and growth in West Africa, the Afrobarometer findings aim to incorporate citizens' qualitative perspectives on these issues. The table above illustrates participant responses regarding the impacts of democracy, current economic conditions, government performance, corruption among officials, impunity for crimes, and opinions on the country's overall trajectory. This primary data provides on-the-ground assessments of state effectiveness, corruption, and development from ordinary West Africans based on their lived experiences. Their voices offer a grassroots depiction of governance and corruption's economic consequences, enriching the statistical correlations with personal stories of frustration, inequality, and unmet aspirations occurring in communities across the region.

Except for Guinea Bissau, which is not included in the summary statistics, an average of nearly 63% of citizens who participated in the survey believed their country was heading in the wrong direction. A significant percentage primarily demonstrates the frustration of individuals advocating for a more substantial societal change. Furthermore, a considerable portion of the participants, precisely 38%, said that the

economy's current condition about its development and productivity is generally unfavorable and demoralizing.

The government's performance in managing the economy, creating employment opportunities, and combating corruption within government institutions is regarded very poorly, with ratings of 41%, 51%, and 40%. If governments cannot generate enough job opportunities due to inadequate economic management and have been ineffective in combating corruption within the administrative system, achieving sustainable growth will be challenging.

Participants also expressed their perspective on those engaged in corrupt practices, explicitly targeting the president and administrative authorities. 42% of the participants indicate that some are corrupt, while 24% firmly claim that most are corrupt. Additionally, 14% of all participants from the corresponding 15 countries believe they are corrupt. These figures depict the incomprehensible extent of these horrible acts in this area, yet appropriate measures have not been implemented to mitigate them.

Beyond that, 33% of the participants reported that the crimes committed by officials are frequently not penalized or held accountable for. Nevertheless, the data indicates that a significant portion of offenses committed by average individuals are typically met with punishment. In other words, they are primarily apprehended or held responsible for their actions. Under typical circumstances, individuals, whether they have positions of authority or not, should be held accountable and answerable for whatever wrongdoing they commit, regardless of their societal or institutional status. It is essential to provide equitable and unbiased treatment of every individual to foster a more prosperous and harmonious society.

Finally, 35% of the respondents assert that major economic problems are primarily associated with modern-day democracy. Not all democratic principles guarantee peace, freedom, and a healthy economy. From this standpoint, it is probable that democracy, particularly in developing economies, might adversely impact the economy if the notion of democracy is misinterpreted, as is often the case in the region. It should be noted that pre-colonial nations and Western economic partners play a

significant role in implementing and promoting the majority of democratic principles. The impact will vary due to disparities in institutional frameworks and levels of economic development.

Breaking free from post-colonial corruption and resource reliance requires fundamental reforms empowering citizens to shape their countries' futures again based on local priorities and ingenuity rather than external interests. Given the many viewpoints, the people and the governing body must establish their unique native identity, culture, economy, education, technology, etc., using effective administration to address political and socio-economic challenges.



CHAPTER V

CONCLUSION AND POLICY RECOMMENDATION

5.1. Conclusion

The objective of the research paper was to analyze the relationship between corruption, government effectiveness, and GDP growth for West Africa from 2002 to 2021. In addition to assessing the overall correlation between governance, corruption, and economic growth in West Africa, this study also seeks to analyze potential differences based on democracy levels, culture, colonialism history, informal institutions, and other influencing factors across West African countries. The goal is to uncover why certain nations demonstrate lower corruption, more effective government, and higher growth than others in the region. Examining variances can shed light on which specific cultural traditions, colonial legacies, natural resource dependencies, and formal and informal institutional structures have enabled good governance versus graft to take root in particular West African countries. Identifying key determinants behind differing corruption and institutional quality outcomes can help inform tailored policy reforms suitable for specific national contexts across West Africa. A more nuanced analysis of influential background conditions can support anti-corruption and governance enhancement efforts.

This study conducted extensive diagnostic testing to comprehensively understand the dataset properties and identify suitable analytical techniques, including descriptive statistics, cross-sectional dependence tests, slope homogeneity tests, unit root tests, and causality tests. These pre-estimation procedures provided crucial insights into the variables' data structure, relationships, and panel characteristics. Based on the diagnostic results indicating panel data features such as cross-sectional correlations, the two-step generalized method of moments (GMM) dynamic panel estimation approach was most appropriate for carefully modeling the relationships between corruption, government effectiveness, and growth. This data-driven selection of

advanced panel data econometric modeling ensures accurate, reliable empirical findings that account for the data complexity. The GMM estimations subsequently generated significant results highlighting how corruption and government effectiveness significantly influence growth trends across the West African region.

The empirical analysis strongly reveals a significant negative relationship between corruption and government effectiveness. It also showed a negative correlation between GDP growth and corruption. Specifically, the results estimate that corruption decreases by approximately 76% for every 1% increase in government effectiveness. These findings confirm the expected research hypotheses of corruption declining as institutional quality and good governance improve. These results powerfully validate policy and civic efforts to strengthen formal governance institutions as antidotes to systemic corruption and mismanagement across the region.

World Bank governance indicators were used to ascertain this relationship. As indicated in the data output, the current situation in the West African state is discouraging, and the governments must find effective strategies to combat corruption to meet their people's requirements. Furthermore, several research publications examined for analysis conform with this data output. Other intriguing findings include the possibility that an individual's attitude or personality attribute, particularly that of high-ranking officials, can influence government performance and corruption in an economy.

From this perspective, minimizing corruption requires a solid legal structure and patriotism and prioritizing the public interest above any personal gain or profit that may hurt others. In short, regarding the general public's interest, corruption in any economy is terrible. However, depending on the rule of law, culture, and other socio-economic aspects, assessing corruption based on what acts should be judged as corrupt and what should not may differ.

5.2. Recommendation

This article is part of a more extensive study investigating the effects of corruption and governance. It identified areas where resources should be directed toward fighting corruption, strengthening governance, and promoting democratic principles and ideas.

The first line of policy recommendation is to redesign programs and update to more advanced systems through E-Government, where almost everything can be monitored online. This could also help avoid underground payments or illegal transactions that could harm the general public. Another way for the government to increase its credibility is to promote accountability and transparency within all formal institutions and inclusiveness of individuals from all backgrounds. With a diverse working environment, corruption is minimized, and efficiency increases.

Strengthening anti-corruption agencies in less and more corrupt West African countries through enhancements to investigative and enforcement infrastructure and reforms to the overall political climate can help attract more significant investment and stimulate economic growth across the region. Nations should focus on building anti-corruption institutions' operational capacity and political autonomy. Additionally, diversifying national economies beyond reliance on primary commodities can foster more sustainable long-run development and macroeconomic stability. Diversification helps curb corruption related to resource rents while expanding economic complexity and resilience.

West African nations should pursue financial, governance, and development strategies tailored to contemporary contexts rather than outdated colonial-era systems. Establishing modernized, independent policy frameworks suited to national challenges and capacities can help accelerate growth and reform. This involves assessing what lingering colonial institutions, laws, and economic structures may perpetuate dependence, inequality, and corruption versus those providing beneficial foundations upon which to build. Establishing and prioritizing effective surveillance of activities for public services is also essential. This will also enhance the institution's quality and the administrative system's effectiveness.

Finally, leveraging technology like AI-assisted audits, e-procurement systems, and digital payment trails may modernize oversight and accountability as emerging tools for anti-corruption efforts. A combination of institutional, economic, social, and technological efforts tailored to national challenges can help West African countries better control corruption.

As for future researchers, using primary data might give more precise insights into this issue since the panel might be unable to capture individual country-specific effects due to data.



REFERENCES

- ADB. (2007). Africa's Natural Resources : The Paradox of Plenty. African Development Bank Report, 13:54, 96–141.
- Afonso, A., & de Sá Fortes Leitão Rodrigues, E. (2022). Corruption and economic growth: does the size of the government matter? In *Economic Change and Restructuring* (Vol. 55, Issue 2). Springer US. <https://doi.org/10.1007/s10644-021-09338-4>
- African Development Bank, 2018. (2018). West Africa Economic Outlook West Africa Economic Outlook.
- Ahmad, E., Ullah, M. A., & Arfeen, M. I. (2012). Does corruption affect economic growth? *Latin American Journal of Economics*, 49(2), 277–305. <https://doi.org/10.7764/LAJE.49.2.277>
- Akinbode, S., Olabisi, J., Adegbite, R., Aderemi, T., & Alawode, A. (2020). Corruption, Government Effectiveness and Human Development in Sub-Saharan Africa. *Journal for the Advancement of Developing Economies*, 16–34. <https://doi.org/10.32873/unl.dc.jade912>
- Almula-Dhanoon, M., & Ahmed, A. (2012). The Effect of Corruption on Economic Growth in the Light of Governance Variance. *Tanmiyat Al-Rafidain*, 34(109), 186–199. <https://doi.org/10.33899/tanra.2012.162005>
- Arellano, M., & Bond, S. (1991). Some Test of Spesification for Data Panel: Monte Carlo Evidence and an Aplication of Employment Equations. *The Review of Economic Studies*, 58(2), 277–297. doi:10.2307/2297968
- Blomquist, J., & Westerlund, J. (2013). Testing slope homogeneity in large panels with serial correlation. *Economics Letters*, 121(3), 374–378. <https://doi.org/10.1016/j.econlet.2013.09.012>
- Bloom, N., & Reenen, J. Van. (2013). 濟無No Title No Title No Title. NBER Working Papers, May 2023, 89. <http://www.nber.org/papers/w16019>
- Blundell, R., & Bond, S. (2023). Reprint of: Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics*, 234, 38–55. <https://doi.org/10.1016/j.jeconom.2023.03.001>
- Booth, D. (2012). Africa power and politics: Development as a collective action problem: Addressing the real challenges of African governance. In *The African Power and Politics Programme*. (Issue October).
- Boussalham, H. (2018). The Consequences of Corruption on Economic Growth in Mediterranean Countries: Evidence from Panel Data Analysis. Preprints, February. <https://doi.org/10.20944/preprints201802.0065.v3>

- D'Amico, N. (2015). Corruption and Economic Growth in China: An Emirical Analysis. Senior Honors Projects., 78, 1–14. <http://collected.jcu.edu/honorspapers/78%0AThis>
- De Graaf, G. (2007). Causes of Corruption: Towards a Contextual Theory of Corruption. *Public Administration Quarterly*, 31(1), 39–86.
- Dumitrescu, E. I., & Hurlin, C. (2012). Testing for Granger non-causality in heterogeneous panels. *Economic Modelling*, 29(4), 1450–1460. <https://doi.org/10.1016/j.econmod.2012.02.014>
- Emmanuel, O. K., Oladipo, A. O., & Philip, O. O. (2019). Corruption, Institutional Quality and Economic Growth in West African Countries (1995-2017). *Journal of Public Administration and Governance*, 9(2), 217. <https://doi.org/10.5296/jpag.v9i2.14915>
- Francis, A., & Ph, O. (2019). British and French Colonial Influence on African Education : A comparative Study of Nigeria and Senegal. 224–234.
- Granger, C. W. J. (2008). Investigating Causal Relations by Econometric Models and Cross-Spectral Methods. *Essays in Econometrics Vol II: Collected Papers of Clive W. J. Granger*, 37(3), 31–47. <https://doi.org/10.1017/ccol052179207x.002>
- Granovetter, M. (1992). Economic Institutions as Social Constructions: A Framework for Analysis. *Acta Sociologica*, 35(1), 3–11. <https://doi.org/10.1177/000169939203500101>
- Gründler, K., & Potrafke, N. (2019). Corruption and economic growth: New empirical evidence. *European Journal of Political Economy*, 60(August). <https://doi.org/10.1016/j.ejpoleco.2019.08.001>
- Hansen, lars peter. (1982). Large Sample Properties of Generalized Method of Moments Estimators Author(s): Lars Peter Hansen Source: *Econometrica*, 50(4), 1029–1054.
- Harrison, E. (2007). Corruption. *Development in Practice*, 17(4–5), 672–678. <https://doi.org/10.1080/09614520701469971>
- Hashem Pesaran, M., & Yamagata, T. (2008). Testing slope homogeneity in large panels. *Journal of Econometrics*, 142(1), 50–93. <https://doi.org/10.1016/j.jeconom.2007.05.010>
- Hoinaru, R., Buda, D., Borlea, S. N., Văidean, V. L., & Achim, M. V. (2020). The impact of corruption and shadow economy on the economic and sustainable development. Do they “sand the wheels” or “grease the wheels”? *Sustainability (Switzerland)*, 12(2). <https://doi.org/10.3390/su12020481>
- Ighodaro, C. A., & Igbinedion, S. O. (2020). Corruption and Economic Growth in West Africa. *Jejak*, 13(2), 265–279. <https://doi.org/10.15294/jejak.v13i2.24228>
- Iverson, B. L., & Dervan, P. B. (2019). No 主観的健康感を中心とした在宅高齢者における健康関連指標に関する共分散構造分析Title. 7823–7830.

- Johnston, M. (2000). *Corruption and democratic consolidation*. New York, April 1999, 38.
- Juodis, A., Karavias, Y., & Sarafidis, V. (2021). A homogeneous approach to testing for Granger non-causality in heterogeneous panels. *Empirical Economics*, 60(1), 93–112. <https://doi.org/10.1007/s00181-020-01970-9>
- Lambsdorff, J. G. (2001). *How corruption in government affects public welfare*. Cege Discussion Paper.
- Leff, N. H. (1964). *Economic Development Through Bureaucratic Corruption*. *American Behavioral Scientist*, 8(3), 8–14. <https://doi.org/10.1177/000276426400800303>
- Lounnas, D. (2013). The Regional Fallouts of the French Intervention in Mali. *Mediterranean Politics*, 18(2), 325–332. <https://doi.org/10.1080/13629395.2013.799351>
- Mauro, P. (1998). Corruption and the composition of government expenditure. *Journal of Public Economics*, 69(2), 263–279. [https://doi.org/10.1016/S0047-2727\(98\)00025-5](https://doi.org/10.1016/S0047-2727(98)00025-5)
- Mikaelsson, A., Sall, S., & Blomskog, S. (2014). Does corruption have a significant effect on economic growth? 40.
- Mo, P. H. (2001). Corruption and Economic Growth. *Journal of Comparative Economics*, 29(1), 66–79. <https://doi.org/10.1006/jcec.2000.1703>
- Myint, U. (2000). CORRUPTION: CAUSES, CONSEQUENCES AND CURES. *Asia-Pacific Development Journal*, 7(2).
- Nas, T. F., Price, A. C., & Weber, C. T. (1986). A Policy-Oriented Theory of Corruption. *American Political Science Review*, 80(1), 107–119. <https://doi.org/10.2307/1957086>
- Nations, U. (n.d.). What is Good Governance ?
- Nye, A. J. S., & Nye, J. S. (2011). Corruption and Political Development : A Cost-Benefit Analysis CORRUPTION AND POLITICAL DEVELOPMENT : A COST-BENEFIT ANALYSIS *. 61(2), 417–427.
- Ocheni, S., & Nwankwo, B. C. (2012). Analysis of colonialism and its impact in Africa. *Cross-Cultural Communication*, 8(3), 46–54. <https://doi.org/10.3968/j.ccc.1923670020120803.1189>
- Odi, N. (2014). Impact of corruption on economic growth in Nigeria. *Mediterranean Journal of Social Sciences*, 5(6 SPEC. ISSUE), 41–46. <https://doi.org/10.5901/mjss.2014.v5n6p41>
- Ogbebor, T. O., & Ighodaro, C. A. (2019). Corruption , Government Effectiveness and Economic Growth : The case of ECOWAS. *Journal of Economics*, December 2019.
- Ondo, A. (2017). Corruption and Economic Growth: The Case of EMCCA. *Theoretical Economics Letters*, 07(05), 1292–1305. <https://doi.org/10.4236/tel.2017.75088>

- P. A. V. B. Swamy. (1970). Efficient Inference in a Random Coefficient Regression. *Econometrica*, 38(2), 311–323.
- Pesaran, M. H. (2014). *Journal of Applied Econometrics*. 21(August 2012), 1–21. <https://doi.org/10.1002/jae>
- Pesaran, M. H. (2021). General Diagnostic Tests for Cross Section Dependence in Panels. *SSRN Electronic Journal*, September 2004. <https://doi.org/10.2139/ssrn.572504>
- Punch, M. (2000). Police corruption and its prevention. *European Journal on Criminal Policy and Research*, 8(3), 301–324. <https://doi.org/10.1023/A:1008777013115>
- Rahim, A. (2019). Governance and Good Governance-A Conceptual Perspective. *Journal of Public Administration and Governance*, 9(3), 133. <https://doi.org/10.5296/jpag.v9i3.15417>
- Roodman, D. (2009). *Roodman2009.Pdf*. 1, 86–136.
- Rose–Ackerman, S. (2008). Corruption and Government. *International Peacekeeping*, 15(3), 328–343. <https://doi.org/10.1080/13533310802058802>
- Saha, S., & Sen, K. (2019). The Corruption – Growth Relationship: Do Political Institutions Matter? *WIDER Working Paper 2019/65*, 65(September), 1–19. <https://doi.org/10.35188/UNU-WIDER/2019/699-9>
- Salihu, H. A. (2022). Corruption: an impediment to good governance. *Journal of Financial Crime*, 29(1), 101–110. <https://doi.org/10.1108/JFC-11-2020-0235>
- Simson, A. (1972). Economic Cooperation in West Africa Author (s): Andre Simmons Source : *The Western Political Quarterly* , Jun ., 1972 , Vol . 25 , No . 2 (Jun ., 1972), pp . Published by : University of Utah on behalf of the Western Political Science Association *Stabl.* 25(2), 295–304.
- Sıradağ, A. (2014). Understanding French Foreign and Security Policy towards Africa: Pragmatism or Altruism. *Afro Eurasian Studies Journal*, 3(1), 100–122. http://www.afroeurasianstudies.net/dosyalar/site_resim/veri/7429761.pdf
- Sterelny, K. (2003). Last Will and Testament: Stephen Jay Gould’s The Structure of Evolutionary Theory. *Philosophy of Science*, 70(2), 255–263. <https://doi.org/10.1086/375466>
- T. S. Breusch, & A. R. Pagan. (1980). The Lagrange Multiplier Test and its Applications to Model Specification in Econometrics. *The Review of Economic Studies* , 47(1), 239–253.
- Thach, N. N., Duong, M. B. and, Tran, T., & Kim, O. (2017). Effects of Corruption on Economic Growth - Empirical Study of Asia Countries. *Imperial Journal of Interdisciplinary Research*, 3(January-2017), 791–804.

- Theobald, R., & Williams, R. (1999). Combating corruption in Botswana: Regional role model or deviant case? *Journal of Commonwealth and Comparative Politics*, 37(3), 117–134. <https://doi.org/10.1080/14662049908447799>
- Tidiane, N. C. (2019). Corruption, Investment and Economic Growth in WAEMU Countries. *International Journal of Economics and Finance*, 11(4), 30. <https://doi.org/10.5539/ijef.v11n4p30>
- Trnovec, S. (2020). The Challenges of Colonial Rule in West African Sahel - The case of French West Africa 1900-1930. *Asian and African Studies*, 29(2), 282–314. <https://doi.org/10.1007/s12129->
- Ullan Awan, R., Akhtar, T., Rahim, S., And, S., & Cheema, A. R. (2018). Governance, Corruption and Economic Growth: a Panel Data Analysis of Selected Saarc Countries. *Pakistan Economic and Social Review*, 56(1), 1–20.
- Westerlund, J., Hosseinkouchack, M., & Solberger, M. (2016). The Local Power of the CADF and CIPS Panel Unit Root Tests. *Econometric Reviews*, 35(5), 845–870. <https://doi.org/10.1080/07474938.2014.977077>
- Windmeijer, F. (2005). A finite sample correction for the variance of linear efficient two-step GMM estimators. *Journal of Econometrics*, 126(1), 25–51. <https://doi.org/10.1016/j.jeconom.2004.02.005>
- Xiao, J., Karavias, Y., Juodis, A., Sarafidis, V., & Ditzgen, J. (2023). Improved tests for Granger noncausality in panel data. *Stata Journal*, 23(1), 230–242. <https://doi.org/10.1177/1536867X231162034>

APPENDIXES

APPENDIX A

Causality for Benin

Equation	Parms	RMSE	R-sq	chi2	P>chi2
egdp	4	.596834	0.1059	2.131555	0.5456
gccest	4	.694926	0.5389	21.03854	0.0001
ggeest	4	.190007	0.1133	2.30084	0.5124

	Coefficient	Std. err.	z	P> z	[95% conf. interval]	
egdp						
egdp L1.	-.0044819	.2397945	-0.02	0.985	-.4744705	.4655067
gccest L1.	-.4305225	.5245716	-0.82	0.412	-1.458664	.5976189
ggeest L1.	1.323762	.9542518	1.39	0.165	-.5465368	3.194062
_cons	.2031315	.1315519	1.54	0.123	-.0547055	.4609685
gccest						
egdp L1.	-.5575529	.2792057	-2.00	0.046	-1.104786	-.0103197
gccest L1.	-1.160654	.6107871	-1.90	0.057	-2.357775	.0364668
ggeest L1.	-2.05832	1.111087	-1.85	0.064	-4.236011	.1193705
_cons	.0785228	.153173	0.51	0.608	-.2216908	.3787363
ggeest						
egdp L1.	-.0081075	.0763406	-0.11	0.915	-.1577323	.1415173
gccest L1.	.1943506	.1670018	1.16	0.245	-.1329669	.521668
ggeest L1.	.0027708	.3037941	0.01	0.993	-.5926546	.5981963
_cons	-.0219708	.0418807	-0.52	0.600	-.1040554	.0601137


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. estimate store mod
. vargranger
Granger causality Wald tests

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Equation	Excluded	chi2	df	Prob > chi2
egdp	gccest	.67357	1	0.412
egdp	ggeest	1.9244	1	0.165
egdp	ALL	1.9294	2	0.381
gccest	egdp	3.9877	1	0.046
gccest	ggeest	3.4319	1	0.064
gccest	ALL	5.7384	2	0.057
ggeest	egdp	.01128	1	0.915
ggeest	gccest	1.3543	1	0.245
ggeest	ALL	1.3613	2	0.506

APPENDIX B

Causality for Burkina Faso

Equation	Parms	RMSE	R-sq	chi2	P>chi2
ggdp	4	.745622	0.3492	9.659162	0.0217
gccest	4	.562638	0.2022	4.561012	0.2069
ggeest	4	.154413	0.1625	3.492623	0.3217

		Coefficient	Std. err.	z	P> z	[95% conf. interval]	
ggdp	ggdp L1.	-.8441085	.2770324	-3.05	0.002	-1.387082	-.301135
	gccest L1.	-.3146169	.2655324	-1.18	0.236	-.8350508	.205817
	ggeest L1.	-.4624038	1.254428	-0.37	0.712	-2.921038	1.99623
	_cons	.2572921	.1567844	1.64	0.101	-.0499997	.5645839
gccest	ggdp L1.	.3945392	.2090453	1.89	0.059	-.0151821	.8042605
	gccest L1.	.0218927	.2003675	0.11	0.913	-.3708204	.4146059
	ggeest L1.	-.352743	.9465764	-0.37	0.709	-2.207999	1.502513
	_cons	.0355218	.1183076	0.30	0.764	-.1963569	.2674005
ggeest	ggdp L1.	.0434407	.0573713	0.76	0.449	-.0690049	.1558863
	gccest L1.	.047514	.0549897	0.86	0.388	-.0602638	.1552918
	ggeest L1.	-.4086551	.2597823	-1.57	0.116	-.9178191	.1005088
	_cons	.0009892	.0324688	0.03	0.976	-.0626485	.064627


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. estimate store mod
. vargranger
Granger causality Wald tests

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Equation	Excluded	chi2	df	Prob > chi2
ggdp	gccest	1.4039	1	0.236
ggdp	ggeest	.13588	1	0.712
ggdp	ALL	2.5988	2	0.273
gccest	ggdp	3.562	1	0.059
gccest	ggeest	.13887	1	0.709
gccest	ALL	3.9682	2	0.138
ggeest	ggdp	.57333	1	0.449
ggeest	gccest	.74659	1	0.388
ggeest	ALL	1.0884	2	0.580

APPENDIX C

Causality for Bissau

Equation	Parms	RMSE	R-sq	chi2	P>chi2
ggdp	4	2.0759	0.1449	3.050176	0.3840
gccest	4	.089111	0.1319	2.735983	0.4341
ggeest	4	.127523	0.1576	3.367595	0.3383

		Coefficient	Std. err.	z	P> z	[95% conf. interval]	
ggdp	ggdp L1.	-.1870275	.2380518	-0.79	0.432	-.6536004	.2795454
	gccest L1.	2.3327	7.501388	0.31	0.756	-12.36975	17.03515
	ggeest L1.	-7.125417	5.237186	-1.36	0.174	-17.39011	3.139279
	_cons	.3878971	.4474901	0.87	0.386	-.4891673	1.264962
gccest	ggdp L1.	.0069417	.0102188	0.68	0.497	-.0130867	.0269701
	gccest L1.	-.496561	.3220097	-1.54	0.123	-1.127688	.1345665
	ggeest L1.	.3416112	.224815	1.52	0.129	-.0990181	.7822406
	_cons	.0098128	.0192093	0.51	0.609	-.0278367	.0474623
ggeest	ggdp L1.	.0110933	.0146235	0.76	0.448	-.0175683	.0397549
	gccest L1.	-.8256913	.4608109	-1.79	0.073	-1.728864	.0774814
	ggeest L1.	.3887294	.3217207	1.21	0.227	-.2418317	1.01929
	_cons	.0192741	.0274894	0.70	0.483	-.034604	.0731523


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. estimate store mod
. vargranger
Granger causality Wald tests

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Equation	Excluded	chi2	df	Prob > chi2
ggdp	gccest	.0967	1	0.756
ggdp	ggeest	1.8511	1	0.174
ggdp	ALL	2.8936	2	0.235
gccest	ggdp	.46146	1	0.497
gccest	ggeest	2.3089	1	0.129
gccest	ALL	2.3508	2	0.309
ggeest	ggdp	.57546	1	0.448
ggeest	gccest	3.2106	1	0.073
ggeest	ALL	3.3125	2	0.191

APPENDIX D

Causality for Cape Verde

Equation		Parms	RMSE	R-sq	chi2	P>chi2
ggdp		4	1.64651	0.0972	1.938463	0.5853
gccest		4	.243598	0.0113	.2052901	0.9767
ggeest		4	2.81538	0.1535	3.264468	0.3526

		Coefficient	Std. err.	z	P> z	[95% conf. interval]	
ggdp	ggdp L1.	.139128	.2343763	0.59	0.553	-.3202411	.5984971
	gccest L1.	.650146	1.625542	0.40	0.689	-2.535859	3.836151
	ggeest L1.	.173707	.1300731	1.34	0.182	-.0812317	.4286456
	_cons	-.050122	.3542236	-0.14	0.887	-.7443876	.6441435
gccest	ggdp L1.	.0020986	.0346755	0.06	0.952	-.0658641	.0700613
	gccest L1.	.1032696	.2404957	0.43	0.668	-.3680933	.5746325
	ggeest L1.	.0040634	.0192441	0.21	0.833	-.0336542	.0417811
	_cons	.059255	.0524067	1.13	0.258	-.0434602	.1619702
ggeest	ggdp L1.	-.0241761	.4007618	-0.06	0.952	-.8096548	.7613026
	gccest L1.	-4.809595	2.779527	-1.73	0.084	-10.25737	.6381782
	ggeest L1.	.0494827	.222413	0.22	0.824	-.3864388	.4854043
	_cons	-.2221439	.6056897	-0.37	0.714	-1.409274	.964986


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. estimate store mod
. vargranger
Granger causality Wald tests

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Equation	Excluded	chi2	df	Prob > chi2
ggdp	gccest	.15997	1	0.689
ggdp	ggeest	1.7834	1	0.182
ggdp	ALL	1.8177	2	0.403
gccest	ggdp	.00366	1	0.952
gccest	ggeest	.04459	1	0.833
gccest	ALL	.04516	2	0.978
ggeest	ggdp	.00364	1	0.952
ggeest	gccest	2.9942	1	0.084
ggeest	ALL	3.0248	2	0.220

APPENDIX E

Causality for Gambia

Equation	Parms	RMSE	R-sq	ch12	P>ch12
ggdp	4	2.74462	0.0145	.2652105	0.9664
gccest	4	.486581	0.3211	8.513838	0.0365
ggeest	4	.221608	0.3009	7.745825	0.0516

	Coefficient	Std. err.	z	P> z	[95% conf. interval]	
ggdp						
ggdp L1.	-.0619905	.3122325	-0.20	0.843	-.673955	.549974
gccest L1.	-.7666942	1.815746	-0.42	0.673	-4.32549	2.792102
ggeest L1.	1.031846	3.894066	0.26	0.791	-6.600382	8.664074
_cons	-.627487	.680954	-0.92	0.357	-1.962132	.7071582
gccest						
ggdp L1.	-.1169096	.0553544	-2.11	0.035	-.2254021	-.008417
gccest L1.	.6092054	.3219057	1.89	0.058	-.0217182	1.240129
ggeest L1.	-1.619707	.690362	-2.35	0.019	-2.972792	-.2666224
_cons	-.0245725	.1207234	-0.20	0.839	-.2611859	.212041
ggeest						
ggdp L1.	-.0342096	.0252105	-1.36	0.175	-.0836213	.0152022
gccest L1.	.2509275	.1466085	1.71	0.087	-.0364198	.5382749
ggeest L1.	-.8024048	.3144179	-2.55	0.011	-1.418653	-.186157
_cons	.0117576	.0549822	0.21	0.831	-.0960055	.1195206


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. estimate store mod
. vargranger
Granger causality Wald tests

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Equation	Excluded	ch12	df	Prob > ch12
ggdp	gccest	.17829	1	0.673
ggdp	ggeest	.07021	1	0.791
ggdp	ALL	.19308	2	0.908
gccest	ggdp	4.4606	1	0.035
gccest	ggeest	5.5045	1	0.019
gccest	ALL	8.5083	2	0.014
ggeest	ggdp	1.8413	1	0.175
ggeest	gccest	2.9294	1	0.087
ggeest	ALL	4.0927	2	0.129

APPENDIX F
Causality for Ghana

Equation	Parms	RMSE	R-sq	chi2	P>chi2
ggdp	4	2.25298	0.1985	4.458692	0.2160
gccest	4	6.50106	0.0991	1.9805	0.5765
ggeest	4	2.67708	0.0542	1.030533	0.7939

	Coefficient	Std. err.	z	P> z	[95% conf. interval]	
ggdp						
ggdp L1.	-1.770087	.8708832	-2.03	0.042	-3.476987	-.0631873
gccest L1.	-.0547112	.128786	-0.42	0.671	-.3071271	.1977047
ggeest L1.	-.2180082	.3180101	-0.69	0.493	-.8412964	.4052801
_cons	.7156183	.4841889	1.48	0.139	-.2333746	1.664611
gccest						
ggdp L1.	-1.917175	2.512959	-0.76	0.446	-6.842484	3.008135
gccest L1.	-.4320441	.3716158	-1.16	0.245	-1.160398	.2963094
ggeest L1.	-1.018381	.9176275	-1.11	0.267	-2.816897	.7801362
_cons	1.786954	1.397142	1.28	0.201	-.9513933	4.525301
ggeest						
ggdp L1.	.762438	1.034816	0.74	0.461	-1.265765	2.790641
gccest L1.	.0991667	.1530284	0.65	0.517	-.2007635	.3990968
ggeest L1.	.2181445	.3778717	0.58	0.564	-.5224704	.9587593
_cons	-.7989043	.5753317	-1.39	0.165	-1.926534	.3287251


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. estimate store mod
. vargranger

Granger causality Wald tests

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Equation	Excluded	chi2	df	Prob > chi2
ggdp	gccest	.18047	1	0.671
ggdp	ggeest	.46996	1	0.493
ggdp	ALL	.49484	2	0.781
gccest	ggdp	.58204	1	0.446
gccest	ggeest	1.2317	1	0.267
gccest	ALL	1.4866	2	0.476
ggeest	ggdp	.54285	1	0.461
ggeest	gccest	.41994	1	0.517
ggeest	ALL	.98786	2	0.610

APPENDIX G

Causality for Guinea

Equation		Parms	RMSE	R-sq	chi2	P>chi2
ggdp		4	1.83445	0.1733	3.772311	0.2871
gccest		4	.147172	0.0286	.5294445	0.9124
ggeest		4	.144142	0.1286	2.655456	0.4479

	Coefficient	Std. err.	z	P> z	[95% conf. interval]	
ggdp						
ggdp L1.	.3152486	.2725468	1.16	0.247	-.2189333	.8494306
gccest L1.	7.246734	4.591577	1.58	0.115	-1.752592	16.24606
ggeest L1.	-.8438339	3.594057	-0.23	0.814	-7.888055	6.200388
_cons	-.1626906	.386729	-0.42	0.674	-.9206654	.5952843
gccest						
ggdp L1.	-.000654	.0218655	-0.03	0.976	-.0435096	.0422016
gccest L1.	.0076325	.368367	0.02	0.983	-.7143535	.7296185
ggeest L1.	-.158302	.2883392	-0.55	0.583	-.7234365	.4068324
_cons	.0155252	.031026	0.50	0.617	-.0452846	.076335
ggeest						
ggdp L1.	-.0119647	.0214153	-0.56	0.576	-.053938	.0300085
gccest L1.	.2747357	.3607822	0.76	0.446	-.4323844	.9818558
ggeest L1.	-.3118559	.2824022	-1.10	0.269	-.8653541	.2416423
_cons	.01508	.0303871	0.50	0.620	-.0444777	.0746377


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. estimate store mod
. vargranger

```

Granger causality Wald tests

Equation	Excluded	chi2	df	Prob > chi2
ggdp	gccest	2.4909	1	0.115
ggdp	ggeest	.05512	1	0.814
ggdp	ALL	3.7648	2	0.152
gccest	ggdp	.00089	1	0.976
gccest	ggeest	.30142	1	0.583
gccest	ALL	.35262	2	0.838
ggeest	ggdp	.31215	1	0.576
ggeest	gccest	.57988	1	0.446
ggeest	ALL	2.2606	2	0.323

APPENDIX H

Causality for Ivory Coast

Equation	Parms	RMSE	R-sq	chi2	P>chi2
ggdp	4	1.54325	0.0556	1.05918	0.7869
gccest	4	.165295	0.1030	2.066333	0.5588
ggeest	4	.094454	0.3777	10.92314	0.0121

	Coefficient	Std. err.	z	P> z	[95% conf. interval]	
ggdp						
ggdp L1.	-.1573539	.2553648	-0.62	0.538	-.6578597	.3431519
gccest L1.	-1.572407	2.323723	-0.68	0.499	-6.126819	2.982006
ggeest L1.	.3157352	3.033095	0.10	0.917	-5.629022	6.260492
_cons	.0059666	.3297273	0.02	0.986	-.6402871	.6522202
gccest						
ggdp L1.	.0074914	.0273518	0.27	0.784	-.0461171	.0610999
gccest L1.	.2676666	.2488907	1.08	0.282	-.2201503	.7554835
ggeest L1.	.0827476	.3248707	0.25	0.799	-.5539872	.7194824
_cons	-.0350125	.0353166	-0.99	0.321	-.1042318	.0342069
ggeest						
ggdp L1.	-.0037289	.0156295	-0.24	0.811	-.0343621	.0269042
gccest L1.	.4610132	.1422222	3.24	0.001	.1822628	.7397635
ggeest L1.	-.1717909	.1856389	-0.93	0.355	-.5356365	.1920547
_cons	-.0386393	.0201808	-1.91	0.056	-.0781929	.0009143


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. estimate store mod
. vargranger

```

Granger causality Wald tests

Equation	Excluded	chi2	df	Prob > chi2
ggdp	gccest	.45789	1	0.499
ggdp	ggeest	.01084	1	0.917
ggdp	ALL	.50556	2	0.777
gccest	ggdp	.07502	1	0.784
gccest	ggeest	.06488	1	0.799
gccest	ALL	.13748	2	0.934
ggeest	ggdp	.05692	1	0.811
ggeest	gccest	10.507	1	0.001
ggeest	ALL	10.579	2	0.005

APPENDIX I
Causality for Liberia

Equation	Parms	RMSE	R-sq	chi2	P>chi2
ggdp	4	21.4332	0.0230	.4245337	0.9351
gccest	4	.339568	0.0711	1.376983	0.7109
ggeest	4	.086668	0.0366	.6844251	0.8769

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
ggdp					
ggdp L1.	-.0728855	.2367329	-0.31	0.758	-.5368735 .3911026
gccest L1.	-8.51806	21.38621	-0.40	0.690	-50.43425 33.39813
ggeest L1.	3.968408	84.59861	0.05	0.963	-161.8418 169.7786
_cons	4.696746	4.609647	1.02	0.308	-4.337996 13.73149
gccest					
ggdp L1.	-.0002511	.0037506	-0.07	0.947	-.0076021 .0070999
gccest L1.	-.3560583	.3388232	-1.05	0.293	-1.02014 .308023
ggeest L1.	.6251642	1.340302	0.47	0.641	-2.001779 3.252108
_cons	.0577755	.073031	0.79	0.429	-.0853626 .2009135
ggeest					
ggdp L1.	.0007253	.0009573	0.76	0.449	-.0011509 .0026015
gccest L1.	.009282	.0864779	0.11	0.915	-.1602116 .1787755
ggeest L1.	.0377978	.3420854	0.11	0.912	-.6326773 .7082728
_cons	-.0020829	.0186397	-0.11	0.911	-.038616 .0344503


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. estimate store mod
. vargranger
Granger causality Wald tests

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Equation	Excluded	chi2	df	Prob > chi2
ggdp	gccest	.15864	1	0.690
ggdp	ggeest	.0022	1	0.963
ggdp	ALL	.29592	2	0.862
gccest	ggdp	.00448	1	0.947
gccest	ggeest	.21756	1	0.641
gccest	ALL	.24674	2	0.884
ggeest	ggdp	.57412	1	0.449
ggeest	gccest	.01152	1	0.915
ggeest	ALL	.64312	2	0.725

APPENDIX J

Causality for Mali

Equation		Parms	RMSE	R-sq	chi2	P>chi2
ggdp		4	1.54234	0.2228	5.159593	0.1605
gccest		4	.133343	0.3470	9.564581	0.0227
ggeest		4	.087557	0.1980	4.444912	0.2173

	Coefficient	Std. err.	z	P> z	[95% conf. interval]	
ggdp						
ggdp L1.	-.2666411	.2620519	-1.02	0.309	-.7802535	.2469712
gccest L1.	-4.064668	2.431041	-1.67	0.095	-8.82942	.7000842
ggeest L1.	-3.333179	4.66578	-0.71	0.475	-12.47794	5.811581
_cons	-.1840284	.348816	-0.53	0.598	-.8676952	.4996385
gccest						
ggdp L1.	-.0618302	.0226557	-2.73	0.006	-.1062346	-.0174257
gccest L1.	.20842	.210176	0.99	0.321	-.2035174	.6203575
ggeest L1.	-1.052255	.4033808	-2.61	0.009	-1.842867	-.2616434
_cons	.0474655	.0301569	1.57	0.115	-.0116411	.106572
ggeest						
ggdp L1.	.0120088	.0148765	0.81	0.420	-.0171486	.0411661
gccest L1.	.2381643	.1380081	1.73	0.084	-.0323265	.5086552
ggeest L1.	-.2144718	.2648723	-0.81	0.418	-.7336119	.3046684
_cons	.0361934	.019802	1.83	0.068	-.0026178	.0750046


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. estimate store mod
. vargranger

```

Granger causality Wald tests

Equation	Excluded	chi2	df	Prob > chi2
ggdp	gccest	2.7955	1	0.095
ggdp	ggeest	.51035	1	0.475
ggdp	ALL	4.9309	2	0.085
gccest	ggdp	7.4481	1	0.006
gccest	ggeest	6.8047	1	0.009
gccest	ALL	9.5134	2	0.009
ggeest	ggdp	.65162	1	0.420
ggeest	gccest	2.9781	1	0.084
ggeest	ALL	3.8784	2	0.144

APPENDIX K

Causality for Mauritania

Equation	Parms	RMSE	R-sq	chi2	P>chi2
ggdp	4	4.57856	0.5625	23.13981	0.0000
gccest	4	1.87075	0.0090	.1641106	0.9832
ggeest	4	1.01782	0.0157	.287931	0.9623

	Coefficient	Std. err.	z	P> z	[95% conf. interval]	
ggdp						
ggdp L1.	-.1395937	.1588495	-0.88	0.380	-.450933	.1717456
gccest L1.	-8.003329	1.731289	-4.62	0.000	-11.39659	-4.610065
ggeest L1.	15.11152	3.174299	4.76	0.000	8.890005	21.33303
_cons	1.404808	1.018998	1.38	0.168	-.5923916	3.402007
gccest						
ggdp L1.	.0186316	.0649041	0.29	0.774	-.1085782	.1458414
gccest L1.	-.1491565	.7073856	-0.21	0.833	-1.535607	1.237294
ggeest L1.	.1738455	1.296983	0.13	0.893	-2.368195	2.715886
_cons	.4400536	.4163513	1.06	0.291	-.3759799	1.256087
ggeest						
ggdp L1.	.0106913	.0353124	0.30	0.762	-.0585197	.0799023
gccest L1.	.040565	.3848672	0.11	0.916	-.7137608	.7948908
ggeest L1.	-.1762293	.7056496	-0.25	0.803	-1.559277	1.206818
_cons	.2521893	.2265242	1.11	0.266	-.1917899	.6961686


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. estimate store mod
. vargranger

```

Granger causality Wald tests

Equation	Excluded	chi2	df	Prob > chi2
ggdp	gccest	21.37	1	0.000
ggdp	ggeest	22.663	1	0.000
ggdp	ALL	22.821	2	0.000
gccest	ggdp	.08241	1	0.774
gccest	ggeest	.01797	1	0.893
gccest	ALL	.10631	2	0.948
ggeest	ggdp	.09167	1	0.762
ggeest	gccest	.01111	1	0.916
ggeest	ALL	.09981	2	0.951

APPENDIX L

Causality for Niger

Equation	Parms	RMSE	R-sq	ch12	P>chi2
ggdp	4	4.5625	0.2026	4.57372	0.2058
gccest	4	.132998	0.3639	10.29615	0.0162
ggeest	4	.086256	0.0642	1.235265	0.7446

	Coefficient	Std. err.	z	P> z	[95% conf. interval]	
ggdp						
ggdp L1.	-.1100913	.2207395	-0.50	0.618	-.5427328	.3225502
gccest L1.	-10.9635	6.718587	-1.63	0.103	-24.13169	2.20469
ggeest L1.	10.0024	10.72527	0.93	0.351	-11.01874	31.02355
_cons	1.364566	1.017089	1.34	0.180	-.6288914	3.358023
gccest						
ggdp L1.	.0080395	.0064346	1.25	0.212	-.0045722	.0206511
gccest L1.	-.479541	.1958489	-2.45	0.014	-.8633978	-.0956841
ggeest L1.	.4825366	.312645	1.54	0.123	-.1302363	1.09531
_cons	-.0299536	.0296485	-1.01	0.312	-.0880635	.0281563
ggeest						
ggdp L1.	.0040517	.0041732	0.97	0.332	-.0041276	.012231
gccest L1.	.0027995	.1270182	0.02	0.982	-.2461516	.2517507
ggeest L1.	.0601764	.2027666	0.30	0.767	-.3372387	.4575916
_cons	-.0055405	.0192286	-0.29	0.773	-.0432278	.0321468


```

. estimate store mod
. vargranger

```

Granger causality Wald tests

Equation	Excluded	ch12	df	Prob > chi2
ggdp	gccest	2.6628	1	0.103
ggdp	ggeest	.86975	1	0.351
ggdp	ALL	3.9543	2	0.138
gccest	ggdp	1.561	1	0.212
gccest	ggeest	2.3821	1	0.123
gccest	ALL	4.8005	2	0.091
ggeest	ggdp	.94262	1	0.332
ggeest	gccest	.00049	1	0.982
ggeest	ALL	1.0233	2	0.600

APPENDIX M
Causality for Nigeria

Equation	Parms	RMSE	R-sq	chi2	P>chi2
ggdp	4	1.01099	0.1920	4.277232	0.2330
gccest	4	.135614	0.0222	.4089063	0.9384
ggeest	4	.130785	0.2392	5.659958	0.1294

	Coefficient	Std. err.	z	P> z	[95% conf. interval]	
ggdp						
ggdp L1.	.5389573	.292431	1.84	0.065	-.034197	1.112112
gccest L1.	.9707578	1.830909	0.53	0.596	-2.617758	4.559273
ggeest L1.	-1.493404	1.765899	-0.85	0.398	-4.954502	1.967693
_cons	-.2203435	.2244427	-0.98	0.326	-.6602431	.2195561
gccest						
ggdp L1.	.0000854	.0392266	0.00	0.998	-.0767972	.076968
gccest L1.	-.1319434	.2455972	-0.54	0.591	-.6133051	.3494183
ggeest L1.	-.1100122	.2368768	-0.46	0.642	-.5742822	.3542577
_cons	-.0075495	.0301066	-0.25	0.802	-.0665575	.0514584
ggeest						
ggdp L1.	.0276093	.0378297	0.73	0.465	-.0465356	.1017541
gccest L1.	-.0779928	.2368515	-0.33	0.742	-.5422133	.3862277
ggeest L1.	-.5333517	.2284416	-2.33	0.020	-.9810891	-.0856143
_cons	.0254175	.0290345	0.88	0.381	-.0314891	.0823242


```

. estimate store mod
. vargranger

Granger causality Wald tests

```

Equation	Excluded	chi2	df	Prob > chi2
ggdp	gccest	.28112	1	0.596
ggdp	ggeest	.71519	1	0.398
ggdp	ALL	1.4421	2	0.486
gccest	ggdp	4.7e-06	1	0.998
gccest	ggeest	.21569	1	0.642
gccest	ALL	.23897	2	0.887
ggeest	ggdp	.53265	1	0.465
ggeest	gccest	.10843	1	0.742
ggeest	ALL	.58965	2	0.745

APPENDIX N

Causality for Senegal

Equation	Parms	RMSE	R-sq	chi2	P>chi2
ggdp	4	1.14066	0.0682	1.316863	0.7251
gccest	4	165.048	0.0065	.1173292	0.9897
ggeest	4	.85258	0.0553	1.054156	0.7882

	Coefficient	Std. err.	z	P> z	[95% conf. interval]
ggdp					
ggdp L1.	.0369074	.0495397	0.75	0.456	-.0601886 .1340033
gccest L1.	-.000937	.0016446	-0.57	0.569	-.0041604 .0022863
ggeest L1.	-.4652271	.5052366	-0.92	0.357	-1.455473 .5250185
_cons	.3300834	.2508015	1.32	0.188	-.1614784 .8216453
gccest					
ggdp L1.	-1.05607	7.168129	-0.15	0.883	-15.10534 12.9932
gccest L1.	-.0542231	.2379654	-0.23	0.820	-.5206268 .4121806
ggeest L1.	6.494363	73.10509	0.09	0.929	-136.789 149.7777
_cons	37.36249	36.28966	1.03	0.303	-33.76393 108.4889
ggeest					
ggdp L1.	-.0137531	.037028	-0.37	0.710	-.0863267 .0588205
gccest L1.	.0002781	.0012292	0.23	0.821	-.0021312 .0026874
ggeest L1.	.229116	.3776352	0.61	0.544	-.5110355 .9692675
_cons	-.2060489	.1874596	-1.10	0.272	-.573463 .1613652


```

. estimate store mod
. vargranger

```

Granger causality Wald tests

Equation	Excluded	chi2	df	Prob > chi2
ggdp	gccest	.32463	1	0.569
ggdp	ggeest	.84789	1	0.357
ggdp	ALL	1.0362	2	0.596
gccest	ggdp	.02171	1	0.883
gccest	ggeest	.00789	1	0.929
gccest	ALL	.06381	2	0.969
ggeest	ggdp	.13796	1	0.710
ggeest	gccest	.05118	1	0.821
ggeest	ALL	.16976	2	0.919

APPENDIX O
Causality for Sierra Leone

Equation	Parms	RMSE	R-sq	chi2	P>chi2
ggdp	4	1.66922	0.0929	1.842696	0.6057
gccest	4	.1351	0.0609	1.168215	0.7606
ggeest	4	.083194	0.1743	3.800898	0.2838

	Coefficient	Std. err.	z	P> z	[95% conf. interval]	
ggdp						
ggdp L1.	.2956611	.2559811	1.16	0.248	-.2060526	.7973747
gccest L1.	.9858186	3.014576	0.33	0.744	-4.922642	6.894279
ggeest L1.	.347162	4.084807	0.08	0.932	-7.658912	8.353236
_cons	-.3869787	.3768663	-1.03	0.304	-1.125623	.3516657
gccest						
ggdp L1.	-.0011846	.020718	-0.06	0.954	-.0417912	.039422
gccest L1.	.1396011	.2439871	0.57	0.567	-.3386048	.6178069
ggeest L1.	-.3064567	.330607	-0.93	0.354	-.9544345	.3415212
_cons	-.033948	.030502	-1.11	0.266	-.0937307	.0258348
ggeest						
ggdp L1.	.0116269	.0127581	0.91	0.362	-.0133785	.0366323
gccest L1.	-.0185194	.1502465	-0.12	0.902	-.3129971	.2759584
ggeest L1.	-.3589676	.2035868	-1.76	0.078	-.7579904	.0400552
_cons	-.0113558	.018783	-0.60	0.545	-.0481699	.0254582


```

. estimate store mod
. vargranger
Granger causality Wald tests

```

Equation	Excluded	chi2	df	Prob > chi2
ggdp	gccest	.10694	1	0.744
ggdp	ggeest	.00722	1	0.932
ggdp	ALL	.11541	2	0.944
gccest	ggdp	.00327	1	0.954
gccest	ggeest	.85924	1	0.354
gccest	ALL	.86961	2	0.647
ggeest	ggdp	.83054	1	0.362
ggeest	gccest	.01519	1	0.902
ggeest	ALL	.85262	2	0.653

APPENDIX P
Causality for Togo

Equation	Parms	RMSE	R-sq	chi2	P>chi2
ggdp	4	1.72016	0.0600	1.14935	0.7652
gccest	4	.111476	0.0931	1.846788	0.6048
ggeest	4	.075014	0.2611	6.361043	0.0953

	Coefficient	Std. err.	z	P> z	[95% conf. interval]	
ggdp						
ggdp L1.	-.1285068	.2460101	-0.52	0.601	-.6106779	.3536642
gccest L1.	1.671653	3.421887	0.49	0.625	-5.035122	8.378427
ggeest L1.	-4.015512	4.843371	-0.83	0.407	-13.50834	5.47732
_cons	-.3147439	.3821804	-0.82	0.410	-1.063804	.4343158
gccest						
ggdp L1.	.0007008	.0159428	0.04	0.965	-.0305465	.0319482
gccest L1.	-.2581286	.2217571	-1.16	0.244	-.6927645	.1765073
ggeest L1.	.3277065	.3138771	1.04	0.296	-.2874813	.9428942
_cons	-.0012029	.0247674	-0.05	0.961	-.0497461	.0473403
ggeest						
ggdp L1.	-.0003934	.0107282	-0.04	0.971	-.0214202	.0206334
gccest L1.	.0506919	.1492237	0.34	0.734	-.2417813	.343165
ggeest L1.	.4630577	.2112127	2.19	0.028	.0490885	.8770269
_cons	-.0222378	.0166664	-1.33	0.182	-.0549033	.0104276


```

. estimate store mod
. vargranger

Granger causality Wald tests

```

Equation	Excluded	chi2	df	Prob > chi2
ggdp	gccest	.23865	1	0.625
ggdp	ggeest	.68736	1	0.407
ggdp	ALL	.7382	2	0.691
gccest	ggdp	.00193	1	0.965
gccest	ggeest	1.0901	1	0.296
gccest	ALL	1.1384	2	0.566
ggeest	ggdp	.00134	1	0.971
ggeest	gccest	.1154	1	0.734
ggeest	ALL	.11542	2	0.944

CURRICULUM VITAE

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02/2018 – 01/2019 Student Residence Advisor, TRNC.

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