

UNIVERSITY OF CAPE COAST

ESSAYS ON LEGAL SYSTEMS, PROPERTY RIGHTS AND FINANCIAL
DEVELOPMENT IN SUB-SAHARAN AFRICA

SALIFU MUBARIK



2024



UNIVERSITY OF CAPE COAST

ESSAYS ON LEGAL SYSTEMS, PROPERTY RIGHTS AND FINANCIAL
DEVELOPMENT IN SUB-SAHARAN AFRICA

BY
SALIFU MUBARIK

Thesis submitted to the Department of Economic Studies of the School of
Economics, Colleges of Humanities and Legal Studies, University of Cape
Coast, in partial fulfillment of the requirements for the award of Doctor of
Philosophy degree in Economics

JULY 2024

DECLARATION

Candidates Declaration

I hereby declare that this thesis is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature Date

Name: Salifu Mubarik

Supervisors' Declaration

We hereby declare that the preparation of this thesis were supervised in accordance with the guidelines on supervision of thesis as laid down by the University of Cape Coast.

Principal Supervisor's Signature..... Date

Name: Professor James Atta Peprah

Co-Supervisor's Signature..... Date

Name: Dr. William Godfred Cantah

ABSTRACT

Sub-Saharan Africa faces many challenges such as poverty, inequality, conflict, corruption, and weak institutions. However, it also has potential for economic growth and development due to its abundant natural resources, young population, and increasing global integration. Financial development has been severally shown to improve economic growth, reduce unemployment and ensure price stability. This study examines the relationship between legal systems and property rights, financial development and economic growth, inflation, and unemployment. The study consolidates three empirical chapters that links legal systems and property rights, financial development and economic growth, inflation, and unemployment. Using GMM and SUR models, the study find that legal systems and property rights positively influence financial development when aggregated and financial institutions and markets. In the second empirical paper, the study find that economic growth, inflation and unemployment were influenced by financial development. The study further find that the relationship is further enhanced by the existence of legal systems and property rights. In the third empirical paper, using an ARDL and a Markov-Switching regression, the study find that financial development was significantly influenced by openness policies proxied by capital account openness and trade openness. The study conclude that financial development is crucial for economic growth, inflation and unemployment and that the relationship is further enhanced when there exist well enforced legal systems and property rights in Sub-Saharan Africa. The study recommend policy be focused on development of the institutional frameworks in Sub-Saharan Africa.

KEYWORDS

Legal Systems

Openness Policies

Macroeconomic Outcomes (Economic Growth, Inflation and Unemployment)

Property Rights



ACKNOWLEDGEMENTS

To begin with, I wish to express my unconditional gratitude to my Supervisors, Professor James Atta Peprah and Dr. William Godfred Cantah, for all the support. They were always available when I needed them and ready to assist. Their insightful comments and guidance helped in shaping the outcome of this study.

I want to acknowledge the support I received from Mr. Mohammed Gbanja Abdulai, particularly in the early stage of the journey. He helped in shaping the topic that finally became my thesis. I am also grateful to Professor Seidu Al-hassan for his mentorship which has helped me to climb higher on the academic ladder. I am also grateful to Prof. Haruna Issahaku and Dr. Yazidu Ustarz for their assistance and Dr. Muazu Ibrahim for insight into econometric analysis.

The thesis benefited from the valuable comments of senior members and colleagues of the School of Economics, UCC through the series of seminar presentations. The study also benefited from comments from participants in conferences where chapters were presented and from journals where papers were submitted for publications.

I wish to thank the management of the University for Development Studies for granting me the study leave to accomplish this journey, without which I would not have completed this study. To my friend and brother, Saani Mohammed Ridwan, I appreciate all the support. To Prof. Ibrahim Osman Adam, I say thank you for your support.

DEDICATION

I dedicate this thesis to my family and parents.



TABLE OF CONTENT

	Page
DECLARATION	ii
ABSTRACT	iii
KEYWORDS	iv
ACKNOWLEDGEMENTS	v
DEDICATION	vi
TABLE OF CONTENT	vii
LIST OF TABLES	xii
LIST OF FIGURES	xiv
LIST OF ACRONYMS	xv
CHAPTER ONE: INTRODUCTION	
Background	1
Problem Statement	6
Purpose of the Study	9
Research Questions	10
Significance of the Study	10
Scope of the Study	12
Limitations	13
Organisation of the Study	13
CHAPTER TWO: STYLIZED FACTS AND CONTEXTUAL ANALYSIS OF LEGAL SYSTEMS, PROPERTY RIGHTS AND FINANCIAL DEVELOPMENT IN SUB-SAHARAN AFRICA	15
Introduction	15

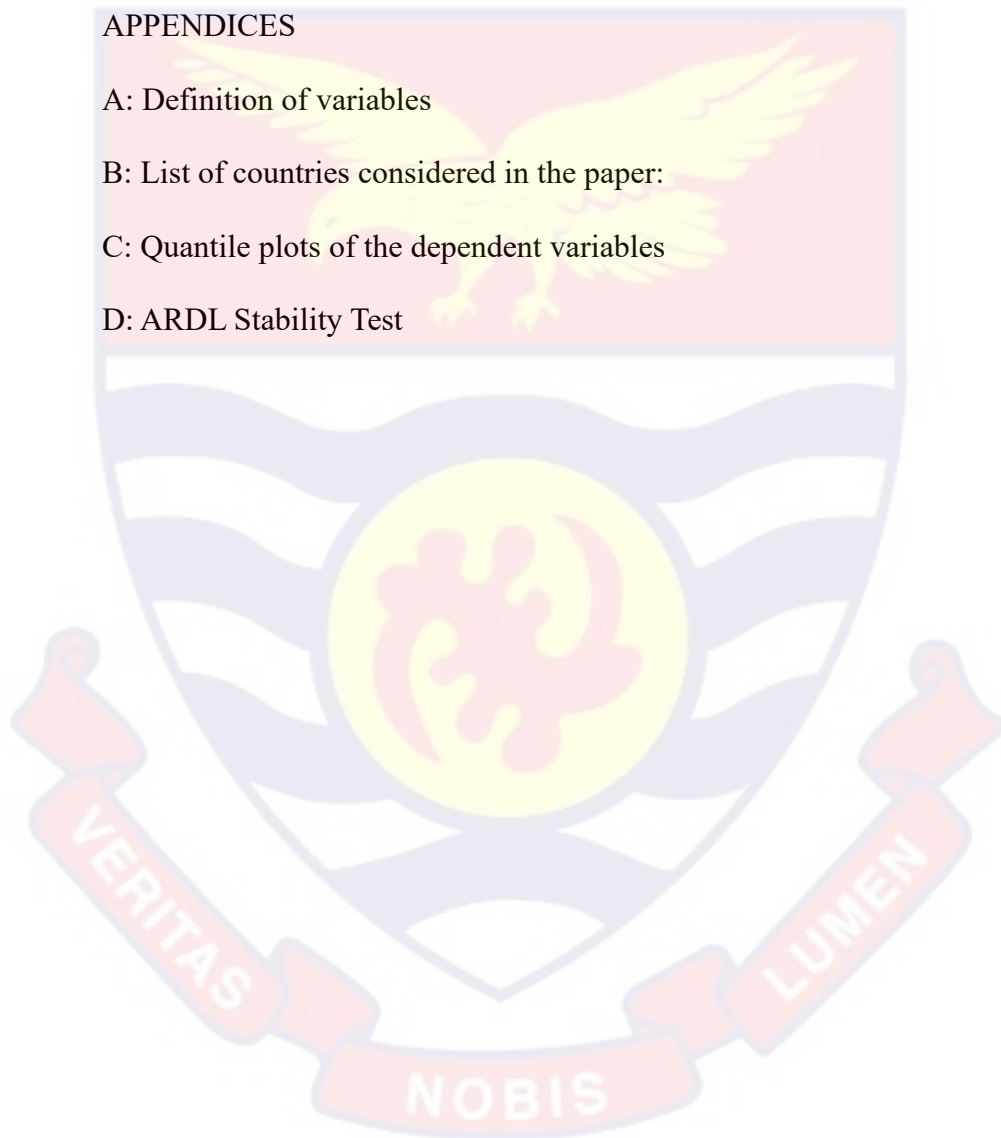
Synergy among Financial Development, Legal Systems and Property Rights, Economic Growth, Unemployment, and Inflation in Sub-Saharan Africa	15
Financial Development	15
Legal Systems and Property Rights	16
Economic Growth	16
Unemployment	16
Inflation	17
Definition and Measurement of Key Concepts	17
Financial Development	17
The Legal System and Property Rights	20
State of Legal Systems and Property Rights in Sub-Saharan Africa	22
Economic Growth, Unemployment and Inflation	23
CHAPTER THREE: LEGAL SYSTEMS, PROPERTY RIGHTS AND FINANCIAL DEVELOPMENT IN SUB-SAHARAN AFRICA	
Introduction	28
Theoretical Underpinnings and Hypothesis Development	32
Literature Review	34
Research Gap Analysis	39
Methodology and Data	39
Data	39
Empirical Model	40
Diagnostics	41
Results and Discussions	42
Descriptive Statistics of variables	42

Legal Systems, Property Rights, and Financial Development	45
Robustness Checks	52
Conclusions	57
Recommendations/Policy Implications	58
CHAPTER FOUR: GROWTH, UNEMPLOYMENT AND INFLATION	
IN SUB-SAHARAN AFRICA: THE ROLE OF FINANCIAL	
DEVELOPMENT AND LEGAL SYSTEMS AND PROPERTY RIGHTS	
Introduction	60
Literature Review	62
Financial Development and Economic Growth	62
Financial Development and Inflation Rate	67
Financial Development and Unemployment	71
Institutions and Economic Growth, Inflation, and Unemployment	74
Methodology and Data	79
Theoretical and Estimation Techniques	79
Empirical Model Specification	81
Definition and Measurement of Variables	83
Results and Discussion	85
Descriptive Statistics	85
Effect of Financial Development on Economic Growth in Sub-Saharan	
Africa	88
Effect of Financial Development on Unemployment in Sub-Saharan Africa	93
Effect of Financial Development on Inflation in Sub-Saharan Africa	98
Conclusions and Recommendations	102

CHAPTER FIVE: OPENNESS POLICIES AND FINANCIAL
DEVELOPMENT IN GHANA: AN ARDL APPROACH

Introduction	105
Insights from Related Literature	109
Data and Methods of Analysis	116
Data	116
Empirical Estimations	116
Estimation Techniques	118
Test for Linearity	120
Results and Discussions	121
Test of Non-Linearity	124
Estimated Long-Run Effect of Openness on Financial Development	126
Estimated Short-Run Relationship Between Openness and Financial Development	129
Diagnosis Test	132
Variance Inflation Factor	133
Transition Probabilities	136
Conclusions and Recommendations	137
Recommendations	139
CHAPTER SIX: CONCLUSION AND POLICY RECOMMENDATIONS	
Introduction	140
Summary of the General Conclusions/ Findings	140
Legal Systems, Property Rights and Financial Development	140
Growth, Unemployment and Inflation in Sub-Saharan Africa: The role of Financial Development and Legal Systems and Property Rights	142

Openness Policies and Financial Development in Ghana: An ARDL Approach	144
Recommendations	145
Suggestions for Further Research	147
REFERENCES	148
APPENDICES	173
A: Definition of variables	173
B: List of countries considered in the paper:	178
C: Quantile plots of the dependent variables	179
D: ARDL Stability Test	180



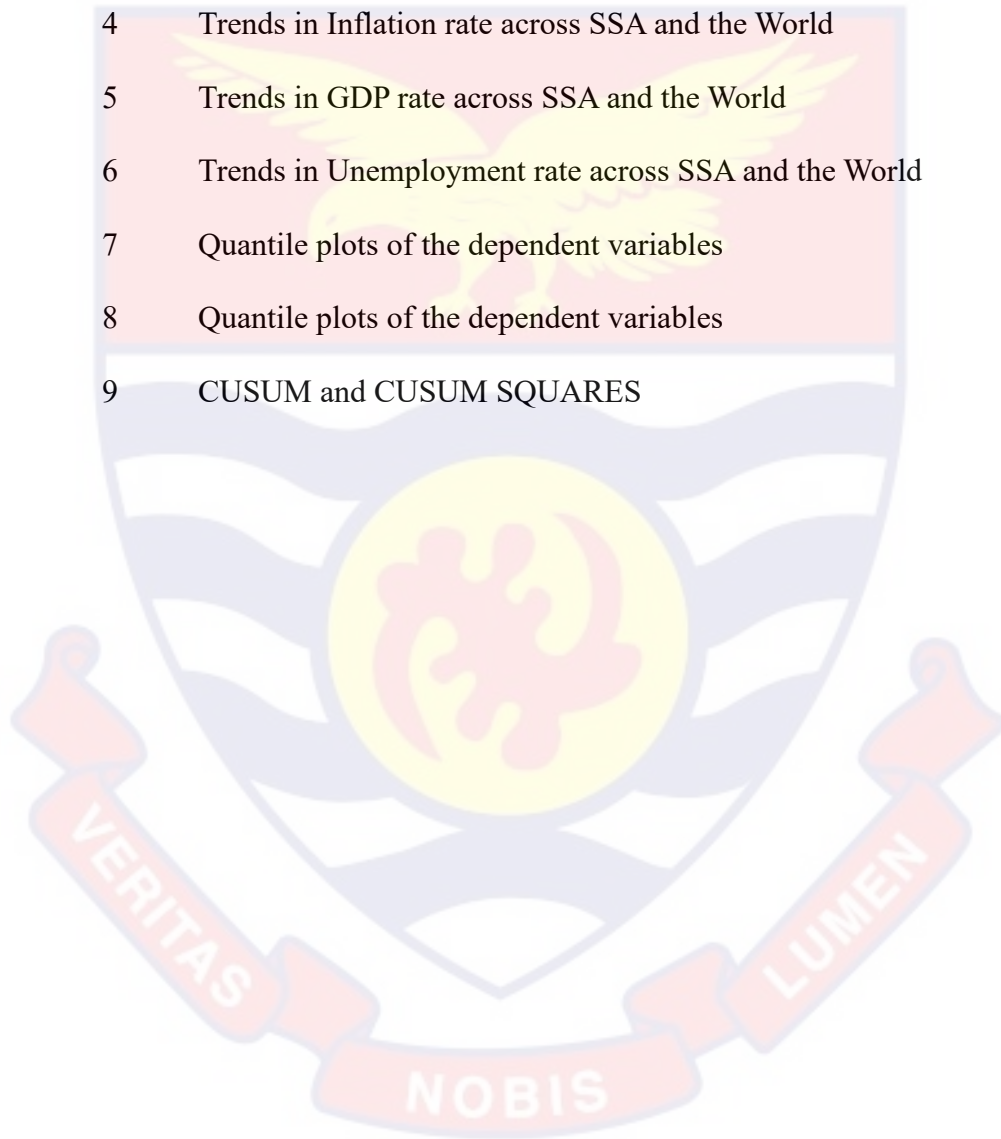
LIST OF TABLES

Table	Page
1 Descriptive statistics	42
2 Correlations analysis	44
3 Two-Step System GMM Estimates of Legal System and Property Rights on FD, FM, and FI	46
4 Diagnostics test of SYS-GMM	52
5 Two-Step System GMM Regression of the Legal System and Property Rights with Credit to Private Sector	53
6 Legal Systems and Property Rights on Financial Development: SUR Model	56
7 Descriptive Statistics	86
8 Correlation matrix	87
9 Financial Development and Economic Growth	92
10 Effect of Financial Development on Unemployment	97
11 Effect of Financial Development on Inflation	101
12 Unit root test using an Akaike information criterion.	121
13 Pearson correlation test of variables used in the study	123
14 Test for non-linearity	124
15 Cointegration test using long-run bounds test	125
16 Long Run Results	127
17 Short Run estimates of openness and financial development	130
18 Diagnostics test	133
19 Multicollinearity test using the Variance Inflation Factor	134
20 Results of Markov switching model	135



LIST OF FIGURES

Figure		Page
1	Financial Development Index	18
2	Trends in FD, FM and FI across Africa and the world, 1980-2020	20
3	Trends in FD, FI and FM across the sub-region (SSA)	20
4	Trends in Inflation rate across SSA and the World	26
5	Trends in GDP rate across SSA and the World	26
6	Trends in Unemployment rate across SSA and the World	27
7	Quantile plots of the dependent variables	179
8	Quantile plots of the dependent variables	179
9	CUSUM and CUSUM SQUARES	180



LIST OF ACRONYMS



ADF	Augmented Dickey-Fuller
AEs	Advance Economies
AIC	Akaike Information Criterion
ARDL	Autorgressive Distributive Lag
DEMEs	Developing and Emerging Economies
ECM	Error Correction Model
FD	Financial Development
FDI	Foreign Direct Investment
FI	Financial Institutions
FM	Financial Markets
GDP	Gross Domestic Product
GMM	Generalised Methods of Moment
IMF	International Monetary Fund
NARDL	Nonlinear Autoregressive Distributed Lag
PMR	Product Market Regulation
SSA	Sub-Saharan Africa
SUR	Seemingly Unrelated Regression
WDI	World Development Indicators

CHAPTER ONE

INTRODUCTION

Background

Growth, inflation, and unemployment in sub-Saharan Africa (SSA) are critical issues for policymakers and academics alike. The region faces multifaceted challenges such as underdeveloped financial systems, weak property rights, ineffective legal frameworks, pervasive poverty, inequality, and frequent economic shocks. These factors significantly influence the well-being of individuals and the overall economic health of the region. A key concern for SSA is understanding how growth, unemployment, and inflation are impacted by property rights, legal frameworks, and financial development.

Improved quality and effectiveness of financial intermediation can stimulate investment, innovation, and productivity. Financial development facilitates greater economic activities by enhancing the volume of financial intermediation, which reduces transaction costs, builds trust, and promotes economic activities. Legal systems and property rights are critical as they protect creditors, investors, and business owners, and ensure the enforcement of contracts and regulations.

Sub-Saharan Africa's economic development has been significantly influenced by its colonial history, which has shaped its legal systems and property rights regimes. The region's legal systems can be broadly categorized into common law, civil law, and customary law, each having distinct implications for the enforcement of property rights and the effectiveness of financial systems. Countries with common law systems, such as Kenya and Nigeria, often show stronger property rights enforcement mechanisms

compared to those with civil law systems, like Senegal and Guinea. Empirical evidence highlights the critical role of robust legal systems and property rights in fostering financial development. Secure property rights reduce transaction costs, mitigate risks, and enhance economic activities that require long-term investments. Recent studies, such as those by Acemoglu, Johnson, and Robinson (2019) and La Porta et al. (2020), reaffirm that countries with stronger property rights and legal frameworks exhibit higher levels of financial development and, consequently, higher economic growth. In SSA, this variability is evident: countries like South Africa and Botswana, which have relatively strong legal frameworks, show more advanced financial sector development compared to nations with weaker institutional structures.

Financial development, defined by the growth of financial institutions, markets, and services, is crucial for economic diversification and efficient capital allocation. However, SSA's financial sectors are often underdeveloped, marked by limited access to credit, undercapitalized banking systems, and inadequate financial infrastructure. According to the World Bank (2023), the average private sector credit to GDP ratio in SSA is around 25%, significantly lower than the global average of 135%. This underdevelopment constrains economic growth and development.

Theoretical and empirical links between financial development and economic growth are well-documented. McKinnon (1973) and Shaw (1973) proposed that financial development enhances economic growth by improving capital accumulation and productivity. In SSA, this relationship has been supported by numerous studies. For instance, a study by Allen et al. (2022) indicates that countries with more developed financial sectors, such as Mauritius

and Seychelles, experience higher growth rates. Similarly, Beck et al. (2020) found that financial development significantly contributes to economic growth in SSA, although the impact varies across countries. The literature on financial development in SSA is extensive yet often contradictory. While some researchers (e.g., Ibrahim et al., 2022) find that financial development has a negligible or even negative impact on growth, others (such as Ustarz & Fanta, 2021) argue the opposite. Similarly, the impact of property rights and legal systems on economic performance in SSA is debated, with studies showing positive (Acemoglu et al., 2001), negative (Easterly & Levine, 2003), or negligible (Rodrik et al., 2004) effects.

The relationship between financial development, inflation, and unemployment in SSA is multifaceted. Financial development influences inflation through its impact on money supply and credit availability. Excessive financial development, without appropriate regulatory frameworks, can lead to credit booms and inflationary pressures. Conversely, well-regulated financial development can enhance monetary policy effectiveness, contributing to price stability.

The Phillips Curve framework, which postulates an inverse relationship between inflation and unemployment, provides a theoretical basis for analyzing these dynamics. SSA faces high unemployment rates and inflation variability. According to the International Labour Organization (2023), the unemployment rate in SSA stands at 7.2%, while the average inflation rate, as reported by the International Monetary Fund (IMF) in 2023, is around 8.5%, with significant variations across countries. Legal systems and property rights also intersect with openness policies and globalization. Openness policies, including trade

liberalization and capital account openness, are theorized to influence financial development by exposing domestic financial systems to international competition and best practices. Rodrik (2018) posits that openness can lead to economic growth if accompanied by sound institutions. In the context of SSA, countries like Ghana have embarked on trade liberalization and financial sector reforms to integrate into the global economy. The impact of these policies on financial development and macroeconomic stability warrants empirical investigation, particularly using methodologies like the Autoregressive Distributed Lag (ARDL) approach to capture short-term and long-term dynamics.

The theoretical links between legal systems, property rights, financial development, and macroeconomic outcomes in SSA are grounded in institutional economics and development theory. North (1990) emphasizes that institutions, defined as the rules of the game in a society, shape economic performance by influencing transaction costs and incentives. In SSA, strengthening legal systems and property rights is critical for reducing uncertainties and fostering an environment conducive to financial development.

Empirical research supports the notion that institutional quality, including the rule of law and property rights protection, is positively correlated with financial sector development and economic growth (La Porta et al., 2020; Acemoglu & Johnson, 2019). Demirguc-Kunt et al. (2013) argued that property rights enforcement and effective legal institutions stimulate innovation and entrepreneurship in the financial sector by enabling the creation of new financial products and services. Beck and Levine (2008) asserted that property rights enforcement and effective legal institutions reduce transaction costs and risks

associated with financial intermediation and markets, facilitating contract enforcement, dispute resolution, information disclosure, and creditor protection. Effective legal institutions also foster competition and efficiency in the financial sector by preventing monopoly power, rent-seeking, and corruption that distort resource allocation and hamper financial development. Moreover, they increase the confidence and willingness of savers and investors to finance firms and markets, as they are assured of their rights to own, control, and recover their assets, as indicated by World Bank (2008) and Beck and Levine (2008).

Also important to the finance literature is how trade and financial liberalisations influence the development of the financial system. The interest group financial development theory by Rajan and Zingales (2003) suggests that economic liberalization drives financial development by increasing the demand for external financing. Openness policies, which include trade and financial openness, are vital for financial development. Openness to trade and financial flows implies increased integration with the global economy, which can enhance financial development (Do and Levchencko, 2007).

The levels of financial development in developed countries have steadily increased, while those in developing countries have stagnated, highlighting the need for further study (Chinn and Ito, 2019). Research indicates that openness to trade and financial market liberalization impacts long-term financial development. Financial openness can reduce financial repression by aligning real interest rates with competitive market equilibrium, diversify portfolios, reduce capital costs, and improve access to finance (McKinnon and Shaw, 1973). It can also remove weak institutions, enhancing financial system efficiency and demanding system improvements. Achieving financial openness

involves reducing barriers to cross-border money and financial services flows, developing cross-border financial relations, and ending unfavorable treatment of foreign capital and investors (Herrero and Wooldridge, 2007).

Overall, the relationship between financial development, legal systems, property rights, openness policies, and their macroeconomic implications in SSA presents a complex interplay of factors requiring nuanced analysis. Strengthening legal systems and property rights, promoting financial development, and integrating openness policies are crucial for achieving sustainable economic growth and stability in SSA.

Problem Statement

Institutions play a crucial role in achieving financial development, particularly in sub-Saharan Africa (SSA), where weak legal frameworks and inadequate property rights enforcement often impede economic progress. Effective institutions, encompassing robust legal systems and well-defined property rights, are essential for fostering a conducive environment for financial activities. These institutions reduce transaction costs, enhance investor confidence, and ensure the enforcement of contracts and regulations, which are fundamental for the growth of financial sectors. Recent studies have emphasized that regions with stronger institutional frameworks tend to exhibit more advanced financial systems (Acemoglu et al., 2019; La Porta et al., 2020). However, in SSA, the variability and often the inadequacy of these institutions present significant challenges to financial development.

Financial development is paramount to economic growth, influencing key macroeconomic variables such as inflation and unemployment. A well-developed financial sector mobilizes savings, facilitates efficient capital

allocation, and promotes investment and innovation, which collectively spur economic growth. Theoretical and empirical research underscores the positive correlation between financial development and economic growth (Levine, 2005; Beck et al., 2014). Additionally, financial development plays a critical role in managing inflation and unemployment. By improving monetary policy transmission mechanisms, financial development can help stabilize prices and reduce inflationary pressures. Moreover, it can mitigate unemployment by providing businesses with the necessary capital to expand and create jobs. However, the relationship between financial development, inflation, and unemployment in SSA remains complex and context-specific, warranting further investigation (Bittencourt et al., 2015; Ouedraogo et al., 2023).

Empirical links between financial development, legal systems, and macroeconomic outcomes in SSA are well-documented but often contradictory. For instance, some studies suggest that financial development positively impacts economic growth, while others find negligible or negative effects (Ibrahim et al., 2022; Ustarz & Fanta, 2021). Similarly, the impact of property rights and legal systems on economic performance is debated. Some research highlights positive effects (Acemoglu et al., 2019), while others suggest negative or no significant impacts (Easterly & Levine, 2003; Rodrik et al., 2004). These discrepancies highlight the need for a more nuanced understanding of how legal systems and property rights influence financial development and, consequently, economic outcomes in SSA.

Moreover, the role of inflation in this nexus is particularly ambiguous. While some studies find that inflation can positively affect growth under certain conditions (Currevall et al., 2014), others report negative impacts (Khan and

Senhadji, 2001). The effects of inflation on unemployment and financial development are similarly mixed. For instance, Bittencourt et al. (2015) suggest that inflation has negligible or adverse effects on unemployment, whereas Ouedraogo et al. (2023) observe favourable influences. Regarding financial development, Boyd et al. (2001) argue that inflation hinders progress, while Ang and McKibbin (2007) note positive or negligible consequences. These conflicting findings underscore the complexity of the interactions between inflation, financial development, and macroeconomic stability in SSA.

Despite the extensive research into the causes of financial development little is known of the relationship between legal systems, property rights enforcements and financial development in the Sub-Saharan Africa region. For instance, Demirguc-Kunt et al. (2013) argued that property rights enforcement and effective legal institutions could stimulate innovation and entrepreneurship in the financial sector, as they would enable the creation of new financial products and services that cater to the diverse needs of customers. Beck and Levine (2008) also asserted that property rights enforcement and effective legal institutions could reduce the transaction costs and risks associated with financial intermediation and markets, as they would facilitate contract enforcement, dispute resolution, information disclosure, and creditor protection. Also, though financial development has been noted to play a major role in economic growth, inflation and unemployment, little is known about the impact of legal systems and property rights in explaining the relationships.

This study therefore contributes to the literature in the following ways: First, using both the aggregated index of financial development and the disaggregated components of financial development (markets and financial

institutions), we use a SURE model to estimate the relationships assuming that financial markets and financial institutions were interlinked. This procedure has previously not been used in the literature. Second, use a novel quantile estimation methodology to estimate the relationships between financial development, inflation, economic growth and unemployment. This is due to our assumption of the heterogeneities among countries in Sub-Saharan Africa and as such, it was important to disaggregate the outcome variables into various quantiles to understand the effect of financial development at the different distributions of the outcome variables.

Third, we are among the first to examine the role legal systems and property right enforcement play in explain the relationship between financial development and inflation, economic growth and unemployment in Sub-Saharan Africa. We also estimate the how openness policies affect financial development using a single country case using a Markov switching regression to test for the existence of regimes. By addressing these gaps, this study aims to contribute significantly to the existing literature, offering deeper insights into the institutional determinants of financial development and their macroeconomic implications in sub-Saharan Africa.

Purpose of the Study

The purpose of the study is to examine the relationships between legal systems and property rights, financial development and macroeconomic outcomes in Sub-Sahara Africa.

Specific Objectives

1. To determine the effects of legal systems, property rights on financial development in Sub-Saharan Africa

2. To examine the role of legal systems and property rights in the relationship between financial development and economic growth, inflation, and unemployment
3. To determine the role of openness policies in explaining financial development.

Research Questions

Is there is a relationship between legal systems and property rights, financial development and macroeconomic outcomes in Sub-Sahara Africa?

Specific Questions

1. Does legal systems, property rights affect financial development in Sub-Saharan Africa?
2. What is the role of legal systems and property rights in the relationship between financial development and economic growth, inflation, and unemployment?
3. Does openness policies play a role in explaining financial development?

Significance of the Study

This study is significant because it addresses the critical role of institutions in fostering financial development in sub-Saharan Africa (SSA), a region where economic growth and stability are paramount yet often hindered by weak legal frameworks and inadequate property rights enforcement. By examining how these institutional factors influence financial development, the study contributes to a deeper understanding of the underlying mechanisms that drive economic progress in SSA. This knowledge is essential for policymakers and stakeholders aiming to design and implement reforms that enhance the effectiveness of legal systems and property rights, thereby promoting a more

conducive environment for financial activities and overall economic development.

Moreover, the study's focus on the empirical relationships between financial development, economic growth, inflation, and unemployment in SSA provides valuable insights into the complex and multifaceted nature of these interactions. Previous research has yielded mixed results, with varying conclusions about the impact of financial development on economic outcomes. By employing advanced quantile estimation methods, this study offers a more nuanced analysis, capturing the heterogeneity of effects across different levels of financial development. This approach not only clarifies the existing ambiguities in the literature but also highlights the specific conditions under which financial development can most effectively contribute to economic growth and stability in SSA.

The study's findings have practical implications for both national and international development agendas. For national policymakers, understanding the critical role of legal systems and property rights in financial development can inform the design of targeted reforms aimed at strengthening institutional frameworks. For international development agencies and financial institutions, the insights gained from this study can guide investment decisions and the allocation of resources towards initiatives that support institutional development. By bridging the gap between institutional quality and financial development, this study provides a roadmap for achieving sustainable economic growth and improving the livelihoods of millions in SSA.

Scope of the Study

The scope of this study encompasses a comprehensive analysis of the institutional determinants of financial development in sub-Saharan Africa, focusing specifically on the roles of legal systems and property rights enforcement. It examines the variability in institutional quality across different countries within the region and explores how these variations influence the growth of financial sectors. By investigating these dynamics, the study aims to provide a detailed understanding of the institutional barriers and facilitators to financial development in SSA.

In addition to institutional factors, the study also explores the broader economic implications of financial development, including its impact on growth, inflation, and unemployment. It uses a combination of theoretical and empirical approaches to analyze the complex interactions between these variables, drawing on recent data and employing advanced econometric techniques such as quantile estimation methods. This methodological approach allows for a more refined analysis of the heterogeneous effects of financial development, offering insights into how different levels of financial sector growth impact macroeconomic outcomes in SSA.

Geographically, the study covers a diverse range of countries within sub-Saharan Africa, capturing a wide spectrum of institutional contexts and levels of financial development. This regional focus provides a comprehensive view of the specific challenges and opportunities faced by SSA countries in achieving financial development and economic growth. By addressing both the institutional and macroeconomic dimensions of financial development, the study offers a holistic perspective on the factors that drive economic progress in

the region, providing valuable guidance for policymakers, researchers, and development practitioners engaged in the economic transformation of SSA.

Limitations

The findings of the study and policy recommendations could have been enhanced by using a sub-sample analysis on the effect, institutions have on financial development. Unfortunately, longitudinal data on financial development is limited, hence the use of the overall measures of financial development, financial institutions and financial markets. Despite these limitations, the empirical evidence in the study provides some first-hand information on the effect of legal systems, property rights and financial development on economic growth, inflation and unemployment that are useful for policymakers.

Organisation of the Study

The study is structured into six sections. Chapter One begins the research. It covers the study's background, the problem statement, the study's objectives, the hypotheses of the study, the importance of the research, and finally, the organisation of the study. Chapter Two presents an overview of legal systems, property rights, financial development, economic growth, unemployment and inflation in SSA.

Furthermore, Chapter Three examines the effect of legal systems and property rights on financial development while Chapter Four examines whether the impact of legal systems, property rights and financial development on economic growth, unemployment and inflation is threshold specific. Chapter Five assess the effectiveness of openness policies on financial development. The

final chapter presented in Chapter Six presents a summary of the key findings, conclusion and recommendations.



CHAPTER TWO

STYLIZED FACTS AND CONTEXTUAL ANALYSIS OF LEGAL SYSTEMS, PROPERTY RIGHTS AND FINANCIAL DEVELOPMENT IN SUB-SAHARAN AFRICA

Introduction

This chapter provides stylised facts on the key variables considered in the study. The contextual analysis is relevant in understanding the state of development concerning these variables and possible empirical outcomes.

Synergy among Financial Development, Legal Systems and Property Rights, Economic Growth, Unemployment, and Inflation in Sub-Saharan Africa

Understanding the interconnectedness of financial development, legal systems and property rights, economic growth, unemployment, and inflation is vital for fostering a stable and prosperous economy. Strengthening financial systems and legal frameworks can stimulate economic growth, reduce unemployment, and maintain stable inflation rates, fostering overall economic well-being. Policymakers must recognize the interdependence of these components to implement effective strategies that drive sustainable development. Discussions below shows an overview of how these components synergize:

Financial Development

Financial development refers to the improvement and expansion of financial institutions, markets, and instruments. A well-developed financial sector enhances the availability of credit, encourages savings, and promotes

investment. Access to financial resources empowers businesses to innovate, expand, and create jobs, thus contributing to economic growth.

Legal Systems and Property Rights

Robust legal systems and the protection of property rights are foundational for financial development. When property rights are clearly defined and enforced, individuals and businesses feel secure in their investments. This security reduces transaction costs and risks, stimulating both innovation and investment. Effective legal frameworks enable efficient dispute resolution and contract enforcement, further supporting a dynamic financial environment.

Economic Growth

Economic growth is often driven by the interplay between financial development and strong legal systems. As financial markets mature and legal protections strengthen, resources are allocated more efficiently towards productive investments. This growth, in turn, leads to increased employment opportunities, improved living standards, and enhanced economic stability. As businesses thrive, they contribute to a larger tax base, which can be utilized for public goods and services.

Unemployment

The relationship between economic growth and unemployment is typically inverse: as the economy grows, employment opportunities increase, thereby reducing unemployment rates. When financial systems are developed and legal frameworks are effective, businesses can operate efficiently, leading to job creation. Conversely, if financial markets are underdeveloped or legal

protections are weak, businesses may struggle, leading to higher unemployment levels.

Inflation

Inflation can also be impacted by the conditions of financial development and legal systems. Well-functioning financial markets contribute to price stability by promoting efficient allocation of resources and preventing speculative bubbles. Clear property rights and stable legal environments encourage long-term investments, which help to moderate inflation by enhancing supply in the economy. Conversely, high inflation can erode financial stability and deter investment, creating a vicious cycle that hampers economic growth.

Definition and Measurement of Key Concepts

Financial Development

Financial development, as defined by Chong, Lam, and Yusop (2011), is the improvement in quality, quantity, and efficiency in delivering intermediary financial services. This is measured in this study using the financial development index created by the IMF first through Sahay et al. (2015) and later by Svirydzienka (2016). The index is comprehensive enough to capture critical components of financial development, covering depth, access, and efficiency in financial institutions and financial markets. The other measurement of financial development used in literature include liquid liabilities, private credit, and domestic credit (For example, Beck & Levine, 2004; Ibrahim & Alagidede, 2018; Nikumana, 2005) while the value of shares traded, market capitalisation is commonly used to represent stock market development (see, for instance, Agbloyor et al., 2014; Atje & Jovanovic, 1993;

Lee, 2012). However, Seven and Yetkiner (2016) observed that a single measure of financial development could not comprehensively and accurately capture the complex dynamics of a financial system. Also, Svirydzhenka's (2016) work noted that using a single measure does not consider the complex multi-dimensional nature of financial development. Hence, the study used this index to capture the various dimensions of financial development. Figure 1 provides a summary of the index.

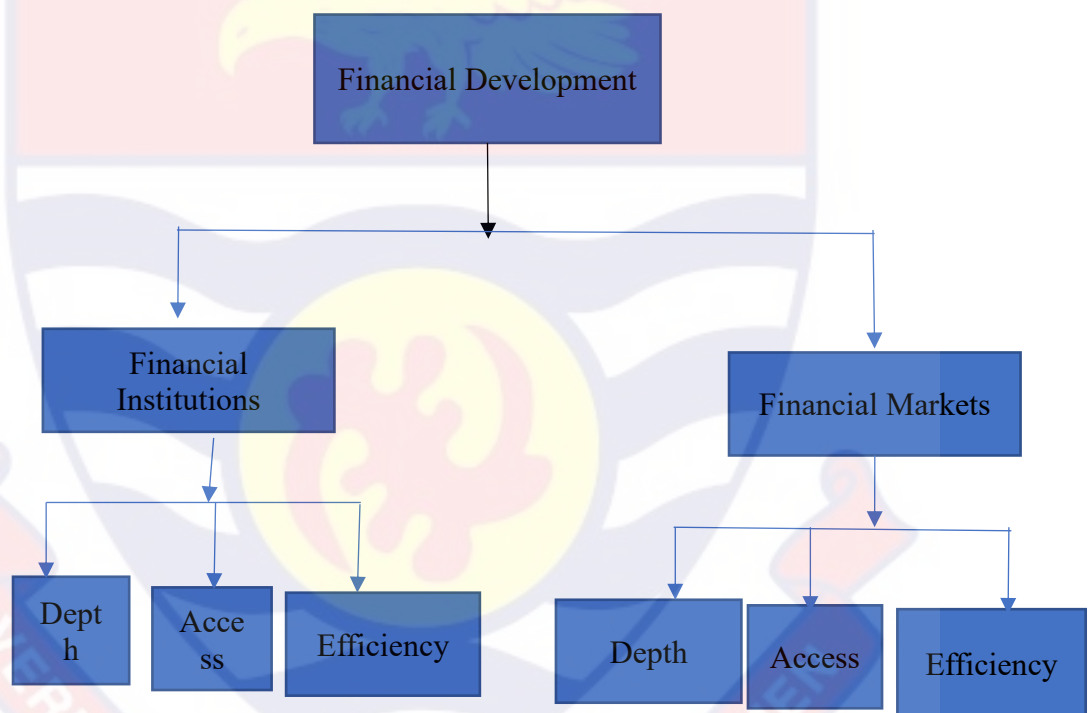


Figure 1: Financial Development Index

Source: Adapted from Svirydzhenka, (2016)

Financial Institution Index is measured by *Access* (Commercial bank branches per 100,000 adults and ATMs per 100,000 adults), *Depth* (Private sector credit to GDP, pension fund assets to GDP, mutual fund assets to GDP, and life and non-life insurance premiums to GDP), and *Efficiency* (Net interest margin, lending-deposit spread, non-interest income to total income, overhead

costs to total assets, return on assets and return on equity). Also, the Financial Markets Index comprises *Access* (Percent of stock market capitalisation outside the top 10 largest companies to proxy access to stock markets, the total number of debt security issuers. A higher degree of stock market concentration should reflect greater difficulties in accessing the stock market for newer or smaller issuers), *Depth* (Stock market capitalization as a percentage of GDP, stock market turnover, international government debt securities outstanding, and total debt securities outstanding of private non-financial corporations) and *Efficiency* (Stock market turnover ratio) (Adapted from Svirydzhenka, 2016). Thus, the ratio of the value of stocks traded to stock market capitalisation. A higher turnover should indicate higher liquidity and greater efficiency in the market.

Figures 2 and 3 shows the Financial Development Index for Africa, including Specific indices for Financial Institutions and Financial Markets, juxtaposed with the global averages from 1980 to 2020. The figures show a general declining trend in the Financial Development (FD) index for Africa over the period from 1980 to 2020, with some fluctuations.

The SSA Financial Institutions Index and Financial Markets Index appear to be the main components that contribute to the overall decline in the Financial Development (FD) index for the sub-region as compared to the world. This lag not only impacts economic growth potentials but also affects overall societal well-being in terms of reduced access to financial services and economic opportunities.

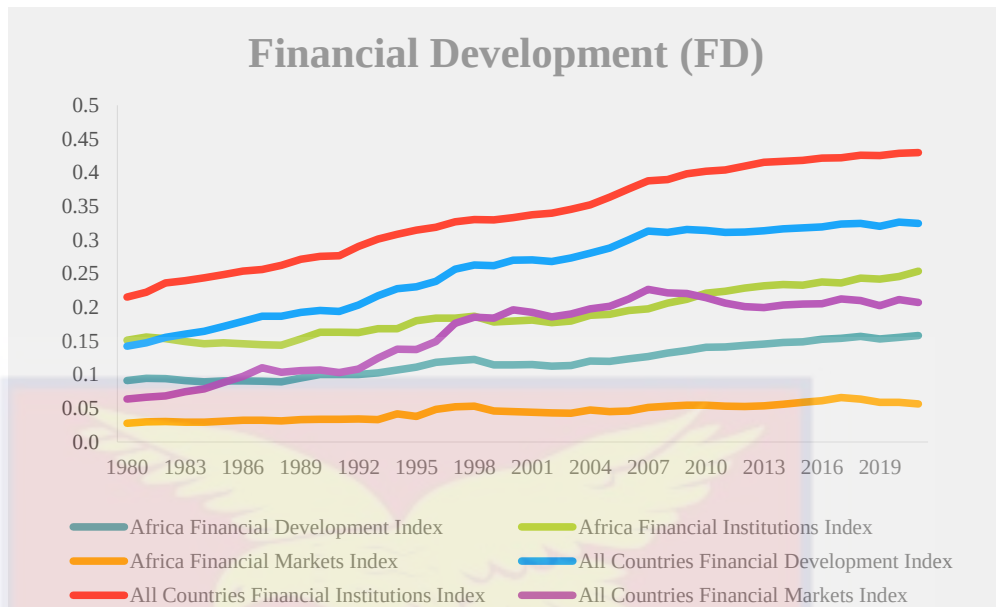


Figure 2: Trends in FD, FM and FI across Africa and the world, 1980-2020

Source: Author's construction based on data from IMF (2022)

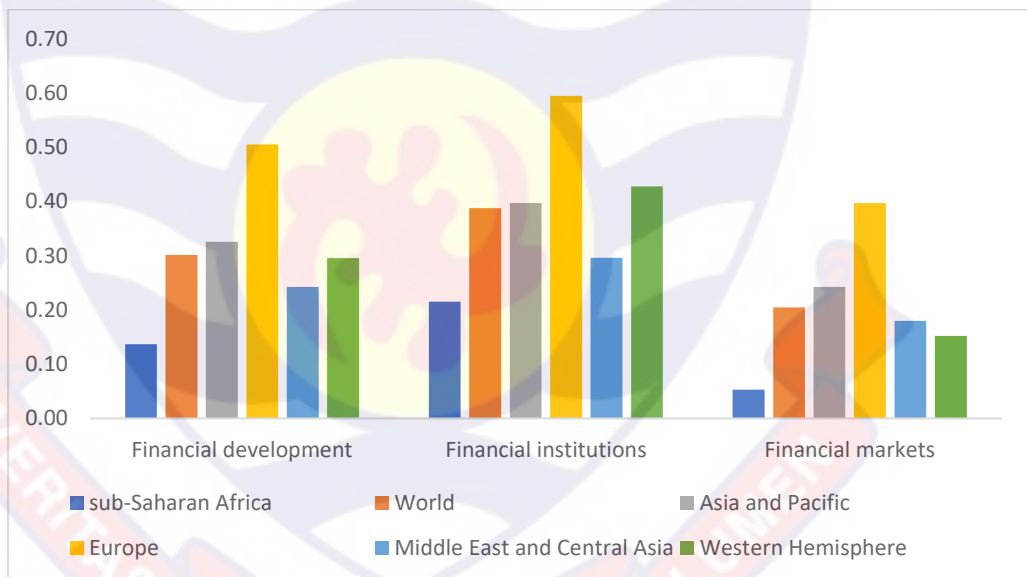


Figure 3: Trends in FD, FI and FM across the sub-region (SSA)

Source: Author's construction based on data from Svirydzenka (2022)

The Legal System and Property Rights

Miah and Suzuki (2018) defined property rights as the rights that individuals or groups have to make decisions about using specific assets. They may include the right to use, sell, lease out, and pass on to heirs but usually preclude the right to use the asset in ways which explicitly hurt others. This is

measured in this study using the Economic Freedom of the World (Freedom) index from the Fraser Institute database (2022)¹. It is constructed from nine (9) key elements based on data from the International Country Risk Guide (ICRG) and the World Economic Forum's Global Competitiveness Report (GCR), which are as follows: Judicial independence (from GCR), Impartial courts (from GCR), Protection of property rights (from GCR), Military interference in the rule of law and politics (from ICRG), Integrity of the legal system (from ICRG), Legal enforcement of contracts (from World Bank), Regulatory costs of the sale of real property (from World Bank), Reliability of police (from GCR), and Business costs of crime (from GCR).

Legal represents the effectiveness of the legal systems and the enforcement of property rights in the various countries used in the study. It measures the extent to which the legal systems/regimes enforce private property rights and the extent to which governments enforce those laws. Additionally, it evaluates the possibility of expropriation of private property, the judiciary's independence, corruption in the judiciary, and the practicability of contract enforcement for both private and commercial parties. Higher values denote better legal protection of property rights. It is expected that better enforcement should translate into confidence in financial institutions, markets, and, thus, financial development. The Economic Freedom of the World index and/or its components have been used by Adkins et al. (2002), Carlsson and Lundström (2002), Dawson (2003), Heckelman and Knack (2008), Fung (2009), Miletkov and Wintoki (2012), and Ekpeno (2015) among others. Alternative indices measure the quality of property rights and legal institutions, such as the Heritage

¹ www.fraserinstitute.org/studies/economic-freedom-of-the-world-2022-annual-report

Foundation's index. However, the benefit of using the index developed by Gwartney et al. (2010) is that it goes back to 1970; in contrast, the index developed by the Heritage Foundation is available back to 1995. Furthermore, de Haan and Sturm (2000) compare the two indices and find a close correlation between the two (close to 0.8) for 1995 when both indices are available.

State of Legal Systems and Property Rights in Sub-Saharan Africa

The situation of legal systems and property rights in Sub-Saharan Africa presents a complex landscape marked by various challenges and opportunities. Many countries in Sub-Saharan Africa have legal systems that are often weakened by inadequate enforcement, corruption, and lack of transparency. This can lead to significant obstacles for individuals and businesses seeking to protect their property rights. Legal institutions may struggle with inefficiency and a backlog of cases, resulting in delayed justice. Also, land tenure is particularly contentious in Sub-Saharan Africa. Many nations have a mixture of formal and informal land rights systems, with considerable overlap and conflict. In rural areas, customary land tenure systems may not be adequately recognized by formal legal systems, leading to disputes and insecurity over land ownership. In urban settings, land grabbing and conflicts regarding land use are prevalent, often exacerbated by rapid urbanization.

Again, women in Sub-Saharan Africa often face significant barriers to land ownership and property rights due to traditional practices, legal restrictions, and social norms. In many cultures, property rights are traditionally held by men, limiting women's access to land and resources. This inequality hinders economic empowerment and contributes to broader gender disparities. In addition, corruption within the legal system can undermine property rights

and legal protections. Bribery, favoritism, and lack of accountability can lead to unequal treatment under the law, which creates an environment of uncertainty for property owners and investors. Weak governance structures further exacerbate these issues, making it difficult to establish a reliable legal environment.

In response to these challenges, some countries in Sub-Saharan Africa are initiating legal reforms to strengthen property rights and modernize legal institutions. For example, efforts to formalize land registration and enhance access to legal services aim to provide greater security for property owners. Additionally, international organizations and NGOs often play a role in supporting legal reform initiatives and advocating for the recognition of property rights. The state of legal systems and property rights in Sub-Saharan Africa has direct implications for economic development. Insecure property rights can discourage investment, hinder access to credit, and limit entrepreneurial activities. Conversely, strengthening legal protections and ensuring equitable property rights can foster a more stable environment for businesses and stimulate economic growth.

Economic Growth, Unemployment and Inflation

Sub-Saharan Africa (SSA) has exhibited varied economic patterns characterized by periods of rapid growth and unfortunate downturns, impacted by structural factors, external economic shocks, and policy changes. This region presents a unique case in the global economic landscape, marked by its resilient adaptations and persistent challenges.

Economic growth in SSA has been cyclical with phases of acceleration influenced by global commodity prices given the region's dependence on the

export of raw materials. From the late 1990s until the onset of the global financial crisis in 2008, many countries in SSA enjoyed sustained economic growth, often exceeding global averages. This was spurred by rising commodity prices, increased investment flows, and general improvement in macroeconomic management. However, post-2008, growth rates have moderated, reflecting weaker external conditions, lower commodity prices, and domestic structural constraints. According to figure 5, GDP growth rates in SSA typically oscillated, but frequently remained above global averages during periods of economic buoyancy (Filmer and Fox, 2014).

Inflation dynamics in SSA have been strongly influenced by both external economic conditions and domestic policies. Historically, many countries in the region experienced high and volatile inflation rates, often driven by supply-side constraints, currency depreciations, and fiscal deficits. Over the years, there has been a clear trend of moderation in inflation, reflecting improved monetary policies, stronger institutions, and better fiscal management. For instance, figure 4 indicates that the inflation rate in SSA, though displaying periodic spikes, generally trends closer to the global average in more recent years, signifying an improving macroeconomic environment Kagochi, (2019).

Unemployment, conversely, has remained persistently high in SSA. The formal job market in many countries is underdeveloped, and a significant proportion of the population is engaged in low-productivity agricultural work or informal employment sectors. Structural issues such as mismatches between the skills possessed by workers and those demanded by employers, as well as high levels of population growth, contribute to high unemployment rates.

Unemployment rates in SSA, as depicted in figure 6, often exceed those of the global averages, highlighting one of the persistent socioeconomic challenges facing the region Appiah et al (2020).

Figures 4, 5 and 6 shows the trends in inflation rates, GDP growth, and unemployment in SSA compared to the world averages over several decades.

This longitudinal perspective is crucial in understanding the economic trajectory of SSA within the global context. The figures clearly depict that while SSA often experiences higher GDP growth rates compared to the global average, it also suffers from higher inflation and unemployment rates. These economic indicators are essential in assessing the economic health of the region and understanding the broader implications for economic policy and planning. It's clear that the economic narrative of SSA is one of contrast between potential and challenge, growth and instability. The region's economic performance is fundamentally tied to its political stability, demographic trends, global economic conditions, and internal policy choices. The high economic growth rates are frequently shadowed by the volatility in inflation and persistent unemployment, which underscores the need for structural reforms.

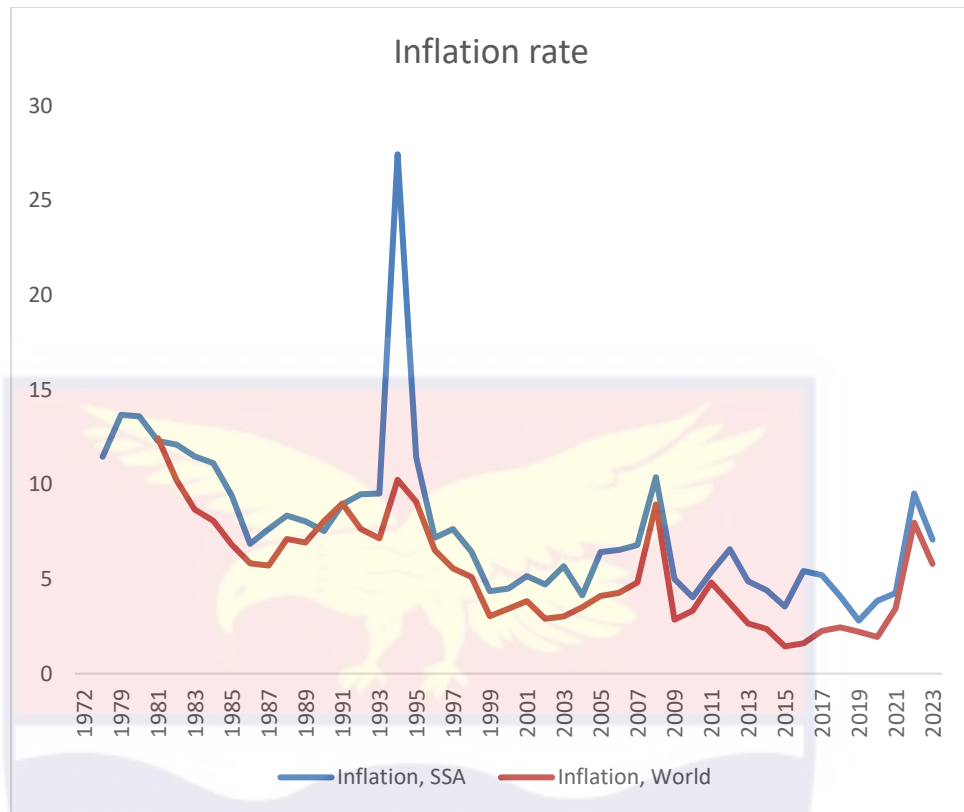


Figure 4: Trends in Inflation rate across SSA and the World

Source: Author's construction based on data from WDI (2023)

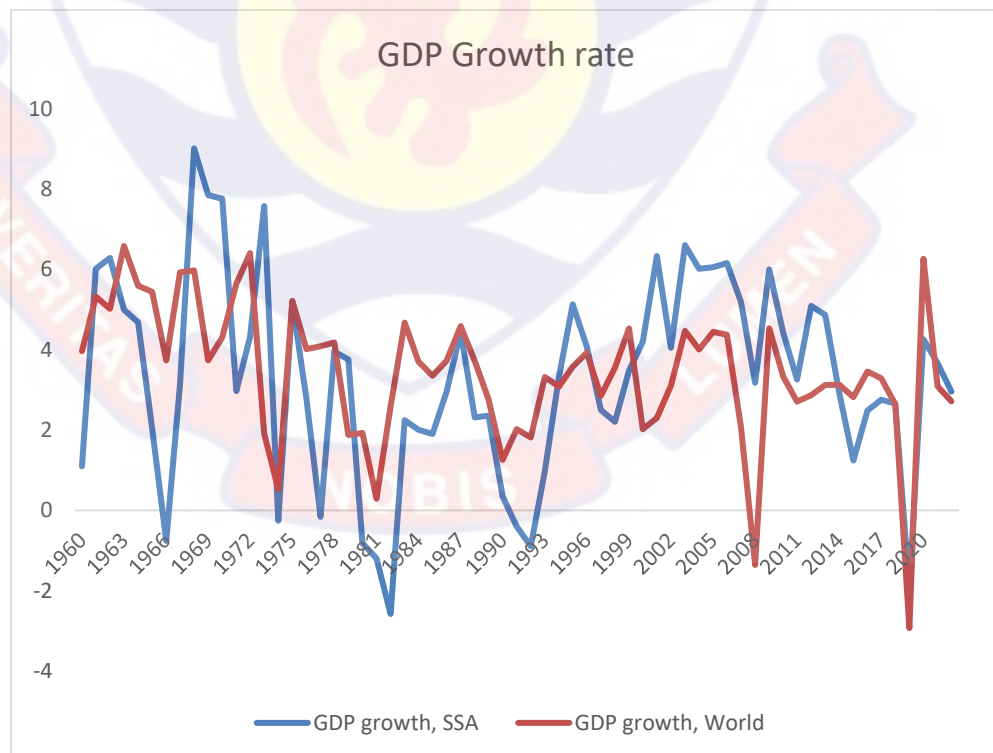


Figure 5: Trends in GDP rate across SSA and the World

Source: Author's construction based on data from WDI (2023)



Figure 6: Trends in Unemployment rate across SSA and the World

Source: Author's construction based on data from WDI (2023)

CHAPTER THREE

LEGAL SYSTEMS, PROPERTY RIGHTS AND FINANCIAL DEVELOPMENT IN SUB-SAHARAN AFRICA²

Introduction

The Sub-Saharan African region has witnessed significant growth in financial systems in recent years (Asongu, 2014; Odhiambo, 2018). However, there are still considerable differences in financial development across the region (Asongu, 2014; Beck *et al.*, 2000). One key factor identified as potentially influencing financial development is the legal system and the strength of property rights. Property rights and the legal system both have various effects on financial development. According to Nawaz (2015) and Asongu (2014), a strong legal system and well-defined property rights can boost investor confidence, lower transaction costs, and expand credit availability.

According to Beck *et al.* (2003), Economic growth depends on financial development since it offers the resources for investment, innovation, and expansion. For the financial sector to develop, a strong legal structure and well-defined property rights are necessary. They also foster an environment where financial institutions may function successfully and efficiently.

For financial institutions to operate, a strong legal system must provide the basis for contract enforcement, dispute resolution, and regulatory oversight. More investors will be drawn to the financial system as a result, increasing the flow of capital. Property rights that are clearly defined ensure that people and companies can own and utilize their assets without worrying about

² An article based on this chapter, “Legal Systems, Property Rights and Financial Development in Sub-Saharan Africa” has been published in *SAGE Open*.

expropriation or unlawful use by others, which encourages investment and capital development (Acemoglu and Johnson, 2005).

La Porta et al. (1998) also observed that, property rights and legal systems differ significantly from country to country, with some having strong systems that support economic development while others have poor or dysfunctional systems that impede it. For instance, the legal framework is highly developed and transparent in nations like the United States and the United Kingdom, and strong property rights protection results in robust financial sectors. In contrast, many developing nations have weak legal frameworks and inadequate protection for property rights, which results in underdeveloped financial sectors.

Financial development is transmitted through several ways from sound legal systems and property rights. The first benefit is that they lower transaction costs and risk, making it simpler and less expensive for both individuals and corporations to conduct financial transactions. Second, they encourage competition and innovation in the financial sector by creating a level playing field and defending intellectual property rights. According to Demirgüç-Kunt and Levine (2008), they also increase investor security and confidence, which increases capital inflows into the economy.

Every market economy needs property rights and a legal system in place. While legal systems provide the rules and laws that govern economic activity, property rights protect individuals' and organizations' rights to own and manage property. These two elements are crucial for creating an environment that is conducive to economic growth and development, according to Deininger and Feder (2009). According to Barzel (1997) and Alchian and Demsetz (1972),

property rights, also called "use rights," describe a person's ability to use a resource for personal use or to generate income. A further aspect of property rights is the capacity to "transfer" ownership to another individual through purchases, gifts, or bequests. Property rights often also include the capacity to enter into agreements with third parties through the rental, pledging, or mortgage of the asset or the granting of permission for others to use it, as in employment contracts.

Aristotle was one of the earliest proponents of private property rights. He argued that individuals were more likely to take charge of goods they owned or were paid to maintain than communal ones (Robbins, 2000). Private property rights are often understood by economists to be those that legally forbid others from making use of an item or asset. According to Robbins (2000), property rights have an impact on resource allocation through altering people's incentives to utilize the asset productively, investing in ways to maintain or expand its worth, and transferring or leasing it for other purposes.

According to the 2022 Economic Freedom Report, several SSA countries under scrutiny have been cataloged as either "highly unfree" or "repressed" economies" and this would result in low financial development. For instance, Demircuc-Kunt et al. (2013) argued that property rights enforcement and effective legal institutions could stimulate innovation and entrepreneurship in the financial sector because they would make it possible to develop new financial products and services that address a variety of customer needs. The enforcement of property rights and strong legal systems, according to Beck and Levine (2008), could lower the costs and risks involved in financial intermediation and market transactions by facilitating the enforcement of

contracts, the resolution of disputes, the disclosure of information, and the protection of creditors.

Enforcing property rights and having strong legal systems could promote efficiency and competition in the financial sector. They would stop monopoly power, rent seeking, and corruption that impede financial development and distort resource distribution. Moreover, property rights enforcement and effective legal institutions could increase the confidence and willingness of savers and investors to finance firms and markets, as they would be assured of their rights to own, control, and recover their assets, as indicated by World Bank (2008) and Beck and Levine (2008).

Against this background, this study examines the effect of legal systems and property rights on financial markets and institutions and the overall financial development in SSA. In assessing the law-finance link where financial markets and institutions are considered, the intrinsic link between financial markets and institutions must be accounted for. Financial institutions such as banks, insurance corporations, and pension funds are often listed on stock markets, where their worth is determined. Similarly, the participation of financial institutions in financial markets determines market activity, capitalization, stability, and efficiency.

Thus, any analysis of the law-finance nexus must account for these interlinkages to produce reliable results, which has been missing in most methodologies. One estimation technique that addresses interlinkages is the seemingly unrelated regressions (SURE) proposed by Zellner (1962). The SURE model accommodates the interactions between financial markets and institutions and addresses endogeneity. Since the equations are seemingly

related, the SURE model is used as a robustness check to address cross-equation correlations and linkages between financial markets and institutions. The analysis presented in this paper assumes that financial markets and institutions bear no relationship and are independent.

Theoretical Underpinnings and Hypothesis Development

There are several theories that could explain the relationship between institutions and financial development. These include the Settler Mortality Hypothesis, Theory of Law and Finance, Financial Liberalization Theory and the Growth-Led Hypothesis.

The Settler Mortality Hypothesis, also known as the Endowment Theory, emphasizes the critical role of institutions, resource endowments, and geography in shaping the development of financial sectors. Acemoglu *et al.* (2001) proposed that during the colonial era, institutions were established to safeguard private property, prevent government expropriation, and facilitate the transfer of resources from colonies to colonizers with minimal investment. Supporting this idea, Beck *et al.* (2003) suggest that initial endowments are more influential in explaining cross-country variations in financial sector development than legal origins and that countries with unfavorable geographical endowments are likely to have less advanced financial sectors.

The theory of Law and Finance, introduced by La Porta *et al.* (1998), posits that a country's legal framework, particularly its financial sector laws, is a significant determinant of financial sector development. The theory has two main components. Firstly, it suggests that countries with robust legal systems tend to experience higher levels of financial sector development. Secondly, it identifies legal traditions as the underlying factor for differences in financial

sector development across countries. The theory further assumes that legal systems reduce transaction costs, enforce contracts, and secure property rights, which are crucial for the operation of financial markets (La Porta *et al.*, 1998; Beck and Levine, 2008). The theory also distinguishes between legal origins, such as common law, civil law, and Scandinavian law, and their implications for financial regulation and innovation (Boughanmi and Nigam, 2022). Consistent with this theory, Djankov *et al.* (2007) argue that civil law countries have less bureaucracy and corruption, greater government credibility, and more advanced financial sectors. However, a more recent study by Fowowe (2014) fails to find support for this theory in the context of certain African countries.

The Financial Liberalization Theory is based on the ideas presented by McKinnon (1973) and Shaw (1973), which suggest that a country's financial sector develops when the government reduces control. The theory proposes that domestic savings and access to investment funds increase when the interest rate is moderately high and positive. According to this theory, financial repression results in market disequilibrium, limiting allocative efficiency due to credit controls and restricted access to external finance. Baltagi *et al.* (2009) also argue that a country's financial sector grows even faster if financial liberalization is accompanied by greater trade and financial openness.

The Growth-Led Hypothesis is based on Robinson's (1952) argument that economic expansion drives demand for financial services. The theory proposes that increasing living standards are essential for achieving greater financial inclusion and development. Empirical studies, such as Liang and Jian-Zhou (2006), have greatly enhanced this theory by providing supporting evidence. In developing or emerging economies, sustained economic growth

can promote financial sector activity, profitability, and development. Aluko and Ibrahim (2020) found that financial development spurs economic growth. However, the growth-enhancing effect is disproportionate, given the level of institutional quality. More specifically, financial development does not significantly promote economic growth when the International Country Risk Guide (ICRG)-based measure of institutions is used as the threshold variable below the optimal level of institutional quality.

Literature Review

Legal systems and the protection of property rights are underdeveloped in Sub-Saharan Africa, which has hampered the region's development. Additionally, the poor legal frameworks have bred an atmosphere of unpredictability and ambiguity, making it challenging for businesses to make long-term investment decisions. According to Asongu and Nwachukwu (2017), this uncertainty has also increased transaction costs and decreased the effectiveness of the financial system.

Similar, insecure property rights have resulted from inadequate property rights protection, making it challenging for people and businesses to use property as collateral for loans. For people and businesses, especially those operating in the informal sector, this has lowered access to financing. Foreign investment has also been deterred by insecure property rights since investors are hesitant to make investments in countries where their property rights are not safeguarded (Doss et al., 2018). Strong institutions are essential in fostering economic growth through financial development, according to Law et al. (2018). Effective institutional frameworks and regulations enhance financial systems' efficacy in mobilizing savings, allocating resources, and promoting

investment. This, in turn, leads to increased productivity, employment, and economic growth. The authors argue that a well-functioning financial sector requires a stable and predictable legal system, robust property rights, and efficient contract enforcement mechanisms, which strong institutions provide. Institutions help to reduce information asymmetry, monitor and control moral hazard, and mitigate adverse selection, which are inherent risks in the financial sector. The results suggest that countries with weaker institutional frameworks may face significant barriers to financial sector development, which, in turn, hinder their economic growth prospects.

Aluko and Ibrahim (2020) found that financial development spurs economic growth. However, the growth-enhancing effect is disproportionate, given the level of institutional quality. More specifically, when the threshold variable is set below the optimum level of institutional quality, financial development does not significantly contribute to economic growth. This is based on the International Country Risk Guide (ICRG)-based measure of institutions.

According to Duba (2022), the effectiveness of legal institutions affects how well financial systems reallocate capital among various businesses in a country. This is due to the crucial role that legal institutions play in creating a stable and predictable regulatory framework, which is necessary for the effective operation of financial markets. When legal institutions are functioning well, they aid in the growth of financial markets, encourage openness, and guarantee the upholding of the law. As a result, investors are better able to allocate capital across the numerous businesses that make up an economy since they have access to fast and accurate information.

Strong institutional frameworks, according to Aluko and Azeez (2019), are essential for fostering financial development in African nations. They argued that strong legal and regulatory frameworks, paired with efficient supervision and oversight, may improve trust and confidence in the financial sector, draw investment, and promote financial innovation. The authors also emphasized the role of political stability and the rule of law in promoting financial development. They argued that a stable political environment and an independent judiciary can help to ensure that contracts are enforced, property rights are protected, and disputes are resolved fairly and efficiently. This, in turn, can help to reduce transaction costs and increase the availability of credit and other financial services.

According to Khan et al. (2020), improved institutions are critical for financial development. Specifically, political stability, the fight against corruption, and high-quality regulations all have a favourable impact on financial development. Financial development is negatively impacted by the rule of law, indicating how weak the rule of law is in the majority of the world's nations. The financial development of developing and global panels is positively impacted by the control of corruption index, indicating that most countries have successfully eliminated corruption to a low degree. The same study also discovered a decrease in corruption in rising nations, however other institutional markers were deemed negligible. Overall, the findings point to the importance of high-quality institutions as the primary forces behind and promoters of financial development.

In a study of East Asian nations, Feng and Yu (2021) discover that institutional elements related to law and politics have a greater influence on

financial development than institutional aspects related to economics in East Asia. Financial development can be aided by improvements in institutional quality, including corporate freedom, fiscal independence, government efficacy, corruption control, rule of law, and regulatory quality. Enhancements to these establishments can help businesses better distribute resources and fortify their operations, which can lower expenses and provide a more equitable and productive financial operating environment.

Khan et al. (2020) investigates the impact of institutional quality on the financial development of 15 emerging and growth-leading economies. Their findings demonstrate that ethnic fragmentation may be effectively managed by an institutional framework, which can also serve as a catalyst for improved financial development.

Andrieş et al. (2023) use a dataset that spans 34 Organisation for Economic Co-operation and Development (OECD) member nations from 1995 to 2019 to evaluate the impact of institutional investors on financial development. Their findings imply that the financial system as a whole benefit from the growing number of institutional investors, particularly investment funds. They expand on their study by looking at the key elements of financial development and find that, while the influence on financial markets is determined to be statistically insignificant, it manifests primarily for financial institutions. As a result, institutional investors can facilitate better access to financial services and long-term investments.

Using a trivariate panel cointegration methodology, Singh et al. (2023) examine how financial deepening affects economic volatility for Sub-Saharan African (SSA) nations between 1982 and 2019. According to the study, there is

a long-term correlation between financial deepening indices and economic instability. When financial deepening is reflected by wide money, panel parameter estimations by Fully Modified OLS, Pooled Mean Group, and Dynamic OLS (ordinary least square) imply that broad money positively effects economic volatility. However, there is a detrimental effect when domestic credit is used as a stand-in for financial deepening. Therefore, broad money promotes economic instability whereas local credit helps to reduce it. In addition, the estimators show that, for SSA countries, broad money has a larger correlation with economic volatility than domestic credit.

The dynamics of financial deepening and the business cycle volatility in the United Arab Emirates (UAE) are examined by Abosedra et al. (2023). Their results point to the existence of asymmetry between growth volatility and financial deepening, as well as regime shifts in the cointegrating connection. Additionally, the study shows that there are notable variations in how the business cycle reacts to either positive or negative shifts in the financial deepening, with the latter being more noticeable in the short term. As a result, the found imbalance implies that changes in the UAE's financial system are greeted with swift and unfavourable responses from the business cycle.

Sanga and Aziakpono (2022) examine the influence of institutional factors on financial deepening and its consequences for bank credit in Africa. The findings demonstrate that political stability, voice and accountability, government efficacy, rule of law, and the ability to combat corruption all have a substantial impact on Africa's financial development. On the other hand, other variables have a greater impact on low-income countries, but government effectiveness has a greater impact on middle- and high-income countries. In

comparison to countries with lower degrees of financial depth, all institutional variables had larger effects—nearly twice as strong—at higher levels. Financial deepening is more affected by government efficacy and regulatory quality in nation-states with robust institutions than in those with weaker ones.

The study therefore tests the following hypotheses.

H₁: Legal systems and Property rights enforcement positively affect financial market development

H₂: Legal systems and Property rights enforcement positively affect financial institutions development

Research Gap Analysis

This study contributes to the law-finance nexus methodology by accounting for the cross-equation correlations and linkages between financial markets and institutions, which has been missing in most methodologies by assuming that financial markets and institutions bear no relationship and, for that matter, are independent.

Methodology and Data

Data

This study relies on a panel dataset of 41 sub-Saharan African countries from 2000 to 2020. Out of a total of 49 SSA countries, we chose 41 countries. The choice of these countries was due to the availability of data. Data on the Financial Development Index is sourced from the World Bank Global financial database. Legal systems and property rights, final government consumption, sound money, and regulatory barriers are sourced from the economic freedom database of the Fraiser Institute. Data on the gross domestic product, inflation, trade, and foreign direct investment, are sourced from the World Bank

Development Indicators database. The study aims to add new dimensions to the literature on the effect of legal systems and property rights on financial markets, financial institutions, and financial development.

Empirical Model

Following the works of Chinode and Kwenda, (2019) who showed that financial inclusion is dependent on institutions and economic factors and assuming financial development, financial markets, and financial institutions are a function of legal systems and property rights enforcement, and other variables; we could specify the function as

$$y_{it} = y_{it-1} + x_{it} + z_{it} + \varepsilon_{it} \quad (1)$$

Where y_{it} is financial development, financial markets, and financial institutions, the vector x_{it} represents the legal systems and property rights, and z_{it} is a vector of other control variables. The inclusion of y_{it-1} in a GMM model is necessary to control for serial correlation, endogeneity and simultaneity (Blundel and Bond, 1998). This is also based on the notion that current values of financial development are correlated with their past values. The system GMM estimator in panel analysis is preferred over other models because of its enhanced ability to handle endogeneity, serial correlation, and weak instruments in dynamic panel data models.

In equation 1, we specify that financial development, financial markets, and financial institutions are dependent variables denoted by y_{it} . We estimate these functions separately, with the financial development function as the baseline model and financial markets and institutions models as the check for robustness. The assumption is that the development of financial markets and institutions should translate to financial development. Therefore, the

expectation is that there should be some similarities in the factors that affect them. All models are estimated in equations 2, 3, and 4.

$$\begin{aligned} fd_{it} = & \beta_0 + \beta_1 fd_{it-1} + \beta_2 legal_{it} + \beta_3 GDP_{it} + \beta_4 trade_{it} + \\ & \beta_5 inflation_{it} + \beta_6 consumption_{it} + \beta_7 fdi_{it} + \beta_8 lendingrate_{it} + \\ & \beta_9 money_{it} + \beta_{10} barriers_{it} + \varepsilon_{it} \end{aligned} \quad (2)$$

$$\begin{aligned} fm_{it} = & \beta_0 + \beta_1 fm_{it-1} + \beta_2 legal_{it} + \beta_3 GDP_{it} + \beta_4 trade_{it} + \\ & \beta_5 inflation_{it} + \beta_6 consumption_{it} + \beta_7 fdi_{it} + \beta_8 lendingrate_{it} + \\ & \beta_9 money_{it} + \beta_{10} barriers_{it} + \varepsilon_{it} \end{aligned} \quad (3)$$

$$\begin{aligned} fi_{it} = & \beta_0 + \beta_1 fi_{it-1} + \beta_2 legal_{it} + \beta_3 GDP_{it} + \beta_4 trade_{it} + \beta_5 inflation_{it} + \\ & \beta_6 consumption_{it} + \beta_7 fdi_{it} + \beta_8 lendingrate_{it} + \beta_9 money_{it} + \\ & \beta_{10} barriers_{it} + \varepsilon_{it} \end{aligned} \quad (4)$$

The definitions, measurement and sources of data is contained in appendix A.

Diagnostics

There are two recommended tests for instrument validity when implementing the GMM model: Hansen's (1982) J test and Sargan's (1985) test of over-identification restrictions. Most of the time, the Hansen test is used for the test of instrument validity—the second diagnostic check tests for autocorrelation or serial correlation of the error term. Failure to reject the null hypothesis of no second-order serial correlation means that the original error term is serially uncorrelated, and the moment conditions are correctly specified. Thus, the values of $AR(2) > 0.05$. Scholars are advised to be suspicious of the Hansen statistics in testing for the validity of over-identifying restrictions. If the p-values are between 0.2 and 0.4, 0.4 and 0.6, 0.6 and 0.9, and over 0.9, scholars should be cautious, wary, highly sceptical, and ignoring, respectively. Roodman

(2009) recommends not to take comfort in a Hansen test p-value below 0.1 and that higher p-values, such as 0.25, have potential troubles.

Results and Discussions

Descriptive Statistics of variables

Table 1 gives an overview of the summary of the variables used in the study. Financial development has a mean value of 0.143. Given the range of computed values for the level of financial development, it implies that the level of financial development in Sub-Saharan African countries is relatively low. While some countries have a maximum level of financial development at 0.643, others have a level of financial development as low as 0.026. The level of development of financial institutions also has a mean value of 0.223. While some have a maximum level of financial institutions development of about 0.731, others have a minimum of about 0.044.

Table 1: Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
FD	861	.143	.112	.026	.643
FI	861	.223	.139	.044	.731
FM	861	.057	.1	0	.535
Legal System	861	4.086	1.21	1.66	6.94
Properties					
GDP	820	4.085	4.676	-36.391	33.629
trade	861	69.655	3.825	62.676	75.903
inflation	790	8.983	27.201	-9.616	513.906
govtconsumption	730	14.775	6.562	.952	43.484
foreign	820	4.467	8.282	-18.917	103.337
lending rate	861	17.756	3.817	14.518	25.795
Sound Money	747	7.138	1.349	1.25	9.77
Regulatorytradebar~s	700	4.701	1.779	0	8.17

Source: Author's estimations.

Financial market development has a mean value of 0.057, a maximum value of 0.535, and a minimum value of 0. The data reveals similarities between the development of financial institutions and the financial sector.

Legal systems and property rights have a mean value of about 4.086. Overall, in sub-Saharan Africa, Legal systems and property rights enforcement are relatively low. While some countries in sub-Saharan Africa have a development score of about 6.94, others have a score as low as 1.66. The level of trade activity is considerably high in the SSA region, with a mean value of about 69.655. While some countries have a maximum percentage of about 76, others have a minimum of about 63 percent. Regulatory barriers measure the level of regulations and restrictions of trade capital movements. The mean score of regulatory barriers in sub-Saharan Africa is 4.7. While some countries have a high regulatory score of about 8.17, others have a very low regulatory score of zero.

The correlation coefficient of variables

The result of the pairwise correlation indicates a moderate and positive correlation between legal systems and property rights enforcement on the level of financial development, financial markets development, and development of financial institutions, respectively. As indicated in Table 2, the correlation coefficients between legal systems and property rights enforcement and level of financial development, financial markets development, and development of financial institutions are 0.659, 0.678, and 0.509, respectively, and statistically significant.

Table 2: Correlations analysis

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) FD	1											
(2) FI	0.945* (0.000)	1										
(3) FM	0.889* (0.000)	0.690* (0.000)	1									
(4) LegalSystem	0.659* (0.000)	0.678* (0.000)	0.509* (0.000)	1								
(5) GDP	0.283* (0.000)	0.150* (0.000)	0.417* (0.000)	0.091* (0.009)	1							
(6) trade	0.037 (0.276)	0.046 (0.174)	0.017 (0.612)	0.069* (0.044)	0.221* (0.000)	1						
(7) Inflation	-0.014 (0.713)	-0.079* (0.031)	0.078* (0.034)	0.028 (0.452)	0.124* (0.001)	0.005 (0.885)	1					
(8) govtconsumption	0.400* (0.000)	0.500* (0.000)	0.196* (0.000)	0.332* (0.000)	-0.241* (0.000)	0.032 (0.385)	-0.022 (0.566)	1				
(9) Foreign	-0.211* (0.000)	-0.291* (0.000)	-0.063 (0.071)	-0.008 (0.820)	0.598* (0.000)	0.216* (0.000)	0.166* (0.000)	-0.334* (0.000)	1			
(10) lendingrate	-0.117* (0.001)	-0.145* (0.000)	-0.056 (0.101)	-0.178* (0.000)	-0.331* (0.000)	-0.564* (0.000)	0.068 (0.067)	-0.059 (0.114)	-0.278* (0.000)	1		
(11) SoundMoney	0.352* (0.000)	0.342* (0.000)	0.306* (0.000)	0.446* (0.000)	0.020 (0.603)	-0.028 (0.443)	-0.106* (0.007)	0.194* (0.000)	-0.033 (0.388)	-0.138* (0.000)	1	
(12) Regulatorytra	0.367* (0.000)	0.389* (0.000)	0.276* (0.000)	0.423* (0.000)	-0.008 (0.829)	0.038 (0.315)	0.045 (0.268)	0.212* (0.000)	-0.196* (0.000)	0.224* (0.000)	0.303* (0.000)	1

Source: Authors' estimations. Note: Standard errors are in parentheses. *, **, *** denotes significance at 10%, 5% and 1% level respectively.

Legal Systems, Property Rights, and Financial Development

Table 3 shows the results of the GMM estimates of the effect of legal systems and property rights on financial development as a whole, as well as the development of financial markets and institutions, as indicated in models 1, 2, and 3 of Table 3. The unobservable heterogeneities among the study's participating countries are not taken into account by OLS results. The dependent and complex nature of property rights and legal institutions across economies requires our analysis to account for such heterogeneities and unobservable factors. In all models, the research takes other macroeconomic factors into account that could influence financial institutions, financial market development, and overall financial development. These include the log of GDP, trade, inflation, government consumption, foreign investment, lending rate, Sound money, and Regulatory barriers. Hansen J test reported for all models indicates that the instruments used in the models are valid, and a significant AR statistic reported indicated the absence of serial correlation in the models, respectively.

Table 3: Two-Step System GMM Estimates of Legal System and Property Rights on FD, FM, and FI

Variables	(1)	(2)	(3)
	FD	FM	FI
L.FD	0.689*** (0.0550)		
L.FM		0.805*** (0.00803)	
L.FI			0.881*** (0.0372)
LegalSystemPropertyRights	0.0400*** (0.00870)	0.0153*** (0.000936)	0.0156** (0.00670)
Log GDP	0.00970** (0.00385)	0.0139*** (0.00125)	0.00218 (0.00264)
trade	0.000380* (0.000222)	0.000978*** (0.0000541)	0.000180 (0.000326)
log_inflation	-0.00532*** (0.00192)	-0.00490*** (0.000669)	-0.00553*** (0.00176)
Final Government Consumption	0.000589 (0.000564)	-0.000704*** (0.000203)	0.00104** (0.000437)
log_foreign	-0.00994** (0.00408)	-0.0236*** (0.000934)	0.00210 (0.00536)
lending rate	0.00154** (0.000683)	0.000379** (0.000167)	0.000354 (0.000432)
SoundMoney	-0.00715*** (0.00249)	-0.00120 (0.00108)	-0.00462** (0.00212)
Regulatorytradebarriers	-0.00476*** (0.00144)	-0.00369*** (0.000377)	-0.000198 (0.00152)
Constant	-0.120 (0.0970)	0.0538** (0.0204)	-0.117* (0.0624)
Observations	471	459	471
No. of Instruments	27	28	27
AR1 (P-Value)	0.0328	0.0979	0.0000489
AR2 (P-Value)	0.798	0.383	0.970
Hansen-J (P-Value)	0.623	0.410	0.433

Source: Authors' estimations. Note: Standard errors are in parentheses. *, **, *** denotes significance at 10%, 5% and 1% level respectively

Financial Development

The lag of financial development has a significant positive effect on the current level of financial development. As indicated by Chinn and Ito (2006), previous levels of financial development should significantly affect the current level of financial development. Positive lagged coefficients imply that financially developed countries are projected to show higher growth in financial development. The results indicate that a percentage increase in past values of financial development will increase the current level of financial development by about 0.689 percent.

The results indicate that legal systems and property rights have a significant positive relationship with financial development. The results suggest that increasing the score of legal systems and property rights enforcement by one basis point will increase financial development by about 0.04. Effective legal systems, coupled with effective enforcement of property rights, could improve asset allocations, affecting growth in sectorial values and improving access to finance. The finance and law theory argues that in economies where the legal system enforces property rights, supports private contract arrangements, and protects the legal right of investors, holders of funds are willing to save their funds, and finance firms, and therefore financial markets would flourish. This result is consistent with Levine (2002), Wurgler (2000), and Duba (2022), who explain how legal institutions could affect how effectively financial systems redistributed capital among the various sectors in a country.

Similarly, legal systems and property rights enforcement have a significant positive relationship with the development of financial markets. The

results indicate that lagged values of financial market development positively affect the current values. A percentage increase in the previous value could lead to a 0.805 percent increase in the current level of financial market development. As indicated in column 2 of Table 3, the result implies that an increase in legal systems and property rights enforcement by one basis point will increase financial development by about 0.01. Developing legal systems and property rights can propel the development of financial markets in sub-Saharan Africa. The legal system should make sure that contracts and property rights are sufficiently clear and predictable so that the independence of the court, its perception, the effectiveness of its judgment, and the enforcement of the court's decision are essential features whose deformation has a direct impact on the operation of the financial system.

Duba (2022) argues that financial markets tend to flourish when the legal systems effectively enforce property rights and there is the existence of the rule of law, which the government effectively enforces. Effective legal systems are essential ingredients for competitive markets. This could explain why the US financial markets tend to be competitive and attractive over other financial markets across the globe. Their financial markets are characterized by greater standardization of legal systems and norms. Without a proper legal system, it becomes harder to trade in almost any financial instrument. In other words, an inefficient legal system may lead businesses to move elsewhere.

As indicated in column 3 of Table 3, legal systems and the enforcement of property rights have a positive and significant effect on the development of financial institutions. Like the financial markets model in column 2, a basis increase in the level of legal systems and the enforcement of property rights is

expected to increase the development of financial institutions by about 0.02. the results confirm an a priori expectation of a positive relationship between legal systems and property rights enforcement and the development of financial institutions. The lagged values of the development of financial institutions also have a significant positive relationship with the current level of development of financial institutions. A percentage increase in past values will result in a 0.881 percent increase in financial institutions' development level.

The estimates in Table 3 indicate that the log of the gross domestic product has a significant positive effect on both financial development and financial markets development but has no significant impact on the development of financial institutions in sub-Saharan Africa. A percent increase in the gross domestic product will increase financial development and the development of financial markets by 0.00970 and 0.0139, respectively. This result is consistent with the finance growth theory. Countries with higher GDP levels will allow for greater economies of scale in financial services provision, promoting supply-side financial development.

The log of inflation significantly negatively affects the development of financial institutions and markets and the overall financial sector development in SSA. A percentage increase in the inflation rate will induce a negative rate of change in financial development and the development of financial institutions, respectively, as indicated in Table 3. Inflationary periods tend to lead to uncertainty in the investment environment since they erode the value of money. It is, therefore, the case that inflation represses investment in financial instruments and noninvolvement in financial markets. As Mahyar (2017) indicated, inflation raises the risk of investment because of market uncertainty

and erodes the value of investments, repressing financial development.

The level of trade regulatory barriers significantly negatively affects financial markets and overall financial development. Still, it has no significant effect on the development of financial institutions in SSA, as indicated in Table 3 (columns 1 and 2). This is consistent with apriori expectations of a negative relationship between financial development and regulatory trade barriers. In addition, stringent regulatory trade barriers reduce the ongoing trade activity between a country and the outside world. This leads to a decrease in capital inflows into an economy which could affect the growth of financial development and markets. The insignificant effect on financial institutions' development could result from cross-border banking restrictions in sub-Saharan Africa because of a lack of infrastructure, regulatory obstacles, and other issues. As a result, financial institutions may be less significantly impacted by trade regulatory restrictions than in other regions with more advanced cross-border banking. Also, focusing on domestic markets rather than diversifying into global markets, many financial institutions in sub-Saharan Africa strongly emphasize serving their home markets. Because financial institutions may be less dependent on international trade in financial services, the impact of trade regulatory barriers on them may be minimal.

The average lending rate is also a significant determinant of financial development and the development of financial markets. A percentage increase in the average lending rate could lead to a 0.00154 and 0.0004 percent increase in the level of financial development and development of financial markets, respectively. As Shaw (1973) argued, higher lending rates stimulate total and financial savings and thus lead to quality investment in the financial sector since

higher interest rates rule out investments with low productivity. Therefore, resources are moved to more efficient accumulation of saving from less efficient forms of accumulation.

The level of government consumption has a significant negative effect on the level of financial market development (0.0007) and a significant positive effect on the development of financial institutions (0.001). The results also indicate that sound money significantly negatively affects the development of financial institutions (0.004) and the overall financial sector development (0.007). The plausible reason for such a result could be that an increase in money supply could lead to an increase in inflation, which could repress the level of financial development.

Results diagnostics

As indicated in Table 4, the post-estimation diagnostic tests are consistent with the assumptions necessary for implementing a system Generalized Methods of Moments.

Table 4: Diagnostics test of SYS-GMM

Test	Hypothesis	Decision
Autocorrelation	H_0 : No autocorrelation	Using the values of the AR(2) values indicated in the results tables, we cannot reject the null hypothesis of no serial correlation.
Over-identification restriction	H_0 : Over-identifying restrictions are valid	Using the Hansen J-Test, we are unable to reject the null hypothesis. This implies that all instruments used are valid.

Source: Authors' estimations.

Robustness Checks

An alternative measure of financial development is used to ascertain the robustness of the empirical results above, which could be sensitive to different proxies, as seen with Demetriades and James (2011). An alternative measure of financial development is a credit to the private sector from the World Bank database, which equals financial intermediary credits to the private sector divided by the gross domestic product. The variable measures the claims on the private sector by financial intermediaries. Rajan and Zingales (1998), Levine *et al.* (2000), Beck (2002), Claessens and Laeven (2003), Beck *et al.* (2003), and

Bekaert *et al.* (2005), among others, also use this measure as a proxy for financial development. The results of the dynamic panel SYS-GMM regressions are reported in Table 5. The results are invariant with the earlier results. Legal systems and property rights have a significant positive relationship with the financial development indicator (i.e., credit to the private sector). Thus, there is no significant variation as earlier results are robust irrespective of the proxy measures for financial development. Therefore, the results are generally robust.

Table 5: Two-Step System GMM Regression of the Legal System and Property Rights with Credit to Private Sector

	(1) Credit to private sector
L.Credit to private sector	0.714*** (0.0229)
LegalSystemPropertyRights	0.0901** (0.948)
log_GDP	1.847*** (0.542)
Trade	0.0380 (0.0481)
log_inflation	-1.439*** (0.219)
Final Government Consumption	0.221*** (0.0508)
log_foreign	-0.907* (0.498)
lending rate	0.0432 (0.0541)
SoundMoney	0.980*** (0.341)
Regulatorytradebarriers	0.574** (0.237)
Constant	-33.28** (15.31)
Observations	425
No. of Instruments	27
AR1 (P-Value)	0.0609
AR2 (P-Value)	0.406
Hansen-J (P-Value)	0.617

Source: Authors' estimations. Note: Standard errors are in parentheses. *, **, *** denotes significance at 10%, 5% and 1% level respectively.

The results, as indicated in Table 5, show that legal systems and property rights enforcement significantly and positively affect the level of financial development in sub-Saharan Africa. The results suggest that a percentage increase in the score of legal systems and the enforcement of property rights could result in a 0.0901 percent increase in financial development. The results in Table 5 are consistent with the results in Table 3 both in sign, and the magnitude of the effect is not wide off. The implication is that the measure of financial development does not matter for financial development. Well-enforced property rights and effective legal systems should positively affect financial development. It increases investor confidence in an economy, which could result in an inflow of capital from overseas, resulting in the larger capitalization of businesses. The effect of other control variables on financial development is also consistent with the results in Table 3.

Seemingly Unrelated Regression (SUR) was used to estimate the same models in order to confirm the consistency of the study's findings. SUR can explain cross-equational connections and correlations between financial markets and financial institutions (Avery, 1977). These variables are simultaneously estimated and given the endogenous variable treatment. Equations 3, 4, and 5 were therefore estimated simultaneously. Table 6 shows the findings in relation to the effect of legal systems and property rights on financial development. In fact, the data demonstrated that property rights and legal systems had positive effects on financial institutions, markets, and overall financial development. This correlates with the main GMM model's findings. The analysis presented in this paper assumes that financial markets and

institutions bear no relationship and are independent. However, financial markets and institutions are interlinked.

The estimation so far assumes no relationship between financial development, financial markets, and financial institutions. However, the reality is that these variables are linked and highly correlated (see correlation matrix Table 2). Financial development comprises both financial institutions and financial markets. On the other hand, financial institutions rely on financial markets for capital mobilization while contributing to the development of the financial market through listing on the stock market. Hence, there is a need to employ a model capable of accounting for the interdependence among these variables. Therefore, for further robustness check, the study uses the SUR model to account for the interdependence among these variables.

According to a study by Akinlo and Egbetunde (2016), financial institutions such as banks and microfinance institutions play a crucial role in promoting economic growth and development in sub-Saharan Africa by mobilizing savings and allocating credit to various economic sectors. These institutions often rely on financial markets to raise funds and manage their liquidity.

Similarly, Agyei-Boapeah and Ansah-Adu (2018) argue that the development of financial markets in sub-Saharan Africa can significantly impact financial institutions' performance. For example, a well-developed bond market can provide banks with an alternative funding source, reducing their reliance on deposits and improving their liquidity and stability.

However, the degree of interlinkage between financial institutions and financial markets varies across countries and regions in sub-Saharan Africa. According

to Beck, Demirgüç-Kunt, and Levine (2000), a country's financial market development level can affect the degree to which financial institutions rely on financial markets for funding and liquidity.

Overall, sub-Saharan African financial institutions and financial markets are interlinked, and their development is mutually reinforcing. The extent of this interlinkage depends on the level of financial market development and the regulatory environment.

**Table 6: Legal Systems and Property Rights on Financial Development:
SUR Model**

VARIABLES	(1) FD	(2) FM	(3) FI
L.FD	0.976*** (0.00840)		
LegalSystemPropertyRights	0.00228*** (0.000828)	0.00220* (0.00113)	0.00227** (0.00100)
log_GDP	0.00163** (0.000710)	0.00121 (0.000996)	0.00200** (0.000786)
Trade	0.000271 (0.000231)	-1.48e-05 (0.000358)	0.000546** (0.000276)
log_inflation	0.000259 (0.000647)	0.00156 (0.00100)	-0.00105 (0.000778)
govtconsumption	0.000103 (0.000114)	-7.27e-05 (0.000172)	0.000275** (0.000140)
log_foreign	-0.00197** (0.000767)	-0.00207* (0.00109)	-0.00179** (0.000903)
lendingrate	-5.01e-07 (0.000295)	-0.000220 (0.000458)	0.000221 (0.000352)
SoundMoney	-0.000313 (0.000612)	5.26e-05 (0.000949)	-0.000665 (0.000732)
Regulatorytradebarriers	-0.000104 (0.000433)	-0.000154 (0.000671)	-5.11e-05 (0.000519)
L.FM		0.976*** (0.00848)	
L.FI			0.976*** (0.00846)
Constant	-0.0206 (0.0250)	0.0106 (0.0389)	-0.0511* (0.0296)
Observations	532	532	532
R-squared	0.986	0.959	0.986

Source: Author's estimations. Note: Standard errors are in parentheses *** p<0.01, ** p<0.05, and * p<0.1 refer to significant levels at 1%, 5% and 10% respectively.

Conclusions

The study examined the effect of legal systems and property rights enforcement on the level of financial markets and institutions and the overall financial development in SSA using data from 2000 to 2020 for 41 countries. The motivation for this research stemmed from the inconclusive results in the empirical literature regarding the impact of legal systems and property rights on financial development, as found across a diverse array of developed and developing nations. Also, the SUR model for robustness checks and to account for cross-equational linkages and correlations between financial markets and financial institutions, which had been overlooked in most previous studies. They contended that an analysis customized to a specific region, comprising countries with comparable economic fundamentals, cultural backgrounds, and historical contexts, was essential for deriving pertinent policy implications.

Additionally, we emphasized the importance of linking Sub-Saharan Africa reforms with economic performance, focusing on enhancing both the financial sector and institutional capacity. In addition, the fact that the study is inspired by the available literature on the institution-finance nexus is still growing and very scanty in SSA.

The results show that legal systems and property rights enforcement positively affect financial markets, financial institutions, and overall financial sector development. Also, using credit to the private sector as a substitute indicator of financial development, a positive relationship was still found between legal systems and property rights enforcement on financial development. The study concludes that the effect of legal systems and property rights enforcement on financial development does not depend on the measure

of financial development. Moreover, trade openness and GDP significantly positively affect the financial market dimension and overall financial development. We also observe that the lending rate positively influences the financial market dimension of financial development and the overall financial development index. Regulatory trade barriers significantly negatively affect financial markets and overall financial development.

Recommendations/Policy Implications

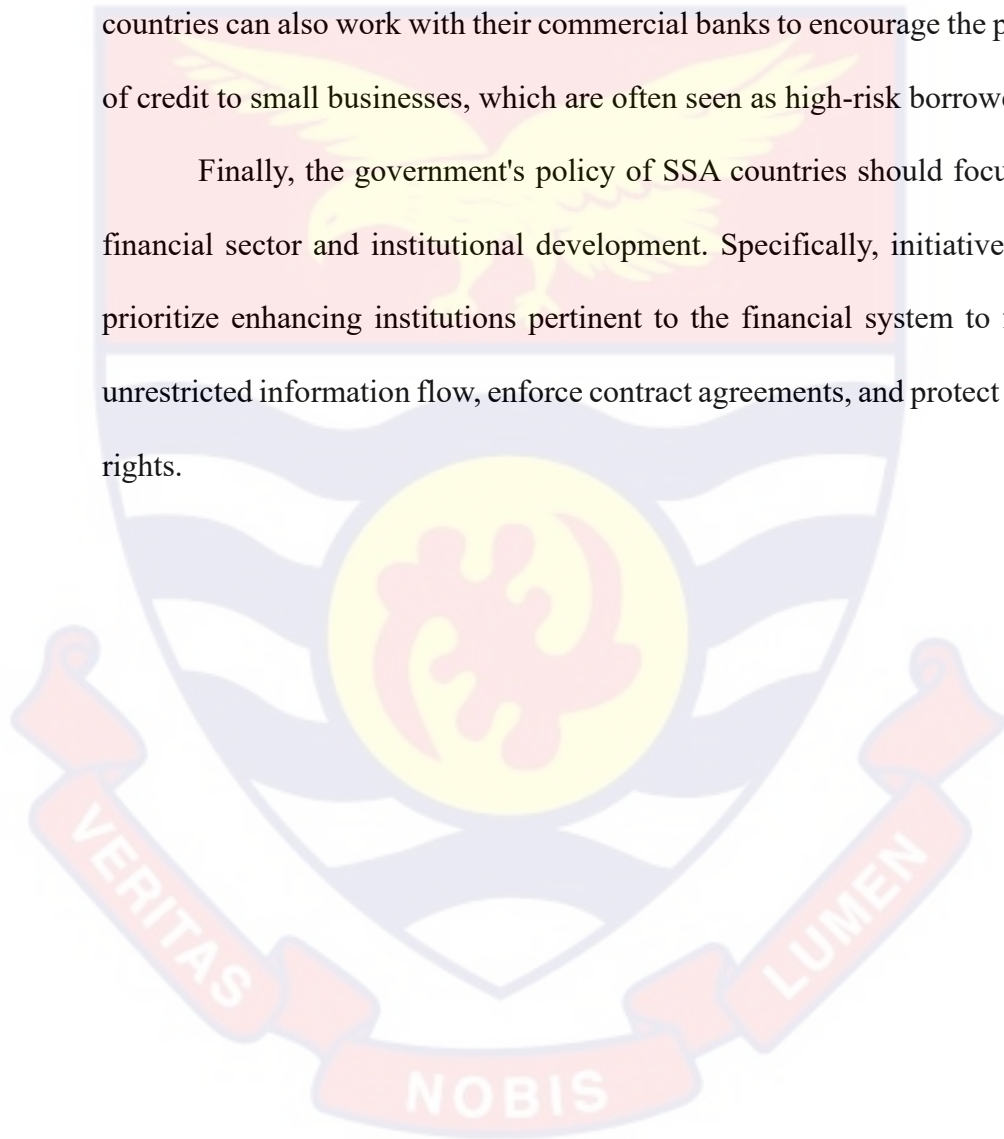
Following the empirical results, the study recommends that governments of SSA countries strengthen legal systems and ensure proper enforcement of property rights is a crucial step in promoting financial development in SSA. This includes establishing and enforcing clear laws and regulations that protect property rights and providing effective dispute resolution mechanisms to resolve conflicts. This will create a more predictable and stable environment for businesses and investors, encouraging them to invest in firms and financial markets. This could result in increased confidence in institutions and thus result in capital inflow and free flow of information into the sub-region, which could result in growth. Further, trade barriers should be less restrictive such that they could increase trade volumes and capital inflight into the region.

Governments of SSA countries should foster trade and support economic growth initiatives to drive financial markets development and the overall financial sector development. They should reduce trade barriers and eliminate any restrictions that may discourage foreign investment. In addition, governments need to work with international organizations and financial institutions to develop a comprehensive set of measures that accurately reflect

the state of financial development and regularly adjust these measures to reflect changes in the financial sector and ensure they remain relevant.

Central Banks in SSA countries should use monetary policy to regulate lending rates, keeping them at a level that supports financial development and adjusting interest rates as necessary to maintain stability. Governments of SSA countries can also work with their commercial banks to encourage the provision of credit to small businesses, which are often seen as high-risk borrowers.

Finally, the government's policy of SSA countries should focus on the financial sector and institutional development. Specifically, initiatives should prioritize enhancing institutions pertinent to the financial system to facilitate unrestricted information flow, enforce contract agreements, and protect property rights.



CHAPTER FOUR

GROWTH, UNEMPLOYMENT AND INFLATION IN SUB-SAHARAN AFRICA: THE ROLE OF FINANCIAL DEVELOPMENT AND LEGAL SYSTEMS AND PROPERTY RIGHTS³

Introduction

Growth, inflation, and in sub-Saharan Africa (SSA) are significant issues for policy makers and academics. The region faces challenges such as poor financial systems, weak property rights and legal frameworks, extreme poverty, inequality, and regular shocks. These factors impact people's well-being and economic success in various ways.

A key concern is how growth, unemployment, and inflation in Sub-Saharan Africa are affected by property rights, legal frameworks, and financial development. A better financial intermediation quality and effectiveness can boost investment, innovation, and output. Financial development promotes increased production, innovation, and investment by enhancing the amount of financial intermediation. To lower transaction costs, build trust, and promote economic activity, legal systems and property rights refer to the organizations that defend the rights of creditors, investors, and business owners as well as the enforcement of agreements and rules.

Many researchers have studied how financial growth affects economies in Africa south of the Sahara Desert. However, they disagree on the results. Several studies (e.g., Ibrahim et al., 2022) have shown that financial development has a negative or negligible impact on growth; however, others

³ An article on this chapter, "Growth, Unemployment and Inflation in Sub-Saharan Africa: The role of Financial Development and Legal Systems and Property Rights" has been published in *Research Square*.

(such as Ustarz & Fanta, 2021) have shown that the opposite is true. Similarly, evidence exists that property rights and legal systems impact African economies positively (Acemoglu et al., 2001), neuthetically (Easterly & Levine, 2003), or not at all (Rodrik et al., 2004).

This nexus also has a complicated and unclear inflationary role. Growth, unemployment, and the evolution of the financial system can all be directly or indirectly impacted by inflation. On the one hand, moderate inflation can boost GDP through raising profits, promoting investment, and lowering real wages. On the other hand, excessive inflation can impede growth by reducing purchasing power, warping relative prices, causing ambiguity, and discouraging saving. The influence of inflation on labor supply and demand, pay negotiations, and labor market institutions can also have an effect on unemployment. The supply and demand for financial services, the profitability of financial intermediaries, and the effectiveness of financial markets are other ways that inflation can have an impact on financial development.

Empirical research on how inflation impacts Sub-Saharan Africa's economy, unemployment rate, and financial development is sparse and unclear. Currevall et al. (2014) found that inflation positively or nonlinearly affects growth, while Khan and Senhadji (2001) saw a negative impact. Bittencourt et al. (2015) indicated negligible or adverse effects on unemployment, yet Ouedraogo et al. (2023) observed favorable influences. Regarding financial development, some studies (Boyd et al., 2001) have suggested that inflation hinders progress; however, (Ang & McKibbin, 2007) noted positive or negligible consequences.

Thus, this study sought to examine the impact of financial development on economic growth, unemployment, and inflation in sub-Saharan Africa and investigated the moderating effects of property rights and legal systems on these outcome variables.

Literature Review

Many theoretical and empirical studies have outlined the role that financial development plays in influencing the various sectors of economies, especially its role in economic growth, unemployment, stability and inflation. Various theories, measurements, and methods have been used to study these relationships. These sections present some of these studies and their arguments.

Financial Development and Economic Growth

The relationship between financial development and economic growth is complex and involves multiple factors. There are many pathways through which financial institutions and markets influence the efficiency and productivity of an economy (Rousseau & Wachtel, 2011). This paper aims to bring together different research pieces on how far there is a cause–effect link between financial development and economic growth. According to Levine et al. (2000), financial services may lead to growth by providing ex ante information about potential investment opportunities; observing transactions for better corporate governance; managing and diversifying goods and services; increasing savings (mobilization) and pooling; and facilitating trade in goods and services.

There are diverging perspectives regarding the correlation between financial development and economic growth. Four arguments have been outlined by Chuah and Thai (2004). The initial argument suggests that financial

development could stimulate economic growth by supporting innovative initiatives (King & Levine, 1993; Bencivega & Smith, 1991). The second argument posits that economic growth precedes financial development, with the expansion of an economy giving rise to a financial sector (Robinson, 1952). The third argument asserts that both the first and second arguments are valid, highlighting a bidirectional relationship (Greenwood & Javanovic, 1990). Finally, the final argument implies that the impact of financial development on economic growth is often exaggerated, as the actual effect is minimal (Lucas, 1988).

Financial development essentially reduces information, transaction, and monitoring costs while optimizing the distribution of money and risk throughout the economy. This leads to greater investment and higher-quality investment, which in turn promotes economic growth (Machado et al., 2021).

Abbas et al. (2022), in a study comparing lower middle-income countries and upper middle-income countries, find that economic growth and income distribution are affected by the level of financial inclusion. For the economic growth model, 44 middle-income countries are used, while for the inequality model, 42 middle-income countries are used. Using an ARDL model, they find that financial development affects both groups of economies in the long run. However, they find that the effect is more noticeable among upper middle-income countries than among lower middle-income countries. Using a Granger causality test, they further find that there is a two-way relationship between economic growth and financial development in both lower- and middle-income countries.

Using a sample of countries from the East Africa Community and the Southern African Development Community, Alananga and Mutasa (2022) examined the finance–growth nexus. They examined how economies of smaller countries could utilize monetary policy to stimulate their economic growth with a particular focus on proximity. Using a panel error correction model, their findings suggest that the ability of relatively small countries to pursue monetary expansionary policies is threatened by their proximity to trading giants. They also find that economic growth in earmarked economies is influenced by the level of development of their financial systems.

Ductor and Grechyna (2015) evaluate the interdependence linking the progress of the financial sector and the production of the tangible sector and their influence on the advancement of the economy utilizing a data panel comprising 101 nations during the period of 1970–2010. The findings of this study demonstrate that when a state of equilibrium is achieved between the growth rates of the financial sector and the tangible sector, a beneficial impact of financial development on economic growth is observed. Conversely, if the growth rates of these two sectors are disproportionate, the positive impact is diminished or potentially even reversed.

Similarly, Puşcaşu (2022), using annual data from 1990–2020, examined how economic growth is affected by financial systems in European member countries. The results of their research suggest that the advancement of financial systems, by means of operations conducted by banks and capital markets, has a beneficial impact on the distribution of resources, the collection of savings, and the effective handling of risks. Consequently, this leads to

economic growth, as there exists a connection between the amount of funds invested and the output generated by the real sector.

Using data for 50 countries between 1997 and 2014, Chen (2023) examined how economic volatility and economic growth are affected by financial development. Their findings demonstrate that, in both developed and developing nations, the amount of financial development inhibits economic progress, but the quality of financial development can stimulate it. Financial development affects economies more in emerging nations than in developed nations, but it has less of an effect on overall economic volatility. This helps to explain why economic volatility is greater in emerging nations than in developed nations.

Marwa and Zhanje (2015), in a review of theories that explain the finance–growth nexus, attempt to examine how development fits into the nexus. The main emerging tendency is that the majority of modern theories that attempt to explain the relationship between finance and growth have focused only on conventional finance as a whole. Understanding the role of development finance in the finance–growth nexus has received little attention. It concludes that the role of development finance should be integrated into the theory of the finance–growth nexus for a more thorough understanding of the relationship. The study shows that the traditional model of the relationship between finance and growth is more likely to underestimate the extent to which finance influences economic growth, particularly in less developed nations.

Ustarz and Fanta (2021) carried out an examination of the influence of financial development on the performance of various sectors within sub-Saharan African economies. Their discoveries propose that financial

development has a positive impact on the agriculture and service sectors, albeit necessitating a certain level of advancement to favorably influence the growth of the industrial sector. The outcomes of their investigation exhibit consistency even when alternative estimation techniques are taken into account.

Guru and Yadav (2019) carried out an investigation focusing on the association between financial development and economic growth in five emerging economies, Brazil, Russia, India, China, and South Africa during the time frame spanning from 1993 to 2014. Evident differences were detected in the primary indicators of financial development and macroeconomic variables among these economies. Their analysis revealed a significant and positive correlation between economic growth and parameters such as the value of shares traded, the credit-to-deposit ratio, and domestic credit to the private sector. In a similar vein, Bist (2018) examined the persistent correlation between financial development and economic growth from 1995 to 2014 in 16 low-income nations. The outcomes revealed continual cointegration between financial development and economic growth, with financial progress playing a noteworthy and favorable role in economic advancement in conjunction with global connections.

Ikhsan and Satrianto (2023) delved into the impact of financial development on economic growth in high-income nations. By employing the fixed effect model for their analysis, scholars established that the level of financial development indeed affects economic growth in high-income countries. Their research highlights the importance of financial development as a fundamental prerequisite for economic advancement, especially in nations concentrating on enhancing their financial sectors through efficient capital

mobilization approaches. It is imperative for financial development to act as the bedrock of policymaking, particularly concerning financial institutions and markets, to effectively guide the distribution and absorption of financial resources and significantly contribute to propelling economic progress. Additionally, investments and savings play pivotal roles in fulfilling the demands for financial resources and should be nurtured to bolster economic growth.

A body of literature concerning the association between finance and economic growth has illustrated a significant relationship between financial development and economic well-being. Recent investigations have further substantiated this concept by demonstrating that the progression of financial systems plays a critical role in nurturing economic growth, aligning with the contentions posited by Levine et al. (2000).

Financial Development and Inflation Rate

Economists and policymakers have exhibited significant interest in the intricate nexus between financial development and inflation, a topic that has been extensively studied empirically (Rajan, 2019; Cecchetti & Kharroubi, 2015; Fry, 1978; Shaw, 1973). The influence of financial systems on macroeconomic variables such as inflation grows as these systems evolve and become more sophisticated (Arcand, Berkes, & Panizza, 2012; Levine, 1997; Beck & Levine, 2004). The importance of financial markets and institutional depth and efficiency, referred to as financial development, is widely recognized as a fundamental factor shaping inflation dynamics (Claessens, Coleman, & Donnelly, 2018; Demetriades & Luintel, 1996). Recent scholarly works delve into the complex interconnections among financial innovation, credit

accessibility, and the transmission mechanisms of monetary policy, enriching our comprehension of how financial development impacts inflation across various global settings (Cecchetti & Kharroubi, 2012; Dées, Güntner, & Ivashina, 2019).

Scholars have established a link between financial development and inflation, proposing that inflation may lead to changes in financial development (Mahawiya et al., 2020; Seo et al., 2019; Seo & Shin, 2016; Ticoco-Zermeno et al., 2018; Abbey, 2012; Al-Naser & Jackson, 2012; Bittencourt, 2011). This group of researchers aims to argue that inflation can exert either a threshold effect or a linear effect on financial development, suggesting a causal relationship between inflation and financial development.

In their comparative analysis, Mahawiya et al. (2020) examined the impact of inflation on financial development in the ECOWAS and SADC regions from 1980 to 2011, identifying a distinct inflation threshold for both areas. The study revealed threshold levels of 17.9% for ECOWAS and 14.5% for SADC, indicating that exceeding these thresholds could have detrimental effects on financial development. Consequently, researchers emphasize the importance of prioritizing price stability policies within an inflation-targeting framework to enhance financial development in these regions. In a separate study, Odhiambo (2012) investigated the relationship between inflation and financial development in Zambia from 1980 to 2011 using the ARDL-bounds testing approach and found an inverse association between inflation and financial development, with private sector lending serving as a proxy for financial development.

Nguyen (2019) utilized a vector autoregressive model to examine the interactions among financial development, GDP growth, and inflation in five emerging Southeast Asian countries from 1997 to 2016. The study revealed several key relationships, including a positive correlation between GDP per capita growth and the money supply, a positive impact of domestic credit on GDP per capita growth but a negative effect on inflation, a negative correlation between stock market capitalization and inflation, and positive associations between GDP per capita growth and the money supply; additionally, there were directional relationships between GDP per capita and inflation and between inflation and the money supply and between GDP per capita and domestic lending to the private sector.

Keho (2010) delved into the causal and enduring connection between the performance of the banking sector and inflation across seven West African Economic and Monetary Union (UEMOA) nations. The study methodology was based on the Granger causality test and the bound testing strategy proposed by Pesaran et al. (2001). The study outcomes revealed a long-term partnership in one country but not in the remaining six countries. Additionally, in five nations, financial development emerged as a driver of inflation, whereas in two countries, the inflation rate acted as a catalyst for financial development.

Almalki and Batayneh (2015) examined the long-term correlation between the inflation rate and the development of the financial sector through the application of an autoregressive distributed lag (ARDL) bound testing methodology, as suggested by Pesaran et al. (2001). The findings substantiated the significant negative link, both in the short and long term, between financial development and inflation. Furthermore, the results confirmed that the current

development of the financial sector is significantly positively influenced by the policies implemented in the previous period.

Fuinhas et al. (2021) used Granger causality assessments based on a panel vector autoregressive framework, as well as mechanism impulse response functions, to examine the relationships between economic growth, inflation, stock market development, and banking sector development in sixteen high-income countries from 2001 to 2016. Their findings indicate a two-way relationship between financial progress and inflation. Furthermore, they find a negative association between these variables, meaning that financial system improvement is expected to reduce inflation in the studied economies.

The theoretical literature has tended to overlook Boyd et al. (2001), nevertheless demonstrating an inverse relationship between inflation and financial market performance. Furthermore, distinct balances lead to pronounced inflation under specific conditions and moderate inflation under other conditions, particularly when there is a sizable government deficit. The repercussions of financial progress on growth hinge predominantly on the initial state of equilibrium. Succinctly stated, financial advancement curtails the equilibrium inflation rate and nurtures economic expansion in nations commencing with relatively low inflation rates.

Effiong et al. (2020) investigate the impact of financial development on the efficacy of monetary policy concerning output and inflation in Africa. Their analysis encompasses annual data spanning 39 African countries from 1990 to 2015, employing conventional panel data methodologies. Their findings unveil a restricted correlation between financial development and the effectiveness of monetary policy in Africa. While the association with output growth lacks

statistical support, the inflation scenario displays a negative relationship—but only at contemporaneous levels. Additionally, as evidenced by Ciccarelli et al. (2014), the credit channel intensifies the repercussions of monetary policy shocks on production and inflation, heightening its potency amidst financial frictions.

In accordance with Ma and Lin (2016), there is an adverse correlation between monetary policy effectiveness and financial development, as heightened levels of financial development exert a mitigating impact on output and inflation via monetary policy. Furthermore, due to the diminishing output and inflation of emerging economies and advanced economies, respectively, the influence of financial expansion on the efficacy of monetary policy is disparate.

Financial Development and Unemployment

Understanding the complex relationship between financial development and unemployment across different economies has been the focus of an increasing amount of empirical research in recent years.

Using a sample of 19 emerging market economies, Rafiu and Afolabi (2023) examined how financial development affects unemployment. The researchers explicitly considered the participants' age groups and sex dichotomy. According to the study's conclusions, financial development has a conditional mean-reducing impact on unemployment. Furthermore, a reducing effect on the distribution of unemployment was identified in relation to financial development.

Tsaurai (2022) examined the relationship between unemployment in North African countries, the expansion of the financial industry, and the usage of renewable energy. The complementarities between (1) financial development

(FIN) and renewable energy consumption and (2) financial development and economic growth, along with their effects on unemployment, were also studied within the context of North African states. According to the results of their study, financial development significantly reduces unemployment in North African economies.

Chen and colleagues (2021) investigated the nonlinearities in the relationship between financial structure and development and unemployment. They discover that the impact varies depending on the kind of financing and degree of labor market flexibility in a nation using a system GMM estimation with a panel of 97 OECD and non-OECD countries for the years 1991–2015. In particular, (i) countries with more rigid labor markets experience lower unemployment due to excessive financial development; (ii) countries with more flexible labor markets experience higher unemployment due to bank-centered or underdeveloped financial systems; and (iii) countries with more rigid labor markets experience higher unemployment due to excessive credit to private enterprises, while higher unemployment rates are associated with under credit to households in flexible labor markets.

Ajide (2020) investigates how financial development has an uneven impact on unemployment in Nigeria. Data from 1980 to 2017 were analyzed using the nonlinear autoregressive distributed lag (NARDL) technique, and the findings indicate that there is long-term equilibrium between the variables. The Wald test verifies the unbalanced relationship between short- and long-term unemployment and financial progress. The results verify that the beneficial aspects of financial development have a greater impact on unemployment than the negative aspects.

Rafiu (2019) examined the relationship between financial development and unemployment over the short and long term while accounting for various financial development metrics. They discovered that only the ratio of domestic deposits to GDP has the ability to lower the unemployment rate over the long and short term. They arrived at this conclusion by utilizing the ARDL as an estimation technique and a variety of financial development indicators. The unemployment rate is only temporarily decreased by other financial variables, including lending to the private sector, liquidity, financial efficiency, and financial stability. Additionally, they discovered cointegration between the unemployment rate and financial development, which includes the inflation rate and real GDP. Comparisons between Nigeria's financial sector development and that of emerging and developed countries are said to have provided the results.

Epstein and Shapiro (2019) investigated the relationships among sectoral dynamics, unemployment volatility, and financial development. In developing and emerging economies (DEMEs), there is a negative and significant association between the volatility of unemployment and domestic financial development; in advanced economies (AEs), this relationship is absent. These facts can be mathematically rationalized using a business cycle labor search model that includes company heterogeneity, collateral limitations, and interfirm input credit capital. Increased bank credit, increased capital accumulation, and decreased use of input credit capital are linked to greater financial development and increased resilience to financial shocks. The enhanced shock resilience of firms stabilizes hiring decisions, which eventually results in less fluctuating unemployment. Then, under conditions of increased financial development, interfirm input credit plays a significant role in

promoting reduced volatility among enterprises by facilitating clear connections between them. Therefore, in economies with higher average bank credit-to-GDP ratios and lower input credit usage (AEs), instead of economies with lower average bank credit-to-GDP ratios and higher input credit usage (DEMEs), increases in financial development have less of an effect on stabilizing unemployment.

Olowu et al. (2019) conduct an empirical analysis to investigate the effects of agricultural sector value added and financial development on unemployment. For the study, eleven developing nations from the Southern African Development Community were chosen. To conduct the empirical analysis, second-generation econometric techniques were employed. The findings of the regression analysis showed that financial development and agricultural value added are significant factors influencing unemployment in the area. The findings also demonstrate that there is a long-term negative correlation between unemployment and both financial efficiency and depth. Panel bootstrap causality tests were used to examine the relationship between agricultural value-added financial development and unemployment in more detail. The findings of the causality test showed that there is a substantial one-way causal relationship between the region's unemployment rate and financial depth and agricultural value added.

Institutions and Economic Growth, Inflation, and Unemployment

Conventional growth theory (see Lucas, 1988; Barro, 1990; Romer, 1990) places strong emphasis on the role that human capital, technical diffusion, and public infrastructure or innovation play in explaining variations in cross-national growth. Nonetheless, the importance of institutions and governance in

economic growth has gained increasing emphasis in recent years. Earlier proponents of the role of institutions argue that institutions act as sources of variation in growth between countries (Coatsworth, 1975).

Recently, the literature has paid close attention to the role of institutions in achieving various economic outcomes. For instance, Kharisma et al. (2022) argue that in Asian countries, economic institutions affect economic growth and play a major role in controlling the activities of markets, while political institutions do not affect economic growth. Sabir et al. (2019) also find that economic growth is significantly improved by institutional development in various economies. Uberti et al. (2021) indicated that both property rights institutions and human capital development positively affect economic growth, although human capital tends to be more robust when country fixed effects are accounted for.

Uddin et al. (2021) also argue that when institutions are dysfunctional and weak, additions to human capital negatively affect economic growth because new stocks tend to be employed in socially unproductive activities. Hartmann and Spruk (2021) argue that income and growth are negatively affected by institutional instability and acknowledge that de jure instability is less important than de facto institutional instability is. Hussen and Çokgezen (2021), in sub-Saharan Africa, found a unidirectional effect of institutional quality on economic growth in low-income economies and a bidirectional effect in lower-income economies.

The literature on the relationship between institutional quality and inflation is extant. Various studies have examined either the moderating or mediating role of institutions in the effect of inflation on other macroeconomic

outcomes. For instance, Law and Soon (2020), in a study on the effect of inflation on income inequality, indicate that inflation has a detrimental effect on income inequality but find that this effect is mitigated by the role of institutional quality. Khan and Hanif (2020) also find that there exists a minimum level of institutional quality above which there exists a negative inflation–growth relationship. However, below that threshold, the relationship is nonexistent. Fazio et al. (2018) indicate that inflation targeting does not significantly influence stability in economies with low institutional quality and that the effect is significant in economies with average levels of institutional quality. Louati and Boujelbene (2021) indicate that there exists a significant positive effect between inflation targeting and institutional capitalization using data from developing economies.

Unemployment rates are strongly influenced by institutional factors, such as economic and labor market institutions (LMIs and EIs). The minimum wage, immigration inflows, wage bargaining coordination and centralization, employment protection laws, and other LMIs are inversely correlated with overall unemployment rates (Perone, 2022). Conversely, Kilishi et al. (2021) found that there is a positive association between unemployment rates and union density, the tax wedge, and product market regulation (PMR).

In a similar vein, long-term unemployment is reduced by EIs associated with the monetary system, trade flows, government expenditures, and fiscal processes (Kim & Kim, 2017). Nevertheless, there is no discernible correlation between labor taxes and the level of job security or between labor taxes and employment or unemployment rates (Seiler & Roncone, 2019). Sachs and Smolny (2015), in a study on OECD countries, find that labor market

institutions such as powerful unions and employment protection laws could have a positive or negative effect on unemployment, with elderly people being less affected than young people. These findings suggest that labor market institutions and economic institutions play crucial roles in shaping unemployment dynamics.

The moderating role of property rights and legal systems in the relationship between financial development and macroeconomic variables such as inflation, economic growth, and unemployment is discussed below:

Property rights are foundational for establishing a secure environment for financial transactions. They reduce transaction costs, enhance credit accessibility, and promote investment key components for financial development. Acemoglu et al (2001) argue that strong property rights are crucial for economic development as they ensure that individuals and businesses can invest without fear of expropriation. Their study suggests that countries with well-defined and enforced property rights experience higher levels of financial development, which in turn supports economic growth.

Also, Legal systems significantly impact the efficiency of financial markets. A strong legal framework facilitates contract enforcement and dispute resolution, creating a conducive environment for financial transactions. La Porta et al (1998), demonstrated that legal systems influenced the development of financial markets. They find that countries with better legal protections for investors and property rights have more developed financial systems, which positively correlate with economic growth. This relationship is further reinforced by the ability of financial markets to allocate capital effectively.

The interplay between financial development, property rights, and macroeconomic stability, particularly inflation control, is noteworthy. Secure property rights can stabilize a country's financial environment, leading to lower inflation rates. Beck and Levine (2005), suggested that financial development helps reduce inflation by promoting efficient capital allocation and reducing reliance on government funding. They argue that in the presence of strong property rights and effective legal systems, the financial sector can contribute to price stability, which is crucial for maintaining low inflation.

Financial development facilitated by strong legal systems and property rights contributes to job creation and reduced unemployment levels by fostering entrepreneurship and innovation. Rajan and Zingales (2003), emphasized that financial development can enhance economic growth and employment levels by providing firms with the necessary capital to expand. However, without strong legal protections for property rights, firms may be less likely to invest, suppressing employment growth. Pande and Udry (2005), explored how property rights affect economic outcomes in developing countries. They find that stronger property rights correlate with increased investment and better economic performance, which suggests that secure property rights enhance the positive effects of financial development on growth and job creation.

In conclusion, the literature highlights the significance of property rights and legal systems as moderating factors in the relationship between financial development and macroeconomic variables. These elements create an environment conducive to investment, innovation, and economic stability, influencing inflation, growth, and unemployment. Strengthening legal

frameworks and property rights is essential for maximizing the benefits of financial development and fostering sustainable economic growth

Methodology and Data

Data

The current investigation aims to assess the moderating influence of legal frameworks and the enforcement of property rights on the efficacy of financial advancement in sub-Saharan Africa. Consequently, we evaluate the effectiveness of legal frameworks and property rights enforcement in moderating the impact of financial development on various outcome variables, such as economic growth, lending rates, trade, foreign direct investment, unemployment, and inflation. A panel dataset comprising 41 countries in sub-Saharan Africa is utilized due to data availability spanning from 2000 to 2020. Information on financial development, economic growth rates, exchange rates, inflation, gross fixed capital formation, and unemployment is extracted from the World Development Indicators database. The data concerning legal systems and property rights originate from the Fraiser Institute's Economic Freedom database.

Theoretical and Estimation Techniques

A panel quantile regression model is used to investigate how financial development affects inflation, unemployment, and economic growth. Quantile regression is a statistical methodology that involves minimizing weighted absolute deviations, sometimes referred to as the L_1 method. The estimate of conditional quantile functions, also known as percentile functions, is performed using this technique. This approach has been greatly influenced by the groundbreaking work of Koenker and Bassett (1978) as well as Koenker and

Hallock (2001). Whereas asymmetric weights are applied to all other quantiles (e.g., 0.1..., 0.9), symmetric weights are used only on the median (quantile = 0.5). In contrast, conditional mean functions are estimated using traditional ordinary least squares regression, which is based on the L₂ approach. Quantile regression stands out from OLS because it is not confined to explaining the mean of the dependent variable; rather, it offers an opportunity to elucidate the determinants of the dependent variable at any given point across the distribution.

For the outcome variables (economic growth, unemployment, and inflation), the quantile regression estimation allows us to examine how the independent variables could affect the outcome variables across different distributions.

Theoretically, we can specify the quantile regression equation as follows:

$$Q_{yi}(\phi|x_i) = x_i' \alpha_\phi \quad (1)$$

where ϕ denotes the quantile and the equation denotes a conditional quantile Y_i in every given x_i . When utilizing the technique of quantile regression in panel data analysis, unobserved heterogeneity must be accounted for. This necessitates the utilization of a panel quantile regression model with a fixed effect, which grants the ability to regulate individual heterogeneity that has gone unnoticed. The aforementioned model is referred to as the panel quantile regression model with fixed effects.

$$Q_{yit}(\phi_k|\varphi_i, x_{it}) = \varphi_i + x_{it}' \alpha(\phi_k) \quad (2)$$

Here, φ_i captures the fixed effect that also causes the incidental parameter problem (Lancaster, 2000). As the number of cross-sectional units approaches infinity, the estimator becomes inconsistent when fixed time-series

observations are present for each unit (Galvao and Kato, 2016). Consequently, conventional linear approaches are not suitable for employment in the panel quantile regression model. To address this issue in panel quantile regression, Koenker (2004) devises the shrinkage method. This approach introduces a penalty term that eliminates the unobserved fixed effects. The parameters of the model are estimated accordingly.

$$(\hat{\alpha}(\phi_k, \eta), \{\varphi_i(\eta)\}_{i=1}^N) = \arg \min \sum_k^K \sum_t^T \sum_n^N \Omega_k \rho_{\phi_k}(y_{it} - \varphi_i - x'_{it} \alpha(\phi_k)) + \eta \sum_i^N I \varphi_i I \quad (3)$$

i and t denote the country and time periods, respectively. ρ_{ϕ_k} is the quantile loss function, and k is the quantile. Ω_k represents the weight assigned to the k -th quantile and captures the contributions of the various distributions. η represents the tuning parameter that is used to plunge the individual effects to 0 so that better slope coefficients can be estimated. As used by Zhu et al. (2018), this value is set to $\eta = 1$

Empirical Model Specification

Three (3) main financial development outcome variables are our main focus when assessing the efficacy of financial development. Based on the assumption that financial development aims to achieve economic expansion, generate job opportunities, and maintain stability via stable prices, we calculate the impact of financial development on economic growth, unemployment, and inflation. Additionally, we model how property rights and legal frameworks moderate the relationship between financial development and its outcome variables. Thus, one could model this relationship as follows:

$$QY_{it}(\phi_k | \varphi_i, x_{it}) = f(X_{it}, Z_{it}) \quad (4)$$

where Y_{it} represents the outcome variables indicated earlier (economic growth, unemployment, and inflation). X_{it} represents financial development, which is country and time variant. Z_{it} also represents some country- and time-variant control variables that could be included in the models. All the other parameters are as defined earlier. For the economic growth model, we estimate the following model:

$$Q_{ECG_{it}}(\phi_k|\varphi_i, x_{it}) = \alpha_i + \beta_{1\phi_k}FD_{it} + \beta_{2\phi_k}TRD_{it} + \beta_{3\phi_k}INF_{it} + \beta_{4\phi_k}GFCF_{it} + \beta_{5\phi_k}FDI_{it} + \beta_{6\phi_k}EXC_{it} + \beta_{7\phi_k}UNE_{it} + \beta_{8\phi_k}LR_{it} + \mu_{it} \quad (5)$$

$$Q_{ECG_{it}}(\phi_k|\varphi_i, x_{it}) = \alpha_i + \beta_{1\phi_k}LSY_{it} + \beta_{2\phi_k}TRD_{it} + \beta_{3\phi_k}INF_{it} + \beta_{4\phi_k}GFCF_{it} + \beta_{5\phi_k}FDI_{it} + \beta_{6\phi_k}EXC_{it} + \beta_{7\phi_k}UNE_{it} + \beta_{8\phi_k}LR_{it} + \mu_{it} \quad (6)$$

$$Q_{ECG_{it}}(\phi_k|\varphi_i, x_{it}) = \alpha_i + \beta_{1\phi_k}FD_{it} + \beta_{2\phi_k}LSY_{it} + \beta_{3\phi_k}FD_{it} * LSY_{it} + \beta_{4\phi_k}TRD_{it} + \beta_{5\phi_k}INF_{it} + \beta_{6\phi_k}GFCF_{it} + \beta_{7\phi_k}FDI_{it} + \beta_{8\phi_k}EXC_{it} + \beta_{9\phi_k}UNE_{it} + \beta_{10\phi_k}LR_{it} + \mu_{it} \quad (7)$$

For the unemployment model, estimate the following quantile regressions:

$$Q_{UNE_{it}}(\phi_k|\varphi_i, x_{it}) = \alpha_i + \beta_{1\phi_k}FD_{it} + \beta_{2\phi_k}TRD_{it} + \beta_{3\phi_k}INF_{it} + \beta_{4\phi_k}GFCF_{it} + \beta_{5\phi_k}FDI_{it} + \beta_{6\phi_k}EXC_{it} + \beta_{7\phi_k}ECG_{it} + \beta_{8\phi_k}LR_{it} + \mu_{it} \quad (8)$$

$$Q_{UNE_{it}}(\phi_k|\varphi_i, x_{it}) = \alpha_i + \beta_{1\phi_k}LSY_{it} + \beta_{2\phi_k}TRD_{it} + \beta_{3\phi_k}INF_{it} + \beta_{4\phi_k}GFCF_{it} + \beta_{5\phi_k}FDI_{it} + \beta_{6\phi_k}EXC_{it} + \beta_{7\phi_k}ECG_{it} + \beta_{8\phi_k}LR_{it} + \mu_{it} \quad (9)$$

$$Q_{UNE_{it}}(\phi_k|\varphi_i, x_{it}) = \alpha_i + \beta_{1\phi_k}FD_{it} + \beta_{2\phi_k}LSY_{it} + \beta_{3\phi_k}FD_{it} * LSY_{it} + \beta_{4\phi_k}TRD_{it} + \beta_{5\phi_k}INF_{it} + \beta_{6\phi_k}GFCF_{it} + \beta_{7\phi_k}FDI_{it} + \beta_{8\phi_k}EXC_{it} + \beta_{9\phi_k}ECG_{it} + \beta_{10\phi_k}LR_{it} + \mu_{it} \quad (10)$$

For the inflation model, estimate the following quantile regressions:

$$Q_{INF_{it}}(\phi_k|\varphi_i, x_{it}) = \alpha_i + \beta_{1\phi_k}FD_{it} + \beta_{2\phi_k}TRD_{it} + \beta_{3\phi_k}ECG_{it} + \beta_{4\phi_k}GFCF_{it} + \beta_{5\phi_k}FDI_{it} + \beta_{6\phi_k}EXC_{it} + \beta_{7\phi_k}UNE_{it} + \beta_{8\phi_k}LR_{it} + \mu_{it} \quad (11)$$

$$Q_{INF_{it}}(\phi_k|\varphi_i, x_{it}) = \alpha_i + \beta_{1\phi_k}LSY_{it} + \beta_{2\phi_k}TRD_{it} + \beta_{3\phi_k}ECG_{it} + \beta_{4\phi_k}GFCF_{it} + \beta_{5\phi_k}FDI_{it} + \beta_{6\phi_k}EXC_{it} + \beta_{7\phi_k}UNE_{it} + \beta_{8\phi_k}LR_{it} + \mu_{it} \quad (12)$$

$$Q_{INF_{it}}(\phi_k|\varphi_i, x_{it}) = \alpha_i + \beta_{1\phi_k}FD_{it} + \beta_{2\phi_k}LSY_{it} + \beta_{3\phi_k}FD_{it} * LSY_{it} + \beta_{4\phi_k}TRD_{it} + \beta_{5\phi_k}ECG_{it} + \beta_{6\phi_k}GFCF_{it} + \beta_{7\phi_k}FDI_{it} + \beta_{8\phi_k}EXC_{it} + \beta_{9\phi_k}UNE_{it} + \beta_{10\phi_k}LR_{it} + \mu_{it} \quad (13)$$

Definition and Measurement of Variables

Financial Development (FD): The proportion of GDP derived from domestic credit supplied to the private sector is known as Financial Development (FD). In additional studies, it has served as a stand-in for the level of financial development. The expectation is that the rate of economic growth will favorably correlate with financial development, while the rates of unemployment and inflation will adversely connect with it.

Economic growth (ECG): GDP is a crucial indicator of a nation's investment activity. We use the GDP growth rate annually in the current study. A dependable measure of a nation's economic activity, income, and demand is its gross domestic product, or GDP. It is anticipated that there will be a negative correlation between the growth rate and the unemployment and inflation rates.

Inflation (INF): The consumer price index, which measures inflation, tracks yearly variations in the average cost of goods and services in an economy. It is anticipated that unemployment and economic growth will be negatively correlated with inflation.

Unemployment (UEN): This variable represents the official unemployment statistics for each country in the panel. It is measured as the total number unemployed as a percentage of the total labor force. It is expected that unemployment will have a negative relationship with the level of economic growth and inflation.

Legal system (LSY): This refers to how successfully legal systems and property rights are enforced in various research countries. It assesses the extent to which governments uphold the rule of law and legal systems and regimes protect private property rights. It also examines whether private property can be expropriated, the impartiality of the judiciary, judicial corruption, and the economic feasibility of contract enforcement for both private and corporate parties. Higher values indicate better legal protection of property rights.

Trade (TRD): This measures the volume of ongoing trade activities in an economy. It is measured as the ratio of net trade to gross domestic product. It is expected that trade will have a positive relationship with economic growth and a negative relationship with inflation and the unemployment rate.

Foreign Direct Investment (FDI): Foreign Direct Investment is the inflow of capital from foreign funds for investment, trade, or business operations. It is measured as the net inflow of FDI to GDP. FDI is expected to positively affect economic growth and negatively affect unemployment, but the effect on inflation is indeterminate.

Exchange rate (EXC): This variable is measured as the rate at which the Ghana cedi is exchange for 1 dollar at every period of time. These data are sourced from the World Development Indicators.

Lending rate (LR): The average interest rate at which formal financial institutions lend money to the private sector is known as the lending rate. Greater values suggest higher borrowing costs, which may deter private investment.

Gross fixed capital formation (GFCF): GDP to private investment as a percentage of gross fixed capital creation is available from the World Development Indicators database. It includes gains in the value of nonmanufactured assets (such as subsurface assets or significant changes in the quantity, prominence, or efficiency of land) as well as the total value of a manufacturer's acquisitions less than the sales of durable assets over the course of the monetary cycle.

Results and Discussion

Descriptive Statistics

The descriptive statistics of the variables used in the study are shown in Table 7. The average annual rate of inflation was 8.983%, with a minimum value of approximately -9.616%. During the same period, some countries recorded annual rates of inflation as high as 513.907%. The average growth rate of the gross domestic product during this period was 4.086. The maximum annual economic growth rate is approximately 33.629%, while the lowest recorded GDP growth rate is -36.392%.

The sub-region's average unemployment rate (8.318) has been comparatively low, with the percentage of the labor force unemployed ranging from 0.32 percent at minimum to 35.457 percent at maximum. There is a minimum of approximately 0.1 percent of GDP allocated to the private sector and a maximum of approximately 142.21 percent. In sub-Saharan Africa, the

private sector accounts for approximately 20.145 percent of GDP on average. With a minimum value of approximately 1.66 and a maximum value of approximately 6.94, the legal system and property rights variable has a mean value of approximately 4.086. The result is that sub-Saharan Africa has comparatively low levels of institutional development.

Table 7: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
inflation	790	8.983	27.201	-9.616	513.907
	740	20.145	23.112	0.1	142.21
Privatesectorcredit					
	861	4.086	1.21	1.66	6.94
LegalSystemProper					
trade	861	69.655	3.825	62.676	75.903
unemploy	840	8.318	7.708	.32	35.457
log gfcf	731	3.03	.42	.092	4.395
log foreign	816	19.826	1.303	15.573	23.16
log exch	819	4.965	2.133	-.607	9.193
growth	860	4.086	4.677	-	33.629
				36.392	
lendingrate	861	17.756	3.817	14.518	25.795

Source: Authors' estimations.

Table 8 shows the Pearson correlation matrix between the explanatory variables used in the study. This approach is necessary to detect possible issues of collinearity among the independent variables used. The results of the correlation matrix indicate that the correlation between the independent variables is not very high enough to create issues of collinearity in the model.

Table 8: Correlation matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) inflation	1.000									
(2) FD	0.014 (0.700)	1.000								
(3) LegalSystemPro~s	-0.118* (0.001)	-0.086* (0.015)	1.000							
(4) trade	-0.089* (0.012)	0.136* (0.000)	0.069* (0.044)	1.000						
(5) unemploy	-0.039 (0.283)	0.190* (0.000)	0.242* (0.000)	-0.026 (0.451)	1.000					
(6) log_gfcf	-0.020 (0.591)	0.263* (0.000)	0.212* (0.000)	0.216* (0.000)	0.149* (0.000)	1.000				
(7) log_foreign	0.031 (0.393)	-0.071 (0.051)	-0.008 (0.820)	0.216* (0.000)	-0.435* (0.000)	0.127* (0.001)	1.000			
(8) log_exch	-0.112* (0.002)	-0.078* (0.032)	-0.430* (0.000)	0.015 (0.660)	-0.545* (0.000)	-0.173* (0.000)	0.184* (0.000)	1.000		
(9) growth	-0.098* (0.006)	0.118* (0.001)	0.070* (0.040)	0.193* (0.000)	-0.201* (0.000)	0.117* (0.002)	0.228* (0.000)	0.013 (0.714)	1.000	
(10) lendingrate	0.140* (0.000)	0.024 (0.501)	-0.178* (0.000)	-0.564* (0.000)	0.018 (0.595)	-0.275* (0.000)	-0.278* (0.000)	-0.072* (0.038)	-0.004 (0.902)	1.

Source: Authors' estimations. Note: Standard errors are in parentheses. *, **, *** denotes significance at 10%, 5% and 1% level respectively.

Effect of Financial Development on Economic Growth in Sub-Saharan Africa

Using a quantile regression model, we estimate the effect of financial development on the economic growth rate at the 25th, 50th and 75th quantiles of economic growth. For each quantile, we test the effect of financial development, legal systems and property rights and the moderating role of legal systems and property rights in the relationship between financial development and economic growth.

The results as shown in Table 9 indicate that financial development positively affects economic growth in the 25th quantile of economic growth and the 75th quantile of economic growth but does not affect economic growth in the 50th quantile. A developed financial system facilitates the effective mobilization of savings by households, businesses, and governments. These savings may then be channelled into productive investments, such as infrastructure projects, research and development, and business expansion. The allocation of capital to its most efficient and effective uses results in a boost in economic growth. A percentage point increase in the level of financial development will result in 0.155 and 0.105 percentage point increases in economic growth in the 25th and 75th quantiles of economic growth, respectively.

The outcomes also demonstrate that the beneficial impact of financial advancement on economic expansion diminishes at higher levels of economic growth, suggesting that at higher levels of economic growth, the influence of financial advancement decreases. This outcome is in line with the findings of Abass et al. (2022), Puşcaşu (2022), and Ustarz and Fanta (2021), who all

observe that financial development can have a positive impact on economic growth in developing nations.

The implementation of property rights and legal systems is crucial in shaping economic growth in Sub-Saharan Africa. The results reveal that at the 25th and 50th percentiles of economic growth, legal systems and property rights protection boost economic growth. Based on the results, at the 25th and 50th percentiles, respectively, a one-percentage-point enhancement in the quality of legal systems and property rights enforcement will lead to a 0.483 and 0.279 percentage point increase in the economic growth rate.

Additionally, the findings indicate that at higher levels of economic growth, the influence of legal systems and property rights enforcement on growth diminishes. Strong and well-defined property rights are fundamental requirements for economic progress. When individuals and businesses have confidence that their assets and property will be safeguarded by the legal system, they are more likely to invest, innovate, and engage in economic activities. Clear property rights promote long-term planning and investment, resulting in increased productivity and economic growth. These results align with the studies of Kharisma et al. (2022), Uberti et al. (2021), and Sabir et al. (2019).

We analyze the moderating impact of property rights enforcement and legal systems on the connection between financial development and the economic growth rate in the third column for each percentile as displayed in Table 10. Legal frameworks and financial development have a considerable positive impact on the economic growth rate at the 25th quantile of growth. The legal and financial systems, respectively, have substantial positive effects on

economic growth at the 75th quantile. In the 25th, 50th, and 75th quantiles of economic growth, the relationship between financial development and economic growth is negatively impacted by legal systems and the enforcement of property rights. The results indicate that the moderating effects on economic growth are 0.931, 1.083 and 0.825 percentage points, respectively.

While financial development can make positive contributions to economic growth, its efficacy can be hindered by insufficient institutional structures. In scenarios where the rule of law is weak, political instability is rampant, regulation is inadequate, corruption is prevalent, governance is inefficient, investor protection is lacking, informal sectors dominate, political interference is present, transparency deficits occur, financial power is concentrated and more concentrated, and the potential benefits of financial development may be restricted or even reversed. To ensure that the mechanisms of financial development are translated into sustained and inclusive economic growth by fostering trust, stability, and a conducive environment for investment, entrepreneurship, and resource allocation, effective institutions are imperative. Uddin et al. (2020) and Hartmann and Spruk (2020) also found similar results.

In the 25th quantile of economic growth, trade (0.122), private investment activities (1.265), and foreign direct investment (0.841) have significant positive effects on economic growth, while inflation (0.338), the exchange rate (0.352) and the unemployment rate (0.152) are negatively related to the growth of gross domestic product in SSA. In the 50th quantile of trade (0.128) and private investment (1.574), FDI (0.488) positively influences economic growth, while unemployment (0.081) dampens the economic growth rate. In the 75th quantile, trade (0.141), private investment (1.727), foreign direct

investment (0.423) and the lending rate (0.108) positively influence economic growth, while the lending rate (0.104) has a negative relationship with the rate of economic growth. Notably, the effect of explanatory variables on economic growth tends to decrease at higher quantiles of economic growth, implying that the effect of these variables is greater at lower quantiles of the economic growth rate.



Table 9: Financial Development and Economic Growth

Variable	25 th			50 th			75 th		
	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient
Privatesectorcredit	.155* (0.094)		0.258*** (0.0920)	.038 (0.059)		0.107 (0.0658)	.105** (0.047)		0.136** (0.0599)
Legal		0.483*** (0.148)	0.998*** (0.195)		0.279** (0.141)	0.683*** (0.158)		0.140 (0.169)	0.426*** (0.149)
Interaction			-0.931* (0.475)			-1.083** (0.451)			-0.825*** (0.308)
trade	.122** (0.048)	0.123*** (0.0429)	0.0797 (0.0541)	.128*** (0.049)	0.109*** (0.0355)	0.109*** (0.0403)	.141*** (0.054)	0.115** (0.0503)	0.131** (0.0510)
log_inflation	-.338* (0.178)	-0.344* (0.183)	-0.196 (0.201)	-.142 (0.106)	-0.162 (0.116)	-0.0987 (0.169)	.165 (0.107)	0.00862 (0.119)	0.148 (0.127)
log_gfcf	1.265** (0.59)	1.246** (0.587)	0.151 (0.421)	1.574*** (0.419)	1.461*** (0.555)	1.022* (0.525)	1.727*** (0.4)	1.261** (0.491)	1.547*** (0.508)
log_foreign	.841*** (0.204)	0.714*** (0.154)	0.783*** (0.172)	.488*** (0.112)	0.445*** (0.115)	0.365*** (0.137)	.423*** (0.142)	0.338*** (0.130)	0.363** (0.151)
log_exch	-.352*** (0.076)	-0.151 (0.0959)	-0.142* (0.0763)	-.064 (0.084)	-0.0826 (0.0807)	-0.138 (0.107)	-.132 (0.127)	-0.181** (0.0867)	-0.208* (0.122)
unemploy	-.152*** (0.023)	-0.15*** (0.0288)	-0.12*** (0.0407)	-.081** (.034)	-0.088*** (0.0278)	-0.10*** (0.0210)	-.104*** (0.035)	-0.11*** (0.0284)	-0.099*** (0.0271)
lendingrate	.057 (0.094)	0.116 (0.0709)	0.0656 (0.0689)	.065 (0.052)	0.0785 (0.0576)	0.0716 (0.0443)	.108** (0.047)	0.127** (0.0535)	0.0822* (0.0452)
Constant	-25.09*** (8.217)	-25.4*** (6.620)	-23.5*** (6.227)	-19.03*** (5.388)	-17.44*** (3.760)	-15.9*** (4.039)	-18.79*** (5.617)	-13.5*** (4.100)	-16.97*** (6.110)
Observations	604	644	604	604	644	604	604	644	604
Pseudo RSquare	0.1218	0.1128	0.1461	0.1005	0.0923	0.1191	0.0962	0.0818	0.1049

Source: Authors' estimations. Note: Standard errors are in parentheses. *, **, *** denotes significance at 10%, 5% and 1% level respectively.

Effect of Financial Development on Unemployment in Sub-Saharan Africa

Table 10 reports the results of the quantile regression describing the effect of financial development on unemployment in sub-Saharan Africa at the selected quantiles of unemployment (0.25, 0.5 and 0.75). Furthermore, in columns 2, 5 and 8, we estimate the effect of legal systems and property rights enforcement on unemployment in sub-Saharan Africa. In columns 3, 6 and 9, we find the moderating role of legal systems and property rights enforcement on the relationship between financial development and unemployment.

The results indicate that financial development is a significant determinant of unemployment at the 50th and 75th quantiles of unemployment but does not significantly affect unemployment at the 25th quantile. At the 50th and 75th quantiles, a percentage point increase in financial development could lead to an increase in unemployment of approximately 0.223 and 0.673 percentage points, respectively. This could in part be because many economies in the subregion are largely informal such that increasing financial development could result in formalization of the sectors, which could lead to disruptions in employment as businesses struggle to meet job demands.

Additionally, financial development can lead to shifts in the demand for labor. With the increasing availability of financial services, individuals may be inclined to shift away from traditional industries such as agriculture or small-scale manufacturing. This shift has the potential to result in job displacement and a rise in unemployment within those sectors. These results, however, are inconsistent with the findings of Bayar (2016), Epstein and Shapiro (2019) and

Raifu and Afolabi (2022), who all find that financial development could reduce unemployment.

Legal systems and property rights enforcement significantly affect unemployment only at the 25th quantile of unemployment and not at the 50th or 75th quantile. At the 25th quantile, the relationship between financial development and the unemployment rate is negative. An increase in the development of legal institutions and property rights enforcement could result in a reduction in unemployment of approximately 0.211 percentage points.

Ragmoun (2022) argued that institutional quality ensures the proper allocation of property rights and therefore increases the ease of doing business and self-employment, which could in the long run result in a reduction in unemployment. The establishment of precise and rigorously enforced property rights cultivates trust in individuals and corporations that their investments will be protected. Such assurance stimulates the development of entrepreneurial ventures and investment in novel business opportunities, thereby engendering the emergence of fresh commercial enterprises and employment prospects.

According to the interaction equations in columns 3, 6 and 9, the effect of financial development on unemployment is positive in both the 50th (0.213) and 75th (0.364) quantiles; moreover, the effect of financial development on unemployment increases with increasing unemployment rate. Legal systems and property rights also negatively influence unemployment at the 25th (0.569) and 75th (1.406) quantiles, also indicating an increasing effect at higher quantiles. The results also indicate that legal systems and property rights enforcement negatively moderate the effect of financial development on unemployment. The coefficient of the interaction at the 25th quantile (4.335),

50th quantile (5.274) and 75th quantile (7.555) indicates a reduction in unemployment in percentage points when the effect of financial development on unemployment is considered in the context of good regulations and institutional frameworks.

Thus, for financial development to effectively reduce unemployment, there needs to be sound and working institutional frameworks that ensure the rule of law and property enforcement of property rights. The implementation of efficient property rights enforcement measures can incentivize enterprises operating within the informal sector to formalize their operations. This shift toward formality has the potential to enhance migrants' access to financial services, technology, and markets, thereby bolstering business expansion and facilitating employment opportunities. This result is consistent with the findings of Kilishi et al. (2020) and Perone (2022).

Inflation has a negative relationship with unemployment in the 50th quantile (0.388) and the 75th quantile (0.514). Investment also has a positive relationship with unemployment at the 25th quantile (0.927), 50th quantile (2.221) and 75th quantile (1.586). The results are also true for columns 2, 3, 5, 6, 8 and 9. This finding implies that investment is positively related to unemployment at the various quantiles of unemployment. Foreign direct investment is negatively related to the rate of unemployment at the 25th quantile (1.372), 50th quantile (1.779) and 75th quantile (2.619).

The effect of FDI on unemployment increases at higher quantiles of unemployment. The same result is confirmed in columns 2, 3, 4, 5, and 9. The rate of exchange also significantly influences the rate of unemployment in SSA. Increasing the exchange rate reduces the unemployment rate, as indicated in

Table 10. It is realized that the effect of exchange rate increases on unemployment tends to increase at higher quantiles of unemployment. The results also show that the growth rate of gross domestic product is inversely related to the level of unemployment. Thus, higher growth rates of GDP reduce the rate of unemployment, and the coefficients increase at higher quantiles of unemployment. An increase in the rate of growth of GDP will result in a decrease in unemployment of 0.172 percent at the 25th quantile, 0.216 percent at the 50th quantile and 0.436 at the 75th quantile. The same trend is observed in columns 2, 3, 4, 6, 8 and 9.

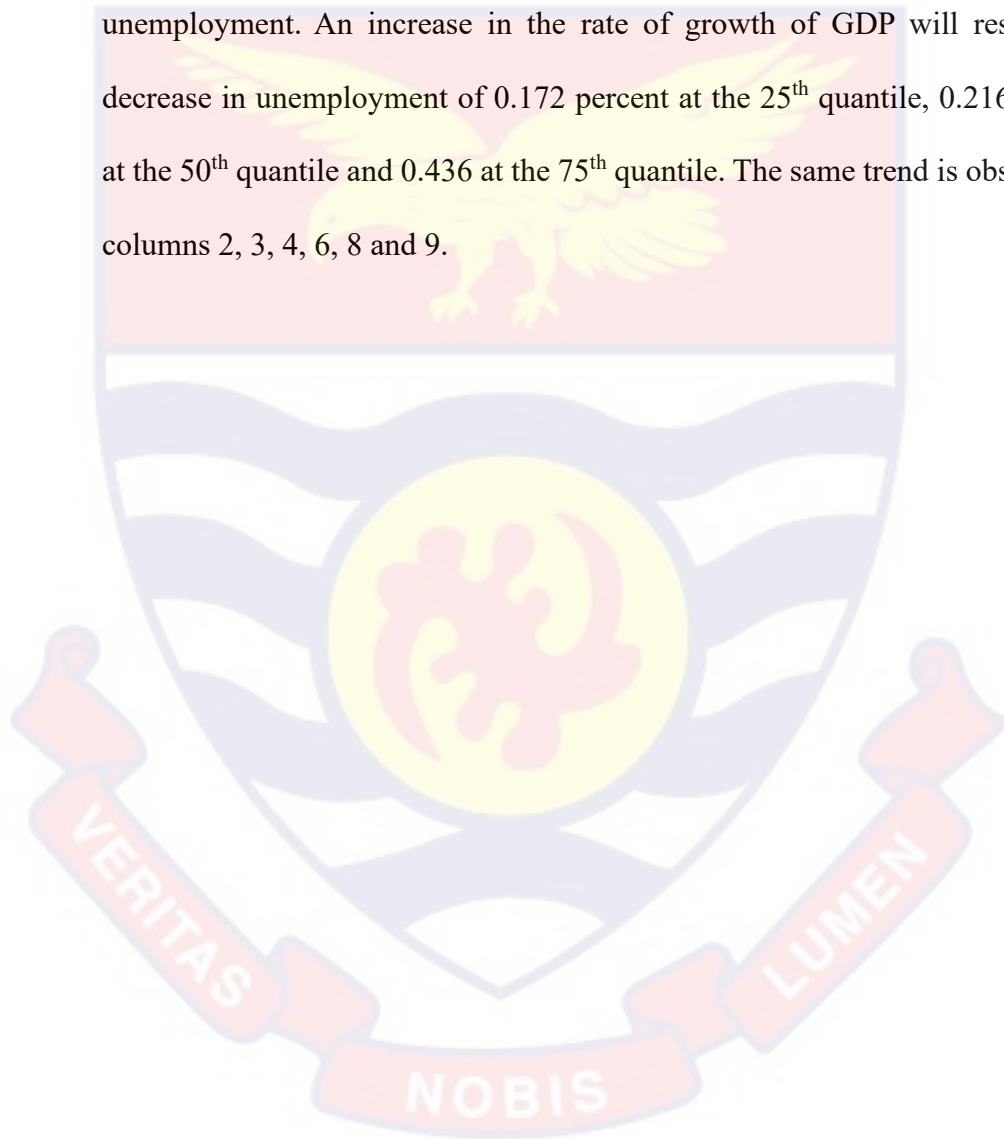


Table 10: Effect of Financial Development on Unemployment

Variable	25 th				50 th		75 th		
	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient
Privatesectorcredit	0.0467 (0.0545)		0.0537 (0.0414)	0.223** (0.107)		0.213** (0.0884)	0.672*** (0.110)		0.364*** (0.112)
Legal		-0.211* (0.120)	-0.569*** (0.156)		0.0974 (0.214)	-0.398 (0.273)		0.165 (0.320)	-1.406*** (0.437)
Interaction			-4.335*** (1.287)			-5.274*** (0.837)			-7.555*** (0.619)
trade	-0.0589 (0.0508)	-0.0251 (0.0387)	-0.0257 (0.0486)	-0.00708 (0.0665)	0.0002 (0.0595)	-0.0281 (0.0637)	-0.0246 (0.0955)	0.0310 (0.146)	0.000983 (0.0899)
log_inflation	-0.0863 (0.106)	-0.109 (0.120)	-0.142 (0.142)	-0.338 (0.278)	-0.388** (0.178)	-0.348 (0.259)	-0.326 (0.225)	-0.514* (0.305)	-0.341 (0.293)
log_gfcf	0.927** (0.426)	1.443*** (0.496)	0.515 (0.394)	2.221*** (0.503)	2.850*** (0.627)	1.831*** (0.523)	1.586* (0.910)	2.132*** (0.787)	3.352*** (1.105)
log_foreign	-1.372*** (0.227)	-1.456*** (0.147)	-0.893*** (0.288)	-1.779*** (0.266)	-1.732*** (0.316)	-1.735*** (0.166)	-2.619*** (0.397)	2.132*** (0.787)	-2.434*** (0.335)
log_exch	-0.894*** (0.0734)	-0.990*** (0.103)	-0.719*** (0.0900)	-1.054*** (0.103)	-1.258*** (0.174)	-0.788*** (0.0888)	-1.873*** (0.242)	-1.895*** (0.118)	-0.843*** (0.154)
Growth	-0.172*** (0.0585)	-0.183*** (0.0565)	-0.161*** (0.0385)	-0.216*** (0.0674)	-0.252*** (0.0831)	-0.184*** (0.0488)	-0.436*** (0.121)	-0.290* (0.154)	-0.216* (0.113)
lendingrate	-0.254*** (0.0615)	-0.206*** (0.0537)	-0.179** (0.0753)	-0.189** (0.0822)	-0.115 (0.0876)	-0.142*** (0.0515)	-0.398*** (0.136)	-0.305*** (0.117)	-0.166* (0.0927)
Constant	42.28*** (6.242)	41.11*** (4.949)	29.60*** (8.813)	44.09*** (9.828)	42.36*** (5.534)	42.97*** (5.476)	74.25*** (13.71)	78.05*** (13.27)	55.98*** (9.416)
Observations	604	644	604	604	644	604	604	644	604
Pseudo RSquare	0.1677	0.1853	0.1954	0.2424	0.2595	0.3248	0.3663	0.3926	0.4376

Source: Authors' estimations. Note: Standard errors are in parentheses. *, **, *** denotes significance at 10%, 5% and 1% level respectively.

Effect of Financial Development on Inflation in Sub-Saharan Africa

Table 11 presents the results of the quantile regression of financial development on inflation in sub-Saharan Africa at the 25th, 50th and 75th quantiles of the inflation rate. In columns 2, 5 and 8, we estimate the effect of legal systems and property rights enforcement on inflation in sub-Saharan Africa. In columns 3, 6 and 9, we find the moderating role of legal systems and property rights enforcement on the relationship between financial development and inflation.

We find that financial development dampens inflation in the 25th, 50th and 75th quantiles of inflation. Specifically, a percentage point increase in financial development could result in a reduction in inflation of approximately 0.184 percentage points in the 25th quantile of inflation, 0.305 percentage points in the 50th quantile and 0.315 percentage points in the 75th quantile. This result is consistent with the findings of Bandura and Leshoro (2022), who also find a negative relationship between financial development and the inflation rate.

Financial development could regulate inflationary pressures through an enhanced transmission mechanism. A well-established financial system plays a crucial role in transmitting monetary policy to the wider economy. Efficient financial markets increase the likelihood of policy rate adjustments being passed on to borrowers and savers, thereby influencing spending and investment patterns. In turn, this contributes to stabilizing demand and supply dynamics, potentially mitigating inflationary pressures. These results are also consistent with the findings of Nguyen (2019).

Legal systems and property rights enforcement significantly affect inflation only at higher distributions of inflation. Thus, at the 25th and 50th

quantiles, legal systems and property rights enforcement have no significant effect on inflation. However, at the 75th quantile, increasing the level of legal systems reduces inflation by approximately 1.689 percentage points. A legal framework that safeguards property rights serves as an impetus for investment in both physical and human capital. The confidence engendered by such a system prompts businesses to readily invest in technology, equipment, and workforce training with the assurance that their investments will be protected. The resultant outcome of such investment is an increase in production efficiency, thereby contributing to price stability.

Legal systems and property rights enforcement moderate the relationship between financial development and inflation at the 25th quantile but do not affect the relationship at the 50th or 75th quantile. The combined effect of legal systems and property rights enforcement and financial development on inflation (0.701) is greater than the direct effect of financial development (0.184) on inflation. The implication thus is that legal systems and property rights enforcement reinforced the effect of financial development on inflation in sub-Saharan Africa. These findings are consistent with those of Law and Soon (2020) and Khan and Hanif (2018), who all find that institutions can help mitigate the detrimental effects of inflation.

In the 25th quantile of inflation, trade (0.130), foreign direct investment (0.437), and the lending rate (0.214) have positive significant relationships with the rate of inflation, while unemployment (0.0446) and the exchange rate (1.007) have significant negative relationships with inflation in SSA. In the 50th quantile of inflation, foreign direct investment (0.503) and the lending rate (0.175) have positive relationships with inflation, while the unemployment rate

(0.0518) and the exchange rate (0.802) have significant negative relationships with inflation. In the 75th quantile, foreign direct investment (1.433) and the lending rate (0.330) have positive significant relationships with inflation, while the unemployment rate (0.168) and exchange rate (0.971) negatively affect the rate of inflation.



Table 11: Effect of Financial Development on Inflation

Variable	25 th			50 th			75 th		
	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient
Privatesectorcredit	-0.184** (0.0879)		-0.163 (0.106)	-0.305*** (0.0719)		-0.274*** (0.105)	-0.315* (0.185)		-0.359* (0.201)
Legal		-0.226 (0.171)	0.207 (0.256)		-0.348 (0.240)	-0.0228 (0.431)		-1.689*** (0.435)	-1.208** (0.524)
Interaction			-0.701** (0.304)			-0.655 (0.418)			-0.327 (0.551)
trade	0.130** (0.0518)	0.112*** (0.0384)	0.111** (0.0438)	0.0799 (0.0819)	0.113* (0.0587)	0.0540 (0.0633)	0.158 (0.118)	-0.0300 (0.104)	-0.00132 (0.178)
unemployment	-0.0446* (0.0253)	-0.0424** (0.0194)	-0.0113 (0.0213)	-0.0518* (0.0294)	-0.089*** (0.0209)	-0.0465 (0.0409)	-0.168*** (0.0549)	-0.207*** (0.0475)	-0.161** (0.0641)
log_gfcf	0.261 (0.628)	-0.322 (0.491)	-0.119 (0.621)	0.707* (0.393)	0.570 (0.686)	0.462 (0.573)	0.770 (0.699)	1.271 (1.208)	1.390** (0.685)
log_foreign	0.437*** (0.0968)	0.528*** (0.191)	0.533*** (0.162)	0.503*** (0.109)	0.639*** (0.148)	0.660*** (0.251)	1.433*** (0.326)	1.286*** (0.213)	1.332*** (0.308)
log_exch	-1.007*** (0.111)	-1.121*** (0.137)	-1.017*** (0.137)	-0.802*** (0.138)	-1.050*** (0.168)	-0.993*** (0.229)	-0.971*** (0.182)	-1.397*** (0.293)	-1.351*** (0.233)
Growth	-0.0228 (0.0517)	-0.0132 (0.0572)	-0.0296 (0.0492)	0.0419 (0.0600)	-0.00421 (0.0826)	0.0141 (0.0621)	-0.0415 (0.119)	-0.0448 (0.126)	0.0235 (0.125)
lendingrate	0.214*** (0.0664)	0.134*** (0.0467)	0.170*** (0.0596)	0.175*** (0.0570)	0.131*** (0.0473)	0.168*** (0.0532)	0.330** (0.161)	0.0594 (0.109)	0.135 (0.110)
Constant	-12.73** (5.899)	-10.14* (5.468)	-12.15** (5.093)	-9.519 (7.175)	-12.13** (5.636)	-8.571 (6.803)	-29.71** (13.29)	-3.050 (11.48)	-7.901 (12.53)
Observations	651	692	651	651	692	651	651	692	651
Pseudo RSquare	0.0695	0.0701	0.0731	0.0501	0.0483	0.0537	0.0493	0.0596	0.0583

Source: Authors' estimations. Note: Standard errors are in parentheses. *, **, *** denotes significance at 10%, 5% and 1% level respectively.

Conclusions and Recommendations

As the literature has argued, financial development is crucial for achieving unemployment, economic growth, and price stability in general. The study emphasized how important financial development is to sub-Saharan Africa's efforts to achieve economic growth, lower unemployment, and preserve stable price levels. This finding is in line with previous research that highlights the critical role that financial markets and institutions play in fostering economic growth.

In this study, the impact of financial development on three outcome variables; economic growth, inflation, and unemployment in sub-Saharan Africa is examined, along with the potential moderating effects of legal frameworks and property rights. A sequential quantile regression model is estimated using a panel of 41 sub-Saharan African nations from 2000 to 2020. In particular, we calculate the impact of financial development at the 25th, 50th, and 75th quantiles on inflation, unemployment, and economic growth.

We also examine the potential moderating effects of legal frameworks and property rights enforcement on the relationships at the 25th, 50th, and 75th quantiles. The models also account for trade, investment, FDI, the exchange rate, and the lending rate, among other macroeconomic variables.

The outcomes of the research indicate that although not situated at the 50th percentile, financial advancement has a favorable influence on economic progress at the 25th and 75th percentiles. Nonetheless, the correlation among property rights, legal structures, and financial development negatively affects economic growth. These findings imply that despite the beneficial impact of financial development on growth, property rights and legal frameworks do not

enhance this association. Moreover, financial development positively affects unemployment at the 25th, 50th, and 75th percentiles. Nevertheless, the correlation weakens regarding property rights and legal systems.

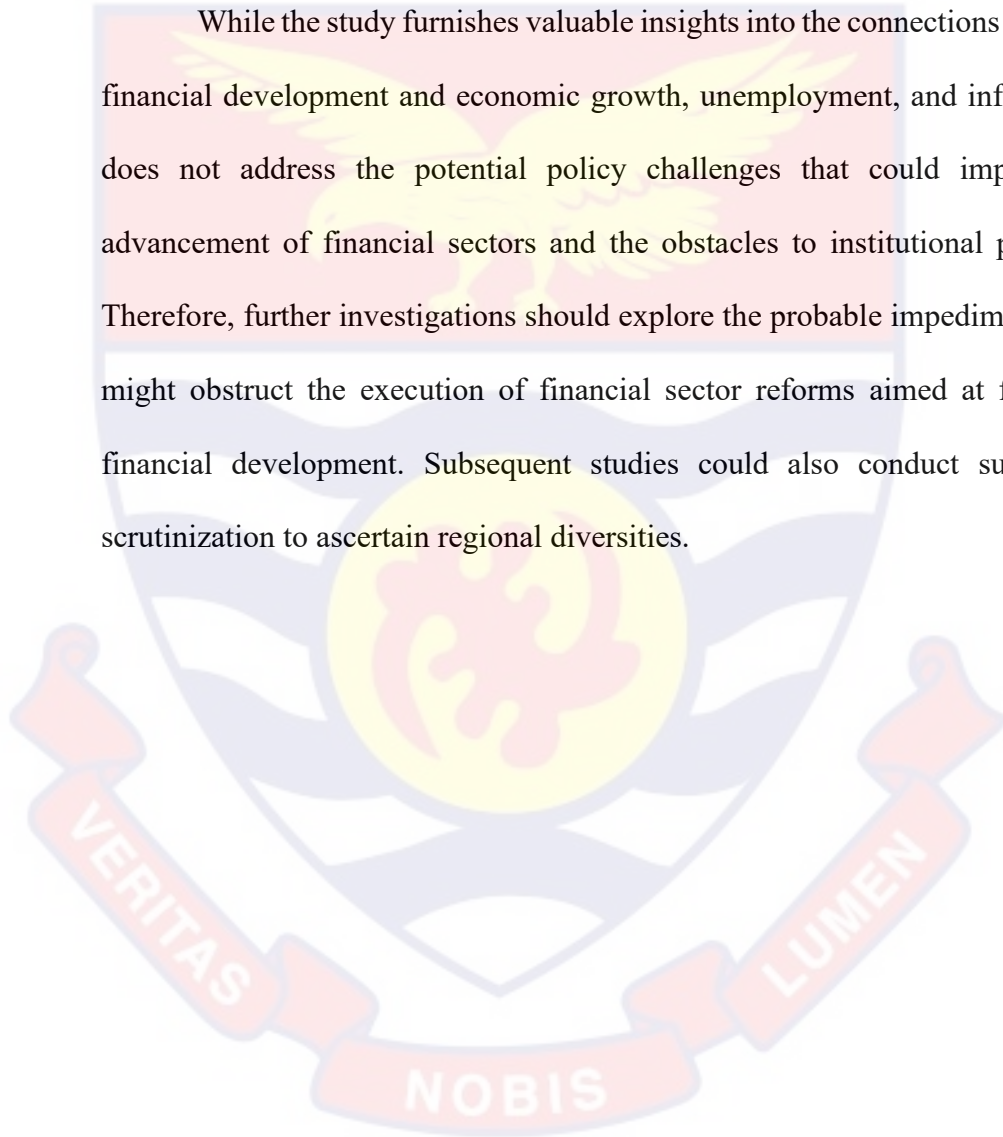
Consequently, property rights and efficient legal systems become imperative in supporting the progression of financial development to mitigate unemployment. In addition, financial development diminishes inflation at the 25th, 50th, and 75th percentiles. Particularly at the 25th percentile, the connection is further reinforced by the existence of robust legal systems and the enforcement of property rights. The conclusions of the study underscore the importance of upholding property rights and of the rule of law to fully leverage the potential benefits of financial development concerning inflation, unemployment, and economic growth.

Furthermore, the study's conclusions reveal that macroeconomic elements such as trade, investment, foreign direct investment, exchange rates, and lending rates significantly influence inflation, unemployment, and economic growth in sub-Saharan Africa. According to the study, although financial development alone may positively impact inflation, growth, and unemployment, these effects can be either magnified or mitigated by the presence of sturdy legal frameworks and the preservation of property rights.

Therefore, this study recommends the following: Policymakers in the sub-Saharan Africa region should enhance the enforcement of property rights and legal frameworks to establish a conducive environment for financial development. This involves reducing corruption; safeguarding property rights; and improving the efficiency, predictability, and transparency of legal processes. Additionally, recognizing the substantial role played by financial development

in economic growth, unemployment, and inflation, it is crucial for financial sector stakeholders in sub-Saharan Africa to initiate targeted financial development schemes by promoting financial inclusion, fostering the growth of capital markets, and creating and broadening financial instruments in sub-Saharan Africa.

While the study furnishes valuable insights into the connections between financial development and economic growth, unemployment, and inflation, it does not address the potential policy challenges that could impede the advancement of financial sectors and the obstacles to institutional progress. Therefore, further investigations should explore the probable impediments that might obstruct the execution of financial sector reforms aimed at fostering financial development. Subsequent studies could also conduct subsample scrutinization to ascertain regional diversities.



CHAPTER FIVE

OPENNESS POLICIES AND FINANCIAL DEVELOPMENT IN GHANA: AN ARDL APPROACH⁴

Introduction

Since the financial crisis of 2007–2008, policymakers and scholars have paid considerable attention to financial development in the context of economic recovery. Financial growth is a key contributor to economic progress and rising living standards. This is because increased financial development boosts financial market efficiency and available resources, the rate of technological advancement and capital accumulation, and the general importance of the financial system and investments (Aman et al., 2022; Kapidani & Luci, 2019; Rajapakse, & Mayakaduwa, 2019; Azeem et al., 2015).

It has been demonstrated that financial development can lessen the financial constraints that businesses face, assist with the management of risk, increase monetary policy efficiency, and broaden the options available for fiscal policy, as well as possibly boost economic growth, as indicated in the works of (Khan et al., 2018; O'Toole & Newman, 2016; Beck, 2014; IMF, 2012)

As one of the fastest-growing economies in sub-Saharan Africa, Ghana has made significant strides in its financial sector over the past few decades. The country has embarked on a journey towards building a resilient and dynamic financial system through the liberalization of financial markets and the adoption of regulatory reforms aimed at enhancing efficiency and stability. The financial sector in Ghana has undergone remarkable changes since the pre-1988

⁴ An article based on this chapter “Openness Policies and Financial Development in Ghana: An ARDL Approach” has been published in *Heliyon*.

reform period. Two major financial sector programs have been implemented: the Financial Sector Adjustment Programme (FINSAP) from 1988 to 2000, and the Financial Strategic Plan, which was largely homegrown with significant input from stakeholders, from 2000 to 2008. Both sets of reforms have positively impacted the banking and financial system in many areas (Bawumia, 2010).

Firstly, the liberalization of the financial sector under FINSAP led to an increase in the number of banks and non-banks, with greater private sector participation. In 1988, there were 17 banks, comprising 9 commercial banks, 5 merchant banks, and 3 development banks. Since 1990, nine new banks were licensed, and two banks were liquidated in 1993. By the end of 2001, of the 17 banking institutions in existence, foreign investors held the majority of shares in 8 commercial banks, and 3 banks were state-owned. By 2009, the number of banks had increased to 27, with foreign investors holding the majority of shares.

Following the framework proposed by McKinnon and Shaw (1973) and considering the recent financial crises in Ghana, it is imperative to investigate how financial openness affects financial development. This has significant implications for policy formulations and prescriptions for the Ghanaian economy. Financial development is a complex and multidimensional concept involving numerous financial markets and institutions (Quartey and Prah, 2008).

Consequently, Quartey and Prah (2008), Abu-Bader and Abu-Qarn (2008), and Eduboah (2021) argue that there is no single measure of financial development, and different measures can lead to different policy prescriptions. This lack of consensus in the finance-growth literature results in varying

empirical study outcomes across countries, including Ghana (Abu-Bader and Abu-Qarn, 2008; Quartey and Prah, 2008; Eduboah, 2021). For instance, indicators such as the ratio of broad money to GDP ($M2/GDP$ or $M3/GDP$), credit to the private sector as a percentage of GDP ($PSC \% \text{ of GDP}$), private sector credit as a ratio of total domestic credit (PSC/TDC), and stock market capitalization as a percentage of GDP ($SMC \% \text{ of GDP}$) have been used separately to measure financial development, creating a gap in the literature.

The interest group financial development theory proposed and developed by Rajan and Zingales (2003) asserts that the liberalization of an economy to trade with other economies is a significant driver of financial development, as an increase in the export of ideas and investments by domestic businesses typically increases the demand for external financing in the domestic economy. Openness policies are usually conceptualized to include trade and financial openness in an economy, such that the inflow and outflow of trade and finance into an economy will imply that there is increased openness within an economy.

The degree of financial development in industrialized and developing nations has diverged significantly over the past few decades (Ruiz, 2017; Cojocaru et al., 2016). When measured using the ratio of private sector credit to GDP, it was found that the levels of financial development have been steadily increasing for developed countries, while the levels for developing countries have stagnated (Chin & Ito, 2019). Thus, it is important to study the underlying causes of such disparities.

Researchers have identified that the openness of an economy to trade and financial market liberalization and development considerably impacts long-

term financial development. Theoretically, financial openness suggests that liberalizing a financial system may affect financial market expansion through various channels. According to (McKinnon, 1992; Jaud et al., 2021), liberalization of the financial system has the potential to reduce the extent of financial repression in protected markets by making it possible for real interest rates to approach the equilibrium of competitive markets. Second, the abolition of capital limitations enables both local and foreign investors to better diversify their portfolios. These two concepts may be summarized as follows: financial openness may reduce capital costs and improve borrowers' access.

The third way in which financial openness may impact financial growth is through the removal of weak institutions, which often increases the efficiency of the financial system and generates demand for financial system improvements. To attain financial openness, barriers to the cross-border flow of money and financial services must be reduced. In addition, cross-border financial relations must be developed and expanded, and the unfavourable treatment of foreign capital and international investors must cease (Caporale et al., 2021; Lane & Milesi-Ferretti, 2018).

According to the literature, trade openness affects financial development. While some studies (Ashraf, 2017; Arif & Rawat, 2019; Ibrahim & Sare, 2018; Salifu et al., 2023) have developed a significant negative association between trade and financial development, others have established negligible and hence unclear conclusions on the relationship (Kim et al., 2010a; Kim et al., 2010b; Zhang et al., 2015)

The existing body of knowledge served as impetus for conducting this inquiry. There is a rapidly expanding body of literature on trade and financial

growth. This body of literature can be found all over the internet. However, few studies have described how trade and financial openness contribute to financial development, particularly given the scant evidence on the contribution of financial development to economic growth and the efforts made by sub-Saharan African governments to ensure increased trade volumes and capital account liberalization. In addition, given McKinnon (1992) conclusion that financial openness plays a major role in financial development, this study explores the long- and short-run effects of both trade openness and financial openness on financial development in Ghana.

Insights from Related Literature

The link between finance and trade openness and financial development has been the subject of many studies and has been shown by a few different studies. Arif and Rawat (2019) observed that financial development is significantly affected by trade and openness. They suggest that while financial openness has a negative influence on financial development in South Asia, trade openness has a favourable impact; nevertheless, their simultaneous openness is not substantiated.

This finding supports the hypothesis proposed by Rajan and Zingales (2003) that trade and financial openness are fundamental for financial development. According to Rajan and Zingales (2003), trade openness and capital flows can weaken the industrial opposition to financial development. This view contradicts McKinnon (1992) ideas, as cited in (Gnangnon, 2020; Agyemang et al., 2018), who argued that financial liberalization should follow trade liberalization and that capital account opening should be the final step in the liberalization process. Memdani (2017) concluded that trade openness

increases economic development, with a greater link for high-income countries and a lesser link for middle-income and low-income countries.

The degree to which international trade is liberalized is seen by some to affect the growth of both the supply and demand sides of the financial industry. According to Rajan and Zingales (2003) as cited in the works of (Aman et al., 2022; Ashraf, 2017; Abel et al., 2019), trade openness is necessary to improve financial development because it boosts international competition in domestic markets. They explained that global competition hurts domestic producers' profitability and forces them to make more significant investments to compete with foreign products. Owing to the sourcing and utilization of these incumbents' cash, the financial industry will improve, opening up prospects for new companies to quickly raise capital for growth.

Studies on the demand side have demonstrated that when trade openness increases, there is a greater demand for new financial goods and services. For instance, Caselli et al. (2015) reveal that by lowering domestic shock sensitivity and enabling nations to diversify their sources of supply and demand, trade openness can reduce income volatility. This can encourage financial growth by increasing demand for insurance goods. Like this, Svaleryd *et al.*, (2005) as cited by Kurihara and Fukushima (2016), opine that growing trade openness leads to an increase in a nation's susceptibility to external shocks and international competition, increasing the demand for new financial instruments that provide diversification benefits.

Do and Levchenko (2007) show how a country's production pattern and the consequent need for external financing are both affected by a competitive advantage in trade. They demonstrate that nations focusing on financially

dependent goods will see an increase in the need for external financing, which will result in a greater degree of financial development.

Although little research has been conducted on the Ghanaian economy, the literature on openness policies and financial growth is extensive. Using data from low-income nations, Baltagi et al., (2009) discovered that the marginal effect of capital account liberalization on financial growth is relatively significant. They find that the expansion of the banking sector and financial and trade openness are positively connected in both developing and developed countries. Their findings contradict Rajan and Zingales (2003) claim that trade and financial openness are required as preconditions for financial growth for various political and economic reasons.

According to Mishkin (2007), a certain level of financial development is necessary for financial development to react to the degree of financial openness. They claim that, to benefit from financial globalization, several requirements must be satisfied. These prerequisites include strengthening the legal system, developing strong corporate governance, eradicating corruption and establishing strong property rights. Trade openness increases the demand for new financial goods and services, reduces income volatility, and encourages financial growth (Caselli et al., 2015). According to Kurihara and Fukushima (16), this reduces domestic shock sensitivity and increases a nation's susceptibility to external shocks and international competition.

Research suggests that financial openness indirectly benefits GDP by affecting financial development, institutional development, and macroeconomic discipline. Higher financial development leads to greater manufactured exports and a favourable trade balance, especially in highly established financial

systems. Capital account liberalization is linked to greater financial sector depth in advanced and developing economies (Aman et al., 20022; Herwartz & Walle, 2014).

However, a new corpus of research on financial openness argues that its uncertain GDP contribution is outweighed by its indirect benefits of financial openness. According to Kose, Prasad, Rogoff, and Wei, (2009), financial globalization indirectly affects financial development, institutional development, and macroeconomic discipline. “Collateral benefits” are the term used to describe these outcomes. Beck (2002) states that a higher degree of financial development results in a greater percentage of manufactured exports and a more favourable trade balance. This is particularly true for nations with highly established financial systems. Klein and Olivei (2008) also find that capital account liberalization is linked to greater financial sector depth in a sample of advanced and developing economies.

Shahbaz et al. (2013) discovered a short-run unidirectional causal relationship from financial development to trade openness for Indonesia, while Farhani and Ozturk (2015) found a short-run Granger causality from financial development to trade openness for Tunisia. On the other hand, Gries et al. (2009) found little to no evidence supporting a causal link between financial development and trade openness in 16 sub-Saharan African countries. Menyah et al. (2014) found similar results for 21 Sub-Saharan African countries, with no evidence of causality between financial development and trade openness.

Considerable emphasis has been placed on empirical studies investigating the relationship between finance, trade openness, and financial development (Bandura, 2021; Ashraf, 2017; Balgati et al., 2009). For instance,

Herwartz and Walle (2014) revealed that, with certain exceptions in OECD and Latin American economies, high trade openness tends to reinforce the growth-promoting effect of financial development, whereas high financial openness often inhibits it. Gnanon (2020) found that increased trade openness helps developing countries meet the Sustainable Development Goals (SDGs) by 2030 by diversifying external financial flows for development, especially in the least developed nations.

Bandura (2021) found that trade and financial openness have weak positive impacts on financial development in sub-Saharan Africa, with institutions contributing positively to private credit by banks. Kim et al. (2010b) found that trade openness and financial development are complementary in the long run and substitute each other in the short-run for non-OECD countries. However, the impact of financial development on trade is found to be insignificant for OECD countries. The researchers discovered a non-linear relationship in the long run, with declining trade responses as financial development progressed.

Chortareas et al. (2015) found that the long-run connection between finance and output only holds after considering economic openness. Developing countries appear to benefit more from trade openness, whereas financial openness is more crucial for advanced countries. Ibrahim and Sare (2018) reveal that human capital and trade openness are equivalent in their ability to affect Africa's financial development, with trade openness having a stronger effect on private credit than on human capital.

Qamruzzaman and Jianguo (2020) observed that using panel nonlinear autoregressive distributed lagged data from 1990 to 2017, except for developing

countries, financial development, trade openness, and foreign capital flows show long-run asymmetric correlations with renewable energy consumption. Menyah et al. (2014) concluded that the impact of trade liberalization and financial development on economic growth in African countries has been minimal, indicating that recent initiatives have not had a major impact on growth.

Abdallah (2016) discovered that trade openness is a necessary condition for capital account liberalization, while banking sector development is a prerequisite for equity market development. Awili and Ahmed (2019) found a positive interdependence between financial development and liberal trade policies. According to Jaud et al. (2021), liberalization of the stock market in liberalizing countries expedites the removal of inefficient exports and enhances export performance in the long run, with international investors contributing uniquely to better resource allocation in the actual economy.

Rajan and Zingales (2003) suggest a connection between commercial activity, financial openness, and financial advancement, but their findings may be insufficient or deceptive. Baltagi et al. (2009) examined the impact of trade and financial openness on economic development, finding that stronger financial repression regulations in an economy open to commerce but restricted to capital account transactions would end the economic boom, making free trade and closed capital accounts unviable.

However, the findings of the pioneering study by Rajan and Zingales (2003) demonstrate that the results of the two-variable connections may be insufficient or deceptive. These findings were discovered as a result of their research. As a consequence of their investigation, they have concluded that there

is likely to be a meaningful connection between the following three factors: commercial activity, financial openness, and financial advancement. They specifically contend that the absence of financial openness cannot enable trade openness, and to evaluate this claim, they analyze data from 24 industrialized countries between 1913 and 1999.

To corroborate the findings of Rajan and Zingales's (2003) assumption, Baltagi et al. (2009) examined openness in both developed and developing economies using simultaneous regression. These studies have focused on the interrelationships between trade and financial openness and their impact on economic development. The government can enact stronger financial repression regulations in an economy open to commerce but restricted to capital account transactions. This will end the economic boom. Consequently, the marginal impact of free trade combined with a closed capital account can't result in a positive outcome.

In conclusion, the effects of trade and financial openness on financial development are inconclusive. Overall, while openness seems to be positively linked to financial development, evidence for developing countries is less clear. Furthermore, the coverage of African countries in previous studies has been typically limited. In addition, there is less evidence in Ghana on the role of financial openness and trade openness in financial development. This study uses time-series data to explore the possible long-term consequences of increasing financial and trade openness on financial sector development.

Data and Methods of Analysis

Data

This study uses annual time-series data for Ghana. The data span from 1960 to 2020, despite missing observations for some variables. Data for the analysis were obtained from the World Bank's World Development Indicators.

The ratio of domestic credit to the private sector as a percentage of GDP was used as a measure of financial development. Financial openness was measured using the ratio of net capital inflows to FDI to GDP. We used the GDP growth rate to calculate the impact of the economic growth rate on financial development. We also used trade openness to measure the effect of opening economies on external trade. This was calculated as the ratio of the sum of exports and imports to GDP. Inflation is measured using changes in the consumer price index.

Empirical Estimations

Following previous work on the openness-growth nexus, the study adopts the following model

$$FD_t = f(\text{financial openness}_t, \text{trade openness}_t) \dots \dots \dots (1)$$

For the two openness measures, we set the following models:

$$FD_t = \gamma_0 + \gamma_1 \text{financial openness}_t + \gamma_2 \text{trade openness}_t + \gamma_3 \text{growth}_t + \gamma_4 \text{investment}_t + \gamma_5 \text{inflation}_t + \gamma_6 \text{expenditure}_t + \varepsilon_t \dots \dots \dots (2)$$

From equation 1 and 2, FD_t measures the level of financial development. The ratio of domestic credit to the private sector as a percentage of GDP was used as a measure of financial development.

$\text{financial openness}_{it}$ is the financial level proxied by the percentage of capital inflows to GDP. Higher ratios are expected to result in higher levels of

financial development. Computed as $\frac{\text{net private capital inflows}}{\text{Gross Domestic Product}} \times 100$. Other measures used in the literature include banks' international activity ratios and FDI inflows to the GNP ratio. The ratio measures the degree of international linkage in the real sector, as expressed in foreign direct investments.

tradeopenness_t It measures the openness of the economy to external trade. This is also seen as a measure of trade liberalization. It sums up the total exports of an economy and its total imports and expresses that as a percentage of GDP. The more liberalized trade becomes, the higher the chances of developing the financial sector to finance the increased trade volumes.

Investment_t measures the level of private investment in the economy. This is proxied by Gross Fixed Capital Formation, computed as a percentage of Gross Domestic Product.

inflation_t measures annual changes in the prices of goods and services in the economy. It is measured using the percentage changes in the consumer price index. As Beck et al. (2012) indicate, high inflation erodes the purchasing power of individuals, particularly those with lower income. This can make financial services and products, such as banking fees or loan interest rates, less affordable and therefore less accessible. This is expected to dampen the financial development.

growth_t is the annual change in the gross domestic product. The growth rate of an economy's GDP indicates its health. Therefore, it is expected that increasing GDP growth rates could generate sufficient economic activity and propel the financial sector to grow.

expenditure_t measures the extent of government financial expenditure on goods and services as a percentage of the total GDP. It is expected that

government spending on social safety nets and welfare programs can mitigate economic shocks and reduce the financial vulnerability of the population. When individuals feel secure and trust the government's ability to manage the economy, it fosters a conducive environment for financial development.

ε_t and t is the error and time variables, respectively.

Estimation Techniques

This study employs the ARDL bounds testing approach for cointegration to estimate the short- and long-run effects of openness policies on financial development in Ghana. To implement the bounds testing procedure, the conditional ARDL error correction model (ECM) is modelled using Equation (2) as follows:

$$\begin{aligned} \Delta FD_t = & \Omega_0 + \delta_1 FD_{t-1} + \delta_2 growth_{t-1} + \delta_3 inflation_{t-1} + \\ & \delta_4 financialopeness_{t-1} + \delta_5 tradeopeness_{t-1} + \delta_6 expenditure_{t-1} + \\ & + \delta_7 investment_{t-1} + \sum_{i=1}^n \beta_1 \Delta FD_{t-1} + \sum_{i=0}^n \beta_2 \Delta growth_{t-1} + \\ & \sum_{i=0}^n \beta_3 \Delta inflation_{t-1} + \sum_{i=0}^n \beta_4 \Delta financialopeness_{t-1} + \\ & \sum_{i=0}^n \beta_5 \Delta tradeopeness_{t-1} + \sum_{i=1}^n \beta_6 \Delta expenditure_{t-1} + \\ & \sum_{i=1}^n \beta_7 \Delta investment_{t-1} + \mu_t \end{aligned} \quad (3)$$

From equation 3, Δ is the first difference operator, and all other variables remain as already defined. An F-test is conducted to establish the joint significance of the coefficients. The F-test has a non-standard distribution and depends on whether the variables included in the ARDL model are $I(0)$ or $I(1)$, the number of regressors, and whether the ARDL model contains an intercept or trend.

The null hypothesis of no cointegration is tested using the joint significance test as follows:

$H_0: \delta_1 = \delta_2 = \delta_3 = \delta_4 = \delta_5 = \delta_6 = \delta_7 = 0$ against the alternative hypothesis of

$$H_1: \delta_1 \neq 0, \text{ or } \delta_2 \neq 0, \text{ or } \delta_3 \neq 0, \text{ or } \delta_4 \neq 0, \text{ or } \delta_5 \neq 0, \text{ or } \delta_6 \neq 0, \text{ or } \delta_7 \neq 0.$$

If the computed F-statistic is less than the lower bound critical value, we do not reject the null hypothesis of no cointegration. Alternatively, if the F-statistic is greater than the upper bound of the critical values, the null hypothesis of no cointegration is rejected. The inference is inconclusive if the F-statistic lies between the lower and upper bounds. Once cointegration is established, the long- and short-run estimations of the parameters are established.

Assuming a long-run relationship exists among the variables, we estimate a conditional ARDL based on equation (2) so that we get:

$$\begin{aligned} \Delta FD_t = & \Omega_0 + \delta_1 FD_{t-1} + \delta_2 \text{growth}_{t-1} + \delta_3 \text{inflation}_{t-1} + \\ & \delta_4 \text{financialopeness}_{t-1} + \delta_5 \text{tradeopeness}_{t-1} + \delta_6 \text{expenditure}_{t-1} + \\ & + \delta_7 \text{investment}_{t-1} + \Phi ECM_t + \mu_t \end{aligned} \quad (4)$$

From equation 4, all variables are previously defined. The lag length in the ARDL model is selected based on an Akaike Information Criterion (AIC) with a maximum of 4 lags. The AIC considers both the goodness of fit of the model and the number of parameters used to achieve that fit. It penalizes models with more parameters to avoid overfitting, which occurs when a model fits the data too closely and may not generalize well to unseen data. By penalizing complex models, the AIC encourages simplicity and parsimony, while still prioritizing good model fit. This trade-off is crucial in selecting an optimal lag order that balances model accuracy and complexity (Hassani & Yeganegi, 2020; Claeskens & Hjort, 2008).

Finally, the short-run dynamic elasticities were also computed by estimating an error correction (ECM) model associated with the long-run estimates such that;

$$\begin{aligned} \Delta \ln FD_t = & \beta_0 + \sum_{i=1}^n \beta_1 \Delta FD_{t-1} + \sum_{i=0}^n \beta_2 \Delta growth_{t-1} + \\ & \sum_{i=0}^n \beta_3 \Delta inflation_{t-1} + \sum_{i=0}^n \beta_4 \Delta financialopenness_{t-1} + \\ & \sum_{i=0}^n \beta_5 \Delta tradeopenness_{t-1} + \sum_{i=1}^n \beta_6 \Delta expenditure_{t-1} + \\ & \sum_{i=1}^n \beta_7 \Delta investment_{t-1} + \psi ECM_{t-1} + \mu_t \end{aligned} \quad (5)$$

Where, β , ξ , φ , ϕ , τ , η , κ , and ε represents the short-run elasticities. Also, ψ measures the speed of adjustment while ECM_{t-1} is the error correction term lagged by one period from equation (5).

Using the Cumulative sum of squares and its square, we conduct a post-estimation test to verify the stability of the model. The model is deemed long-term stable if the values of CUSUM and CUSUM(SQ) are between the 5 per cent upper and lower boundaries (see Figure 1 in Appendix A).

Test for Linearity

To test for the presence of non-linearity, we use the model developed by Hansen (2000). It uses bootstrap replications to search for the presence of thresholds in the model such that our model is respecified as:

$$\begin{aligned} FD_t = & \gamma_0 + \gamma_1 financialopenness_t + \gamma_2 tradeopenness_t + \gamma_3 growth_t + \\ & \gamma_4 Ginvestment_t + \gamma_5 inflation_t + \gamma_6 expenditure_t + \delta(tradeopenness) + \\ & \varepsilon_t \end{aligned} \quad (6)$$

In our model, we use trade openness as the threshold switching variable for determining the non-linearity. The choice of the variable is because there

exists a non-linear relationship between trade and financial development. Thus, testing of Null of No Threshold against the Alternative of Threshold as:

$$H_0: \delta = 0$$

$$H_1: \delta \neq 0$$

Results and Discussions

Unit root test

Using the ADF method for unit root, we test for the existence of unit root in the variables used in the study. The ARDL methodology requires that variables are cointegrated at either $I(0)$ or $I(1)$. The results in the table indicate all the variables are either stationary at $I(0)$ or $I(1)$. The result of the stationarity test is shown in Table 12.

Table 12: Unit root test using an Akaike information criterion.

Variables	Levels		First Difference		Level
	Intercept	Intercept and trend	Intercept	Intercept and trend	
FD	-1.491	-1.755	-8.592***	-8.517***	I (1)
Financialopenness	-1.602	-2.368	-7.653***	-7.589***	I (1)
expenditure	-3.276**	-3.669**	-5.853***	-5.777***	I (0)
inflation	-2.536	-	-	-	I (0)
growth	-	6.386***	12.957***	12.857***	I (0)
tradeopenness	5.021***	5.599***	-5.892***	-5.838***	I (0)
investment	-1.213	-2.088	-2.550**	-2.451**	I (1)
	-2.124	-3.034	-2.075**	-1.944**	I (0)

Source: Authors' estimations. Note: *, **, *** denotes significance at 10%, 5% and 1% level respectively.

According to the unit root results, all of the variables used in the study are stationary at either levels or first differences. This satisfies the conditions necessary for using the ARDL methodology for cointegration.

Correlation test

Table 13 shows the results of the correlation analysis of the variables used in the model. The correlation coefficients are not high enough to suspect the presence of multicollinearity among the variables used in the model.



Table 13: Pearson correlation test of variables used in the study

Correlation Probability	FD	Financialopeness	growth	Inflation	investment	tradeopenness	expenditure
FD	1.000000 -----						
Financialopeness	0.504995 0.0000	1.000000 -----					
growth	0.388554 0.0020	0.388915 0.0020	1.000000 -----				
Inflation	-0.505757 0.0000	-0.395883 0.0016	-0.353248 0.0052	1.000000 -----			
investment	0.422540 0.0000	0.393825 0.0017	0.325183 0.0106	-0.313870 0.0138	1.000000 -----		
tradeopenness	0.527917 0.0000	0.512312 0.0000	0.455385 0.0002	-0.394224 0.0017	0.506876 0.0000	1.000000 -----	
expenditure	-0.236479 0.0665	-0.086699 0.5064	0.115792 0.3742	0.203517 0.1157	-0.265523 0.0386	-0.015634 0.9048	1.000000 -----

Source: Authors' estimations.

Test of Non-Linearity

Table 14: Test for non-linearity

	Trimming percentage = 10%				Trimming percentage = 15%			
	500	1000	1500	2000	500	1000	1500	2000
Threshold Estimate	18.8146	18.8146	18.8146	18.8146	24.2438	24.2438	24.2438	24.2438
LM-test for no threshold	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Bootstrap P-Value	0.978	0.899	0.994	0.786	0.967	0.874	0.789	0.882
Conclusion	No threshold	No threshold	No threshold	No threshold	No threshold	No threshold	No threshold	No threshold

Source: Authors' estimations.

There is no evidence of non-linearity or threshold given our sample evidence. From Table 15, we find that irrespective of the number of replications and trimming percentage, the results do not show evidence of threshold on the determinants of financial development conditioned openness as the regime-switching parameter. We therefore proceed to estimate a linear model.

ARDL bounds test for cointegration.

We use the ARDL bounds testing approach to determine whether the dependent variable (FD) and the independent variable have a long-term cointegrating relationship. The null hypothesis that there is no cointegrating relation is rejected when the estimated F-statistics fall below the lower bounds. This is because the null hypothesis states that there is no cointegrating relationship.

Table15: Cointegration test using long-run bounds test

F-Statistic	Level of Significance	Lower Bounds	Upper Bounds
6.263	10%	1.99	2.94
	5%	2.27	3.28
	1%	2.88	3.99

Source: Authors' estimations.

Since the computed F-statistic of 6.263 is higher than the upper bound critical value of 5% significance value as indicated in Table 16, we reject the null hypothesis and conclude that there exists a cointegration relationship between the level of financial development and the explanatory variables used in the model. We then proceed to estimate the long-run relationship between financial development and openness policies.

Estimated Long-Run Effect of Openness on Financial Development

Table 16 summarizes the results of the long-run relationship between openness policies and financial development. The results in Table 17 suggest that there exists a significant positive association between financial openness and financial development. The results indicate that a 1 percentage point increase in financial openness will lead to a 1.421 percentage point increase in financial development in the long run.

One potential explanation for this relationship is that financial liberalization policies, such as capital account liberalization, may reduce financial repression in well-protected financial markets. This reduction in financial repression allows interest rates to rise to their competitive market equilibrium, promoting financial development. Moreover, the removal of capital controls facilitates better portfolio diversification for both domestic and foreign investors, leading to lower capital costs and improved access to capital for borrowers. These findings are consistent with previous studies by Chin and Ito (2006) and Hauner et al. (2013), who have similarly demonstrated the positive impact of financial openness on financial development.

Overall, the findings of this study provide support for the notion that financial liberalization policies can play a crucial role in promoting financial development in the long run.

Table 16: Long Run Results

Dependent Variable: FD	
Variable	Coefficient
Financial openness	1.421*** (0.185)
expenditure	0.053 (0.097)
inflation	-0.042* (0.024)
growth	0.323* (0.172)
tradeopenness	0.108*** (0.032)
investment	-0.031 (0.122)
C	-2.323 (8.653)

Source: Authors' estimations. Note: Standard errors are in parentheses. *, **, *** denotes significance at 10%, 5% and 1% level respectively.

Additionally, trade openness influences financial development positively in the long run. The finding shows that a 1 percentage point increase in trade openness will result in a 0.108 percentage point increase in financial development in the long run. Trade openness can provide opportunities for developing economies to access international markets, attract foreign investment, and learn from more developed economies. Trade openness can also promote competition, which can incentivize domestic firms to improve their financial management and develop new financial products and services.

The findings of this study are consistent with those found in previous studies, most notably the work of Bandura, (2021). According to Giday (2023) the demand for external financial assets acts as an exogenous factor determining the level of a country's financial development. They contend that a country's

comparative advantage in global commerce may impact production structure and external funding requirements. Consequently, a strong demand for external financing may be created when an economy specializes in items dependent on finances. This could therefore lead to the development of the financial sector.

The results also indicate a significant negative relationship between inflation and financial development. A one (1) percentage point increase in the inflation rate will result in a 0.042 percentage point decrease in financial development. High and volatile inflation rates introduce uncertainty and increase risks in the economy. Uncertainty about future price levels makes it challenging for businesses and individuals to plan effectively, impacting investment decisions and long-term financial commitments. Financial institutions may face difficulties in accurately assessing the creditworthiness of borrowers, as inflation can erode the value of future repayment.

The growth rate of GDP in the long run is also a significant determinant of financial development. As indicated in Table 4, the relationship between the growth rate of GDP and financial development is positive and significant. A 1 percentage point increase in the GDP growth rate is expected to increase financial development by about 0.323 percentage points. As GDP grows, the demand for financial services increases. Financial institutions, such as banks, insurance companies, and investment firms, tend to expand their operations to meet the growing needs of businesses and individuals.

The growth of the economy leads to higher incomes, increased investment opportunities, and greater financial transactions, all of which drive the expansion and diversification of financial institutions. This expansion

enhances access to financial services and promotes the development of a robust and inclusive financial sector.

Government expenditure and investment expenditure are however not significant determinants of financial development in the long run in Ghana as indicated in table 5. This could be because when the government spends more than it collects in taxes, it may need to borrow money or raise taxes to finance its deficit. This can have a negative effect on the private sector, which also relies on savings and loans for investment and consumption. The government's increased demand for funds can push up the interest rates, making borrowing more expensive and savings more attractive for the private sector.

As a result, the private sector may reduce its spending and investment, which are vital for financial development. This phenomenon is known as the crowding out effect. This can therefore account for why government consumption expenditure does not affect financial development in the long run.

Estimated Short-Run Relationship Between Openness and Financial Development

Table 17 indicates the results of the short-run relationship between financial development and openness policies. The ECM (-1) indicates how quickly long-run equilibrium is achieved when there are short-run shocks. It also indicates how the endogenous variables in the model respond to shocks in the exogenous variables in the model. A negative ECM (-1) reaffirms the cointegrating relationship earlier established. The results indicated that 51.1 per cent of the short-run shocks would be corrected in the following year.

Table 17: Short Run estimates of openness and financial development

Variable	Coefficient
Δ financialopenness	0.214 (0.143)
Δ expenditure	0.209*** (0.047)
Δ expenditure (-1)	0.096* (0.052)
Δ inflation	-0.014** (0.006)
Δ inflation (-1)	-0.014* (0.007)
Δ growth	-0.078** (0.034)
Δ growth (-1)	0.178** (0.035)
Δ tradeopenness	0.028* (0.014)
Δ tradeopenness (-1)	-0.093*** (0.018)
Δ investment	0.048 (0.050)
Δ investment (-1)	0.198** (0.056)
CointEq(-1)	-0.511*** (0.067)
$EC = FD - (1.4211*FINANCIALOPENNESS - 0.3226*GROWTH - 0.0426*INFLATION - 0.0318*INVESTMENT + 0.1084*TRADEOPENNES + 0.0529*EXPENDITURE - 2.3236)$	

Source: Authors' estimations. Note: Standard errors are in parentheses. *, **, *** denotes significance at 10%, 5% and 1% level respectively.

The short-run results indicate that financial openness does not have a significant impact on financial development. This may be a result of the fact that to participate effectively in global markets, financial openness often entails significant adjustments in the domestic financial system. These include adopting international financial standards, implementing regulatory reforms, improving infrastructure, and developing appropriate risk management

practices. These adjustments are costly and time-consuming, and their effects on financial development may not be immediate. In the short run, the institutional and regulatory changes may still be incomplete, limiting the immediate benefits of financial openness for financial development.

Trade openness however is a significant determinant of financial development in the short run. The results in Table 6 indicate that in the short run, it is anticipated that a 1 percentage increase in trade openness will lead to a 0.093 percentage point decrease in financial development. One possible reason why trade openness may have a short-run negative effect on financial development is that trade openness may increase the exposure of the domestic economy to external shocks and volatility, which can undermine the stability and efficiency of the financial system. For example, trade openness may lead to sudden reversals of capital flows, exchange rate fluctuations, terms of trade shocks, and contagion effects from global crises. These shocks can impair the balance sheets of financial intermediaries, reduce the availability and quality of credit, and increase the risk of financial crises (Caporale et al., 2021).

In the short run, the investment has a significant positive effect on Ghana's financial development. When investment in the short run increases by a percentage point, it is expected that the financial sector will respond with a 0.198 percentage point increase in its development. In the short run, investment can have an even more significant impact on financial development because it can boost confidence in the economy and attract foreign investment. When there is an increase in investment, it signals to investors that the economy is growing and has the potential for higher returns. This can lead to a positive feedback loop, where increased investment leads to more economic growth, which in turn

attracts more investment. Empirical studies have also supported the positive relationship between investment and financial development in developing countries. For instance, Beck (2014) found that investment has a positive and significant effect on financial development in a sample of 50 developing countries. Similarly, Levine (1997) found that investment has a positive impact on financial intermediation in a sample of 80 countries.

Government expenditure in the short run also has a positive significant effect on financial development in Ghana. It is expected that a 1 percentage point increase in government consumption expenditure will increase financial development by a 0.096 percentage point increase in financial development. The results are consistent with the findings of Poku et al. (2022) who also find that in the short run, financial development will respond positively to increases in government expenditure.

The results also show that the growth rate of GDP and the rate of inflation also significantly influence financial development in the short run. While the growth rate of GDP has a positive significant effect on financial development, the inflation rate has a negative significant effect on financial development. For the growth rate of GDP, a 1 percentage point increase will increase financial development by 0.178 percentage points. Also, a 1 percentage point increase in inflation will lead to financial development reducing by about 0.014 percentage points.

Diagnosis Test

Various diagnostic tests were performed to ensure our model was free from various econometric errors, including normality, serial correlation, heteroskedasticity, and functional forms. The results are indicated in Table 18.

Table 18: Diagnostics test

	Ramsey RESET Test
Functionality	F-statistic = 0.498
	P-value = 0.485
	Breusch-Godfrey LM Test
Serial Correlation	F-statistic = 0.299
	Prob. F (2, 34) 0.743
	Breusch-Pagan-Godfrey Test
Heteroscedasticity	F-statistic = 0.633
	Prob-value = 0.866
Stability Condition	CUSUM = Stable
	CUSUMSQ = Stable

Source: Authors' estimations

Using the Ramsey RESET test we tested for the specification errors in our model. The results of the test with an F-Statistic of 0.498 indicate that the model is correctly specified and does not suffer from any specification errors. The result of the serial correlation was tested using the Breusch-Godfrey LM Test. With an F-Statistic of 0.299, we can conclude that the model does not suffer from serial correlation in the error term. The results of the Breusch-Pagan-Godfrey Test of constant variance indicate that our model does not suffer from the problem of heteroskedasticity. With an F-statistic we conclude that our residuals are homoscedastic.

Variance Inflation Factor

Table 19 presents the results of multicollinearity using the variance inflation factor. The rule of thumb is that centred VIF values should be greater

than 10 for multicollinearity to be severe. The results however indicate that multicollinearity is not present in the model.

Table 19: Multicollinearity test using the Variance Inflation Factor

Variable	Centred VIF
FD(-1)	9.389345
Financialopenness	
s	9.599557
financialopenness(-1)	9.667342
growth	2.002176
growth(-1)	2.162355
growth(-2)	2.336063
Inflation	2.098908
Inflation(-1)	2.127408
Inflation(-2)	1.945323
Inflation(-3)	1.887183
Investment	9.172924
Investment(-1)	9.810981
Investment(-2)	7.044110
Tradeopenness	8.930561
Tradeopenness(-1)	9.259161
Tradeopenness(-2)	7.112691
Expenditure	5.433482
Expenditure(-1)	6.449227
Expenditure(-2)	6.651481
Expenditure(-3)	3.891325
Expenditure(-4)	3.304851
C	NA

Source: Authors' estimations.

Robustness checks

A Markov Switching model is further used to estimate the effect of openness policies and financial development. Due to the data-generating process of financial development and openness policies, various breakpoints could exist in the data points. To enable switching between regimes, the Markov switching is employed which can handle a lot of structural breaks Fallahi (2011).

The models are estimated with two regime-switching variables each. The regime-switching variables include the mean values, variances and variables of openness policies. Low regimes of financial development correspond to μ_0 while high regimes correspond to μ_1 . The results of the Markov switching model are indicated in Table 20.

Table 20: Results of Markov switching model

Variables	Coefficients	Standard Error
Mean (μ_0)	1.147***	0.393
Mean (μ_1)	3.721***	0.819
Variance (σ_0)	-0.344*	0.179
Variance (σ_1)	0.463***	0.131
$\Delta\text{foreign } 0$	-0.032	0.201
$\Delta\text{foreign } 1$	0.759***	0.118
$\Delta\text{trade } 0$	0.071***	0.010
$\Delta\text{trade } 1$	0.075***	0.013
Duration 0	14.63	
Duration 1	23.66	

Source: Authors' estimations. Note: *, **, *** denotes significance at 10%, 5% and 1% level respectively

The results in Table 20 indicate that in a low regime of financial development with low volatility, foreign investment has no significant effects

on financial development. However, in the same regime, trade openness has a significant positive effect on financial development. A percentage point increase in trade openness will result in an increase in financial development by about 0.071 per cent. Thus, when financial development is less volatile trade openness increases financial development.

In a regime of high financial development, foreign investment and trade openness both significantly affect financial development. A percentage-point increase in foreign investment is expected to increase the level of financial development by about 0.759 per cent while a percentage-point increase in trade openness is expected to increase the level of financial development by about 0.075 per cent. The persistence of financial development in the various regimes tends to indicate that financial development is very persistent in high-growth regimes with higher volatilities than low low-growth regimes. The results show that it could take about 23.66 years to transition from a high financial development regime to a low regime when there is a shock to the economy.

Transition Probabilities

Transition probabilities describe the likelihood of moving from one state (0) or regime to another (1) at each time step. The rows of the matrix represent the current state, and the columns represent the next state. The results of the transition probabilities are presented in Table 21.

Table 21: Results of the Transition Probabilities

Regime	1	2
1	0.9317	0.0683
2	0.0423	0.9577

Source: Authors' estimations.

The results in Table 21 indicate that the model tends to be persistent in its current state when there is low growth and low volatility. The model is 93.17 per cent more likely to stay in a low growth, low volatility regime with a duration of about 14.63 years while in low growth, high volatility regimes, the model is 6.83 per cent more likely to transition to a high growth, high volatility regime. However, we see that the model is more persistent in the high growth, high volatility regime with a probability of 95.77 of staying in that regime. The model could persist in this state for about 23.66 years.

Conclusions and Recommendations

The relationship between capital restrictions, financial system integration, and economic growth has been a topic of discussion for many years. As economies become more interconnected, the financial sector's importance as a facilitator of economic growth has increased. The theory of financial growth proposed by McKinnon and Shaw in 1973 suggests that financial development can be promoted by liberalizing capital accounts. This theory has been influential in shaping policies around the world, particularly in developing countries.

This study examined the relationship between financial openness, trade openness, and financial development. The study utilized the ARDL long run and bounds test estimation approach, which is a widely used method for examining the relationship between variables. The study controlled for other macroeconomic variables, such as inflation, economic growth, government spending, and investments. Data for the period 1960 to 2020 was used for the study. A Markov switching regression is also used to study how financial development responds to openness policies in different regimes.

The results of the study showed that financial openness and trade openness both have a positive impact on financial development in the long run. Financial openness had an insignificant effect on financial development in the short run, while trade openness had a significant negative effect. These findings suggest that policymakers should be cautious about the short-term effects of trade policies on the financial sector. While trade policies may be beneficial in the long run, their short-term effects may be harmful to the financial sector.

The results also indicate that in the long run, government expenditure has an insignificant effect on financial development while in the short run government expenditure has a significant positive effect on financial development. Inflation has a significant negative effect on financial development both in the long run and short run. The growth rate also has a positive significant effect on financial development both in the long run and short run. The results from the Markov model also indicate that the effect of openness policies on financial development is positive in high and low regimes of financial development, even though foreign investment does not affect financial development in less volatile environments.

The study's findings support the idea that openness policies are beneficial for promoting financial development in the long run. However, policymakers must carefully consider the potential short-term effects of such policies on the financial sector. For example, policies that encourage foreign investment may lead to short-term fluctuations in exchange rates, which can have a significant impact on financial development. Policymakers must carefully balance the long-term benefits of openness policies with their short-term costs.

Recommendations

The literature on financial development documents a positive benefit of financial development to economic growth and as such special attention should be paid to the development of the financial system of every economy. Given the stage of development of the Ghanaian economy, policies which promote trade, greater financial integration and removal of capital restrictions should be prioritized.

It is thus recommended that government policies should be targeted towards enhancing trade agreements with other countries such that it increases trade volumes, which could in turn enhance financial development in the long run. There should also be fewer restrictions on capital movement across borders to enhance an inflow of capital into the economy, increasing competition among financial institutions ensuring efficiency and consequently the development of the financial sector.

Policies that promote financial openness can be beneficial for promoting financial development in the long run. Therefore, policymakers should work towards liberalizing capital accounts and promoting foreign investment. However, policymakers must be cautious about the potential short-term effects of such policies and work towards mitigating any negative impacts. While trade policies may be beneficial for economic growth in the long run, their short-term effects may be harmful to the financial sector. Policymakers should balance the benefits and costs of trade policies to ensure that they do not have a significant negative impact on financial development in the short run.

CHAPTER SIX

CONCLUSION AND POLICY RECOMMENDATIONS

Introduction

In this section, we synthesize the key findings of the study, draw pertinent conclusions, and provide actionable recommendations. The study explored the relationship between legal systems, property rights enforcement, and financial development in sub-Saharan Africa (SSA) using data from 41 countries over a 20-year period. Employing advanced econometric techniques such as the ARDL approach and Markov switching regression, the research examined the impacts of financial openness, trade openness, and other macroeconomic variables on financial development, economic growth, inflation, and unemployment. The insights derived from this analysis are critical for policymakers and stakeholders aiming to enhance financial sector performance and overall economic stability in SSA.

Summary of the General Conclusions/ Findings

This section presents a summary of the main findings as they emerged from the three empirical objectives.

Legal Systems, Property Rights and Financial Development

This study investigates the impact of legal systems and property rights enforcement on the development of financial markets and institutions in sub-Saharan Africa (SSA), utilizing data from 41 countries over the period 2000 to 2020. The research is motivated by the inconclusive results in existing empirical literature regarding the influence of legal frameworks on financial development across various regions, both developed and developing. The study employs a Seemingly Unrelated Regression (SUR) model to account for cross-equational

linkages and correlations between financial markets and financial institutions, a methodological approach that addresses gaps in previous research. This region-specific analysis, tailored to countries with similar economic fundamentals, cultural contexts, and historical backgrounds, aims to derive pertinent policy implications.

The results reveal that robust legal systems and effective enforcement of property rights significantly enhance financial markets, financial institutions, and overall financial sector development in SSA. Additionally, when using credit to the private sector as an alternative indicator of financial development, a positive relationship persists between legal systems, property rights enforcement, and financial development. The findings suggest that the influence of legal systems and property rights on financial development is consistent across different measures of financial development. Furthermore, the study identifies that trade openness and GDP have significant positive effects on the financial market dimension and overall financial development. The lending rate also positively influences the financial market dimension and overall financial development index, whereas regulatory trade barriers negatively affect these aspects.

The study concludes that the effectiveness of legal systems and the enforcement of property rights are critical drivers of financial development in sub-Saharan Africa, regardless of the specific measure of financial development used. This underscores the importance of institutional quality in promoting robust financial markets and institutions. Additionally, the findings highlight the significant roles of trade openness and GDP in enhancing financial development. Conversely, high regulatory trade barriers impede financial

market growth and overall financial sector development, suggesting that reducing these barriers could foster a more favorable economic environment. The lending rate's positive influence on financial development also indicates that appropriate monetary policy can support financial sector growth.

Growth, Unemployment and Inflation in Sub-Saharan Africa: The role of Financial Development and Legal Systems and Property Rights

The study underscores the critical importance of financial development for sub-Saharan Africa's (SSA) economic growth, unemployment reduction, and price stability. By examining the impacts of financial development on economic growth, inflation, and unemployment across a panel of 41 SSA nations from 2000 to 2020, the research highlights how these outcomes are moderated by the legal frameworks and property rights enforcement. Using a sequential quantile regression model, the study evaluates the effects of financial development at different quantiles (25th, 50th, and 75th) for each outcome variable and considers other macroeconomic variables such as trade, investment, foreign direct investment (FDI), exchange rates, and lending rates.

The findings reveal that financial development positively influences economic growth at the 25th and 75th percentiles, but not at the 50th percentile. Interestingly, the interaction between property rights, legal structures, and financial development shows a negative impact on economic growth. This suggests that, while financial development is beneficial for growth, weak property rights and legal frameworks can undermine these benefits. Additionally, financial development is found to reduce unemployment across all quantiles, though the effect is moderated by the strength of property rights and legal systems. For inflation, financial development consistently reduces

price levels across all quantiles, with stronger legal systems and property rights enforcement enhancing this effect at the 25th percentile.

The conclusions of the study emphasize the necessity of robust legal systems and property rights enforcement to maximize the benefits of financial development in terms of inflation control, unemployment reduction, and economic growth. The study also highlights the significant roles of trade, investment, FDI, exchange rates, and lending rates in influencing these macroeconomic outcomes in SSA. While financial development alone has positive impacts, these effects are either magnified or diminished by the presence and quality of legal frameworks and property rights.

The study concludes that financial development plays a pivotal role in fostering economic growth, reducing unemployment, and maintaining price stability in sub-Saharan Africa. However, the positive impacts of financial development are significantly influenced by the quality of legal frameworks and property rights enforcement. At the 25th and 75th percentiles, financial development enhances economic growth, but this relationship is negatively affected by weak legal and property rights structures. This indicates that, for financial development to fully benefit economic growth, robust legal frameworks and effective property rights enforcement are essential.

Financial development is also shown to reduce unemployment at all quantiles, although the strength of this relationship is moderated by the quality of legal systems and property rights. This suggests that improving these institutional factors can enhance the ability of financial development to reduce unemployment. Similarly, financial development decreases inflation across all quantiles, with stronger legal systems and property rights further enhancing this

effect at the 25th percentile. These findings underscore the importance of upholding the rule of law and protecting property rights to leverage the full benefits of financial development.

Openness Policies and Financial Development in Ghana: An ARDL

Approach

The relationship between capital restrictions, financial system integration, and economic growth has been a subject of significant debate over the years. As global economies become increasingly interconnected, the financial sector's role in facilitating economic growth has become more prominent. The theory of financial growth proposed by McKinnon and Shaw (1973) suggests that liberalizing capital accounts can promote financial development. This theory has influenced policy-making, particularly in developing countries. This study examines the relationships between financial openness, trade openness, and financial development using the ARDL long-run and bounds test estimation approach, with data spanning from 1960 to 2020. The study also employs a Markov switching regression model to analyze how financial development responds to openness policies under different regimes while controlling for macroeconomic variables such as inflation, economic growth, government spending, and investments.

The findings indicate that financial openness and trade openness positively impact financial development in the long run. However, in the short run, financial openness has an insignificant effect on financial development, while trade openness has a significant negative effect. These results suggest that while openness policies are beneficial for long-term financial development, their short-term impacts, especially of trade policies, can be detrimental to the

financial sector. Government expenditure shows an insignificant long-term effect but a significant positive short-term effect on financial development. Inflation consistently has a significant negative effect on financial development in both the short and long run. Conversely, the growth rate positively impacts financial development in both timeframes. The Markov switching regression model reveals that openness policies positively influence financial development in both high and low regimes, although foreign investment does not significantly affect financial development in less volatile environments.

This study concludes that openness policies, including financial and trade openness, are crucial for promoting financial development in the long run. The positive long-term effects of these policies underscore their importance for sustainable financial sector growth. However, policymakers need to be mindful of the short-term adverse effects, particularly of trade openness, which can negatively impact the financial sector. The findings suggest that while trade policies are ultimately beneficial, their implementation should be carefully managed to mitigate short-term financial instability.

Recommendations

Based on the findings and conclusions of the various studies, the following recommendations are gleaned:

Governments of sub-Saharan African (SSA) countries should prioritize strengthening legal systems and enforcing property rights to promote financial development. This involves establishing and enforcing clear laws and regulations, providing effective dispute resolution mechanisms, and reducing corruption to create a predictable and stable environment for businesses and investors. Such measures can enhance investor confidence, resulting in

increased capital inflows and a more dynamic flow of information, which in turn can stimulate economic growth.

In addition to legal reforms, reducing trade barriers is essential to increase trade volumes and capital inflows into the region. Governments should foster trade and support economic growth initiatives to drive financial market development and the overall financial sector. This includes eliminating restrictions that discourage foreign investment and working with international organizations and financial institutions to develop and regularly update measures that accurately reflect the state of financial development.

Policymakers should also focus on promoting financial inclusion, fostering the growth of capital markets, and broadening financial instruments. Enhancing trade agreements with other countries and liberalizing capital accounts can further increase competition among financial institutions, ensuring efficiency and consequently advancing the financial sector. While policies promoting financial openness and trade can be beneficial for long-term financial development, policymakers must be cautious of potential short-term negative impacts and strive to mitigate these effects. Balancing the benefits and costs of trade policies is crucial to prevent significant short-term disruptions to the financial sector.

Central Banks in sub-Saharan African (SSA) countries should utilize monetary policy to regulate lending rates, maintaining them at levels that support financial development while adjusting interest rates as needed to ensure stability. Additionally, SSA governments can collaborate with commercial banks to encourage the provision of credit to small businesses, which are often considered high-risk borrowers.

Finally, government policies in SSA countries should prioritize the development of the financial sector and relevant institutions. Initiatives should focus on enhancing institutions critical to the financial system to facilitate the free flow of information, enforce contract agreements, and protect property rights.

Suggestions for Further Research

Finally, the authors recommend a sub-sample analysis on the effect, institutions have on financial development which could be considered in future studies to understand the dynamics of the relationships. Further works could also consider the problem of “too much finance” using threshold models.

Investigating the impact of financial development on specific sectors of the economy (e.g., agriculture, manufacturing, services) could provide more detailed insights into how financial policies affect various parts of the economy differently.

Examining the long-term effects of specific policy interventions aimed at strengthening legal frameworks and property rights could provide valuable information on the sustainability and effectiveness of these measures.

REFERENCES

- Abbas, Z., Afshan, G., & Mustifa, G. (2022). The effect of financial development on economic growth and income distribution: An Empirical Evidence from Lower-middle and upper-middle-income countries. *Development Studies Research*, 9(1), 117–128. <https://doi.org/10.1080/21665095.2022.2065325>
- Abdallah, Z. (2016). An Evaluation of Simultaneous Openness Hypothesis in the Context of Stock Market Development: Evidence from a Panel of Fifty-Three Countries Based on a GMM Study. *Modern Economy*, 07, 153-163. <https://doi.org/10.4236/ME.2016.72017>.
- Abel, S., Nyamutowa, C., Mutohori, C., & le Roux, P. (2019). Financial sector development and economic growth in the Southern African Development Community region. *Journal of Economic and Financial Sciences*, 12(1). <https://doi.org/10.4102/jef.v12i1.464>
- Abosedra, S., Fakh, A., Ghosh, S., & Kanjilal, K. (2023). Financial development and business cycle volatility nexus in the UAE: Evidence from non-linear regime-shift and asymmetric tests. *International Journal of Finance & Economics*, 28(3), 2729-2741.
- Abu-Bader, S. and Abu-Qarn, A.S. (2008), “Financial development and economic growth: empirical evidence from six MENA countries”, *Review of Development Economics*, 12(4), 803-817.
- Acemoglu, D., & Johnson, S. (2005). Unbundling institutions. *Journal of Political Economy*, 113(5), 949-995.
- Adkins, L. C., Moomaw, R. L., & Savvides, A. (2002). Institutions, freedom, and technical efficiency. *Southern economic journal*, 69(1), 92-108.

- Agbloyor, E. K., Abor, J. Y., Adjasi, C. K. D., & Yawson, A. (2014). Private capital flows and economic growth in Africa: The role of domestic financial markets. *Journal of International Financial Markets, Institutions and Money*, 30, 137-152.
- Agyei-Boapeah, H., & Ansah-Adu, K. (2018). The effects of financial market development on bank performance in sub-Saharan Africa. *Review of Development Finance*, 8(2), 71-78.
- Agyemang, O., Gatsi, J., & Ansong, A. (2018). Institutional structures and financial market development in Africa. *Cogent Economics & Finance*, 6. <https://doi.org/10.1080/23322039.2018.1488342>.
- Ajide, F. (2020). Asymmetric influence of financial development on unemployment in Nigeria. *Ilorin Journal of Economic Policy*, 7(2), 39-52.
- Akinlo, A. E., & Egbetunde, T. (2016). Financial development and economic growth in sub-Saharan Africa: A dynamic panel analysis. *Review of Development Finance*, 6(1), 38-47.
- Alananga, S., & Mutasa, F. (2022). Does proximity matter? The effect of financial sector development on economic growth in the EAC and SADC regional blocs. *Journal of International Economics and Management*, 22(3). <https://doi.org/10.38203/jiem.022.3.0052>
- Alchian, A. A., & Demsetz, H. (1972). Production, information costs, and economic organization. *American Economic Review*, 62(5), 777-795.
- Almalki, A. M., & Batayneh, K. I. (2015). The relationship between inflation and financial development in Saudi Arabia. *The Journal of Developing Areas*, 49(6), 321-332. <https://doi.org/10.1353/jda.2015.0088>

- Aluko, O. A., & Ajayi, M. A. (2018). Determinants of banking sector development: Evidence from Sub-Saharan African countries. *Borsa Istanbul Review*, 18(2), 122-139.
- Aluko, O. A., & Azeez, B. A. (2019). Effectiveness of legal institutions in stock market development in sub-Saharan Africa. *Economic Change and Restructuring*, 52, 439-451.
- Aluko, O. A., & Ibrahim M. (2020). Institutions and the financial development–economic growth nexus in sub-Saharan Africa. *Economic Notes*. 2020;49: e12163.
- Aman, Z., Granville, B., Mallick, S., & Nemlioglu, I. (2022). Does greater financial openness promote external competitiveness in emerging markets? The role of institutional quality. *International Journal of Finance & Economics*. <https://doi.org/10.1002/ijfe.2695>.
- Andrianaivo, M., & Yartey, C. A. (2010). Understanding the growth of African financial markets. *African Development Review*, 22(3), 394-418.
- Andrieş, A. M., Brodocianu, M., & Sprincean, N. (2023). The role of institutional investors in the financial development. *Economic Change and Restructuring*, 56(1), 345-378.
- Appiah, G., Prempeh, K., Benn, S., & Oduro, E. (2020). Panel data analysis of employment and unemployment in Sub-Saharan Africa and its impact on annual percentage change in GDP growth. *Open Science Journal*. <https://doi.org/10.23954/osj.v5i2.2394>.
- Arellano, M., & Bover, O. (1995). Another look at the instrumental variable estimation of error-components models. *Journal of econometrics*, 68(1), 29-51.

- Arif, I., & Rawat, A. (2019). Trade and financial openness and their impact on financial development. *South Asian Journal of Business Studies*. <https://doi.org/10.1108/SAJBS-06-2018-0063>.
- Ashraf, B. (2017). Do trade and financial openness matter for financial development? Bank- level evidence from emerging market economies. *Research in International Business and Finance*, 44, 434-458. <https://doi.org/10.1016/J.RIBAF.2017.07.115>.
- Asongu, S. A. (2014). Financial development dynamic thresholds of financial globalization: Evidence from Africa. *Journal of Economic Studies*, 41(2), 166-195.
- Asongu, S. A., & Kodila-Tedika, O. (2016). Determinants of Property Rights Protection in Sub-Saharan Africa. *Journal of the Knowledge Economy*, 9(4), 1291–1308.
- Asongu, S., & Nwachukwu, J. (2017). Recent finance advances in information technology for inclusive development: a survey. *African Governance and Development Institute WP/17/009*.
- Atje, R., & Jovanovic, B. (1993). Stock markets and development. *European Economic Review*, 37(2-3), 632-640.
- Awili, S. and Ahmed, A. (2019). Financial Openness, Trade Integration and Economic Growth: The Case of Pacific Melanesian Countries. *The Journal of Developing Areas*, 53,- . <https://doi.org/10.1353/jda.2018.0069>.
- Azeem, A., Aziz, B., & Jadoon, A. (2015). Financial Development: A Contributing Agent of Economic Growth - Study Of Selected Asian

Countries. *Pakistan Business Review*, 17, 397-415. <https://doi.org/10.22555/PBR.V17I2.121>.

Baltagi, B., Demetriades, P., & Law, S. (2008). Financial Development and Openness: Evidence from Panel Data. ERN: Trade & Foreign Exchange Policies in Developing Economies. <https://doi.org/10.2139/ssrn.1808903>.

Bandura, W. N. (2021). Financial openness, trade openness and financial development: Evidence from sub-Saharan Africa. *Development Southern Africa*, 39(6), 947–959. <https://doi.org/10.1080/0376835x.2021.1988517>

Bandura, W., & Leshoro, T. (2022). Inflation and financial development in sub-Saharan Africa. *Ekonomski Anali*, 67(233), 85–112. <https://doi.org/10.2298/eka2233085b>

Barro, R. J. (1990). Government spending in a simple model of endogenous growth. *Journal of Political Economy*, 98(2), 103-125. <http://dx.doi.org/10.1086/26172>

Barzel, Y. (1997). Economic Analysis of Property Rights. Cambridge: Cambridge University Press.

Batuo, M., Mlambo, K., & Asongu, S. (2018). Linkages between financial development, financial instability, financial liberalization and economic growth in Africa. *Research in International Business and Finance*, 45, 168-179.

Bawumia, M. (2010), Monetary Policy and Financial Sector Reform in Africa: Ghana's Experience, Booklocker , available at: <https://lccn.loc.gov/2011342232>

- Bayar, Y. (2016). Financial Development and Unemployment in Emerging Market Economies. *Scientific Annals of Economics and Business*, 63(2), 237–245. <https://doi.org/10.1515/saeb-2016-0119>
- Beck, T. (2002). Financial development and international trade: Is there a link?. *Journal of international Economics*, 57(1), 107-131.
- Beck, T. (2012). "The Role of Finance in Economic Development – Benefits, Risks, and Politics." In Oxford, Handbook of Capitalism edited by Dennis Muller, 161–103.
- Beck, T. (2014). Finance, growth, and stability: Lessons from the crisis. *Journal of Financial Stability*, 10, 1–6. <https://doi.org/10.1016/j.jfs.2013.12.006>
- Beck, T., & Levine, R. (2004). Stock markets, banks, and growth: Panel evidence. *Journal of Banking & Finance*, 28(3), 423-442.
- Beck, T., Demirgüç-Kunt, A., & Levine, R. (2000). A new database on financial development and structure. *World Bank Economic Review*, 14(3), 597-605.
- Beck, T., Demirgüç-Kunt, A., & Levine, R. (2003). Law, endowments, and finance. *Journal of Financial Economics*, 70(2), 137-181.
- Beck, T., Demirguc-Kunt, A. S. L. I., Laeven, L., & Levine, R. (2008). Finance, firm size, and growth. *Journal of money, credit and banking*, 40(7), 1379-1405.
- Bekaert, G., Harvey, C. R., & Lundblad, C. (2005). Does financial liberalization spur growth? *Journal of Financial economics*, 77(1), 3-55.
- Bencivenga, V. R., & Smith, B. D. (1991). Financial Intermediation and Endogenous Growth. *The Review of Economic Studies*, 58(2), 195-209. <https://doi.org/10.2307/2297964>

- Bist, J. P. (2018). Financial development and economic growth: Evidence from a panel of 16 African and non-African low-income countries. *Cogent Economics & Finance*, 6(1), 1449780. <https://doi.org/10.1080/2332039.2018.1449780>
- Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics*, 87(1), 115-143.
- Boone, C. (2018). Legal Empowerment of the Poor through Property Rights Reform: Tensions and Trade-offs of Land Registration and Titling in Sub-Saharan Africa. *The Journal of Development Studies*, 55(3), 384–400.
- Boyd, J. H., Levine, R., & Smith, B. D. (2001). The impact of inflation on financial sector performance. *Journal of Monetary Economics*, 47(2), 221–248. [https://doi.org/10.1016/s0304-3932\(01\)00049-6](https://doi.org/10.1016/s0304-3932(01)00049-6)
- Caporale, G. M., Gil-Alana, L. A., & You, K. (2021). Global and Regional Financial Integration in Emerging Asia: Evidence from Stock Markets. *Journal of Economic Integration*, 36(2), 185–202. <https://doi.org/10.11130/jei.2021.36.2.185>
- Carlsson, F., & Lundström, S. (2002). Economic freedom and growth: Decomposing the effects. *Public Choice*, 112(3-4), 335-344.
- Caselli, F., Koren, M., Lisický, M., & Tenreyro, S. (2015). Diversification Through Trade. ERN: *International Trade (Topic)*. <https://doi.org/10.3386/W21498>
- Chen, T. C., Kim, D. H., & Lin, S. C. (2021). Nonlinearity in the effects of financial development and financial structure on unemployment.

Economic Systems, 45(1), 100766. <https://doi.org/10.1016/j.ecosys.2020.100766>

Chen, W. (2023). The Effect of Financial Development on Economic Growth and Economic Volatility. *BCP Business & Management*, 38, 717–734. <https://doi.org/10.54691/bcpbm.v38i.3765>

Chinn, M. D., & Ito, H. (2006). What matters for financial development? Capital controls, institutions, and interactions. *Journal of Development Economics*, 81(1), 163–192. <https://doi.org/10.1016/j.jdeveco.2005.05.010>

Chinn, M. D., & Ito, H. (2019). The Chinn-Ito Index – A de jure measure of financial openness. Retrieved July 1, 2022, from http://web.pdx.edu/~ito/Chinn-Ito_website.html

Choong, C.-K., Lam, S.-Y., & Yusop, Z. (2011). Private capital flows to low-income countries: The role of domestic financial sector. *Journal of Business Economics and Management*, 11(4), 598-612.

Chortareas, G., Magkonis, G., Moschos, D., & Panagiotidis, T. (2015). Financial Development and Economic Activity in Advanced and Developing Open Economies: Evidence from Panel Cointegration. *Review of Development Economics*, 19(1), 163–177. <https://doi.org/10.1111/rode.12132>

Chuah, H. L., & Thai, W. (2004). Financial development and economic growth: Evidence from causality tests for the GCC countries (Vol. 4, No. 20). IMF Working Paper.

- Claeskens, G., & Hjort, N. L. (2008). Minimizing Average Risk in Regression Models. *Econometric Theory*, 24(02). <https://doi.org/10.1017/s0266466608080201>
- Claessens, S., & Laeven, L. (2003). Financial development, property rights, and growth. *the Journal of Finance*, 58(6), 2401-2436.
- Coatsworth, J. H. (1975). Douglas C. North y Robert Paul Thomas. The rise of the Western World: a new economic history. Cambridge, R. U. : Cambridge University Press, 1973. 171 p. *Estudios Demográficos Y Urbanos*, 9(01), 118. <https://doi.org/10.24201/edu.v9i01.320>
- Cojocaru, L., Falaris, E., Hoffman, S., and Miller, J. (2016). Financial System Development and Economic Growth in Transition Economies: New Empirical Evidence from the CEE and CIS Countries. *Emerging Markets Finance and Trade*, 52, 223 - 236. <https://doi.org/10.1080/1540496X.2015.1013828>.
- De Haan, J., & Sturm, J. E. (2000). On the relationship between economic freedom and economic growth. *European journal of political economy*, 16(2), 215-241.
- Deininger, K., & Feder, G. (2009). Land registration, governance, and development: Evidence and implications for policy. *The World Bank Research Observer*, 24(2), 233-266.
- Demetriades, P., & Fielding, D. (2009). *Information, Institutions and Banking Sector Development in West Africa*. University of Leicester (No. 09/04). Working Paper.

- Demirgüç-Kunt, A., & Klapper, L. (2013). Measuring financial inclusion: Explaining variation in use of financial services across and within countries. *Brookings papers on economic activity*, 2013(1), 279-340.
- Doss, C., Meinzen-Dick, R., Quisumbing, A., & Theis, S. (2018). Women in agriculture: Four myths. *Global food security*, 16, 69-74.
- Ductor, L., & Grechyna, D. (2015). Financial development, real sector, and economic growth. *International Review of Economics & Finance*, 37, 393–405. <https://doi.org/10.1016/j.iref.2015.01.001>
- Eduboah, E.J. (2021), “*The role of financial development in Ghana’s economic growth process*”, Ghanaian Journal of Economics, Vol. 9 No. 1, pp. 28-49.
- Effiong, E. L., Esu, G. E., & Chuku, C. (2020). Financial development and monetary policy effectiveness in Africa. *Journal of Social and Economic Development*, 22(1), 160–181. <https://doi.org/10.1007/s40847-020-00098-x>
- Ekpeno, L. E. (2015). Financial development, institutions, and economic growth: Evidence from Sub-Saharan Africa. Economic Development in Africa, United Kingdom: St. Catherine's College.
- Epstein, B., & Finkelstein Shapiro, A. (2019). Financial development, unemployment volatility, and sectoral dynamics. *Journal of Economic Dynamics and Control*, 99, 82–102. <https://doi.org/10.1016/j.jedc.2018.11.004>
- Fallahi, F. (2011). Causal relationship between energy consumption (EC) and GDP: A Markov-switching (MS) causality. *Energy*, 36(7), 4165–4170. <https://doi.org/10.1016/j.energy.2011.04.027>

- Farhani, S., & Ozturk, I. (2015). Causal relationship between CO2 emissions, real GDP, energy consumption, financial development, trade openness, and urbanization in Tunisia. *Environmental Science and Pollution Research*, 22(20), 15663–15676. <https://doi.org/10.1007/s11356-015-4767-1>
- Fazio, D. M., Silva, T. C., Tabak, B. M., & Cajueiro, D. O. (2018). Inflation targeting and financial stability: Does the quality of institutions matter? *Economic Modeling*, 71, 1–15. <https://doi.org/10.1016/j.econmod.2017.09.011>
- Feng, Y., & Yu, X. (2021). The impact of institutions on financial development: Evidence from East Asian countries. *Australian Economic Papers*, 60(1), 122-137.
- Filmer, D., & Fox, L. (2014). Youth Employment in Sub-Saharan Africa. In *The World Bank eBooks*. <https://doi.org/10.1596/978-1-4648-0107-5>
- Fraser Institute Economic Freedom Research (2022). Economic Freedom of the World (Freedom) 2022 Annual Report: www.fraserinstitute.org/studies/economic-freedom-of-the-world-2022-annual-report.
- Fuinhas, J. A., Koengkan, M., & Belucio, M. (2021). Exploring the causality between economic growth, financial development and inflation in sixteen high-income countries. *Revista De Estudos Sociais*, 22(45). <https://doi.org/10.19093/res11094>
- Giday, H. G. (2023). Financial inclusion and its demand-side determinants: Evidence from Ethiopia. *Cogent Economics & Finance*, 11(1). <https://doi.org/10.1080/23322039.2023.2186031>

- Gnangnon, S. (2020). Trade Openness and Diversification of External Financial Flows for Development: An Empirical Analysis. *South Asian Journal of Macroeconomics and Public Finance*, 9, 22 - 57. <https://doi.org/10.1177/2277978719898974>.
- Greenwood, J., & Jovanovic, B. (1990). Financial Development, Growth, and the Distribution of Income. *Journal of Political Economy*, 98(5, Part 1), 1076–1107. <https://doi.org/10.1086/261720>
- Gries, T., Kraft, M., & Meierrieks, D. (2009). Linkages Between Financial Deepening, Trade Openness, and Economic Development: Causality Evidence from Sub-Saharan Africa. *World Development*, 37(12), 1849–1860. <https://doi.org/10.1016/j.worlddev.2009.05.008>
- Guru, B. K., & Yadav, I. S. (2019). Financial development and economic growth: panel evidence from BRICS. *Journal of Economics, Finance and Administrative Science*, 24(47), 113–126. <https://doi.org/10.1108/jefas-12-2017-0125>
- Gwartney, J. D., & Connors, J. S. (2010). Economic freedom and global poverty. *Accepting the Invisible Hand: Market-Based Approaches to Social-Economic Problems*, 43-68.
- Hansen, B. E. (2000). Sample Splitting and Threshold Estimation. *Econometrica*, 68(3), 575–603. <https://doi.org/10.1111/1468-0262.00124>
- Hansen, L. P. (1982). Large sample properties of generalized method of moments estimators. *Econometrica: Journal of the econometric society*, 1029-1054.

- Hartmann, S., & Spruk, R. (2020). Long-term effects of institutional instability. *Empirical Economics*, 61(4), 2073–2112. <https://doi.org/10.1007/s00181-020-01934-z>
- Hassani, H., & Yeganegi, M. R. (2020). Selecting optimal lag order in Ljung–Box test. *Physica A: Statistical Mechanics and Its Applications*, 541, 123700. <https://doi.org/10.1016/j.physa.2019.123700>
- Hauner, D., Prati, A., & Bircan, C. (2013). The interest group theory of financial development: Evidence from regulation. *Journal of Banking & Finance*, 37(3), 895–906. <https://doi.org/10.1016/j.jbankfin.2012.10.008>
- Heckelman, J. C., & Knack, S. (2009). Aid, economic freedom, and growth. *Contemporary Economic Policy*, 27(1), 46–53.
- Herger, N., Hodler, R., & Lobsiger, M. (2008). What determines financial development? Culture, institutions or trade. *Review of World Economics*, 144, 558–587.
- Herwartz, H., and Walle, Y. (2014). Openness and the finance-growth nexus. *Journal of Banking and Finance*, 48, 235–247. <https://doi.org/10.1016/J.JBANKFIN.2014.06.031>.
- Hussen, M. S., & Çokgezen, M. (2021). The institution-growth nexus in Sub-Saharan Africa: new evidence from heterogeneous panel causality approach. *Evolutionary and Institutional Economics Review*, 19(1), 141–157. <https://doi.org/10.1007/s40844-021-00225-1>
- Ibrahim, M., & Alagidede, P. (2018). Effect of financial development on economic growth in sub-Saharan Africa. *Journal of Policy Modeling*, 40(6), 1104–1125.

- Ibrahim, M., Aluko, O. A., & Vo, X. V. (2022). The role of inflation in financial development–economic growth link in sub-Saharan Africa. *Cogent Economics & Finance*, 10(1). <https://doi.org/10.1080/23322039.2022.2093430>
- Ibrahim, M., and Sare, Y. (2018). Determinants of financial development in Africa: How robust is the interactive effect of trade openness and human capital? *Economic Analysis and Policy*. <https://doi.org/10.1016/J.EAP.2018.09.002>.
- Ikhsan, A., & Satrianto, A. (2023). The effect of financial development on economic growth in high-income countries. *Asian Economic and Financial Review*, 13(3), 202–215. <https://doi.org/10.5549/3/5002.v13i3.4743>
- IMF (International Monetary Fund). (2012). Enhancing Financial Sector Surveillance in Low- Income Countries - Financial Deepening and Macro-Stability. (2012, April 16). *Policy Papers*, 2012(27). <https://doi.org/10.5089/9781498340649.007>
- Jaud, M., Kukenova, M., and Strieborny, M. (2021). Stock Market Liberalizations and Export Dynamics. *PSN: Foreign Direct Investment (International) (Topic)*. <https://doi.org/10.2139/ssrn.3190439>.
- Kagochi, J. (2019). Inflation and financial sector development in Sub-Saharan African countries. *Journal of Economic Studies*. <https://doi.org/10.1108/jes-10-2017-0310>.
- Kapidani, M. and Luçi, E. (2019). The Effects on Innovation from Financial Sector Development: Evidence from Developing Countries. *Journal of Competitiveness*. <https://doi.org/10.7441/JOC.2019.02.06>.

- Keho, Y. (2010). Effect of Financial Development on Economic Growth: Does Inflation Matter? Time Series Evidence from the UEMOA Countries. *International Economic Journal*, 24(3), 343–355. <https://doi.org/10.1080/10168730903502416>
- Khan, H., Khan, S., & Zuojun, F. (2022). Institutional quality and financial development: Evidence from developing and emerging economies. *Global Business Review*, 23(4), 971-983.
- Khan, M. A., Kong, D., Xiang, J., & Zhang, J. (2020). Impact of institutional quality on financial development: cross-country evidence based on emerging and growth-leading economies. *Emerging Markets Finance and Trade*, 56(15), 3829-3845.
- Khan, M., & Hanif, W. (2018). Institutional quality and the relationship between inflation and economic growth. *Empirical Economics*, 58(2), 627–649. <https://doi.org/10.1007/s00181-018-1479-7>
- Khan, M., He, Y., Kaleem, A., Akram, U., and Hussain, Z. (2018). Remedial role of financial development in corporate investment amid financing constraints and agency costs. *Journal of Business Economics and Management*, 19, 176-191. <https://doi.org/10.3846/16111699.2017.1422797>.
- Kharisma, B., Wardhana, A., & Sofyan, M. N. F. (2022). Do Institutions Cause Growth? Evidence from Asian Countries. *Jurnal Ekonomi & Studi Pembangunan*, 23(1), 51–65. <https://doi.org/10.18196/jesp.v23i1.13897>
- Kilishi, A. A., Adebawale, H. A., & Oladipupo, S. A. (2020). The nexus between economic institutions and unemployment: evidence from sub-

- Saharan Africa. *International Journal of Development Issues*, 20(1), 74–94. <https://doi.org/10.1108/ijdi-03-2020-0048>
- Kim, D. H., Lin, S. C., & Suen, Y. B. (2010a). Dynamic effects of trade openness on financial development. *Economic Modelling*, 27(1), 254–261. <https://doi.org/10.1016/j.econmod.2009.09.005>
- Kim, D. H., Lin, S. C., & Suen, Y. B. (2010b). Are financial development and trade openness complements or substitutes? *Southern Economic Journal*, 76(3), 827-845.
- Kim, Y., & Kim, T. B. (2017). The Effects of Institutions on the Labor Market Outcomes: Cross-country Analysis. *KDI Journal of Economic Policy*, 39(4), 69-94.
- King, R. G., & Levine, R. (1993). Finance, entrepreneurship and growth. *Journal of Monetary Economics*, 32(3), 513–542. [https://doi.org/10.1016/0304-3932\(93\)90028-e](https://doi.org/10.1016/0304-3932(93)90028-e)
- Kurihara, Y., & Fukushima, A. (2016). Openness of the Economy, Diversification, Specialization, and Economic Growth. *Journal of Economics and Development*, <https://doi.org/10.15640/JEDS.V4N1A3>.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. (1997). Legal determinants of external finance. *Journal of Finance*, 52(4), 1131-1150.
- Lane, P., and Milesi-Ferretti, G. (2018). The External Wealth of Nations Revisited: International Financial Integration in the Aftermath of the Global Financial Crisis. *IMF Economic Review*, 66, 189-222. <https://doi.org/10.1057/s41308-017-0048-y>.

- Law, C. H., & Soon, S. V. (2020). The impact of inflation on income inequality: the role of institutional quality. *Applied Economics Letters*, 27(21), 1735–1738. <https://doi.org/10.1080/13504851.2020.1717425>
- Law, S. H., & Azman-Saini, W. N. W. (2012). Institutional quality, governance, and financial development. *Economics of governance*, 13, 217-236.
- Levine, R. (1997). "Financial Development and Economic Growth: Views and Agenda." *Journal of Economic Literature* 35 (2): 688–726.
- Levine, R. (2002). Bank-based or market-based financial systems: which is better? *Journal of financial intermediation*, 11(4), 398-428.
- Levine, R., Loayza, N., & Beck, T. (2000). Financial intermediation and growth: Causality and causes. *Journal of monetary Economics*, 46(1), 31-77.
- Levine, R., Loayza, N., & Beck, T. (2000). Financial intermediation and growth: Causality and causes. *Journal of Monetary Economics*, 46(1), 31–77. [https://doi.org/10.1016/s0304-3932\(00\)00017-9](https://doi.org/10.1016/s0304-3932(00)00017-9)
- Louati, S., & Boujelbene, Y. (2020). Inflation targeting and bank risk: The interacting effect of institutional quality. *Cogent Business & Management*, 7(1), 1847889. <https://doi.org/10.1080/23311975.2020.1847889>
- Lucas, R. E. (1988). On the mechanics of economic development. *Journal of Monetary Economics*, 22(1), 3–42. [https://doi.org/10.1016/0304-3932\(88\)90168-7](https://doi.org/10.1016/0304-3932(88)90168-7)
- Machado, C. M., Saraiva, A. F., & Vieira, P. D. (2021). Finance-growth nexus in sub-Saharan Africa. *South African Journal of Economic and Management Sciences*, 24(1), 1-11. <https://doi.org/10.4102/sajems.v24i1.3435>

- Mahawiya, S., Haim, A., & Eric Fosu, O. A. (2020). In search of inflation limits for financial sector development in ECOWAS and SADC regions: A panel smooth transition analysis. *Cogent Economics & Finance*, 8(1), 1722306. <https://doi.org/10.1080/23322039.2020.1722306>
- Mahyar, H. A. M. I. (2017). The Effect of Inflation on Financial Development Indicators In Iran (2000-2015). *Studies in Business and Economics*, 12(2), 53-62.
- Marwa, N., & Zhanje, S. (2015). A Review of Finance–Growth Nexus Theories: How Does Development Finance Fits in? *Studies in Business and Economics*, 10(1), 83–91. <https://doi.org/10.1515/sbe-2015-0007>
- McKinnon, R. I. (1992). The order of economic liberalization: financial control in the transition to a market economy. *Choice Reviews Online*, 29(08), 29–4623. <https://doi.org/10.5860/choice.29-4623>
- Memdani, L. (2017). Nexus Between International Trade and Economic Growth. , 67-75. https://doi.org/10.1007/978-981-10-5810-3_5.
- Menyah, K., Nazlioglu, S., & Wolde-Rufael, Y. (2014). Financial development, trade openness and economic growth in African countries: New insights from a panel causality approach. *Economic Modelling*, 37, 386–394. <https://doi.org/10.1016/j.econmod.2013.11.044>
- Miah, M. D., Suzuki, Y., & Uddin, S. S. (2021). The impact of COVID-19 on Islamic banks in Bangladesh: A perspective of Marxian "circuit of merchant's capital". *Journal of Islamic Accounting and Business Research*, 12(7), 1036-1054.

Miletkov, M., & Wintoki, M. B. (2012). Financial development and the evolution of property rights and legal institutions. *Emerging Markets Review*, 13(4), 650-673.

Mishkin, F. S. (2007). Is Financial Globalization Beneficial? *Journal of Money, Credit and Banking*, 39(2–3), 259–294. <https://doi.org/10.1111/j.0022-2879.2007.00026.x>

Mlachila, M. M., Jidoud, A., Newiak, M. M., Radzewicz-Bak, B., & Takebe, M. M. (2016). Financial development in Sub-Saharan Africa: promoting inclusive and sustainable growth. *International Monetary Fund*.

Nguyen, A. T. (2019). The Relationship between Financial Development, Economic Growth, and Inflation: Evidence from Southeast Asia. *International Journal of Business, Economics and Management*, 6(4), 201–214. <https://doi.org/10.18488/journal.62.2019.64.201.214>

Nguyen, A.D.M., Durevall, D., & Nordman, C.J. (2023). Unbearable Costs: When Is Inflation Impeding Job Creation? Evidence from Sub-Saharan Africa. IMF Working Paper No. 23/046.

Nigam, N., Mbarek, S., & Boughanmi, A. (2021). Impact of intellectual capital on the financing of startups with new business models. *Journal of Knowledge Management*, 25(1), 227-250.

O'Toole, C., and Newman, C. (2016). Investment Financing and Financial Development: Evidence from Viet Nam. *Review of Finance*, 21, 1639-1674. <https://doi.org/10.1093/ROF/RFW017>.

Odhiambo, N. M. (2018). Financial development and poverty reduction in Sub-Saharan Africa: Evidence from heterogeneous panel data analysis. *Journal of Economic Studies*, 45(6), 1206-1223.

Olowu, G., Olasehinde-Williams, G., & Bein, M. (2019). Does financial and agriculture sector development reduce unemployment rates? Evidence from Southern African countries. *Agricultural Economics (Zemědělská Ekonomika)*, 65(5), 223–231. <https://doi.org/10.17221/263/2018-agricecon>

Ouedraogo, R., Camara, I., & Sy, A. (2023). Unbearable Costs: When Is Inflation Impeding Job Creation? Evidence from Sub-Saharan Africa. *IMF Working Papers*, 2023(046), 1. <https://doi.org/10.5089/9798400234347.001>

Perone, G. (2022). The effect of labor market institutions and macroeconomic variables on aggregate unemployment in 1990–2019: Evidence from 22 European countries. *Industrial and Corporate Change*, 31(2), 500–551. <https://doi.org/10.1093/icc/dtab074>

Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics*, 16(3), 289–326. <https://doi.org/10.1002/jae.616>

Poku, K., Opoku, E., & Agyeiwaa Ennin, P. (2022). The influence of government expenditure on economic growth in Ghana: An Ardl approach. *Cogent Economics & Finance*, 10(1). <https://doi.org/10.1080/23322039.2022.2160036>

Porta, R. L., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. W. (1998). Law and finance. *Journal of political economy*, 106(6), 1113–1155.

Puşcaşu, E. A. (2022). The impact of financial systems on economic growth in European Union member countries. *Proceedings of the International*

Conference on Business Excellence, 16(1), 722–731. <https://doi.org/10.2478/picbe-2022-0068>

Qamruzzaman, Q., & Jianguo, W. (2020). The asymmetric relationship between financial development, trade openness, foreign capital flows, and renewable energy consumption: Fresh evidence from panel NARDL investigation. *Renewable Energy*, 159, 827-842. <https://doi.org/10.1016/j.renene.2020.06.069>.

Quartey, P. and Prah, F. (2008), “Financial development and economic growth in Ghana: is there a causal link?”, *African Finance Journal*, Vol. 10 No. 1, pp. 28-54.

Ragmoun, W. (2022). Institutional quality, unemployment, economic growth and entrepreneurial activity in developed countries: a dynamic and sustainable approach. *Review of International Business and Strategy*, 33(3), 345–370. <https://doi.org/10.1108/ribs-10-2021-0136>

Raifu, I. A., & Afolabi, J. A. (2022). The Effect of Financial Development on Unemployment in Emerging Market Countries. *Global Journal of Emerging Market Economies*, 15(3), 354–384. <https://doi.org/10.1177/09749101221116715>

Rajan, R. G., & Zingales, L. (2003). The great reversals: the politics of financial development in the twentieth century. *Journal of Financial Economics*, 69(1), 5–50. [https://doi.org/10.1016/s0304-405x\(03\)00125-9](https://doi.org/10.1016/s0304-405x(03)00125-9)

Rajan, R., & Zingales, L. (1998). Financial development and growth. *American economic review*, 88(3), 559-586.

- Rajapakse, R., and Mayakaduwa, N. (2019). Credit Rating Industry in Sri Lanka. *Emerging Markets Economics: Macroeconomic Issues & Challenges eJournal*.
- Robbins, L. (2000). Lecture 2: Plato and Aristotle. In S. G. Medema & W. J. Samuels (Eds.), *A history of economic thought: The LSE lectures*. Princeton: *Princeton University Press*.
- Robinson, J. (1952). The Generalization of the General Theory”, In: *The Rate of Interest and Other Essays*, London: MacMillan Publisher.
- Romer, P. M. (1990). Human capital and growth: Theory and evidence. *Carnegie-Rochester Conference Series on Public Policy*, 32, 251–286.
[https://doi.org/10.1016/0167-2231\(90\)90028-j](https://doi.org/10.1016/0167-2231(90)90028-j)
- Rousseau, P., & Wachtel, P. (2000). Equity markets and growth: Cross-country evidence on timing and outcomes, 1980–1995. *Journal of Banking & Finance*, 24(12), 1933–1957. [https://doi.org/10.1016/s0378-4266\(99\)00123-5](https://doi.org/10.1016/s0378-4266(99)00123-5)
- Ruiz, J. (2017). Financial development, institutional investors, and economic growth. *International Review of Economics & Finance*, 54, 218–224.
<https://doi.org/10.1016/J.IREF.2017.08.009>.
- Sabir, S., Latif, R., Qayyum, U., & Abass, K. (2019). Financial Development, Technology and Economic Development: The Role of Institutions in Developing Countries. *Annals of Financial Economics*, 14(03), 1950012. <https://doi.org/10.1142/s201049521950012x>
- Sachs, A., & Smolny, W. (2015, August 1). Youth Unemployment in the OECD: The Role of Institutions. *Jahrbücher Für Nationalökonomie*

Und Statistik, 235(4–5), 403–417. <https://doi.org/10.1515/jbnst-2015-4-505>

Sahay, R., Čihák, M., N'Diaye, P., & Barajas, A. (2015). Rethinking financial deepening: Stability and growth in emerging markets. *Revista de Economía Institucional*, 17(33), 73-107.

Salifu, M., Peprah, J. A., Sebu, J., & Cantah, W. G. (2024). Openness Policies and Financial Development in Ghana: An ARDL Approach. *Heliyon*, 10(3).

Salifu, Mubarik; Atta Peprah, James; Godfred Cantah, William (2023). Legal Systems, Property Rights and Financial Development in Sub-Saharan Africa. *Advance*. Preprint. <https://doi.org/10.31124/advance.24298000.v1>

Sanga, B., & Aziakpono, M. (2022). The effect of institutional factors on financial deepening: evidence from 50 African countries. *Journal of Business and Socio-economic Development*, (ahead-of-print).

Seiler, V., & Roncone, F. (2019). Business Cycles, Labor Market Institutions and Unemployment – Further Evidence from OECD Countries. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3426852>

Seven, Ü., & Yetkiner, H. (2016). Financial intermediation and economic growth: Does income matter? *Economic Systems*, 40(1), 39-58.

Shahbaz, M., Hye, Q. M. A., Tiwari, A. K., & Leitão, N. C. (2013). Economic growth, energy consumption, financial development, international trade and CO2 emissions in Indonesia. *Renewable and Sustainable Energy Reviews*, 25, 109–121. <https://doi.org/10.1016/j.rser.2013.04.009>

Shaw, E. S. (1973). Financial deepening in economic development.

- Singh, V. K., Abosedra, S., Fakh, A., Ghosh, S., & Kanjilal, K. (2023). Economic volatility and financial deepening in Sub-Saharan Africa: evidence from panel cointegration with cross-sectional heterogeneity and endogenous structural breaks. *Empirical Economics*, 1-26.
- Svirydzenka, K. (2016). Introducing a new broad-based index of financial development. *International Monetary Fund*.
- Tsaurai, K. (2022). Financial Development, Renewable Energy and Unemployment in North Africa. *Journal of Accounting and Finance in Emerging Economies*, 8(3), 413-424. <https://doi.org/10.26710/jafee.v8i3.2395>
- Uberti, L. J., & Knutsen, C. H. (2021). Institutions, human capital, and economic growth. *The Palgrave Handbook of Comparative Economics*, 461-492.
- Uddin, M. A., Ali, M. H., & Masih, M. (2020). Institutions, human capital and economic growth in developing countries. *Studies in Economics and Finance*, 38(2), 361–383. <https://doi.org/10.1108/sef-10-2019-0407>
- Ustarz, Y., & Fanta, A. B. (2021). Financial development and economic growth in sub-Saharan Africa: A sectoral perspective. *Cogent Economics & Finance*, 9(1), 1934976. <https://doi.org/10.1080/23322039.2021.1934976>
- Wooldridge, J. M. (2002). *Econometric analysis of cross section and panel data*. MIT press.
- World Bank. (2007). *World development report 2008: Agriculture for development*. The World Bank.

Wurgler, J. (2000). Financial markets and the allocation of capital. *Journal of financial economics*, 58(1-2), 187-214.

Zhang, C., Zhu, Y., & Lu, Z. (2015). Trade openness, financial openness, and financial development in China. *Journal of International Money and Finance*, 59, 287–309. <https://doi.org/10.1016/j.jimonfin.2015.07.010>



APPENDICES

A: Definition of variables

Variable name	Measurement/Definition	Source
Financial development (fd)	This is measured using the financial development index created by the IMF first through Sahay et al. (2015) and later by Svirydzenka (2016).	World Bank Global financial database
Financial Institution Index (fi)	This is measured by Access (Commercial bank branches per 100,000 adults and ATMs per 100,000 adults), <i>Depth</i> (Private sector credit to GDP, pension fund assets to GDP, mutual fund assets to GDP, and life and non-life insurance premiums to GDP), and <i>Efficiency</i> (Net interest margin, lending-deposit spread, non-interest income to total income, overhead costs to total assets, return on assets and return on equity).	World Bank Global financial database

Financial Markets Index (fm)	This is measured by Access (Percent of stock market capitalization outside the top 10 largest companies to proxy access to stock markets, the total number of debt security issuers. <i>Depth</i> (Stock market capitalization as a percentage of GDP, stock market turnover, international government debt securities outstanding, and total debt securities outstanding of private non-financial corporations) and <i>Efficiency</i> (Stock market turnover ratio) (Adapted from Svirydzenka, 2016).	World Bank Global financial database
The legal system and property rights	This is measured in this study using the Economic Freedom of the World (Freedom) index from the Fraser Institute database (2022). It measures the extent to which the legal	Economic Freedom database of the Fraiser Institute.

	systems/regimes enforce private property rights and the extent to which governments enforce those laws	
GDP	Gross domestic product is an important determinant of a country's financial development. GDP is expected to impact a country's financial development positively	World Bank Development Indicators database.
Trade	Trade represents the extent of trading activities ongoing between a country and the outside world. It is computed as the sum of imports and exports	World Bank Development Indicators database.
Inflation	It is measured as the consumer price index, which reflects the annual changes in an economy's average cost of goods and services	World Bank Development Indicators database.

Final government expenditure (consumption)	The ratio of total government expenditure on consumption to GDP	Economic Freedom database of the Fraiser Institute.
FDI	It is measured as the net inflow of FDI to GDP	World Bank Development Indicators database.
Lending rate (lendingrate):	The average rate at which the private sector borrows from formal financial institutions.	World Bank Development Indicators database.
Sound Money (smoney)	Sound money is an index of variables that explains the value of money. Thus, it measures the money supply, and the freedom to own a foreign currency bank accounts are all adjusted for inflation	Economic Freedom database of the Fraiser Institute.
Regulatory trade barriers (barriers)	Barriers measure the extent of the existence of trade barriers. It is an index created from non-tariff trade barriers and importing and exporting compliance costs. Lesser barriers should	Economic Freedom database of the Fraiser Institute.

	improve trade activities and improve capital inflow	
--	--	--



B: List of countries considered in the paper:

Angola, Benin, Botswana, Burkina Faso, Burundi, Cabo Verde, Cameroon, Central African Republic, Chad, Congo Dem. Rep, Congo Rep., Cote d'Ivoire, Eswatini, Ethiopia, Gabon, Gambia, The, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, Seychelles, Sierra Leone, South Africa, Sudan, Tanzania, Togo, Uganda, Zambia.



C: Quantile plots of the dependent variables

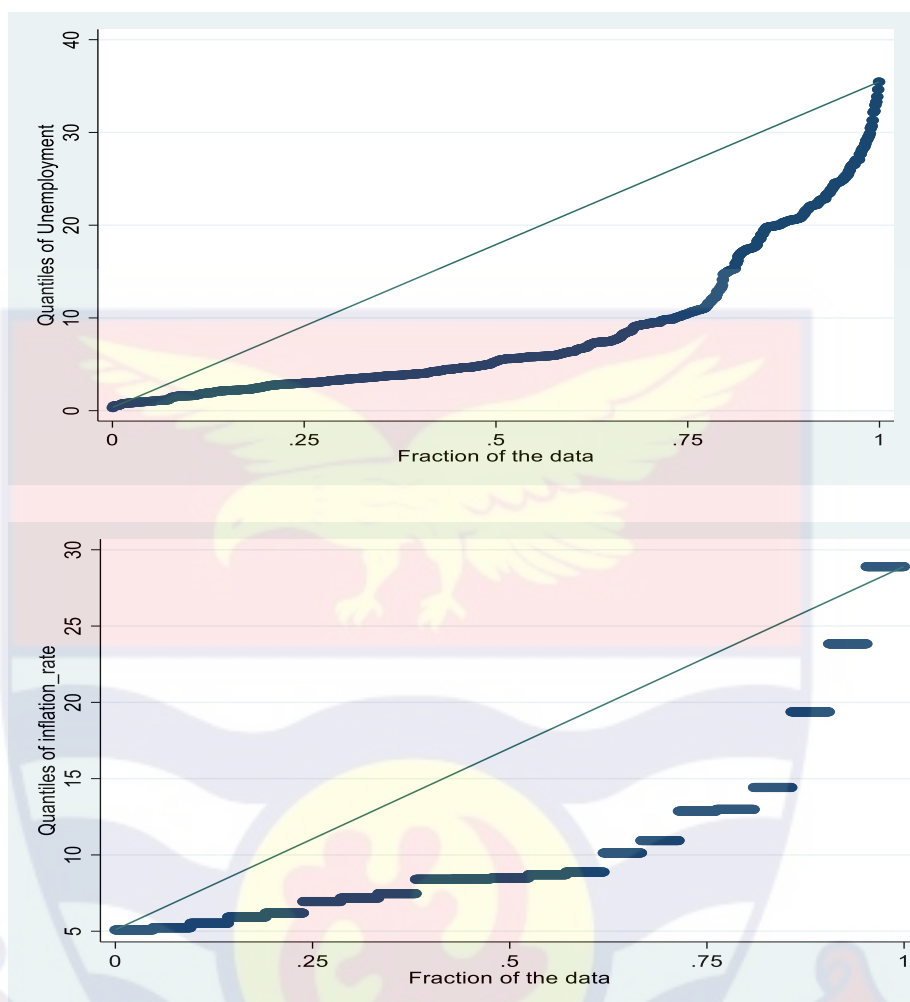


Figure 7: Quantile plots of the dependent variables

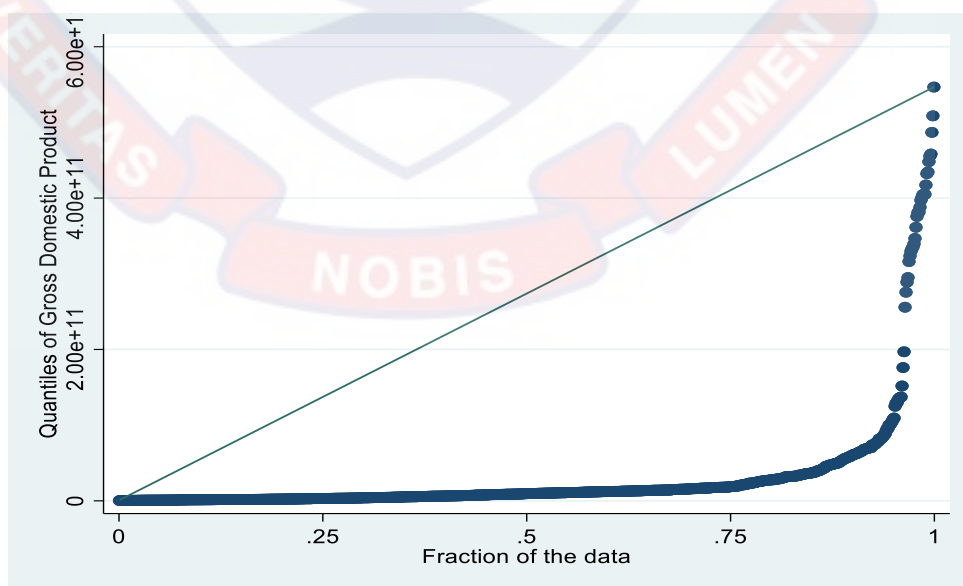


Figure 8: Quantile plots of the dependent variables

D: ARDL Stability Test

