

**FINANCIAL DEVELOPMENT AND ECONOMIC GROWTH IN
TANZANIA**

**FINANCIAL DEVELOPMENT AND ECONOMIC GROWTH IN
TANZANIA**

By

Richard Halord Chisimbili

**A Dissertation report Submitted in Partial Fulfilment of the Requirements for
the Award of the Degree of Master of Science in Accounting and Finance (MSc-
A&F) of Mzumbe University.**

2015

CERTIFICATION

We, the undersigned, certify that we have read and hereby recommend for acceptance by the Mzumbe University, a dissertation entitled “ Determining whether **financial development and economic growth are related in Tanzania**”, in partial/fulfillment of the requirements for award of the Degree of Master of Science in Accounting and Finance (MSc A&F) of Mzumbe University.

Major Supervisor

Internal Examiner

Accepted for the Board of

DEAN SCHOOL OF BUSINESS

DECLARATION

I, Richard Halord Chisimbili, declare that this dissertation is my own original work and that it has not been presented and will not be presented to any other university for a similar or any other degree award.

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DEDICATION

This work is dedicated to my lovely family: wife Stellah, son Scofield and daughter Bernice, and my beloved father late Halord Javan Chisimbili died on March 12, 1996.

LIST OF ABBREVIATIONS AND ACRONYMS

CRDB	-	COMMUNITY RURAL DEVELOPMENT BANK
DFI	-	DEVELOPMENT FINANCE INSTITUTE
EG	-	ECONOMIC GROWTH
FD	-	FINANCIAL DEVELOPMENT
GDP	-	GROWTH DOMESTIC PRODUCT
M2&M3	-	BROAD MONEY
NBC	-	NATIONAL BANK OF COMMERCE
OLS	-	ORDINALY LEAST SQUA
THB	-	TANZANIA HOUSE BANK
VAR	-	VECTOR AUTOREGRESSIVE
VECM	-	VECTOR ERROR CORRECTION MODEL

ABSTRACT

The paper examined the empirical relationship between economic growth and financial development (FD) in Tanzania over the period 1988–2012. The long-run and short-run parameters were estimated by use the Augmented Dickey Fuller (ADF) statistics and the Phillips-Perron (PP) approach for cointegration analysis. To determine the direction of causality, Vector error correlation model shows there is long run causality but only Domestic credit provided by banking sector had a short run and long run, Granger causality analysis was done. Empirical findings indicate that there is stable long-run relationship among variables; it was also found that financial development has a significant positive effect on economic growth. The Granger causality tests showed that there is bi-directional causality between financial development and economic growth in Tanzania for the period under study (1988–2012). This result therefore, supports financial development hypotheses. This means that financial development accelerates and augments economic growth in Tanzania and that economic growth leads to development of the financial sector in Tanzania. Thus, the government should strengthen the reforms in the financial sector so as to attract investors and improve the efficiency of all production activities in the country. At the same time, the government should enhance macroeconomic policies; fiscal policies, policies that attract foreign direct investment, and export promotion policies that on average lead to economic growth should.

TABLE OF CONTENTS

CERTIFICATION	i
DECLARATION	ii
COPYRIGHT	iii
ACKNOWLEDGEMENT	iv
DEDICATION	v
LIST OF ABBREVIATIONS AND ACRONYMS	vi
ABSTRACT	vii
TABLE OF CONTENTS	viii
LIST OF TABLES	xi
LIST OF FIGURES	xii
CHAPTER ONE	1
INTRODUCTION	1
1.1 Background of the Problem.....	1
1.2 Statement of Problem.....	4
1.3.Objectives of the study	4
1.3.1 General objective	4
1.3.2 Specific objectives	4
1.4 Research Questions	5
1.5 Significance of the Study	5
1.6. Scope of the Study	5
1.7 Organization of the Study.....	6
CHAPTER TWO	7
LITERATURE REVIEW	7
2.1 Introduction	7
2.2 Definition of Key Terms	7
2.3 Financial Development and Economic Growth.....	8
2.4 Impacts of Financial Development and Economic Growth	11
2.5 Empirical Literature Review	12
2.6 Conceptual Framework and Research Model.....	13

CHAPTER THREE	15
RESEARCH METHODOLOGY	15
3.1 Introduction	15
3.2 Research Design	15
3.3 Study Area	15
3.4 Study population	15
3.5 Types and the Source of Data.....	16
3.6. Data Collection Methods.....	16
3.6.1 Secondary Data	16
3.7.Data Analysis Method.....	16
3.7.1 Econometric Framework and Model Specification	16
3.8.Test for Time Series	17
3.8 .1 Autocorrelation	17
3.8.2 VEC and VAR Models.....	18
3.8.3 Econometric Model Specifications	19
3.8.4 Autoregressive	20
CHAPTER FOUR	21
ANALYSIS AND PRESENTATION OF FINDINGS	21
4.1 Introduction	21
4.2 Description of basic statistics of Data.....	21
4.2.1 Gross Domestic Product (GDP).....	21
4.2.2. Domestic Credit Provided by Banking Sector (DCPBS)	21
4.2.3. Gross Domestic Saving	22
4.2.4. Trade.....	22
4.2.5. Inflation	22
4.2.6 Checking for multicollinearity.....	24
4.2.7 Autoregressive	35
4.3. Unit Root Test.....	36
4.4 Testing of Long run relationship in our model by checking cointegration.....	45
4.4.1 Vector error correction model	45
4.4.2 Test for short run in vecm	45

CHAPTER FIVE	51
DISCUSSION OF THE FINDINGS	51
5.1 Introduction	51
5.2 Reflection and contributions.....	51
5.3 Econometric result for Normality	52
5.4 Econometric result for Linktest and ovtest.....	52
5.5 Econometric result for autocorrelation.....	53
5.6 Econometric result for outlier.....	53
5.6.1R-Square	53
5.6.2 Trade.....	53
5.6.3 Inflation	54
5.6.4 Domestic Credit Provided by Banking Sector.....	54
5.7 Cointegration econometric result.....	55
5.8 Econometric result for Vector error correlation model (VECM)	56
5.8.1 Long run for vecm.....	56
5.9 Econometric result for Vargranger	57
5.9.1Gross Domestic Product (GDP) as Dependent variable	57
5.9.2 Domestic Credit provided by Banking Sector (DCPBS) as Dependent variable ..	58
5.9.3 Gross Domestic Saving (GDS) as Dependent variable.....	59
5.9.4 Trade as Dependent variable	59
5.9.5 Inflation as Dependent variable	60
CHAPTER SIX	62
CONCLUSION AND RECOMMENDATIONS	62
6.1 Introduction	62
6.2 Conclusion.....	62
6.3 Recommendations.....	63
REFERENCES	64

LIST OF TABLES

Table 4.1: The Summary Statistics of the Data.....	22
Table 4.2 Econometric Regression results	23
Table 4.3 Econometric results	23
Table 4.4 Value inflected factor (vif)	24
Table 4.5 Results for Shapiro – Wilk W Test for Normal data.....	24
Table 4.6 Model specification	34
Table 4.7. Autocorrelation	34
Table 4.8 Hypothesis testing	35
Table 4.9 Heteroskedasticity in time series.....	35
Table 4.10 Unit root test by using dickey fuller for five variables.....	37
Table 4.11 Unit root for Gross Domestic Product (GDP) at level	37
Table 4.12 There is no unit root for Gross Domestic Product (GDP) at first difference.....	37
Table 4.13 There is a unit root for Domestic Credit provided by Banking Sector at level.....	38
Table 4.14 There is no unit root for Domestic Credit provided by Banking Sector at first difference	38
Table 4.15 There is a unit root for Gross Domestic Saving at level.....	38
Table 4.16 There is no unit root for Gross Domestic Saving at first difference	39
Table 4.17 There is a unit root for Trade at level.....	39
Table 4.18 There is no unit root for Trade at first difference	39
Table 4.19 There is a unit root for Inflation at level.....	40
Table 4.20 Vector error-correction model	47
Table 4.21 Autoregression	49
Table 4.22 Granger causality Wald test	50

LIST OF FIGURES

Figure 2.1 The model showing theoretical framework for analysis of growth and Financial Development	14
Figure 4.1 Kernel Density Estimate.....	25
Figure 4.2 Kernel Density Estimate.....	25
Figure 4.3 Homogeneity of variance	26
Figure 4.4 GDP VS DCPBS.....	26
Figure 4.5 GDP VS GDS	27
Figure 4.6 GDP VS Trade.....	27
Figure 4.7 GDP VS Inflation.....	28
Figure 4.8 Density VS GDP.....	29
Figure 4.9 Density VS DCPBS	30
Figure 4.10 Density VS GDS	31
Figure 4.11 Density VS Trade.....	32
Figure 4.12 Density VS Inflation	33
Figure 4.13 DGP VS Year	36
Figure 4.14 DGP VS Year	40
Figure 4.15 DCPBS VS Year.....	41
Figure 4.16 GDS VS Year	41
Figure 4.17 GDS VS Year	42
Figure 4.18 GDS VS Year	42
Figure 4.19 Trade VS Year	43
Figure 4.20 Trade VS Year	43
Figure 4.21 Inflation VS Year.....	44
Figure 4.22 Inflation VS Year.....	44

CHAPTER ONE

INTRODUCTION

1.1 Background of the Problem

Financial system plays a critical role in igniting industrialization by facilitating the mobilization of capital for works. Masoud et al (2012) contends that well-functioning banks spur technological innovation by identifying and funding those entrepreneurs with the best chances of successfully implementing innovative products and production processes. However, there view that economic development creates demands for particular types of financial arrangements, and the financial system responds automatically to these demands Rihab et al, 2014. There some literature of economic development that do not mention finance or discuss financial system roles in economic development.

The theoretical underpinnings of the relationship between financial depth and growth can be traced back to the work of Schumpeter (1912) (Boopen et al, 2009). He argued that financial development, through its critical function of enhancing the efficiency of intermediation namely by reducing information, transaction, and monitoring costs might lead to economic growth. According to Creane et al. (2003), a modern and efficient financial system mobilizes savings, promotes investment by identifying and funding good business opportunities, monitors the performance of managers, enables the trading, hedging, and diversification of risk, and facilitates the exchange of goods and services. These functions ultimately result in a more efficient allocation of resources, a more rapid accumulation of human and physical capital, and a faster technological progress, which in turn feed economic growth. Tsuru (2000) also argues that financial development can promote economic growth via its positive impact on capital productivity or via efficiently converting financial resources into real investments.

Financial development is a process that marks improvement in quantity, quality, and efficiency of financial intermediary services (Arshad et al., 2005).

The development of financial markets and financial institutions is a critical and inextricable part of the growth process and not an inconsequential side show, that is, it responding passively to economic growth and industrialization. The evidence for example level of financial development is a good predictor of future rates of economic growth, capital accumulation, and technological change Masoud et al, 2012. Financial development both markets and institutions arise to mitigate the effects of information and transaction costs which may include the costs of acquiring information, enforcing contracts, and exchanging goods and financial claims. A well financial system, reduce information and transaction costs influence saving rates, investment decisions, technological innovation, and long-run growth rates (Allen et al 2000).

Another approach of is “the functional approach” to understanding the role of financial systems in economic growth. This approach focuses on the ties between growth and the quality of the functions provided by the financial system. These functions include facilitating the trading of risk, allocating capital, monitoring managers, mobilizing savings, and easing the trading of goods, services, and financial contracts (Neave 2012). The basic functions remain constant through time and across countries. However, there are large differences across countries and time, in the quality of financial services and in the types of financial instruments, markets, and institutions that arise to provide these services. George et al (2010) argued that countries with larger banks and more active stock markets grow faster even after controlling for many other factors underlying economic growth. Industries and firms that rely heavily on external financing grow disproportionately faster in countries with well-developed banks and securities markets than in countries with poorly developed financial systems. Moreover, ample country studies suggest that differences in financial development have, in some countries over extensive periods, critically influenced economic development (Kiliman, 2009, King et al., 1993).

Not only economic growth or economic activities that affect financial system, but factors like technological innovation undoubtedly affect the structure and quality of financial systems. George et al (2010) argued that innovations in telecommunications and computing have undeniably affected the financial services industry.

Moreover, other factors are such as a country's legal system and political institutions certainly drive both financial and economic development at critical junctures during the growth process. Nevertheless, the weight of evidence suggests that financial systems are a fundamental feature of the process of economic development and that a satisfactory understanding of the factors underlying economic growth requires a greater understanding of the evolution and structure of financial systems (Rihab et al, 2014).

Financial Sector Reform in Tanzania had been adopted in the 1980s to minimise poverty and enhance economic growth. During the last three decades the economic conditions of Tanzania had been worse. Political instability that occurred from 1978 to 1979 also added to this problem (Sachs et al., 1995). *“Like other countries, the government of Tanzania realises the importance of financial developments and economic growth”*. Financial Sector Reform in Tanzania had been adopted in the 1980s. The financial reform were aimed at improving access to financial services by all sectors previous excluded by financial services provider (Nyamsogoro, 2010).The financial sector reform included, among others, liberalisation of interest rate, eliminating administrative credit allocation and strengthening the Bank of Tanzania's role in regulating and supervising financial institution. The reforms were also meant to restructure state owned financial institution and to allow the entry of private financial institution in the market (Nord et al., 2009). However, following the restructuring of state-owned financial institutions and privatisation of the National Bank of Commerce (NBC) and Cooperative and Rural Development Bank (CRDB), there was closure of 78 branches throughout the country most of which were in rural area (Satta, 2002: Steel et al., 1997).

According to the African Development Bank, the Tanzanian government witnessed some advantageous effects by implementing financial reform. Some new financial institutions had been established and two banks were formed by 1994. Through the reform in National Bank of Commerce, the public confidence on the banks had been increased. The capital flight had been repatriated through the liberalisation of the Tanzanian foreign exchange and financial markets and poverty was reduced to some extent (Sachs et al., 1995).

In a bid to increase wealth and economic growth for the Tanzanian, the financial markets could also play a vital role on development and particularly in poverty reduction; also well regulated banking system credit cooperation (SACCOS) and the stock market can also contribute much to economic growth. (Muharram Macatta, 2008).

1.2 Statement of Problem

For the Achievement of the National Development Vision 2025 in Tanzania in the economic aspects. There is the need for economists to provide empirical evidence on the existence of long-run relationship between financial development and economic growth, whether financial development causes economic growth and vice versa is true. However, currently there is a rapid increase in international banks and other financial institutions like Finca, Vikoba and the like, which might has positive impact to economic sector if they are utilised efficiently and effectively.

Generally, there is little known about whether financial development and economic growth are related in Tanzania before the reform of financial development and after reform, by considering the variables like dependent variables such as GDP per capita and explanatory variables like Domestic Credit Provided by Banking Sector to Private sector, Inflation, Gross domestic saving and trade.

Therefore, this study adds in the literature and shows how the financial sector and economic growth are related in Tanzania, thereafter the recommendation is provided.

1.3.Objectives of the study

1.3.1 General objective

The main objective of the study was to assess the relationship between financial development and economic growth in Tanzania.

1.3.2 Specific objectives

- i. To examine the influence of domestic credit provided by banking to the private on GDP growth

- ii. To investigate whether the Trade done in Tanzania had the positive impact on GDP
- iii. To examine the influence of domestic saving on GDP growth
- iv. To examine the influence of Inflation rate on GDP growth

1.4 Research Questions

- i. What Is The influence of domestic credit provided by banking sector to the GDP growth?
- ii. What is the impact of trade on GDP growth?
- iii. What is the influence of domestic savings on GDP growth?
- iv. What is the influence of inflation rate on GDP growth?

1.5 Significance of the Study

The study provides clear picture on the research problem and hence helpful to Tanzania to be the best country in East African countries. Also, due to the fact that research through financial system brings strong economy, link between finance and growth have co-integration. Also, the study is useful to Tanzania Financial sector because it provides information on which sector performs well in economic growth compared to other regions in East Africa. This helps them in reviewing their policies and regulations so as to create conducive environment for attracting more investors into the community. It will also increase awareness among the users on impact that financial development has in Tanzania. Lastly, the study will enable the researcher to meet the requirements to be awarded a degree of Master of Science in Accounting and Finance.

1.6. Scope of the Study

The study intended to explore the relationship between Financial Development and economic growth and it covered only Tanzania. Therefore, the findings and results from this study may not necessarily apply to other countries near the border of East Africa.

1.7 Organization of the Study

This study is organized into six chapters, Chapter one provides introduction and background information of the study, chapter two provides theoretical and empirical literature review, Chapter three describes research methodology used to achieve the objectives of the study, chapter four is all about presentation of findings and analysis, chapter five discussion of findings, finally chapter six presents conclusions to the study objectives and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter is about review of various literatures about Financial Development and economic growth. The chapter includes Theoretical literature review, Empirical literature review and also conceptual framework.

2.2 Definition of Key Terms

Financial Development

Financial development is usually defined as a process that brings enhancement in quantity, quality, efficiency and efficacy of financial intermediary services (Abu-Bader et al, 2008). This process involves the interaction of many activities and financial institutions. A strong financial system offers risk diversification and effective capital allocation. The greater the financial development, the higher would be the mobilization of savings and its allocation to high return projects (Levine 1997).

Financial development can be measured by a number of factors including the depth, size, access, and soundness of financial system. It can be measured by examining the performance and activities of the financial markets, banks, bond markets and financial institutions. It is observed that higher the degree of financial development in a country, the wider will be the availability of financial services. A developed financial system offers higher returns with less risk (Rihab et al, 2014).

Economic growth

According to Rihab et al, 2014, Economic growth is a measured by the country's Gross Domestic Product (GDP) in one year. GDP is the total amount of final goods and services produced in one year within a country. It is the total value of all the goods and services produced in that country in one year, tells how rich or poor a country is, It shows if the country's economy is getting better or worse, by rising the country's GDP

can improve the standard of living. Factors that determine country's GDP are; natural resources, human capital, capital goods and entrepreneurship.

2.3 Financial Development and Economic Growth

In the same pursuit Allen et al.(2000) using time series for Southern Africa investigated the role of financial intermediation in stimulating economic growth. The study used several indicators for financial development which credit by banks, the ratio of Inflation to GDP and an index for financial development, which combined the two indicators. It also included trade openness, Gross Domestic Saving as control variables. In its results, the study found a positive and significant relationship between economic growth and liquid liabilities of banks. The results were not statistically significant for the other indicators like credit provided by banks to the private sector, Inflation and Trade but only Gross Domestic Saving has a significant in running multiple regression of financial development.

Ndebbio (2004) also analyses the relationship between economic growth and financial development of selected Sub-Saharan countries. The study used the ratio of M2 to GDP and growth rate of real money balances as indicators for financial development and found a statistically positive effect of growth of per capita real money balances on .economic growth.

Since the contribution done by Goldsmith (1969), Mackinnon (1973) and Shaw (1973) on the role of Financial Development in promoting relationship between economic growth and Financial Development has remained as important issue of debate among academic and policymaker (Gregorio et al., 1995).Early economic theory argued that economic development is a process of innovations in both the financial and real sectors provide a driving force for dynamic economic growth. In other words, exogenous technological progress determines the long –run growth rate, while financial intermediaries are not explicitly modeled to affect the long run growth rate. However, a growing contemporary theoretical and empirical body of literature shows how financial intermediation mobilises saving, allocates resources, diversifies risks, and contributes to economic growth (Greenwood et al.,(1997).

The new growth theory argues that financial intermediaries and market appear endogenous in response to market incompleteness and hence, contribute to long term growth. Financial institution and markets, which arise endogenously to mitigate the effects of information and transaction cost frictions, influence decision to invest in productivity enhancing activities through evaluating prospective entrepreneurs and funding the most promising ones. The underlying assumption is that financial intermediaries can provide these evaluation and monitoring services more efficiently than individuals. An important set of author in the literature agrees that there is a relation between finance and economic growth. However, they disagree about the direction of causality. One hand, some authors have theoretical and empirical shown that there is causal direction from financial development to economic growth. That is policies that move toward the development of financial systems lead to economic growth.

McKinnon (1973), King a et al. (1993a), Levine et al. (2000).and Christophoul et al. (2004) support this argument. On the other hand, other authors argue that the direction is from economic growth to financial development. Since the economy is growing there is an increase in demand for financial services that induces an expansion in the financial sector. This view is supported by Gurley et al. (1967), Goldsmith (1969), and Jung (1986).Other authors argue that the causal direction is two way. Financial Development and Economic Growth reinforce each other. Financial Development supports Economic Growth and Economic Growth renders to support to Financial Development. Patrick (1966) postulated the stage of development hypothesis. At the early stage, causality runs from growth to finance, but at later stage runs from finance to growth. In the early stage of economic development, finance causes growth by inducing real per capita capital formation. Later on economy is in growth stage and there will be increasing demand for finance services which induces an expansion in the financial sector as well as the real sector. This implies causality from growth to finance. Blackburn et al. (1998) also established a positive two way causal relationship between growth and financial development. According to their analysis, private informed agents obtain external financing for their project through incentive- compatible loan contracts, which are enforced through incentive compatible loan contract, which are enforced

through costly monitoring activities that lenders may delegate to financial intermediaries. More recently, Khan (2001) also established positive two way causality between Finance and Growth. He postulates that when borrowing is limited, producer with access to loans from financial intermediaries obtain higher return which creates an incentive for others to undertake the technology necessary to access investment loans which in turn reduce financing costs and increases economic growth.

Levine (2005) surveyed a large amount of empirical research that deals with the relationship between the financial sector and long run growth. Levine (1997) argued that financial system can accomplish five functions to ameliorate information and transactions friction and contribute to a long run growth. These function facilitate investment and hence, higher economic growth. The results in the literature, however, are ambiguous. On the one hand, cross-country and panel data studies show a positive effect of financial depth on economic growth after accounting for other determinants of growth and potential biases induced by simultaneity, omitted variables or country specific effects Levine (2005) This suggests that the causality runs from finance to growth(Christopoulos et al.,2000). Furthermore, Claessens et al.,(2005) related banking competition and industrial growth and found that the higher the competition among banks, the faster growth of finance dependent industries, suggesting also that higher financial development proceeds economic growth. One the other hand, Demetriades et al. (1996) and Shan et al. (2001) using time series techniques, found that the causality is bi-directional for the majority of countries in their sample. Furthermore, Luintel et al. (1999), using a sample of 10 developing countries, concluded that the causality between financial development and output growth is bi-directional for the 10 countries they studied, Calderon et al (2002) using a sample of 109 developing and developed countries found evidence that financial development generally leads to economic growth for developed countries, but that the Granger Causality is two way for developing countries. Since financial development is not easily measurable, papers attempting to study the link between financial and growth have chosen a number of proxy measures and subsequently have come up with different results.(Al-Awad et al.,(2005):Chuah et al.,(2004: Hassan et al., 2003: Khan et al.,(2003):King et al,(1993a).Savvides,1995).

However, the general consensus of these studies is that Tanzania will bring a positive correlation between Financial Development and Economic Growth.

2.4 Impacts of Financial Development and Economic Growth

Hassan et al. (2011) compares the key financial and real indicators along with the economic growth proxy across geographic regions. Among geographic regions made up of developing countries, Latin America and Caribbean has the highest GDP per capita followed by Europe & central Asia and Middle East & North Africa (MENA), whereas Sub-Saharan Africa shows the lowest GDP per capita. East Asia and Pacific countries have growth rate comparable to those of high-income countries, reflecting the rapid economic expansion of many Asian countries in recent decades. Furthermore, sub-Saharan Africa has the lowest median GDP per capita followed by South Asia, which denotes the poverty level of those regions, interesting, despite its low GDP per capita, South Asia has the highest GDP per Capita growth among the regions. In general developing countries (except those in South Asia) have experienced at least for one year, negative GDP per growth.

The cross-country case studies have been carried out by many researchers: Levine et al. (1993) and Levine et al. (1996) found that higher levels of financial development are positively correlated with economic development. Their findings suggest that the legal environment facing banks can have a significant impact on economic growth through its effect on bank behaviour.

Michael et al (2001) examined whether there is evidence of a causal link from capital account liberalisation to financial deepening and, through this channel, to overall economic growth on cross-section of developed and developing countries, over the period 1986 to 1995, as well as over the period 1976 to 1995. With regard to the link between financial development and GDP growth, they noted a statistically significant and economically relevant positive effect of open capital accounts on financial depth and economic growth.

However, this effect seems to be concentrated among industrial countries, whereas a little evidence was found in developing countries for financial depth brought about by capital account liberalization to affect positively economic growth.

In Africa, Douglas (2003) investigated evidence of the finance growth nexus in a sample of emerging Sub-Saharan African countries using cointegration and a vector error-correction model. He found that financial development and economic growth are linked in the long-run in seven of eight countries and causality test revealed unidirectional causality from finance to growth in Ghana, Nigeria, Senegal, South Africa, Togo and Zambia. For Ivory Coast and Kenya, the causality run from growth to finance, confirming the demand leading hypothesis in the two countries.

2.5 Empirical Literature Review

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2.6 Conceptual Framework and Research Model

For an analysis of Financial Development and Economic growth in Tanzania by using neo-classical growth model developed and in agreement with King et al., (1993a), and Levine et al.,(2000),the linkage is seen between financial development and economic growth for Tanzania

The researcher used GDP per capita growth rates as proxy for economic growth, and four variables to measure financial development and the size of the real sector, also this goes simultaneous with Bank and other financial intermediaries in addition to loan markets which are:

Domestic Credit provided by banking sector as percentage of GDP

This is just to find the liability degree of dependence upon the Banking sector for financing. This means that the liquidity ratio means intensity in banking system.

Growth domestic saving

The growth rate depends positively on the percentage of saving diverted to investment, because converting saving to investment is one channel through which financial deepening affects growth.

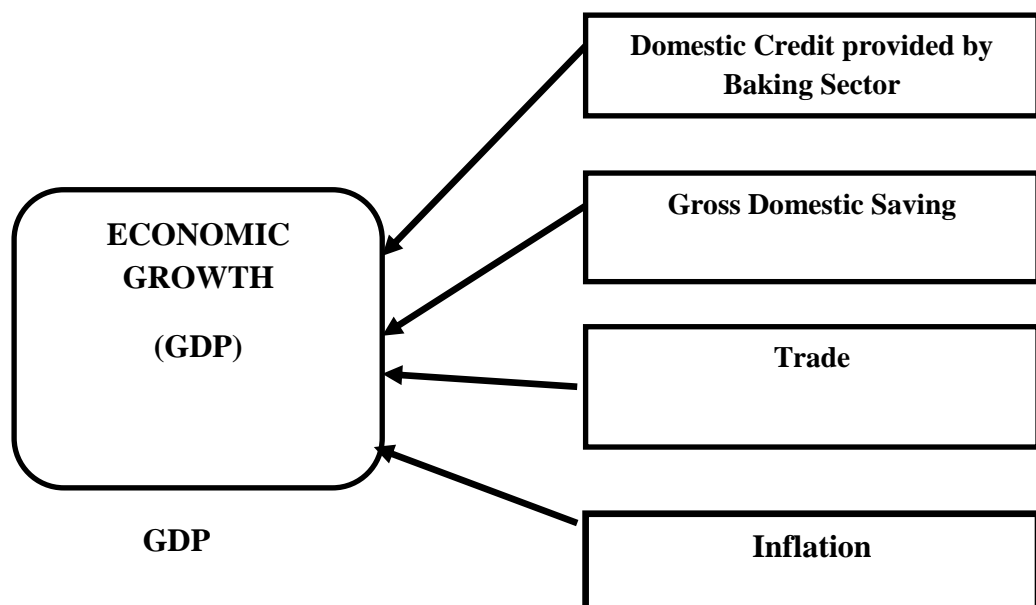
The ratio of Trade to Growth Domestic Product

The ratio of trade to GDP tends to measure the size of the real sector and the weight of fiscal policy. Many developing countries tend to rely heavily on international trades to achieve economic growth while financial liberalisation is still in progress.

Inflation

The inflation rate is used to control for price distortions, if the price will be controlled it means people will be able to buy at low cost and sell at profit.

Figure 2.1 The model showing theoretical framework for analysis of growth and Financial Development



CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

Research methodology is a way to systematically solve the research problem. It may be understood as a science of studying how research is done scientifically Kothari (2003). This chapter presents the methods and techniques that were used to approach the research problem, which include research design, types and source of data, and methods of data collection, analysis and presentation.

3.2 Research Design

Research design is a plan that specifies the sources and the types of information relevant to the research problem as well as the approach that will be used for gathering and analysing the data. This study adopted a Causal research design to obtain the required information. The researcher chose this research design because the main goal of causal research is to identify cause –and- effect relationships among the variables. Data were collected through World Bank Data Base and National Bureau of Statistics of Tanzania.

3.3 Study Area

The United Republic of Tanzania as a study area. Bank of Tanzania (BOT) and National Bureau of Statistics (NBS) were used sources of data about the economy.

3.4 Study population

The population for this study is a series of data covering the wholly period of 1988 to 2012 homogeneity (maximum similarity), critical cases, or typical cases (Gregorio et al., 1995).

3.5 Types and the Source of Data

Quantitative data employed to the study. The researcher gathers secondary data from World Bank, and National bureau of statistics (NBS) database. In this study deductive approach was adopted in explaining the effects of Domestic credit provided by Banking sector, Gross Domestic Saving, Inflation and Trade. Deductive approach is suitable when the aim of the study is to test a theory and not developing a theory. This was in particular the case of this study, as it aimed at testing theories relating to Domestic credit Provided by Banking sector, Gross Domestic Saving, Inflation, and Trade which investigate whether these variables as advocated in the theory have significant impact on Gross Domestic Product.

3.6. Data Collection Methods

3.6.1 Secondary Data

The researcher collected data through World Bank Data website and National Bureau of Statistics of Tanzania.

3.7.Data Analysis Method

3.7.1 Econometric Framework and Model Specification

This study applied two econometric models on operational the variables. First model is Johansen co-integration model. The main purpose of cointegration was to examine the existence of a long run relationship between or among variables (Johansen, 1988; Johansen et al., 1990). According to Granger if cointegration is present in the long run, then the system of equation is restructured by inserting an error correction term to capture the short run deviation of variable from their relevant equilibrium values. This is necessary as impact of Domestic credit provided by Banking sector, gross domestic saving, Inflation, and Trade behave different in short run and long run. Causality must exit either unidirectional or bidirectional. In co-integrated series, variables may share common stochastic trends so that dependent variables in the VECM must be Granger-caused by the lagged values of the error correction terms.

This is possible because error correction terms are functions of the lagged values of the level variables. Thus, evidence of cointegration between variables itself provides the basis for the construction of an error correction model (ECM). The ECM permits the introduction of past disequilibrium as explanatory variable in the dynamic behaviour of existing variables and thus facilitates in capturing both the short-run dynamics and long-run relationships between variables. The chronological Granger causality between the variables can be explored by applying a joint F-test to the coefficients of each explanatory variable in the VECM.

Vector error-correction model is able to distinguish between short-run and long-run Granger- Causality, and also indicates the direction of causality among variables. If co-integration has been detected between series there will be existence of a long-run equilibrium relationship between them so VECM will be applied in order to evaluate the short run properties of the co-integrated series. In case of no cointegration, VECM is no longer required and we directly proceed to Granger causality tests to establish causal link between variables. The regression form for VECM is as follows:

$$y = \alpha_i + p_i e_{i-1} + \beta_i \gamma_{i-1} + \delta_i x_{i-1} + y_i z_{i-1} \dots \dots \dots 1$$

To the VECM cointegration rank shows the number of Cointegrating Vectors. For instance, a rank of two indicates that two linearity independent combinations of the non-stationary variables will be stationary. A negative coefficient of the ECM (i.e. in the above equation) indicates that short-term fluctuation between the independent variables and dependent variable will give rise to a stable long run relationship between variables (Asari et al., 2011).

3.8. Test for Time Series

3.8 .1 Autocorrelation

Autocorrelation typically occur in a set of a data in which patterns repeat. The values of similar variables, such as income or economic data are some time correlated with one another. The Nully hyposes shows there is no serial correlation, Ho: There is no serial correlation.

$$y_t = y_{t-1} \dots \dots \dots 2$$

Also, autocorrelation can be test by using corrgram,a positive correlation indicates that large current values correspond with small values at specified lag.see Table 4.2 Chapter 4

3.8.2 VEC and VAR Models

The vector autoregressive (VAR) model is a general framework used to describe the dynamic interrelationship among stationary variables. So, the first step in time-series analysis should be to determine whether the levels of the data are stationary. If not, take the first differences of the series and try again. Usually, if the levels of your time series are not stationary, the first differences would be. Since the time series are stationary then the VAR framework needs not to be modified to allow consistent estimation of the relationships among the series. The vector error correction (VEC) model was just a special case of the VAR for variables that are stationary in their differences I (1). The VEC can also take into account any cointegrating relationships among the variables. Consider two time-series variables, Y_t and X_t Generalising the discussion about dynamic relationships between these two interrelated variables yields a system of equations as follows:

$$Y = \lambda_0 + \theta_T Y_{T-1} + \Pi_T DCPBS_{T-1} + \eta_T GDS_{T-1} + \beta_T Trade_{t-1} + \alpha_T INFLATION_{T-1} + \mu \dots \dots \dots 3$$

Y represents real GDP per capita a proxy variable for economic growth; DCPBS represents Domestic Credit Provided by Banking Sector, GDS for Gross Domestic Saving , trade openness of the economy; t represents time; and u is the error term assumed to be serially uncorrelated. The parameters θ_i , δ_i , π_i are the short-run dynamic coefficients of the ARDL model while β_4 , β_5 , and β_6 are long-run

Cointegrating relationship leads to a model known as the vector error correction (VEC) model. Therefore, in our case the model is suitable for the study simply because all the variables became stationary after their being converted into first differences. The vector error correction (VEC) model is just a special case of the VAR for variables that are stationary in their differences I (1).

The VEC could also take into account any cointegrating relationships among the variables. The diagnostic tests carried out to see the reliability of VECM results showed that the Lagrange-multiplier test for autocorrelation at lag order was not able to reject the null hypothesis that no autocorrelation at lag order because the P-value is greater than .05 and the Jargue-Bera test for residual normality had failed to rejected the null hypothesis that the residual are normally distributed because the P-value again was greater than .05.

3.8.3 Econometric Model Specifications

This study investigated the existence of such a relationship by implementing the following procedures after performing Diagnostic tests of time series data.

- (1) To determine the order of integration for two variables by employing tests devised by Dickey and Fuller (1979) and Philips and Perron (1988).
- (2) If both variables are integrated as of the same order, a maximum likelihood method of cointegration, proposed by Johnsen (1991) and later improved in Johnsen (1995), was applied in order to determine the number of co-integrating vectors. If one or more co-integrating vectors were found to exist, any short-run disequilibrium would be corrected with an error correction model.

The data analysed using STATA econometrics software. In line with similar studies on financial development and economic growth especially across countries, the study used an Ordinary Least Square (OLS) approach in determining the influence and relationship between Financial Development and economic growth. It looked at Financial Development (By sector) and economic growth. The statistical methods that were used include the Ordinary Least Square Method (OLS) and Unit root test, Vector Autoregressive Model (VAR), Vargranger.

This effect/ impact was assessed using multiple linear regressions model consisting of the four independent variables of financial development by sectors, and dependent variable of which growth was measured by GDP.

From the above multiple linear regression models, the following equation summarises the empirical model for investigating the potential impact that financial development by sector might have on Tanzania economic growth.

$$Growth = \beta_0 Q + \beta_1 DCPBS + \beta_2 GDS + \beta_3 TRADE + \beta_4 INFLATION + K \dots \dots \dots 4$$

Where, Q1988 is the log of GDP per capital and represent the initial GDP per capital

DCBS = Domestic Credit provided by Banking Sector

GDS =Gross Domestic Saving

Trade

Inflation

K= Constant error term

3.8.4 Autoregressive

Autoregressive model is in which the regressors are past values of the dependent variables. They are regression model that relate a time series variables to its past value i.e.

$$y = \beta_0 + \beta_1 y_{t-1} \dots \dots \dots 5$$

Forecast based on autoregressive can be improved by adding predictor variable to its past values or lags as regressor.

CHAPTER FOUR

ANALYSIS AND PRESENTATION OF FINDINGS

4.1 Introduction

This chapter presents the findings of the study. The chapter is made up of description of basic statistics of the data, Gross Domestic Product, Domestic credit provided by banking sector, Gross domestic saving, Trade, Inflation, stationarity status of data, Lag selection criterion and Johansen test for cointegration, Vector Error Correction Model and diagnostic tests. It also finds out the relationship and causality in both long run and short run between Domestic credit provided by banking sector, Gross domestic saving, Trade and Inflation.

4.2 Description of basic statistics of Data

Model consists of Five variables which are GDP growth (annual %) as Dependent variable with 24 observation, 2.201384 for mean, 2.277686 for standard deviation, and Independent variables are DCPBS on GDP% with 24 observation out of 25, mean is 9.772764 standard deviation of 5.038667. Gross Domestic Saving with 24 observation out of 25, mean is 9.599936 standard deviation of 7.809757. Trade with 24 observation out of 25, mean is 53.78644 standard deviation of 13.63094. Inflation with 25 observation out of 25, mean is 15.64019 standard deviation of 10.33599.

4.2.1 Gross Domestic Product (GDP)

Gross Domestic Product has 24 observations, 2.201384 for mean, 2.277686 for standard deviation. See table 4.1 below

4.2.2. Domestic Credit Provided by Banking Sector (DCPBS)

DCPBS on GDP% with 24 observations out of 25, mean is 9.772764 standard deviation of 5.038667. See table 4.1 below

4.2.3. Gross Domestic Saving

Gross Domestic Saving with 24 observation out of 25, mean is 9.599936 standard deviation of 7.809757. See table 4.1 below

4.2.4. Trade

Trade with 24 observation out of 25, mean is 53.78644 standard deviation of 13.63094. See table 4.1 below

4.2.5. Inflation

Inflation with 25 observation out of 25, mean is 15.64019 standard deviation of 10.33599. See table 4.1 below

In an attempt to examine the effects of Gross Domestic Product, Domestic credit provided by banking sector, Gross domestic provided by finance sector, Broad Money, General Government expenditure, Gross domestic saving, Trade, Inflation in Tanzania, this chapter begins by examining the summary statistics of the data series employed in the study in Table 4.1.

Table 4.1: The Summary Statistics of the Data

Variables	Obs	Mean	Standard deviation	Minimum	Maximum
GDPperCapital	24	2.201384	2.277686	-2.728204	4.966249
DCPBSperGDP	25	9.772276	5.038667	1.583477	17.74329
GDS per GDP	24	9.599936	7.809757	-4.599151	21.63461
Trade per GDP	24	53.78644	13.63094	33.49085	81.27242
Inflation	24	15.64019	10.33599	4.735801	35.82677

Source: Author's compilation using Stata

Where: GDP represents Gross Domestic Product per Capital %annually

DCPBS represents Domestic Credit Provided by Banking Sector %GDP

Obs represents Observation

Table 4.2 Econometric Regression results

Source	SS	df	MS	
Model	80.292483	4	20.0731207	Number of obs = 24
Residual	39.0281245	19	2.05411181	F(4, 19) = 9.77
Total	119.320607	23	5.1878525	Prob > F = 0.0002
				R-squared = 0.6729
				Adj R-squared = 0.6041
				Root MSE = 1.4332

Explanatory power of the variables is also strong as evident by R-squared and adjusted R-squared which have respective values of 0.6729 and 0.6041.

Table 4.3 Econometric results

GDP	Coefficient	Standard error	t	P> t	(95%coef	Interval)
DCPBS	0.0519975	0.1069563	0.49	0.632	-	.2758597
GDS	0.1977241	0.0773705	2.56	0.019	0.0357859	0.3596624
Trade	-0.0266824	0.0357969	-0.75	0.465	-0.101606	0.0482413
Inflation	-0.0334953	0.0597666	-0.56	0.582	-0.158588	0.0915977
Constant	1.714671	1.567098	1.09	0.288	-1.565303	4.994644

Source: Author's compilation using stata

- One unit of domestic credit provided by Banking sector contributes 00519 of Gross Domestic Product although is statistical insignificant $P>|t| = 0.632$
- One unit of Gross domestic serving contributes 0.1977 of Gross Domestic Product it is statistical significant $P>|t| = 0.019$
- One unit of Trade contributes -0.0266 of Gross Domestic Product although it is statistical insignificant $P>|t| = 0.465$
- One unit of Inflation contributes -0.0334 of Gross Domestic Product although it is statistical insignificant $P>|t| = 0.58$

4.2.6 Checking for multicollinearity

Table 4.4 Value inflected factor (vif)

Variables	Vif	1/vif
GDS	4.09	0.244608
Inflation	4.02	0.248701
DCPBS	3.00	0.332854
Trade	2.67	0.375107
	3.44	

Source: Author's compilation using Stata

Table 4.5 Results for Shapiro – Wilk W Test for Normal data

. swilk r

Shapiro-wilk w test for normal data					
Variable	Obs	w	V	z	Prob>z
r	24	0.96291	1.000	0.001	0.49962

Source: Author's compilation using stata

Shapiro-wilk test for normality, it test Ho: The distribution is normal $P > |0.49962|$, therefore the distribution is normal.

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

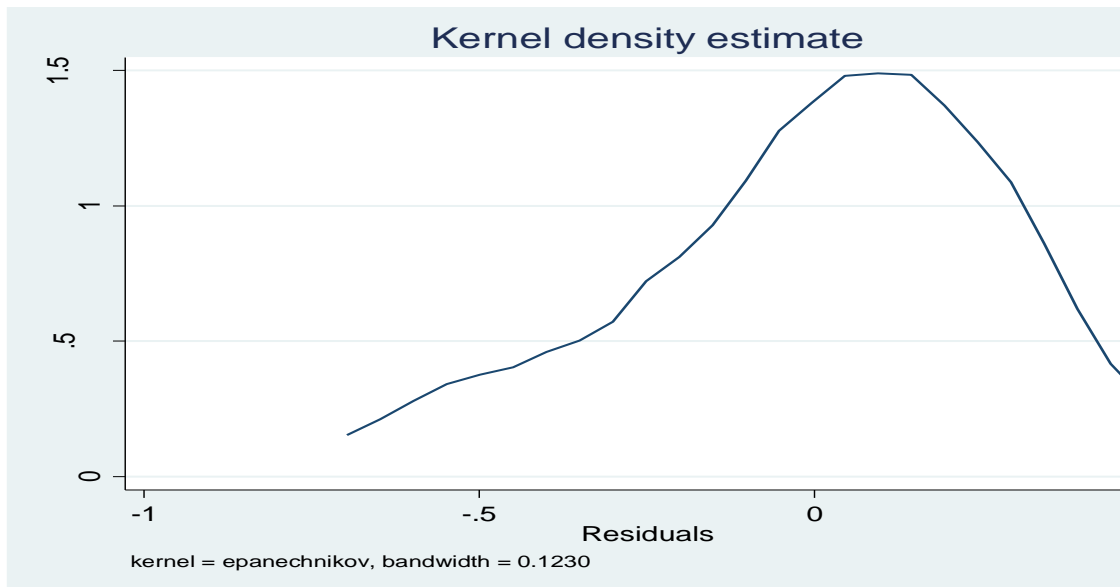
Variables: fitted values of gdp per capita growth annual

chi2(1) = 7.93

Prob > chi2 = 0.0049

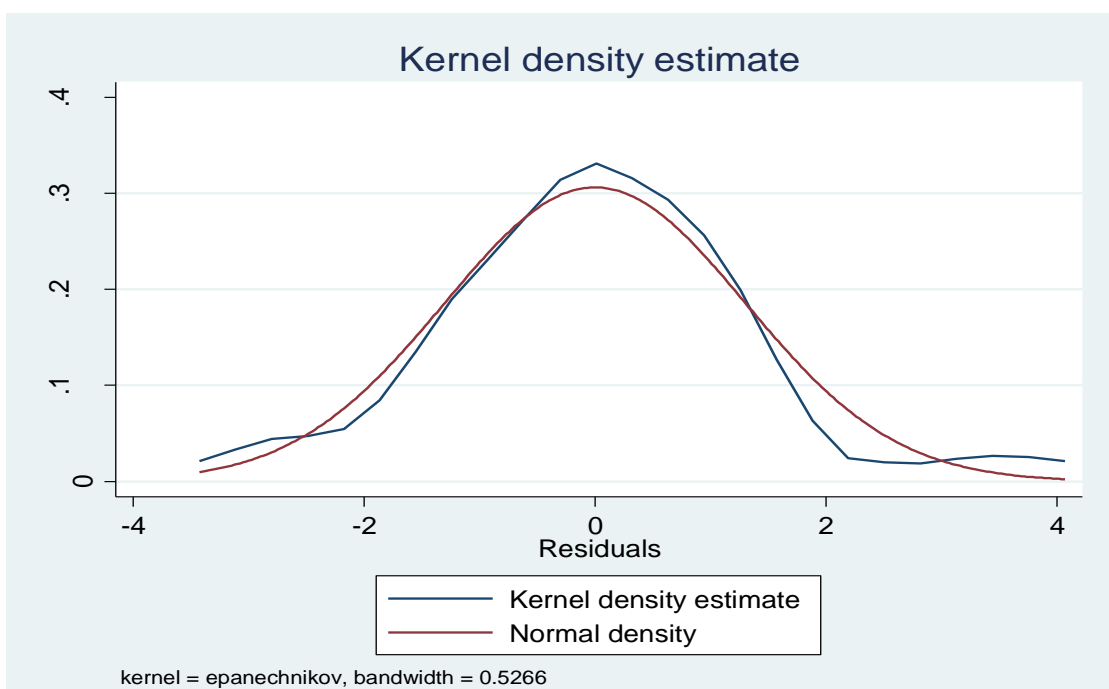
The H_0 : Hypothesis that the variance of the residual is not homogeneous due to $P > \chi^2(1) = 0.0049$.

Figure 4.1 Kernel Density Estimate



Source: Author's compilation using stata

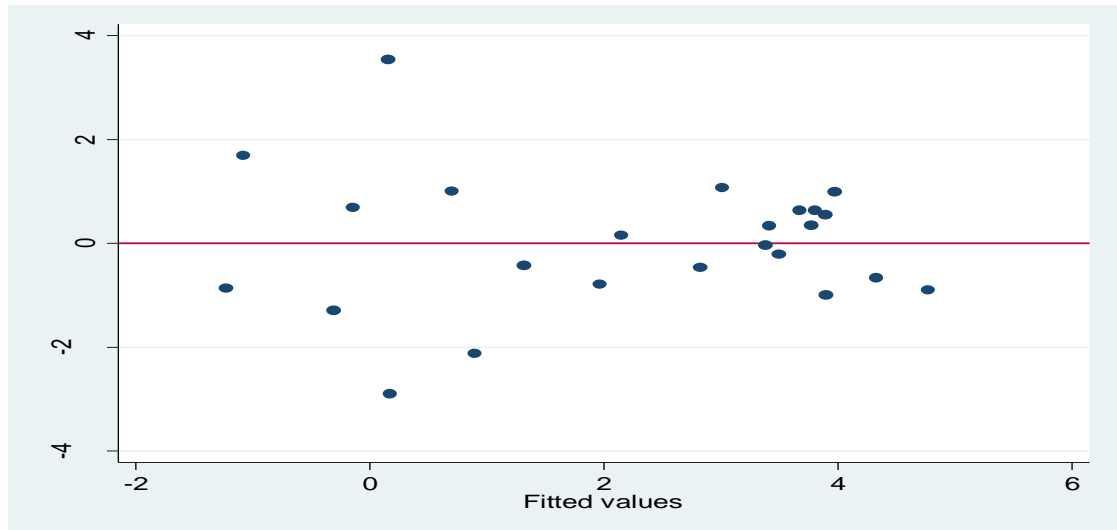
Figure 4.2 Kernel Density Estimate



Source: Author's compilation using stata

Kernel density estimates the normal density; as you can see on the figure above the distribution is normal.

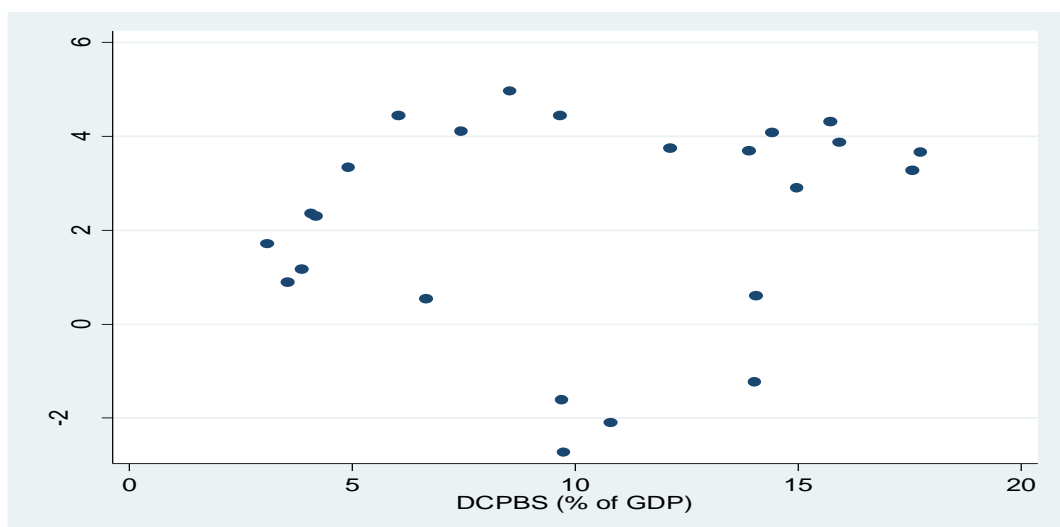
Figure 4.3 Homogeneity of variance



Source: Author's compilation using stata

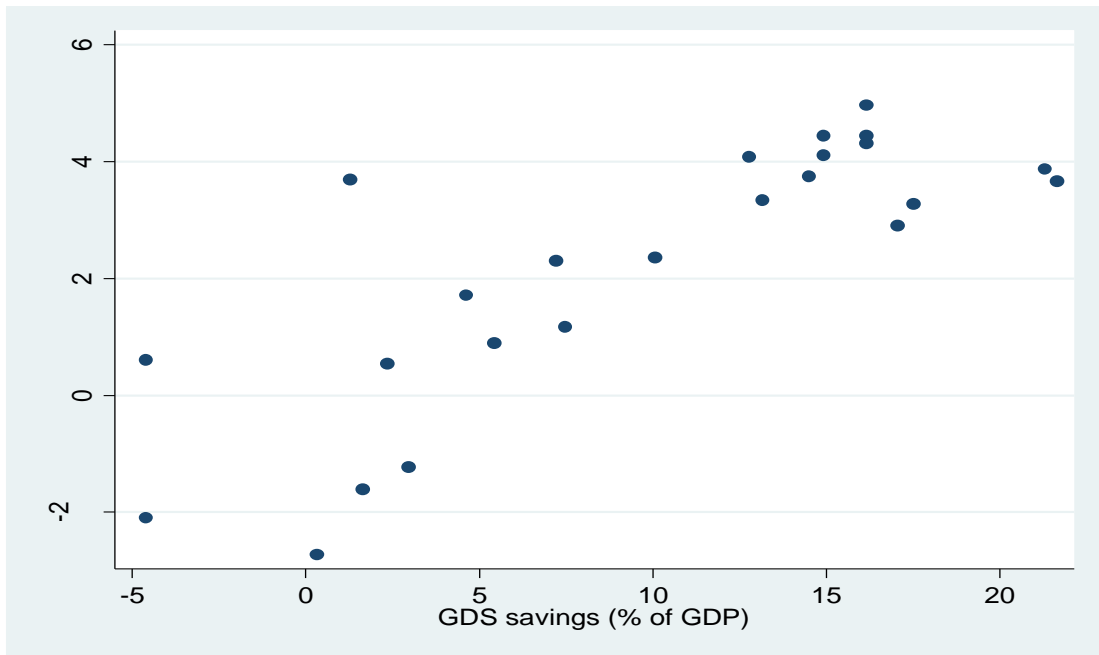
We see the patterns of the data points are not getting narrower towards the right end, which is an indication of no heteroscedasticity

Figure 4.4 GDP VS DCPBS



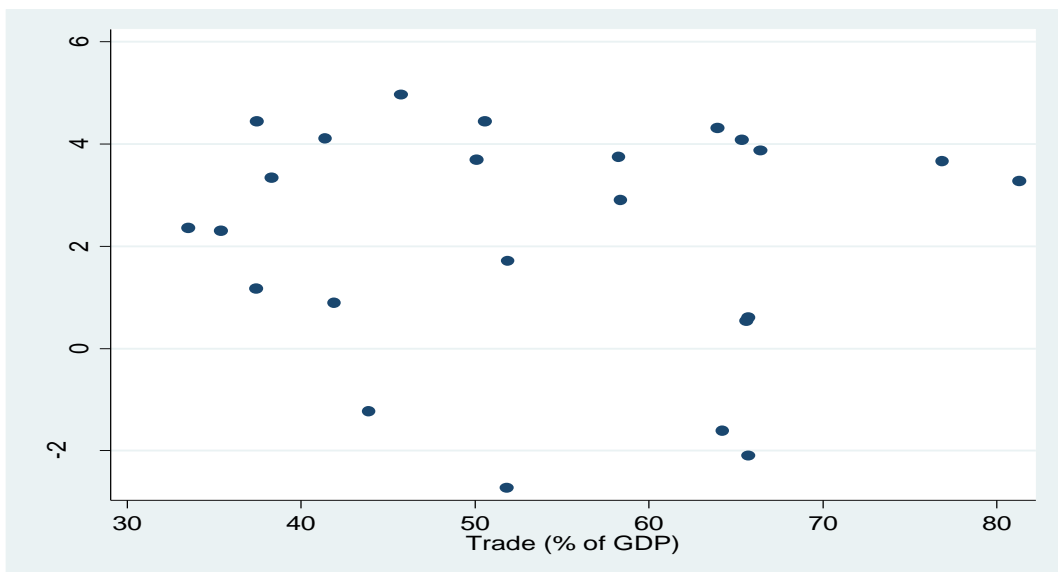
In the problem with regression analysis there is no outlier between GDP and DCPBS.

Figure 4.5 GDP VS GDS



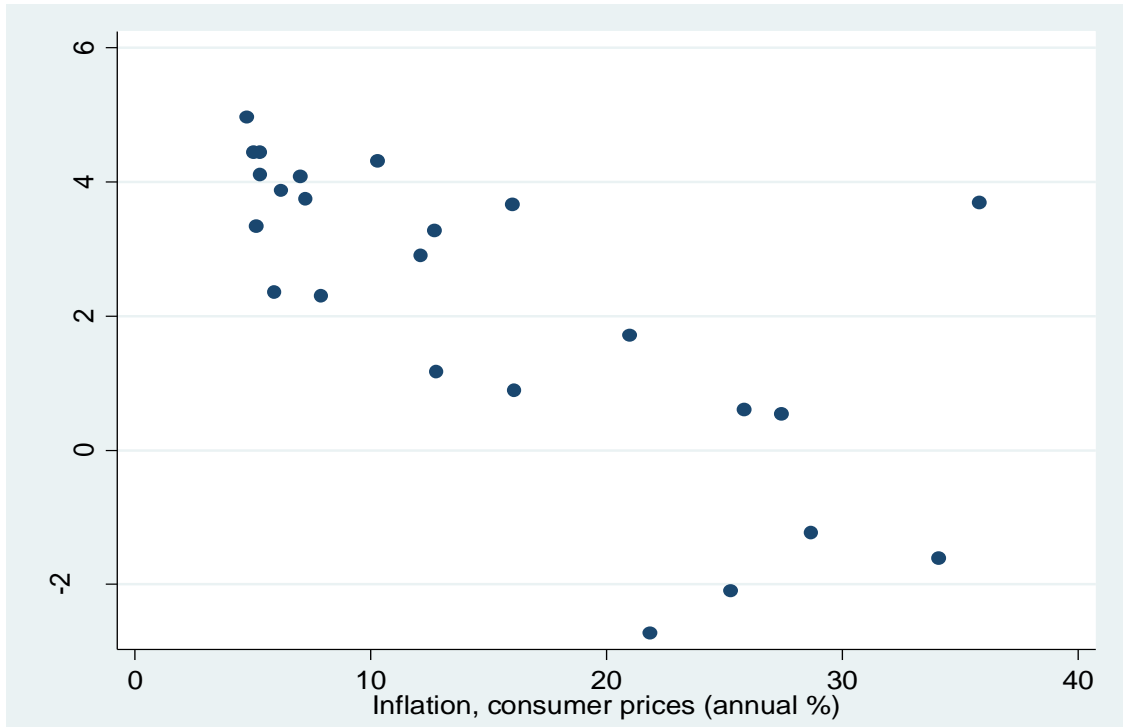
In the problem with regression analysis there is no outlier between GDP and GDS

Figure 4.6 GDP VS Trade



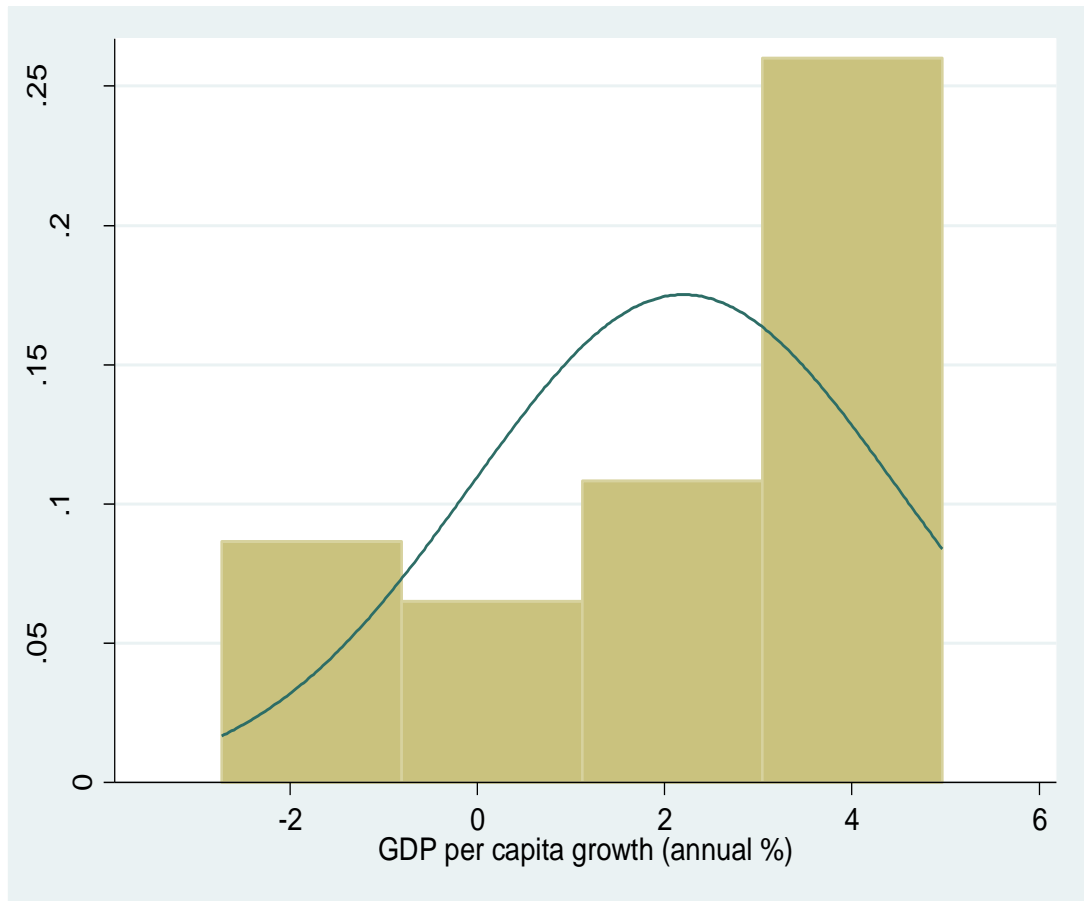
In the problem with regression analysis there is no outlier between GDP and Trade

Figure 4.7 GDP VS Inflation



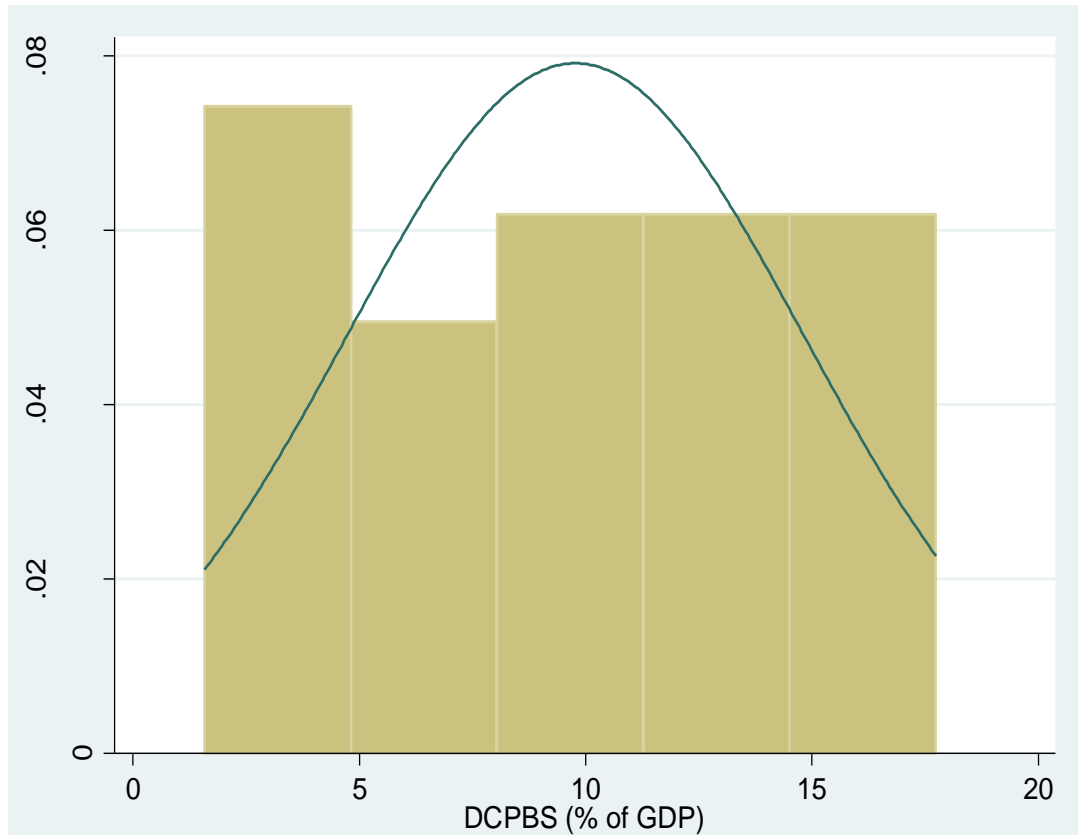
In the problem with regression analysis there is no outlier between GDP and Inflation

Figure 4.8 Density VS GDP



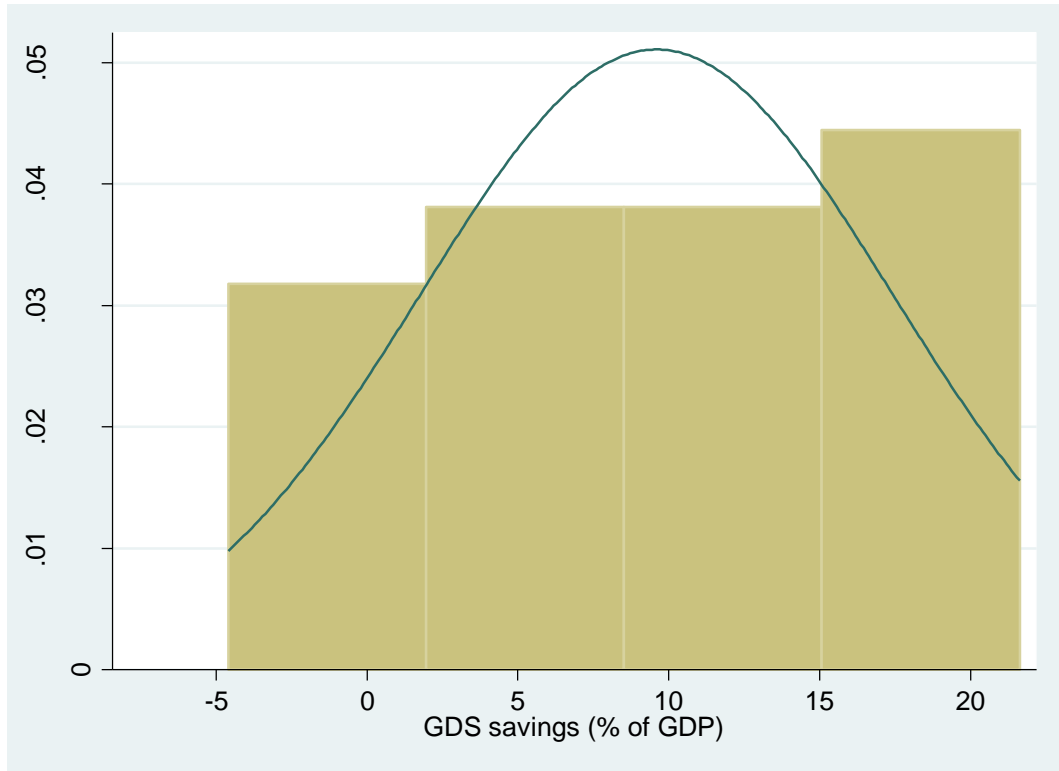
The histogram for **Gross domestic Product**. This shows us the observations where the average GDP size is positive 1%

Figure 4.9 Density VS DCPBS



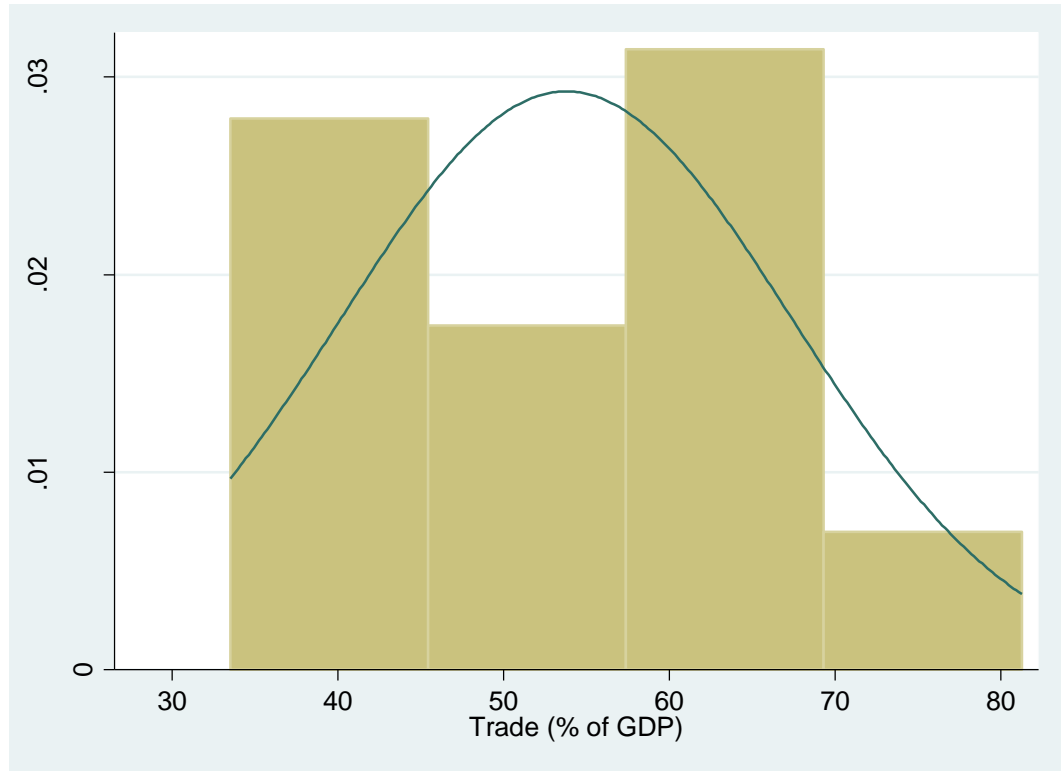
The histogram for **Domestic Credit Provided by Banking Sector**. This shows us the observations where the average Banking size is positive 5%

Figure 4.10 Density VS GDS



The histogram for **Gross domestic saving**. This shows us the observations where the average saving size is positive 2%

Figure 4.11 Density VS Trade



The histogram for **Trade**. This shows us the observations where the average Trade size is positive 82%

Figure 4.12 Density VS Inflation



The histogram for **Inflation**. This shows us the observations where the average Inflation size is positive 20%

Table 4.6 Model specification

GDP	Coefficient	Standard error	t	P> t	[95%Coef	Interval]
_hat	0.9508347	0.4150098	2.29	0.032	0.0877746	1.813895
_hatsq	0.0138473	0.108756	0.13	0.900	-0.212323	0.240017
_Cons	-0.005203	0.4371822	-0.01	0.991	-0.914370	0.903969

The model is properly specified because in the created variables one is significant and another is insignificant which are _hat 0.032 and _hatsq 0.900 respectively.

$$\text{Growth} = 1.7146 + 0.0519\text{Dcpbs} + 0.1977\text{Gds} - 0.0266\text{Trade} + -0.0334\text{flation} - 0.052$$

Also, the ovtest of the null hypotheses shows that there is no omitted variable due to $\text{Prob} > F = 0.6906$ is insignificant we accept the null.

Table 4.7. Autocorrelation

Breusch-Godfrey LM test for autocorrelation

lags(p)	chi2	df	Prob > chi2
1	3.499	1	0.0614

H0: no serial correlation

There is no autocorrelation because the Null hypothesis $\text{Prob} > \text{Chi2} = 0.0614$, we accept the Null.

Table 4.8 Hypothesis testing

LAG	AC	PAC	Q	Prob>Q	-1	0	1	-1	0	1
					[Autocorrelation]		[Partial	Autocor]		
1	0.2743	0.2787	2.0407	0.1531						
2	-0.2594	-0.3180	3.9491	0.1388						
3	-0.1712	0.0767	4.8197	0.1855						
4	-0.2714	-0.3119	7.1179	0.1298						
5	-0.0654	0.2370	7.2584	0.2021						
6	0.1741	0.0094	8.3093	0.2163						
7	-0.0047	-0.1411	8.3101	0.3060						
8	-0.1015	-0.0300	8.7115	0.3672						
9	-0.0061	-0.0925	8.713	0.4642						
10	-0.1317	-0.3876	9.4867	0.4866						

The Null hypothesis is no autocorrelation: from lag 1..... to 10 there is insignificant correlation therefore we accept the Null hypothesis.

4.2.7 Autoregressive

Autoregressive model is in which the regressor are past value of the dependent variables.They are regression model that relate a time series variables to its past value i.e.

Forecast based on autoregressive can be improve by adding predictor variable to its past values or lags as regressor.

Table 4.9 Heteroskedasticity in time series

LM test for autoregressive conditional heteroskedasticity (ARCH)

lags(<i>p</i>)	chi2	df	Prob > chi2
1	3.729	1	0.0535

H0: no ARCH effects vs. H1: ARCH(*p*) disturbance

There is no autoregressive condition heteroscedasticity according to Null Prob >chi2=0.0535, we accept the null hypothesis.

4.3. Unit Root Test

Being non-stationary implies that the mean, variance and covariance are not constant over time. When data contains unit root it means any result accrued to such data will be spurious or nonsensical (Kalikeka & Sheefen, 2013). Testing for Stationarity or non-Stationarity of the variables and determine their order of cointegration, this study employed the Augmented Dickey Fuller (ADF) statistics and the Phillips-Perron (PP) tests for unit root and 5% critical value was selected. The PP tests were necessitated by the fact that the ADF statistics has limitations of lower power and it tends to under-reject the null hypothesis of unit root (Wilson & Sheefeni, 2014). The results of the unit root test in the level form and first difference are presented in Figure 4.13 below. The tables show that the series were found to be non-stationary in level form. The P-value is significant ($P < 0.05$) we reject null hypothesis (H_0 : there is a unit root \rightarrow not stationary). The output on other variables reveals that the series are not stationary in level form.

Figure 4.13 DGP VS Year

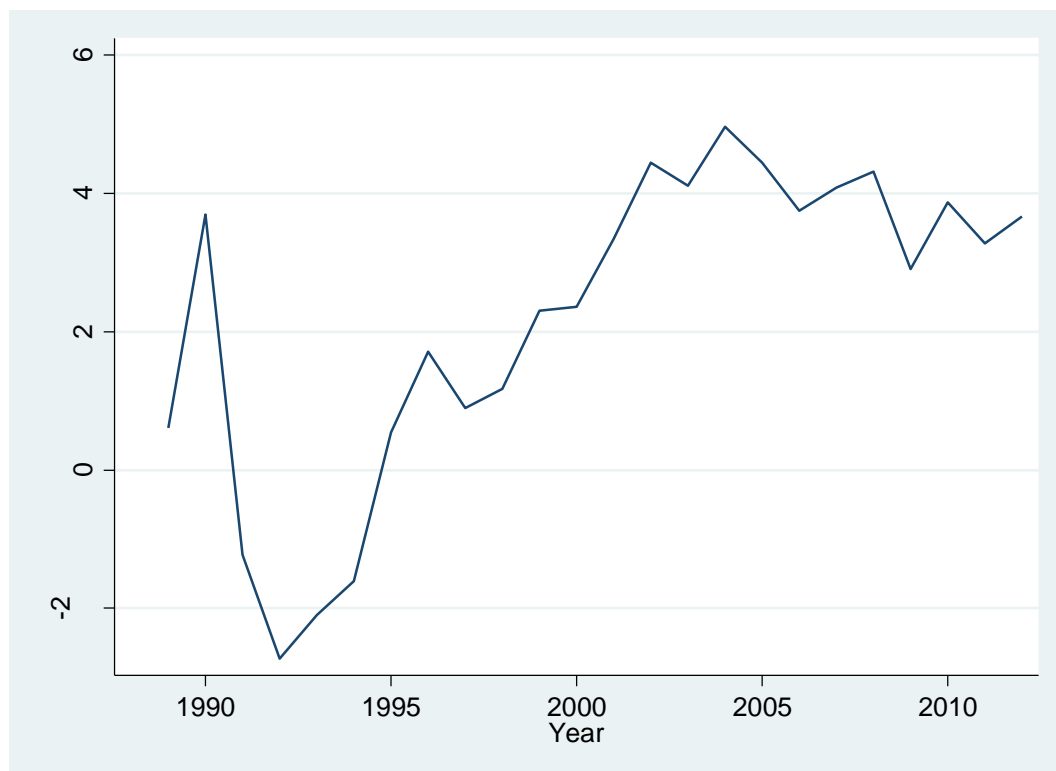


Table 4.10 Unit root test by using dickey fuller for five variables

Dickey-Fuller test for unit root Number of obs = 23

	Test Statistic	Interpolated Dickey-Fuller		
		1% Critical Value	5% Critical Value	10% Critical Value
Z(t)	-1.627	-3.750	-3.000	-2.630

Mackinnon approximate p-value for Z(t) = 0.4691

Table 4.11 Unit root for Gross Domestic Product (GDP) at level

Dickey-Fuller test for unit root Number of obs = 22

	Test Statistic	Interpolated Dickey-Fuller		
		1% Critical Value	5% Critical Value	10% Critical Value
Z(t)	-5.765	-3.750	-3.000	-2.630

Mackinnon approximate p-value for Z(t) = 0.0000

Table 4.12 There is no unit root for Gross Domestic Product (GDP) at first difference

Dickey-Fuller test for unit root Number of obs = 24

	Test Statistic	Interpolated Dickey-Fuller		
		1% Critical Value	5% Critical Value	10% Critical Value
Z(t)	-1.570	-3.750	-3.000	-2.630

Mackinnon approximate p-value for Z(t) = 0.4987

Table 4.13 There is a unit root for Domestic Credit provided by Banking Sector at level

Dickey-Fuller test for unit root		Number of obs = 23		
	Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
Interpolated Dickey-Fuller				
z(t)	-7.560	-3.750	-3.000	-2.630
Mackinnon approximate p-value for z(t) = 0.0000				

Table 4.14 There is no unit root for Domestic Credit provided by Banking Sector at first difference

Dickey-Fuller test for unit root		Number of obs = 23		
	Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
Interpolated Dickey-Fuller				
z(t)	-1.189	-3.750	-3.000	-2.630
Mackinnon approximate p-value for z(t) = 0.6782				

Table 4.15 There is a unit root for Gross Domestic Saving at level

Dickey-Fuller test for unit root		Number of obs = 22		
	Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
Interpolated Dickey-Fuller				
z(t)	-5.889	-3.750	-3.000	-2.630
Mackinnon approximate p-value for z(t) = 0.0000				

Table 4.16 There is no unit root for Gross Domestic Saving at first difference

Dickey-Fuller test for unit root Number of obs = 23

	Test Statistic	Interpolated Dickey-Fuller		
		1% Critical Value	5% Critical Value	10% Critical Value
z(t)	-1.006	-3.750	-3.000	-2.630

Mackinnon approximate p-value for z(t) = 0.7511

Table 4.17 There is a unit root for Trade at level

Dickey-Fuller test for unit root Number of obs = 22

	Test Statistic	Interpolated Dickey-Fuller		
		1% Critical Value	5% Critical Value	10% Critical Value
z(t)	-3.651	-3.750	-3.000	-2.630

Mackinnon approximate p-value for z(t) = 0.0049

Table 4.18 There is no unit root for Trade at first difference

Dickey-Fuller test for unit root Number of obs = 24

	Test Statistic	Interpolated Dickey-Fuller		
		1% Critical Value	5% Critical Value	10% Critical Value
z(t)	-1.690	-3.750	-3.000	-2.630

Mackinnon approximate p-value for z(t) = 0.4363

Table 4.19 There is a unit root for Inflation at level

Dickey-Fuller test for unit root Number of obs = 23

	Test Statistic	Interpolated Dickey-Fuller		
		1% Critical Value	5% Critical Value	10% Critical Value
$z(t)$	-4.967	-3.750	-3.000	-2.630

Mackinnon approximate p-value for $z(t)$ = 0.0000

There is no unit root for Inflation at first difference

Figure 4.14 DGP VS Year

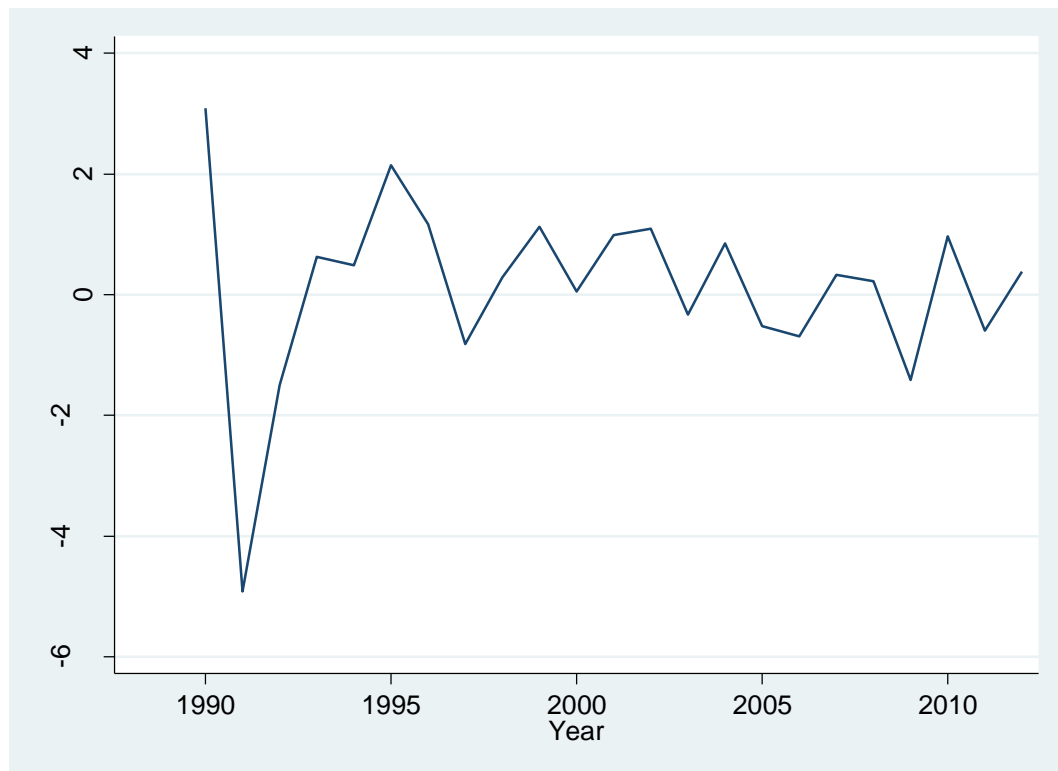


Figure 4.15 DCPBS VS Year

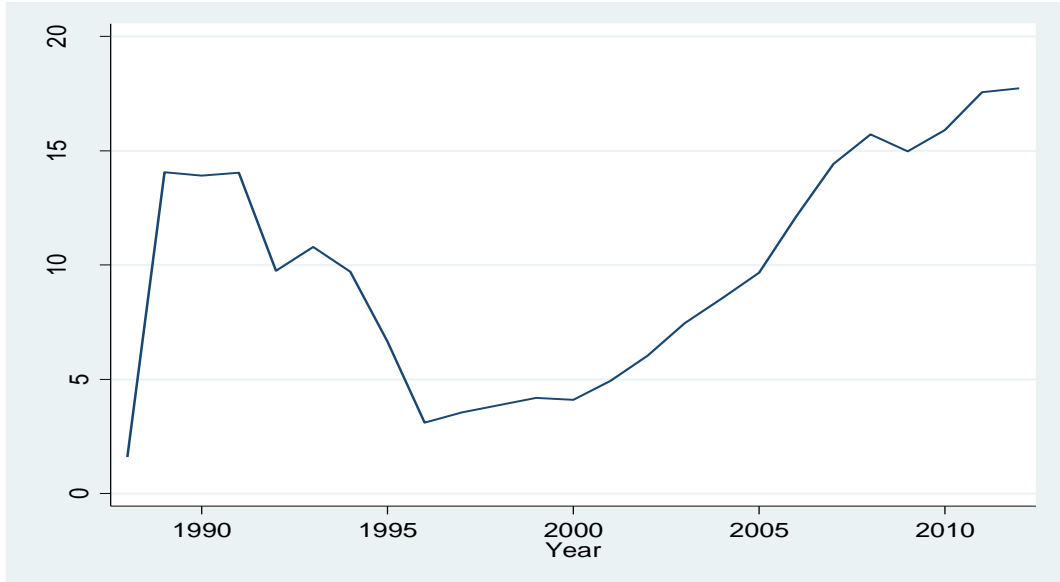


Figure 4.16 GDS VS Year

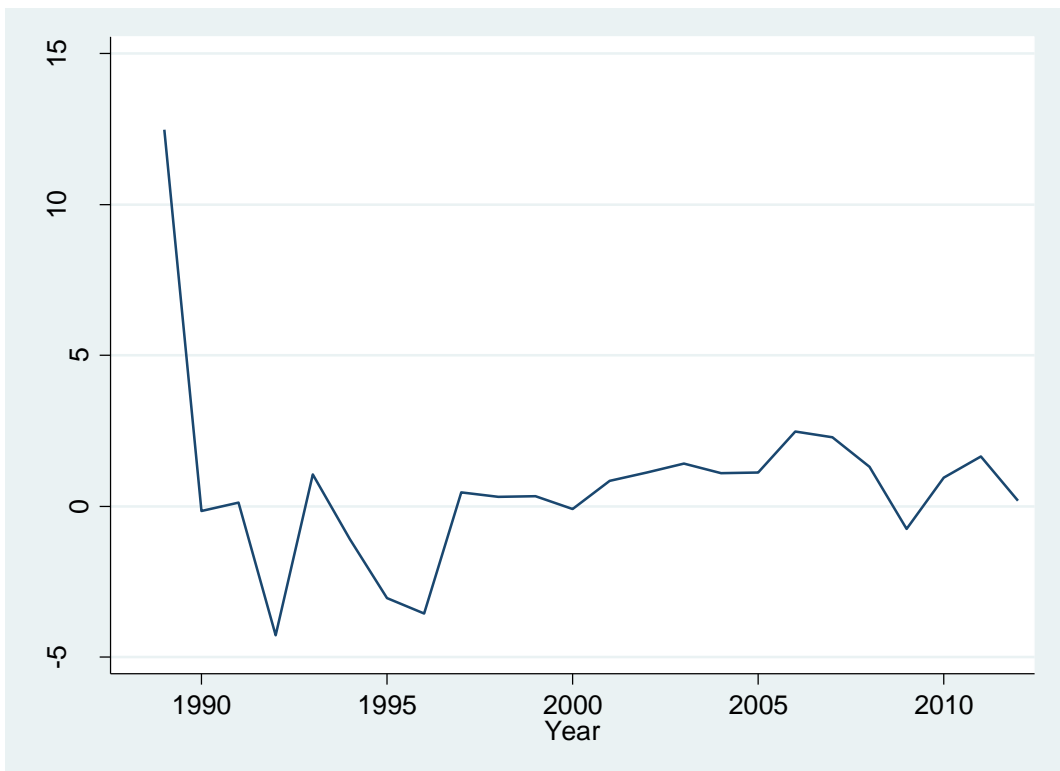


Figure 4.17 GDS VS Year

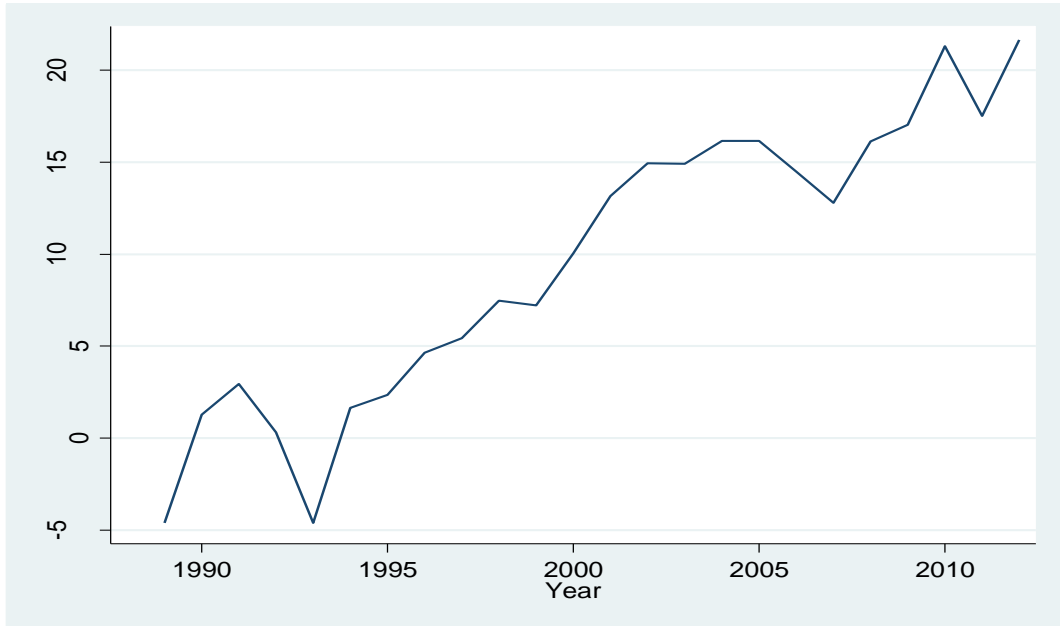


Figure 4.18 GDS VS Year

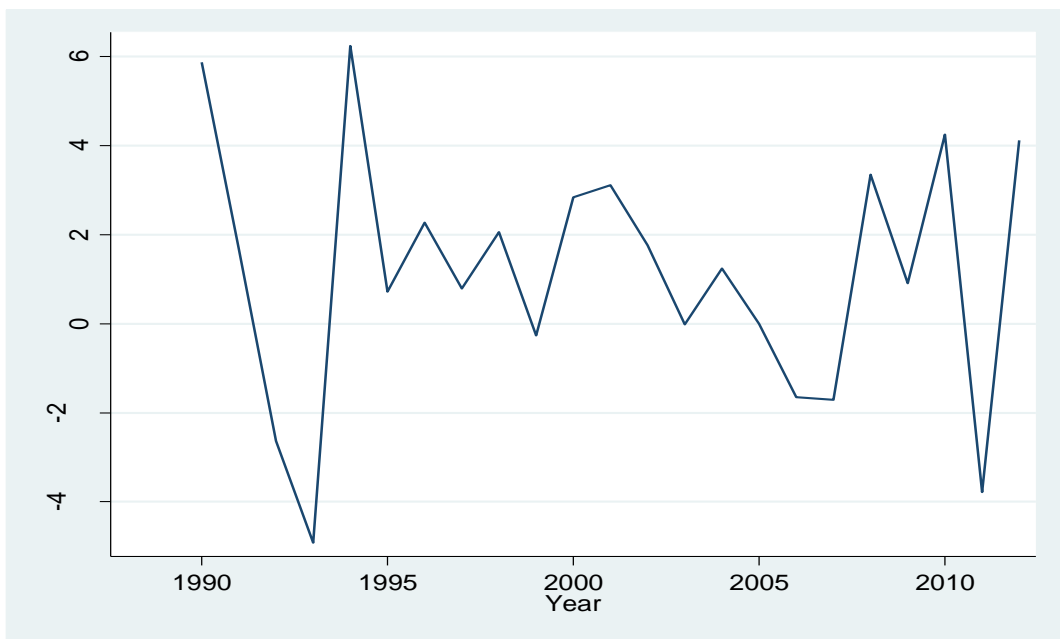


Figure 4.19 Trade VS Year

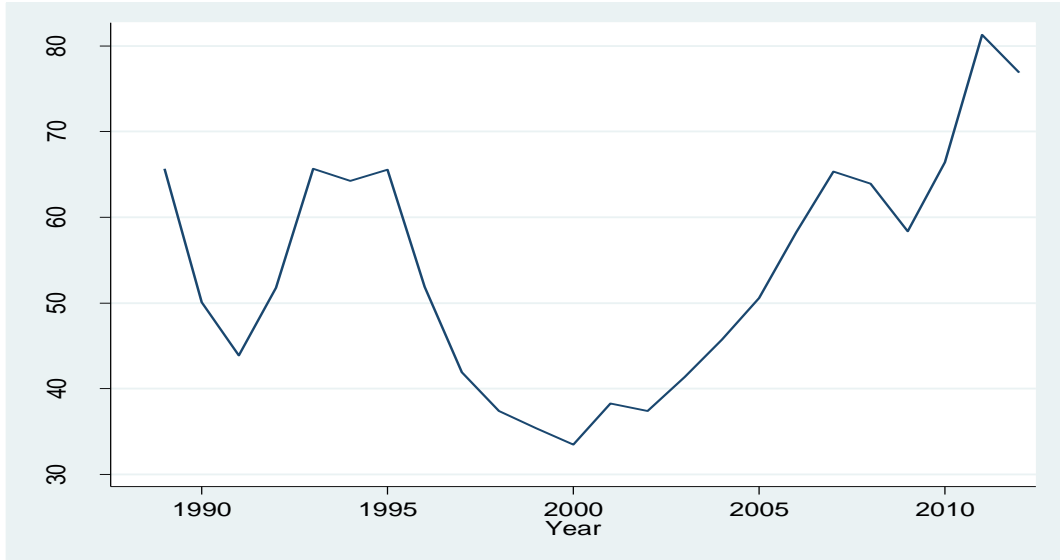


Figure 4.20 Trade VS Year

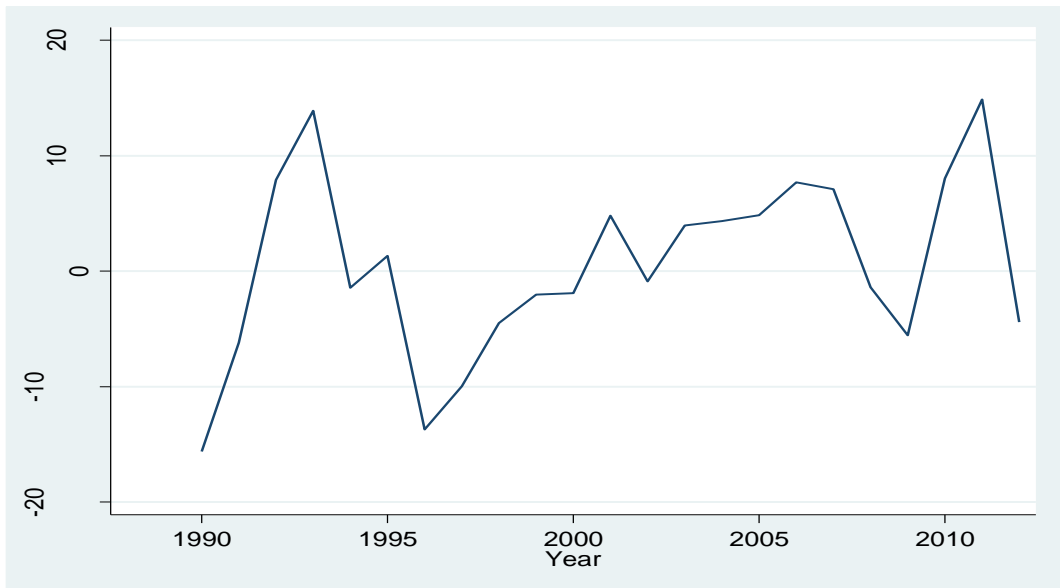


Figure 4.21 Inflation VS Year

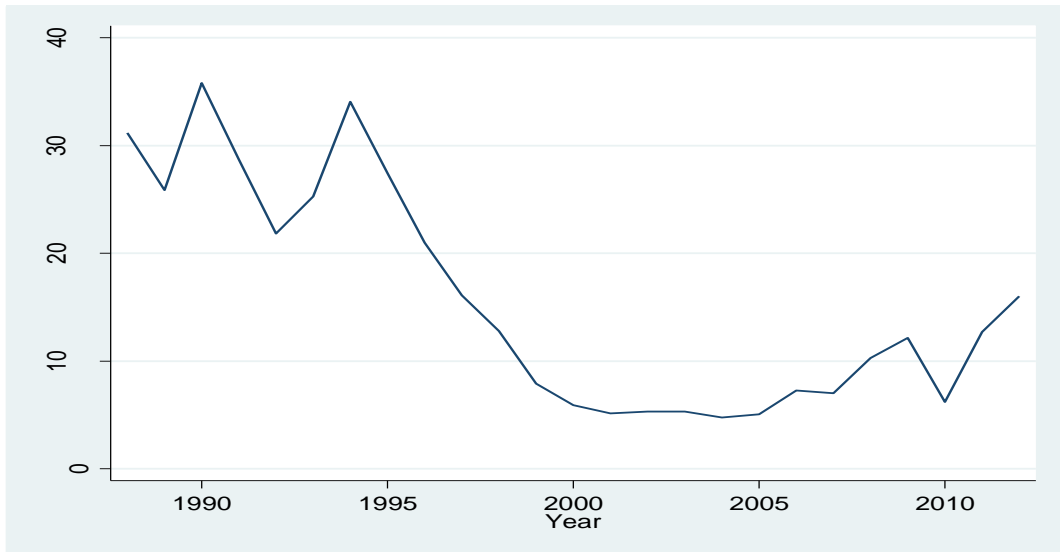
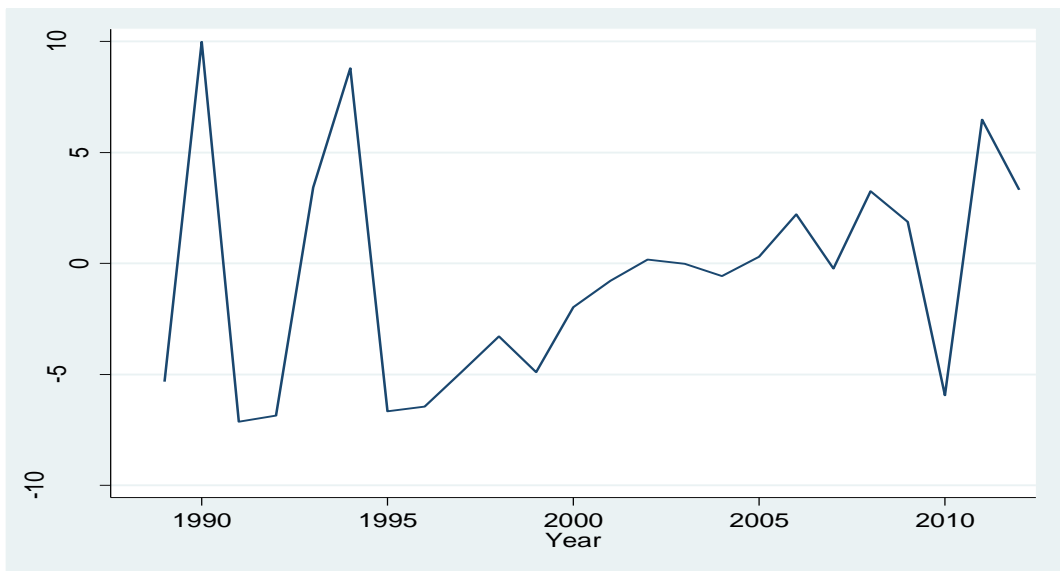


Figure 4.22 Inflation VS Year



4.4 Testing of Long run relationship in our model by checking cointegration

4.4.1 Vector error correction model

Vector error correction model was suitable for identification of short run and long run causality among the variables and we applied VECM after we had confirmed that cointegration exists among the variables meaning that long run relationship exists among the variables. The VECM results showed that long run and short run causality among the variables exists, as shown below.

At rank 0 there is no cointegration among variable, alternative there is cointegration.

At rank 1, 2, 3,4,5,6 Null hypothesis, there is cointegration; alternative, there is no cointegration. Therefore cointegration is at rank 2 indicated by star, see below 4.8.2.

4.4.2 Test for short run in vecm

```
. test ([D_gdppercapitagrowthannual])

( 1) [D_gdppercapitagrowthannual]L._ce1 = 0
( 2) [D_gdppercapitagrowthannual]LD.gdppercapitagrowthannual = 0
( 3) [D_gdppercapitagrowthannual]LD.dcpbsofgdp = 0
( 4) [D_gdppercapitagrowthannual]LD.gdssavingsofgdp = 0
( 5) [D_gdppercapitagrowthannual]LD.tradeofgdp = 0
( 6) [D_gdppercapitagrowthannual]LD.inflationconsumerpricesannual = 0

      chi2( 6) = 49.30
      Prob > chi2 = 0.0000
```

Prob > chi2 = 0.0000

. test ([D_dcpbsofgdp])

- (1) [D_dcpbsofgdp]L._ce1 = 0
- (2) [D_dcpbsofgdp]LD.gdppercapitagrowthannual = 0
- (3) [D_dcpbsofgdp]LD.dcpbsofgdp = 0
- (4) [D_dcpbsofgdp]LD.gdssavingsofgdp = 0
- (5) [D_dcpbsofgdp]LD.tradeofgdp = 0
- (6) [D_dcpbsofgdp]LD.inflationconsumerpricesannual = 0

chi2(6) = 4.72
Prob > chi2 = 0.5796

Table 4.20 Vector error-correction model

Vector error-correction model

Sample: 1991 - 2012
 Log likelihood = -188.9357
 Det(Sigma_ml) = 19.81789

No. of obs = 22
 AIC = 20.72143
 HQIC = 21.17705
 SBIC = 22.65555

Equation	Parms	RMSE	R-sq	chi2	P>chi2
D_gdpper capita~1	7	.812747	0.7667	49.30284	0.0000
D_dcpbsofgdp	7	1.82897	0.2472	4.925258	0.6691
D_gdssavings~p	7	2.21086	0.5762	20.39714	0.0048
D_tradeofgdp	7	6.14408	0.5039	15.2336	0.0331
D_inflationcom~1	7	2.93304	0.7094	36.62499	0.0000

	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
D_gdpper ca~1 _cel L1.	-.6703992	.1209848	-5.54	0.000	-.907525	-.4332734
gdpper capi~1 LD.	-.1427944	.124761	-1.14	0.252	-.3873216	.1017327
dcpbsofgdp LD.	-.0975605	.1194775	-0.82	0.414	-.3317321	.136611
gdssavings~p LD.	.1438896	.0889477	1.62	0.106	-.0304446	.3182239
tradeofgdp LD.	-.0037236	.0367002	-0.10	0.919	-.0756546	.0682074
inflationc~1 LD.	.0989246	.0480073	2.06	0.039	.0048322	.1930171
_cons	-.6809855	.2296739	-2.97	0.003	-1.131138	-.2308329
D_dcpbsofgdp _cel L1.	-.1570423	.2722589	-0.58	0.564	-.69066	.3765754
gdpper capi~1 LD.	.3461846	.2807569	1.23	0.218	-.2040887	.896458
dcpbsofgdp LD.	.427235	.2688669	1.59	0.112	-.0997346	.9542045
gdssavings~p LD.	-.1001419	.200164	-0.50	0.617	-.4924561	.2921724
tradeofgdp LD.	-.025836	.0825885	-0.31	0.754	-.1877064	.1360344
inflationc~1 LD.	-.0305703	.1080335	-0.28	0.777	-.2423119	.1811714
_cons	.0176847	.5168483	0.03	0.973	-.9953195	1.030689
D_gdssavin~p _cel L1.	-.5229435	.3291071	-1.59	0.112	-1.167982	.1220946
gdpper capi~1 LD.	.614924	.3393794	1.81	0.070	-.0502474	1.280096
dcpbsofgdp LD.	.3160697	.3250069	0.97	0.331	-.3209321	.9530715

D_dcpbsofgdp _ce1 L1.	-.1570423	.2722589	-0.58	0.564	-.69066	.3765754
gdpper capi~1 LD.	.3461846	.2807569	1.23	0.218	-.2040887	.896458
dcpbsofgdp LD.	.427235	.2688669	1.59	0.112	-.0997346	.9542045
gdssavings~p LD.	-.1001419	.200164	-0.50	0.617	-.4924561	.2921724
tradeofgdp LD.	-.025836	.0825885	-0.31	0.754	-.1877064	.1360344
inflationc~1 LD.	-.0305703	.1080335	-0.28	0.777	-.2423119	.1811714
_cons	.0176847	.5168483	0.03	0.973	-.9953195	1.030689
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dcpbsofgdp LD.	.427235	.2688669	1.59	0.112	-.0997346	.9542045
gdssavings~p LD.	-.1001419	.200164	-0.50	0.617	-.4924561	.2921724
tradeofgdp LD.	-.025836	.0825885	-0.31	0.754	-.1877064	.1360344
inflationc~1 LD.	-.0305703	.1080335	-0.28	0.777	-.2423119	.1811714
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gdpper capi~1 LD.	.614924	.3393794	1.81	0.070	-.0502474	1.280096
dcpbsofgdp LD.	.3160697	.3250069	0.97	0.331	-.3209321	.9530715
gdssavings~p LD.	-.5754768	.2419587	-2.38	0.017	-1.049707	-.1012465
tradeofgdp LD.	-.2446622	.0998331	-2.45	0.014	-.4403315	-.0489929
inflationc~1 LD.	.3047149	.1305911	2.33	0.020	.0487611	.5606687
_cons	1.242775	.6247673	1.99	0.047	.0182537	2.467296
D_tradeofgdp _ce1 L1.	.415311	.914602	0.45	0.650	-1.377276	2.207898
gdpper capi~1 LD.	-2.615759	.9431492	-2.77	0.006	-4.464298	-.7672206

Table 4.21 Autoregression

gdssavings~p						
L1.	-.209899	.1116473	-1.88	0.060	-.4287237	.0089257
L2.	.1981191	.1673874	1.18	0.237	-.1299542	.5261924
tradeofgdp						
L1.	-.0924651	.071524	-1.29	0.196	-.2326496	.0477193
L2.	.0510465	.0587078	0.87	0.385	-.0640187	.1661116
inflationc~l						
L1.	-.0708853	.0939064	-0.75	0.450	-.2549384	.1131678
L2.	-.1177312	.063212	-1.86	0.063	-.2416244	.0061621
_cons	4.111302	1.511456	2.72	0.007	1.148903	7.073702
<hr/>						
gdssavings~p						
gdpper capi~l						
L1.	.0297471	.4016555	0.07	0.941	-.7574833	.8169774
L2.	-.7168428	.6298724	-1.14	0.255	-1.95137	.5176845
dcpbsofgdp						
L1.	.4360882	.4416083	0.99	0.323	-.4294482	1.301625
L2.	-.5795386	.4190908	-1.38	0.167	-1.400941	.2418643
gdssavings~p						
L1.	.4462892	.211019	2.11	0.034	.0326996	.8598789
L2.	.5550974	.3163707	1.75	0.079	-.0649777	1.175172
tradeofgdp						
L1.	-.1790228	.1351839	-1.32	0.185	-.4439784	.0859329
L2.	.2755826	.1109607	2.48	0.013	.0581036	.4930615
inflationc~l						
L1.	.10609	.1774878	0.60	0.550	-.2417796	.4539597
L2.	-.2480086	.1194739	-2.08	0.038	-.4821731	-.0138442

Given that error correction term coefficient was negative-0.6703992 and statistically significant p-value 0.000 meaning long run causality exists in VECM model. The overall decision of the model, there is short run as well as long run causality running from inflation, Trade, Gross Domestic Saving and Domestic credit provided by banking sector.

Table 4.22 Granger causality Wald test

. vargranger

Granger causality wald tests

Equation	Excluded	chi2	df	Prob > chi2
gdppercapitagro~1	dcpbsofgdp	20.464	2	0.000
gdppercapitagro~1	gdssavingsofgdp	9.519	2	0.009
gdppercapitagro~1	tradeofgdp	4.9316	2	0.085
gdppercapitagro~1	inflationconsum~1	5.013	2	0.082
gdppercapitagro~1	ALL	91.697	8	0.000
dcpbsofgdp	gdppercapitagro~1	2.5785	2	0.275
dcpbsofgdp	gdssavingsofgdp	3.8505	2	0.146
dcpbsofgdp	tradeofgdp	1.7471	2	0.417
dcpbsofgdp	inflationconsum~1	5.4013	2	0.067
dcpbsofgdp	ALL	41.455	8	0.000
gdssavingsofgdp	gdppercapitagro~1	1.2977	2	0.523
gdssavingsofgdp	dcpbsofgdp	2.234	2	0.327
gdssavingsofgdp	tradeofgdp	7.3923	2	0.025
gdssavingsofgdp	inflationconsum~1	4.3106	2	0.116
gdssavingsofgdp	ALL	23.377	8	0.003
tradeofgdp	gdppercapitagro~1	8.6956	2	0.013
tradeofgdp	dcpbsofgdp	13.941	2	0.001
tradeofgdp	gdssavingsofgdp	5.8903	2	0.053
tradeofgdp	inflationconsum~1	.2992	2	0.861
tradeofgdp	ALL	47.235	8	0.000
inflationconsum~1	gdppercapitagro~1	1.6492	2	0.438
inflationconsum~1	dcpbsofgdp	8.9699	2	0.011
inflationconsum~1	gdssavingsofgdp	5.5416	2	0.063
inflationconsum~1	tradeofgdp	3.9799	2	0.137
inflationconsum~1	ALL	71.266	8	0.000

CHAPTER FIVE

DISCUSSION OF THE FINDINGS

5.1 Introduction

This chapter presents a critical discussion of the overall study. It links the theoretical and empirical issues from the literature to the research findings. From the discussion, arguments are made to emphasise the significance and contributions of the study. Moreover, the chapter highlights and explains the major limitations of the study and the underlying implications of the results. The chapter is organised as follows: section 5.1 gives general reflection of the study, explains limitations, significance and contribution of the study. Discussions about GDP with DCPBS, GDS, Trade and Inflation are made in section 5.2.

5.2 Reflection and contributions

This study examined whether economic growth and financial developments are related in Tanzania. It was established that the Tanzania financial development has been undergoing liberalisation reform since 1980. The review of the existing literature was able to identify the research gap by envisaging unlimited knowledge about economic growth and liberalisation of financial development in Tanzania. Consequently, this study was justified and specific objectives were defined. Given the significance of financial reform, the focus was on contribution the financial sector to Tanzania GDP after reform in 1988 and how liberalisation reform affected Gross domestic product.

Apart from data availability, the analysis of quantitative data was also exposed to some technical limitations. The first aspect here was stationarity condition. In performing VECM (see chapter four) it was necessary that all series be integrated in the same order. However, there were limitations on GDP, DCPBS, Trade, GDS and Inflation which were required to go to first derivative.

For the intended sample (1988 -2012) the tests concluded that there is a long run causality running from Gross Domestic Product as dependent variable to independent variables which are Domestic Credit provided by Banking Sector, Gross Domestic Saving, Trade and Inflation.

5.3 Econometric result for Normality

The finding started by checking normality of the data in chapter four, the data were normal according to Kdensity and Shapiro wilk w test. Also, I went on checking multicollinearity of data some variables had maximum value inflated factor (vif) which were Broad Money that had 18.09, Trade had 12.80, Gross domestic saving had 11.12 and domestic credit provided by finance sector had 10.56. in normal situation all these should be dropped to reduce multicollinearity.

Researcher decided to drop Domestic credit provided by finance sector, Money, and Government expenditure in order to reduce multicollinearity in the data because multicollinearity provides linear relationship between independent variables and their consequence is that as the degree of multicollinearity increases, the regression model estimates of the coefficients becomes unstable and the standard error for the coefficients can get wildly inflated.

5.4 Econometric result for Linktest and ovttest

The Linktest was used to confirm if the model is well specified, because the created variable one was significant and another was insignificant which were $\hat{\beta}$ 0.032 and $\hat{\beta}^2$ 0.900 respectively. Although the model is well specified we should test the model by using ovttest to check the omitted variable might have an impact to the model, the result was that there were no omitted variables because the Null said, model has no omitted variable if it is insignificant. The study got Prob >F=0.6906 which is insignificant therefore we accept null.

5.5 Econometric result for autocorrelation

The serial correlation was tested to the data by using estat bgodfrey and the result was found that there is no serial correlation, also the researcher tested on autoregressive conditional heteroscedasticity and found no serial correlation.

5.6 Econometric result for outlier

Outlier was used to test if one or two observations are outside the data range, from chapter four you can see there is no observation outside the data range.

5.6.1 R-Square

Explanatory power of the variables is also strong as evident by R-squared and adjusted R-squared which have respective values of 0.6729 and 0.6041. Explanatory power means the growth in GDP is significantly explained by the independent variables incorporated in the model. Adjusted R-squared is a more conservative estimate of the percent of variance explained.

5.6.2 Trade

One unit of Trade contributes -0.0266 of Gross Domestic Product although it is statistically insignificant $P > |t| = 0.465$

This means that the Trade contributes inversely to the GDP, when one unit of Trade increases there is decrease of one unit of GDP. People prefer to use imported goods rather than local products which cause low production and input in national productivity. Therefore, for the period under study trade openness negatively affected the GDP growth for Tanzania.

Al-Awad et al. (2005) argue that value of goods is taken as a proxy for trade openness, which has negative significant impact on per capita GDP growth. This indicates that as trade barriers are relaxed it causes to negatively affect the GDP; the possible reason is that imports of consumer goods dominate the capital goods and exports in monetary terms.

Levine et al. (2000) argue that theoretically, the effects of trade can be negative and positive; as such the net effects can only be determined empirically. The exchange rate variable has been introduced to capture the price distortion effects it may have on the economy. The nominal exchange rate is used.

5.6.3 Inflation

One unit of Inflation contributes -0.0334 of Gross Domestic Product although it is statistically insignificant $P > |t| = 0.58$.

The inflation rate and size of government expenditure are commonly used as indicators of macroeconomic stability. Easterly et al. (1993); Fischer et al. (1993); Allen et al. (1998) contend that high inflation distorts economic activity and reduces investment in productive enterprises, thus reducing economic growth. Government expenditure could reduce economic growth because of the crowding out effect on private investment and the inflation.

5.6.4 Domestic Credit Provided by Banking Sector

One unit of domestic credit provided by Banking sector contributes 0.00519 of Gross Domestic Product although is statistically insignificant $P > |t| = 0.632$

Loans to the private sector are given under more stringent conditions and that the improved quality of investment emanating from financial intermediaries' evaluation of project viability is more significant for private sector credits.

Arestis et al. (2001) argue that even though both banks and stock markets could promote economic growth, the effects of banks are far more significant especially in the least developing economies. Following this conclusion, bank-based measures of FSD will be used. The study uses bank private credit to GDP which is credit extended to the private sector by commercial banks. Banks comprise commercial banks and other financial institutions that accept transferable deposits, such as demand deposits. This proxy is a measure of size and does not only isolate credit to the private sector but also excludes credit to government (Levine et al., 2000).

Also, it does not only generate increases in investment, it also increases productivity to a much larger extent than credits to the public sector since loans are given under more stringent conditions motivated by profits drives (Levine et al.,1998).

Levine (1997) contends that domestic credit is provided by the banking sector as a percentage of GDP (DCBS). Higher DCBS indicates a higher degree of dependence upon the banking sector for financing. In other words, higher DCBS implies higher FD because banks are more likely to provide the five financial functions.

Gross Domestic Saving

One unit of Gross domestic saving contributes 0.1977 of Gross Domestic Product; it is statistically significant $P > |t| = 0.019$. Converting savings to investment is one channel through which financial deepening affects growth. McKinnon (1973) and Shaw (1973) argue that a higher Gross Domestic Saving resulting from a positive real interest rate stimulates investment and growth

5.7 Cointegration econometric result

The first step of the ARDL bounds analysis is to investigate presence of long-run relation among the variables included in model 1. The model was estimated by OLS for each proxy for financial development and the optimal lag was selected by Akaike Information criterion (AIC) method and Schwarz Bayesian Information criterion (SBI).

Unit root test by dfuller variable by using **residual** found there is cointegration, means time series tend to move together **Prob>z(t)=0.000**.

Ang (2008) finds that an efficient financial system positively contributes to economic growth. At the beginning of the 1990s, the endogenous growth literature stresses the significance of finance development. N' Zue (2006), when cointegration exists, the Engle-Granger Theorem establishes the encompassing power of the ECM over other forms of dynamic specification.

- At level Gross domestic Product is insignificant but after first derivative is significant. This means that the GDP of one year before can be used to predict the

current year GDP, if we differentiate at one derivative we get it significant for GDP to be in a unit root.

- At level Domestic Credit Provided by Banking Sector is insignificant but after first derivative is significant. This means that the DCPBS data of one year before can be used to predict the current year DCPBS, if we differentiate at one derivative we get it significant for DCPBS to be in a unit root.
- At level Gross Domestic Saving is insignificant but after first derivative is significant. This means that the GDS data of one year before can be used to predict the current year GDP, if we differentiate at one derivative we get it significant for GDS to be in a unit root.
- At level Trade is insignificant but after first derivative is significant. This means that the Trade data of one year before can be used to predict the current year Trade, if we differentiate at one derivative we get it significant for Trade to be in a unit root
- At level Inflation is insignificant but after first derivative is significant. This means that the Inflation data of one year before can be used to predict the current year Inflation, if we differentiate at one derivative we get it significant for Inflation to be in a unit root.

For this case the all five variables had a unit root in first difference, this gave the researcher the right time to continue with other tests such as Vector error correlation model (VECM). Vector autoregressive, (VAR) and Vargranger.

5.8 Econometric result for Vector error correlation model (VECM)

5.8.1 Long run for vecm

The vector error correlation model test by **vecm** shows that it significant(0.000) and coefficient is **negative (-0.6703)** there is long run causality running from Gross Domestic Product (GDP) to Domestic credit provided by Banking sector (DCPBS), Gross domestic saving (GDS), Trade and inflation, this means that all variables influence GDP at long run.

5.9 Econometric result for Vargranger

Levine et al. (2000) support the supply-leading phenomenon. On the other hand, the demand-following hypothesis postulates a causal relationship from economic growth to financial development. Here, an increasing demand for financial services might induce an expansion in the financial sector as the real economy grows.

Evidence suggests that financial development has a positive effect on economic growth. Odedokun (1996) and Spears (1992) find that aggregate measures of financial intermediation have positive and statistically significant effects on the growth rate of real per capita GDP

Allen et al., (2000) find similar results in the case of the Southern African Development Community. Gelbard et al.,(1999) also find results that suggest a positive and statistically significant link between real per capita GDP growth and their indices of financial development. They find that both the level of initial financial development and the change in the overall financial development index between 1987 and 1997 are positively and significantly related to economic growth.

5.9.1 Gross Domestic Product (GDP) as Dependent variable

The Null hypothesis for Granger causality wald tests indicate that H_0 : Lagged DCPBS of GDP does not cause GDP per capita, H_a : Lagged DCPBS of GDP does cause GDP per capita, the finding shows that it is statistically significant at $\text{Prob} > \text{Chi}^2 = 0.000$ means that, we reject Null hypothesis and accept the alternative, Lagged DCPBS does cause GDP.

The Null hypothesis for Granger causality wald tests indicate that H_0 : Lagged GDS of GDP does not cause GDP per capita, H_a : Lagged GDS of GDP does cause GDP per capita, the finding shows that it is statistically significant at $\text{Prob} > \text{Chi}^2 = 0.009$ which means that, we reject Null hypothesis and accept the alternative, Lagged GDS does cause GDP.

The Null hypothesis for Granger causality wald tests indicate that Ho: Lagged Trade of GDP does not cause GDP per capita, Ha: Lagged Trade of GDP does cause GDP per capita, the finding shows that it is statistically insignificant at $\text{Prob} > \text{Chi}^2 = 0.085$ means that, we accept Null hypothesis and reject the alternative, Lagged Trade does not cause GDP.

All lagged DCPBS, GDS, Trade, and Inflation does cause GDP per capita as alternative Null because it is statistically significant.

5.9.2 Domestic Credit provided by Banking Sector (DCPBS) as Dependent variable

The Null hypothesis for Granger causality wald tests indicate that Ho: Lagged GDP does not cause DCPBS per capita, Ha: Lagged GDP does cause DCPBS per capita, the finding shows that it is statistically insignificant at $\text{Prob} > \text{Chi}^2 = 0.275$ means that, we accept Null hypothesis and reject the alternative, Lagged GDP does not cause DCPBS.

The Null hypothesis for Granger causality wald tests indicate that Ho: Lagged GDS does not cause DCPBS per capita, Ha: Lagged GDS does cause DCPBS per capita, the finding shows that it is statistically insignificant at $\text{Prob} > \text{Chi}^2 = 0.146$ means that, we accept Null hypothesis and reject the alternative, Lagged GDS does not cause DCPBS.

The Null hypothesis for Granger causality wald tests indicate that Ho: Lagged Trade does not cause DCPBS per capital, Ha: Lagged Trade does cause DCPBS per capital, the finding shows that it is statistically insignificant at $\text{Prob} > \text{Chi}^2 = 0.417$ means that, we accept Null hypothesis and reject the alternative, Lagged Trade does not cause DCPBS.

The Null hypothesis for Granger causality wald tests indicate that Ho: Lagged Inflation does not cause DCPBS per capita, Ha: Lagged Inflation does cause DCPBS per capita, the finding shows that it is statistically insignificant at $\text{Prob} > \text{Chi}^2 = 0.067$ means that, we accept Null hypothesis and reject the alternative, Lagged inflation does not cause DCPBS.

All lagged GDP, GDS, Trade, and Inflation does cause DCPBS per capita as alternative Null because it is statistically significant.

5.9.3 Gross Domestic Saving (GDS) as Dependent variable

The Null hypothesis for Granger causality wald tests indicate that Ho: Lagged GDP does not caused GDS per capita, Ha: Lagged GDP does cause GDS per capita, the finding shows that it is statistically insignificant at $\text{Prob}>\text{Chi}2 = 0.523$ means that, we accept Null hypothesis and reject the alternative, Lagged GDP does not cause GDS.

The Null hypothesis for Granger causality Wald tests indicate that Ho: Lagged DCPBS does not cause GDS per capita, Ha: Lagged DCPBS does cause GDS per capita, the finding shows that it is statistically insignificant at $\text{Prob}>\text{Chi}2 = 0.327$ means that, we accept Null hypothesis and reject the alternative, Lagged DCPBS does not cause GDS.

The Null hypothesis for Granger causality wald tests indicate that Ho: Lagged Trade does not cause GDS per capita, Ha: Lagged Trade does cause GDS per capita, the finding shows that it is statistically insignificant at $\text{Prob}>\text{Chi}2 = 0.025$ means that, we reject Null hypothesis and accept the alternative, Lagged Trade does cause GDS.

The Null hypothesis for Granger causality wald tests indicate that Ho: Lagged Inflation does not cause GDS per capita, Ha: Lagged Inflation does cause GDS per capita, the finding shows that it is statistically insignificant at $\text{Prob}>\text{Chi}2 = 0.116$ means that, we accept Null hypothesis and reject the alternative, Lagged Inflation does not cause GDS.

All lagged GDP, DCPBS, Trade, and Inflation does cause GDS per capita as alternative Null because it is statistically significant.

5.9.4 Trade as Dependent variable

The Null hypothesis for Granger causality wald tests indicate that Ho: Lagged GDP does not cause Trade per capita, Ha: Lagged GDP does cause Trade per capital, the finding shows that it is statistically significant at $\text{Prob}>\text{Chi}2 = 0.013$ means that, we reject Null hypothesis and accept the alternative, Lagged GDP does cause Trade.

The Null hypothesis for Granger causality Wald tests indicate that H_0 : Lagged DCPBS does not cause Trade per capita, H_a : Lagged DCPBS does cause Trade per capital, the finding shows that it is statistically significant at $\text{Prob}>\text{Chi}^2 = 0.001$ means that, we reject Null hypothesis and accept the alternative, Lagged DCPBS does cause Trade.

The Null hypothesis for Granger causality Wald tests indicate that H_0 : Lagged GDS does not caused Trade per capita, H_a : Lagged GDS does cause Trade per capita, the finding shows that it is statistically insignificant at $\text{Prob}>\text{Chi}^2 = 0.053$ means that, we accept Null hypothesis and reject the alternative, Lagged GDS does not cause Trade.

The Null hypothesis for Granger causality Wald tests indicate that H_0 : Lagged Inflation does not cause Trade per capita, H_a : Lagged Inflation does cause Trade per capita, the finding shows that it is statistically insignificant at $\text{Prob}>\text{Chi}^2 = 0.861$ means that, we accept Null hypothesis and reject the alternative, Lagged Inflation does not cause Trade.

All lagged GDP, DCPBS, GDS, and Inflation does cause Trade per capita as alternative Null because it is statistically significant.

5.9.5 Inflation as Dependent variable

The Null hypothesis for Granger causality Wald tests indicate that H_0 : Lagged GDP does not cause Inflation per capital, H_a : Lagged GDP does cause Inflation per capita, the finding shows that it is statistically insignificant at $\text{Prob}>\text{Chi}^2 = 0.438$ means that, we accept Null hypothesis and reject the alternative, Lagged GDP does not cause Inflation.

The Null hypothesis for Granger causality Wald tests indicate that H_0 : Lagged DCPBS does not cause Inflation per capita, H_a : Lagged DCPBS does cause Inflation per capita, the finding shows that it is statistically significant at $\text{Prob}>\text{Chi}^2 = 0.011$ means that, we reject Null hypothesis and accept the alternative, Lagged DCPBS does cause Inflation.

The Null hypothesis for Granger causality Wald tests indicate that H_0 : Lagged GDS does not cause Inflation per capita, H_a : Lagged GDS does cause Inflation per capita, the finding shows that it is statistically insignificant at $\text{Prob} > \text{Chi}^2 = 0.063$ means that, we accept Null hypothesis and reject the alternative, Lagged GDS does not cause Inflation.

The Null hypothesis for Granger causality Wald tests indicate that H_0 : Lagged Trade does not cause Inflation per capita, H_a : Lagged Trade does cause Inflation per capita, the finding shows that it is statistically insignificant at $\text{Prob} > \text{Chi}^2 = 0.137$ means that, we accept Null hypothesis and reject the alternative, Lagged Trade does not cause Inflation

All lagged GDP, DCPBS, GDS, and Trade does cause Inflation per capital as alternative Null because it is statistically significant.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

This paper examined the long-run, short-run and causality analysis between financial development and economic growth in Tanzania. The study used the Augmented Dickey Fuller (ADF) statistics and the Phillips-Perron (PP) (Wilson, L and Sheefeni, J.P.S., 2014) approach for cointegration analysis to examine the presence of unit root among the variables, and the Vector Error Correction Model to investigate the short-run, long run dynamics and direction of causality between the variables economic growth and financial development. Empirical results of stationarity analysis revealed that all the variables are Stationary at level of residual.

6.2 Conclusion

Empirical results showed that there is a significant long-run equilibrium relationship among financial development and one variable host both short run and long run which is domestic credit provided by banking sector. The coefficients of VECMs were negative and statistically significant. This confirmed the existence of long-run relationship among the variables; financial development, economic growth and trade openness. Since the coefficients were significant for both cases when economic growth and when financial development acted as dependent variables respectively, the researcher can conclude that there was bi-directional causality between financial development and economic growth in Tanzania in the period of 1988 -2012 under study. This result supports both the supply leading and demand following hypotheses. The results suggest that financial development is one of the determinants of economic growth in Tanzania. It is therefore important for the government to implement policies and provide incentives for the continuation of development of the financial sector for growth of the economy. On the other hand, growth of the economy will create demand

for financial services leading to development of the financial sector; economic growth and financial development are interdependent.

Also, the results of this study are important to development policy makers; the policy makers can influence economic growth positively by setting both short-run and long-run policies that lead to the development of the financial sector. This may be in the form of increasing the number of financial institutions to enhance supply of credit to the private sector. It is notable that the development of the financial sector increases savings which feeds investment in the economy, allocates resources efficiently, and mitigates the problem of asymmetric information among other benefits.

6.3 Recommendations

Based on the findings and discussions made in chapter four and five respectively, the following recommendations are made: the government should strengthen the reforms in the financial sector which can attract investors and improve the efficiency of all production activities in the country. All these, lead to economic growth in the long-run. In addition, implementing policies that lead to economic growth will in the short-run and long-run lead to the development of the financial sector. Thus, the government should enhance macro-economic policies especially the fiscal policies, policies that attract foreign direct investment, and export promotion policies that will on average, lead to economic growth. With economic growth, demand for financial services will increase, leading to the development of the financial sector.

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