# IMPACT OF CAUSALITY RELATIONSHIP BETWEEN FINANCIAL DEVELOPMENT FUNDS AND ECONOMIC GROWTH IN TANZANIA: 1986 - 2020

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**A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS OF SCIENCE IN ECONOMICS (MSc. ECON)**

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## CERTIFICATION

The undersigned certifies that, he has read and hereby recommends for acceptance by the Open University of Tanzania a dissertation entitled: "**Impact of Causality Relationship between Financial Development Funds and Economic Growth in Tanzania: 1986 – 2020"** in partial fulfillment of the requirements for the degree of Master of Science in Economics of Open University of Tanzania (MSc-Econ).

……..……..…

Dr. Timothy Lyanga

(Supervisor)

……..……..

Date

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## DECLARATION

I, **Mkombozi Hassani Mokiwa**, do hereby declare that, the work presented in this dissertation is original. It has never been presented to any other University or Institution. Where other people's works have been used, references have been provided. It is in this regard that I declare this work as originally mine. It is hereby presented in partial fulfilment of the requirement for the Master's Degree of Economics (MSc-Econ).

……..

Signature

……

Date

## DEDICATION

This dissertation is dedicated to my dear son Mokiwa Mkombozi Mokiwa and my dear daughter Miriam Mkombozi Mokiwa

## ACKNOWLEGEMENT

However, I am grateful to my family for their financial support and encouragement they gave me to ensure this study is completed on time. I am grateful to my supervisor, Dr. Timothy Lyanga, for his guidance, support, and encouragement towards the completion of this dissertation.

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## ABSTRACT

The general objective of this study was to assess the impact of the causal relationship between financial development funds and economic growth in Tanzania from 1986 to 2020. The specific objectives were to examine in Tanzania the impact of the causal relationship between Domestic credit and economic growth, banks Government deposits and economic growth, Broad Money and economic growth. The study adopted time series design. Data were collected from Bank of Tanzania, the National Bureau of Statistics, and the World Bank. The study was guided by a model developed by Odedokun (1996) which is a modification of Neo – Classical growth theory and Financial Repression Hypothesis model McKinon (1973) and Shaw (1973). The study employed the Granger-causality method, combining four macro-economic variables in multiple causation modeling through the Auto Regressive Distributed Lag Model, since while other variables were stationary in the first difference 1(1), one variable was only stationary in the second difference 1(2), and there was cointegration within the variables. Several econometric tests were carried out to ensure the validity and reliability of the data; they included normality, multicollinearity, autocorrelation, heteroscedasticity, and unit root tests. Domestic credit revealed negative impact while Broad money and Banks Government deposit revealed positive impact to economic growth. In conclusion, there is two way causality relationships between Financial Development Funds and Economic growth in Tanzania. The study recommends that the government should design policies that will strengthen the financial sector which through intermediation will facilitate availability of fund for investment towards growth and stability of the economy.

**Keywords:** *Economic growth, Domestic Credit, Broad Money, Bank.*

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## LIST OF ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| AD-AS | Aggregate Demand and Aggregate Supply |
| ADF | Augmented Dicker Fuller |
| ADF | Augmented Dickey Fuller |
| AIC | The Akaike Information Criterion |
| ARDL | Auto Regressive Distributed Lag |
| BOT | Bank of Tanzania |
| BGD | Banks Government Deposit |
| BM3 | Broad Money |
| BVAR | Bivariate Vector Autoregressive model |
| CPI | Consumer Price Index |
| DCR | Domestic credit |
| ECM | Error-Correction Model |
| FDI | Foreign Direct Investment |
| GBD | Government Banks Deposit |
| GDP | Gross Domestic Product |
| GEXP | Government Expenditure |
| IMF | International Monetary Fund |
| MENA | Middle East and North Africa |
| MOF&P | Ministry of Finance and Planning |
| NBS | National Bureau of Statistics |
| OECD | Organization of Economic Co-corporation and Development |
| OLS | Ordinary Least Square |
| SADC | The Southern African Development Community |

| | |
|---|---|
| TDV | Tanzania Development Vision |
| VECM | Vector Error-Correction Model |

# CHAPTER ONE

# INTRODUCTION

## 1.1 Chapter Overview

This chapter presents the study background, Research problem Statement, General Objectives, Specific objectives and hypothesis. The study chapter covers as well the study Scope, Significance, Limitations and general layout.

## 1.2 Background Information of the Study

The emerging issue in the discussion in finance growth literature is the issue of direction of causality between financial development and economic growth (Chee-Keong and Chan, 2011). According to Hyera, (2016), three views exist in the literature on the causal relationship between financial development funds and economic growth, the first view is the supply leading hypothesis which argue presence of positive relationship between financial sector development and GDP per capita growth, the second view is the "demand following hypothesis a view which argues that economic growth leads to financial development and the third view is the "bi-directional causality" which assumes a positive two way causality relationship between bank-based financial development and economic growth. According to Valickova, (2012), the views are all real and neither is superior nor weak.

According to Odhiambo, (2011), majority of previous studies are made to group of countries together many being countries from Latin America, Asia and in advanced economies with few studies made to Sub - Sahara Africa. Tanzania records very limited studies in this area (Odhiambo, 2011, Fille, 2011). However, despite their bias about Sub- Sahara Africa, studies have failed to address country specific issues

(Odhiambo, 2011). In Tanzania, studies on the direction of causality between financial development and economic growth are limited (Odhiambo, 2005, 2011, Fille, 2013).

Different countries have different political and geographical financial sector development. differences, therefore, findings of research done in different countries not necessarily hold true for Tanzania. Some researchers used one financial development variable. The fact that no overall agreement on the impact of causality relationship, many studies being done to group of countries together, few researches done in Tanzania and some studies using only one financial development variable, calls for further studies to add to the literature and guide policy makers on how to handle the variables for success of the country's economy.

According to Bank of Tanzania Annual Report for year 2019 - 2020, growth of global economic activity slowed to 2.9 % in 2019 from 3.6 % in 2018 which was the weakest pace since the 2008/09 global economic crisis. The reduced growth was a result of trade tensions between USA and China, geopolitical tensions and increased social unrest caused by distinctive stress in key emerging markets in China and India.

According to IMF World economic outlook Update, April 2020**,** In Africa, sub-Saharan countries, had a slight decline in Real GDP to 3.1 % in 2019 from 3.2 % in 2018, and this was mainly due to weak performance in resource intensive countries such as Angola and Nigeria. Also, in The Southern African Development Community (SADC) countries, East African Community region recorded a real GDP

growth of 5.7 % compared with 6.0 % in 2018.

Tanzania is economically in the group of world developing countries and its economy has been growing from year 2000 to 2019, its growth rate is 7% by average (NBS, 2020). The main growth drivers were construction, agriculture, mining and quarrying, and transport and storage activities. Following good economic performance over years, the World Bank announced Tanzania to be a lower-middle income economy in July 2020, a target which was planned to be attained in 2025.

### 1.3 Statement of the Problem

According to IMF (2013), since mid 1990, Sub Sahara African countries experienced sharp break economic growth with falling in living standards and macroeconomic instability. According to Ndulu et al, (1996), in a sample of 61 countries including 32 Sub Sahar Africa countries) which are low income developing countries their average annual growth rate in real GDP per Capita declined from 1.19 percent in 1970s to about -0.99 percent in 1980s.This performance is in sharp contrast to the record of other developing countries included in a sample where average annual growth rate was 3.47 percent, 1.82 percent and 2.33 percent respectively. Weakness of the finance sector which includes concentrating mainly on banking sector is among the reasons contributed to the weak growth.

According to the World Economic forum finance report (2012), the performance and long-term economic growth and welfare of a country is related to its degree of financial development. As reported by Hyera, (2016), although

literature over more than past three decades favor supply views, studies in favour of demand following are steadily growing in number and substance. Apart from the two competing views, other views believe on bidirectional causality between financial development and economic growth, According to Vilkovia, 2012, both views are solid and neither one is strong nor weak.

In recently years in Tanzania we have witnessed sustained real GDP growth rate with substantial progress on financial sector after implementation of series of reforms, situation which poses question as to whether financial sector development in Tanzania has caused economic growth or it is economic growth which has caused financial sector development. There is no overall agreement on the impact of causality relationship between financial development funds and economic growth in Tanzania following contradicting results of work of researchers example Odhiambo (2005), Mahenge and Alkael (2010) confirmed Supply leading response, Odhiambo (2011) confirmed demand following response While Chisimbili, (2015), and Fille (2013) confirmed Bi directional relationship.

Majority of researches concentrated in countries from Latin America, Asia and in advanced economies with low coverage to Sub - Sahara African Countries at the same time Tanzania recording very limited studies. In some cases, the research was done to group of countries together example Akinlo and Egbetunde, (2010) conducted a research in 13 Subsahara African Countries, Karl etal, (2015) conducted a research in 15 Middle East/North countries, Christopolous and Tsionas, (2004) conducted a research in 10 developing countries.

The results cannot guide well policy makers because of being contradictory and being generalized (average) as countries in a group are heterogeneous including level of political, geographical and financial sector development also following only few of the researches are done in Tanzania. This study intended to close the existing knowledge and geographical gap by conducting a study in Tanzania using Domestic credit per Real GDP per capita, Banks Government deposit per Real GDP per capita and Broad Money per Real GDP per Capita as proxies for financial development and Real GDP per Capital as a proxy for economic growth using time series data for a period from 1986 to 2020. The results add to the literature and provide recommendations to the country Monetary Policies how to handle the financial sector for success of the country economy.

## 1.4 Objectives of the Research

The objectives of the research cover both general and specific objectives.

### 1.4.1 Research Main Objectives

The general objective of the research was to examine the impact of causality relationship between Financial Development Funds and Economic Growth in Tanzania from 1986 to 2020.

### 1.4.2 Research Specific Objectives

i. To examine the impact of causality relationship between Domestic credit economic growth from 1986 to 2020
ii. To examine impact of causality relationship between Banks Government Deposit and economic growth from 1986 to 2020

iii. To examine impacts of causality relationship between Broad Money and economic growth from 1986 to 2020

### 1.4.3 Research Hypothesis

$H_0$ There is no causality relationship between financial development funds and economic growth in Tanzania.

$H_1$ There is causality relationsh

## 1.5 Significance of the Study

To the Government side, the study widens the understanding of financial development variables and factors that are likely to affect them, as the financial development variables affects economic growth, the study guides the government on how to treat the financial system towards economic growth and generally attainment of Tanzania Development Vision (TDV) - 2025. For the Community, understanding of the financial Development system and factors influencing it, provide guidance on how to act against the constraints to achieve their development objectives.

For Researchers, the study has added to the existing literature, also provides area for further studies. The study guides policy makers on how to handle the financial system towards economic growth and overall attainment of Tanzania Development Vision-2025. To others, the study provides the current information on the factors affecting the financial system and how to mitigate them towards economic growth.

## 1.6 Scope of the Study

The study covered a period from 1986 to 2020. The Financial Development variables studied are Domestic credit, Banks government deposit and Broad Money as proxies

for financial development and Real Gross Domestic Product per Capita as a proxy for economic growth. The study was conducted using secondary data from Tanzania National Bureau of Statistics (NBS), Bank of Tanzania (BOT) and Ministry of Finance and Planning (MOF&P).

### 1.7 Challenges Encountered In Conducting the Study

Results of this study will be used to influence policies governing the whole country, therefore consumed much resources in terms of time, knowledge and finance to carefully analyze and interpret the results.

### 1.8 Arrangements of the Study

The study is organized into five chapters: Chapter one which covers study background, Research problem statement, general objective, specific objectives, research hypothesis, scope, significance and challenges encountered in conducting the study.

A survey of the literature is included in chapter two. It includes theoretical underpinnings for the study, empirical research including prior international and regional studies, and framework of the study concepts. Research methods, strategy and design are covered in chapter three. The chapter covers as well scope of the study', data collection methodology, size of the research sample, design of the research and method used for data analysis.

Results of the quantitative analysis is provided and discussed in chapter four where was noted domestic credit affects Tanzania economy negatively, while banks government deposits and broad money found to affect the economy positively.

Overall, the study revealed financial development funds and economic growth in Tanzania to be bidirectional related. Chapter five summarizes the results, draws conclusions and makes recommendations consistent with the results of the study.

# CHAPTER TWO

# LITERATURE REVIEW

## 2.1 Introduction

The chapter covers definition of concepts used in the study and literature review being both empirical and theoretical. Theoretical literature review, looks at theories guiding the study at the same time Empirical literature review, analyses work of other researchers in the same study inside and outside Tanzania in terms of data variables used, methodology, time covered, location of the research and the research findings. Finally, framework of the research concepts is indicated at the end of this section.

## 2.2 Definition of Key Terms

This section defines the key terminologies s used in the study. See below: -

### 2.2.1 Economic growth

Economic growth refers to an increase in value of goods and services produced in the economy compared from one period to another (Lipsey and Chrystal, 2007).

### 2.2.2 Domestic Credit

Domestic credit Refers to lending/credit that Central Bank makes available to borrowers within the country including commercial banks and the government itself, World Development Indicators (WDI, 2001). Domestic credit to GDP (DCR/GDP) shows contribution of financial sector to the country economy.

### 2.2.3 Banks Government Deposit

Banks Government Deposit refer portion of money in Banks as deposit which

belongs to the government (WDI, 2001). Banks deposit plays a great role in economic growth through facilitating financial intermediation. In some cases, portion of the deposits in Banks belong to the government. Banks government deposit to GDP shows the role played by government deposit in Banks in financing the economy.

### 2.2.4 Broad Money

Broad Money is the broadest definition of money (Mishkin, 2004). Broad Money is the standard measure of financial development. The ratio shows size of the financial sector contributing to the country economy. It comprises of M2 and private sector deposits made in foreign currency.

## 2.3 Theories Guiding the Study

### 2.3.1 Neo Classical Theory of Growth

Neo classical growth outlines how steady economic growth rate results from combination of three driving forces Labour, Capital and Technology. The theory was initially developed by Robert Solow and Trevor Swan in 1956. Odedokun, (1996) modified Neo-classical growth theory in a model which takes into account financial development in economic growth.

The model is given by the equation

$Y_t$ = f ($K_t, L_t, FD_t$), where

$Y_t$ GDP per Capita growth, K Capital stock, L Labour, FD Financial Development and the subscript t represent time

#### 2.3.1.1 Strength and Weakness of Neo-classical Growth Theory

The theory makes it possible to distinguish between the short-run (when factors are fixed) and the long-run (when factors are allowed to vary) and make necessary adjustments. The theory does not take into account the effects of external influences such as management and social values.

### 2.3.2 The Financial Repression Hypothesis Model

According to Peter and Temidayo, (2017), Financial Repression Hypothesis was put forward by McKinnon (1973) and Shaw (1973). The hypothesis is simply about liberalization of financial markets to keep interest at a level which positions investment and loanable fund at equilibrium. According to the hypothesis: -

Firstly, Setting the Interest rate below the Equilibrium interest rate of loanable funds and investment, as interest rate is negatively related to investment and positively related to savings, Investment and Savings rates will increase and decrease respectively. This leads to higher investment rate at a low Savings which will increase demand for investment. But following low savings as a result of low interest rate, there exists not enough deposits to fund the level of investment demanded, as a result credit must be rationed by the banks.

According to McKinnon (1973) and Shaw (1973), under credit rationing, commercial banks allocate the limited credit to a few large borrowers, as a result, smaller businesses do not have access to credit and therefore cannot undertake investment. Secondly, setting interest rate above the equilibrium, investment and Savings will fall and rise respectively. If interest rate applies for deposit, it’s okay to the Bank but if applies to loan as well people will not go for loan, hence both

investment and Savings will decline and so no development.

In accordance to McKinnon (1973) and Shaw (1973), in the absence of financial repression which means also financial liberalization, the interest will be at equilibrium, this brings about the equality of savings and Investment and therefore brings about economic growth. Financial repression hypothesis Concludes economic growth to occur in absence of Financial Repression.

#### 2.3.2.1 The strength and weakness of Financial Repression Hypothesis

The hypothesis proved to be more valid in developed countries but its validity on Real Interest rate found to be questionable in developing countries following undeveloped and unstructured financial system, policy inconsistency and policy mortality. The policy recommends revamp of the financial system to make it more structured, organized and developed to further enable financial inclusion of all economic agents to facilitate economic growth.

## 2.4 Empirical Literature Reviewed

### 2.4.1 Impact of Causality Relationship between Domestic Credit and Economic Growth

Bui, (2020) studied the nonlinear impact of domestic credit on economic growth in ASEAN countries in a study “Domestic credit and economic growth in ASEAN countries: A nonlinear approach”. The study dependent variable is economic growth measured by the Gross Domestic Product (GDP) growth rate meanwhile, the independent variable is Domestic credit to the percentage of GDP. The study employed a Generalized Method of Moments (GMM) to a panel data from 2004 to

2017.The study confirmed inverted U-shaped nonlinear impact of domestic credit on economic growth suggesting that increase in domestic credit will boost economic growth, however an excess of domestic credit will eventually exerts a negative influence on economic growth. ASEAN stands for Association of South East Asian Nations. The study recommends ASEAN countries to launch credit policies towards sustainable economic growth.

Duican and Pop, (2015) studied the role of credit in economic growth in Romania through a study. "The implications of credit activity on economic growth in Romania". The research adopted Panel E views Generalized Least Square (EGLS) cross section random effects using credit as a financial development variable and GDP as economic growth variable from 2005 to 2014. The study results indicate that credit has a significant positive impact on the evolution of GDP in Romania. Increase of one monetary unit of credit increases 1.47 monetary units in GDP. The study concluded that in Romania, Domestic credit plays a great role in growth of the country economy. The study suggests banks should continue to finance the economy through credit as credit contributes significantly to the growth of the country economy.

Jammeh, (2022) studied relationship between domestic credit and economic growth in Gambia in a study "The Relationship between Domestic Credit, Financial Development and Economic Growth in the Gambia"**.** The study is time series information and used data from 1967 to 2020. In this study, economic growth was proxied by Real GDP per Capita. The study employed a Vector Auto Regression (VAR) model to examine the relationship between these variables. The study

revealed domestic credit to have little impact on economic growth. The study suggests the little impact is due to low confidence of lenders to borrowers which limits as well loan disbursement. The study recommends that policy makers should put more effort in developing and improving credibility of the financial sector in Gambia which will create confidence to lenders to increase loan disbursement as a strategy towards economic growth.

Odhiambo, (2015) studied impact of financial development on economic growth in Tanzania through the study "Financial development and economic growth in Tanzania: a dynamic causality test" using Domestic Credit to GDP as a proxy for financial development and Real GDP per Capita as a proxy for economic growth. The study was time series in design and used data from 1970 to 2010. The study employed Vector Error-Correction Model and Granger Causality test to quantify the impact and determine direction of the causality relationship respectively. The study revealed negative significant impact of the domestic credit to economic growth and the model to exhibit two way causality which runs from domestic credit to economic growth and economic growth to domestic credit.

The study suggests the negative impact to be because money kept aside by BOT as credit, in most cases not sent to support Agriculture sector because of being classified as a risky sector, in steady is much emphasis is paid to support less risky areas example treasury bills and treasury bonds. Less risk investment have low contribution while risky investment have high contribution to economic growth. Study recommends the government to focus on polies policies which will attract financial institutions to finance Agriculture sector.

File (2011) studied the causal relationship between financial development and economic growth in Tanzania through a study “Financial Development and Economic growth in Tanzania: A causality test”. The study was time series information which used secondary data ratio of Domestic credit to GDP as a proxy for financial development and Real GDP per Capita as a proxy for economic growth from 1988 to 2012.

The study employed Vector Error Correction model to determine the magnitude of the impact of Domestic credit to economic growth and Granger Causality Test to determine the direction of Causality between Domestic credit and economic growth. The study revealed Domestic credit to have a negative and significant impact to economic growth implying increase in Domestic credit this year may lead to fall in economic growth next year. The study suggests this to be because of low coverage financial system network in Tanzania where many financial institutions are found in urban area with limited institutions in rural area where majority live which limits access to credit by majority of the population. The study suggests as well being a result of failure of the majority to meet the lending requirements. The study revealed as well presence Supply leading response running domestic credit to economic growth. The study concluded domestic credit to impact economic growth negatively and Tanzania to exhibit a supply leading response.

The study therefore recommends that the current financial system in Tanzania be developed further which include increasing its network and make lending conditions which can be accessed by the majority.to increase investment towards economic growth. Ngwilizi etal (2018) studied Impact of Financial Sector Development on

Economic Growth in Tanzania through a study: “Impact of Financial Sector Development on Economic Growth: Evidence from Tanzania”. The study is time series information which employed Autoregressive Distributed Lags (ARDL) model to a time series data ratio of Domestic credit to GDP as a proxy for financial development and GDP as a proxy for economic growth. The study revealed that financial development exerts significant but negative effect on economic growth. The study suggests negative impact may be a result weak flow of information from financial institutions to the public.

The study recommends strengthening data availability on flow of credit from financial institution to the public to materialize the effect of financial sector in Tanzania.

### 2.4.2Impact of Causality Relationship between Banks Government Deposit and Economic Growth

Kumar and Chauhan, (2018) studied impacts of total saving deposits with Commercial banks in Indian GDP through the study “Impact of Commercial Deposit in Banks with GDP”. The study is time series in design and employed Granger causality test using Bank deposit (financial development variable) and Real GDP per Capita as economic growth variable from financial year 1975/76 to 2013/I4. The study revealed that there is no causality relation between Banks deposit and economic growth in India. The study declared not exhaustive in terms of data, therefore recommends further researches to be done in this area with exhaustive data. Mensah, et al., (2013) studied financial development nexus in Ghana through a study

"Financial development and economic growth in Ghana: Does the measure of financial development matter?" The study adopted time series research design using bank deposit as a proxy for financial development and Real GDP as a proxy for economic growth from 1961 to 2010.

The study employed ARDL model to determine the impact of Bank deposit to economic growth in Ghana. The results indicate positive and significant impact of Banks deposit to economic growth. The study suggests the impact to come from ability of financial institutions to facilitate intermediation. The study concludes that level the economy of Ghana is contributed by availability of savings funds which comes from intermediation process. The study recommend the country monetary Policies to focus on strengthening financial institutions as a strategy to fast rack economic growth.

Odhiambo (2015) studied impact of financial development on economic growth in Tanzania through the study "Financial development and economic growth in Tanzania: a dynamic causality test" using Bank deposit to GDP as a proxy for financial development and Real GDP per Capita as a proxy for economic growth. The study was time series in design and used data from 1970 to 2010. The study employed Vector Error-Correction method and Granger Causality test to quantify the impact and determine direction of the causality of the relationship respectively. The study revealed positive significant impact of Bank deposit to economic growth and the model exhibit one way causality which runs from Bank deposit to economic growth The study suggests the positive impact to come from role of financial Institutions to facilitate intermediation which increases access to finance for the

surplus spending units with business ideas. The study recommends that country policies should focus on strengthening financial sector which will facilitate intermediation.

### 2.4.3 Impact of Causality Relationship between Broad Money and Economic Growth

Dingela and Hlalefang, (2017) studied impact of Money Supply on economic growth in South Africa through a study " Dynamic Impact of Money Supply on Economic Growth in South Africa. An ARDL Approach". The study employed Vector Error Correction model to quantify impact of broad money in economic growth in a time series research using data from 1980 to 2016. The study revealed statistical significant positive relationship between money supply and economic growth both in short run and long run. The study concludes the current economic growth to be contributed by money supply among others. The study suggests that the government of South Africa should maintain consistency and follow "the Taylor rule" to allow money supply to increase at a steady rate keeping pace with the economic growth.

Patricia, (2016) studied impact of Money Supply in Nigeria through a study "Impact of Broad Money Supply in Nigeria Economic Growth ". The study adopted time series research design using Broad Money as a proxy for financial development and Real GDP per Capita as a proxy for economic growth. The study is time series information and employed cointergration test model to examine the long run relationship among the variables and Vector Error Correlation Model (VECM) to determine the short and long run dynamic for the variables.

The empirical results support that aggregate money supply is positively related to economic growth and therefore concludes money supply to be among the factors contributing to economic growth in Nigeria. The study recommends that the government should make efforts to ensure appropriate policy mix and proper coordination of economic policies paying much attention on money supply is in place. Hameed, (2011) studied the impact of Monetary Policy on GDP in Pakistan through a study "Impact of Monetary Policy on gross Domestic Product (GDP) in Pakistan".

The study is time series information which employed Ordinary Least Square method using Broad money as explanatory variable and GDP as dependent variable for the period from 1980 to 2009. The study revealed positive and significant impact of broad Money to GDP and therefore concludes Money supply to play a great role in economic growth in Pakistan. The study recommends monetary policy of Pakistan to focus on policies in favour of money supply as one strategy among others towards economic growth

Arfanuzzaman, (2014) studied the underlying relationship between broad money and GDP of Bangladesh through a study "The Long Run Dynamic Relationship between Broad Money Supply and GDP in Bangladesh: A VECM Approach". The study was a time series information which employed Johansen co integration test and Vector Error Correction model to quantify the relationship between Broad Money and GDP for the period from 1974 to 2012. The study revealed that there is long run association between Broad money supply and GDP.The study concludes Broad Money to contribute to growth of the economy of Bangladesh and therefore

recommends the country to focus on policies in favor of money supply as a strategy towards economic growth.

Odhiambo, (2015) studied role of financial development and economic growth in Tanzania through a study "Financial development and economic growth in Tanzania: A dynamic causality test" using Broad money to GDP as a proxy for financial development and Real GDP per Capita as a proxy for economic growth. The study was time series in design and used data from 1970 to 2010. The study employed Johansen Juselius integration and Vector Error-Correction model to quantify the relationship. The study revealed positive and significant relationship between Broad Money and economic growth while in terms of causality, the model found to exhibit Supply leading response which runs from financial development to economic growth. The study recommends that the current financial systems in Tanzania be developed further in order to make the economy more monetized as a strategy towards economic growth.

File, (2011) studied the causal relationship between financial development and economic growth in Tanzania through a study "Financial Development and Economic growth in Tanzania". The study was time series information which used secondary data ratio of Broad Money to GDP as a proxy for financial development and Real GDP per Capita as a proxy for economic growth from 1988 to 2012. The study employed Vector Error Correction model to determine the magnitude of the impact of Broad Money to economic growth and Granger Causality Test to determine the direction of Causality between Broad Money and economic growth.

The study revealed Broad Money to have a positive and significant impact to economic growth implying increase in Broad Money this year may lead to growth of the economy next year. The study suggests that this is because increase in broad money lowers cost of borrowing and therefore majority will access funds for investment towards economic growth. The study reveals as well the model to follow supply leading response which runs from broad money to economic growth.

The study recommends Tanzania to adopt Monetary Policies that focus on money supply to fast rack growth of the economy. Some of studies reviewed in this study are summarized in appendix 1.

### 2.5 Framework of Concepts Used In The Study

In the study, the explanatory variables are Domestic Credit per Real GDP per Capita, Banks Government deposit per Real GDP per Capita and Broad Money per Real GDP per Capita which are proxies for Financial Development and the Dependent variable is Real GDP per Capita which is a Proxy for Economic growth. Figure 2.1 below explains how the variables are related

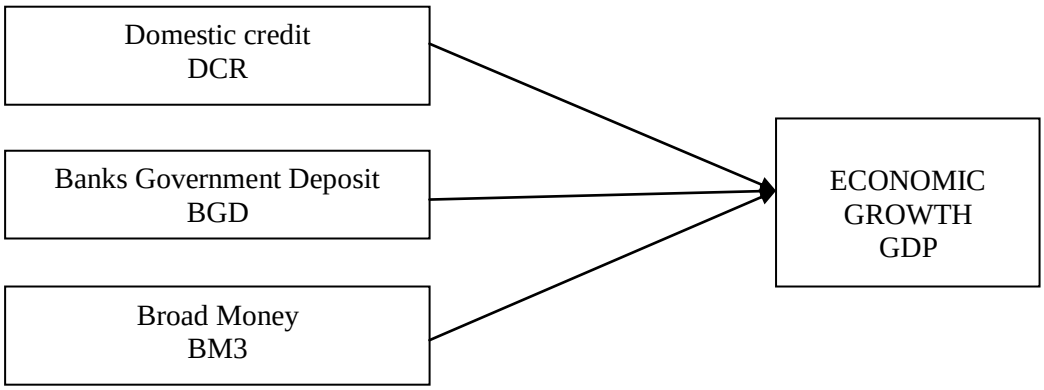


**Figure: 2.1: Conceptual Framework**
**Source:** Own developed framework, variables derived from conducted empirical and theoretical literature review, (2023).

**Where**

| | |
|---|---|
| GDP | Growth Domestic Product |
| DCR | Domestic credit |
| BGD | Banks Government Deposit |
| BM3 | Broad Money |

### 2.5 .1 Description and Measurement of the Variables used in the Study

#### 2.5.1.1 Dependent Variable

The study used Economic growth as a dependent variable. Economic growth in this study was proxied by Real GDP per Capita.

#### 2.5.1.2 Explanatory Variables

The study used Financial Development Funds and explanatory variable, Financial Development was proxied by Domestic Credit per Real GDP per Capita, Banks Government deposit per Real GDP per Capita and Broad Money per Real GDP per Capita. Generally, the variables are in form of output and are measured in Tanzania Shillings. Description and measurement of the variables used in the study is summarized in the Table 2.1.

**Table 2.1: Descriptions and Measurement of the Variables**

| No. | Variable | Description | Measurement |
|---|---|---|---|
| 1 | Growth Domestic Product, GDP | Money (Value of goods and Services domestically produced) | Tanzania shillings |
| 2 | Domestic Credit, DCR | Money Central Bank make available for lending | Tanzania shillings |
| 3 | Banks Government Deposit | Money in Banks that belongs to the Government | Tanzania shillings |
| 4 | Broad Money, M3 | Money Supply (Currency and Deposit) | Tanzania shillings |

**Source:** Own developed from the literature review

## 2.6 Research Gap

Despite of researches done to examine impacts of the causality relationship between financial development funds and economic growth in Tanzania, no conclusion reached as both theoretical and empirical reviews point out a mixture of findings ranging from Supply leading response, demand following to bidirectional relationship. Generally, no conclusion has been reached in this case. Some researches done to group of countries making the results average and only few researches conducted in Tanzania, also, among the variables used by many researchers is Bank Deposit, but the government in some cases carry out its operations through commercial Banks and therefore some of deposit in Banks belongs to the Government as well.

Banks Government deposit by belonging to the Government is easy to respond to economic policies. Unlike the other studies which concentrated on Banks deposit, the study focused on Banks Government Deposit per Real GDP per Capita. Other financial development variables used in the study are Domestic credit to Real GDP per Capita and Broad Money to Real GDP per Capita.

The study contributed to fill the gaps by providing policy recommendations and add to the literature on impacts of causality relationship between financial development funds and economic growth towards achieving Tanzania economic growth objective.

# CHAPTER THREE

# RESEARCH METHODOLOGY

## 3.1 Chapter Overview

The chapter covers research design, study area, population, data type, data sources and collection procedure, model specification and techniques for estimation applied, the research diagnostic test and entire econometrics data analysis tests together with Validity and reliability of data used.

## 3.2 Research Design

The research design is time series information using data from BOT for a period from 1986 to 2020.

## 3.3 Sources of Data

This study relied on data from World Bank, Bank of Tanzania (BOT) and Nationa Bureau of Statistics (NBS) from 1986 to 2020.

## 3.4 Types of Data and Data Collection Procedures

This study relied on annual time series data from websites and publications of World Bank, BOT and National Bureau of Statistics. The data used in the study are GDP, Population, Domestic credit, Banks Government deposit and Broad Money.

## 3.5Empirical Model Specification and Diagnostic Testing

### 3.5.1 Empirical Model Specification

The impact of Causality relationship between financial development funds and economic growth was derived from neoclassical aggregate production function in

which financial development is among the inputs. The model is a modification of neoclassical growth theory and was as well used by Odedokun (1996) in the same study The estimation is as discussed below:-

$Y_t$ = f ($K_t, L_t, FD_t$),

(1)

**Where**

$Y_t$ is the aggregate output or real GDP per Capita growth,

$K_t$ is the physical Capital stock,

$L_t$ is the Labour force,

$FD_t$ is financial development and the subscript

t denotes the time period**.**

From the above production function, aggregate output is as well a function of financial development. On introducing growth rate, the equation becomes: -

$$\Delta Y_t = \Delta K_t + \Delta L_t + \Delta FD_t \quad \textbf{(2)}$$

Where

$\Delta K_t$= represents Investment

According to (De Gregorio and Guidotti, (1995), financial sector contributes to economic growth in two ways, first through increasing marginal productivity of capita following enhancement of capital accumulation and second through raising savings rate and thus investment rate.

The Causality relationship between financial development and economic growth was tested by estimating the following two equations:

$$\mathbf{In}Y_t = a_0 + a_{1j} \sum_{i=1}^{m} InY_{t-1} + a_{2j} \sum_{j=1}^{n} InFD_{t-j} + \varepsilon_t \quad \textbf{(3)}$$

$$\mathbf{In}YFD_t = \beta_0 + \beta_{1i} + \sum_{i=1}^{m} InFD_{t-1} + \beta_{2j} \sum_{j=1}^{n} InY_{t-j} + \mu_t \quad \textbf{(4)}$$

Where

Y = Represent economic growth (Its variable is Real GDP per Capita-RGDPC)

FD = Represent Financial development (Its variables are ratio of Domestic Credit to Real GDP per Capita (DCR/RGDPC), Banks Government Deposit to Real GDP per Capita (BGD/RGDPC) and Broad Money to RGDPC (M3/RGDPC)

$\varepsilon_t$ and $\mu_t$ = Represent error terms

m and n = Represent number of lagged variables & the

subscript t denotes the time period**.**

### 3.5.2. Diagnostic testing

Before estimation, the study conducted testing for autocorrelation, normality, heteroscedasticity and multicollinearity.

#### 3.5.2.1 Normality Test

Pr (Skewness), pr (Kurtosis) and Jarque – Bera tests conducted to test the model for normality. In this test the hypotheses are: -

$H_o$: The model is normally distributed (null) and the

$H_1$: The model is not normally distributed.

The rule is that for PV.>0.05 we accept the null hypothesis that the model is normally distributed, while for PV<0.05 we reject the null hypothesis concluding the model to be not normally distributed.

#### 3. 5.2.2 Heteroscedasticity

Breusch-Pagan/Cook-Weisberg test used to test the model for heteroscedasticity.

The test was done after regressing Real GDP per Capita as a dependent variable against Domestic credit per Real GDP per Capita, Banks Government deposit per Real GDP per Capita and Broad money per Real GDP per Capita as independent variables.

In this case, the hypotheses

$H_o$: Constant variance (null)

$H_1$: Variance is not constant (Alternative).

The rule of thumb in this test is to accept the null hypothesis for P Value>0.05 implying the model to be homoscedastic and accepting the alternative hypothesis $H_1$: Variance not constant for P value<0.05 implying the model to be heteroskedastic

### 3.5.2.3 Testing for Multicollinearity using Karl Pearson's Coefficient of Correlation

The model was also tested for Multicollinearity using Karl Pearson's Coefficient of Correlation. Karl Pearson's Coefficient of Correlation output showed three pieces of information, Correlation coefficient, Level of statistical significance and the sample size. Sign of the coefficient indicates sign of the correlation. Negative coefficient implies negative correlation while positive coefficient implies positive correlation. Magnitude of the coefficient implies the magnitude of the correlation.

### 3.5.2.4 Coefficient of Determination (Residue Sum of Squares)

The coefficient of determination is a statistical measurement that examines how differences in one variable can be explained by the difference in a second variable, when predicting the outcome of a given event. Coefficient of determination shows

the extent to which variations of the dependent variable is explained by variations of the independent variables.

The extent to which variation in the Real GDP per Capita is explained by variation in Banks Government deposit per Real GDP per Capita, Domestic credit per Real GDP per Capita and Broad money per Real GDP per Capita was determine by using Residue sum of squares ($R^2$).

### 3.6 Stationary testing (Unit Root) test

#### 3.6.1 Pre-stationary testing

Before testing for Stationarity, the time series variables were plotted to visualize their movements. This assisted to get a picture on whether the variables are stationary or not before going to the entire testing.

#### 3.6.2 Unit Root Testing

In time series data, what happens today may be influenced by what happened in the past. Data behavior of a particular variable can be explained using its own history. Non-stationary variables result in Spurious regression which makes the estimates Biased and inconsistent and therefore unrealistic. To avoid spurious regression, the variables Real GDP per Capita, Domestic credit per Real GDP per Capita, Banks Government per Real GDP per Capita and Broad Money per Real GDP per Capita were subjected to Augmented Dickey Fuller test (ADF) to determine if there is unit root problem before the causality test. The hypotheses in this case: -

$H_0$ :The variables are not stationary (There is unit root problem) - the null hypothesis

$H_1$: The variables are stationary (there is no unit root problem) - the alternative hypothesis

In using ADF test, decision to reject the null hypothesis $H_0$ :The variables are not stationary (There is unit root problem) is reached only when in absolute terms, Test statistics >critical value at 5% which means also accepting the alternative hypothesis $H_1$: The variables are stationary (there is no unit root problem).

In Econometrics analysis, if time series variable has a unit root problem, implies that the variable is integrated in order 1(1) or order 1(2), however, most time series data are integrated at order 1 and therefore become stationary after first difference The study therefore assumed for the first time the variables to be integrated at 1(1) following this tendency. In the stationarity test for the variables logrgdpc i.e. Real GDP per Capita, logbdp i.e. Banks Government deposit per Real GDP per Capita and logm3pdp i.e. Broad money per GDP per Capita, in absolute terms, the Test statistics in all cases, found to be small than it is for the critical values at 5%, with constant and trend and with constant and drift.

For the case of logdcpgdp, with trend regress, test statistics found to be small than it is for critical value in the first integration only when regressed with trend, for the case of constant and drift, test statistics found to be small than critical value in the second integration. Basing on the above observations, it was concluded that the model has unit root problem.

### 3.6.3 Determination of Maximum lag of the Variables

Since the variables have Unit root problems, required to be differenced to their Stationary level before undergoing the causality test. To facilitate the same, maximum lag of the variables was determined using stata programme. The Akaike

Information Criterion (AIC) and Schwartz Bayesian Information Criterion (SBIC) were used to determine optimal lag length.

In accordance to that, Real GDP per Capita, Domestic credit per GDP and Broad money M3 per GDP found to be stationary in the 1st lag while Bank deposit per GDP found to be stationary in the 2nd lag Stata command "varsoc" was used to determine the above stated lag length.

### 3.6.4 Autoregressive Distributed Lag Model

Since the variables were non-stationary as was integrated at different levels, each variable then differenced in accordance to its level of integration. In this case, Real GDP per Capita, Domestic credit per GDP per Capita and Broad Money per GDP per Capita were differenced at 1st lag while Banks Government deposit per Real GDP per Capita was differenced at 2nd lag.

### 3.6.5 Cointegration Test

Having verified that the time series data Real GDP per Capita, Domestic Credit per Real GDP per Capita and Broad money per Real GDP per Capita are integrated in order 1(1), and Banks Government deposit Per Real GDP per Capita is integrated in order 1(2), and after taking the first difference of Real GDP per Capita, Domestic Credit per Real GDP per Capita and Broad money (M3 per Real GDP per Capita) and the second difference for Bank Deposit per Real GDP per Capita, all variables were free from unit root problem as were integrated at order 1(0). Generally, estimating a model using first differenced variables affects long run relationship in the model. Co integration test then conducted to determine whether or not the model

possesses long run relationship.

Generally, in running Co integration test, the numbers 0,1,2,3 and 4 represents the Null hypothesis, that is to say Zero (0) means the null hypothesis of having no co integration equations, one (1) means the null hypothesis of having one co integration equation, two (2) means the null hypothesis of having two co integrated equations, three (3) means the null hypothesis of having three (3) co integrated equation and four (4) means the null hypothesis of having four (4) co integrated equations.

The hypotheses in this case are: -

$\boldsymbol{H_0}$**:** There is no co integration equation (No long run relationship) and

$\boldsymbol{H_1}$: $H_0$ is not true (alternative hypothesis)

In this study, analysis was done by using Trace Statistics. Generally, the rule is that When Trace & Max statistics > critical value at 5%, Reject the null hypothesis Ho: When Trace & Max statistics < 5% critical value, accept $H_0$: There is no co integration equation (No long run relationship) which means accepting the alternative hypothesis $H_0$ is not true which imply presence of long run equation.

### 3.6.6 Vector Error Correction Model

The variables Real GDP per Capita, Domestic credit Per Real GDP per Capita, Bank Deposit per Real GDP per Capita and Broad Money per Real GDP per Capita initially found to be non-stationary at different levels. To make them stationary necessitated differencing them in accordance to the level of integration of each variable to avoid spurious regression results. Vector Error correction model was used to bring both short run and long run relationships in one equation to take into account tendency for first differenced variables to lose long run relationships.

Error correction model relied on equation 5 and 6 below: -

$$\Delta \text{In} Y_t = a_0 + a_{1j} + \sum_{i=1}^{m} \Delta InY_{t-1} + a_{2j} \sum_{j=1}^{n} \Delta InFD_{t-j} + a_3 ECM_{t-1} + \varepsilon_t \quad (5)$$

$$\Delta \text{In} YFD_t = \beta_0 + \beta_{1i} + \sum_{i=1}^{m} \Delta InFD_{t-1} + \beta_{2j} \sum_{j=1}^{n} \Delta InY_{t-j} + \beta_3 ECM_{t-1} + \mu_t \quad (6)$$

**Where**

**ΔY** Represents change in level of the economy proxied by change in real GDP per capita

**ΔFD** Represents change in financial sector proxied by change in Domestic Credit to Real GDP per Capita, Banks Government Deposit to Real GDP per Capita and Broad Money per Real GDP per Capita

$\varepsilon_t$& $\mu_t$ Represents Disturbance term

M & n Represents number of lagged variables

$ECM_{t-1}$ Represents vector error correction, which measures short adjustment and estimate the speed of adjustment to the deviation from long run equilibrium between two variables.

Δ Represents the first differencing process because the variables of financial development and economic growth are non-stationary.

In Represents Natural Logarithm.

### 3.6.7 Pairwise Granger Causality Tests on Direction of Causality

The variables logrgdpc, logdcpgdp,logbdpgdp and logm3pgdp were tested for causality using Causality Wald Test. Generally, the hypotheses in this case are: -

$H_0$ There is no causality i.e., financial development funds do not cause economic growth and economic growth does not cause financial Development funds (null hypothesis) while

$H_1$ There is causality i.e**.,** financial development funds cause economic growth or economic growth causes Financial Development funds (Alternative hypothesis). In this case, the rule is that for:-

P vale < 0.05 Reject the null hypothesis ($H_0$) which means also accepting the alternative hypothesis ( $H_1$). For P vale > 0.05 Accept the null hypothesis ($H_0$) which means also rejecting the alternative hypothesis ( $H_1$).

### 3.7 Post Estimation Diagnostic Testing

#### 3.7.1 Test for Auto Correction

In the test, the null hypothesis is $H_0$: No autocorrelation at lag order and alternative hypothesis is $H_1$:There is autocorrelation at lag order. Generally, the rule in this case is that for P value<0.05, reject the null hypothesis ($H_0$) which automatically imply accepting the Alternative hypothesis, for P vales >0.05. we accept the null hypothesis ($H_0$) which automatically imply rejecting the Alternative hypothesis ($H_1$).

#### 3.7.2 Testing for Normality

After testing for auto correlation, the variables were tested for normality using Jaque - Bera Test. In this case, the null hypothesis is $H_0$; The variables are normally distributed while the Alternative hypothesis is $H_1$: the variables are not normally distributed. The rule in this case is that, for P values>0.05, we accept the null hypothesis ($H_0$) suggesting also rejection of the alternative hypothesis ($H_1$), for P values<0.05, we reject the null hypothesis ($H_0$); The variables are normally distributed implying automatically accepting the null hypothesis ($H_1$).

### 3.7.3 Testing for Stability

The model was tested for stability using Eigen value test for stability.

## 3.8 Validity of Data

To make sure that right variables are used to meet research objectives, the variables used have been derived from research gaps following conducting thorough theoretical and empirical literature review. Data used in the study was obtained from reliable and reputable government institutions, i.e. BOT, NBS, MoF&P and World Bank after authorization by respective authorities. Furthermore, the study conducted the appropriate diagnostic estimation tests such as testing for autocorrelation, normality, heteroscedasticity and multicollinearity to determine variable behavior before testing.

## 3.9 Reliability of Data

The time series data was tested for unit root problem and differenced until stationary before the entire testing to avoid Spurious regression. This assures reliability and Validity of data used in the study which assures reliability and validity of the research results as well.

# CHAPTER FOUR

# EMPERICAL ESTIMATION RESULTS

## 4.1 Introduction

This chapter presents results for diagnostic and econometric tests conducted, give its interpretation and finally discussion of the entire research results. The diagnostic tests include (Normality, Multicollinearity, heteroscedasticity and Coefficient of determination). The econometric tests include Unit root testing, Auto regressive distributed Lag Model, Cointegration, Vector error correction and Pairwise granger causality tests.

## 4.2 Pre-estimation Diagnostic Test Results

### 4.2.1 Normality tests results using Pr (Skewness) and Pr (Kutosis) Test

Normality test results using Pr (Skewness) and Pr (Kutosis) test reveal P value of 0.4093 and 0.7625 respectively. The P values are greater than 0.05, this led to acceptance of the null $H_o$: The model is normally distributed implying the model to be normally distributed. The normality test results using Pr (Skewness) and Pr (Kutosis) test is presented in the 4.1.

**Table 4.1: Normality Test Using Pr (Skewness) and Pr (Kutosis) Test Results**

| Observation | Pr (Skewness) | Pr (Kutosis) | Adjusted Chi Square | Probability Chi Square |
|---|---|---|---|---|
| 34 | 0.4093 | 0.7625 | 0.81 | 0.6670 |

**Source:** Own computation through Stata

### 4.2.2 Normality Test Using Jarque – Bera Normality Test Results

In testing for normality using Jarquebera test, the test P value was 0.5556 which is greater than 0.05 which implied the model to be normally distributed as well.

### 4.2.3 Heteroskedasticity test using Breusch-Pagan / Cook-Weisberg Test Results

On testing, resulting P value was 0.0706 which is greater than 0.05. The results led acceptance of the null hypothesis Ho: Constant variance, implying the model to be homoscedastic. The test results is presented in Table 4.2.

**Table 4.2: Breusch-Pagan / Cook-Weisberg Test for Heteroskedasticity Results**

| **Lags(p)** | **Chi2** | **Df** | **Prob>chi2** |
|---|---|---|---|
| **1** | **3.27** | **1** | **0.0706** |

**Source:** Own computation by using Stata.

### 4.2.4 Multi Collinearity Test Results Using Pearson Coefficient of Correlation

Correlation between logrgdp,logdcpgdp, bdpgdp and logM3pgdp was tested using Pearson Coefficient of correlation . In the test results, coefficients found to be positive indicating positive correlation between logdcpgdp, bdpgdp, logM3pgdp and logrgdp. The results indicate the correlation to be significant at 1%. The results are presented in the output table below. Star means the result is significant

**Table 4.3: Pearson Coefficient of Correlation Test Results**

Pwcorr logrgdpc logdcpgdp logbdpgdp ogm3pgdp,sig star(0.01).

| | logrgdpc | Logdcpgdp-p | Logbdpgdp-p | logM3pgdp-p |
|---|---|---|---|---|
| logrgdpc | 1.0000 | | | |
| logdcpgdp | 0.6495* | 1.0000 | | |
| | 0.0000 | | | |
| logbdpgdp | 0.8059* | 0.8442* | 1.0000 | |
| | 0.0000 | 0.0000 | | |
| log3pgmdp | 0.6807* | 0.9972* | 0.8530* | 1.0000 |
| | 0.0000 | 0.0000 | 0.0000 | |

**Source:** Own computation by using Stata

### 4.2.5 Coefficient of Determination

The extent to which variation in Real GDP per Capita is explained by variation in Banks Government deposit per Real GDP per Capita, Domestic credit per Real GDP per Capita and Broad money per Real GDP per Capita was determine by using Residue Sum of Squares ( $R^2$). The test results found logdcgdp, logbdpgdp and logM3pgdp to explain variation of logdpc by 64.97%. The test results indicate the model to be well fitted as $R^2$ is above the benchmark which is 50% as seen in table 4.4.

**Table 4.4: Coefficient of Determination Residue Sum of Squares ( $R^2$)**

| Source | SS | df | MS | Number of observations=34 |
|---|---|---|---|---|
| Model | 15.2720118 | 3 | 5.09067059 | Prob > F = 0.0000 |
| | 4.97644738 | 30 | 0.16588157 | R-squared = 0.6497 |

**Source:** Own computation by using Stata

## 4.3: Basic Unit Root Test (Stationarity Test)

### 4.3.1 Pre-Stationarity Testing

Stationarity testing was done by using Augmented Dickey Fuller Test (ADF). But before application of ADF, the time series data was plotted to visualize their movements

Generally, all the variables found to be non-stationary although each had a different trend as explained below: -

Logrgdpc was higher in 1990, then fallen in 1995 from that time has been increasing over time. The graph 4.1 below indicates how the variable behaves over time: -

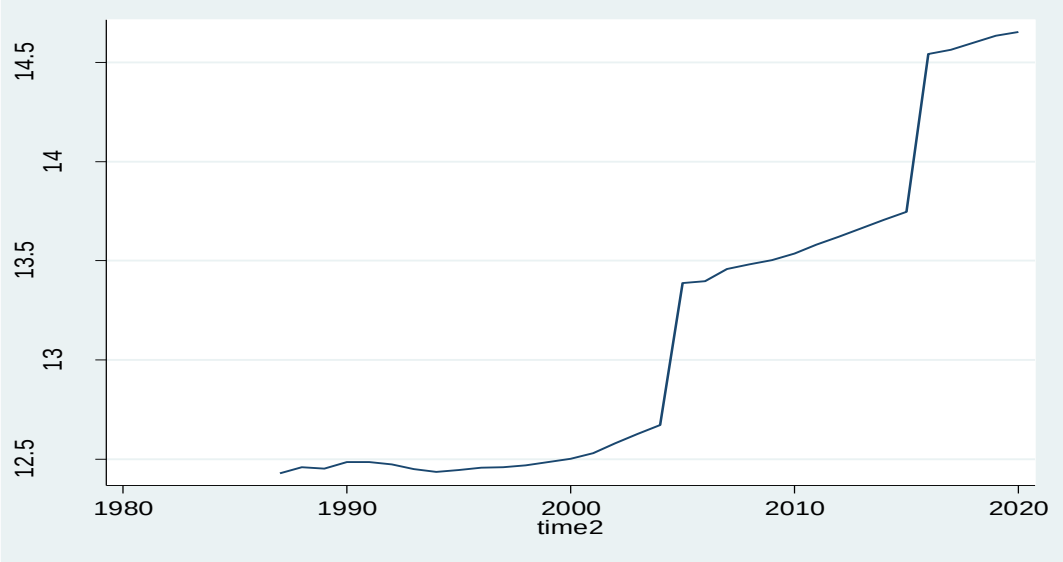


**Figure 4.1: Trend of logRGDPC over Time Tsline logRGDPC**
**Source:** Own computation by using Stata

The ratio of logdcpgdp found to increase over time from 1987 to 2005 although the increase is not uniform. Found to drop in between 2006 and 2007 then increased until 2015. It then fallen between 2015 and 2016. The ratio found to increase from 2016. The graph 4.2 below indicates how the variable behaves over time:

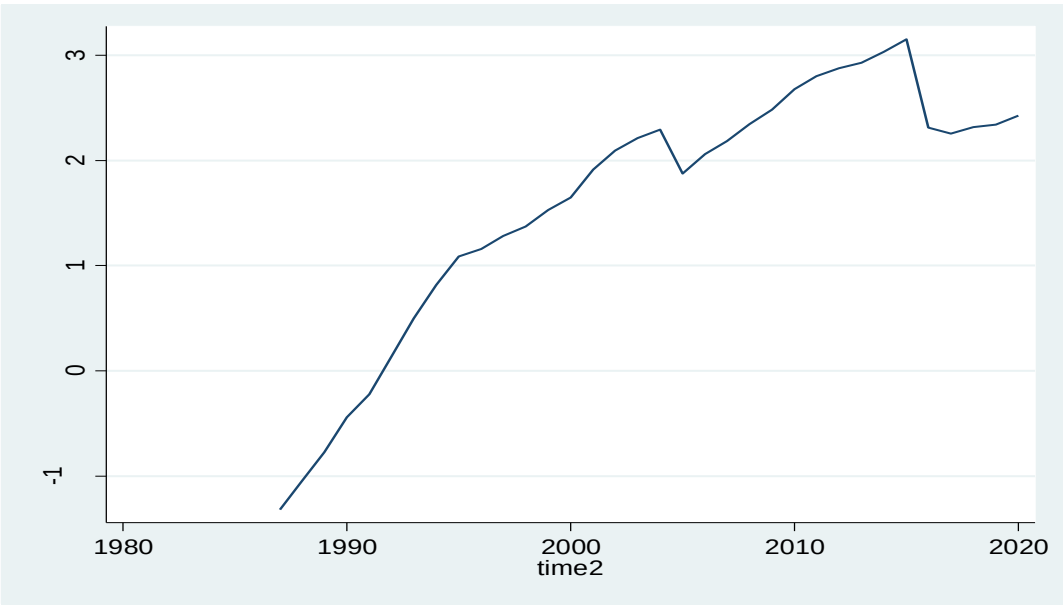


**Figure: 4.2: Behaviour of logDCPGDP Over Time**
**Source:** Own Computation by Using Stata

Ratio of log BDPGDP found to be not uniform. The ratio found to be constant between 1986 and 1988, then increased until 1990 fallen abruptly in 1992. Then increased to 2015 where it fallen a bit in 2006. It then increased to 2015 where it then fallen abruptly in 2017 The abrupt fall of Bank deposit is due to order of government of the 5$^{th}$ phase to have all government money being kept to Central Bank instead of being in commercial Banks. It then increased in 2018, as Banks started to cope with the situation, fallen until 2020 and is currently increasing. The trend is shown in Figure 4.3.

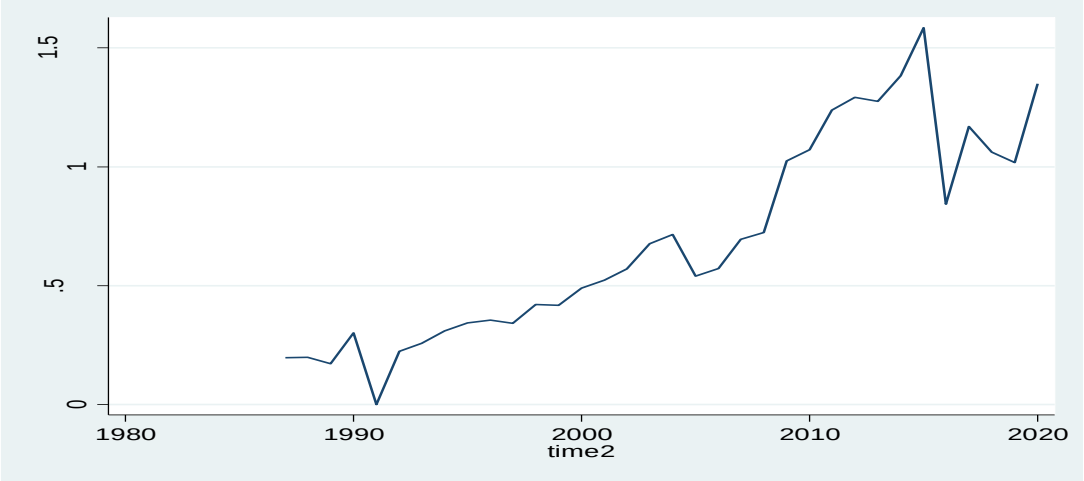


**Figure 4.3: Trends in Logbdpgdp Over Time Tsline Logbdpgdp**

**Source:** Own computation by using Stata

LogM3/RGDPC found to increase over time although the increase is not uniform. Increased abruptly from 1988 to 1995 this is due, this due to transformation of Banking Sector of 1992 which improved quality of banking services. It then dropped from 1996 to 1999. The ratio increased from 2000 to 2005 and fallen 2006. It then increased from 2007 to 2015.The ratio fallen in 2007 and from there to date, the ratio is increasing slowly. The trend is shown in the figure below: -

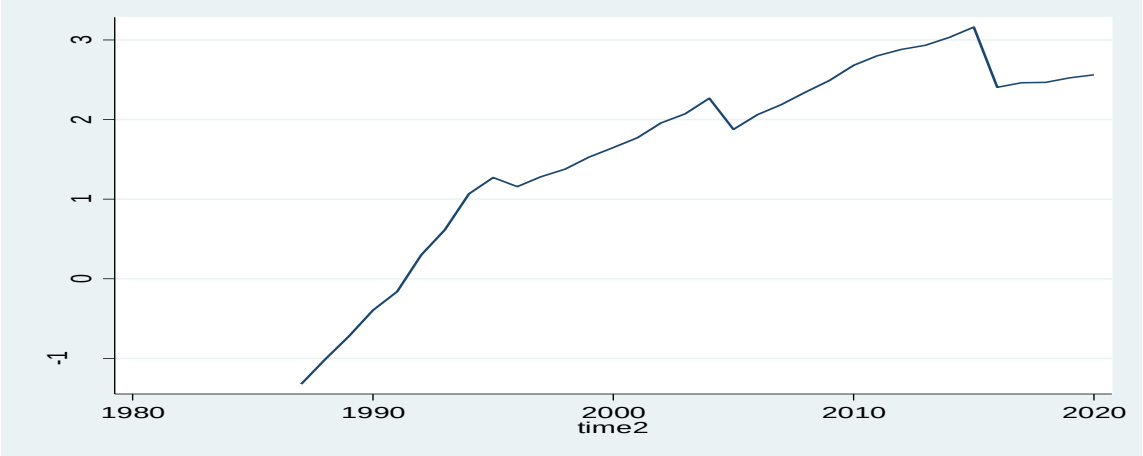


**Figure 1.4: Trend in the Ratio of M3/RGDP over Time Tslinelogm3pgdp**

**Source:** Own computation by using Stata

### 4.3.2 Unit Root Testing

The test results in all cases indicated that in absolute terms, T-Statistics>Critical value at 5% which led acceptance of the null hypothesis that the logrgdpc, logdcpgdp, logbdpgdp and logM3/gdp are not stationary i.e., the model has unit root problem at the same time rejecting the alternative hypothesis that there is no unit root problem/ variables are stationary. The unit root test results is presented in table 4.5 below: -

**Table 4.5: Unit Root Test Results**

| VARIABLE | FIRST LAG | Test Statistics | Critical Value | Stationary Status |
|---|---|---|---|---|
| Logrgdpc | Trend regress | -1.91 | -3.572 | 1(1) |
| | Drift regress | 0.585 | -1.699 | 1(1) |
| logdcpgdp | Trend regress | -1.417 | -3.572 | 1(1) |
| | Drift regress | -3.125 | -1.699 | 1(1) |
| | | -0.663 | -1.703 | 1(2) |
| logbdpgdp | Trend regress | -2.422 | -3.572 | 1(1) |
| | Drift regress | -0.661 | -1.699 | 1(1) |
| logm3pgdp | Trend regress | -1.675 | -3.572 | 1(1) |
| | Drift regress | -3.466 | 1.699 | 1(1) |

**Source:** Own computation using Stata

Basing on this observation, the null hypothesis $H_0$ : the variables are not stationary (There is unit root problem) could not be rejected and therefore it was concluded that there is unit root problem (the variables are not stationary).

### 4.4 Differencing the Variables

The Akaike Information Criterion (AIC) was used to determine optimal lag length because the model P value found to be less than 0.05 level of significance. Generally, AIC and SBIC are recommended in case of P value less than 0.05 level of significance. The test results found logrgdpc, logdcpgdp, and logm3pgdp to be Stationary in the 1st lag, while logbdp found to be stationary in the 2nd lag

The test results is presented in the Table 4.6.

**Table 4.6: Maximum Lag Results**

| Variable | Lags | AIC | HQIC | SBIC | P - Value |
|---|---|---|---|---|---|
| Logrgdpc | 1 | -0.417314 | -0.38743 | -323901 | 0 |
| logdcpgdp | 1 | -0.374432 | -0.344549 | -0.281019 | 0 |
| logbdp | 2 | -0.476175 | -0.431349 | -0.336055 | 0.014 |
| LogM3 | 1 | -0.42574 | -0.395857 | -0.332327 | 0 |

**Source**: Own computation using Stata.

### 4.5 Autoregressive Distributed Model (ARDM) Results

Since the variables were non-stationary as was integrated at different levels, each variable was differenced in accordance to its level of integration. In this case, Real GDP per Capita, Domestic credit per Real GDP per Capita and Broad Money per Real GDP per Capita were differenced at 1st lag while Banks Government Deposit per Real GDP per Capita was differenced at 2nd lag.

**According to the ARDL results: -**

Domestic credit per Real GDP per Capita. Domestic credit per Real GDP per Capita has a positive impact on Real GDP per Capita, A percentage change in 1st lag of Domestic credit per Real GDP per Capita, is associated with 1% increase in Real GDP per Capita on average **Ceteris Peribus** and the results is statistically significant.

**Banks Government Deposit per Real GDP per Capita** in the first level has a positive impact on Real GDP per Capital. A percentage in 1st lag of Domestic Credit per Real GDP per Capita is associated with 0.04% increase in Real GDP per Capita on average Ceteris **Peribus Peribus**, However the result is statistically insignificant, while in the Second level, has a negative impact i.e. a % change in Bank Deposit per Real GDP per Capita is associated with 0.17% decrease in Real GDP per capita on average **Ceteris Peribus** and the result is statistically significant.

**Broad Money per Real GDP per Capita:** Broad Money per Real GDP per Capita has negative impact on Real GDP per Capita. Percentage change in Broad Money per Real GDP per Capita is associated with 0.18% decrease in Real GDP per Capita on average Ceteris Peribus and the results is statistically significant.

**Constant:** Without taking into account Domestic Credit per per Real GDP per Capita, Banks Government Deposit per Real GDP per Capita and Broad Money per Real GDP per Capita, Real GDP per Capital is 0.778

The ARDL results is shown in Table 4.6 below

**Table 4.7: Auto Regressive Distributed Lag model results**

```
. ardl logrgdpc logdcpgdp logbdpgdp logm3pgdp,lags(1 1 2 1)aic

ARDL(1,1,2,1) regression

Sample: 1989 - 2020                             Number of obs     =         32
                                                F(   8,     23)   =     460.28
                                                Prob > F          =     0.0000
                                                R-squared         =     0.9938
                                                Adj R-squared     =     0.9916
Log likelihood =  44.079608                     Root MSE          =     0.0720
```

| logrgdpc | Coef. | Std. Err. | t | P>\|t\| | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| logrgdpc | | | | | | |
| L1. | .956764 | .0430714 | 22.21 | 0.000 | .867664 | 1.045864 |
| logdcpgdp | | | | | | |
| --. | -1.113725 | .2771882 | -4.02 | 0.001 | -1.687133 | -.5403179 |
| L1. | 1.067297 | .2715351 | 3.93 | 0.001 | .5055836 | 1.62901 |
| logbdpgdp | | | | | | |
| --. | .1348585 | .1427788 | 0.94 | 0.355 | -.160502 | .430219 |
| L1. | .0425223 | .1099128 | 0.39 | 0.702 | -.1848498 | .2698943 |
| L2. | -.1707306 | .1131307 | -1.51 | 0.145 | -.4047593 | .0632982 |
| logm3pgdp | | | | | | |
| --. | .1912626 | .2558792 | 0.75 | 0.462 | -.3380638 | .7205891 |
| L1. | -.1789101 | .2445308 | -0.73 | 0.472 | -.6847605 | .3269404 |
| _cons | .7778762 | .5121995 | 1.52 | 0.142 | -.2816891 | 1.837442 |

**Source:** Own computation using Stata

### 4.6 Cointegration Test Results

The Trace statistics co-integration results revealed that: -

**At rank 0,** the null hypothesis of having no cointegration equation**.** Trace statistics>critical value at 5%, hence, rejected the null hypothesis$H_0$**: There is no co integration equation (No long run relationship) i**mplying that in the model there are equations with long run relations.

**At rank 1**, the null hypothesis of having at most one co integrated equation**,** Trace statistics< critical value at 5%, hence accepted the null hypothesis which means in the model there is more than one equation with no long run relationship non

cointegrated equations.

**At rank 2**, the null hypothesis of having at most 2 co intergraded equations, trace statistics< critical value at 5%, hence accepted the null hypothesis which means in the model there are more than one equation with no long run relationship (taking into account that in the model there is four equations).

**At rank 3,** the null hypothesis of having at most three equations with long run relationship, trace statistics>critical value at 5%, hence rejected the null hypothesis, which means there are equations with no long run relationship.

Basing on the Trace Statistics cointegration test, the conclusion is to reject the null hypothesis $H_0$**: There is no cointegration equation (No long run relationship)** instead, accepted the alternative hypothesis that there is long run relationships among Real GDP per Capital, Domestic Credit per Real GDP per Capita, Banks Government Deposit per Real GDP per Capita and Broad Money per Real GDP per Capita such that they can be combined in a linear fashion and even if there are shocks in the short run which may affect movement in the individual series, they could converge in the long run. The cointegration test results using trace statistics is summarized in the table below

**Table 4.8: Cointegration Test Results Using Trace Statistics**

| Maximum Rank | Parms | Eigen value | Trace Statistics | Critical value at 5% |
|---|---|---|---|---|
| 0 | 20 | | 51.8256 | 47.21 |
| 1 | 27 | 0.56362 | 25.2897 | 47.21 |
| 2 | 32 | 0.30272 | 13.7517 | 15.41 |
| 3 | 35 | 0.25129 | 4.4907 | 3.76 |
| 4 | 36 | 0.13093 | | |

**Source**: Own computation using Stata

### 4.7 Vector Error Correction Results

The variables Real GDP per Capita, Domestic credit Per Real GDP per Capita, Banks Government Deposit per Real GDP per Capita and Broad Money per Real GDP per Capita initially found to be non-stationary at different levels. To make them stationary necessitated differencing them in accordance to the lag level of each variable to avoid spurious regression results. This necessitated using Error correction model to bring both short run and long run relationships in one equation in case long run relationship lost during differencing as presented below: -.

#### 4.7.1 Short run Error Correction Model Results

In the short run, Log Domestic credit per Real GDP per Capita found to have negative significant relationship with log Real GDP per Capita. At the same time, log Banks Government Deposit per Real GDP per Capita and log Broad Money Per Real GDP per Capita found to have a positive significant relationship with log Real GDP per Capita. The short run results of ECM are summarized in the table below: -

**Table 4.9: Short Run Results of ECM**

| Variables | Coefficient | Standard Error | t-statistic | P-value |
|---|---|---|---|---|
| Domestic credit/RGDP | -0.615383 | 0.6183575 | -1 | 0.32 |
| Bank Deposit /RGDP | 0.0234605 | 0.2804722 | 0.08 | 0.933 |
| Broad Money/RGDP | 0.7537893 | 0.5518712 | 1.37 | 0.172 |
| Constant | 0.663165 | 0.0779745 | 0.85 | 0.395 |

**Source:** Own computation from Stata

#### 4.7.2 Long run Error Correction Model Results

The long run relationship was determined by using the normalized co integrated equation. Interpretation of the normalized cointegration equation involves reversing

the signs of the coefficients. Generally, it was found that in the long run, logdcpgdp has a negative impact, while both logbdpgdp and logm3pgdp have positive impact on logrgdppc on average **Ceteris peribus** (as this is OLS results). However, the effects found to be significant at 1% level. The long run error correction results as estimated from the normalized co integration equation are summarized in the table below: -

**Table 4.10: Long run Error Correction Model Results**

| Variables | Coefficient | Standard Error | t-statistic | P-value |
|---|---|---|---|---|
| Real GDP / Capita | | | | |
| Domestic credit/GDP | 10.35187 | 5.68985 | 1.82 | 0.069 |
| Bank Deposit /GDP | -1.182416 | 2.427247 | -0.49 | 0.626 |
| Broad Money M3/GDP | -7.170583 | 5.956493 | -1.2 | 0.229 |
| Constant | -18.338 | - | - | - |

**Source:** Own computation using Stata

### 4.8 Pairwise Granger Causality Tests on Direction of Causality

The variables logrgdpc, logdcpgdp, logbdpgdp and logm3pgdp were tested for direction of causality using Causality Wald Test. The pairwise granger causality test results show the model to exhibit two-way causality.

**Supply leading response**. The model exhibit Supply leading response directly from Banks Government deposit per Real GDP per Capita to Real GDP per Capita and from Broad money per Real GDP per Capita to Real GDP per Capita and indirectly from Broad money per Real GDP per Capita to Real GDP per Capita through Banks Government Deposit.

**Demand following response.** Real GDP per Capita which is a proxy for economic growth, causes growth of Domestic credit per Real GDP per Capita, Banks Government Deposit per Real GDP per Capita and Broad money per Real GDP per

Capita (when the financial development variables are used together in the economy). Shows as well Domestic credit per Real GDP per Capita to have no significance effect to real GDP per Capita in the economy**.** The Wald test granger Causality results are summarized in the table below: -

**Table 4.11: Pairwise Granger Causality tests on direction of causality**

| Causality direction | Probability value | Results |
|---|---|---|
| **Logrgdp/c → Logdcpgdp**<br>**Logrgdp/c → Logbdpgdp**<br>**Logrgdp/c → Logm3pgdp**<br>**ALL** | **0.272**<br>**0.063**<br>**0.209**<br>**0.016** | **Accept $H_0$**<br>**Accept $H_0$**<br>**Accept $H_0$**<br>**Reject $H_0$** |
| **Logdcpgdp → Logrgdp/c**<br>**Logdcpgdp → Logbdpgdp**<br>**Logdcpgdp → Logm3pgdp**<br>**ALL** | **0.092**<br>**0.022**<br>**0.689**<br>**0.184** | **Accept $H_0$**<br>**Reject $H_0$**<br>**Accept $H_0$**<br>**Accept $H_0$** |
| **Logbdpgdp → Logrgdp/c**<br>**Logbdpgdp → Logdcpgdp**<br>**Logbdpgdp → Logm3pgdp**<br>**ALL** | **0.031**<br>**0.469**<br>**0.598**<br>**0.048** | **Reject $H_0$**<br>**Accept $H_0$**<br>**Accept $H_0$**<br>**Reject $H_0$** |
| **Logm3pgdp→ Logrgdp/c**<br>**Logm3pgdp→ Logdcpgdp**<br>**Logm3pgdp→ Logbdpgdp**<br>**ALL** | **0.041**<br>**0.146**<br>**0.034**<br>**0.178** | **Reject $H_0$**<br>**Accept $H_0$**<br>**Reject $H_0$**<br>**Accept $H_0$** |

**Source:** Own computation using Stata

### 4.9 Post Estimation Diagnostic Test Results

The test results are as described below: -

#### 4.9.1. Autocorrelation Test Results

After the causality test, the variables were tested for auto correction using Lagrange multiplier test. In this case, the null hypothesis is

$H_0$: No autocorrelation at lag order

$H_1$: There is autocorrelation at lag order

The test output results revealed P value of 0.9455 &0.99464 in first and second lag respectively. As the results P values>0.05, the null hypothesis accepted concluding absence of autocorrelation at lag order for rgdpc, dcpgdp, bdpgdp and m3pgdp. See the results table below: -

**Table 4.12: Post Estimation Diagnostics Autocorrelation Test Results**

| lag | Chi2 | Df | Prob>Chi2 |
|---|---|---|---|
| 1 | 8.1094 | 16 | 0.9455 |
| 2 | 5.204 | 16 | 0.99464 |

$H_0$: No autocorrelation at lag order
**Source:** Own Computation using Stata

### 4.9.2 Normality Test

After testing for auto correlation, the variables were tested normality using Jaque – Bera Test. The test null hypothesis $H_0$; is that the variables are normally distributed while the Alternative hypothesis $H_1$ is that the variables are not normally distributed. The Jaque – Bera Test for normality results revealed that for logdcpgdp Domestic Credit Per GDP and bdpgdp Bank Deposit per GDP,the Pvalues>0.05 implying the variables to be normally distributed while for rgdpc Real GDP per Capita and m3pgdpBroad Money M3 Per GDP, the P values<0.05 implying the variables being not normally distributed, The overall P value<0.05 implying that the model is in totality, not normally distributed. See the table below: -

**Table 4.13: Post Estimation Diagnostics Jaque – Bera Test for Normality Results**

| Equation | Chi2 | Df | Pvalue |
|---|---|---|---|
| D_logrgdpc | 130.87 | 2 | 0 |
| D_logdcpgdp | 0.056 | 2 | 0.97251 |
| D_logbdpgdp | 0’142 | 2 | 0.93124 |
| D_logm3pgdp | 15.981 | 2 | 0.00034 |
| **ALL** | **147.04** | **8** | **0** |

**Source:** Computation using Stata

### 4.9.3 Stability Test

After normality testing, the variables were tested for stability using Eigen value stability condition. The test results revealed the model to be stable. The test output is presented in the Table 4.14.

**Table 4.14: Post Estimation Diagnostics Stability Test Results**

| Eigen value | Modulus |
|---|---|
| 1 | 1 |
| 1 | 1 |
| 1 | 1 |
| 0.9024629 | 0.90246 |
| -0.41209054 | 0.49465 |
| -1.25464171 | 0.46495 |
| 0.4027428 | 0.40274 |
| 0.1047241 | 0.10472 |

The VECM specialization imposes 3-unit moduli
**Source:** Own computation using Stata

### 4.10 Results Summary of the Hypothesis Tests

Analysis of the research hypothesis was done through regression. The analysis shows that Domestic credit has a causality relationship with economic growth in Tanzania, Banks government deposit has a causality relationship with economic growth in Tanzania and Broad money has a causality relationship with economic growth in Tanzania. The findings indicate all the three variable relationships to be significant as in all cases Pvalue<0.05. For the relationship between Domestic credit and economic growth (β =-4.363, Pvalue = 0.001), relationship between Banks government deposit and economic growth (β = 0.725, Pvalue = 0.000), and for the relationship between Broad Money and economic growth (β =4.412, Pvalue = 0.001). Therefore, the alternative Hypothesis was accepted concluding presence of causality relationships which at the same time led rejection of the null hypothesis

which states absence of causality relationships. The analysis was done by using OLS. The results are summarized in Table 4.14.

**Table 4.15: Coefficient Results of Domestic Credit, Banks Government Deposit and Broad Money on GDP**

| **Model** | **Unstandardized Coefficient** | | **Standardized Coefficient** | | |
|---|---|---|---|---|---|
| | Beta | Std Error | Beta | t | Sign |
| Domestic Credit | -2.79 | 1.225 | -4.363 | -3.572 | 0.001 |
| Banks G Deposit | 1.33 | 0.428 | 0.725 | 4.125 | 0.00 |
| Broad Money | 2.85 | 1.212 | 4.412 | 3.517 | 0.001 |
| All | 12.034 | | | | 0.00 |

**Source**: Researchers' computations, 2023

The results t show that, it is the three alternative hypotheses that have been supported by the regression analysis. Impacts of Domestic credit, Banks government deposit and Broad Money was supported by empirical data as alternative hypothesized (H1). Each supported hypothesis is strongly significant at P< 0.05. This result is summarized in Table 4.16.

**Table 4.16: Hypotheses Testing Results Summary**

| **Statement of the hypothesis** | **Results** | **Decision** | **Relationship** |
|---|---|---|---|
| H1: Hypothesis (H1): Domestic credit has a causality relationship with economic growth in Tanzania. | (ß =-4.363, p= 0.01) | Supported | Negative |
| H1: Hypothesis (H1): Banks government deposit has a causality relationship with economic growth in Tanzania. | (ß =0.725, p = 0.00) | Supported | Positive |
| H1: Hypothesis (H1): Broad money has a causality relationship with economic growth in Tanzania. | (ß = 4.412, p = 0.01) | Supported | Positive |

**Source**: Researchers' computations, (2023)

## 4.11 Discussion of the Results

### 4.11.1 Impact of Causality Relationship between Domestic Credit and Economic Growth

The Autoregressive distributed lag error correction model estimates, both in the short and long run show that Domestic credit per Real GDP per Capita has negative significant impact to Real GDP per Capita in Tanzania economy. This describes scenario of entrepreneurs not willing to take risk. Entrepreneurs opt to invest on businesses with low risk and high turnover compared to business with high return but with high risk. Commercial banks for example have tendency of investing in risk free assets although at a low return like treasury bills and treasury bonds, sectors with high return but associated with high risk like agriculture sector are not priotized. Lyatuu etal, (2015) describes Tanzania economy as heavily depend on agriculture as contributes about 50% of country GDP and 85% of country export.

In Tanzania Agriculture Sector to a large extent depends on the natural weather and is carried out without irrigation systems, so output is affected by draught weather and excessive rainfall. This limits the tendency of commercial banks to invest in agriculture, despite of being the main sector contributing to economic growth. Due to risk aversion behavior, credit is not allocated to most sectors contributing to economic growth, including Agriculture; this limits capacity of the economy to grow. Many commercial Banks in Tanzania offer business and salaried worker loans compared to agricultural loans, which contribute significantly to economic growth.

Existance of negative and significant impact impact of Domestic credit to economic growth is supported byJammeh, (2022), Duica and Pop, (2015), Odhiambo, (2015),

File, (2011) and Ngwilizi etal, (2018).

### 4.11.2 Impacts of Causality Relationship between Broad Money and Economic Growth

The Autoregressive distributed lag error correction model estimates, both in the short and long run show that Broad Money Capita has positive significant impact to Real GDP per Capita in Tanzania economy. This implies that, increase in Broad Money today, will increase economic growth next year. Increase in Money Supply, lowers the cost of borrowing money, in so doing, makes cheap to borrow money which makes increase in consumption and lending as well. Availability of funds makes it possible to invest to bring about economic growth

Generally, increase in money supply can be facilitated by Central Bank through various ways including the following**: -**

**Discount lending.** Refer Central Bank lowering interest rate for commercial Bank to borrow cheaply and lend to the public.

**Lowering the Bank reserve:** In this case. Central Bank lower the minimum amount of deposit that commercial bank must maintain with Central Bank to qualify to exist as operational Bank**.**

**Open Market Operation.** In this case Central Bank can purchase securities to make much money available to the public.

Increasing Money supply is in most cases applied in expansionary economic policy. Existance of positive significant relationship between Broad Money and economic growth is supported by Hlalefang, (2017), Odhiambo, (2015),Arfanuzzaman, (2014)

Hameed, (2011) and File, (2011).

### 4.11.3 Impact of Causality Relationship between Banks Government Deposit and Economic Growth

The Autoregressive distributed lag error correction model estimates, both in the short and long run show that Banks Government Deposit per Real GDP per Capita has a positive significant impact to Real GDP per Capita in Tanzania economy. Deposit mobilization is the main way through which financial institution contributes to economic growth. Through deposit mobilization, financial institutions mainly banks bring together the surplus spending units (with no business idea) and deficit spending unit (with business idea), in so doing make deficit spending unit to access fund for investment. It is through this investment made by the former deficit spending unit brings about increase in GDP and finally economic growth. Also, bank deposit avoids direct lending (direct loan from surplus spending unit to deficit spending unit) which has the following inefficiencies in resource allocation: -

Makes difficult for investor to access enough fund to invest as one surplus spending unit cannot serve even one large investor. It would cost the investor in terms of time and finance to look for surplus spending units to mobilize enough funds for investment. Information asymmetry. In direct lending there is possibility that the lender may not be knowledgeable enough which could lead to adverse selection in the sense that may fail to distinguish between bad and good borrower and Moral hazard in the sense that may fail to know whether or not the loan is going to be used for intended purpose. Existence of positive and significant impact of Banks government deposit to economic growth is supported by Kumar and Chauhan,

(2018), Mensah etal, (2013) and Odhiambo, (2015).

### 4.11.4 Pairwise Granger Causality Tests on Direction of Causality

The pair wise granger causality test results show the model to exhibit Bi directional causality relationship in Tanzania. In this case, Banks Government deposit per Real GDP per Capita and Broad money per Real GDP per Capita which are financial development variables cause growth of Real GDP per Capita which is a proxy for economic growth, in this case we conclude financial development to cause economic growth, at the same time Real GDP per Capita which is a proxy for economic growth, causes growth of Domestic credit per Real GDP per Capita, Banks Government deposit per Real GDP per Capita and Broad money per Real GDP per Capita (when the financial development variables are used together in the economy), in this case it means economic growth as well cause financial development.

Therefore, the causality test concludes presence of Bi-directional Causality between Financial development funds and economic growth which runs first from Banks Government deposit per Real GDP per Capita and Broad Money per Real GDP per Capita (financial development) to Real GDP per Capital (economic growth) and from Real GDP per Capita (economic growth) to all Domestic credit per Real GDP per Capita, Banks Government deposit per Real GDP per Capita and Broad Money per Real GDP per Capita) which are proxies for economic growth when these financial development variables are used together in the economy.

The causality results show Domestic credit per Real GDP per Capita to have no significance effect to real GDP in the economy

Existence of Bi-directional causality is in line with findings by Odhiambo, et al (2017), Chisimbili (2015), Fille (2013), File (2011) Hassan and Yu (2011), Rachdi and Mbarek (2011), Akinlo and Egbetunde, (2010), Shan and Jianhong (2006), Odhiambo (2005), Calderon and Liu (2003), Luntel and Khan (1999) and Demetrades and Hussein (1996).

# CHAPTER FIVE

# RESEARCH SUMMARY, CONCLUSION, RECOMMENDATIONS AND AREAS FOR CONDUCTING FURTHER RESEARCH

This chapter highlights on the summary, conclusion, recommendations and policy implication as well as area for further study.

## 5.1 Introduction

This chapter highlights on the summary, conclusion, recommendations and policy implication as well as area for further study.

## 5.2 Summary of the Study

The study examined impact of causality relationship between financial development funds and economic growth in Tanzania for the period from 1986 to 2020. The study used Real GDP per Capita as a variable for economic growth and Domestic credit per Real GDP per Capita, Banks Government Deposit per Real GDP per Capita and Broad Money per Real GDP per Capita as variables for financial development funds. The research employed Summary Statistics, graphical analysis and tested for normality, heteroskedasticity, Multicollinearity using Pearson coefficient of correlation and model fit using coefficient of determination as pre-estimation tests. The model found to be normally distributed, homoscedastic, free of multicollinearity problem and well fitted.

Non stationarity test. The variables were tested for non-stationarity using Augmented Dickey Fuller and found to have unit root problem (non-stationarity) as in all cases, Test statistics found to be greater than Critical values (Statistics >Critical values) at

5%. To solve non-stationarity problem, the level of integration of each variable was determined using Akaike Information criterion (AIC) before differencing each variable accordingly to make them stationary. The variables Real GDP per Capita, Domestic credit Per Real GDP per Capita and Broad Money per Real GDP per Capita found to be intergraded at level one (1) while Bank deposit Per GDP found to be intergraded at level two (2).

The variables then made stationary through Autoregressive Distribution Lag model. Co integration test showed the variables to have long run relationship. The model was estimated using Auto Regressive Distributed Lag error correction model and findings showed that both in the short run and in the long run, Domestic credit per Real GDP per Capita has a negative impact to Real GDP per Capita, while both Banks Government deposit per Real GDP per Capita and Broad Money per Real GDP per Capita have a positive impact to Real GDP per Capital on average **Ceteris peribus** However, the effects found to be significant at 1% level.

The granger causality test results showed Domestic credit per GDP per Capita to have no effect on the level of Real GDP per Capital prevailing in the economy, while on the other hand Banks Government Deposit to Real GDP per Capita and Broad Money to Real GDP per Capita found to have significant effect on the Real GDP per Capita prevailing in the economy. It shows as well Real GDP per Capita to have significance effect on Domestic credit per Real GDP per Capita, Banks Government Deposit per Real GDP per Capita and Broad Money M3 per Real GDP per Capita when all the three financial development variables are used together in the economy. Also Bank deposit per GDP has significant effects on Real GDP per capita, domestic

credit per GDP and Broad Money M3 per GDP if all the three variables will be used together in the prevailing economy.

Post estimation diagnostic tests revealed the model to be well fitted as Domestic credit per GDP, Bank deposit per GDP and Broad Money M3 per GDP found to explain Real GDP per Capita by 75%. (Residue some of square (R2) found to be 75.4%). Domestic Credit per GDP and Bank Deposit per GDP found to be normally distributed as P values in Jaque – Bera test found to be greater than 0.05, Real GDP per Capital and Broad Money M3 Per GDP found not normally distributed as P value found to be less than 0.05 and in totality, all the variables Real GDP per Capital, Domestic credit per GDP, Bank deposit per GDP and Broad Money M3 per GDP found to be not normally distributed as overall P value found to be less than 0.05. The variables found to be stable as well.

### 5.3 Conclusion

Cointegration test confirmed the presence of long run relationships among Real GDP per Capital, Domestic Credit per Real GDP per Capita, Banks Government Deposit per Real GDP per Capita and Broad Money per Real GDP per Capita such that they can be combined in a linear fashion and even if there are shocks in the short run which may affect movement in the individual series, they could converge in the long run.

Generally, both in short and long run, results confirmed Domestic credit per Real GDP per Capita to impact Real GDP per Capita negatively while both Banks Government deposit per Real GDP per Capita and Broad Money per Real GDP per Capita have positive impact on Real GDP per capita **Ceteris peribus,**

The pairwise granger causality test results show the model to exhibit two-way causality.

**Supply leading response**. The model exhibit Supply leading response directly from Banks Government deposit per Real GDP per Capita to Real GDP per Capita and from Broad money per Real GDP per Capita to Real GDP per Capita and indirectly from Broad money per Real GDP per Capita to Real GDP per Capita through Banks Government Deposit.

**Demand pulling response.** Real GDP per Capita which is a proxy for economic growth, causes growth of Domestic credit per Real GDP per Capita, Banks Government Deposit per Real GDP per Capita and Broad money per Real GDP per Capita (when the financial development variables are used together in the economy). Shows as well Domestic credit per Real GDP per Capita to have no significance effect to real GDP per Capita in the economy**.**

Therefore, the Granger causality test results confirm relationship between financial development funds and economic growth in Tanzania to be Bi directional.

### 5.4 Policy Implications and Recommendations

i) The government should invest on policies which focus on expansion of domestic credit at a reasonable cost to finance the economy towards economic growth, however there should be a special segment to finance agricultural sector, a sector with the highest contribution to economic growth but receiving limited finances because of being classified as risky sector

ii) The government should focus on policies which keeps money supply at a reasonable principally by use of discount rate, Open Market Operations and use of reserve requirements

iii) The government should focus on policies which strengthen finance system as to have strong financial institutions which will facilitate intermediation

### 5.5 Areas to Conduct Further Research

According to this study, Bank deposit is among the drivers for economic growth as facilitates availability of enough funds for investors to allocate to their productive priorities. But there are some deposits held and transacted through mobile phones which in this case are not covered in researches using Bank deposit as a variable, this affects effectiveness of Monetary Policies. Further researches should be carried out to find means to accommodate deposits held and transacted through mobile phone banking in examining impact of causality relationship between financial development funds and economic growth as such research will come up with recommendations that will make monetary policies more effective.

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# APPENDICES

## Appendix 1: Summary of Studies Conducted on the Impacts of Causality Relationship between Financial Development Funds and Economic Growth

| No | Author And Year | Study Location | Analytical Method | Causality Response |
|---|---|---|---|---|
| **STUDIES CONDUCTED GLOBALLY** | | | | |
| 1 | Christopoulos, D.K.& Tsionas, E.G. (2004) | 10 developing countries (Colombia, Paraguay, Peru, Mexico, Ecuador, Honduras, Kenya, Thailand, Dominican Republic, and Jamaica) | Modified OLS | Finance → Growth |
| 2 | Majid, M. S. A. (2008) | Malaysia and Indonesia | ARDL models | No causality in Indonesia, Finance → Growth in Malaysia |
| 3 | Kar et al, (2011) | fifteen Middle East/North America countries (Bahrain, Israel, Kuwait, Libya, Morocco, Qatar, Saudi Arabia, Syria, Tunisia and Turkey. | Granger causality test | Finance → Growth in Bahrain, Israel, Kuwait, Libya, Morocco, Qatar, Saudi Arabia, Syria, Tunisia and Turkey. |
| 4 | Rachdi, H., and Mbarek, H. B. (2011). | Six OECD region countries (Algeria, Egypt, Israel, Morocco, Syria, and Tunisia) and four MENA countries | VECM | Growth → Finance in MENA countries. |
| 5 | Rachdi, H., and Mbarek, H. B. (2011). | Six OECD region Countries (Algeria, Egypt, Israel, Morocco, Syria, and Tunisia) and four MENA countries | VECM | Finance ↔ Growth in OECD region countries |
| **STUDIES CONDUCTED IN AFRICA** | | | | |
| 1 | Akinlo and Egbetunde, (2010) | Sub-Sahara African countries (Central African Republic, Congo Republic, Gabon, Nigeria, Zambia, Kenya, Chad, South Africa Sierra Leone, Swaziland and South Africa) | VECM | Finance ↔ Growth in Kenya, Chad, South Africa, Sierra Leone and Switzerland. |
| 2 | Amassoma, D., & Nwosa, P. I. (2011). | Nigeria | Trivariate VECM | Finance → Growth |
| 3 | Odhiambo (2009a) | Zambia | Trivariate Granger-causality model | Finance → Growth |
| 4 | Akinlo, A. E., and Egbetunde, T. (2010) | Sub-Sahara African countries (Central African Republic, Congo Republic, Gabon, Nigeria, Zambia, Kenya, Chad, South Africa Sierra Leone, Swaziland and South Africa) | VECM | Finance → Growth in Central African Republic, Congo Republic, Gabon, and Nigeria |

| No | Author And Year | Study Location | Analytical Method | Causality Response |
|---|---|---|---|---|
| 5 | Odhiambo, N. M. (2004). | South Africa | VECM | Growth → Finance |
| 6 | Odhiambo (2008a) | Kenya | Granger causality test | Growth → Finance |
| 7 | Akinlo, A. E., and Egbetunde, T. (2010)) | Sub-Sahara African countries (Central African Republic, Congo Republic, Gabon, Nigeria, Zambia, Kenya, Chad, South Africa Sierra Leone, Swaziland and South Africa) | VECM | Growth → Finance in Zambia |
| **STUDIES CONDUCTED IN TANZANIA** | | | | |
| 1 | Mahenge and Alkael (2010) | United Republic of Tanzania | VECM | Finance → Growth |
| 2 | Odhiambo (2011) | United Republic of Tanzania | ARDL | Growth → Finance |
| 3 | Chisimbili, R. H. (2015). | United Republic of Tanzania | Granger Causality Test | Finance ↔ Growth |
| 4 | Fille (2013) | United Republic of Tanzania | Granger Causality Test | Finance ↔ Growth |
| 5 | Odhiambo (2005) | United Republic of Tanzania | Granger causality test | Finance ↔ Growth |

**Source:** Compilation of some of the studies reviewed during preparation of the study

## Appendix 2: Research Clearance Letter

**THE UNITED REPUBLIC OF TANZANIA**

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

**THE OPEN UNIVERSITY OF TANZANIA**

**Ref. No OUT/ PG202000525** **5th June, 2023**

Director of Finance,
Bank of Tanzania (HQ),
P .O. Box 2939,
**DAR ES SALAAM.**

Dear Director of Finance,

**RE: RESEARCH CLEARANCE FOR MR. MKOMBOZI HASSANI MOKIWA, REG NO: PG202000525**

2. The Open University of Tanzania was established by an Act of Parliament No. 17 of 1992, which became operational on the 1st March 1993 by public notice No.55 in the official Gazette. The Act was however replaced by the Open University of Tanzania Charter of 2005, which became operational on 1st January 2007.In line with the Charter, the Open University of Tanzania mission is to generate and apply knowledge through research.

3. To facilitate and to simplify research process therefore, the act empowers the Vice Chancellor of the Open University of Tanzania to issue research clearance, on behalf of the Government of Tanzania and Tanzania Commission for Science and Technology, to both its staff and students who are doing research in Tanzania. With this brief background, the purpose of this letter is to introduce to you **Mr. Mkombozi Hassani Mokiwa, Reg. No: PG202000525)** pursuing **Master of Science in Economics (MSc-ECONOMICS).** We here by grant this clearance to conduct a research titled **"Impact of the Causality Relationship between Financial Development Funds and Economic Growth in Tanzania: 1986 - 2020".** He will collect his data at your office from 6th June to 6th July 2023.

4. In case you need any further information, kindly do not hesitate to contact the Deputy Vice Chancellor (Academic) of the Open University of Tanzania, P.O.Box 23409, Dar es Salaam. Tel: 022-2-2668820.We lastly thank you in advance for your assumed cooperation and facilitation of this research academic activity.

Yours sincerely,
**THE OPEN UNIVERSITY OF TANZANIA**
Prof. Magreth S.Bushesha
**For: VICE CHANCELLOR**