IMPACTS OF MACROECONOMIC FACTORS ON EMPLOYMENT

GROWTH IN TANZANIA: 1990- 2022

REHEMA RAMADHAN MHENWA

A THESIS SUBMITTED IN FULFILLMENT OF THE REQUIREMENTS FOR

THE DEGREE OF DOCTOR OF PHILOSOPHY IN ECONOMICS (PhD)

DEPARTMENT OF ECONOMICS AND COMMUNIY ECONOMIC

DEVELOPMENT

OF THE OPEN UNIVERSITY OF TANZANIA

2025

CERTIFICATION

The undersigned certify that they have read and here by recommend for acceptance by the Open University of Tanzania a thesis titled; "***Impacts of Macroeconomic Factors on Employment Growth in Tanzania***" in fulfilment for the requirement of the Doctor of Philosophy in Economics (PhD).

………………….…………………

Prof. Deus Ngaruko

Supervisor

………………....…….………

Date

………………….……………….

Dr. Timothy Lyanga

Supervisor

………………………….....

Date

COPYRIGHT

DECLARATION

I, **Rehema Ramadhan Mhenwa**, 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 that this work as originally mines. It is hereby presented in partial fulfilment of the requirement for the Doctorate of Philosophy in Economics (PhD).

………………………….……
Signature

………………….………..
Date

DEDICATION

This work is dedicated to my beloved late mother. Always she will be remembered.

ACKNOWLEDGMENTS

Praise is to Almighty God, the Beneficent and Merciful, for His guidance and sustenance. I am deeply grateful to my father, whose support laid the foundation for my education and achievements.

I extend my heartfelt thanks to my husband, Mohamed Bakari, for his unwavering support and joy through challenging times. To my beloved children, Bulla, Mwangi, Sanje and Nyakii, you are my strength; may you always be blessed. I am profoundly thankful to my supervisors, Prof. Deus Ngaruko and Dr. Timothy Lyanga, for their invaluable guidance, insights, and encouragement throughout this research. Their dedication and support have been instrumental in completing this dissertation.

I also express my sincere appreciation to the Bank of Tanzania for providing the necessary data and to Dr. Finias Dogeje for his mentorship. My gratitude extends to everyone who contributed to this work. May God bless you all.

ABSTRACT

Macroeconomic factors, particularly fiscal and monetary policies, significantly influence economic growth and employment. This study examines the effects of macroeconomic factors on employment growth in Tanzania. It examines how internal and external fiscal and monetary macroeconomic factors influence employment growth. Time series data spanning from 1990 to 2022, collected from the Bank of Tanzania and the World Bank, were utilised. Prior to estimation, stationarity tests were conducted, followed by co-integration bound tests and an Autoregressive Distributed Lag (ARDL) model for both long-run and short-run error correction. The findings indicate that total government revenue, lending interest rates, openness to trade, public external debt, foreign reserves, exchange rates internal fiscal and monetary interaction factors were inverse related with employment growth. Conversely, GDP growth, total government expenditure, inflation rate, external fiscal and monetary interaction had a positive impact on employment growth in the long run. The study concludes that both external fiscal and monetary factors were crucial in influencing employment growth in Tanzania. Therefore, it is recommended government to continue broaden the revenue base by establishing the newly friendly revenue collection approaches, lowering the lending interest rate to stimulate local investors and ensure affordable borrowing for productive investments, external debt must be done on the purpose and ensure full maximization of it to yield maximum return. The government has to continue to safeguard the goods and services of high quality to compete in both local and foreign market and evade excessive imports.

Keywords: *Fiscal Factors, Monetary Factors, Employment Growth, Tanzania.*

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS AND ACRONYMS

ADF	Augmented Dickey-Fuller
AfDB	Africa Development Bank
ARDL	Autoregressive Distributed Lag Model
BoT	Bank of Tanzania
ECM	Error Correction Model
ECT	Error Correction Mechanism Term
Emp	Employment Growth
Exch	Exchange Rate
Exp	Total Government Expenditure
Ext	Public External Debt
FDI	Foreign Direct Investment
Fr	Foreign Reserve
GDP	Gross Domestic Product
ILFS	Integrated Labour Force Survey
ILO	International Labour Organization
IMF	International Monetary Fund
Inf	Inflation Rate
Int	Lending Interest Rate
IS-LM	Investment Saving –Liquidity preference Money supply
LFPR	Labour Force Participation Rate
NEET	Youth not Employed in Education or Training
OLS	Ordinary Least Square
Opp	Openness to Trade

Rev	Total Government Revenue
URT	United Republic of Tanzania
USD	United States Dollar

CHAPTER ONE

INTRODUCTION

1.1 Chapter Overview

This chapter serves as the preamble to the study on study. The chapter is structured into several key sections. It commences with the background of the study, which examines the relationship between economic growth, employment, and macroeconomic stability from both global and regional perspectives, while highlighting labour market trends. The research problem statement follows, where the study identifies the challenges associated with macroeconomic factors that influence employment growth.

The chapter then presents the objectives of the study, which encompass a general objective and five specific objectives focusing on fiscal and monetary factors. Subsequently, the research hypothesis is detailed, outlining hypotheses related to the influence of internal and external fiscal and monetary factors on employment growth. The significance of the study elucidates its relevance to policymakers, government bodies, and the wider community. The scope of the study delineates the study's timeframe and focus, while the final section, thesis organisation summarises the structure of the entire thesis, describing the contents of the subsequent chapters.

1.2 Background Information

A fundamental principle for economic growth in any nation is that it ultimately enhances employment opportunities. Employment growth as it was noted by United States Institute of Peace (2023) supports families by providing them with income, increasing national demand for goods and services, and promoting overall growth. In

addition employment ensures peace and security within the population, as it keeps young people engaged in the workforce, thereby reducing the likelihood of community violence.

The International Labour Organization (ILO, 2015, 2023) has indicated that, with a focus on employment generation, both advanced and emerging countries have selected macroeconomic stability as their primary economic goal. Macroeconomic stability is characterised by low (single-digit) inflation, a budget deficit ideally below 5 per cent of Gross Domestic Product (GDP), a low level of current account deficit, and exchange rate stability. Within this framework, relative prices are crucial for resource allocation in any nation. It is assumed that macroeconomic stability should lead to an increase in output and employment, provided that market mechanisms operate freely.

Furthermore, the ILO (2023) reported that employment growth has not been a smooth process globally. The potential for productive employment has been influenced by global dynamics such as international movements of capital, labour and trade, international economic policies, and an insufficient supply of productive jobs. The World Bank (WB, 2021, 2023) indicated that world gross national expenditures rose from 23.27 trillion US dollars in the 1990s to approximately 98.76 trillion US dollars in 2022 and $105.7 trillion in 2023. Additionally, trade as a percentage of GDP worldwide increased from 38 per cent in 1990 to 74 percent in 2022 and dropped to 59 per cent in 2023 while tax revenue as a percentage of GDP raised from 14.1 per cent in 2005 to 14.7 per cent in 2022. World foreign reserves, measured in months of imports, increased from 5 months in 1990 to 14 months in

2010, 9 months in 2022 and in 2023 remained 9 months. Since 1970, global debt has been rising, and as of 2018, it stood at approximately 230 per cent of GDP, 237 per cent of GDP in 2022 and 250 per cent of GDP in 2023.

Similarly, the ILO (2023) shows that the percentage of employment created in 2017 was 57, compared to 55 per cent in 2021, and remained the same 58 per cent in 2022 and 2023.The estimated unemployment rate was 5.8 per cent in 2008, in 2020 was 6.6 per cent, 6.1 percent in 2021, 5.3 per cent in2022, 5.1 per cent in 2023 and 4.9 per cent in 2024resulting in a global job gap. Although employment rate is improving Figure 1.1 shows that the world labour force participation rate is higher in comparison to employment population ratio posing the unemployment challenge in the world.

	Labour force participation rate	Employment to population ratio	Jobs gap rate
2010	62	58.1	13
2019	62.2	56.9	11.8
2020	58.6	54.4	14.1
2021	59.4	55.7	12.8
2022	59.8	56.4	12.3
2023	61	58	11.7
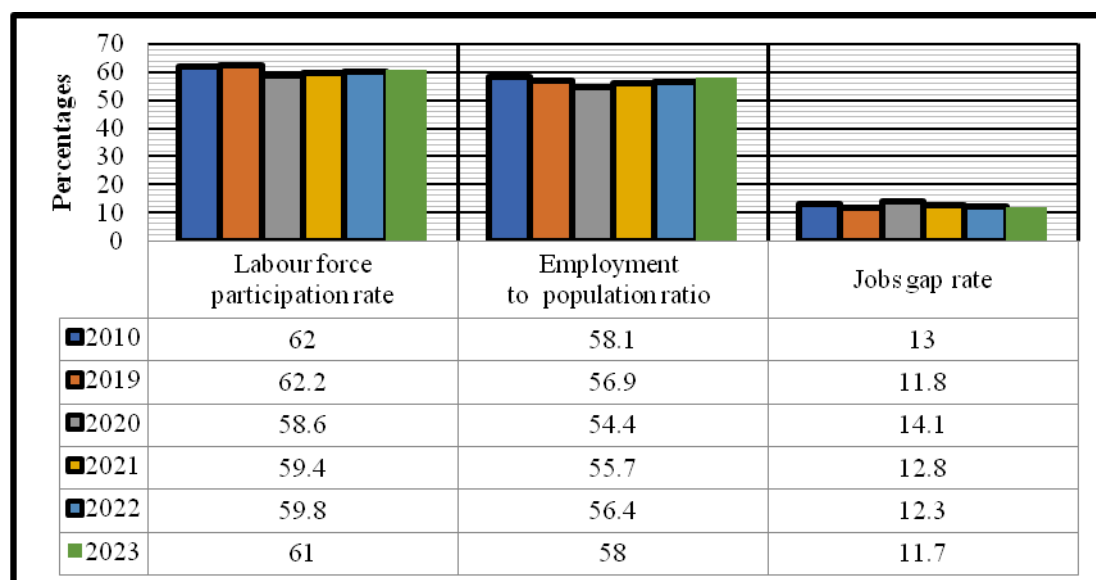
Figure 1.1: World Labour Market Indicators

Source: Data adapted from ILOSTAT (ILO modelled estimates data) January 2025

The labour force participation rates in Africa were also high and remained largely unchanged from the 1990s to the 2000s; however, employment growth has been

uneven. For example, vulnerability employment in Sub-Saharan Africa decreased from 77 per cent in 1991 to 74 per cent in 2020, but in 2023 the youth unemployment (not in education, education and training, NEET) was 21.9 per cent above from 20.4 per cent global rate. The World Bank (2023, 2025) indicated that Sub-Saharan Africa's annual GDP growth was 2.5 per cent in 1990, 5.9 per cent in 2010, and 3.7 per cent in 2022, 2.9 in 2023 and 3.2 in 2024.

Additionally, Africa's total reserves in months of imports were estimated to be 5 in 2010, 6 in 2020, 4 in 2022 and 2023 was 5 months. The region's external debt stock as a percentage of GDP has risen from 19 per cent in 2010 to nearly 29 per cent in 2022. The regional inflation rate was 10.6 per cent in 1990, 8.8 per cent in 2000, 8.3 per cent in 2022 and 6.7 per cent in 2023. Trade as a percentage of GDP was 67 per cent in 2010, 60 per cent in 2022 and 59 per cent in 2023. The global changes in climate, civil wars and supply constraint significantly affect macroeconomic factors and consequently the employment growth in Africa region and in Tanzania context.

The employment-to-population ratio in Tanzania has been subject to fluctuations. In 1990, the country experienced short-term debt comprising 8.1 per cent of total external debt, which increased to 15.3 per cent in 2010 and decreased to 14.2 per cent in 2022 and in 2023 reached 14.65 per cent. Interest rates were approximately 26 per cent in 1990, 14.5 per cent in 2010, and 16.78 per cent in 2022 and in 2023 was about 16.5 per cent. Total reserves, measured in months of imports, were 5 months in 1990, increased to 15 months in 2009, and fell to 4.8 months by June 2023 United Republic of Tanzania (URT, 2023). The unemployment rate was about 3.7 per cent in 1995, decreased to 3.1 per cent in 2000, and rose to 3.2 per cent in 2005.

It then dropped to 3 per cent in 2010 and 2.2 per cent in 2015, before increasing to 2.8 per cent in 2020 and subsequently decreasing to 2.6 per cent in 2023 (ILO, 2025).

	LFPR	EMPL	UNPR
■1990	72.4	69.9	
■2000	79.6	76	3.1
■2006	89.6	79.2	3.3
■2015	86.7	77.8	2.2
■2021	83.1	75.4	2.8
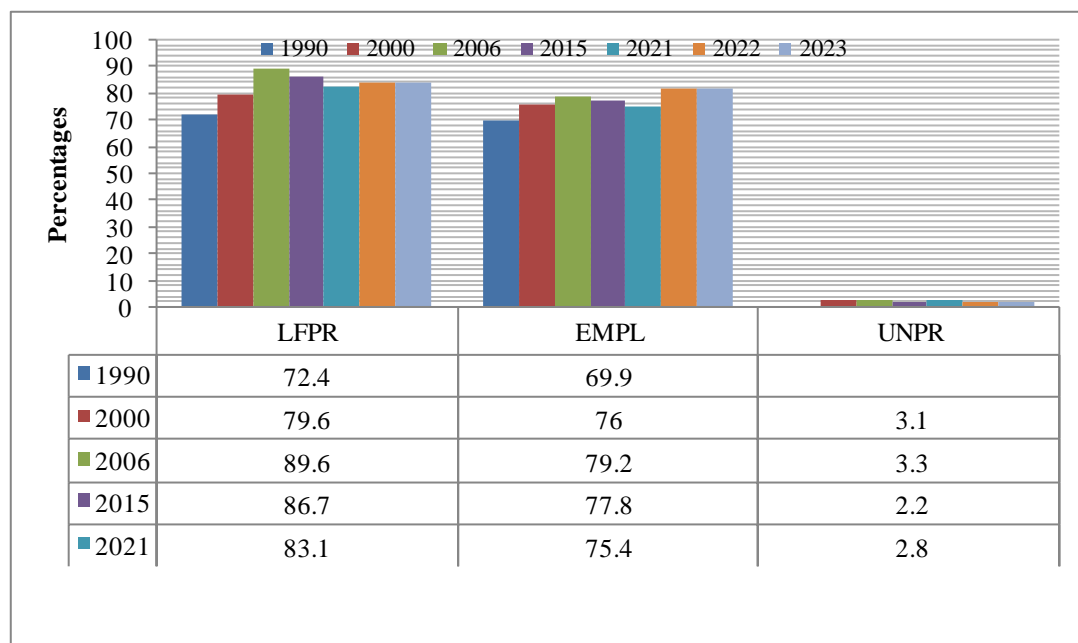
Figure 1.2: Tanzania Labour Force Participation Rate, Employment Ratio and Unemployment Growth in Tanzania

Source: Researcher Constructs Data adopted from National Bureau of Statistics, Integrated Labour Force Survey, (1990, 2000, 2006, and 2014 and 2020/2021, Unemployment, total (% of total labour force) modelled ILO estimates-Tanzania, 2025).

Figure 1.2 portrays that Tanzania is still facing unemployment challenges in comparison with large incoming labour force in the economy. Government of Tanzania through the bank of Tanzania has ensured the presence of price stability of 5 per cent, and expenditures are effectively managed, controlled and that deficits in the country are minimised, Mawejje and Odhiambo, (2020); URT, (2024)but

employment growth and deficits remain the challenge. It has been noted that the conventional macroeconomic framework is hindered by low private investment, high unemployment rates, rising poverty levels, and sluggish growth. The traditional frameworks have been rarely supporting the relationships between economic growth, inflation, and budget deficits, indicating that their interactions are more complex than typically assumed. While stability is essential for growth, it does not guarantee that employment formation and growth will follow (ILO, 2015, Islam, 2018). These macroeconomic trends underscore the complexity of linking stability to employment growth and form the basis for this study's examined the impacts of macroeconomic factors on employment growth in Tanzania.

1.3 Research Problem Statement

Macroeconomic factors, particularly fiscal and monetary policies, significantly influence economic growth and employment. Islam (2018) argues that achieving growth and employment necessitates a comprehensive understanding of fiscal and monetary constraints. These macroeconomic factors often-present trade-offs, indicating that the pursuit of one objective may require compromising another. However, this does not necessitate the development of separate policies for each macroeconomic goal. Instead, a coordinated approach that integrates fiscal and monetary considerations is essential for comprehensive economic planning.

Several studies have examined the effects of these macroeconomic factors on employment growth, producing mixed results. For instance, Adegboye (2020), Onwuka (2021), and Alkhateeb, et al., (2017) found that increased government taxes stimulate employment growth by increasing the public investment and hence

stimulate employment profile. Onwuka (2021), Omran and Bilan (2020), Islam (2018), Abdelkader, at el., (2017), Islam (2018), Kamar, et al., (2019) stated that government spending on social and infrastructural facilities such as good road networks, energy supply, good health care centres aids outputs towards improving the national output and the labour supply.

Additionally, Ngouhouo and Nchofoung, (2021), Onifade, et al., (2020), Alkhateeb, et al., (2021), Adegboye (2020),Edo and Oigiangbe (2024) found openness to trade and employment growth were directly related through technology diffusion in production, increases demand for goods and services, thereby enhancing production processes. Ijirshar, et al., (2016) and Nwannebuike, et al., (2016), suggest that external debt positively affects economic growth because developing economies often face insufficient capital, leading them to borrow to supplement the public investment.

Alemu (2024), Vlad and Haysa (2020) Islam and Sahajalal (2019) and Onifade, et al., (2020) proposed the direct relationship between inflation rate and employment growth since rising the price level indicate household income on average have increased which reflect the expansion of economic activities and in turn increases the demand for labour. Micheni and Muturi (2019), Gnahe and Huang (2020) proposed direct relationship between lending interest rate and employment growth because higher interest rate call for more saving which in the long run guarantee more investment hence expansion of production and employment.

Kruskovic (2020), Asaleye, et al., (2017), Kaphle (2021), contended that during the depreciation of the local currency, export sector tend to rise simply because the cost

of imported goods and services tend to increase hence boosting local demand which increases the local productions and employment level. Jacob and Magungu (2023) and Gumata and Ndou (2021),Kaphle (2021), Sula and Oguzoglu (2021) and Alam et al. (2021) found direct relationship between foreign reserve and employment growth foreign reserve can service external debts, investing in both internally and externally, maintain the trust to most of investors hence increase employment profile.

Conversely, other studies have proposed negative relationships between macroeconomic factors and employment growth. Islam (2018), Kamar et al. (2019), and Omran and Bilan (2020) found that increased government taxes negatively impact employment growth in the meantime revenue in form of taxes imposes the burden or cost to the producers who are the employment creators. Adegboye (2020) and Cvecic and Sokolic (2018) indicated that higher government spending does not always correlate with higher employment rates. Expansion of fiscal space tends to have lower yields of vulnerable employment as their economies grow. Onifade et al. (2020), Kamar et al. (2019), Asaleye, et al., (2017), and Kirema (2019) found openness to trade and employment growth were inversely related with employment growth.It was argued that firms tend to disappear as domestic companies compete with advanced foreign firms, diminishing the employment landscape.

Note at all Evans (2022), Alnaa and Matey (2023), Warsame et al. (2024) Tang and Issahaku (2024), Saani, et al., (2023), Selim and Hassan, (2019) established negative relationship between employment growth and external debt. Khan (2025) found reduction in remittances as well as labour force participation rate increases youth unemployment. Similar to Kruskovic (2020) and Micheni and Muturi (2019), Selim

and Hassan, (2019) and Arshad and Ali (2016) found inflation hurt the individuals through decreasing their purchasing power hence spending less of income to buy goods and services, decreasing the profits and less production become which ends to high unemployment rate .

Onwuka (2020), Vlad and Haysa (2020), Selim and Hassan, (2019), Asaleye et al. (2017), Ashard and Ali, (2016), and Attamah et al. (2015) indicated higher rate of interest to the investors increases the cost of production. Ibrahim et al. (2023), Salihu et al. (2024), Islam and Sahajalal (2019), Atya (2017) and Micheni and Muturi (2019) found inverse relationship between exchange rate and employment growth because local currency appreciation brings cheap imported goods and services which discourage the demand for local goods and services. Ibrahim et al. (2024) found foreign reserve decreases employment growth because foreign reserve can alternatively be used to adjust both import and export volume in the country which consequently affects the government revenue.

Although these studies have illuminated the complexities of fiscal and monetary factors in employment growth, they do not fully explore the interplay between internal and external macroeconomic factors. Additionally, there is limited analysis on the short and long-term impacts of these factors on employment, particularly in developing countries like Tanzania. This study fills the gap by examining how both internal and external fiscal and monetary factors—and their interactions—influence employment growth in Tanzania over the period 1990–2022, considering both short-run and long-run impacts.

1.4 Objectives of the Study

1.4.1 General Objective

This study aimed to examine the impacts of macroeconomic factors on employment growth in Tanzania from 1990 to 2022

1.4.2 Specific Objectives

Specifically, the study aimed to:

i. To examine the impact of internal fiscal factors (revenue and expenditure) on employment growth from 1990 to 2022.

ii. To examine the impact of external fiscal factors (external debt and trade openness) on employment growth from 1990 to 2022.

iii. To examine the impact of internal monetary factors (inflation rate and lending interest rate) on employment growth from 1990 to 2022.

iv. To examine the impact of external monetary factors (exchange rate and foreign reserve) on employment growth from 1990 to 2022.

v. To examine the impact of the interactions between internal and external fiscal and monetary factors on employment growth from 1990 to 2022.

1.5 Research Hypothesis

The following are specific alternative hypotheses that were tested by the study

i. **H_1:** Internal fiscal factors have a significant positive impact on employment growth in Tanzania.

ii. **H_1:** External fiscal factors have a significant positive impact on employment growth in Tanzania.

iii. **H_1:** Internal monetary factors have a significant positive impact on employment

growth in Tanzania.

iv. **H₁:** External monetary factors have a significant positive impact on employment growth in Tanzania.

v. **H₁:** Internal and external fiscal and monetary factor interactions have a significant positive impact on employment growth in Tanzania.

1.6 Significance of the Study

This study examined the impacts of macroeconomic factors on employment growth in Tanzania, contributing to the understanding of how internal and external fiscal and monetary policies influence employment. It examines both the short- and long-term impacts of these factors, incorporating frameworks from the Mundell-Fleming model and the general theory of employment, money, and interest. Additionally, the study highlights the impacts of trade openness, external debt, exchange rates, and foreign reserve accumulation on employment, making it relevant for both economic theory and practical policymaking.

The findings provide valuable insights for government bodies, particularly policymakers in the Ministry of State, Prime Minister's Office (Labour, Youth, Employment, and People with Disabilities). The study emphasises the need for sound budgetary management and legislative oversight to ensure that changes in government revenue and spending contribute to reducing unemployment, improving job quality, and providing fair wages. These findings highlight the importance of addressing decent work deficits and enhancing the overall employment landscape in Tanzania. Moreover, the study offers practical recommendations for the Ministry of Finance and the Bank of Tanzania, focusing on the development of an effective financial system

through sound monetary tools, such as reducing lending rates, control inflation rates, exchange rates, and increases foreign reserve. It also benefits the community by illustrating how government actions to create decent jobs can improve social welfare and reduce violence. Finally, the study serves as a comprehensive reference for future research exploring the relationship between macroeconomic factors and employment growth, offering both theoretical and empirical contributions to the field.

1.7 Scope of the Study

The scope of the study is designed to delineate the margins or boundaries within which the topic will be considered, as it is impractical to study everything comprehensively (Kothari, 2006). This research utilised time series data from 1990 to 2022, a period marked by significant fiscal and monetary reforms. These include the establishment of the Tanzania Revenue Authority (TRA), the implementation of the Value-Added Tax (VAT) reform strategy, and the privatisation of approximately half of the parastatal enterprises. Additionally, trade policy reforms were introduced, such as the reduction of non-zero tariffs, regional initiatives, the liberalisation of interest rates, and the establishment of private banking licences, alongside the operationalisation of the Dar es Salaam Stock Exchange. As of the 2020s, the country continues to face economic constraints stemming from global economic shocks and the residual effects of COVID-19.

1.8 Thesis Organisation

The first chapter of the thesis includes the study's background, research problem, objectives, hypothesis, and importance of the study, scope, and organisation of the report. Chapter 2 covers the definitions of key concepts, a review of the theoretical

literature, relevant theories and the study's model, an empirical literature review, a research gap analysis, and a conceptual framework. Furthermore, Chapter 3 provides a detailed account of the research philosophy, design, types of data, sources, measurements, data analysis, theoretical and model formulation, diagnostic model tests, and ethical considerations.

Chapter four to eight offer extensive data analysis, presentation, and discussion on statistical summaries, stationarity status, and the ARDL model with regression diagnostic tests, model stability tests, and Granger causality tests. Specifically, Chapter four addresses internal fiscal factors; Chapter five focuses on external fiscal factors; Chapter six delves into internal monetary factors; Chapter seven clarifies external monetary factors; and Chapter eight examines the interaction between internal and external fiscal and monetary factors. Chapter nine presents a comprehensive summary of the study, concluding remarks, and recommendations for various economic actors.

CHAPTER TWO

LITERATURE REVIEW

2.1 Chapter Overview

The chapter provides a comprehensive literature review that aims to elucidate the meanings of the study's foundational variables. A theoretical literature evaluation is presented to outline the study's roadmap, while an empirical literature evaluation consolidates various channels of macroeconomic factors and their implications for employment growth. Additionally, the research gap, and conceptual framework are discussed to highlight the macroeconomic variables incorporated into the study.

2.2 Conceptual Definition

Definition of key terms intended to elucidate the concepts of dependent and independent variables relevant to the study are provided as follows.

2.2.1 Fiscal Macroeconomic Factors

Fiscal factors is the government's process of managing its economy by influencing the demand for goods and services, individuals' incomes, and regulating taxes with the aim of achieving employment and economic growth, Titiloye and Ishola (2018). Likewise Gloria Chris Ejiogu et al. (2019) elaborated that fiscal factors encompass the government's actions in utilising revenue and taxes to control unemployment and inflation rates in order to attain economic growth. These factors are subdivided into internal fiscal factors, such as government development expenditure, recurrent expenditure, total government tax, total government non-tax revenue, public domestic debt, and external fiscal macroeconomic factors, including public external debt, grants, trade openness, and foreign direct investment. This study adopt similar

definition and incorporate total government revenue and expenditure as internal fiscal factors, as well as external fiscal factors, public external debt and trade openness with their impacts on employment growth in Tanzania in testing hypothesis one, two and five.

2.2.2 Monetary Macroeconomic Factors

Monetary policy refers to the government's authority, exercised through the central bank, to regulate the flow of money in the economy in order to achieve both economic and employment stability (Chris-Ejiogu et al., 2019). Titiloye and Ishola (2020) also indicated that monetary policy may involve decisions regarding the quantity of money in circulation, interest rates, the operation of the banking system, and credit markets. Through these measures, monetary policy can influence the amount of money in circulation within the economy and affect the level and structure of interest rates, thereby impacting the cost of funds in the market (Chris-Ejiogu, et al., 2019).

Monetary policy can operate internally by influencing inflation rates and the functioning of the banking system, as well as externally through exchange rate systems and foreign reserve rates. The study adopted similar definition where inflation rates and lending interest rates were employed as internal monetary factors to examine their impacts on employment growth. Additionally, exchange rates and foreign reserves were used as external monetary tools to assess their effects on employment growth in Tanzania in answering hypothesis three, four and five.

2.2.3 Employment Growth

Employment refers to the number of individuals of working age within the

population who are employed. According to ILO (2023), an employed person is defined as an individual aged 15 years or older who has worked (for pay or profit) for at least one hour during a given week or who has a job from which they are absent due to circumstances related to the duration or reason for their absence (such as holidays, sick leave, or maternity leave). This definition encompasses individuals who are employed, self-employed, or family members.

In the context of Tanzania, the definition of employment aligns with the international standard; however, individuals who are only tangentially (or marginally) involved in self-employment are excluded and considered unemployed. For example, unpaid family workers engaged in agricultural operations, those with uncertain job ties, and individuals reported as working fewer than 40 hours per week due to economic constraints are all classified as unemployed (ILFS, 2021). Employment growth therefore indicates the total number of employment per annum created in the economy. Given the specific macroeconomic variables of each country, this study has adopted the national definition of employment to ensure that the findings accurately reflect the Tanzanian environment.

2.3 Theoretical Literature Review

2.3.1 Relationship between Economic Growth and Employment

The starting point of the relationship between economic growth and employment is the aggregate production function originally developed by Solow in 1988. The Solow model establishes the connection between aggregate output and the inputs in production. This model assumes that aggregate output (Y) is produced using two inputs: capital (K) and labour (L). Specifically, it describes how much output is

produced for a given quantity of capital and labour, represented as Y = f(K, L). For the purposes of this study, the production function is simplified to Y = f(L).

The production function can be examined from two perspectives: supply and demand. From the supply side, the output produced depends on the amount of labour utilised. Conversely, from the demand side, it illustrates how much labour is required for a specific level of output. Thus, the demand function is rewritten as L = F(Y).National output in an economy is generated by combining labour input (demand for labour) with other factors of production. The demand function for labour can be derived by assuming a constant elasticity of substitution (CES) production function and solving the marginal product of labour (MPL) equation for the labour input variable (Mkhize, 2019).

$$Y_t(GVA_t) = A\{\alpha K_t^{-p} + (1-\alpha)E_t^{-p}\}^{-\eta/p} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots.1$$

where Y_t = sectoral output or GVA_t = Gross Value Added, K_t = Capital input, E_t = Employment /Labor input, A = Efficiency parameter, $A > 0$, η = Return to scale parameter $n > 0$, α = Distribution parameter $0 < \alpha > 1$, ρ = extent of substitution (between K and E) parameter, $\rho > -1$, and related to elasticity of substitution; $\sigma = 1 / 1 + \rho$ .The derivative of labour (i.e. marginal product of labour (MP$_L$) from equation (1) can be written as presented in equation 2:

The marginal product of labour, MP$_L$ expression in equation 2 is solved for the E_t input variable in order to derive the empirical labour (employment) demand function:

$$\frac{\eta(1-\alpha)}{A^{\frac{p}{\eta}}}.GVA^{\frac{(1+P)}{\eta}} = E_t^{p+1} \qquad E_t = \left(\eta\frac{1-\alpha}{A^{\frac{p}{\eta}}}.GVA_t^{\frac{1+p}{\eta}}\right)^{\frac{1}{(p+1)}}$$

rearranging,

$$E_t = \left(\eta.\frac{(1-\alpha)}{A^{\frac{p}{\eta}}}.GVA_t^{\frac{1+p}{\eta}}\right)^{\frac{1}{p+1}}\ldots\ldots\ldots\ldots\ldots3$$

$$E_t = \eta.\frac{1-\alpha}{\left(A^{\frac{p}{\eta}}\right)^{\frac{1}{p+1}}}.GVA^{\left(1+\frac{p}{\eta}\right)\left(\frac{1}{p+1}\right)}, \text{ hence } E_t = \beta_0 GVA_t^{\beta_1}\ldots\ldots\ldots\ldots\ldots4$$

where $\beta_0 = \eta.\dfrac{1-\alpha}{\left(A^{\frac{p}{\eta}}\right)^{\frac{1}{p+1}}}$, $\beta_1 = \left(1+\dfrac{p}{\eta}\right)\left(\dfrac{1}{p+1}\right) = 1+\dfrac{p}{\eta}.\sigma$ and σ (elasticity of

substitution) $= \dfrac{1}{p}+1$ .If equation (4) was log-transformed, equation 5, employment

function was obtained: $\ln E_t = \ln\beta_0 + \beta_1 \ln GVA_t$

$= \beta_0 + \beta_1 \ln GVA_t\ldots\ldots\ldots + \beta_n \ln X_{nt} + \varepsilon_t\ldots\ldots\ldots\ldots\ldots5$

Equation 5 indicates that employment growth is directly influenced by sectoral output or the economic growth of the country, and indirectly by fiscal and monetary factors. Consequently, this theoretical framework highlights the intricate relationship between macroeconomic factors and employment growth, thereby providing a foundation for analysing empirical data in Tanzania from 1990 to 2022.

2.4 Theories and Models of the Study (Keynesian Theory and Mundell-Fleming Model)

2.4.1 Keynesian General Theory of Employment

This theory served as the guiding framework for this study. In 1936, Professor

Keynes formulated a theory of employment centred on effective demand as the foundation of employment theory. According to Keynes, demand generates its own supply. Effective demand represents the income level at which total demand and total supplies are balanced, encompassing the sum of all consumer and investment spending. Keynes established the equilibrium of full employment through the aggregate supply and demand approach. Aggregate demand refers to the total amount of demand for goods and services within an economy over a given year.

Conversely, aggregate supply denotes the monetary value of all goods and services produced in a nation over the same period, effectively representing the country's national income. Keynes (1936) identified three equilibrium levels: equilibrium at full employment, equilibrium at less than full employment, and equilibrium at more than full employment. Vlad and Hysa (2019) observed that employment at full equilibrium occurs where the aggregate demand curve intersects the aggregate supply curve. When all resources are utilised productively, the income level achieves equilibrium when aggregate demand and supply are equal.

Figure 2.1 illustrates that when there is insufficient aggregate demand (AD) to accommodate all those seeking employment, an equilibrium at less than full employment (deflationary gap) ensues, leading to involuntary unemployment, with deficient demand identified as the underlying cause. Conversely, equilibrium at a level exceeding full employment (inflationary gap) occurs when the economy's resources adequately meet the total demand for goods and services, with economic oversupply being the root of this condition.
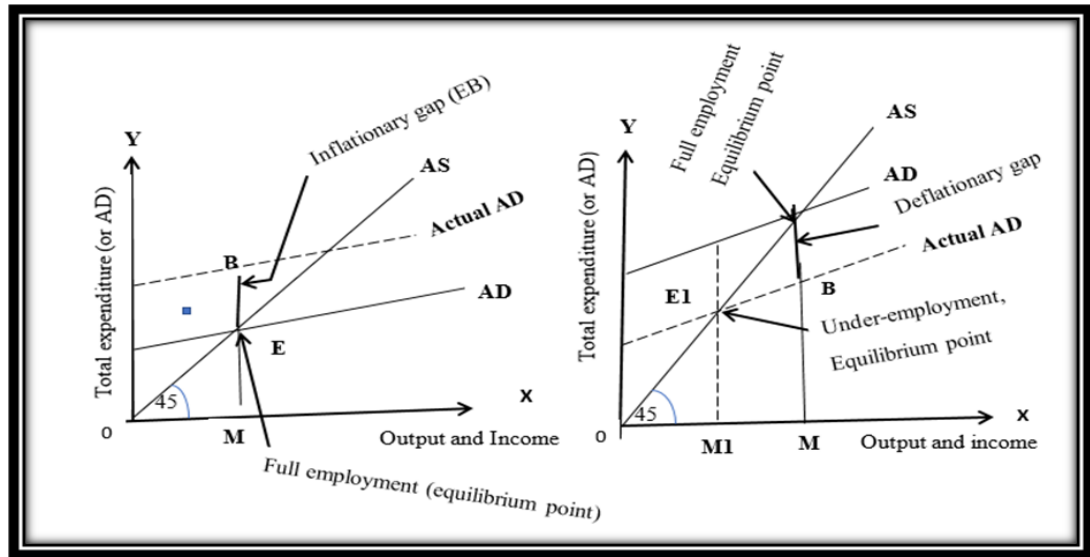
Figure 2.1: Keynesian full Employment Level, Deflationary and Inflationary Gap

Source: Researcher Constructs 2024

Keynes (1936) proposed that society effectively utilise fiscal instruments such as reducing tax rates, increasing government expenditure, and monetary instruments such as lowering bank rates, minimising reserve ratios, and purchasing government assets to remedy deficient demand or enhance export activities. He further asserted that to correct an inflationary gap, society could implement fiscal policies like raising tax rates, decreasing government spending, and monetary policy measures such as increasing bank rates, adjusting reserve ratios, selling government securities, and promoting imports.

Following the work of Micheni and Muturi (2019), Keynes concluded that increasing total demand was the sole solution to widespread unemployment, given that labour is "derived" demand; this means that as the demand for goods and services rises, so too does the demand for labour, thereby creating additional job

opportunities. Various objections were raised, particularly by Schumpeter (1942) and Smithies (1951), who opposed government intervention on the grounds that it could potentially hinder the development of the capitalist system. Keynes contended that uncertainty had caused individuals and businesses to halt investment and spending, necessitating government expenditure to restore the economy.

Overall, the theory is pertinent to the current study as it elucidates the reasons for excess or deficiency in aggregate demand through the analysis of inflationary and deflationary gaps in the economy, as well as the nature of employment within specific countries. It also provides clear practical policies that can support job creation, thereby enabling policymakers to draw conclusions based on the economic conditions of their respective countries.

Keynes (1936) emphasised the importance of both appropriate fiscal and monetary factors as instruments for controlling inflation and increasing aggregate demand within a country. Since the theory is central to explaining the performance of a closed economy, it was employed in this study to explore how both internal and external fiscal and monetary macroeconomic factors impact employment growth within the context of Tanzania, as reflected in objectives one, two, and three. Additionally, the theory was utilised to examine the nature of employment in developing countries like Tanzania, thereby informing the formulation of both fiscal and monetary factors to ensure sound and quality employment opportunities in the region.

2.4.2 The Mundell-Fleming Model

The 1960s saw the development of the open economy concept, known as the Mundell-Fleming model. This model expanded upon the closed economy Keynesian,

Investment Saving –Liquidity preference Money supply (IS-LM) framework, facilitating the analysis of an economy's performance while accounting for external shocks. Mundell integrated the IS-LM model by considering open economies affected by capital flows, currency shocks, and exchange rate volatility. Mukherjee (2023) argued that the model provides a framework for analysing monetary and fiscal policy, illustrating how a small economy open to international trade in goods and financial assets operates.

Furthermore, Micheni and Muturi (2019) explained that the model demonstrates how exchange rates significantly influence the effectiveness of macroeconomic policies within an economy. Real exchange rates affect import and export volumes, consequently impacting revenue in an open economy. A key takeaway from the Mundell-Fleming model is that the effect of any economic policy—be it fiscal, monetary, or trade—depends on the exchange rate regime of the country in question, specifically whether it employs a fixed or floating exchange rate system.

One of the main criticisms of the model is its assumption of perfect capital mobility between countries. Perfect capital mobility refers to the ability for capital to flow between nations without cost, resulting in risk-adjusted returns to capital, net of taxes, being equal across all nations. However, controlling capital movements and the lack of information about foreign nations makes perfect capital mobility challenging, resulting in higher risks associated with lending or investing overseas compared to domestic activities. Mundell (1960s) asserted that this assumption should not be taken literally and cautioned against its limitations. The inclusion of imperfect capital mobility in the model indicates that, under a flexible exchange rate,

both monetary policy and fiscal expansion can influence output and employment. Consequently, monetary policy can impact output under a fixed exchange rate, while fiscal expansion can do so under a flexible exchange rate.

Despite the criticisms directed at the Mundell-Fleming model, the current study adopts it in connection with the Keynesian general theory of employment, interest, and money to achieve the desired macroeconomic goal of growth. The Mundell-Fleming model illustrates how to appropriately utilise monetary, fiscal, and trade policies. The exchange rate system determines the extent of the impact these policies have, allowing for the effective application of monetary, fiscal, and trade policies to accomplish any desired macroeconomic objective within a given exchange regime. This theory guided the study in examining how external monetary factors, such as exchange rates and foreign reserves, affect employment growth in the context of Tanzania, as reflected in objectives four and five of the study.

2.5 Empirical Literature Review

The empirical literature review provided insights into the efforts and findings of scholars, both locally and internationally, which serve as valuable lessons for the new research on the subject matter (Saunders et al., 2016). The following is a review of the empirical literature related to each specific objective.

2.5.1 Impacts of Internal Fiscal Factors on Employment Growth (Government Revenue and Expenditure)

The study employed total government revenue and total government expenditure as the basis for internal fiscal tools aimed at facilitating suitable employment creation.

Some literature presents mixed findings; while some studies indicate a direct relationship between employment growth and internal fiscal policy, others suggest an indirect relationship. Onwuka (2021) utilised data from 1981 to 2020 to empirically investigate the effects of monetary and fiscal policy on the unemployment rate in Nigeria. The study posited that unemployment was influenced by total government expenditure, government taxes, interest rates, and money supply. By employing the Vector Autoregressive (VAR) model, the study concluded that government spending, interest rates, and taxes were negatively associated with the unemployment rate, indicating that they increase employment, whereas the money supply exhibited a direct relationship with unemployment.

Additionally Alkhateeb et al. (2017) explored the relationship between oil revenue and unemployment from 1991 to 2016, incorporating public spending and GDP in their analysis. The co-integration results revealed the presence of a Vector Error Correction model, indicating that the employment profile in Saudi Arabia was positively influenced by oil revenue, GDP, and government spending. The study highlighted that a decrease in oil prices could adversely affect the Saudi Arabian economy, thus emphasising the need for alternative measures to diversify the economy.

Islam (2018) examined macroeconomic policy and employment from the perspective of development in Switzerland. Utilising empirical data from South Asian nations, the study revealed that linkages between economic growth, inflation, and budget deficits do not consistently conform to the traditional paradigm. Furthermore, it indicated that public spending, particularly on infrastructure, had a more pronounced

effect on employment than tax cuts.

Likewise Abdelkader et al. (2017) conducted a study to assess the impact of Algeria's public spending on key economic factors, including employment, prices, and income distribution. The research aimed to determine whether public spending had successfully increased purchasing power and reduced the unemployment rate. Empirical results collected between 2000 and 2012 indicated that public spending had a positive effect on the employment and consumption costs of Algerian individuals.

Connectedly, the study on how Egypt's fiscal policy has affected the country's unemployment rate was conducted by Omran and Bilan (2020). The research employed yearly time series data collected from the World Bank and the International Monetary Fund, spanning the years 1976 to 2018. An impulse response function (IRF) tool was used alongside a five-variable structural vector autoregressive (SVAR) model, based on the Blanchard and Perotti technique. The study found that both in the short run and the long run, public spending increases employment growth, while tax revenue was found to decrease the unemployment rate in the short run and increase unemployment in the long run.

Furthermore Maku and Alimi (2015) examined the impact of fiscal policy on employment creation from 1980 to 2015. The study utilised Engel-Granger cointegration for estimating both the short run and long run using the ordinary least squares method. The findings indicated that government expenditure and the manufacturing sector had a significant positive impact on employment growth, as

they were reducing the unemployment rate. Nevertheless, it was found that the unemployment rate and government tax revenue were positively related.

However, Adegboye (2020) utilised a panel dataset covering three sub-periods (1991-1999, 2000-2009, and 2010-2016) for 37 countries to examine the impact of macroeconomic policies on employment yields from output growth in Sub-Saharan African countries. Employing the feasible generalized least squares method, the study found that government spending was inversely related to employment, while GDP and trade openness positively influenced employment yields. The efficacy of macroeconomic policy patterns as tools for the region's labour market adjustment is contingent upon these patterns.

Similarly, Kamar, et al., (2019) studied the effects of pro-growth policies on employment in Qatar to illustrate geographical differences, utilising the ratio of employment to the population over 25 years. On average, across 76 nations, growth promotes job creation. The policies that encourage higher education spending, private sector loans, investments, openness, services, and a fixed currency rate are those that generate jobs. Also, a larger government size impedes job creation, while FDI and industrial development strategies fail to enhance employment. The findings further indicate significant regional disparities in the impact of pro-growth policies on employment.

Furthermore, Cvecic and Sokolic (2020) investigated the effects of active labour market policies on unemployment dynamics. The study identified specific macroeconomic, demographic, institutional, and educational determinants

influencing youth unemployment rates in Europe. The Generalized Method of Moments was employed to estimate dynamic panel data from 27 EU member states between 2005 and 2014, revealing that public spending on labour market reforms as a share of GDP had a statistically significant effect on unemployment rates with positive coefficients.

The literature reveals conflicting results, as some studies indicate that government spending and flexible tax policies can contribute to job creation, while others suggest they may not lead to employment growth. For instance, Adegboye (2020), Onwuka (2021), and Alkhateeb et al. (2017) found that government taxes increased employment growth. In contrast, Islam (2018), Kamar et al. (2019), and Omran and Bilan reported that government tax revenue decreased employment growth. Similarly, Onwuka (2021), Omran and Bilan (2020), Kamar (2019), Islam (2018), Abdelkader et al. (2017), and Maku and Alimi (2015) established a direct relationship between government spending and employment growth, contrary to the perspectives of Adegboye (2020) and Cvecic and Sokolic (2018), which indicated an inverse relationship between government spending and employment growth.

The diversity of these recent findings underscores the necessity for further examine the impact of internal fiscal macroeconomic factors on employment growth, given the inadequate body of empirical review within the Tanzanian context. The country has been experiencing higher government spending in comparison to its revenue collection, making it crucial to examine how these changes affect employment growth. Further the study followed an ARDL model to examine the impacts of internal fiscal factor with the alternative hypothesis; internal fiscal factors have a

significant positive impact on employment growth in Tanzania.

2.5.2 Impacts of External Fiscal Factors on Employment Growth (Public External Debt and Trade Openness)

This study aimed to explore how external fiscal factors, such as external debt and trade openness, impact employment growth. The literature revealed that trade openness can indirectly affect employment growth. For instance Onifade et al. (2020) of Nigeria studied the relationship between trade and unemployment to determine how the dynamics of the nation's trade performance have been impacted by the unemployment crisis. The empirical data demonstrated trade openness had a direct relation with unemployment while terms of trade, domestic investment, inflation and real gross domestic product per capital were inversely related with unemployment and further it was suggested a concentrated effort has to be made to stimulate domestic investment by providing adequate financial and infrastructural facilities that will promote ease of doing business.

Likewise Asaleye et al. (2017) analyzed the data from Nigeria concerning employment and trade openness .Through Granger Non-Causality and the Vector Error Correction model it was shown that trade openness and and interest rate had a negative long-term relationship with employment growth,implying that increase in openness to tarde and interest rate caused economic growth to fall in long run .On other hand exchange rate were directly related with employment growth, this suggested Nigeria to employ interest and exchange rates to boost trade competitiveness and become more competitive in the global market.

Furthermore, Kirema (2019) in Kenya studied the openness to trade effct on unemployment rate using the data from 1970-2017,   a time series data.Using multiple linear regression analysis ,the study had unemplyment as dependent variable and trade openness, export rate , import rate and GDP rate as independent variables.It was established the inverse relationship between export and import while direct related with GDP growth rate and openness to trade.

Either, some pointed openness to trade and employment growth to direct relate to each other, for example, Kamar et al. (2019) with panel data in Qatar carried the study on the effects of pro-growth policies on employment. The study came out on average, across 76 nations; growth encouraged the creation of jobs. The policies that promoted higher education spending, private sector loans services, investments, openness and a fixed currency rate were the ones that generate jobs.

In addition Ngouhouo and Nchofoung (2021) investigated how trade openness affected employment in Cameroon. The co integration approach was used in this study and the outcome determined that trade openness, had a considerable impact on employment in Cameroon as well as industrialization and investments had greatly increased employment. Gross fixed capital formulation and human capital had no any significant effect on employment in Cameroon.

Connectedly Martes (2018) in Organisation for Economic Co-operation and Development(OECD), countries studied on the effect between trade openness and unemployment where the ordinary least square was utilized with unemployment rate as the function of openness to trade, Output gap, tax wedge, tax participation and

unemployment benefit replacement. It was found indirect relationship between trade openness, output gap, participation tax rate and unemployment; labour tax wedge had a direct relationship while unemployment benefit replacement was found insignificant.

Nevertheless Alkhateeb et al. (2021) carried the study on the effect of trade openness and unemployment in Saudi Arabia with ARDL model and annual data from 1980 to 2015.The results indicated that economic growth, openness to trade, education spending by the government in the long run favoured the growth of employment. The study further suggested the Kingdom to opt for openness to trade for rising employment profile.

On the other hand, Sanjo, et al., (2022), in Tanzania investigated the effect of trade openness and real exchange rate on economic growth where there were about 47 data collected 1970 to 2016 and analysed. With ARDL model, there was direct relationship between openness to trade, real exchange rate and FDI on real gross domestic product in long run. In short run, trade openness exaggerated positive relation as well. It was forwarded the domestic industries to be supported by the government so as to boost production of goods and services.

External debt empirical review provided mixed finding, the indirect relationship was portrayed in the studies of Edo and Oigiangbe (2024) used the panel data on the external debt vulnerability in developing countries especially for the Sub-Saharan Africa in the economic and policy perspectives. With ordinary least squares and fully modified ordinary least squares, the results estimated indicated that economic growth

was hampered by the growth of public debt in Sub-Saharan Africa. Alnaa and Matey (2023) in Sub- Saharan Africa also carried the study on external debt and unemployment in dynamics relationship. By utilising panel data of 25 countries and generalised method of moments (GMM) estimator. The study found that public debt was directly related with unemployment increase. This is because borrowing by the countries reduces the economic power by employment decrease and in return employment increases.

In addition Tang and Issahaku (2024) conducted the study in Sub- Saharan countries on the quality institutional role in the connection existing between unemployment and public debt. Thirty-six panel data of Sub- Saharan countries were studied from 1996 to 2020. The study opted for Generalised Method of Moments (SGMM) and it was found that the acquisition of public debt by Sub- Saharan countries worsen unemployment in the region. In addition, institutional quality was the best in moderating the effect between public debt and unemployment meaning the institutional effectiveness could be used by Sub- Saharan countries to ensure public debt are directed to the employment channels.

Similarly Saani et al., (2023) in Ghana conducted the study on relationship between inflation, public debt, and unemployment from 1990 -2022.Using the ARDL for long run and short run estimates, it was revealed that public debt and unemployment were directly related while there was inverse relationship between inflation and public debt. The study further recommended investment and infrastructure to be prioritized to stir economic growth and employment growth.

Likewise Warsame, et al., (2024) in Somalia used the annual data from 1991 to 2019 to analyse the relationship between inflation rate, public debt and unemployment The ARDL model a was used to estimate the data and the results were indicated the direct relationship between external debt and unemployment rate while GDP was found to have indirectly and small impact on the employment rate. The study indicated the need of employing external debt, GDP deflator, GDP in balancing unemployment and inflation rate.

Also Evans (2022) carried the study from 1991 to 2021 in Ghana investigated if the unemployment rate, inflation and external debt stimulated economic growth with intention of establishing the causal relationship between the studied variables. It was established that external debt had a positive correlation with economic growth and also impacted positively unemployment and inflation. It was further revealed that while GDP decreased inflation rate, external debt raised inflation and unemployment had no effect on inflation. Edo and Oigiangbe (2024) also revealed indirect relationship between economic growth and public external debt.

Moreover, some studies found the direct relationship between economic growth and external debt, Ijirshar et al. (2016) in Nigeria studied on economic growth and external debt relationship. The annual data from 1981 to 2014 were studied, with regression analysis; it was revealed that in both short run and long run, annual growth rate and external debt were directly related while external debt service and annual growth had a negative relationship. Besides Nwannebuike et al. (2016) in Nigeria from 1980 to 2013 studied the impact of external debt on economic growth. Error correction model was utilised prior to unit root and co integration and the

results revealed in short run external debt and GDP were directly related but not in long run. External debt services were indirectly related to GDP while exchange rate and GDP were direct related to each other. It was suggested the government to ensure loan are allocated to a specified purpose.

Generally, the literature has indicated diversion between external debt and trade openness on employment creation as some proposed direct impact while others indicated non-direct impact. For instance, Kamar et al., (2019), Ngouhouo and Nchofoung, (2021), Onifade, et al., (2020), Martes (2018) and Alkhateeb et al. (2021), pointed the direct relation between trade openness and employment growth. Connectedly Sanjo, et al. (2022) supported trade openness and economic growth to have positive relationship.Onifade et al. (2020), Asaleye et al. (2017), Kirema (2019) pointed non direct relationship between employment growth and trade openess.

On the other hand Evans (2022), Alnaa and Matey (2023), Warsame et al. (2024) Tang and Issahaku (2024),Saani et al. (2023), Selim and Hassan, (2019) explained that external debt do harm employment growth but some pointed direct relationship between external debt and economic growth, for example, Ijirshar et al. (2016)and Nwannebuike, et al., (2016). External debt has been increasing over the century to foster the budget deficit in the country. In addition international trade is among of significant source of government revenue hence it is crucial to examine how their changes impact employment growth. Unlimited body of knowledge regarding the impact of both trade openness and public external debt on employment growth and presence of contradicting findings from the viewed literature motivated toexamine the impacts of external fiscal factor with the alternative hypothesis; external fiscal

factors have a significant positive impact on employment growth in Tanzania.

2.5.3 Impacts of Internal Monetary Factors on Employment Growth (Inflation Rate and Lending Interest Rate)

The impact of internal monetary policy on employment growth, specifically the inflation rate and lending interest rate, has revealed unsatisfactory findings. There are indications of an indirect relationship between the inflation rate and employment. For example, the study by Kruskovic (2020), examined the effects of inflation and exchange rate targeting on employment and economic growth from 1996 to 2013 through empirical analysis based on a panel of 18 countries, found that unemployment was influenced by inflation targeting, the real GDP growth rate, investment as a share of GDP, and the first difference of exports. The empirical findings indicated that nations targeting inflation experienced slower rates of economic growth and higher rates of unemployment, while investment as a share of GDP and the real GDP growth rate were negatively related.

Correspondingly Micheni and Muturi (2019) conducted research on the impact of macroeconomic factors on unemployment in Kenya. By utilising annual data from 1984 to 2018, the study employed quantitative research designs, including 35 observations, the findings indicated that the exchange rate, GDP, and inflation rate were positively related to the unemployment rate, while lending rates were inversely related to unemployment in the long run. Besides Selim and Hassan (2019) carried the study on interest-free monetary policy and its impact on inflation and unemployment rates. Using a Misery index with 23 advanced economies, the study found that the inflation rate adversely affected employment growth.

In addition Alemu (2024) from 1980 to 2022 examined the relationship between unemployment, the inflation rate, the exchange rate, and economic growth in Ethiopia. Utilizing Granger causality and VAR analysis, the study revealed a positive relationship between currency depreciation and economic growth, while an inverse relationship was established between unemployment and both economic growth and inflation. It was further noted that the unemployment rate and economic growth impacted currency devaluation. Furthermore Arshad and Ali (2016) conducted a study from 1974 to 2013 examining the relationship between the unemployment rate, inflation rate, and interest rate. Using the Autoregressive Distributed Lag (ARDL) model and a short-run Vector Error Correction Model, they revealed an indirect relationship between the interest rate, inflation rate, exchange rate, political instability, and unemployment rate, while finding a direct relationship between unemployment rate and external debt.

The negative relationship between interest rate and employment were identified in the study of Selim and Hassan (2019).They studied on Interest-free monetary policy and its impact on unemployment rates and inflation in comparison with interest-based monetary policy and interest free monetary policy. About 32 advanced countries were studied. Using t-test with misery index it was discovered that the countries which have been embracing interest free monetary had both characterized with inflation and unemployment rates.

Moreover, Vlad and Haysa (2020) focused on Western Balkan countries by examining the effects of selected macroeconomic indicators on the unemployment rate from 2000 to 2017 using panel data. The results showed that lending interest

rates positively affected unemployment, while inflation rate and GDP were negatively related. Furthermore, FDI had a substantial impact on the unemployment rates of these nations when analysed using the vector autoregressive model (VAR), unit root test, Hausman test, and Granger causality test.

The direct relationship existing between lending interest rate and employment growth for instance, Gnahe and Huang (2020) examined the direct relationship between interest rates and employment growth within the West African Economic and Monetary Union (WAEMU) from 1988 to 2018. They found that GDP was influenced by real interest rates, broad money supply, official exchange rate, domestic credit to the private sector, and gross fixed capital formation. Their findings indicated that gross fixed capital formation, money supply, official exchange rate, domestic credit to the private sector, and real interest rates were directly related to economic growth. Similarly, Micheni and Muturi (2019) found that decreasing lending interest rates were associated with a reduction in unemployment, suggesting that lending rates contributed positively to job growth.

Overall, Kruskovic (2020), Micheni and Muturi (2019), and Selim and Hassan (2019) pointed to an inverse relationship between inflation rate and employment growth, in contrast to the findings of Alemu (2024), Vlad and Haysa (2020), and Arshad and Ali (2016), who revealed a direct relationship between employment growth and inflation rate. Vlad and Haysa (2020), Selim and Hassan (2019), Asaleye et al. (2017), and Attamah et al. (2015) indicated a non-positive relationship between lending interest rates and employment growth, opposing the positive relationship proposed by Micheni and Muturi (2019) as well as the direct relationship suggested

by Gnahe and Huang (2020) between lending rates and economic growth.

The reviewed literature presents insufficient consensus on the impact of internal monetary factors on employment growth. Inflation rate and lending interest rate are most significant factor influencing investment creation hence it is vital to examine how their changes impact employment growth. Connectedly the absence of similar studies conducted in the Tanzanian context raises further the desire to examine the subject, with an alternative hypothesis proposing a significant positive relationship between internal monetary macroeconomic factors and employment growth.

2.5.4 Impacts of External Monetary Factors on Employment Growth (Exchange Rate and Foreign Reserves)

The inverse relationship between exchange rate and employment growth was established by Islam and Sahajalal (2019) in Bangladesh. Their study utilised quantitative data spanning 29 years to determine the effects of GDP growth rate, inflation rate, real exchange rate, and unemployment rate. The data were analysed using SPSS, where descriptive statistics, graphs, simple regression, and ANOVA were processed. The study demonstrates that the GDP rate and inflation were non-positively related to unemployment, while the exchange rate had a positive impact on the unemployment rate over the studied period.

Likewise Ibrahim et al. (2024) examined the impact of foreign reserve accumulation on economic growth in Nigeria, using time series data from 1992 to 2022. The ARDL long-run model established a direct relationship with crude oil prices, while real interest rates, inflation rates, and the exchange rate were found to hinder

economic growth. The study suggested the government promote foreign direct investment to create opportunities for local domestic growth.

Moreover Atya (2017) conducted a study on the Egyptian economy from 1985 to 2015, focusing on the effect of the real exchange rate on the unemployment rate. The Autoregressive Distributed Lag Model, Fully Modified Ordinary Least Squares, and Dynamic Ordinary Least Squares methods were employed, revealing a direct relationship between the real exchange rate and unemployment, indicating that appreciation stimulates unemployment. Openness and labour productivity were also found to reduce unemployment, while economic growth was inversely related to the unemployment rate.

In contrast to previous studies, Yokoyama et al. (2015) investigated how fluctuations in exchange rates affect the employment adjustments of regular and non-regular workers. The results established that employment in exporting enterprises declines with yen appreciation. Compared to regular employment, non-regular employment exhibited an adjustment elasticity that was approximately five times higher. In contrast to non-regular employment, regular employment responded more strongly to permanent exchange rate shocks, as evidenced by the Beverage and Nelson decomposition.

Similarly, Chipeta, et al., (2017) investigated the effect of exchange rate movements and economic growth on job creation. Using multivariate co-integration and the Vector Autoregressive model, the results indicated that the exchange rate was negatively related to employment, while economic growth was positively related to

employment growth in both the long run and short run. Previous studies by Kruskovic (2020) and Asaleye et al. (2017) also found that increases in the real exchange rate boosted employment growth.

The existing positive relationship between foreign reserves and employment growth was established by Gumata and Ndou (2021), who conducted a study on the relationship between foreign currency reserves, employment, and GDP growth. Using historical data from the period 2004Q1 to 2007Q4, the study demonstrated that while unemployment decreases in response to positive shocks in the build-up of foreign exchange reserves (forex reserves), GDP growth and employment growth increased. It was concluded that positive shocks in the accumulation of foreign exchange reserves regularly contributed directly to GDP growth, employment growth, and a decline in the unemployment rate.

In connection, Jacob and Magungu (2023) conducted a study in Tanzania investigating the causal relationship between economic growth and foreign exchange reserves from 1990 to 2021. The VECM results indicated that foreign exchange reserves directly improve economic growth, while foreign direct investment (FDI) and external debt were detrimental to economic growth in Tanzania. The study recommended that the country ensure it accumulates reserves to reduce external debt through debt servicing.

Nevertheless Alam et al., (2021) empirically studied the impact of foreign reserves on economic growth in Bangladesh. Using annual time series data from 1980 to 2014 with an error correction method, the study confirmed the presence of a positive

relationship between economic growth, employment, and the foreign reserve ratio in the long run. The study further indicated that for economic development to take place, foreign currency reserves are essential.

Moreover Kaphle (2021) studied the impact of foreign exchange reserves on economic growth in Nepal from 1975 to 2018. By applying the Vector Error Correction Model prior to unit root testing and cointegration, the results established a direct relationship between economic growth and foreign exchange reserves in the country. The study suggested that the country should implement mechanisms to increase foreign exchange reserves for further economic growth. The inverse relationship between exchange rates and employment growth was reported by Ibrahim, et al., (2024), Islam and Sahajalal (2019), Micheni and Muturi (2019), and Atya (2017), while a positive relationship was established by Yokoyama, Higa, and Kawaguchi (2015), Chipeta et al.(2017), Kruskovic (2020), and Asaleye, et al., (2017).

Jacob and Magungu (2023) established that foreign reserves increase economic growth, while Gumata and Ndou (2021), Alam, et al., (2021), and Kaphle (2021) pointed out that foreign exchange reserves promote employment growth. This study is deemed significant in the Tanzanian context, as the literature reflects a variety of findings. In connection exchange rate and foreign reserve are two sided of the same coin which the country can utilize to attain economic stability and settle various payments hence their volatility in modern economy call more study with an alternative hypothesis proposing a significant positive relationship between external monetary macroeconomic factors and employment growth.

2.5.5 Research Gap

The conduct of both fiscal and monetary factors to bring the employment growth is unavoidable as most of the literature from both advanced and developing world has raised the concern. Numerous studies have made effort to examine the impact of macroeconomic factors on employment growth in both advanced and developing economies but there are inconclusive findings. Some fiscal and monetary factors,(internal and external)government revenue, expenditures, trade openness, external debt, inflation rate, lending interest rate, foreign reserve and official exchange rate were found to exaggerate mixture of results with various methodologies.

For instance Adegboye (2020), Onwuka (2021), Kamar, et al., (2019), Abdelkader, at el., (2017). Omran and Bilan (2020), Maku and Alimi (2015), Ngouhouo and Nchofoung (2021),Onifade et al. (2020), Martes (2018), Alkhateeb, et al., (2021), Edo and Oigiangbe (2024), Ijirshar et al. (2016), Nwannebuike, et al., (2016),Alemu (2024) , Islam and Sahajalal (2019) and Onifade, et al., (2020), Gnahe and Huang (2020), Kruskovic (2020), Asaleye, et al., (2017), Kaphle (2021), Yokoyama, Higa and Kawaguchi (2015) established that both total government revenue, total government expenditures, openness to trade, external debt, inflation rate, lending rates, exchange rate and foreign reserve have the direct link with growth in employment.

Nevertheless, Islam (2018), Kamar, et al., (2019), Adegboye (2020), Cvecic and Sokolic (2018), Onifade, et al., (2020), Kamar, et al., (2019), Asaleye, et al., (2017), Kirema (2019), Evans (2022), Alnaa and Matey (2023), Warsame et al. (2024), Tang and Issahaku (2024)), Saani, et al., (2023), Selim and Hassan (2019), Kruskovic

(2020) and Micheni and Muturi (2019), Selim and Hassan (2019)Arshad and Ali (2016), Onwuka (2020), Vlad and Haysa (2020), Attamah et al. (2015), Ibrahimet, al., (2024), Islam and Sahajalal (2019) and Atya (2017), Micheni and Muturi (2019) and Ibrahim, et al., (2024) indicated total government revenue, total government expenditures, trade openness, external debt, inflation rate, lending interest rate, foreign reserve and official exchange rate deteriorate employment growth

In theoretical gap, both Keynesian theory of employment, interest and money as well as model Fleming model examined fiscal and monetary factors separately .The study filled theoretical gap by examine the interaction of both internal - external fiscal and monetary factors. The literature has failed to support the traditional paradigm of economic stability by explaining internal and external factors both fiscal and monetary and their short run and long run impacts in bringing economic growth and employment.

Developing countries like Tanzania rely both on internal and external fiscal and monetary macroeconomic factors hence it is crucial to examine their causal relationship. In contextual gap, there is limited evidence in Tanzania environment and since macroeconomic environment of a particular country differs therefore the findings cannot be generalized in other countries context. The study enriched the literature on how the policy interactions between internal and external fiscal and monetary macroeconomic factors are crucial in bringing the desired economic-employment growth in developing countries like Tanzania. In methodological gap, the study also employed an Autoregressive Distributed Lag Model to capture both the short run and long run to draw the implication of macroeconomic interaction

since the literature inadequately utilize for Tanzania environment.

2.6 Conceptual Framework

The conceptual framework provides the foundation for understanding the relationship between the studied variables. Both macroeconomic factors are interdependent; according to the ILO (2015), the government relies on both internal and external sources of revenue. To achieve job creation and sustainable economic growth, the government must allocate funds for both investment and consumption.
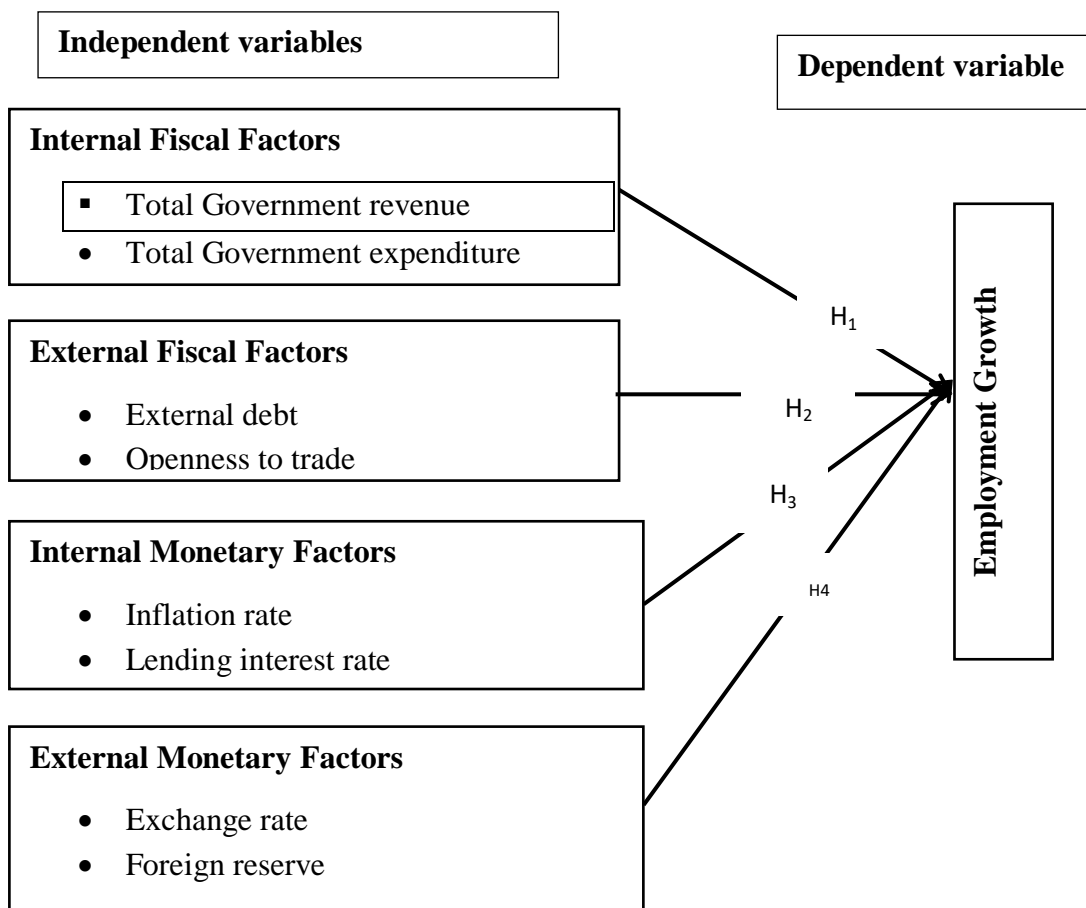
Figure 2.2: Conceptual Framework

Source: Researcher's construct 2024.

The presence of favourable monetary factors, both internal and external, such as the inflation rate and lending interest rate, can facilitate the availability of liquid assets accessible to small and medium enterprises. These enterprises, in turn, contribute to the government's revenue through both tax and non-tax payments, thereby fostering economic growth (ILO, 2023). Additionally, external monetary factors, including the exchange rate and foreign reserve ratio, play a significant role in mitigating external shocks that can either enhance or hinder job creation and employment growth.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Chapter Overview

Chapter three outlines the methodologies employed to achieve the objectives of the study. It details the research philosophy, which generally reflects the approach taken by the researcher to carry out the study through positivism. The study adopted a causal-effect relationship between fiscal and monetary factors and employment growth. Time series data from 1990 to 2022 were utilised sourced from the Bank of Tanzania and the World Bank. The theoretical model specification and empirical model formulation were designed to capture both dependent and independent variables using the ARDL model, along with its diagnostic tests ensured validity and reliability of the results. Ethical considerations were also addressed, highlighting the research clearance letter obtained for the collection of data from the Bank of Tanzania.

3.2 Research Philosophy

The traditional views that typically provide frameworks and ideologies for how research should be conducted are referred to as research philosophy (Saunders, et al., 2016). This concept encompasses several expectations regarding the functioning of the world. It may also indicate the nature of new knowledge and the processes involved in its development. Each research philosophy underpins the foundation of research procedures, techniques, and strategies, while also reflecting the relationship between learning and the advancement of knowledge.

This study adopted a positivist research philosophy. According to the positivist paradigm, reality is distinct from the researcher's perceptions, and knowledge can be

acquired through objective observation and measurement (Maarouf, 2019). Responses are derived from the analysis and measurement of data, with the researcher remaining independent of the phenomenon under investigation, neither influencing nor being influenced by it. The primary objective of positivist philosophy is to measure causal relationships (in terms of how and to what extent) using a value-free framework. It emphasises objectivity, generalisation, and the applicability of findings.

3.3 Research Design

The study employed an experimental research design to investigate the causal relationship between employment growth and macroeconomic factors, specifically fiscal and monetary elements (Saunders et al., 2016). An experimental research design involves the manipulation of both dependent and independent variables, allowing for the determination of causal relationships between these variables. This approach provides a robust method for identifying and measuring the relationships and directional causality among the variables under study.

3.4 Types, Sources and Measurement of Data

The annual secondary data from 1990 to 2022 were obtained from the Bank of Tanzania and the World Bank, reflecting Tanzania's transition from a socialist to a market-oriented economy. This transformation involved several economic and financial reforms, including the establishment of the Tanzania Revenue Authority (TRA), the introduction of a private banking system, and trade liberalisation. Employment growth, as the dependent variable, was measured as the annual percentage change in the employment-to-population ratio. Total government expenditure, total government revenue, and public external debt were measured in

millions of Tanzanian shillings. Openness to trade was measured the sum of exports and imports of goods and services relative to GDP, economic growth (GDP), inflation rate, and interest rate were also measured in percentages. The exchange rate was quantified as TZS/USD, and foreign reserves were reported in current US dollars, including gold.

3.5 Data Treatment and Analysis Methods

Time series data typically exhibit non-stationarity; therefore, it is essential to implement processes that ensure a constant trend is identified. In this case, the data were transformed into logarithmic form to ensure the stability of both the mean and variance of all studied variables (Mwamkomko, 2022). The study fully utilised STATA for data processing, where descriptive statistical analyses were conducted for all objectives to illustrate the statistical behaviour of both dependent and independent variables. Subsequently, the study adopted the logarithmic data to perform unit root analysis for model selection. Onifade, et al., (2020) argued that the presence of a mixed number of lags and a small sample size necessitates the selection of the Autoregressive Distributed Lag (ARDL) model to estimate both long-run and short-run error correction models, followed by diagnostic tests for heteroscedasticity, autocorrelation, and the Ramsey test to assess the validity and reliability of the estimated results.

3.6 Theoretical Model Specification

According to the Keynesian general theory of employment, interest, and money, national income is equivalent to employment growth. The primary aim of this study was to assess the impact of macroeconomic factors on employment growth. To

achieve this, the analysis begins by employing a straightforward electric demand model for labour and employment, as adopted from Kumar, et al., (2019), which is expressed in Equation 6.

$$\ln E = f\left(\ln Y, \ln RW, TFP\right)\text{.........................6}$$

Where ln (RW) is the natural log of the real wage, ln (E) is the log of the employment number, ln Y is the log of economic growth as measured by gross domestic product, and TFP is total factor productivity. Since macroeconomic factors are believed to drive a country's economic growth, the study operated on the premise that aggregate demand, influenced by both internal and external macroeconomic factors, determines output ln Y over the course of a cycle, as proposed by Phipps and Sheen (1995), leading to the formulation of Equation 7.

$$\ln E = f \ln\left(RW, FF, MF\right)\text{...............................7}$$

Where FF and MF are vectors comprising fiscal factor and monetary factors respectively.

3.7 Model Specification

3.7.1 Model 1: Impact of Internal Fiscal Factors on Employment Growth

Model 1 was associated with the first objective of the study, which aimed to examine the impact of internal fiscal macroeconomic factors on employment growth. The study analysed the econometric model presented in Equation 8 to test the first alternative hypothesis (H_{11}). Additionally, the model incorporated other variables to ensure model stability, such as GDP growth, domestic debt, inflation rate, and lending interest rate.

$$Emp_{if} = \alpha_0 + \beta_1 GDP + \beta_2 \text{Re}v + \beta_3 Exp + \beta_4 Ddt + \beta_5 Inf + \beta_6 Int + \varepsilon_0\text{.......................8}$$

Where; Emp_{if} is employment growth for internal fiscal macroeconomic factors, α was constant, GDP was growth rate, Exp was total government expenditure, Rev is total government revenue, Ddt was domestic debt, Inf was inflation rate, Int was lending interest rate and ε_0 was stochastic term. The study adapted the model from Alkhateeb, et al., (2017) and Onwuka (2021).

3.7.2 Model 2: Impact of External Fiscal Factors on Employment Growth

In Model Two, the study aimed to examine the impact of external fiscal factors on employment growth, specifically focusing on public external debt and trade openness, alongside other variables such as GDP growth, public external debt servicing, foreign reserves, and foreign direct investment (FDI).The study adapted the model from Onifade, et al., (2020) and Asaleye, et al., (2017).The study analysed the econometric model presented in Equation 9 to test the second alternative hypothesis (H$_{12}$).

$$Emp_{exf} = \alpha_0 + \beta_1 GDP + \beta_2 Ext + \beta_3 Opp + \beta_3 ExtS + \beta_4 FDI + \beta_5 Fr + \varepsilon_0 ....9$$

Where Emp_{exf} stand for employment growth for external fiscal macroeconomic factors was, α was constant, GDP was growth rate, Ext is public external debt, Opp is openness to trade $ExtS$ was public external debt servicing, FDI was foreign direct investment Fr was foreign reserve and ε_0 was stochastic term.

3.7.3 Model 3: Impact of Internal Monetary Factors on Employment Growth

Objective 3 analysed how internal monetary tools, inflation, and interest rates impact employment growth, as specified in Model 3 in Equation 10. Specifically, Model 3 addresses how the inflation rate and lending interest rate affect employment growth,

thereby testing Alternative Hypothesis 3 (H_{13}). Other variables, including total government revenue, total government expenditure, and foreign reserves, were also included in Model 3 to ensure model stability. The study adapted the model from Micheni and Muturi (2019).

$$Emp_{im} = \alpha_0 + \beta_1 GDP + \beta_2 Inf + \beta_3 Int + \beta_4 \operatorname{Re}v + \beta_5 Exp + \beta_6 Fr + \varepsilon_0 \dots\dots\dots\dots10$$

Where Emp_{im} was employment growth for internal monetary macroeconomic factors, α is constant, GDP was growth rate, Inf was inflation rate, Int was lending interest rate Rev stand total government revenue, Exp stand for total government expenditure Fr was foreign reserve and ε_0 was stochastic term.

3.7.4 Model 4: Impact of External Monetary Factors on Employment Growth

The study investigated the impact of external monetary factors on employment growth, as outlined in the econometric model presented in Equation 11. It specifically assessed the effects of exchange rates and foreign reserves on employment growth. Model 4 also incorporated additional variables to enhance model stability, including extended GDP growth, broad money supply (M3), and grants, and tested the alternative hypothesis 4 (H_{14}). The study adapted the model from Islam and Sahajalal (2019).

$$Emp_{exm} = \alpha_0 + \beta_1 GDP + \beta_2 Exch + \beta_3 Fr + \beta_4 M3 + \beta_5 Grt + \varepsilon_0 \dots\dots\dots\dots11$$

Where Emp_{exm} was employment growth for external monetary macroeconomic factors, α was constant, GDP was growth rate, $Exch$ was exchange rate, Fr was foreign reserve, $M3$ was extended broad money supply, Grt was grants and ε_0 was stochastic term.

3.7.5 Model 5: Impact of Internal and External Fiscal and Monetary Factors on Employment Growth

In Model Five, the study aimed to address Objective 5, which investigates how both internal and external fiscal and monetary factors impact employment growth. The model employed Econometric Equation 12 to test Alternative Hypothesis 5 (H_{15}).

$$Emp_{f\&m} = \alpha_0 + \beta_1 GDP + \beta_2 IntFisc + \beta_3 IntMon + \beta_4 ExtFisc + \beta_5 ExtMon + \varepsilon_0 \ldots\ldots\ldots\ldots 12$$

Where $Emp_{f\,\&\,m}$ employment growth for both fiscal and monetary macroeconomic factors is, α was constant, GDP was growth rate, $IntFisc$ was internal fiscal macroeconomic factors, $Int\,Mon$ is internal monetary macroeconomic factors, $ExtFisc$t was external fiscal macroeconomic factors, $ExtMon$ was external monetary macroeconomic factors and ε_0 was stochastic term (Phipps & Sheen, 1995, Salis & Saibu 2019, Kamar et al. 2019).

Table 3.1: Employment Growth Model Specification Descriptions

Variables Label and names	Variable Composition and Measurement Units	Expected Relation With Dependent variable (Employment Growth)
Emp (Employment growth)	The number of employees (employment)	
Exp(Total government expenditure)	Total of Recurrent and Development Expenditure (millions of TZS)	+ve
Rev(Total government revenue)	Taxes and Non-taxes (millions of TZS)	+ve
Ext(Public External debt)	Millions of TZS	+ve
Opp(Openness to trade)	Average of total exports and imports as a percentage of GDP (Percentage)	+ve
Inf (Inflation rate)	Percentage	+ve
Int (Lending interest rate)	Percentage	+ve
Exch(Exchange rate	TZS/USD	+ve
Fr(Foreign reserve)	Current US dollar including gold.	+ve

Source: Researcher's Constructs

3.8 Time Series Analysis

3.8.1 Stationary and Non-stationary Test (Unit Root Test)

The presence of non-stationary data in time trends is a common occurrence in data analysis. According to Dickey and Fuller (1979), as well as Onwuka (2021) and Micheni and Muturi (2019), all variables in the model were tested for stationarity using the widely used Augmented Dickey-Fuller (ADF) test. The significance of stationarity is largely based on the predictable asymptotic theory for ordinary least squares in regression applications, as it serves as a guiding principle for the adoption of methodology.

$$\Delta C_t = \alpha_0 + \alpha_1 c_{t-1} + \Delta_{t-1} \alpha_2 C_{t-1} + \varepsilon_t \dots\dots\dots\dots\dots\dots\dots 12$$

Where C_t= Presence of non-stationary (unit root) at time t, Δt_{-1}= Indicate first difference with lags, ε_i=Adjustment variable of the errors of autocorrelation and $\square_0$, $\square_1$, $\square_2$ indicate the estimates. The decision was under the null hypothesis, $\square_2 = 0$ there is a unit root that the series is non stationary while alternative hypothesis, $\alpha_2 < 0$ for non unit root that the series is stationary.

3.8.2 Co-integration ARDL Bound Test

Co-integration of two (or more) time series indicates a long-run connection or equilibrium among the underlying variables (Gujarati, 2004). An ARDL bounds test for co-integration was utilised to examine the long-run association of the studied variables. Awan and Qasim (2020) and Alkhateeb et al. (2021) employed the F-statistic to test the null hypothesis of no long-run relationship against the alternative hypothesis of the presence of a long-run relationship among the studied variables.

The conclusion was to reject the null hypothesis of no co-integration if the F-statistic was smaller than the lower and upper bound critical values, and to not reject the null hypothesis if the F-statistic was greater than the lower and upper bound critical values (Pesaran et al., 2001; Onifade, et al., 2020; Sanjo, et al., 2022). The presence of co-integration implies that the variables have both a long-run relationship, for which the ARDL model is relevant for results estimation, and a short-run relationship, where the Error Correction Model is also suitable for results estimation.

3.8.3 The Vector Error Correction Model

The Error Correction Model (ECM) was employed to estimate short-run parameters in multiple linear regression models, as outlined in equations 8 to 12, corresponding to models 1 to 5. Mwamkonko (2023) and Onwuka (2021) indicated the existence of a co-integration test, suggesting an association among the variables. Generally, the ECM with a deterministic trend is represented as shown in equation 13.

$$\Delta Y_t = \alpha + \theta Y_{t-1} + \pi_t + \sum \tau_t \Delta Y_t + \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 13$$

Where $\alpha = \alpha_1 - y\alpha_2$ and $\pi = \pi_1 - y\pi_2$. Hence equation (13) can further be rewritten

as $\Delta Y_t = \alpha = \alpha_1 + \pi_1 t + y(\beta \wedge 'Y_{t-1} - \alpha_2 + \pi_2 t) + \sum \tau_t \Delta Y_{t-1} + \varepsilon_t \ldots\ldots\ldots 14$

The implication of equation (14) comes from the trend point where the summation expression sign basically is applied for serial correlation elimination. The compact form of a VEC model that link employment growth together with other independent variables are in equation 15.

$$\Delta Z_t = \beta_0 + \sum Z_{t-1} + \sum \beta_1 \Delta X_{t-1} + \beta_2 \Delta X_{t-1} + \beta_3 \Delta X_{t-1} + \ldots\ldots + \sum \beta_n \Delta X_{t-n}$$
$$+ nECT_{t-1} + \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 15$$

Where Z_t was exogenous variable, β_0 was constant parameter, $\beta_1, \beta_2, \beta_3, \beta_4 \ldots \ldots \beta_n$ are equilibrium convergence short-run dynamic coefficients, t was time trend, Xt selected explanatory variables and n was the speed of adjustment, ECT_{t-1} was the lagged error correction term and ε_t was a disturbance terms (Onwuka, 2021, Mwamkonko,2023).Now the new employment growth VEC model specification equation was written as equation 16.

$$\Delta Emp_t = \beta_0 + \Delta Emp_{t-1} + \sum \beta_1 GDP_{t-1} + \sum \beta_2 Exp_{t-1} + \sum \beta_3 \Delta Re\, v_{t-1} + \sum \beta_4 \Delta Ext_{t-1}$$
$$+ \sum \beta_5 \Delta Opp_{t-1} + \sum \beta_6 \Delta Inf_{t-1} + \sum \beta_7 \Delta Int_{t-1} + \sum \beta_8 \Delta Exch_{t-1} + \sum \beta_9 \Delta Fr_{t-1}$$
$$+ nECT_{t-1} + \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 16$$

Where t-1 =lag length reduced by 1, $\beta_1 \ldots \beta_8$ =short-run dynamic coefficients of the model' adjustment long-run equilibrium, n= speed of adjustment parameters with a negative sign, ECT_{t-1}= the error correction term was the lagged value of the residuals obtained from cointegrating regression of the employment growth on the regressors contained long-run information derived from the long-run cointegrating relation, Emp was employment growth, GDP was Gross Domestic Product, Exp was total government expenditure, Rev was total government revenue, Ext was public external debt, Opp was openness to trade, Inf was inflation rate, Int was lending interest rate, Exch was exchange rate, Fr was foreign reserve and ε_t was disturbance terms or residuals or stochastic error term.

3.8.4 Autoregressive Distributed Lag Model

The Autoregressive Distributed Lag Model (ARDL) was employed to estimate the long-run relationship among the variables. This model incorporates lags of both the regressors and the regress and, allowing for the analysis of variables with a blend of

integrated orders, specifically at order one, I (1), and zero, I(0). However, it does not account for variables at order two, I (2). The ARDL model is particularly suitable for small sample sizes. Additionally, it captures both long-run and short-run dynamics through the Error Correction Model (ECM). The ARDL was subsequently used to identify the long-run relationship, as noted by Alkhateeb et al. (2021) and Sanjo et al. (2022). Equation 17 presents the ARDL model.

$$\Delta \log Emp_t = \beta_0 + \Delta \log Emp_{t-1} + \beta_1 GDP_{t-1} + \beta_2 Exp_{t-1} + \beta_3 \operatorname{Re} v_{t-1} + \beta_4 Ext_{t-1} + \beta_5 Opp_{t-1}$$

$$+ \beta_6 Inf_{t-1} + \beta_7 Int_{t-1} + \beta_8 Exch_{t-1} + \beta_9 Fr + \sum_{y=1}^{r} \beta_{10} \Delta Emp + \sum_{y=0}^{r} \beta_{11} \Delta GDP_{t-1} + \sum_{y=0}^{r} \beta_{12} \Delta Exp_{t-1}$$

$$+ \sum_{y=0}^{r} \beta_{13} \Delta \operatorname{Re} v_{t-1} + \sum_{y=0}^{r} \beta_{14} \Delta Ext_{t-1} + \sum_{y=0}^{r} \beta_{15} \Delta Opp_{t-1} + \sum_{y=0}^{r} \beta_{16} \Delta Inf_{t-1} + \sum_{y=0}^{r} \beta_{17} \Delta Int_{t-1}$$

$$+ \sum_{y=0}^{r} \beta_{18} \Delta Exch_{t-1} + \sum_{y=0}^{r} \beta_{19} \Delta Fr_{t-1} + \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 17$$

Where r stands for ARDL extreme lag length, Δ stands for first difference operator and model variables remained identical as previously defined.

3.8.5 Granger Causality Wald Test

Co-integration signifies the presence of Granger causality; however, it does not specify the direction of the causality relationship. Consequently, Granger causality tests are employed to ascertain the direction of causality among the variables under study (Engle and Granger, 1987). This test is also used to determine whether one trend can be employed to predict another trend. Equation (18) continues to capture the directional relationship between employment growth and other independent variables.

$$
\Delta\begin{bmatrix} Emp \\ GDP \\ \mathrm{Re}\,v \\ Exp \\ Opp \\ Ext \\ Inf \\ Int \\ Exch \\ Fr \end{bmatrix} = \begin{bmatrix} m_1 \\ m_2 \\ m_3 \\ m_4 \\ m_5 \\ m_6 \\ m_7 \\ m_8 \\ m_9 \\ m_{10} \end{bmatrix} + \sum_{i=1}^{y} \begin{bmatrix} \beta_{1i}\sigma_{1i}\theta_{1i}\lambda_{1i}\phi_{1i}\nu_{1i}\omega_{1i}\eta_{1i}\delta_{1i}\rho_{1i} \\ \beta_{2i}\sigma_{2i}\theta_{2i}\lambda_{2i}\phi_{2i}\nu_{2i}\omega_{2i}\eta_{2i}\delta_{2i}\rho_{2i} \\ \beta_{3i}\sigma_{3i}\theta_{1i}\lambda_{3i}\phi_{3i}\nu_{3i}\omega_{3i}\eta_{3i}\delta_{3i}\rho_{3i} \\ \beta_{4i}\sigma_{4i}\theta_{4i}\lambda_{2i}\phi_{4i}\nu_{4i}\omega_{4i}\eta_{4i}\delta_{4i}\rho_{4i} \\ \beta_{5i}\sigma_{5i}\theta_{5i}\lambda_{5i}\phi_{5i}\nu_{5i}\omega_{5i}\eta_{5i}\delta_{5i}\rho_{5i} \\ \beta_{6i}\sigma_{6i}\theta_{6i}\lambda_{6i}\phi_{6i}\nu_{6i}\omega_{6i}\eta_{6i}\delta_{6i}\rho_{6i} \\ \beta_{7i}\sigma_{7i}\theta_{7i}\lambda_{7i}\phi_{7i}\nu_{7i}\omega_{7i}\eta_{7i}\delta_{7i}\rho_{7i} \\ \beta_{8i}\sigma_{8i}\theta_{8i}\lambda_{8i}\phi_{8i}\nu_{8i}\omega_{8i}\eta_{8i}\delta_{8i}\rho_{8i} \\ \beta_{9i}\sigma_{9i}\theta_{9i}\lambda_{9i}\phi_{9i}\nu_{9i}\omega_{9i}\eta_{9i}\delta_{9i}\rho_{9i} \\ \beta_{10i}\sigma_{10i}\theta_{10i}\lambda_{10i}\phi_{10i}\nu_{10i}\omega_{10i}\eta_{10i}\delta_{10i}\rho_{10i} \end{bmatrix} X
$$

$$
\begin{bmatrix} Emp_{t-1} \\ GDP_{t-1} \\ \mathrm{Re}\,v_{t-1} \\ Exp_{t-1} \\ Opp_{t-1} \\ Ext_{t-1} \\ Inf_{t-1} \\ Int_{t-1} \\ Exch_{t-1} \\ Fr_{t-1} \end{bmatrix} + \begin{bmatrix} m_1 \\ m_2 \\ m_3 \\ m_4 \\ m_5 \\ m_6 \\ m_7 \\ m_8 \\ m_9 \\ m_{10} \end{bmatrix} \left(ECT_{t-1}\right) + \begin{bmatrix} \varepsilon_1 \\ \varepsilon_2 \\ \varepsilon_3 \\ \varepsilon_4 \\ \varepsilon_5 \\ \varepsilon_6 \\ \varepsilon_7 \\ \varepsilon_8 \\ \varepsilon_9 \\ \varepsilon_{10} \end{bmatrix} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 18
$$

From equation (18), following Sanjo et al.(2022), where by the variables have earlier defined, ECT_{t-1} is error correction lag term from long run, Δ is an operator lag, y represent number of lags while $\varepsilon_1 \ldots \varepsilon_8$ are stochastic error term.

3.9 Model Diagnostic Tests

3.9.1 Homoscedasticity Test

The presence of uneven spread or variance in data results in the problem of heteroscedasticity, whereby the ordinary least squares coefficients become biased and unreliable. To address this issue, it is essential to maintain an even spread or variance, referred to as homoscedasticity. The homogeneity of standard errors ensures the reliability of these standard errors and supports the presence of best

linear unbiased estimators. Consequently, if there is no equal spread or constant variance, heteroscedasticity arises, leading to unreliable regression results (Micheni and Muturi, 2019).The criteria was presence of homoscedastic if $\text{var}\left(\dfrac{\varepsilon_i}{X_i}\right) = \sigma^2$ or

heteroscedastic: $\text{var}\left(\dfrac{\varepsilon_i}{X_i}\right) \neq 0$...19

where ε_i indicate the error term, X_i is explanatory variables.

3.9.2 Autocorrelation Test

Ordinary least squares, under normal circumstances, assume that the error terms of the given series are not correlated. Unfortunately, in most series of observations, a particular observation may relate to another observation from preceding periods, leading to the problem of autocorrelation. Alternatively, if the error term of two sets of explanatory variables is zero, there will be no autocorrelation or serial correlation in such a situation. As adopted from Micheni and Muturi (2019) and Mwamkonko (2023), this study utilises the Durbin-Watson (DW) d statistic to test for first-order connections, using the first-order process.

$$\gamma_t = \alpha + \alpha X_t + \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots.20$$

But $\varepsilon_t = p\varepsilon_{t-1} + u_t$. The decision standard was subject to the value of Durbin-Watson's test statistics if it is 2 do not reject the null hypothesis and if Durbin-Watson test is around 2 then there is no autocorrelation problem.

3.9.3 Autoregressive Conditional Heteroskedasticity (ARCH)

The relationship between heteroskedasticity is represented by the ARCH effect, which is alternatively known as the serial correlation of heteroskedasticity. Sanjo, et

al., (2022) noted that in time series analysis, these concepts are utilised to measure volatility in order to forecast future trends. It is predicted that if the series exhibits higher volatility, it may be followed by even greater volatility, while a series with lower volatility may experience further reductions in volatility. Regression is conducted using squared residuals on the constant and lagged squared residuals. The null hypothesis tested was that the residuals are not heteroskedastic (homoscedasticity), while the alternative hypothesis posited that the residuals are heteroskedastic.

3.10 Ethical Consideration

Ethical respect is fundamental to any study, as it upholds research guidelines and principles, ensuring the honesty and trustworthiness of the findings. Initially, the study obtained a clearance letter from The Open University of Tanzania (OUT) through the Directorate of Postgraduate Studies. Subsequently, this letter was submitted to the Bank of Tanzania for approval of the macroeconomic data used in the data analysis and results estimations.

CHAPTER FOUR

FINDING AND DISCUSSION ON THE IMPACTS OF INTERNAL FISCAL

FACTORS ON EMPLOYMENT GROWTH

4.1 Chapter Overview

The chapter presents the findings obtained from the study, which focused on the first objective concerning internal macroeconomic fiscal factors. A statistical summary was conducted to examine the behaviour of the figures over the entire study period. The descriptive statistical summary was crucial, as it provided an overview of the data in terms of magnitude and associated trends. The assessment of stationarity was also essential, as it helps safeguard the data against spurious results. The study further employed the ARDL model to investigate the long-run associations between the variables, as well as a short-run error correction model. Additionally, various regression diagnostics were performed, including tests for autocorrelation (or serial correlation), heteroscedasticity, model specification, model stability, and Granger causality tests, to ensure the reliability of the results.

4.2 Internal Fiscal Factors Descriptive Statistics

Descriptive statistics were employed to analyse the studied variables, focusing on their trends over the specified periods. This section examines the behaviour of employment growth, Gross Domestic Product (GDP), total government expenditure, total government revenues, and domestic debt. Each variable is described statistically in terms of mean values, maximums, minimums, medians, standard deviations, skewness, and kurtosis, as detailed in Table 4.1. Simplilearn (2024) argues that a statistical descriptive summary is crucial, as it provides an overview of

the data in terms of size and the respective signs. The objective was to establish a data summary that aids in elucidating the distribution, movement, and arrangement of the data.

Table 4.1: Internal Fiscal Factors Summary Statistics 1990 – 2022

	Emp	GDP	Rev	Exp	Ddt
Mean	86.88	5.54	6178946	8072071	1093452
Maximum	90	7.9	2.44e+07	3.11e+07	2.00e+07
Minimum	84	0.4	94655	98429	3669
median	87	6.2	224843	3873254	226742.6
Standard deviation	2.2	1.96	7498892	9131165	3501354
Skewness	-0.21	-0.97	1.11	1.00	5.01
Kutorsis	1.46	3.09	2.83	2.78	27.58
Observations	33	33	33	33	33

Source: Authors Compilation 2024, Data from STATA.

The mean value for employment growth over a period of approximately 33 years was around 86 per cent, indicating that the government of Tanzania has intensified its efforts to ensure job creation within the country (ILFS, 2021). The presence of job opportunities fosters a conducive environment for citizens to increase their earnings, which can be utilised to support their families. Additionally, these earnings can contribute to government revenues through tax payments, thereby enhancing the overall growth of the country. The standard deviation for employment growth was estimated to be 2.2 per cent. This standard deviation suggests that most observations were narrowly distributed within 1.1 per cent on either side of the mean, with a minimum of 84 per cent and a maximum of 90 per cent. The skewness value was estimated to be -0.21, indicating that employment growth in Tanzania is relatively satisfactory.

The mean value for GDP growth was approximately 5.54 per cent, suggesting that GDP growth has been just satisfactory as well. This may be attributed to various economic shocks that have occurred since the 1990s. For example, the decline in crop production due to El Niño and drought floods in 1997/1998, the economic slowdown in China in 2014, the instability of the global financial markets in2008, rising world oil prices, capital flow volatility, the depreciation of the Tanzanian shilling against the dollar since 2015, the impact of Covid-19 in the 2020s, climate change affecting global food supply chains, and the Ukraine conflict since the 2020s (URT, 2010, 2021; Haile, 2017; ILO, 2023).

Enhancing growth has numerous advantages, such as promoting employment growth, which allows individuals to increase their earnings, support their families, and make government payments such as taxes. This, in turn, increases revenue to fund various projects, including infrastructure developments like hospitals, schools, and water and electricity supply (Maku and Alimi, 2018). The standard deviation for GDP growth was approximated at 1.96 per cent, indicating that most observations were narrowly distributed within 0.48 per cent on either side of the mean. The minimum growth rate recorded was 0.4 per cent, while the maximum was 7.9 per cent. The skewness value was estimated to be -0.97, further implying satisfactory economic growth in Tanzania.

Additionally, it has been revealed that the mean value of total government revenue was approximately 6,178,946 million Tanzanian shillings. The positive mean indicates that Tanzania has made strides in enhancing revenue collection, as evidenced by a positive skewness of 1.11 (URT, 2010). An increase in revenue

enhances the country's capacity to finance various social and economic projects (Maku and Alimi, 2018). The minimum total government revenue was recorded at 94,655 million Tanzanian shillings, while the maximum was 24,400,000 million Tanzanian shillings. The standard deviation was estimated to be 7,498,892, indicating a high variation in total government revenue; however, the kurtosis was estimated at 2.83, suggesting a symmetrical distribution of the data.

Furthermore, it has been reported that the mean value for total government expenditure was estimated at 8,072,071 million Tanzanian shillings, indicating that overall expenditures are increasing in comparison to the mean value of total government revenue, which stands at 6,178,946 million Tanzanian shillings collected. If the collected revenues are smaller compared to expenditures, this suggests that the government cannot finance its own expenditures and therefore must seek funding from internal sources, particularly commercial banks and pension companies, as well as external revenue sources such as external debt (URT, 2010).

The minimum and maximum values for total government expenditure were approximated at 98,429 million and 31,160,000 million Tanzanian shillings, respectively. Earlier research by Abdelkader et al. (2017) argued that total government expenditure had a high standard deviation of 9,131,165, indicating significant variability during the studied period. The skewness was estimated to be 1.00 positive, suggesting that expenditures are higher, and if effectively allocated, can result in increased employment growth. The mean value for domestic debt, as presented in Table 4.1, was estimated to be TZS 1,093,452 million. This positive mean value indicates a strong tendency for internal borrowing. This is further

evidenced by a positive skewness of 5.01. The minimum and maximum values for domestic debt were approximated at TZS 3,669 million and TZS 20,000,000 million, respectively. The high standard deviation of TZS 3,501,354 suggests a significant spread of data during the period studied.

Moreover, skewness refers to the extent to which a variable's distribution deviates from symmetry around its mean. The skewness values for the variables tested are as follows: employment growth was -0.21, GDP growth was -0.97, total government revenue was 1.11, total government expenditure was 1.00, and domestic debt was 5.01. As a general rule, if skewness falls between +1 and -1, it indicates a significantly symmetrical distribution. With the exception of domestic debt, the remaining data demonstrate normal distributions (Menon, 2023).

Yusuph and Omar (2019) noted that kurtosis measures the peakedness of a distribution. A kurtosis value of 3 is typically expected for a symmetric distribution. The kurtosis values for the variables tested are as follows: employment growth was 1.46, GDP growth was 3.09, total government revenue was 2.83, total government expenditure was 2.78, and domestic debt was 5.01. All variables, except for domestic debt, exhibit kurtosis values around 3, indicating symmetrical distribution.

4.3 Internal Fiscal Factors Results Estimations

The results estimation indicated that the findings are associated with the impacts of internal fiscal macroeconomic factors on employment growth. This section clearly presents the unit root test, bound test for co-integration, ARDL long-run and short-run error correction models, and regression diagnostic tests for autocorrelation,

heteroscedasticity, ARCH effects in the residuals, and Granger causality Wald tests to provide comprehensive estimated results.

4.3.1 Internal Fiscal Factors Unit Root Test

Stationarity is deemed essential for the adoption of any model. Consequently, if the data are not stationary, transformation is necessary, typically achieved through differentiation until stationarity is attained. Thereafter, the data can be modelled, and coefficients can be estimated (Gujarati, 2005). The study adopted a logarithmic form, as it effectively stabilises the mean and variance of the analysed data (Mwamkomko, 2022). Following the application of logarithms, the data were differenced. The Augmented Dickey-Fuller (ADF) test was employed to establish stationarity at both the logarithmic level and the logarithmic first differences. In line with the findings of Omran and Bilan (2020) and Bilarbi et al. (2017), the decision was made to not reject the null hypothesis of no stationarity or the presence of a unit root when the calculated ADF statistic was less than the ADF critical value at 5 per cent. Conversely, the null hypothesis was rejected, indicating stationarity or the absence of a unit root, when the calculated ADF statistic exceeded the ADF critical value at 5 per cent.

The log of employment growth, the log of GDP growth, and the log of total government revenue were integrated at the first order I(0), while the log of total government expenditure was found to be stationary at level without including a trend. The log of domestic debt was also stationary at level, but with an inclusive trend. The log of employment growth had a test statistic of -0.627 and a critical value of -2.980 without trend, and a test statistic of -1.902 with a critical value of -3.572

when a trend was included. The log of GDP growth exhibited a test statistic of -2.186 with a critical value of -2.980 without trend, and a test statistic of -2.827 with a critical value of -3.572 with trend included.

Total government revenue presented a test statistic of -2.497 with a critical value of -2.980 without trend, and a test statistic of -1.489 with a critical value of -3.572 when a trend was included. The log of total government expenditure was integrated at order zero (I(0), with a test statistic of -3.421 and a critical value of -2.980 without trend, and a test statistic of -1.097 with a critical value of -3.572 when trend was not included. Lastly, the log of domestic debt was also integrated at order zero, with a test statistic of -1.603 and a critical value of -2.980 without trend, and a test statistic of -4.101 with a critical value of -3.572 when a trend was included (see Table 4.2 for details).

Table 4.2: Internal Fiscal Factors Unit Root Test at Level

| Variables | Augmented Dickey-Fuller Test | | | | |
| | With no trend | | With trend | | |
	ADF Calculated	ADF Critical at 5%	ADF Calculated	ADF Critical at 5%	Conclusion
lnEmp	-0.627	-2.980	-1.902	-3.572	Non stationary
lnGDP	-2.186	-2.980	-2.827	-3.572	Non stationary
lnRev	-2.497	-2.980	-1.489	-3.572	Non stationary
lnExp	-3.421	-2.980	-1.097	-3.572	Stationary
Ddt	-1.603	-2.980	-4.101	-3.572	Stationary
lnIf	-1.886	-2.980	-2.119	-3.572	Non stationary
lnInt	-1.336	-2.980	-1.292	-3.572	Non Stationary

Source; Author Compilation2024, Data from STATA.

The non-stationary variables were transformed into first differences, and the results indicate that all variables were stationary, as their test statistics exceeded the critical value at the 5 per cent significance level. Consequently, the presence of a unit root was rejected at the 5 per cent significance level, indicating that all studied variables were integrated at a mixture of order zero I(0) and one I(1) (see Appendix 3(a) for more details).

4.3.2 Internal Fiscal Factors Autoregressive Distributed Lag Model (ARDL)

The Autoregressive Distributed Lag Model (ARDL), developed by Pesaran, et al. (2001), is designed to examine the relationships among various internal fiscal factors, including employment growth, GDP growth, total government revenue, total government expenditure, and domestic debt. To ensure the stability of the model, additional variables such as the inflation rate and lending interest rate were included. Following the methodologies of Alkhateeb et al. (2021), Sanjo et al. (2022), and Onifade et al. (2020), this model was preferred for this study due to its ability to accommodate integrated orders, its suitability for small sample sizes, its effectiveness in addressing spurious results, and its capacity to provide both short-run and long-run estimates.

4.3.3 Internal Fiscal Factors ARDL Bound Test

The Autoregressive Distributed Lag (ARDL) Model is initially employed to examine the presence of co-integration among the variables under study. According to Pesaran et al. (2001) and Onifade et al. (2020), the presence of co-integration indicates that the variables share a long-run relationship.

Table 4.3: ARDL Bound Test Results

Test Statistic	Value	Lower bound	Upper bound	Significant level	Decision
F-Statistics	3.097	2.45	3.61	5%	co-integration
		2.12	3.23	10%	

Source: Author Compilation 2024, Data from STATA

The decision to reject the null hypothesis of no cointegration was based on the F-statistic being smaller than both the lower and upper bound critical values. Conversely, the null hypothesis would not be rejected if the F-statistic was greater than these critical values, as noted by Awan and Qasim (2020) and Alkhateeb et al. (2021). The estimated F-statistic was 3.097, which unfortunately fell below the upper bound at the 5 per cent significance level, failing to confirm the existence of cointegration. However, in accordance with Alkhateeb (2017) and Pesaran et al. (2001), the error correction term was employed to demonstrate the presence of cointegration. The error correction term was found to be negative and statistically significant at the 5 per cent level, thereby confirming that all studied variables were cointegrated, indicating a significant long-run relationship among them. The error correction model was subsequently used to estimate the data.

4.3.4 Internal Fiscal Factors ARDL Long run Relationship Estimates

The ARDL model was employed to estimate the long-run relationship of the studied variables, and the results are presented herein. It is important to note that employment growth (Emp) was designated as the dependent variable, while the independent variables included internal fiscal factors such as total government revenue (Rev), total government expenditure (Exp), GDP growth, domestic debt (Ddt), inflation rate (If), and lending interest rate (Int). All the studied variables were

transformed into logarithmic form, allowing for the interpretation of both long-run and short-run coefficients in percentage terms, as previously documented by Onifade et al.(2020) (for further details, see Table 4.4).

4.3.4.1 Impact of Gross Domestic Product on Employment Growth

It has been revealed that the long-run coefficient of GDP growth was positive and statistically significant at the 10 per cent precision level during the studied period. It was found that a one per cent increase in GDP growth resulted in approximately a 2.4 per cent increase in employment growth in the long run, assuming other factors remain constant. The results confirmed that GDP growth in Tanzania does not detrimentally affect employment creation; rather, GDP growth serves as a source for reducing the unemployment rate. This may be attributed to the fact that Gross Domestic Product (GDP) comprises various sectors, including mining and quarrying, agriculture, communication and technology, manufacturing, and tourism, all of which enhance the potential for employment creation by absorbing individuals seeking jobs in the country.

A prosperous economy generates income for local people, which stimulates demand for goods and services. Increased consumption of goods and services creates opportunities for domestic investment expansion to meet the heightened demand, which in turn leads to increased hiring. These findings align with Hjazeen et al. (2021), who claimed in their study that economic growth was inversely related to rising unemployment in Jordan, with statistical significance in the long run. They indicated that economic growth was a more effective tool for combating unemployment and generating additional employment opportunities in Jordan.

Alkhateeb et al. (2017) in Saudi Arabia noted that increasing economic growth was a positive sign that income and aggregate demand were rising, ultimately resulting in growth in production and employment opportunities.

Connectedly Attamah, et al., (2015) discovered that GDP, in terms of national productivity, was inversely related to unemployment, implying that when GDP increases, unemployment decreases as well. Islam and Sahajalal (2019) confirmed in their empirical study that GDP had a negative impact on unemployment in Bangladesh, indicating that an increase in GDP led to a decline in unemployment. Krušković (2019) established an inverse relationship between unemployment and investment in GDP shares, where an increase in investment in GDP resulted in a decrease in unemployment. Vlad and Hysa (2020), Kirema (2019), and Adegboye (2020) also identified a direct relationship between GDP and employment growth.

This finding contradicted the earlier study by Cvecic and Sokolic (2018), which suggested that gross domestic product, had a positive and statistically significant effect on youth unemployment rates and total unemployment rates. Similarly, Micheni and Muturi (2019) explained that unemployment had a direct relationship with GDP growth in the long run, while in the short run, they were indirectly related. Generally, the results were consistent with the general theory of employment, money, and interest in Keynesian economics, which posits that prosperous GDP growth typically implies the creation of employment opportunities. In relation to the findings, the alternative hypothesis asserting a significant positive relationship between GDP growth and employment growth in Tanzania was confirmed,

concluding that the GDP growth rate is a significant factor directly influencing employment growth.

4.3.4.2 Impact of Total Government Revenue on Employment Growth

It was observed that the long-run coefficient of total government revenue in Tanzania hinders the growth of employment opportunities, although the results were statistically insignificant. In the long run, a one per cent rise in total government revenue decreases employment growth by 2.5 per cent, holding other factors constant.

This inverse relationship in Tanzania may be attributed to the country's heavy reliance on taxes as the primary source of total government revenue. In many cases, higher tax impositions create a burden or cost for producers, who are the creators of employment opportunities. Increased costs for producers mean that production cannot be expanded, as all profits must be paid to the government in the form of taxes, thereby diminishing employment possibilities. Additionally, the total revenue collected remains low, limiting the funds available to stimulate further social and economic activities. A lower revenue base implies that the country cannot finance all local investments, thus hindering local employment opportunities (URT, 2010).

The confirmation of this result is further supported by Islam (2018), who cautioned that increasing taxes could impede employment growth compared to spending on public infrastructure. On other hand Maku and Alimi (2018) noted that deviations in tax revenue contribute to rising national and urban unemployment. Furthermore Adegboye (2020) argued that the option of an expansionary fiscal policy that raises

the tax base in some Sub-Saharan African countries typically results in reduced employment availability as the economic levels of these countries continue to grow. Likewise Omran and Bilan (2020) also supported the notion that a long-run increase in the coefficient of revenue taxes leads to an increase in the unemployment rate.

In contrast, Attamah et al. (2015) found a positive relationship between the unemployment rate and money supply, exchange rate, interest rate, and government expenditure, while government revenue exhibited a negative relationship with the unemployment rate. They claimed that an increase in government revenue reduced the unemployment rate in Nigeria. Additionally, Onwuka (2021) suggested that government spending and taxes were negatively associated with the unemployment rate, whereas money supply and interest rates were directly related to unemployment.

Table 4.4: ARDL Internal Fiscal Factors Long run Relationship Estimates

Variables	Co-efficient	Std Error	T-Statistic	Probability
InGDP	0.0244575	0.012025	2.03	0.061***
InRev	-0.0245884	0.0167115	-1.47	0.163
InExp	0.0097123	0.0197655	0.49	0.631
InDdt	0.000297	0.0021641	0.14	0.893
InIf	-0.0020417	0.005496	-0.51	0.616
InInt	0.0497772	0.0039858	2.03	0.062***
Constant	2.721528	.8647892	3.15	0.007*

Dependent variable. employment growth (Emp), ARDL(1,3,1,0,1,0,3) regression, Observation = 30, (*), (**) and (***) indicate 10 %, 5% and 1% level of significant, respectively, Durbin-Watson d-statistic= (2.286351), Heteroskedasticity Test (White's Test) = 0.4140, ARCH Test = 0.1210

Source: Authors Compilation 2024, Data from STATA

Overall, the negative relationship between total government revenue and employment in Tanzania provides evidence that nations experiencing mass

unemployment, equating to levels below full employment, should consider reducing their revenue through lower taxes to allow individuals greater income and stimulate demand for goods and services, as proposed by Keynes. This now give the room to reject the alternative hypothesis of no significant positive relationship between total government revenue and employment growth under the studied period for the Tanzania case.

4.3.4.3 Impact of Total Government Expenditure on Employment Growth

Table 4.4 reveals a positive relationship between total government expenditure and employment growth in the long run, although the effect is statistically insignificant. The findings suggest that, holding other factors constant, a one per cent increase in government expenditure corresponds to a one per cent increase in employment opportunities. This supports the theoretical framework, particularly in developing countries like Tanzania, which experience involuntary unemployment largely due to insufficient demand. To address this, fiscal policy measures, such as reducing taxes and increasing government spending, are recommended. These strategies align with the Keynesian approach to resolving unemployment through demand stimulation.

Government expenditure typically involves investments in social and economic projects, such as constructing schools and health centres, which provide education, skills, and healthcare, thereby preparing the labour force for market participation (Alkhteebet, al., 2017). Additionally, the development of infrastructure—such as transportation and communication networks—facilitates the movement of people, goods, and services, ultimately enhancing production and consumption. Economic projects in sectors like manufacturing and agriculture also create employment by

attracting workers across various industries. This corresponds with the view of Maku and Alimi (2018), who emphasised that government spending, must be directed towards pro-growth sectors to effectively reduce unemployment.

Several studies further underscore the role of government expenditure in reducing unemployment. Islam (2018) and Alkahteeb et al. (2017) highlight the dual effect of public spending, which generates direct public sector employment and indirect jobs through increased economic activities. However, divergent findings exist, such as the study by Attamah et al. (2015), who found that government expenditure increased unemployment in Nigeria, a result echoed by Adegboye (2020) and Cvecic and Sokolic (2018). Nevertheless, the general consensus is that fiscal measures, such as increasing government expenditure, are essential for stimulating demand and reducing unemployment in developing countries, as confirmed by the positive association observed in Tanzania.

4.3.4.4 Impact of Other Macroeconomic Factors on Employment Growth

It has been revealed the long run coefficient of domestic debt exaggerated a positive relationship with employment growth but it was statistically insignificant, indicating a one per centrise in domestic debt resulted to 0.03 per cent increase in employment growth in long run holding other factors constant. In long run inflation rate was inversely related with employment growth keeping other factors constant and it was found to be statistically insignificant. It was estimated that a one per cent increase in inflation rate caused 0.2 per cent decrease in employment growth, keeping other factors been constant. These reverse relations between employment growth and inflation rate in Tanzania imply that raise in price level decreases the purchasing

power of individuals, decreasing the profits to the producers which in the end caused the production to fall. Micheni and Muturi (2019) found inflation rate was increasing unemployment rate nevertheless Adegboye (2019) argued countries with inflating targeting stimulates employment growth.

Furthermore it was reveal a positive relationship between coefficient of interest rate and employment rate but it was statistically insignificant. In long-run ceteris peribus, one percent rise in interest rate implied 5 per cent rise in employment growth in Tanzania. Rise in interest rate may mean more saving are created which accumulate more capital for further investment hence allowing creation of employment in the country as Onwuka (2021), Micheni and Muturi (2019) revealed.

Table 4.5: Internal Fiscal Factors Summary of Results for Hypotheses Testing

Hypotheses Statements	Results	Decision	Hypothetical Relationship
H₁: Hypothesis (H₁): There is a significant positive relationship between GDP and employment growth	(ß = 0.0244575, p= 0.061).	H₁; Confirmed	Positive
H₁: Hypothesis (H₁): There is a significant positive relationship between total government revenue and employment growth	(ß =-0.0245884, p= 0.163).	H₁;Rejected	Negative
H₁: Hypothesis (H₁): There is a significant positive relationship between total government expenditure and employment growth	(ß = 0.0097123, p= 0.631).	H₁; Confirmed	Positive
H₁: Hypothesis (H₁): There is a significant positive relationship between domestic debt and employment growth	(ß = 0.000297, p= 0.893).	H₁; Confirmed	Positive
H₁: Hypothesis (H₁): There is a significant positive relationship between inflation rate and employment growth	(ß = -0.0020417, p= 0.616).	H₁; Rejected	Negative
H₁: Hypothesis (H₁): There is a significant positive relationship between lending interest rate and employment growth	(ß = 0.0497772, p= 0.062).	H₁; Confirmed	Positive

Source: Author's Compilation, 2024.

4.3.5 Internal Fiscal Factors Error Correction Model, Short Run Estimated

In the short run, the coefficient of GDP growth and employment growth at lag one

exhibited a negative sign and was statistically insignificant at the 5 per cent level.

Specifically, at lag one, a one per cent increase in GDP growth resulted in a 1.3 per

cent decrease in employment growth, ceteris paribus. At lag two, the coefficient of

GDP growth and employment growth also demonstrated a negative relationship;

however, the results were statistically insignificant, as presented in Table 4.6.

Table 4.6: Short Run Relationship, Error Correction Model

Variables	Co-efficient	Std Error	T-Statistic	Probability
$DlnGDP_1$	-0.0126625	0.0057799	-2.19	0.051**
$DlnGDP_2$	-0.0053816	0.0037521	-1.43	0.179
$DlnRev_1$	-0.009958	0.0145988	-0.68	0.509
$DlnRev_2$	-0.0294937	0.0156575	-1.88	0.086**
$DlnRev_3$	-0.0266346	0.0139209	-1.91	0.082***
$DlnExp_1$	0.0217852	0.0136487	1.60	0.139
$DlnExp_2$	0.0203248	0.0124035	1.64	0.130
$DlnDdebt_1$	0.0011483	0.0009111	1.26	0.234
$DlnInf_1$	0.0020934	0.0039056	0.54	0.603
$DlnIf_2$	0.00404	0.0031382	1.29	0.224
$DlnIf_3$	0.0083429	0.0031449	2.65	0.022**
ECT	-0.6805951	0.1893398	-3.59	0.004*

R-squared = 0.7606, Adj R-squared = 0.3689, (*), (**) and (***) indicate 1 %, 5% and 10% significant level respectively.

Source: Author´s Compilation 2024, Data from STATA.

The negative sign observed in all lags at the short run indicates that GDP growth

falls short in creating employment, as economic sectors experience diseconomies of

scale. Consequently, these factors act as constraints on output expansion, which is

vital for job creation. These findings align with Micheni and Muturi (2019), who

established a direct relationship between unemployment and GDP growth. Similarly,

Cvecic and Sokolic (2018) found that, from 2005 to 2014, gross domestic product

had a positive and statistically significant effect on both the youth unemployment rate and the total unemployment rate.

The coefficient for total government revenue exhibited a detrimental relationship with employment growth in the short run across all three lags. However, at lag one, this relationship was statistically insignificant, whereas at lags two and three, the estimates were statistically insignificant at the 5 per cent level. At lag one, an increase in government revenue of one per cent resulted in a decrease in employment growth of 0.9 per cent in the short run, ceteris paribus. At lag two, a one per cent increase in government revenue led to a reduction in employment growth of 2.9 per cent, holding other factors constant. At lag three, a similar increase in government revenue caused employment growth to decline by 2.7 per cent in the short run, again holding other factors constant. The negative relationship between employment and total government revenue, even in the short run, can be explained similarly to the long run relationship.

In the short run, total government expenditure demonstrated a direct relationship with employment growth across both lags, although the results were statistically insignificant. At lag one, a one per cent increase in government expenditure resulted in a decline in employment of 2.2 per cent in the short run, ceteris paribus. Similarly, employment growth decreased by 2.1 per cent for every one per cent increase in total government revenue, ceteris paribus. The symmetrical relationship observed in both the short run and long run in Tanzania can be explained as in the long run. Domestic debt had a direct relationship with employment growth in the short run, although its coefficient was statistically insignificant at only lag one. A one per cent

increase in domestic debt causes employment growth to increase by 0.1 per cent in short run holding other factors constant.

 The estimated coefficient of the inflation rate indicated a positive relationship with employment growth across all three lags, with the coefficient at lag three being statistically significant at the 5 per cent level. Holding other factors constant, at lag one, a one per cent increase in inflation rate corresponded to a 0.2 per cent rise in employment growth in the short run, ceteris paribus. At lag two, employment growth increased by 0.4 per cent for every one per cent increase in the inflation rate. At lag three, the coefficient for employment growth was 0.08 per cent, statistically significant for every one per cent increase in the inflation rate in the short run, taking other factors into account.

Table 4.7: Literature Summary Results, Internal Fiscal Factors on Employment Growth

Variable	Positive relationship	Negative relationship
GDP	Mhenwa (2025), Chipeta et al. (2017), Hjazeen et al., (2021), Alkhateeb et al., (2017), Krušković (2019), Attamah et al. (2015), Islam and Sahajalal (2019), Adegboye (2020) Vlad and Hysa (2020).	Cvecic and Sokolic, (2018), Micheni and Muturi, (2019).
Total government revenue	Attamah et al. (2015), Onwuka (2021), Martes (2018) Alkhateeb et al. (2017).	Mhenwa (2025), Islam, (2018), Kamar (2019), Omran and Bilan, (2020).
Total government expenditure	Mhenwa (2025), Onwuka (2021), Islam (2018) Maku and Alimi (2018), Abdulkader et al. (2017) Omran and Bilan, (2020), Alkhateeb et al. (2017).	Adegboye (2020). Cvecic and Sokolic (2018).

Source: Authors Construct 2024.

The error correction mechanism term (ECT) was estimated at 68 per cent from Table 4.6, negative and statistically significant at the 5 per cent level. The error correction mechanism term reflects how quickly equilibrium can be restored following disturbances. The negative coefficient that is statistically significant at the 5 per cent level indicates that, in the event of a one per cent disequilibrium shock in the previous period, approximately 68 per cent of the shock can be corrected in the dependent variable (employment growth). In the long run, the system will adjust by 68 per cent to any long-run distortion occurrence.

4.3.6 Internal Fiscal Factor Stability Test

Plotting the Cumulative Sum of Recursive Residuals (CUSUM) and the Cumulative Sum of Recursive Residuals of Squares (CUSUM2) is essential for assessing the stability and robustness of coefficients. Both Figure 4.1 and Figure 4.2 illustrate the CUSUM and CUSUM2, demonstrating the presence of model stability, as both graphs remain within the 5 per cent significance level.
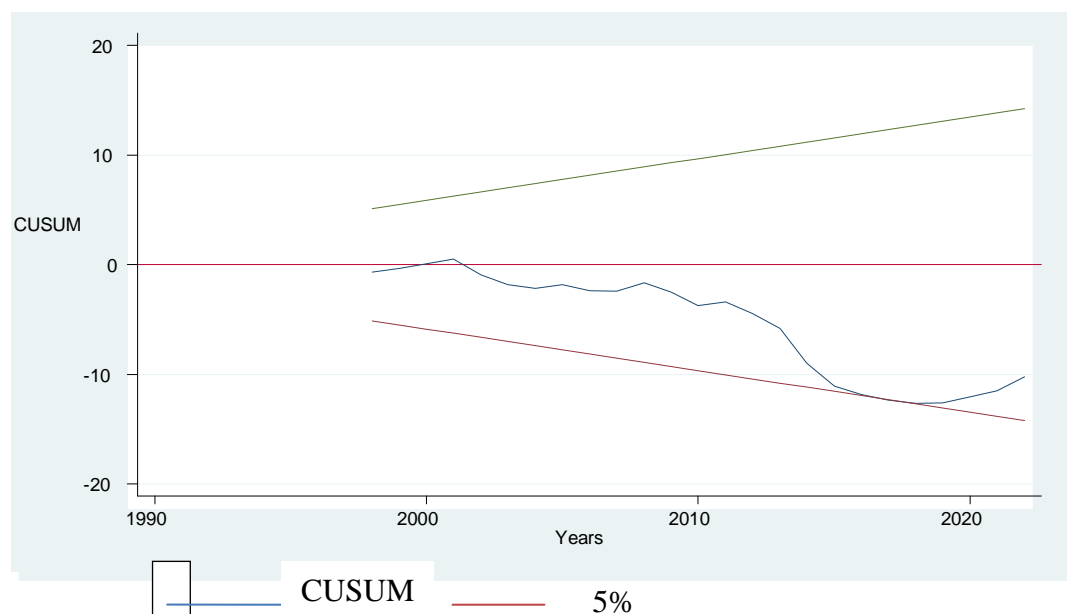
Figure 4.1: Cumulative Sum of Recursive Residuals
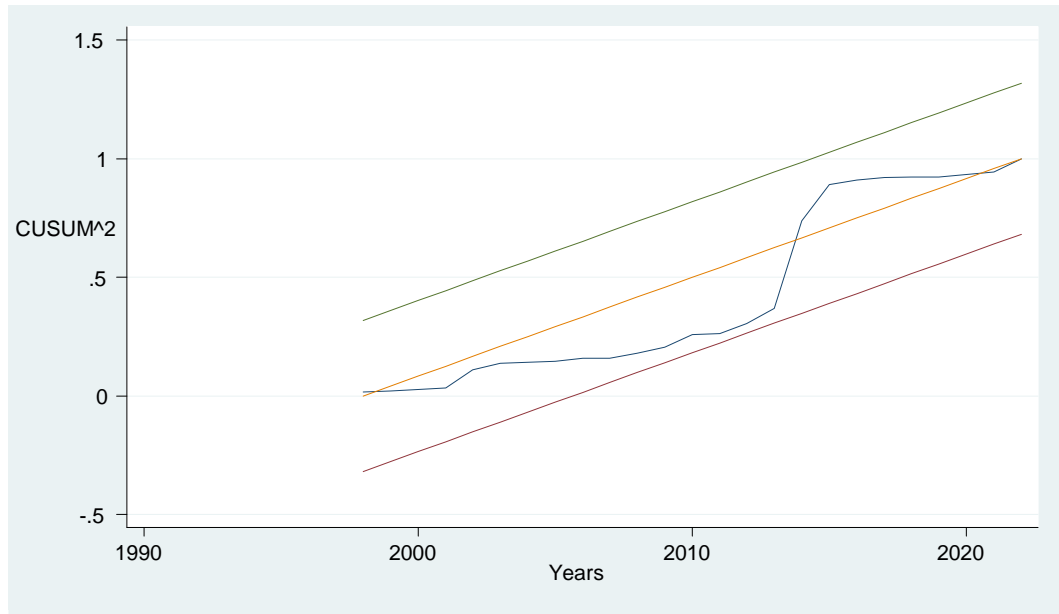
Figure 4.2: Cumulative Sum of Squares of Recursive Residuals

Source: Author's Compilation, 2024

4.4 Internal Fiscal Factors Granger Causality

Cointegration among the variables indicates the existence of a long-run relationship; however, the direction of this relationship is not established. Granger causality tests are particularly useful for indicating the direction of the relationship among the studied variables, which can inform policy implications (Sanjo et al., 2022). In this instance, Granger causality was employed to analyse the relationships between GDP growth, total government revenue, total government expenditure, and employment growth. The null hypotheses were:

i. H_0: the lagged values of employment growth do not granger caused growth, total government revenue and total government expenditure.

ii. H_0: the lagged values of GDP growth do not granger caused employment growth, total government revenue and total government expenditure.

iii. $H_{0:}$ the lagged values of total government revenue do not granger caused employment growth, GDP growth and total government expenditure.

iv. $H_{0:}$ the lagged values of total government expenditure do not granger caused employment growth, GDP growth and total government revenue.

The directional causality has been established (see Table 4.8 for details) between employment growth, GDP growth, total government revenue, and total government expenditure. It has been indicated that the hypothesis stating the lagged value of employment growth does not Granger-cause GDP growth, total government revenue, and total government expenditure have failed to be rejected at ($P = 0.522 > 0.05$), ($P = 0.442 > 0.05$), ($P = 0.548 > 0.05$). This validates that employment growth does not Granger-caused GDP growth, total government revenue, and total government expenditure in Tanzania. Generally, the null hypothesis that employment growth does not Granger-cause all variables has failed to be accepted ($P = 0.000 < 0.05$), indicating that all variables during the studied period were influenced by employment growth.

The null hypothesis that GDP growth does not Granger-cause employment growth has failed to be rejected since ($P = 0.128 > 0.05$), concluding that GDP growth in Tanzania does not Granger-cause employment growth. However, the non-acceptance of the null hypothesis of no Granger causality between GDP growth and total government revenue ($P = 0.000 < 0.05$) and total government expenditure ($P = 0.000 < 0.05$) signifies that GDP growth Granger-causes total government revenue and total government expenditure in the Tanzanian context. Overall, there has been a non-acceptance of the null hypothesis of GDP growth Granger-causing other

variables studied in the model (P = 0.000 < 0.05), suggesting that GDP growth was the most significant factor elucidating all the variables during the studied period.

The results have revealed the non-acceptance of the null hypothesis of no Granger causality existing between total government revenue and employment growth (P = 0.000 < 0.05), GDP growth (P = 0.000 < 0.05), and total government expenditure (P = 0.000 < 0.05), indicating that government revenue effectively explains employment growth, GDP growth, and total government expenditure in Tanzania. These results suggest the existence of unidirectional causality between total government revenue and employment growth, and bi-directional causality between total government revenue and GDP growth in Tanzania, running from total government revenue to employment growth. Generally, there has been a non-acceptance of the null hypothesis that total government revenue Granger-causes all factors during the studied period, as (P = 0.000 < 0.05) indicates that total government revenue was the most influential in causing all the factors studied in the Tanzanian environment.

Furthermore, the findings of the study indicate the non-acceptance of the null hypothesis of no Granger causality between total government expenditure and employment growth (P = 0.633 > 0.05), suggesting that total government expenditure does not cause employment growth in Tanzania. The null hypothesis of no Granger causality between total government expenditure and GDP growth has been rejected (P = 0.045 < 0.05), while the null hypothesis concerning total government revenue has been rejected at (P = 0.086 < 0.1). This implies that total government expenditure significantly influences the growth of GDP and government

revenue in Tanzania. The findings indicate the presence of bi-directional causality between total government expenditure and both GDP and government revenue within the context of Tanzania.

Table 4.8: Internal Fiscal Factors Granger Causality Wald Tests Results

Dependent variable*: ln-employment growth*			
Excluded	Chi-sq	Prob Value	Decision
GDP	1.2997	0.522	Do not reject H_0
Total government revenue	1.6337	0.442	
Total government expenditure	1.2041	0.548	
Domestic debt	9.3217	0.009	
Inflation rate	4.3944	0.111	
Lending interest rate	4.2368	0.120	
ALL	35.256	0.000	
Dependent variable: *ln*-GDP **growth**			
Employment growth	4.1046	0.128	Do not reject H_0
Total government revenue	15.462	0.000	
Total government expenditure	24.783	0.000	
Domestic debt	19.217	0.000	
Inflation rate	0.6888	0.709	
Lending interest rate	9.9502	0.007	
ALL	72.173	0.000	
Dependent variable: *ln-* Total government revenue			
Employment growth	62.165	0.000	Reject H_0
GDP	16.427	0.000	
Total government expenditure	45.734	0.000	
Domestic debt	1.3018	0.522	
Inflation rate	12.178	0.002	
Lending interest rate	9.4529	0.009	
ALL	163.57	0.000	
Dependent variable: *ln-* Total government expenditure			
Employment growth	0.91335	0.633	Do not reject H_0
GDP	6.2225	0.045	
Total government revenue	4.9093	0.086	
Domestic debt	3	0.223	
Inflation rate	0.35003	0.839	
Lending interest rate	12.138	0.002	
ALL	40.056	0.000	

Source: Author's Compilation, 2024.

CHAPTER FIVE

FINDINGS AND DISCUSSION ON EXTERNAL FISCAL FACTORS ON EMPLOYMENT GROWTH

5.1 Chapter Overview

The chapter aims to present the findings obtained from the study, focusing on the second objective concerning external macroeconomic fiscal factors. A statistical summary was conducted to examine the behaviour of the data over the entire studied period, which included employment growth, GDP growth, trade openness, external debt, external debt services, and foreign direct investment (FDI). The descriptive statistical summary was crucial, as it provided insight into the data in terms of size and the respective signs.

The assessment of stationarity was also essential, as it helps ensure the data are free from spurious results. The study further employed the Autoregressive Distributed Lag (ARDL) model to explore the long-run relationships between the variables, as well as a short-run error correction model. Additionally, several diagnostic regression tests were conducted, including tests for autocorrelation or serial correlation, heteroscedasticity, model specification, model stability, and the Granger causality Wald test.

5.2. External Fiscal Factors Descriptive Statistics

The description of external fiscal macroeconomic factors is presented by examining the dependent variable, employment growth, together with several independent variables, including GDP growth, trade openness, public external debt, external debt services, and foreign direct investment (FDI). The statistical analysis encompasses

mean values, maximum and minimum values, standard deviations, skewness, and kurtosis.

Table 5.1: External Fiscal Factors Statistical Summary Results 1990 – 2022

	Emp	GDP	Opp	Ext	ExtS	FDI
Mean	86	5.54	41.52	11.82	1.90	748.26
Maximum	90	7.9	66	30.2	5.3	2087.3
Minimum	84	0.4	24	4.1	0.3	10
Median	87	6.2	42	7.8	1.5	581.51
Standard deviation	2.2	1.96	12.01	7.48	1.58	599
Skewness	-0.21	-0.97	0.42	1.18	0.89	0.463
Kurtosis	1.46	3.09	2.27	3.01	2.44	2.15
Observations	33	33	33	33	33	33

Source: Authors Compilation 2024, Data from STATA

The mean value for openness was approximately 41.52, representing the average of total exports and imports as a percentage of GDP, which suggests that openness is increasing, albeit not significantly. The presence of barriers to international trade, variations in economic size, and geographical remoteness from international trade partners can be major drawbacks to trade openness (Abdulkadeer et al. 2021). The minimum and maximum values for openness were estimated at 66 per cent and 24 per cent, respectively, over a period of approximately 33 years. The standard deviation was estimated at 12.01, indicating considerable variability in international trade in Tanzania. Additionally, a skewness value of 0.36 was found, indicating a positive trend in trade openness within the country.

The mean value of public external debt was estimated at 11.82 million Tanzanian shillings, suggesting that Tanzania relies on external financing. This is corroborated by minimum and maximum values of 4.1 million and 30.2 million Tanzanian shillings, respectively, as shown in Table 5.1. The standard deviation was estimated

at 7.48, which indicates presence of public external debt variations. According to Tchereni, Sekhampu, and Ndovi (2013), such significant variations in external debt may be attributed to the conditions imposed by donors and the availability of financing. The skewness was recorded at 1.18, indicating a higher dependence on external debt within the country due to the positive skew.

The mean value of total debt service as a percentage of Gross National Income (GNI) in Tanzania during the studied period was estimated at 1.90. The minimum was estimated at 0.3 per cent of GNI, while the maximum was estimated at 5.3 per cent of GNI. The positive mean suggests that Tanzania has been actively repaying its external debt stock, with a skewness value of 0.89 indicating a positive trend. Furthermore, the estimated mean value of Foreign Direct Investment (FDI) was 748.26 million USD, with maximum and minimum values of 2,087.3 million and 10 million USD, respectively. A positive skewness value of 0.46 indicates that there have been inflows of FDI into Tanzania. The standard deviation was reported to be 599, reflecting a high level of variability in inflows during the studied period.

In addition, the kurtosis values for openness to trade, external debt, external debt service, and FDI were estimated at 2.27, 3.01, 2.44, and 2.15, respectively. These values suggest normal distributions, as all kurtosis values are close to 3 (Menon, 2023; Yusuph and Omar, 2019). The statistical descriptions for employment growth and GDP growth have already been detailed in Section 4.2 of Chapter 4.

5.3 External Fiscal Factors Results Estimations

Under this section, the estimation results are intended to demonstrate the impact of

external fiscal macroeconomic factors on employment growth. The analysis includes tests for unit roots, bounds testing for co-integration, long-run and short-run error correction models, and regression diagnostic tests for autocorrelation and heteroscedasticity. Additionally, ARCH effects in the residuals and Granger causality using the Wald test are clearly presented to explore the estimated coefficients between the dependent and independent variables.

5.3.1 External Fiscal Factors Root Test

Stationarity is crucial for the adoption of any model; therefore, if the data are not stationary, transformation through differentiation is unavoidable until stationarity is achieved. Subsequently, the data are modelled and coefficients estimated (Gujarati, 2005). The study adopted logarithmic transformations as they effectively stabilise the mean and variance of the data under investigation (Mwamkomko, 2022). Following the application of logarithms, the data were differenced. The Augmented Dickey-Fuller (ADF) test was employed to establish stationarity at both the logarithmic level and first differences.

In line with the findings of Omran and Bilan (2020) and Bilarbi et al. (2017), the decision rule was to not reject the null hypothesis of non-stationarity or the presence of a unit root when the calculated ADF statistic is less than the ADF critical value at the 5 per cent level, and to reject the null hypothesis of non-stationarity or the presence of a unit root and accept the alternative hypothesis of stationarity or absence of a unit root when the calculated ADF statistic is greater than the ADF critical value at the 5 per cent level.

Table 5.2 presents the logarithms of openness to trade, external debt, and external debt service, which were not integrated at the first order I(0), except for the logarithm of FDI, which was stationary at level. The logarithm of openness to trade had a test statistic of -1.398, with a critical value of -2.980 without a trend and a test statistic of -1.429, with a critical value of -3.572 including a trend. Furthermore, the logarithm of public external debt exhibited test statistics of 0.234 with a critical value of -2.980 without a trend, and -1.358 with a critical value of -3.572 including a trend.

The test statistic for external debt service was -1.246, with a critical value of -2.980 without a trend and -0.331 with a critical value of -3.572 when a trend was included. The logarithm of FDI was stationary at the 10 per cent level, with a test statistic of -2.589 and a critical value of -2.622 without a trend, and test statistics of -2.173 with a critical value of -3.572 including a trend. The logarithms of employment growth and GDP were stationary at first difference as it was in section 4.3.1.

Table 5.2: External Fiscal Factors Unit Root at Level

Variables	Augmented Dickey-Fuller Test				
	With no trend		With trend		
	ADF Calculated	ADF Critical at 5%	ADF Calculated	ADF Critical at 5%	Conclusion
LnEmp	-0.627	-2.980	-1.902	-3.572	Non stationary
LnGDP	-2.186	-2.980	-2.827	-3.572	Non stationary
LnOpp	-1.398	-2.980	-1.429	-3.572	Non stationary
InExt	0.234	-2.980	-1.358	-3.572	Non Stationary
InExtS	-1.246	-2.980	-0.331	-3.572	Non Stationary
LnFDI	-2.589	-2.980	-2.173	-3.572	Stationary
LnFr	-1.859	-2.980	-1.258	-3.572	Non Stationary

Source: Authors Compilation 2024, Data from STATA

All non-stationary variables were transformed into their first differences; as they were integrated of order one, I (1), since their test statistics exceeded the critical value at the 5 per cent significance level. The null hypothesis of the presence of a unit root was rejected at the 5 per cent significance level, indicating that all studied variables were stationary at both order zero, I(0), and order one, I(1). For further details, please see Appendix 3(b).

5.3.2 External Fiscal Factors Autoregressive Distributed Lag Model (ARDL)

The relationship between external fiscal factors, including employment growth, GDP growth, openness to trade, and external debt, was examined using the Autoregressive Distributed Lag Model (ARDL). Additional variables such as external debt servicing, foreign direct investment (FDI), and foreign reserves were also included in the analysis. Previous studies by Pesaran et al. (2001), Alkhateeb et al. (2021), and Sanjo et al. (2022) have justified the selection of the ARDL model due to its ability to capture variables with a blend of integrated orders. The model accommodates variables with a mixture of lag lengths, addresses spurious results, provides both short-run and long-run estimates, and is suitable for small sample sizes.

5.3.3 External Fiscal Factors ARDL Bound Test

The Autoregressive Distributed Lag Model was initially employed to assess the presence of co-integration among the studied variables, as indicated by Pesaran et al. (2001). The presence of co-integration signifies that the variables share a long-run relationship. Following the methodologies of Onifade et al. (2020), Awan and Qasim (2020), and Alkhateeb et al. (2021), the decision was to reject the null hypothesis of no co-integration if the F-statistic was smaller than the lower and upper bound

critical values, and to not reject the null hypothesis if the F-statistic was greater than these critical values.

Table 5.3: External Fiscal Factors ARDL Bound Test Results

Test Statistic	Value	Lower bound	Upper bound	Significant level	Decision
		3.15	4.43	1%	Co integration
		2.75	2.99	2.5%	Co integration
F-Statistics	5.627	2.45	3.61	5%	Co integration
		2.12	3.23	10%	Co integration

Source: Author Compilation, 2024

The F-statistic was estimated to be 5.627, which exceeded both the lower and upper bounds at the 5 per cent precision levels. This indicates that all the studied variables were co-integrated. The variables exhibited a significant long-run relationship, and the estimation of the data was more appropriately conducted using an error correction model.

5.3.4 External Fiscal Factors ARDL Long run Relationship Estimates

Table 5.4: ARDL Long run Relationship Estimates External Fiscal Factors

Variables	Co-efficient	Std Error	T-Statistic	Probability
InGDP	0.040393	0.0163017	2.48	0.026**
InOpp	-0.0018485	0.0087951	-0.21	0.836
InExt	-0.0236457	0.0098441	-2.40	0.030**
InExtS	0.0189846	0.008004	2.37	0.032**
InFDI	0.003379	0.004066	0.83	0.419
InFr	-0.0278302	0.009298	-2.99	0.009*
Constant	2.226136	0.657155	3.39	0.004*

 Sample: 1993 - 2022 ARDL(1,2,1,2,2,0,0) regression ,   Number of obs   = 30, R-squared   =   0.7447 , Adj R-squared   =   0.5064,   (*), (**) and (***) indicate 1 %, 5% and 10% level of significant, respectively, Durbin-Watson d-statistic= (2.255395), Heteroskedasticity Test (White's Test) = 0.4140, ARCH Test = 0.7862

Source: Authors Compilation 2024, Data from STATA

5.3.4.1 Impact of Openness to Trade on Employment Growth

The long-run coefficient of openness to trade was found to exhibit an inverse relationship with employment growth. A one per cent increase in trade openness resulted in a 0.18 per cent decline in employment growth, although this finding was statistically insignificant at the 5 per cent level. This indicates that, over time, as trade openness increases, the rate of employment growth decreases slightly. This non-positive relationship may be attributed to developing economies such as Tanzania, which rely heavily on imported goods and services, thereby constraining the local manufacturing sector's capacity to generate employment. Furthermore, Tanzania's exports primarily consist of raw materials, which yield lower value compared to high-quality finished goods.

The dependence on advanced foreign technology in production, which may be unfamiliar to local job seekers, also reduces employment opportunities for domestic personnel, consequently diminishing labour market demand. Similar findings were reported by Onifade, et al., (2020), who observed that trade liberalisation in Nigeria resulted in higher costs than benefits. Asaleye, et al., (2017) further confirmed that employment growth weakened in the long run due to trade openness. In Africa, Kamar, et al., (2019) identified a negative relationship between trade openness and employment, while Kirema (2019) in Kenya found that trade openness contributed to the growth of unemployment and it was argued because of stiff competition found from advanced economies hence minimizing the employment profile.

Conflicting, Martes (2018) found increase in openness to trade decreases unemployment rate. It was argued that in the long run the firm tend to increase the

supply of labour by giving the long-term contract due to increase in goods and services because of trade liberalization. Ngouhouo and Nchofoung (2021) also claimed employment growth to have positive significant relationship with openness to trade. It was observed that openness to trade can result to productivity hence improve demand and supply chain which increases the labour marginal productivity and in turn increase employment chances. Moreover Alkhateeb, et al., (2017) found openness to trade to have a significant relationship with employment growth, a positive effect of openness to trade confirm the trade surplus in Saudi Arabia due to the fact that it depends on the oil exports which are very potential for the countries total export.

In Keynesian general theory of employment, interest and money, the conclusion forwarded to the countries with unemployment under full employment level was to ensure the export sector grow in comparison with importation sector. Given the findings from the period studied, Tanzania is still experiencing higher importation of goods and services and the costs of imports in term of foreign currency are higher and in fact the sign of openness to trade to be negative with employment creation is not very surprising. The study rejected the alternative hypothesis of no significant positive relationship between openness to trade and employment growth under the studied period for the Tanzania case.

5.3.4.2 Impact of Public External Debt on Employment Growth

The long-run coefficient of public external debt was negative and statistically significant, indicating that a one per cent increase in external debt resulted in a 2.4 per cent decrease in employment growth in Tanzania, ceteris paribus. This suggests

that as the country accumulates more external debt, employment opportunities deteriorate over time. The misallocation of external debt, particularly towards non-employment-generating projects, coupled with the crowding-out effect—where increased public debt hampers private sector investment due to higher taxes and borrowing costs—further exacerbates declines in employment growth.

Supporting these findings, Edo and Oigiangbe (2024) highlighted the negative impact of external debt on economic growth in Sub-Saharan Africa, while Evans (2022) identified a positive correlation between external debt and unemployment. Alnaa and Matey (2023) emphasised that external borrowing often fails to support employment-oriented projects, while Tang and Issahaku (2024) noted that public debt acquisition worsened unemployment in Sub-Saharan Africa, with institutional quality playing a critical role in mitigating the effects.

Table 5.5: External Fiscal Factors Summary of Results for Hypotheses Testing

Hypotheses Statements	Results	Decision	Hypothetical Relationship
H_2: Hypothesis (H_1): There is a significant positive relationship between GDP growth and employment growth	(β = 0.040393, p= 0.026).	H_1; **Confirmed**	Positive
H_2: Hypothesis (H_1): There is a significant positive relationship between openness to trade and employment growth	(β =-0.0018485, p= 0.836).	H_1; **Rejected**	Negative
H_2: Hypothesis (H_1): There is a significant positive relationship between external debt and employment growth	(β =-0.0236457, p= 0.030).	H_1; **Rejected**	Negative
H_2: Hypothesis (H_1): There is a significant positive relationship between external debt service and employment growth	(β = 0.0189846, p= 0.032).	H_1; **Confirmed**	Positive
H_2: Hypothesis (H_1): There is a significant positive relationship between FDI and employment growth	(β = 0.003379, p= 0.419).	H_1; **Confirmed**	Positive
H_2: Hypothesis (H_1): There is a significant positive relationship between foreign reserve and employment growth	(β = -0.0278302, p= 0.009).	H_1; **Rejected**	Negative

Source: Author Compilation, 2024.

Similarly, Warsame, et al., (2024), Saani, et al., (2023) observed a similar trend in Ghana found a direct relationship between external debt and unemployment in Somalia and it was proposed that consumable projects are funded by external resources in comparison to capital projects hence diminishing employment opportunities. Disagreeing to Ijirshar, et al., (2016) in connection with Nwannebuike et al., (2016) in Nigeria contended that developing economies often face insufficient capital, leading them to borrow to supplement their investment and savings.

5.3.4.3 Impact of Other Macroeconomic Factors on Employment Growth

In long run coefficient of GDP growth was positive and statistically significant at 5 per cent precision level under the studied period. It was exposed that a one per cent increases in GDP growth resulted to about 4 per cent increase in employment growth in long run. This relationship is similarly explained as in sub section of 4.3.4.1 of chapter four. Equally it has been established the positive relationship between FDI and employment growth although the results were insignificant. A one per cent increase in FDI increased employment growth by 0.34 per cent in long run, ceteris peribus .

The relationship can mean the investors tend to bring capital for investment in the country resulting to more production and demand for labour. Adegboye (2020), Evans (2021) Warsame et al.(2024) found both FDI and economic growth increase employment while Kamar, et al., (2019) established FDI positively related with employment growth in advanced economies but not in Africa. The coefficient of external debtservicehad a positive and significant relationship with employment growth in long run. It has been estimated that a one per cent increase in external debt

servicing resulted to about 1.9 per cent increase in employment growth creation in long run ceteris peribus.

The results are conflicting to external debt in the given study period that the external debt servicing seemed to favour the employment growth while external debt jeopardized it. External debt servicing was found to be positive indicating theliability of repaying the loans was still moderate since there were cancellelation of external debt by multilateral donors to highly indepted countries,URT (2010). Note at all, Nwannebuike, et al., (2016), Ademola (2023) indicated indirect relationship debt stock services with economic growth.

Furthermore,the estimated coefficient of foreign reserve was negative and statistically significant with employment growth in Tanzania in long run. Holding other factors constant, a one per cent increases in foreign reserve decreased employment growth by 2.8 per cent in long run.Foreign reserve was found to diminish employment profile in Tanzania as this may be because of less export volume in relation to importation where the country tend to suffer from greater importation cost URT (2023).

5.3.5. External Fiscal Factors Error Correction Model: Short Run relationship

The error correction mechanism term (ECT) was estimated from Table 5.6 to be 48 per cent, with statistical significance at the 5 per cent level. The ECT indicates the speed at which equilibrium can be restored following various disturbances. The negative coefficient, which is statistically significant at 5 per cent, suggests that in the event of a one per cent disequilibrium shock in the previous period,

approximately 48 per cent of the shock can be corrected to adjust for external fiscal factors. In the long run, the system will adjust by 48 per cent in response to any long-term distortion. The estimated coefficients of GDP growth were all negative at lags one and two, a situation that can be further explained in section 4.3.5 of Chapter four.

Table 5.6: External Fiscal Factor Error Correction Model Short run Estimates

Variables	Co-efficient	Std Error	T-Statistic	Probability
$DlnGDP_1$	-0.0084489	0.0032342	-2.61	0.020**
$DlnGDP_2$	-0.0096259	0.0029109	-3.31	0.005**
$DlnOpp_1$	0.0190136	0.0051354	3.70	0.002**
$DlnExt_1$	0.0187432	0.0052539	3.57	0.003**
$DlnExt_2$	0.0095298	0.0052984	1.80	0.092***
$DlnExtS_1$	-0.0065094	0.0029534	-2.20	0.044**
$DlnExtS_2$	-0.0038647	0.0026171	-1.48	0.160
ECT	-0.4796879	0.1405054	-3.41	0.004**
R-squared = 0.7447, Number of obs = 30 Adj R-squared = 0.5064, Root MSE = 0.0031 and (*), (**) and (***) indicate 1 %, 5% and 10% level of significant, respectively				

Source: Author Compilation 2024, Data from STATA.

In the short run, the estimated coefficient of openness to trade at lag one was positive and statistically significant at 5 percent. This indicates that, holding other factors constant, a one per cent increase in openness to trade resulted in approximately a 1.9 per cent increase in the employment rate, as presented in Table 5.6. The positive relationship between trade openness and employment growth in the short run suggests that increased trade openness enhances the demand for goods and services, which in turn stimulates production and employment growth, as previously noted by Ngouhouo and Nchofoung (2021) and Alkhateeb, et al., (2017).

The estimated coefficients for external debt were positive at both lag one and lag two, with statistical significance at 5 percent. At lag one, employment growth was

found to increase by 1.9 per cent for every one per cent increase in external debt in the short run, while holding other factors constant. Additionally, at lag two, a one per cent increase in external debt resulted in a 0.9 per cent rise in employment growth in the short run, again holding other factors constant. Edo and Oigiangbe (2024) utilised panel data on external debt vulnerability in developing countries, particularly in Sub-Saharan Africa, and their findings indicated a positive relationship between economic growths in the region.

Table 5.7: Empirical Summary Results, External Fiscal Factors on Employment Growth

Variable	Positive relationship	Negative relationship
GDP	Mhenwa (2025), Chipeta et al. (2017), Hjazeen et al.(2021), Alkhateeb et al.(2017), Krušković (2019) , Attamah et al. (2015).	Islam and Sahajalal (2019), Cvecic and Sokolic (2018), Micheni and Muturi (2019).
Openness to trade	Martes (2018), Ngouhouo and Nchofoung (2021),Sanjo et al.(2022),Yusuph and Omar (2019 Alkhateeb et al.(2017) , Edo and Oigiangbe (2024).	Mhenwa(2025), Edo and Oigiangbe (2024),Onifade et al.(2020), Asaleye et al. (2017) Kamar et al. (2019).
Public external debt	Ijirshar et al. (2016), Nwannebuike et al. (2016).	Mhenwa (2025), Tang and Issahaku (2024), Alnaa and Matey (2023),Saani et al, (2023), Edo and Oigiangbe (2024), Evans (2022), Warsame et.al.(2024).

Source: Authors Construct 2024.

Table 5.6 posits that the estimated coefficient of external debt servicing at both lags was inversely related to employment growth. At lag one; the relationship was statistically significant at 5 per cent, whereas at lag two, the coefficient was statistically insignificant. Specifically, at lag one, an increase in external debt servicing by one per cent led to a decrease in the coefficient of employment growth by 0.6 per cent in the short run, while holding other factors constant. Furthermore, at

lag two, a one per cent increase in external debt servicing resulted in a 0.3 per cent decline in employment growth in the short run, again holding other factors constant.

5.3.6 External Fiscal Factors Stability Test

The Cumulative Sum of Recursive Residuals (CUSUM) and the Cumulative Sum of Recursive Residuals of Squares (CUSUM2) are essential for assessing the stability of the coefficients. Both Figures 5.1 and 5.2 illustrate the CUSUM and CUSUM2, demonstrating model stability, as the graphs remain within the 5 per cent significance level.
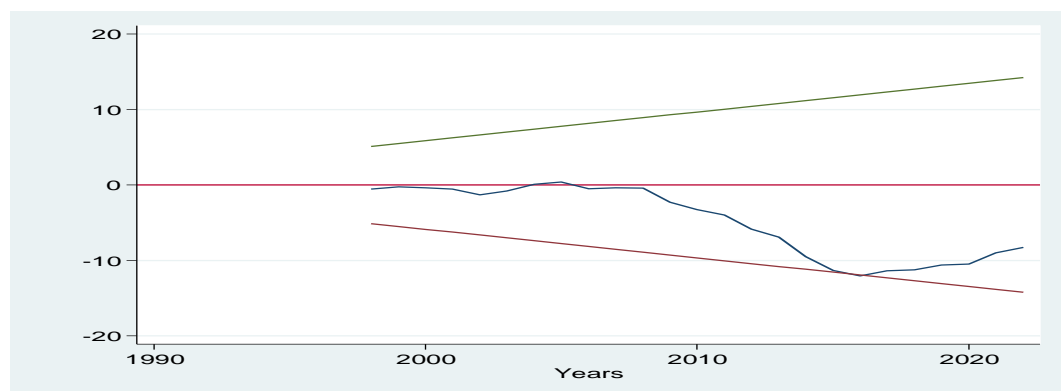
Figure 5.1: Cumulative Sum of Recursive Residuals
Source: Authors Compilation, 2024.
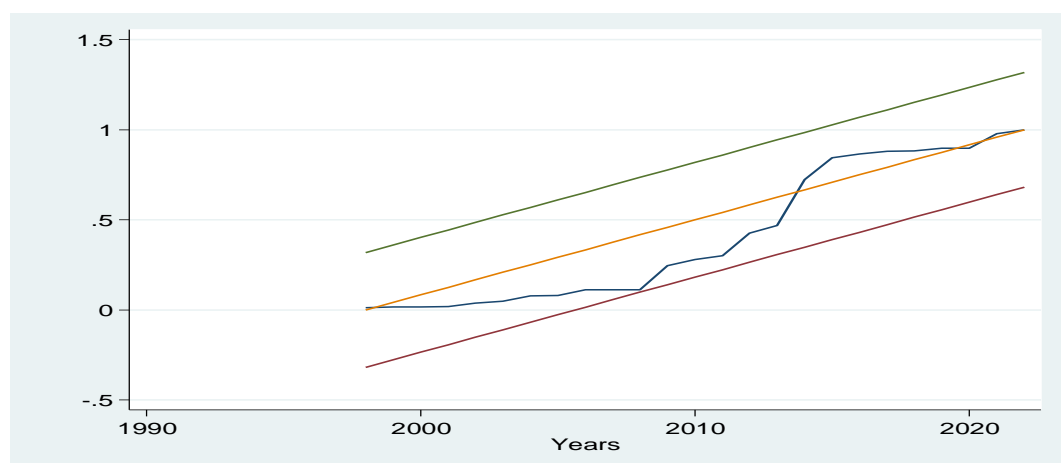
Figure 5.2: Cumulative Sum of Squares of Recursive Residuals
Source: Author's Compilation, 2024.

5.4 External Fiscal Factors Granger Causality

The presence of cointegration among the studied variables indicates a long-run relationship; however, the direction of this relationship has not been established. Following Sanjo et al. (2022), Granger causality tests are particularly useful for indicating the direction of relationships among the studied variables, thereby allowing for the assessment of causality for policy implications. In this context, Granger causality was utilised to analyse the external fiscal factors, including GDP growth, total government revenue, openness to trade, and external debt. The following null hypotheses were tested:

   i. H_0: the lagged values of employment growth do not granger caused GDP growth, openness to trade and external debt

   ii. H_0: the lagged values of GDP growth do not granger caused employment growth, openness to trade and external debt.

   iii. H_0: the lagged values of openness to trade do not granger caused employment growth, GDP growth and external debt.

   iv. H_0: the lagged values of external debt do not granger caused employment growth, GDP growth and openness to trade.

It has been specified that the hypothesis that employment growth does not Granger-cause GDP growth has been rejected ($P = 0.000 < 0.05$). Similarly, the hypothesis regarding openness to trade was also rejected ($P = 0.001 < 0.05$), validating that employment growth Granger-causes GDP growth and openness to trade during the studied period. Furthermore, the null hypothesis of no Granger causality between employment growth and external debt was not rejected ($P = 0.324 > 0.05$). This

result indicates that employment growth does not act as a causal factor for external debt in the context of Tanzania. In summary, the null hypothesis that employment growth does not Granger-cause the other factors under study was rejected (P = 0.000 < 0.05), implying that employment growth Granger-causes all the factors studied in the Tanzanian case.

Additionally, the null hypothesis that GDP growth does not Granger-cause employment growth was not accepted, as evidenced by (P = 0.070 < 0.05), while the hypotheses for openness to trade (P = 0.000 < 0.05) and public external debt (P = 0.000 < 0.05) were rejected, indicating that GDP growth causes employment growth, openness to trade, and public external debt in the Tanzanian environment. This portrays the presence of bidirectional causality between GDP growth and employment growth. In summary, the null hypothesis that GDP does not Granger-cause all factors under the study period was rejected (P = 0.000 < 0.05), concluding that GDP was the factor causing all the studied variables during this period.

Nonetheless, the null hypothesis that openness to trade does not Granger-cause employment growth has been rejected (P = 0.040 < 0.05), indicating that openness to trade does Granger-cause employment growth during the studied period. This finding highlights the presence of bidirectional causality between employment growth and openness to trade in the context of Tanzania. The results indicate that the null hypothesis stating that openness to trade does not Granger-cause GDP growth was not rejected (P = 0.150 > 0.05), nor was the null hypothesis regarding public external debt (P = 0.793 > 0.05). This suggests that openness to trade does not Granger-cause GDP growth or public external debt. Consequently, it is concluded

that a unidirectional causality exists between openness to trade and GDP growth in the case of Tanzania, running from GDP growth to openness to trade. Overall, the null hypothesis that openness to trade does not Granger-cause any of the variables studied has been rejected (P = 0.000 < 0.05), indicating that openness to trade is a significant causal factor for all the variables examined in the Tanzanian context.

Table 5.8: External Fiscal Factors Granger Causality Wald Tests Results

Dependent variable: *ln-employment growth*			
Excluded	Chi-sq	Prob Value	Decision
GDP	23.869	0.000	Reject H_0
Openness to trade	17.309	0.001	
Public external debt	3.476	0.324	
External debt servicing	4.9801	0.173	
FDI	18.579	0.000	
Foreign reserve	12.549	0.006	
ALL	86.492	0.000	
Dependent variable: *ln-GDP*			
Employment growth	7.0469	0.070	Reject H_0
Openness to trade	47.895	0.000	
Public external debt	20.502	0.000	
External debt servicing	11.555	0.009	
FDI	22.197	0.000	
Foreign reserve	9.7617	0.021	
ALL	305.41	0.000	
Dependent variable: *ln-* Openness to trade			
Employment growth	8.3223	0.040	Reject H_0
GDP	5.3177	0.150	
Public external debt	1.0352	0.793	
External debt servicing	5.5422	0.136	
FDI	13.008	0.005	
Foreign reserve	10.363	0.016	
ALL	65.467	0.000	
Dependent variable: *ln-* Public external debt			
Employment growth	21.216	0.000	Reject H_0
GDP	5.9508	0.114	
Openness to trade	10.503	0.015	
External debt servicing	32.499	0.000	
FDI	17.067	0.001	
Foreign reserve	2.4313	0.488	
ALL	116.88	0.000	

Source: Author's Compilation, 2024.

The null hypothesis stating that public debt does not Granger-cause employment growth has been rejected ($P = 0.000 < 0.05$), as has the null hypothesis for openness to trade ($P = 0.015 < 0.05$). This implies that public external debt Granger-causes both employment growth and openness to trade. The findings further indicate the presence of a uni-directional relationship between external debt and employment growth, running from external debt to employment growth, as well as a uni-directional relationship between public external debt and openness to trade in the context of Tanzania, also running from public external debt to openness to trade.

Conversely, the null hypothesis that external debt does not Granger-cause GDP growth has failed to be rejected ($P = 0.114 > 0.05$), suggesting that public external debt does not Granger-cause GDP growth in Tanzania. This indicates a uni-directional relationship between public external debt and GDP growth, running from GDP growth to public external debt. Overall, the null hypothesis that public external debt Granger-causes all factors has also failed to be accepted ($P = 0.000 < 0.05$), suggesting that external debt Granger-causes all the factors studied during the period in the context of Tanzania.

CHAPTER SIX

FINDINGS AND DISCUSSION ON THE IMPACTS OF INTERNAL

MONETARY FACTORS ON EMPLOYMENT GROWTH

6.1 Chapter Overview

Chapter six aims to present the findings of the study, which focused on internal macroeconomic monetary factors identified in objective three. A statistical summary was conducted to analyse the behaviour of key indicators over the entire study period, including employment growth, GDP growth, inflation rate, lending interest rate, and other variables such as foreign reserves. This statistical descriptive summary was crucial, as it provided insight into the data in terms of their magnitude and respective signs.

The assessment of stationarity was also essential to ensure the data were protected against spurious results. The study further employed the ARDL model to investigate the long-run associations of the variables, the short-run error correction model, and to conduct several regression diagnostics, including tests for serial correlation, heteroscedasticity, model specification, model stability, and the Granger causality Wald test.

6.2 Internal Monetary Factors Descriptive Statistics

Descriptive statistics aims to analyse the studied variables with a focus on their trends over the specified periods. This section examines employment growth, Gross Domestic Product (GDP), inflation rate, lending interest rates, and foreign reserves. Employment growth and GDP growth have been explained in section 4.2. The statistical description provides an explanation of each variable in terms of mean

values, maximum and minimum values, median, standard deviations, skewness, and kurtosis, with further details presented in Table 6.1.

Table 6.1: Internal Monetary Factors, Summary Statistics

	Emp	GDP	If	Int	Fr
Mean	86	5.54	11.7	20.08	2650.58
Maximum	85.43	7.9	35.9	36	6386
Minimum	90	0.4	3.3	14.1	192
median	87	6.2	7.6	16.65	2307
Standard deviation	2.2	1.96	9.55	6.58	1981.27
Skewness	-0.21	-0.97	1.24	1.2	0.22
Kutorsis	1.46	3.09	3.40	3.20	1.67
Observations	33	33	33	33	33

Source: Author Compilation 2024, Data from STATA

The mean value for the inflation rate was estimated to be 11.57 per cent, indicating that the country has been significantly affected by inflation. The minimum and maximum values are recorded at 3.29 per cent and 35.73 per cent, respectively. High inflation rates imply a high cost of living, as local residents must allocate their earnings primarily for the consumption of goods and services, leaving little for government obligations such as taxes. This situation hampers economic growth, which in turn influences the creation of fewer job opportunities (Micheni and Muturi, 2019). The standard deviation was approximated to be 9.51, indicating notable variations in the inflation rate since the 1990s. Table 6.1 also shows a positive skewness of 1.30, suggesting that inflation has a tendency to increase in the country.

The mean value for the lending interest rate was estimated to be 19.54 per cent, with a minimum of 13.66 per cent and a maximum of 36 per cent. The persistent high interest rates during the studied period in Tanzania imply that, on a personal level,

the interest rate represents the cost of borrowing or the price paid for the rental of funds. Higher borrowing costs may deter individuals from purchasing houses or other properties, while companies that could undertake various projects may also postpone construction, thereby reducing employment opportunities, as noted by Mishkin (2004) and Vlad and Hysa (2020). The standard deviation was estimated to be 6.75 per cent, indicating that the observations are spread out within 3.37 per cent standard deviations on either side of the mean. Additionally, Table 6.1 illustrates a positive skewness of 1.24, indicating that both interest rates and inflation rates have a tendency to increase over the studied periods.

The mean value for foreign reserves, as indicated in Table 6.1, is approximately 2,650.58 million USD. This estimated mean value signifies that Tanzania has made progress in accumulating foreign reserves. An increase in foreign reserves enhances the country's capacity to make international payments, particularly for purchasing goods and services. This, in turn, ensures a wider variety of choices for citizens, thereby contributing to the overall well-being of the population. This is evidenced by a minimum of 192 million USD and a maximum of 6,386 million USD. The skewness is reported at 0.22, indicating a positive skew and suggesting that the accumulation of foreign reserves in Tanzania is on the rise. The estimated kurtosis values are 3.51 for the inflation rate, 3.27 for the lending interest rate, and 1.67 for foreign reserves. The variables studied exhibit a normal distribution, as the estimated kurtosis value is approximately equal to 3.

6.3 Internal Monetary Factors Results Estimations

The proposed results estimation aims to provide insights into the effects of internal

monetary macroeconomic factors on employment growth. This includes an analysis of employment growth, GDP growth, inflation rate, lending interest rate, and other variables such as foreign reserves. This section presents a comprehensive examination which includes unit root tests, bounds testing for co-integration, long-run and short-run error correction models, as well as regression diagnostic tests for autocorrelation, heteroscedasticity, ARCH effects in the residuals, and Granger causality Wald tests.

6.3.1 Unit Root Test for Internal Monetary Factors

In the adoption of any model, it is essential to assess stationarity to determine its presence. If the data are found to be non-stationary, transformation is necessary through differentiation, allowing the data to be modelled and coefficients to be estimated (Gujarati, 2005). The study adopted a logarithmic form due to its effectiveness in stabilising the mean and variance of the data under investigation (Mwamkomko, 2022). Following the adoption of logarithms, the data were differenced. The Augmented Dickey-Fuller (ADF) test was employed to establish stationarity at both the logarithmic level and the first differences.

According to Omran and Bilan (2020) and Bilarbi et al. (2017), the decision is made not to reject the null hypothesis of non-stationarity or the presence of a unit root when the calculated ADF statistic is less than the ADF critical value at the 5% significance level. Conversely, we reject the null hypothesis when the calculated ADF statistic exceeds the critical value at the same significance level, thereby accepting the alternative hypothesis of stationarity or the absence of a unit root. The logarithm of the inflation rate had a test statistic of -1.886, with a critical value

of -2.980 when no trend was present, and a test statistic of -2.119, with a critical value of -3.572 when a trend was included.

The logarithm of the lending interest rate exhibited a test statistic of -1.336, with a critical value of -2.980 without a trend, and test statistic of -1.292, with a critical value of -3.572 when a trend was included. Furthermore, the logarithm of foreign reserves had a test statistic of -1.859, with a critical value of -2.980 without a trend, and a test statistic of -1.258, with a critical value of -3.572 when a trend was included. The logarithm of employment growth and GDP growth has been previously defined in Chapter 4; for further details, please refer to Table 4.2.

Table 6.2: Unit Root at Level Internal Monetary Factors

Variables	Augmented Dickey-Fuller Test				
	With no trend		With trend		
	ADF Calculated	ADF Critical at 5%	ADF Calculated	ADF Critical at 5%	Conclusion
lnEmp	-0.627	-2.980	-1.902	-3.572	Non stationary
lnGDP	-2.186	-2.980	-2.827	-3.572	Non stationary
lnIf	-1.886	-2.980	-2.119	-3.572	Non stationary
lnInt	-1.336	-2.980	-1.292	-3.572	Non Stationary
InFr	-1.859	-2.980	-1.258	-3.572	Non Stationary
lnRev	-2.497	-2.980	-1.489	-3.572	Non stationary
lnExp	-3.421	-2.980	-1.097	-3.572	Stationary

Source: Authors Compilation 2024, Data from STATA.

Table 6.2 indicates that all internal monetary variables were non-stationary. Consequently, they were transformed into their first differences, resulting in all variables becoming stationary (for details, see Appendix 3(c)).

6.3.2 Internal Monetary Factor Autoregressive Distributed Lag Model (ARDL)

Pesaran et al. (2001) noted that, the Autoregressive Distributed Lag Model (ARDL) aims to elucidate the relationships among internal monetary factors, particularly when there is a combination of integrated orders. Additional variables were also included, such as total government revenue, total government expenditure, and foreign reserves. The ARDL model was selected for its ability to accommodate variables with mixed integrated orders. Furthermore, as indicated by Alkhateeb et al. (2021) and Sanjo et al. (2022), the model can estimate both long-run and short-run coefficients.

6.3.3 Internal Monetary Factor ARDL Bound Test

The Autoregressive Distributed Lag Model to examine whether there was an incidence of co-integration among the internal monetary variables. The presence of co-integration indicates that the variables exhibit a long-run relationship, Pesaran, et al., (2001).

Table 6.3: ARDL Bound Test Results

Test Statistic	Value	Lower bound	Upper bound	Significant level	Decision
		3.15	4.43	1%	Co integration
		2.75	3.99	2.5%	Co integration
F-Statistics	5.801	2.45	3.61	5%	Co integration
		2.12	3.23	10%	Co integration

Source: Author Compilation 2024, Data from STATA.

The decision was to reject the null hypothesis of no cointegration if the F-statistic was smaller than the lower and upper bound critical values, and not to reject the null hypothesis if the F-statistic was greater than the lower and upper bound critical

values, as indicated by Pesaran, et al., (2001), Onifade, et al., (2020), and Alkhateeb, et al., (2021). The estimated F-statistic was 5.801, which was greater than both the lower and upper bounds at 5 per cent level, suggesting that all the studied variables were cointegrated. This indicates that the variables have a significant long-run relationship, and an error correction model was employed to estimate the findings.

6.3.4 Internal Monetary Factors ARDL Long Run Relationship Estimates

6.3.4.1 Impact of Inflation Rate on Employment Growth

A positive relationship between inflation and employment was observed in Tanzania, although the effect was statistically insignificant. A one per cent increase in the inflation rate was associated with a 0.4 per cent increase in employment in the long run. Higher profits resulting from increased prices enable firms to invest more, thereby expanding production and hiring additional workers. Furthermore, inflation reduces the cost of loan repayment, encouraging firms to borrow and invest, which further boosts employment.

According to Keynesian theory, an increase in overall demand results in higher employment, as firms hire additional workers to meet the rising demand for goods and services. These findings are consistent with studies such as those by Vladi and Hysa (2020), which demonstrated an inverse relationship between inflation and unemployment, Islam and Sahajalal (2019), found that rising inflation correlates with fall of unemployment, this is because rising in price level portray the increment of individual income which normal reflected the increase in the economic activities. Conversely, differing results were reported by Micheni and Mutuni (2019), identified a direct relationship between inflation and unemployment. Krušković

(2020) also noted that inflation-targeting policies could lead to higher unemployment rates since individuals can minimize their purchasing power due to inflation costs hence unemployment. The study confirmed the alternative hypothesis of positive relationship between inflation rate and employment growth under the studied period for the Tanzania case.

Table 6.4: ARDL Long runs Relationship Estimates Internal Monetary Factors

Variables	Co-efficient	Std Error	T-Statistic	Probability
InGDP	0.0226525	0.0097658	2.32	0.049**
InIf	0.0013099	0.0035683	0.37	0.723
InInt	-0.0078234	0.0110395	-0.71	0.499
InRev	-0.0027385	0.0103461	-0.26	0.798
InExp	0.0033338	0.0168532	0.20	0.848
lnFr	-0.0333049	0.0143178	-2.33	0.048**
Constant	4.31696	0.8543846	5.05	0.001*

Dependent Variable. Emp ARDL(1,3,3,0,3,2,3) regression, Observation: 1993 - 2022 (*), (**) and (***) indicate 1 %, 5% and 10% level of significant, respectively, Durbin-Watson d-statistic= (2.076649), Heteroskedasticity Test (White's Test) = 0.4140, ARCH Test = 0.4628

Source: Author Compilation 2024, Data from STATA.

6.3.4.2 Impact of Lending Interest Rate on Employment Growth

The study revealed a negative relationship between interest rates and employment growth. A one per cent increase in interest rates resulted in a 0.7 per cent decrease in employment growth over the long term. Elevated interest rates raise production costs, as companies borrowing at higher rates incur increased repayment costs, which in turn leads to reduced investment and higher unemployment. This finding is consistent with Keynesian theory, which advocates for lowering interest rates to stimulate investment and decrease unemployment. Similar conclusions were drawn by Vladi and Hysa (2020), who noted that higher interest rates constrain borrowing, thereby diminishing investment and increasing unemployment. Furthermore,

Attamah et al. (2015) reported that interest rates, along with other economic factors, elevate production costs, exacerbating unemployment.

Contrariwise, Micheni and Mutuni (2019) identified a direct relationship between interest rates and employment growth indicating that higher lending rates corresponded with reduced unemployment in Kenya. Despite these contrasting findings, the study refuted the alternative hypothesis of a positive relationship between lending interest rates and employment growth in Tanzania.

6.3.4.3Impact of Other Macroeconomic Factors on Employment Growth

The estimated coefficient of GDP growth was found to be directly related with employment growth and the results were statistically significant at 5 per cent level. The increase in GDP growth by one per cent resulted to 2.3 per cent increase in employment growth in the long run, keeping other factors constant and the reasons can be similar as explained in sub section of 4.3.4.1 of chapter four. Correspondingly total government expenditure was directly related with employment growth in long run although it was statistically insignificant. Holding other factors been constant, a one per cent increase in expenditure resulted to 0.33 per cent increase in employment growth in long run.

Rise in government expenditures indicate more economic activities which obvious more labour tend to be hired hence growth of employment in the country, Islam and Sahajalal (2019), Adegboye (2020).Further the reasons have been identified as in sub section 4.3.4.3 of chapter four. Unlike, the long run coefficient of revenue in

Tanzania deteriorated the growth of employment growth and the results were statistically insignificant in long run. A one per cent rise in revenue decreased employment by 0.3 per cent holding other factors been constant in long run and the reasons have been identified as in sub section 4.3.4.2 of chapter four.

In addition, the estimated coefficient of foreign reserve was negatively associated with employment growth and it was statistically significant at 5 per cent level in long run. It has been indicated a one increase in foreign reserve, decrease deployment growth by 3.33 per cent in long run holding other factors constant. Tanzania also has higher importation volume compare to export volume which these hinder further the accumulation of foreign reserve for expansion of more economic activities in Tanzania, see Vlad and Hysa (2018) and Krušković (2020).

Table 6.5: Objective Three Summary of Results for Hypotheses Testing

Hypotheses Statement	Result	Decision	Hypothetical Relationship
H_3: Hypothesis (H_1): There is a significant positive relationship between GDP and employment growth	(ß = 0.0226525, p= 0.049).	H_1; Confirmed	Positive
H_3: Hypothesis (H_1): There is a significant positive relationship between inflation rate and employment growth	(ß = 0.0013099, p= 0.723).	H_1; Confirmed	Positive
H_3: Hypothesis (H_1): There is a significant positive relationship between lending interest rate and employment growth	(ß =-0.0078234, p= 0.499).	H_1; Rejected	Negative
H_3: Hypothesis (H_1): There is a significant positive relationship between total government revenue and employment growth	(ß = -0.0027385, p= 0.798).	H_1; Rejected	Negative
H_3: Hypothesis (H_1): There is a significant positive relationship between total government expenditure and employment growth	(ß = 0.0033338, p= 0.848).	H_1; Confirmed	Positive
H_3: Hypothesis (H_1): There is a significant positive relationship between foreign reserve and employment growth	(ß =-0.0333049, p= 0.048).	H_1; Rejected	Negative

Source: Author Compilation, 2024.

6.3.5 Internal Monetary Factors, Error Correction Model: Short Run Estimates

The error correction mechanism (ECT) coefficient was determined to be 92 negative per cent and is statistically significant at the 5 per cent level, indicating a rapid adjustment to restore equilibrium following a disturbance. This implies that if a one percent disequilibrium shock occurs, 92 per cent of the shock will be corrected in the subsequent period, with the system adjusting by 92 per cent to any long-term distortion, thereby ensuring the stabilisation of employment growth over time (see Table 6.6).

At lag one, GDP growth exhibited a negative but statistically insignificant effect on employment growth, with a one per cent increase in GDP resulting in a 1.1 percent decrease in employment growth in the short run. A similar inverse relationship was observed at lag 2, where a one per cent rise in GDP led to a 0.3 per cent reduction in employment. However, at lag 3, the relationship became positive and statistically significant at the 10 per cent level, with a one per cent increase in GDP resulting in a 0.8 per cent increase in employment growth, while holding other factors constant, similarly a situation that can be further explained in section 4.3.5 of Chapter 4.

It was indicated that the estimated coefficients of the inflation rate at all three lags were directly related and statistically significant. At lag one, an increase in the inflation rate by one per cent resulted in a 0.9 per cent increase in employment growth in the short run, holding other factors constant. A one per cent increase in the inflation rate at lag two led to a 0.8 per cent increase in employment growth in the short run, also holding other factors constant. At lag three, an increase in the inflation rate by one per cent resulted in a 1.1 per cent increase in employment

growth in the short run.

Table 6.6: Internal Monetary Error Correction Model: Short Run Estimates

Variables	Co-efficient	Std Error	T-Statistic	Probability
$DlnGDP_1$	-0.0108172	0.008103	-1.33	0.219
$DlnGDP_2$	-0.0034127	0.0057692	-0.59	0.570
$DlnGDP_3$	0.008196	0.0038251	2.14	0.065***
$DlnInf_1$	0.0091768	0.0039709	2.31	0.050**
$DlnInf_2$	0.0083328	0.0027999	2.98	0.018**
$DlnInf_3$	0.0107394	0.0028482	3.77	0.005**
$DlnRev_1$	-0.0280896	0.0145493	-1.93	0.090***
$DlnRev_2$	-0.0387813	0.0134259	-2.89	0.020**
$DlnRev_3$	-0.019808	0.0145397	-1.36	0.210
$DlnExp_1$	0.008355	0.0138238	0.60	0.562
$DlnExp_2$	0.0400757	0.0138327	2.90	0.020**
$DlnFr_1$	0.019944	0.013108	1.52	0.167
$DlnFr_2$	0.0248803	0.0108792	2.29	0.052***
$DlnFr_3$	0.0029482	0.0082747	0.36	0.731
ECT	-0.9202563	0.1815259	-5.07	0.001*
R-squared = 0.8889Adj R-squared = 0.5972 2022 (*), (**) and (***) indicate 1 %, 5% and 10% level of significant, respectively.				

Source: Author Compilation 2024, Data from STATA.

In the short run at both lags, the coefficient of total government revenue was inversely related to employment growth, which decreased in the short run while holding other factors constant. This observation is consistent with the findings presented in model one, section 4.3.5 of chapter 4. It is important to note that the coefficient of government expenditure was also found to be directly related to employment growth, as established in chapter 4, section 4.3.5.

The coefficient of foreign reserves was found to be positive but statistically insignificant at the 5 per cent level at lag one in the short run, while holding other factors constant. A one per cent increase in foreign reserves resulted in a 2 per cent increase in employment growth in the short run, ceteris paribus. Given that the

coefficient of foreign reserves was directly related to employment and statistically significant at the 5 per cent level, an increase of foreign reserves by one per cent at lag two resulted in a 2.5 per cent increase in employment growth in the short run, while keeping other factors constant. The estimated coefficient of foreign reserves was also directly related to employment growth at lag three however, it was statistically insignificant, indicating that a one per cent increase in foreign reserves resulted in a 0.3 per cent increase in employment growth in the short run, again holding other factors constant.

Table 6.7: Empirical Summary Results, Internal Monetary Factors on Employment Growth

Variable	Positive relationship	Negative relationship
GDP	Mhenwa (2024), Chipeta et al. (2017), Hjazeen et al.(2021), Alkhateeb et al. (2017), Krušković (2019) , Attamah et al. (2015).	Islam and Sahajalal (2019), Cvecic and Sokolic (2018), Micheni and Muturi (2019), Selim and Hassan (2019).
Inflation rate	Mhenwa (2024), Islam and Sahajalal (2019), Onifade et al. (2020).Alem (2024).	Micheni and Muturi, (2019), Krušković (2019),Warsame et al.(2023),Alnaa and Matey (2023), Ibrahim et el.(2024).
Lending interest rate	Micheni and Muturi (2019).	Mhenwa (2024), Vladi and Hysa (2020), Attamah et al. (2015), Onwuka (2021), Ibrahim et el.(2024), Ashard and Ali (2016).

Source: Authors Construct 2024

6.3.6 Internal Monetary Factors Stability Test

Stability tests were conducted using CUSUM (cumulative sum of recursive residuals) and CUSUM2 (cumulative sum of the recursive residuals squared) to assess the stability of the coefficients in Model 3. The results, depicted in Figures 6.1 and 6.2, illustrate that both the CUSUM and CUSUM2 plots indicate model stability, as the graphs remain within the 5 per cent significance level.
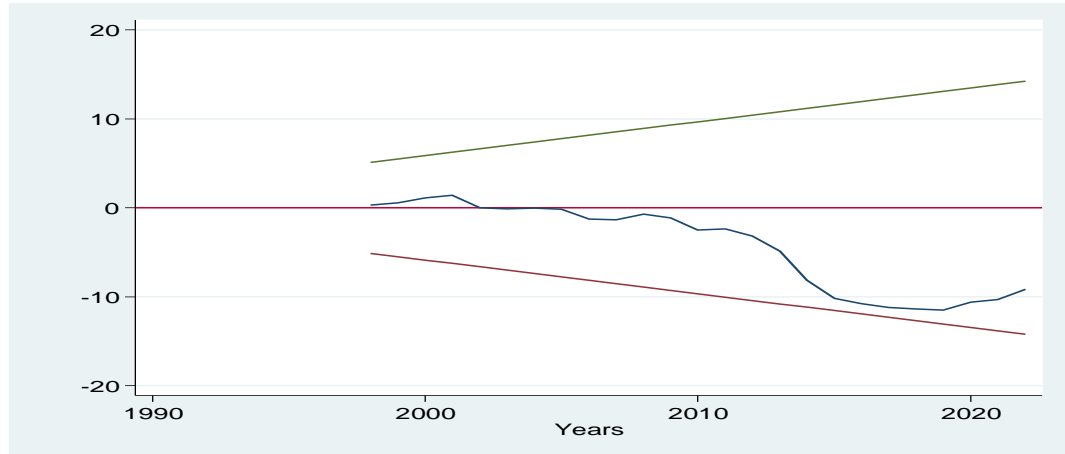
Figure 6.1: Cumulative Sum of Recursive Residuals

Source: Author's Compilation, 2024.
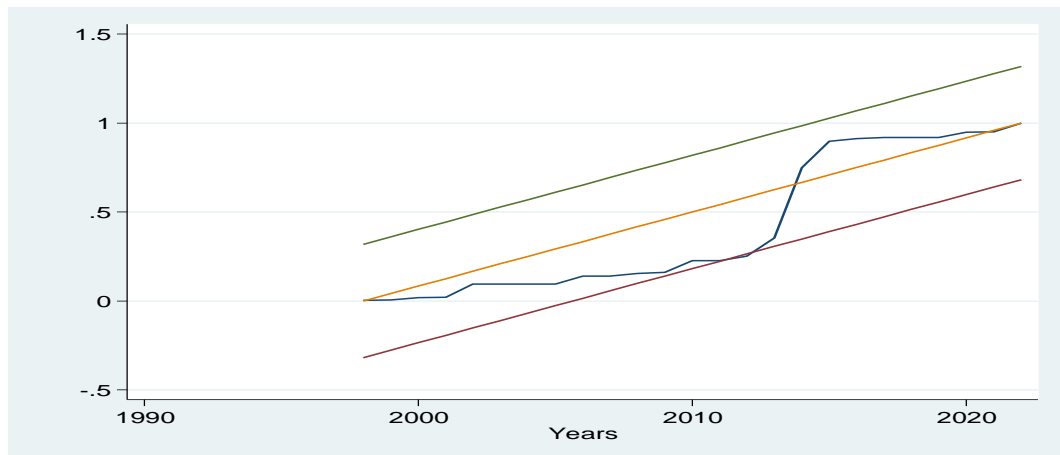
Figure 6. 2: Cumulative Sum of Squares of Recursive Residuals

Source: Author's Compilation, 2024.

6.4 Internal Monetary Factors Granger Causality

Co-integration among the variables studied suggests the presence of a long-run relationship; however, the direction of this relationship has not yet been established (Sanjo et al., 2022). Granger causality tests were employed to determine the direction of the relationship among the variables under study, which is essential for identifying the implications for policy. Consequently, Granger causality was applied to the internal monetary factors, specifically examining GDP growth, the inflation

rate, and the lending interest rate, alongside other variables such as total government revenue, total government expenditure, and foreign reserves. The tested null hypotheses concerning the internal monetary factors were:

i. H_0: the lagged values of employment growth do not granger caused GDP growth, inflation rate, lending interest rate, total government revenue and total government expenditure.

ii. H_0: the lagged values of GDP growth do not granger caused employment growth, inflation rate, lending interest rate, total government revenue and total government expenditure.

iii. H_0: the lagged values of inflation rate do not granger caused employment growth, GDP growth, lending interest rate, total government revenue and total government expenditure.

iv. H_0: the lagged values of lending interest rate do not granger caused employment growth, GDP growth, inflation rate, total government revenue and total government expenditure.

It has been established that the hypothesis asserting that employment growth does not Granger-cause GDP growth has been rejected at ($P = 0.000 < 0.05$), as has the hypothesis for inflation rate at ($P = 0.000 < 0.05$) and for lending interest rate at ($P = 0.052 < 0.05$). This validates that employment growth does Granger-cause GDP growth, the inflation rate, and the lending interest rate during the studied period. Generally, the null hypothesis that employment growth does not Granger-cause all factors within the studied period was not accepted at ($P = 0.000 < 0.05$), indicating that employment growth Granger-caused all factors examined within the specified

timeframe in the Tanzanian context.

Furthermore, the null hypothesis that GDP growth does not Granger-cause employment growth was not rejected at (P = 0.315 > 0.05), nor for the inflation rate at (P = 0.413 > 0.05), and the lending interest rate at (P = 0.172 > 0.05). This suggests that GDP growth has not elucidated any impact on employment growth, the inflation rate, or the lending interest rate during the studied period, thereby indicating a presence of unidirectional causality between GDP growth and employment growth, with causation running from employment growth to GDP in the case of Tanzania.

The results also indicate that the null hypothesis asserting that GDP growth does not Granger-cause the inflation rate has not been rejected at (P = 0.413 > 0.05), suggesting that GDP growth has not caused the inflation rate in Tanzania during the studied period. Similarly, the null hypothesis that GDP growth does not Granger-cause the lending interest rate was not rejected at (P = 0.172 > 0.05), indicating that GDP growth does not influence the lending interest rate during this timeframe.

Additionally, there was a failure to reject the null hypothesis that GDP growth does not Granger-cause total government revenue at (P = 0.272 > 0.05), meaning that GDP growth was not the factor causing the lending interest rate in the Tanzanian context. Overall, the null hypothesis that GDP growth Granger-causes all the studied factors was rejected at (P = 0.000 < 0.05), indicating that GDP growth influenced all factors examined during the studied period.

Table 6.8: Internal Monetary Factors Granger Causality Wald Tests Results

Dependent variable*: ln-**employment growth***			
Excluded	Chi-sq	Prob Value	Decision
GDP	26.815	0.000	Reject H_0
Inflation rate	23.81	0.000	
Lending Interest rate	7.7199	0.052	
Total Government Revenue	9.2876	0.026	
Total Government Expenditure	18.672	0.000	
Foreign Reserve	12.952	0.005	
ALL	105.63	0.000	
Dependent variable: *ln-**GDP***			
Employment growth	3.5485	0.315	Do not reject H_0
Inflation rate	2.8634	0.413	
Lending Interest rate	4.9988	0.172	
Total Government Revenue	3.9019	0.272	
Total Government Expenditure	10.462	0.015	
Foreign Reserve	1.2282	0.746	
ALL	68.193	0.000	
Dependent variable: *ln*-Inflation rate			
Employment growth	18.674	0.000	Reject H_0
GDP	28.728	0.000	
Lending Interest rate	6.9064	0.075	
Total Government Revenue	27.548	0.000	
Total Government Expenditure	19.122	0.000	
Foreign Reserve	5.9445	0.114	
ALL	80.581	0.000	
Dependent variable: *ln*-Lending Interest rate			
Employment growth	15.043	0.002	Reject H_0
GDP	4.7356	0.192	
Inflation rate	15.866	0.001	
Total Government Revenue	6.3942	0.094	
Total Government Expenditure	2.1954	0.533	
Foreign Reserve	4.9042	0.179	
ALL	151.3	0.000	

Source: Author's Compilation, 2024.

The null hypothesis that the inflation rate does not Granger-cause employment growth was rejected at (P = 0.000 < 0.05), for GDP growth at (P = 0.000 < 0.05), and for the lending interest rate at (P = 0.075 < 0.1), suggesting that, during the studied period, inflation has caused employment growth, GDP growth, and the lending interest rate. These results thus conclude the presence of a bi-directional

causal relationship between the inflation rate and employment growth, alongside a unidirectional relationship between the inflation rate and GDP growth, with causation running from the inflation rate to GDP growth.

Generally, the null hypothesis stating that the inflation rate does not Granger-cause all the variables under study has not been accepted (P = 0.000 < 0.05), implying that the inflation rate influenced all the factors examined in the Tanzanian context. The null hypothesis that the lending interest rate does not Granger-cause employment growth was also not accepted (P = 0.002 < 0.05) and similarly for the inflation rate (P = 0.001 < 0.05), indicating that, during the studied period, the lending interest rate influenced both employment growth and inflation rate. These results highlight the existence of a bi-directional causal relationship between the lending interest rate, employment, and inflation rate within the Tanzanian context.

However, the null hypothesis that the lending interest rate does not Granger-cause GDP growth was not rejected (P = 0.192 > 0.05), suggesting that the lending interest rate does not explain GDP growth. Overall, the null hypothesis that the lending interest rate does not Granger-cause all the variables under study has not been accepted (P = 0.000 < 0.05), indicating that the lending interest rate influenced all the factors examined during the period in the Tanzanian case.

CHAPTER SEVEN

FINDING AND DISCUSSION ON THE IMPACTS OF EXTERNAL MONETARY FACTORS ON EMPLOYMENT GROWTH

7.1 Chapter Overview

Chapter Seven presents the findings obtained from the study, which focused on external monetary macroeconomic factors as outlined in objective four. A statistical summary was conducted to examine the behaviour of the figures throughout the entire study period, covering employment growth, GDP growth, exchange rates, foreign reserves, and other variables, including the extended broad money supply (M3) and grants. The statistical descriptive summary was crucial as it provided an overview of the data in terms of their magnitude and respective signs.

Conducting a stationarity test was also essential to ensure the data were protected from spurious results. The study further employed the ARDL model to explore the long-run associations of the variables, as well as a short-run error correction model. Additionally, various regression tests were conducted, including tests for autocorrelation or serial correlation, heteroscedasticity, model specification, model stability, and the Granger causality Wald test.

7.2 External Monetary Factors Descriptive Statistics

The proposed section aims to explore the statistical description by examining trends in external monetary macroeconomic factors. It analyses how employment growth, Gross Domestic Product (GDP), exchange rates, and foreign reserves behaved during the studied period. Each variable is described in terms of mean values, maximum and minimum values, median, standard deviations, skewness, and

kurtosis. Additionally, the model incorporates other control variables, including GDP growth, which was previously discussed in section 4.2 of Chapter 4, as well as the extended broad money supply (M3) and grants.

Table 7.1: External Monetary Factors Summary Statistics

	Emp	GDP	Exch	M3	Fr	Grt
Mean	86	5.54	1269.37	10271.41	2650.58	684932.7
Maximum	90	7.9	2303.5	38580.01	6386	1714000
Minimum	84	0.4	196.6	178.06	192	22875
Median	87	6.2	1165.51	4250.73	2307	696672.5
Standard deviation	2.2	1.96	686.04	11703.68	1981.27	552457.9
Skewness	-0.21	-0.97	0.23	0.97	0.22	0.35
Kutorsis	1.46	3.09	1.82	2.60	1.67	1.83
Observations	33	33	33	33	33	33

Source: Author Compilation 2024, Data from STATA.

Furthermore, the mean value for the exchange rate was estimated to be 1269.37 Tshillings per USD, with a maximum of 2303.5 Shillings per USD and a minimum of 196.65 Tshillings per USD. The data exhibited a positive skewness of 0.23, indicating that the growth of the exchange rate was higher than average, while the kurtosis was measured at 1.82, suggesting a fairly normal distribution with flatness. Additionally, the average value for foreign reserves in Tanzania was approximately 2650.58 million USD, indicating growth in foreign reserves. The maximum and minimum values were recorded at 6386 million USD and 192 million USD, respectively. The positive skewness of 0.22 further confirmed the growth trend in Tanzania's foreign reserves.

Moreover, the estimated mean value for extended broad money, M3, was approximately 10,271 billion Tanzanian shillings. The extended broad money supply

has been increasing over the studied period, as evidenced by a maximum of 38,580.01 billion and a minimum of 178.06 billion Tanzanian shillings. The skewness for M3 was estimated at 0.97, indicating positive skewness, while the kurtosis was estimated at 2.6.

Furthermore, the mean value for grants was estimated at 684,932.7 million Tanzanian shillings, suggesting that the government of Tanzania has benefited from the presence of grants during the studied period. The minimum value was recorded at 22,875 million, with a maximum of 1,714,000 million Tanzanian shillings. The estimated standard deviation indicated considerable variability at 552,457.9, while skewness and kurtosis were estimated at 0.35 and 1.83, respectively.

7.3 External Monetary Factors Results Estimations

The proposed results estimation aims to provide insights into the impact of external macroeconomic factors on employment growth. This analysis incorporates various elements, including employment growth, GDP growth, exchange rates, foreign reserves, extended broad money supply M3, and grants. It presents the methodologies employed, including unit root tests, bounds testing for co-integration, long-run and short-run error correction models, and regression diagnostic tests for autocorrelation, heteroscedasticity, ARCH effects in the residuals, and Granger causality Wald tests.

7.3.1 External Monetary Factors Unit Root Test

The stationarity of data is essential for the adoption of any model. Therefore, if the data are not stationary, it is necessary to transform them by differencing until

stationarity is achieved. Subsequently, the data can be modelled, and coefficients can be estimated (Gujarati, 2005). The study adopted a logarithmic transformation as it effectively stabilises the mean and variance of the analysed data (Mwamkomko, 2022). Following the application of logarithms, the data were differenced. The Augmented Dickey-Fuller (ADF) test was employed to establish stationarity at both the logarithmic level and the first differences. Bilarbi, et al., (2017) and Omran and Bilan (2020) noted that the null hypothesis of non-stationarity is rejected if the ADF statistic exceeds the critical value at the 5% level, indicating stationarity. Otherwise, the null hypothesis is not rejected.

The log of employment growth, log of GDP growth, log of foreign reserves, and log of grants were not   integrated at the first order, I(0), while the log of the exchange rate and M3 were confirmed to be stationary at level, I(0). For further details, the logs of employment growth and GDP growth were previously discussed in Chapter 4, Section 4.3.1. The log of foreign reserves exhibited a test statistic of -1.859, with a critical value of -2.980 without a trend, and a test statistic of -1.258, with a critical value of -3.572 when including a trend. The test statistic for the log of grants was estimated to be -1.965, with a critical value of -2.980 without a trend, and -1.164 with a critical value of -3.572 when including a trend.

The log of the exchange rate had a test statistic of -4.523 and a critical value of -2.980 without a trend, and a test statistic of -3.748 with a critical value of -3.572 when including a trend. The test statistic for the extended broad money supply, M3, was estimated to be -1.496, with a critical value of -2.980 without a trend, and a test statistic of -5.521 with a critical value of -3.572 when including a trend, confirming

stationarity at order zero, I(0) (for more details, see Table 7.2).

Table 7.2: Unit Root at Level External Monetary Factors

| Variables | Augmented Dickey-Fuller Test | | | | |
| | With no trend | | With trend | | |
	ADF Calculated	ADF Critical at 5%	ADF Calculated	ADF Critical at 5%	Conclusion
lnEmp	-0.627	-2.980	-1.902	-3.572	Non stationary
lnGDP	-2.186	-2.980	-2.827	-3.572	Non stationary
lnExch	-4.523	-2.980	-3.748	-3.572	Stationary
lnFr	-1.859	-2.980	-1.258	-3.572	Non Stationary
InM3	-1.496	-2.980	-5.521	-3.572	Stationary
InGrt	-1.965	-2.980	-1.164	-3.572	Non Stationary

Source: Author Compilation 2024, Data from STATA.

External monetary variables that were non-stationary at first differences were subsequently transformed to first differences, where all became stationary, as their test statistics exceeded the critical value at the 5 per cent significance level. Consequently, the null hypothesis of the presence of a unit root was rejected at the 5 per cent significance level, indicating that all the studied variables were stationary at first order, as presented in Appendix 3(d).

7.3.2 External Monetary Factors Autoregressive Distributed Lag Model

The Autoregressive Distributed Lag Model (ARDL) is designed to present the relationships among external monetary factors, including employment growth, GDP growth, exchange rates, and foreign reserves, particularly in cases where there is a blend of integrated orders. Additional variables, such as extended broad money supply and grants, were also included. Following the works of Pesaran et al. (2001), Alkhateeb et al. (2021), and Sanjo et al. (2022), the ARDL model was chosen for its

ability to accommodate variables with mixed integrated orders. Furthermore, the model allows for a combination of lag lengths and is valuable for providing estimates for both long-run and short-run results.

7.3.3 ARDL Bound Test External Monetary Factors

Pesaran et al. (2001) indicated that, the primary objective of the Autoregressive Distributed Lag Model is to assess the presence of co-integration among the variables under investigation. The presence of co-integration indicates a long-run relationship between the variables. In accordance with the findings of Onifade et al. (2020), the decision was made to reject the null hypothesis of no co-integration if the F-statistic was smaller than the lower and upper bound critical values, and to not reject the null hypothesis if the F-statistic was greater than the lower and upper bound critical values.

Table 7.3: External Monetary ARDL Bound Test Results

Test Statistic	Value	Lower bound	Upper bound	Significant level	Decision
F-Statistics	3.664	2.62	3.79	5%	Co integration
		2.26	3.35	10%	Co integration

Source: Author Compilation 2024, Data from STATA.

It was revealed that the F-statistic was 3.664, exceeding both the lower and upper bounds at the 5 per cent significance levels, suggesting that all studied variables were co-integrated. Co-integration indicates that the variables have a significant long-run relationship; therefore, an error correction model was employed to estimate the data (see Table 7.3 for further details).

7.3.4 External Monetary Factors ARDL Long run Relationship Estimates

7.3.4.1 Impact of Exchange Rate on Employment Growth

The estimated coefficient of the exchange rate was negative and statistically significant at the 5 per cent precision level. An increase in the exchange rate by one per cent resulted in a decrease of employment growth of 7.2 per cent in the long run, holding other factors constant. The results confirm that fluctuations in the exchange rate are associated with job creation reduction. It has been pointed out that an increase in the exchange rate, which represents the depreciation of a currency, heightens uncertainty for investors, who may reduce production in the belief that production costs will exceed profits, thereby leading to a decrease in labour employment.

The results align with those of Chipeta et al. (2017), who established that the depreciation of the South African rand resulted in decreased employment levels. Similarly Micheni and Muturi (2019) noted that a one per cent increase in the exchange rate of any international currency led to an increase in the unemployment rate. Islam and Sahajalal (2019), also proposed a positive relationship between exchange rates and unemployment in Bangladesh, whereby a rise in the exchange rate was associated with an increase in unemployment. Attamah et al. (2015) indicated that an increase in the exchange rate also raised the unemployment rate in Nigeria.

The underlying reason for this situation is that an increase in the exchange rate raises production costs, which in turn limits production expansion, leaving firms and companies unable to hire individuals. In disparity, Kaphle (2021), found a direct

relationship between economic growth, foreign reserves, and past values of foreign exchange, although economic growth was determined to be insignificant in bolstering the country's foreign exchange. Yokoyama, Higa, and Kawaguchi (2015) established that the employment of regular workers in imports is not affected by Yen appreciation, whereas regular workers in exports are significantly impacted by Yen appreciation. The results further suggest that Yen depreciation in the long run leads to an increase in the hiring of regular workers while decreasing the number of non-regular workers.

Kruskovic (2020) and Asaleye et al. (2017) also indicated a direct relationship between the real exchange rate and employment growth, it has been suggested that currency depreciation promote export sector thereby increasing local production and employment profile. The study rejected the alternative hypothesis of no significant positive relationship between exchange rate and employment growth under the studied period for the Tanzania environment.

7.3.4.2 Impact of Foreign Reserve on Employment Growth

The study found that foreign reserves had a negative but statistically insignificant relationship with employment growth in Tanzania. A one percent rise in foreign reserves was associated with a 0.5 percent decline in employment growth in the long run, suggesting that the available foreign reserves do not significantly contribute to job creation. Tanzania's ability to maintain foreign reserves for imports currently is at 4.8 months (URT, 2023) and foreign reserve has not mitigated economic challenges such as drought, food shortages, high oil prices, and the COVID-19 pandemic, all of which have exacerbated economic instability in developing

countries. High importation relative to exportations increases capital expenditure on foreign goods, leading to a balance of payments deficit and limiting the role of foreign reserves in employment growth URT (2023).

Similar findings were reported by Ibrahim, et al., (2024), demonstrated that the misallocation of foreign reserves negatively impacts economic growth. In contrast, studies from South Africa (Gumata & Ndou, 2021) and (Alam, et al., 2021) found that higher foreign reserves were associated with economic and employment growth. Jacob and Magungu (2023) found that in Tanzania, foreign reserves increase in response to economic growth rather than act as a driver of it. The study rejected the alternative hypothesis of no significant positive relationship between foreign reserve and employment growth under the studied period for the Tanzania case.

7.3.4.3 Impact of Other Macroeconomic Factors on Employment Growth

Table 7.4: External Monetary Factors ARDL long run Relationship Estimates

Variables	Co-efficient	Std Error	T-Statistic	Probability
InGDP	0.0323038	.00100679	3.21	0.008**
InM3	0.0145228	0.0116602	1.25	0.237
InExch	-0.0715575	0.0328038	-2.18	0.050**
InFr	-0.0048666	0.0134195	-0.36	0.723
InGr	-0.0097908	0.0059277	-1.65	0.125
Constant	1.970732	0.7717243	2.55	0.025**

Dependent Variable: Employment growth , ARDL(1,2,3,3,0,3) regression Observation: 1993 – 2022,(*), (**) and (***) indicate 1 %, 5% and 10% level of significant, respectively, Durbin-Watson d-statistic= (2.214615), Heteroskedasticity Test (White's Test) = 0.4140, ARCH Test = 0.4007

Source: Author Compilation 2024, Data from STATA.

The estimated coefficient of GDP growth was found to be directly related with employment growth and the results were statistically insignificant at 5 per cent level. The increase in GDP growth by one per cent resulted to 3.2 per cent increase in

employment growth in the long run, keeping other factors constant and the reasons is similarly explained in sub section of 4.3.4.1 of chapter four. The extended broad money supply was positively related to employment growth, although it was statistically insignificant. A one per cent increase in M3 resulted in a 1.5 per cent increase in employment growth in the long run, holding other factors constant. In addition, the coefficient of grants was negatively related to employment growth, although it was statistically insignificant. It has been shown that, holding other factors constant, an increase in grants by one per cent resulted in a one per cent increase in employment growth in the long run.

Table 7.5: External Monetary Factors Summary of Results for Hypotheses Testing

Hypotheses Statement	Result	Decision	Hypothetical Relationship
H₄: Hypothesis (H₁): There is a significant positive relationship between GDP and employment growth	(ß = 0.0323038, p= 0.008).	H₁; Confirmed	Positive
H₄: Hypothesis (H₁): There is a significant positive relationship between extended broad money (M3) and employment growth	(ß =0.0145228, p= 0.237).	H₁;Confirmed	Positive
H₄: Hypothesis (H₁): There is a significant positive relationship between exchange rate and employment growth	(ß =-0.0715575, p= 0.050).	H₁; Rejected	Negative
H₄: Hypothesis (H₁): There is a significant positive relationship between foreign reserve and employment growth	(ß =-0.0048666, p= 0.723).	H₁; Rejected	Negative
H₄: Hypothesis (H₁): There is a significant positive relationship between grants and employment growth	(ß =-0.0097908, p= 0.125).	H₁; Rejected	Negative

Source: Author Compilation, 2024.

7.3.5 External Monetary Factors, Error Correction Model: Short Run Estimates

The estimated coefficient of the error correction mechanism term (ECT) was found to be 40 per cent negative and statistically significant at a 5 per cent precision level.

The error correction mechanism term indicates the speed at which equilibrium can be restored following disturbances. The negative coefficient, along with its statistical significance at the 5 per cent level, suggests that in the event of a disequilibrium shock of one per cent in the previous period, approximately 40 per cent of the shock can be corrected to adjust for external monetary factors. In the long run, the system will adjust by only 40 per cent to any long-term disturbance.

The coefficient of GDP growth at lag one exhibited a negative correlation with employment growth, and the results were statistically significant. A one per cent increase in GDP growth resulted in approximately a 0.9 per cent decrease in employment at lag one in the short run, ceteris paribus. The findings further indicated an inverse relationship between GDP growth and employment growth at lag two, with the coefficient being statistically significant at the 5 per cent level. This implies that a one per cent increase in GDP growth resulted in a 0.5 per cent decrease in employment growth in the short run, keeping other factors constant. The results exhibited similar characteristics to those previously described in Models 1, 2, and 3 of Chapters 4, 5, and 6.

The coefficients for extended broad money supply and employment growth were negatively correlated at lag one and were statistically significant at the 5 per cent precision level across all three lags. It has been indicated that, holding other factors constant, a one per cent increase in extended broad money supply (M3) leads to a 0.9 per cent decrease in employment growth in the short run. At lag two, extended broad money supply also demonstrates an inverse relationship with employment growth, with the coefficient statistically significant at the 5 per cent precision level.

A one per cent increase in extended broad money supply (M3) results in a 0.5 per cent decrease in employment growth in the short run, ceteris paribus. Furthermore, the coefficient of extended broad money supply (M3) exhibited a negative relationship with employment growth at lag three, and this coefficient was statistically significant. An increase in extended broad money supply (M3) by one percent decreases employment growth by 0.4 per cent at lag three in the short run, holding other factors constant.

Table 7.6: External Monetary Error Correction Model: Short Run Estimates

Variables	Co-efficient	Std Error	T-Statistic	Probability
$DlnGDP_1$	-0.0094591	0.0028877	-3.28	0.007
$DlnGDP_2$	-0.0054625	0.0024079	-2.27	0.043
$DlnM3_1$	-0.0088537	0.0030611	-2.89	0.014
$DlnM3_2$	-0.0055947	0.0023587	-2.37	0.035
$DlmM3_3$	-0.004475	0.0015256	-2.93	0.013
$DlnExch_1$	0.0096898	0.0123212	0.79	0.447
$DlnExch_2$	-0.007896	0.0111808	-0.71	0.494
$Dlnxch_3$	0.033972	0.0089346	3.80	0.003
$DlnGr_1$	0.0045275	0.0027248	1.66	0.122
$DlnGr_2$	0.0059297	0.0024816	2.39	0.034
$DlnGr_3$	0.0045063	0.0020553	2.19	0.049
ECT	-0.3979474	0.1622611	-2.45	0.030

R-squared   =   0.8485, Adj R-squared   =   0.6338 , Observation: 1993 – 2022, (*), (**) and (***) indicate 1 %, 5% and 10% level of significant, respectively

Source: Author Compilation 2024, Data from STATA.

The estimated coefficient of the exchange rate at lag one exhibited a direct relationship with employment growth; however, it was statistically insignificant. Specifically, a one per cent increase in the exchange rate resulted in a one per cent increase in employment growth at lag one in the short run, ceteris paribus. The estimated coefficient of the exchange rate at lag two demonstrated a negative relationship with employment growth, although this was also statistically insignificant. It was observed that a one per cent increase in the exchange rate led to

a 0.8 per cent increase in employment growth at lag two in the short run, holding other factors constant. At lag three, the coefficient of the exchange rate was positively associated with employment growth, and it was statistically significant at the 5 per cent level. Given other factors remain constant; a one per cent increase in the exchange rate resulted in a 3.4 per cent increase in employment growth in the short run, ceteris paribus.

Table 7.7: Summary results, External Monetary Factors on Employment Growth

Variable	Positive relationship	Negative relationship
GDP growth	Mhenwa (2025), Chipeta et al. (2017), Hjazeen et al.(2021), Alkhateeb et al. (2017), Krušković (2019) , Attamah et al. (2015),Kamar,(2019),Adegboye,(2020),Warsame at al.(2024)	Islam and Sahajalal (2019), Cvecic and Sokolic (2018), Micheni and Muturi (2019).
Exchange rate	Kaphle (2021) Micheni and Muturi (2019),Chipeta et al.(2017).	Mhenwa (2025), Islam and Sahajalal (2019), Chipeta et al.(2017),Yokoyama et al. (2015),Asalaye et al.(2017)Attamah et al.(2015),Atya (2017).
Foreign reserve	Gumata and Ndoe (2021),Alam et al. (2021) Jacob and Magungu (2023), Sula and Oguzoglu (2021), Kaphle (2021).	Mhenwa (2024), Ibrahim et al.(2024).

Source: Authors Construct 2024.

At all three lags, the coefficients of grants were positively related to employment growth, although the results were statistically insignificant at the 5 per cent precision level. At lag one, a one per cent increase in grants led to an approximate 0.5 per cent increase in employment growth in the short run, ceteris paribus. Additionally, at lag two, a one per cent increase in grants resulted in a 0.6 per cent increase in employment growth in the short run, holding other factors constant. At lag three, a

one per cent increase in grants also corresponded to a 0.5 per cent increase in employment growth in the short run, while controlling for other factors.

7.3.6 External Monetary Factors Stability Test

The stability test for the external monetary factors model was conducted by plotting the cumulative sum of recursive residuals (CUSUM) to assess the stability of the coefficients. Figure 7.1 illustrates the CUSUM, indicating model stability as the graph remains within the 5 per cent significance level.
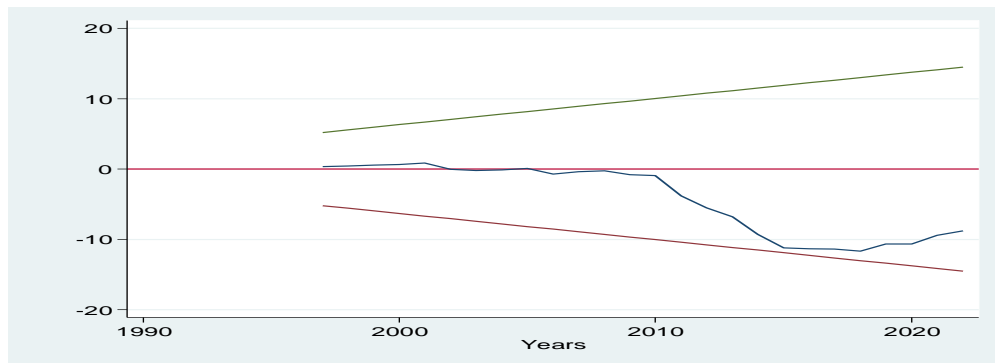
Figure 7.1: Cumulative Sum of Recursive Residuals

Source: Author's Compilation, 2024.

7.4 External Monetary Factors Granger Causality

The existence of cointegration among the studied variables suggests a long-run relationship; however, no direction of this relationship has been established, as previously recorded by Sanjo et al. (2022). Granger causality tests are particularly useful for indicating the direction of the relationship among the studied variables, which is essential for understanding the implications for policy. In this context, Granger causality was applied to external monetary factors in relation to employment growth, GDP growth, exchange rate, extended broad money supply, foreign reserves, and grants. The null hypotheses tested under these external

monetary factors were:

 i.H_0: the lagged values of employment growth do not granger caused GDP growth, exchange rate, foreign reserve and grants

 ii.H_0: the lagged values of GDP growth do not granger caused employment growth exchange rate, foreign reserve and grants

 iii.H_0: the lagged values of exchange rate do not granger caused employment growth, GDP growth, foreign reserve and grants

 iv.H_0: the lagged values of foreign reserve do not granger caused employment growth, GDP growth, exchange rate and grants

The null hypothesis that employment growth does not Granger-cause GDP growth has been rejected ($P = 0.000 < 0.05$) and similarly for the exchange rate ($P = 0.000 < 0.05$), validating that employment growth does Granger-cause GDP growth and the exchange rate during the studied period. The null hypothesis of employment growth not Granger-causing foreign reserves was accepted ($P = 0.112 > 0.05$), implying that employment growth has not influenced foreign reserves in Tanzania during the studied period. In summary, the null hypothesis that employment growth does not Granger-cause all factors during the studied period was rejected ($P = 0.000 < 0.05$), indicating that employment growth Granger-caused all factors studied in the case of Tanzania.

Furthermore, the null hypothesis that GDP growth does not Granger-cause employment growth was not accepted, as evidenced by ($P = 0.023 < 0.05$) for the exchange rate ($P = 0.000 < 0.05$) and foreign reserves ($P = 0.001 < 0.05$). This indicates that GDP growth in Tanzania also Granger-caused employment growth, the

exchange rate, and foreign reserves, thereby establishing the presence of bidirectional causality between GDP growth and employment growth in Tanzania. In summary, the null hypothesis that GDP growth does not Granger-cause all factors during the studied period was rejected ($P = 0.000 < 0.05$), suggesting that GDP growth influenced all factors considered in the study.

Additionally, the null hypothesis that the exchange rate does not Granger-cause employment growth was not rejected ($P = 0.299 > 0.05$), suggesting that the exchange rate in Tanzania has not influenced employment growth. This supports the presence of unidirectional causality from employment growth to the exchange rate in the case of Tanzania. The results also indicate that the null hypothesis of the exchange rate not Granger-causing GDP growth was not accepted ($P = 0.079 < 0.1$) and for foreign reserves ($P = 0.085 < 0.1$), indicating that the exchange rate influenced GDP growth and foreign reserves in Tanzania during the studied period. These results suggest the presence of bidirectional causality between the exchange rate and GDP growth in Tanzania during the studied period. Overall, the null hypothesis that the exchange rate does not Granger-cause all studied factors was rejected ($P = 0.000 < 0.05$), implying that the exchange rate accounts for all factors studied in the case of Tanzania.

The null hypothesis that foreign reserves do not Granger-cause employment growth could not be rejected ($P=0.307 > 0.05$) or GDP growth ($P=0.119 > 0.05$), indicating that foreign reserves in Tanzania have not caused employment growth or GDP growth. The results suggest the presence of unidirectional causality between foreign reserves and GDP growth in Tanzania during the studied period, running from GDP

growth to foreign reserves.

Table 7.8: External Monetary Factors Granger Causality Wald Tests Results

Dependent variable: *ln-**employment growth***			
Excluded	Chi-sq	Prob Value	Decision
GDP	29.355	0.000	Reject H_0
Extended broad money,(M3)	79.872	0.000	
Exchange rate	65.957	0.000	
Foreign reserve	5.9943	0.112	
Grants	46.999	0.000	
ALL	255.92	0.000	
Dependent variable: *ln-**GDP***			
Employment growth	9.4979	0.023	Reject H_0
Extended broad money,(M3)	4.4795	0.214	
Exchange rate	81.214	0.000	
Foreign Reserve	17.702	0.001	
Grants	21.569	0.000	
ALL	273.51	0.000	
Dependent variable: *ln*-Exchange rate			
Employment growth	3.6725	0.299	Do not reject H_0
GDP	6.7883	0.079	
Extended broad money,(M3)	4.9317	0.177	
Foreign Reserve	6.6242	0.085	
Grants	1.9466	0.584	
ALL	63.595	0.000	
Dependent variable: *ln*-Foreign Reserve			
Employment growth	3.6084	0.307	Do not reject H_0
GDP	5.8615	0.119	
Extended broad money,(M3)	2.7857	0.426	
Exchange rate	37.173	0.000	
Grants	9.8286	0.020	
ALL	87.119	0.000	

Source: Author's Compilation, 2024.

The findings also indicate that the null hypothesis stating that foreign reserves do not Granger-cause GDP growth was not accepted (P=0.119 > 0.05), signifying that foreign reserves have not caused GDP growth in Tanzania during the studied period. Furthermore, the null hypothesis that foreign reserves do not Granger-cause exchange rates was rejected (P=0.000 < 0.05), indicating that foreign reserves have caused fluctuations in exchange rates during the studied period in Tanzania. This

result highlights the existence of bidirectional causality between foreign reserves and exchange rates in the Tanzanian context. Overall, the null hypothesis that foreign reserves do not Granger-cause any of the studied factors was rejected ($P=0.000 < 0.05$), suggesting that foreign reserves explain all factors considered during the studied period.

CHAPTER EIGHT

THE IMPACTS OF INTERNAL- EXTERNAL FISCAL AND MONETARY

FACTOR INTERACTIONS ON EMPLOYMENT GROWTH

8.1 Chapter Overview

In chapter eight, reflecting objective five, the study presents the findings related to internal and external fiscal and monetary macroeconomic factors. The unit root test was conducted following a statistical descriptive summary of each variable derived from objectives one, two, three, and four. The assessment of stationarity was crucial as it safeguards the data against spurious results. The study then employed the ARDL model to investigate the long-run associations between the variables, alongside a short-run error correction model. Additionally, various diagnostic tests were performed to assess autocorrelation, serial correlation, heteroscedasticity, model specification, and model stability.

8.2 Internal and External Fiscal-Monetary Interactions Results Estimations

Estimations of results aim to provide insights into the impacts of internal and external fiscal and monetary macroeconomic factors on employment growth. This section clearly establishes the unit root test, bound test for co-integration, long-run and short-run error correction models, as well as regression diagnostic tests for autocorrelation, heteroscedasticity, and testing for ARCH effects in the residuals.

8.2.1 Internal- External Fiscal and Monetary Factors Unit Root Test

The stationarity analysis was conducted as customary to aid in model selection. If the data are non-stationary, transformation is essential, typically achieved through differentiation until stationarity is attained, after which the data can be modelled and

coefficients estimated (Gujarati, 2005). The logarithmic form was adopted in this study as it effectively stabilises the mean and variance of the data (Mwamkomko, 2022). Following the application of logarithms, the data were differenced. The Augmented Dickey-Fuller (ADF) test was employed to assess stationarity at both the logarithmic level and first differences. In accordance with the findings of Omran and Bilan (2020) and Bilarbi, et al., (2017), the decision was made not to reject the null hypothesis of non-stationarity or the presence of a unit root when the calculated ADF statistic was less than the critical ADF value at the 5 per cent level. Conversely, the null hypothesis of non-stationarity was rejected, and the alternative hypothesis of stationarity or absence of a unit root accepted when the calculated ADF statistic exceeded the critical ADF value at the same significance level.

The log of the internal fiscal factor was stationary prior to trend inclusion, followed by the log of the external fiscal factor and the log of the external monetary factor, which were both stationary at level I(0) even before trend inclusion. The log of the internal fiscal factor recorded a test statistic of -5.080 and a critical value of -2.983 without trend, and -0.111 with a critical value of -3.572 with trend, indicating stationarity at level without trend. The test statistic for the log of the internal monetary factor was estimated at -1.749, with a critical value of -2.983 without trend; when trend was included, the test statistic was -1.672, with a critical value of -3.572.

The log of the external fiscal factor exhibited a test statistic of -4.314 and a critical value of -2.983 without trend, and a test statistic of -4.828 with a critical value of -4.828 when trend was included. For the log of the external monetary factor, the test

statistic was estimated at -7.630, with a critical value of -2.983 without trend, and a test statistic of -11.346 with a critical value of -3.572 when trend was included (see Table 8.1 for details). The logs of employment growth and GDP growth are presented in Section 4.3 of Chapter 4.

Table 8.1: Unit Root Test at Level Internal, External Fiscal –Monetary Factor Interactions

Variables	Augmented Dickey-Fuller Test				
	With no trend		With trend		
	ADF Calculated	ADF Critical at 5%	ADF Calculated	ADF Critical at 5%	Conclusion
lnEmp	-0.516	-2.983	-1.986	-3.572	Non stationary
lnGDP	-2.150	-2.983	-2.905	-3.572	Non stationary
lnIntFisc	-5.080	-2.983	-0.111	-3.572	Stationary
lnIntMon	-1.749	-2.983	-1.672	-3.572	Non Stationary
lnExtFisc	-4.314	-2.983	-4.828	-3.572	Stationary
lnExtMon	-7.630	-2.983	-11.346	-3.572	Stationary

Source: Author´s Compilation 2024, Data from STATA

Internal and external fiscal and monetary variables that were non-stationary at first differences were subsequently transformed into first differences, resulting in all data becoming stationary. The test statistics exceeded the critical value at the 5 per cent significance level (for more details, see Appendix 3(e)). The decision was to reject the presence of a unit root at the 5 per cent precision level, indicating that all studied variables were stationary at first order, I(1).

8.2.2 Internal- External Fiscal and Monetary Factors Autoregressive Distributed Lag Model (ARDL)

Following Pesaran et al. (2001), the Autoregressive Distributed Lag Model (ARDL) is designed to illustrate the relationships among internal monetary and fiscal factors,

with employment growth as the dependent variable and independent variables including GDP growth, internal fiscal factors, internal monetary factors, external fiscal factors, and external monetary factors. Alkhateeb et al. (2021) also noted the suitability of the ARDL model for capturing variables with a blend of integrated orders, accommodating variables with a mixture of lag lengths, managing spurious results, and effectively handling small sample sizes of data.

8.2.3 Internal-External Fiscal and Monetary ARDL Bound Test

The Autoregressive Distributed Lag Model was initially employed to assess the presence of co-integration among the variables under study. The presence of co-integration indicates a long-run relationship between the variables. As noted by Sanjoet al. (2022), the decision was to reject the null hypothesis of no co-integration if the F-statistic was smaller than the lower and upper bound critical values, and to not reject the null hypothesis if the F-statistic was greater than the lower and upper bound critical values.

Table 8.2: ARDL Bound Test Results

Test Statistic	Value	Lower bound	Upper bound	Significant level	Decision
F-Statistics	2.420	2.62	3.79	5%	No cointegration
		2.26	3.35	10%	

Source: Authors Compilation 2024, Data from STATA.

The F-statistics revealed a value of 2.420, which was smaller than both the lower and upper bounds at the 5 per cent significance level, indicating the absence of cointegration among the series studied. Conversely, the study by Alkhateeb (2017) and Pesaran et al. (2001), identified a negative and statistically significant error

correction term at the 5 per cent significance level, confirming that all the studied variables were cointegrated. This suggests a significant long-run relationship among the variables, and an error correction model was employed to estimate the short-run connections (for details, see Table 8.2).

8.2.4 Internal-External Fiscal and Monetary Factors ARDL Long run Relationship Estimates

8.2.4.1 Impact of Internal Fiscal Interactions on Employment Growth

The coefficient of the internal fiscal macroeconomic factor was found to have an inverse relationship with employment growth, and this relationship was statistically significant at the 5 per cent level. Holding other factors constant, a one per cent increase in the internal fiscal macroeconomic factor led to approximately a 2 per cent decrease in employment levels in the long run. The results indicated that the internal fiscal interaction macroeconomic tools of government expenditure and revenue were insufficient to enhance the level of employment in the country (see Table 8.3).

Table 8.3: ARDL Long runs Relationship Estimates Internal and External Fiscal- Monetary Factors

Variables	Co-efficient	Std Error	T-Statistic	Probability
lnGDP	0.0054778	0.0036486	1.50	0.147
lnIntFisc	-0.0198825	0.0017082	-11.64	0.000*
lnIntMon	-0.0116279	0.0071865	-1.62	0.120
lnExtFisc	0.0062498	0.0113088	0.55	0.586
lnExtMon	0.0156441	0.0196148	0.80	0.434
ECT	-0.5029877	0.1429935	-3.52	0.002*
Constant	2.358111	0.6869066	3.43	0.002

Dependent: Variable. Employment growth   ARDL(1,0,0,0,0,0) regression, Sample: 1993 - 2021 (*), (**) and (***) indicate 1 %, 5% and 10% level of significant, respectively, Durbin-Watson d-statistic= (2.019805), Heteroskedasticity Test (White's Test) = 0.7421, ARCH Test = 0.4007

Source: Author Compilation 2024, Data from STATA.

This may be due to Tanzania's low tax revenue collection base, which results in total government revenue being significantly lower compared to high government expenditures. From the perspective of total government expenditure, a larger portion is allocated to recurrent expenditure, most of which is consumable rather than supportive of employment creation conversely, a smaller portion is distributed for nationwide investments.

8.2.4.2 Impact of Internal Monetary Interaction on Employment Growth

An internal monetary factor was found to indirectly overstate the relationship with employment growth. In the long run, a one per cent increase in the internal monetary factor resulted in approximately a 1.2 per cent decrease in employment growth in Tanzania, holding other factors constant. These results indicate that internal monetary tools, inflation, and lending interest rate factors do not yield significant benefits for employment in Tanzania.

Higher inflation leads to an increased cost of living for the majority, resulting in income being primarily allocated to consumption, with less available for saving, which could later be turned into investment opportunities. When disposable income is low, the employment profile is significantly reduced. Furthermore, the government must also finance higher inflation, particularly for essential goods and services, which necessitates the allocation of budgetary resources to combat high inflation rates. Such actions may hinder the formation of employment opportunities and lead to lower employment levels, as noted by Krušković (2020) and Micheni and Mutuni (2019), who observed that as inflation continues to rise, the unemployment rate also increases.

Higher lending interest rates imply an increase in the cost of production, as employment growth is a function of investment. If companies borrow at higher interest rates, they will eventually need to repay both the principal and the interest, which escalates production costs. In many cases, companies may postpone production, resulting in decreased investment and higher unemployment rates. Attamah et al. (2015), along with Micheni and Mutuni (2019) and Vladi and Hysa (2020), argued that an increase in interest rates leads to fewer loans being taken out by companies, resulting in lower levels of investment and consequently a higher unemployment rate.

8.2.4.3 Impact of External Fiscal Interaction on Employment Growth

The direct relationship between external fiscal interaction factors and employment growth has been estimated, although the results were statistically insignificant. It has been established that a one per cent increase in external fiscal interaction factors correlates with approximately a 0.6 per cent increase in employment levels in the long run, ceteris paribus. These findings suggest that a combination of external debt and openness to trade as external fiscal factors can lead to a higher employment profile in Tanzania (see Table 8.3 for details).

It has been proposed that if external debt is managed effectively, it can enable the country to secure capital that can be allocated to employment-oriented projects. Furthermore, external borrowing typically expands public investment, which can inversely affect employment opportunities, according to Alnaa and Matey (2023). Connectedly openness to trade allows foreign entities to introduce more sophisticated technologies, which in turn fosters investment creation within the

country and facilitates additional job creation.

These results align with Martes (2018), who established that an increase in openness to trade decreases the unemployment rate. It has been argued that, in the long run, firms tend to increase the supply of labour by offering long-term contracts due to an increase in goods and services resulting from trade liberalisation. Ngouhouo and Nchofoung (2021) also indicated a positive and significant relationship between employment growth and openness to trade. It was observed that openness to trade can enhance productivity, thereby improving demand and supply chains, which increases marginal productivity of labour and, consequently, boosts employment opportunities.

Alkhateeb et al. (2017) found a significant relationship between openness to trade and employment growth, noting a positive effect of openness to trade that confirms the trade surplus in Saudi Arabia, which relies heavily on oil exports that are vital for the country's total export performance. Edo and Oigiangbe (2024), using panel data from Sub-Saharan Africa, advocated for the presence of a direct relationship between economic growth and openness to trade in the region, while the vulnerability of external debt was found to be detrimental to economic growth in Sub-Saharan Africa.

8.2.4.4 Impact of External Monetary Interaction on Employment Growth

The external monetary interaction coefficient was found to be direct but statistically insignificant with respect to employment growth. In the long run, a one per cent increase in external monetary factors, such as exchange rates and foreign reserves, is

estimated to result in a 1.6 per cent increase in employment growth in Tanzania. This underscores the significant impact of external monetary factors on employment growth. Exchange rate depreciation tends to make local products more affordable, thereby promoting exports. Chipeta et al. (2017) and Micheni and Muturi (2019) argue that increased exports facilitate greater investment, leading to increased hiring and a boost in employment. Furthermore, cheaper domestic assets attract capital inflows, enhancing domestic production and further improving employment levels

Alemu (2024) noted a positive correlation between currency depreciation and economic growth, despite sluggish growth and high unemployment. Chipeta et al. (2017) found that a depreciation of the South African Rand resulted in decreased employment. Similarly, Micheni and Muturi (2019) demonstrated that a one per cent increase in exchange rates led to a rise in unemployment. Foreign reserves also play a critical role, Gumata and Ndou (2021) found that the accumulation of foreign reserves contributed to employment growth in South Africa, while Jacob and Magungu (2023) showed a similar relationship in Tanzania.

8.2.5 Internal-External Fiscal and Monetary Factors Error Correction Model: Short Run Estimates

The estimated coefficient of the error correction mechanism term (ECT) was found to be 50 per cent negative and statistically significant at the 5 per cent level. The error correction mechanism term indicates the speed at which equilibrium can be restored following disturbances. The negative coefficient and its statistical significance at the 5 per cent level suggest that in the event of a disequilibrium shock of one per cent in the previous period, approximately 50 per cent of the shock can be

corrected to adjust the dependent variable (employment growth). In the long run, the system will adjust by 50 per cent in response to any occurrence of long-run distortion (as shown in Table 8.3).

Table 8.4: Internal-External Fiscal and Monetary Factors Summary of Results for Hypotheses Testing

Hypotheses Statement	Result	Decision	Hypothetical Relationship
H5: Hypothesis (H_1): There is a significant positive relationship between GDP growth and employment growth	(ß = 0.0054778, p= 0.147).	H_1; Confirmed	Positive
H5: Hypothesis (H_1): There is a significant positive relationship between internal fiscal factors and employment growth	(ß =-0.0198825, p= 0.000).	H_1 Rejected	Negative
H5: Hypothesis (H_1): There is a significant positive relationship between internal monetary factors and employment growth	(ß =-0.0116279, p= 0.120).	H_1; Rejected	Negative
H5: Hypothesis (H_1): There is a significant positive relationship between external fiscal factors and employment growth	(ß =0.0062498, p= 0.586).	H_1; Confirmed	Positive
H5: Hypothesis (H_1): There is a significant positive relationship between external monetary and employment growth	(ß =0.0156441, p= 0.434).	H_1 Confirmed	Positive

Source: Author compilation, 2024

8.2.6 Internal-External Fiscal and Monetary Factors Stability Test

Plotting the cumulative sum of recursive residuals squared (CUSUM2) is essential for assessing the stability of the coefficients. Figure 8.1 illustrates the CUSUM2, demonstrating model stability, as the graphs remain within the 5 per cent significance level.
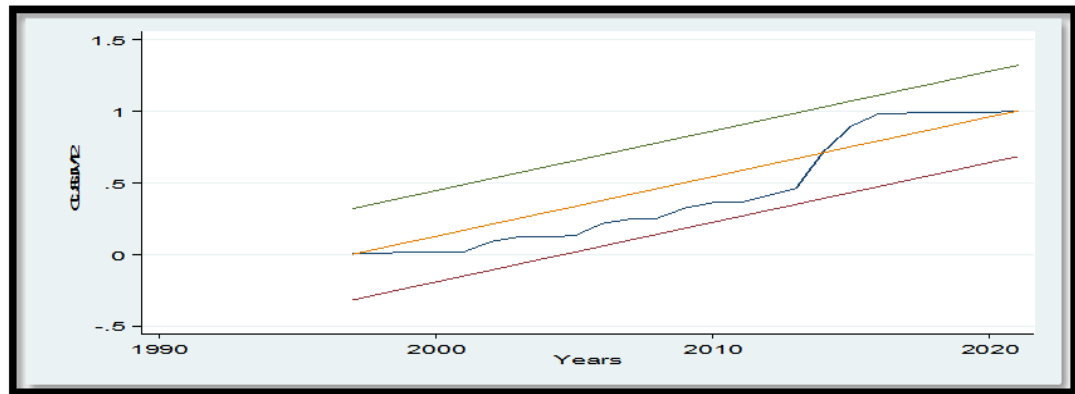
Figure 8.1: Cumulative Sum of Squares of Recursive Residuals

Source: Author's Compilation, 2024.

CHAPTER NINE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

9.1 Chapter Overview

Chapter nine aims to provide a comprehensive summary of the findings, illustrating both the general and specific objectives of the study. It focuses on presenting the study's findings and their interpretations, addressing the objectives outlined. This is followed by a conclusion that examines the implications of the findings in real-world situations. Finally, the study offers concrete recommendations or suggestions to ensure the attainment of economic stability and sustainability.

9.2 Summary

The general objective of this study was to examine the impact of macroeconomic factors on employment growth. The specific objectives included: first, to examine the effects of internal fiscal factors on employment growth from 1990 to 2022; second, to examine the impacts of external fiscal factors on employment growth during the same period; third, to examine the influence of internal monetary factors on employment growth from 1990 to 2022; fourth, to examine the effects of external monetary factors on employment growth from 1990 to 2022; and finally, to examine the interactions between internal and external fiscal-monetary factors and their impact on employment growth from 1990 to 2022.

Time series data spanning from 1990 to 2022 were obtained from various Bank of Tanzania annual reports and World Bank indicators. Given the presence of multiple lags in the data, the ARDL bounds test of cointegration was employed to explore both short-run error correction and long-run effects of the variables on employment

growth using STATA software. Based on the objectives, the ensuing outcomes of the study are summarised.

9.2.1 Impacts of Internal Fiscal Macroeconomic Factors on Employment Growth

The first objective indicated by Model One examined how internal fiscal factors, particularly total government revenue and total government expenditures, impact employment growth in Tanzania. The estimated results established that total government revenue was inversely related with employment growth in Tanzania, while total government expenditure had a direct impact on employment growth. To ensure model stability, additional control variables were included: GDP growth, domestic debt, inflation rate, and lending interest rate. Generally, GDP growth, domestic debt, and lending interest rate exhibited a positive relationship with employment growth, while the inflation rate had an inverse relationship with employment growth in Tanzania.

The study identified that the results were quite consistent with the general theory of employment, interest, and money, wherein Keynes contended that countries operating below full employment levels should reduce government revenue taxes and increase government spending, particularly on multiplier employment projects, to ensure employment opportunities. In such countries, involuntary unemployment was prevalent, and insufficient demand was the underlying issue; thus, these countries needed to address the demand shortfall through increased spending and reduced government taxes. Gross Domestic Product (GDP) was also consistent with Keynesian theory, which posits that an increase in GDP enhances aggregate demand,

thereby fostering employment activities and reducing the unemployment rate.

9.2.2 Impacts of External Fiscal Macroeconomic Factors on Employment Growth

The second objective was to examine the impact of external fiscal macroeconomic factors on employment growth, with a focus on openness to trade and total public external debt. The findings were presented in model two, which revealed that both openness to trade and external debt fall shortly for generating employment thereby contributing to a decrease in employment growth in Tanzania. As a developing country with a high level of involuntary unemployment, Tanzania's openness to trade and accumulation of external debt were expected to stimulate employment growth; instead, these factors actually diminished the employment rate. The model also included other control variables, such as GDP growth, external debt servicing, foreign direct investment (FDI), and foreign reserves. The results indicated that GDP growth, external debt servicing, and FDI were effective macroeconomic tools for generating employment, while foreign reserves had a limited impact on employment growth in Tanzania.

Generally, according to Keynes's general theory of employment, interest rates and money suggest that countries characterised by employment levels below full employment should promote exports as a means of boosting local production, which, in turn, increases economic activity and generates more employment. Unfortunately, developing countries like Tanzania tend to have a higher ratio of imports compared to exports, resulting in openness to trade exacerbating the negative impact on

employment growth.

9.2.3 Impacts of Internal Monetary Macroeconomic Factors on Employment Growth

In the third objective, internal monetary macroeconomic factors affecting employment were examined to determine how the inflation rate and lending interest rate, as fundamental monetary tools, impact employment levels in the country. It was found that both the inflation rate and lending interest rate had asymmetric effects on employment growth. Specifically, the inflation rate was identified as the most effective factor in promoting long-term employment growth, while the lending interest rate was found to hinder employment growth over the long term. Additionally, Gross Domestic Product (GDP) was found to support employment growth.

In Keynesian general theory of employment, interest, and money, Keynes suggested that countries, particularly developing nations with high unemployment rates, should focus on increasing overall demand. Labour is considered a derived demand; therefore, increasing the demand for goods and services prompts firms to hire more labour to produce additional goods and services in response to heightened market demand. The findings were also consistent with Keynes's general theory, which advocated for countries to engage in measures that reduce bank interest rates. A reduction in the lending interest rate implies that more credit will be available for savers and investors, leading to increased investment and, consequently, a boost in employment growth.

9.2.4 Impacts of External Monetary Macroeconomic Factors on Employment Growth

The fourth objective of the study was to examine the impact of external macroeconomic factors on employment growth. Additionally, the study investigated how the exchange rate (end of period) and foreign reserves affect employment growth in Tanzania. The estimated results indicated that both the exchange rate and foreign reserves were found to be insignificant in impacting employment growth in the long run. Other control variables, such as GDP growth, broad money supply (M3), and grants, were included in the analysis. The findings revealed that GDP growth and M3 positively influenced employment growth, while grants hindered employment growth in Tanzania.

In the Mundell-Fleming model, the exchange rate is crucial in an open economy, as it can significantly impact import and export volumes, and consequently, the country's revenue. An increase in the exchange rate, specifically the rise in the price of the US dollar against the Tanzanian shilling, negatively affects employment growth, as investors may become apprehensive due to the uncertainty caused by the declining local currency. Consequently, investors may withdraw their capital, leading to a decrease in production and subsequently a reduction in employment levels.

Furthermore, foreign reserves were also found to have a limited effect on employment generation. In general employment theory, interest rates and money supply are proposed to promote exports rather than imports. Developing countries like Tanzania are characterised by higher levels of imports in international trade;

hence, the country has limited reserve accumulation, resulting in a deficit in the balance of trade. Tanzania foreign reserves can support the importation of goods and services for up to 4.8 months, URT (2023). Given this situation, there are very narrow prospects for the country to improve employment growth through foreign reserve accumulation.

9.2.5 Impacts of Internal-External Fiscal and Monetary Macroeconomic Factors on Employment Growth

The fifth objective examined both the interactions of internal and external fiscal and monetary macroeconomic factors. The focus was to assess their impacts on employment growth. Internal fiscal macroeconomic factors, specifically total government revenue and total government expenditure, were found to hinder employment growth in the country. The results confirmed that for a developing country like Tanzania, relying on local revenue sources and allocating them towards social-economic expenditure is insufficient for improving employment outcomes, primarily due to the unsatisfactory revenue collection evidenced by budget deficits. Additionally, the internal monetary macroeconomic tools of inflation and interest rates also fell short in creating more job opportunities. The findings suggest that local monetary tools, such as interest rates and lending rates, are inadequate for fostering an employment-friendly environment in Tanzania. Therefore, both internal fiscal and monetary macroeconomic factors were found to impede employment growth.

Furthermore, it was discovered that the interaction of external fiscal and monetary macroeconomic factors served as the most effective mechanisms for enhancing employment growth in Tanzania. The interaction of external fiscal macroeconomic

factors, specifically openness to trade and external debt, significantly contributed to job creation. Additionally, the external monetary macroeconomic tools of foreign reserves and exchange rates also played a crucial role in employment growth. The findings highlight the importance of both external fiscal and monetary interactions as vital factors in facilitating sound employment growth. According to the Mundell-Fleming model, countries with open economies are warned that regardless of the best fiscal and monetary macroeconomic policies, the most successful economies are those that are optimally positioned to absorb external macroeconomic shocks.

9.3 Conclusion

The study found that gross domestic product (GDP), total government expenditures, and the inflation rate significantly supported employment growth in Tanzania in the long run. Conversely, total government revenue, openness to trade, external debt, lending interest rates, exchange rates, and foreign reserves negatively affected employment growth over the same period. In the short run, it was established that GDP growth, total government revenue, and exchange rates had a negative impact on employment growth across all lags, while openness to trade, public external debt, and the inflation rate directly influenced employment growth in Tanzania.

Furthermore, internal fiscal and monetary interaction factors had a symmetrical impact on employment growth, as both internal fiscal and monetary factors were found to fall short in generating employment growth in Tanzania over the long term. In contrast, external fiscal and monetary interaction macroeconomic factors made a direct contribution to employment growth.

9.4 Recommendations

The study recommends the government to continue broaden the revenue base through establishing the newly friendly revenue collection approaches. The friendly approaches will make community flexible and desire to cooperate with government to pay the taxes hence reducing tax evasion and tax avoidance.It is also advised to provide subsidies for local projects that absorb labour and yield positive spill over effects on the economy. These measures, in conjunction with supportive tax structures and subsidies, will enhance local production, increase exports, stimulate foreign reserves, and stabilise the exchange rate.

Given the negative impact of high interest rates on employment, the study advises the monetary authority to consider lowering the lending interest rate to stimulate local investors and ensure affordable borrowing for productive investments, which will create employment and boost exports. It also suggested reassessing external debt frameworks, ensuring borrowing is done on the purpose and can yield maximum return especially to the economic –employment rich projects like in technical and vocational training, agriculture and industrial sectors.

These sectors will involve generating skilled labours that have ability to create raw materials to feed the local industries. This cycle will stir higher domestic production causes surplus for both local and external market which further foster the local produces for both local and external markets. External market guarantees the increase in export which will generate foreign currency stabilizing the exchange rate, balance of payment and alternatively continue to service the debt.

The government is encouraged to set its nation debt threshold despite the presence of international baseline limit. The national debt threshold should constructed basing on the national ability to service its external debt. This will protect the national against the unhealthy debt and avoid drain of the foreign reserve which can endanger the prosperity of the future economy as the national will be able to service its debt.

The policy makers are also encouraged to promote local participation in international trade by reducing the barriers to trade especially tariffs and non- tariffs. The government has to continue to safeguard the goods and services of high quality to compete in both local and foreign market and evade excessive importations. This will gear to higher local productions, increases the variety of the products increasing local demand and supply, promoting exports and curtail the importations further increase the balance of payment, stability of local exchange rate and attain economic stability.

9.5 Contributions of the Study

In theoretical contribution, the study examined the impacts of macroeconomic factors on employment growth in Tanzania through examine how internal and external fiscal and monetary policies influence employment. It further examines both the short- and long-term impacts of these factors on employment growth. The study enriches the theory both Mundell-Fleming model and Keynes, general theory of employment, money, and interest as they can incorporate both internal and external fiscal and monetary frameworks analysis. Hence the study came with new model which is

$$Emp_{f\&m} = \alpha_0 + \beta_1 GDP + \beta_2 IntFisc + \beta_3 IntMon + \beta_4 ExtFisc + \beta_5 ExtMon + \varepsilon_0$$

In addition the study contributed in Policy. The study is informing both policies (Fiscal and Monetary) decisions. It inform policy makers because it provided extensive macroeconomic evidence both internal and external factors. The study also endorses both employment and economic stability. By understanding macroeconomic fluctuations and develop strategies to reduce such downturns and increase employments. Reduce unemployment. The policy maker can understand the factors that mitigate the employment growth in Tanzania. Furthermore, it promotes business decision .Through findings both internal and external macroeconomic factors, business can adjust their decision on investments and employments.

Likewise advancing academic knowledge; inform the theories on complexity of interactions of both internal –External fiscal and monetary factors hence advancing the theory. Informing the Future study as it will be used as the foundation of further investigation.(Advancing the knowledge). Improve employment opportunities. Reduce unemployment in Tanzania by understanding on macroeconomic downturn help the policy maker to adjust accordingly and increase employments and improve labour market.

9.6 Further Study Recommendation

The study focused on examining the impact of macroeconomic factors on employment growth, specifically how changes in internal and external fiscal and monetary factors affect employment in the country. Given that employment and unemployment are two sides of the same coin, further research could investigate how internal and external fiscal and monetary factors influence the unemployment rate in Tanzania. The study also can focus on microeconomic phenomena's by examine

how individual economic actors affect the growth of employment growth in Tanzania.

REFERENCES

Abdelkader, B., Cheikh, S., & Sofiane, M. (2021). The Impact of the Public Expenditure on Employment and Income in Algeria: An Empirical Investigation. *American Journal of Economics*, 7(*3*), 155-161.

Adegboye, A. C. (2020). Macroeconomic policies and sustainable employment yields in sub-Saharan Africa. *Africa Development Review*, 32(*4*), 515–527.

Ademola, A. O. (2023). External Debt and Nigeria's Economic Growth: Determinants and Implication. *Journal of Finance & Economics Research*, 8(*1*), 63-77.

Adeolu, A. M., Sunday, K. J. & Abike, B. S. (2012). Fiscal/Monetary Policy and Economic Growth in Nigeria, a Theoretical Exploration. *International Journal of Academic Research in Economics and Management Sciences*, 75-88.

Alam, J., Hassan, M. & Hoque, T. (2021). Impact of Foreign Reserve in Economic Growth: An Empirical Study on Bangladesh. *ResearchGate*, 100-109.

Alemu, F. M., Ferede, M. & Mengistie, F. (2024). An Empirical Analysis of the Nexus Between Inflation, Exchange Rate, Unemployment and Economic Growth in Ethiopia: A granger Causality Approach. *Insight on Africa,* 17(1), 1-18.

Ali, M. M., Ahmad, I. & Khalil, K. (2022). Role of Foreign Direct Investment in Employment Generation: Evidence from FDI Recipient Economies. *Pakistan Languages and Humanities Review*, 6(*3*), 94-107.

Alkahteeb, T. T., Sultan, Z. A. Mahmood, H. (2017). Oil revenue, public spending, gross domestic product and employment in Saudi Arabia. *International*

Journal of Energy Economics and Policy (IJEEP), 7(*6*), 27 - 31.

Alkhateeb, T. T. Y., Mahmood, H., Sultan, Z. A. & Ahmad, N. (2021). Trade Openness and Employment Nexus in Saudi Arabia. *International Journal of Energy Economics and Policy*, 7(*6*) 27-31.

Alnaa, S. E. & Matey, J. (2023). Dynamic relationship between external debt and unemployment in Sub-Saharan Africa. *Theoretical and Applied Economics*, 1(*634*), 137-152.

Arshad, S. & Ali, A. (2016). Trade-off between Inflation, Interest and Unemployment Rate of Pakistan: Revisited. *Bulletin of Business and Economics*, 5(*4)*, 193-209.

Asaleye, A. J., Okodua, H. & Olufemi, O. (2017). Trade openness and employment: Evidence from Nigeria. *ResearchGate*, 12(*4*), 1194-1209.

Attamah, N., Igwe, A., & Ukpere, W. I. (2015). The impact of fiscal and monetary policies on unemployment problem in Nigeria (Managerial economic Perspective). *Risk governance & control: financial markets & institutions*, 5(*2*), 101–109.

Atya, E. M. (2017). The effect of Real Exchange Rate on Unemployment Evidence from Egypt. *Arab Journal of Administration*, 37(*4)*, 251-262.

Chipeta C., Meyer, D.F.& Muzindutsi, P.F. (2017). The Effect of Exchange Rate Movements and Economic Growth on Job Creation. *Studia Univesitatis Babe.-Bolyai Oeconomica*, 62(*2*), 20-41.

Chris-Ejiogu, U. G., Odinakachi, N. C., & Kalu, A. S. (2019). Effect of Fiscal and Monetary Policy Instruments on Economic Growth of Nigeria from 1985 - 2016. *International Journal of Contemporary Research and Review*, 5(*4*),

11–25.

Cvecic, I. & Sokolic, D. (2018). Impact of public expenditure in labour market policies and other selected factors on youth unemployment. *Economic Research-*, 260-280.

Dao, T., Bich, T., Van, Q. K., Manh, C. D. &Thuy, L. C. (2023). How Does Foreign Direct Investment Drive Employment Growth in Vietnam's Formal Economy? *Economies*, 11, 266.

Edo, S. & Oigiangbe, O. (2024). External debt vulnerability in developing countries: the economic and policy perspectives. *Journal of Financial Economic Policy*, https://doi.org/10.1108/JFEP-05-2023-0129.

Eth, Z. (1936). The General Theory of Employment, Interest, and Money by John Maynard Keynes. https://www.files.ethz.ch/isn/125515/1366_keynestheoryo femployment.

Evans, Y. (2022). The effect of external debt, unemployment rate and inflation on economic growth in Ghana. *Journal of Empirical Studies*, 9(*2*), 24–34.

Ganelli, G. (2023). Mundell-Fleming Model. *International Encyclopedia of the Social Sciences*, retrieved on 20th November, 2024 from https://www.encyclopedia.com/social-sciences/applied-and-social-sciences-magazines/mundell-fleming-model.

Gibrework, H. (2021). The Effect of Monetary Policy on Economic Growth in Ethiopia. *International Journal of Finance and Banking Research*, 7(*6*), 133-143.

Gnahe, F. E. & Huang, F. M. (2020). The Effect of MonetCountries.ary Policy on Economy Growth of WAEMU. *Open Journal of Business and Management*,

8, 2504-2523.

Gujarati, D. (2004). *Basic Econometrics, Fourth Edition.* New York: McGraw−Hill Companies.

Gumata, N. & Ndou, E. (2021). Foreign Currency Reserves: Do They Contribute to GDP Growth and Employment Growth? Springer Books, in: Achieving Price, Financial and Macro-Economic Stability in South Africa. *Springer.*, 189-210.

Haile, F. (2017). Global shocks and their impact on the Tanzanian Economy. *Open Assessment E-Journal*, 9(*11*).

Ibrahim, K. A., Salihu, A.,Yakubu, A., Isah, Y. U & Isah, M. Y. (2024). Analysis of the Impact of Foreign Reserve Accumulation on Economic Growth in Nigeri. *Journal of Arid Zone Economy*, 3(*1*), 50–59.

Ijirshar,V. U., Joseph, F & Godoo, M. (2016). The Relationship between External Debt and Economic Growth in Nigeria. *International Journal of Economics and Management Sciences*, 6(1) 2-5.

ILO, (2015). *How do macroeconomic and sectoral policies affect employment?* Retrieved on 02nd July, 2023 from https://www.google.com/How+do+ macroeconomic+and+sectoral+policies+affect+employment%3F+.

ILO, (2024). *Unemployment, Total (% of Total Labour Force)(Modeld ILO Estimate)-Tanzania.* Geneva. ILO.

ILO, (2025). *ILOs World Employment and Future Outlook Trend .* Gevena, ILO.

ILO, (2025). *Labour Force Participation Rate, Total (% of Total Population ages +15.* Geneva. ILO.

ILO, (2025). *World Employment and social Outlook Trend Outlook.* Geneva ILO.

IMF, (2022). *International Monetary Fund Datamapper Sub-Saharan Africa (Region).* IMF.

Islam, R. (2018). Macroeconomic Policy and Employment: A Development Pespective. *The Indian Journal of Labour Economics*, 61(*3*), 427–451.

Islam, S, & Sahajalal, M. (2019). An empirical study of GDP, exchange rate, inflation and unemployment in Bangladesh. *International Journal of Multidisciplinary Research and Development*, 6(*6*), 51-53.

Jacob, R. & Magungu, A. (2023). Relationship between Foreign Exchange Reserves and Economic Growth in Tanzania: Application of Wald Granger-Causality Test. *RPJ Rural Planning Journal*, 25(*2*), 102-119.

Kamar, B., Bakardzhieva, D., & Goaied, M. (2019). Effects of pro-growth policies on employment:Evidence of regional disparities. *Applied Economic*, 1(*40*), 4337–4367.

Kaphle, R. (2021). Impact of foreign exchange reserve on economic growth in Nepal. *Journal of Management and Development Studies*, 30(*1*) 14-23.

Kapsos, S. (2006). The employment intensity of growth:Trends and macroeconomic determinants. *In Labor markets in Asia: Issues and perspectives*, 143-201.

Kari, D. (2022). Mundell-Fleming Model: Meaning and Main Message (With Diagram). *Meaning of the Mundell-Fleming Model*, retrieved on 12th June, 2023 from https://www.economicsdiscussion.net/open-economy/aggregate-demand/mundell-fleming-model-meaning-and-main-message-with-diagram/ 15836.

Keynes, J. M. (1936). *The General Theory of Employment, Interest and Money.* Havard University: Palgrave Macmillan.

Khan, I. (2025). Reducing youth unemployment in India? The impact of macroeconomic factors. *Journal of Economic and Administrative Sciences*, retrieved on 01st March, 2025 from https://doi.org/10.1108/JEAS-09-2024-0369.

Krušković, B. (2020). Exchange Rate Targeting Versus Inflation Targeting: Empirical Analysis of the Impact on Employment and Economic Growth. *Journal of Central Banking Theory and Practice*, 9(*2*), 67–85.

Lalit, V. B., Shalin, I. .S., Vishal, D. & Kavita, K. (2021). Impact of National income and Public expenditure on Employment and its Public -private sector composition in Indian economy. *International journal of agriculture and Statistical sciences*, 17(*1*), 213-222.

Maarouf, H. (2019). Pragmatism as a Supportive Paradigm for the Mixed Research Approach. *International Business Research*, 12(*9*), 1.

Maku, O. E. & Alimi, O. Y. (2018). Fiscal Policy Tools, Employment Generation and Sustainable Development in Nigeria. *Economica*, 14(*3*),186-199.

Martes, E. (2018). The effect of trade openness on unemployment: Long-run versus short-run. *Erasmus school of economics*, retrieved on 24th Sep., 2022, from file:///C:/Users/HP/Downloads/Martes-E.C.J.-425649em.pdf.

McKinley, T. & Karwowski, E. (2015). *Examining the Link between Assessing Outcomes for 145 Developing Countries Macroeconomic Policies and Productive Employment:*. London: Centre for Development Policy and Research.

Menon,K. (2023). The Complete Guide to Skewness and Kurtosis. *Data science and business analytics*, retrieved on 24th October, 2024, from https://www.simplilearn.com/tutorials/statistics-tutorial/skewness-and-kurtosis.

Micheni, P. N. & Muturi, W. (2019). Effect of macroeconomic variables on unemployment in Kenya. *The Strategic Journal of Business & Change Management*, 6(*2*), 1578 –5961.

Mishkin, F. S. (2004). *The economics of money, banking, and financial markets.* New York: Columbia University.

Mkhize, N. I. (2019). The Sectoral Employment Intensity of Growth in South Africa. *Southern African Business Review*, 23. Retrieved on 26th May, 2023, from https://doi.org/10.25159/1998-8125/4343.

Mukherjee, S. (2023). Mundell-Fleming Model & Open Economy of a Country. retrieved on 24th October, 2022, from https://khagarijancollege.co.in/online/ attendence/classnotesfiles/1622726760. pdf).

Mwamkonko, M. A. (2023). Macroeconomic Stabilization Effects of Public Expenditures: Empirical Evidence from Tanzania. *Journal of African Economic Perspectives*, 1(*1*), 1–18.

Ngouhouo, I., & Nchofoung, T. N. (2021). Does Trade Openness Affects Unemployment in Cameroon. *Foreign Trade Review*, 56(*1*), 105–116.

Nwannebuike, U.S., Ike, U.J. &. Onuka, O.I. (2016). External Debt and Economic Growth: The Nigeria Experience. *European Journal of Accounting Auditing and Finance Research*, 4 (2), 33-48.https://eajournals.org/ejaafr/vol-4-issue-2-february-2016/external-debt-and-economic-growth-the-nigeria-experience/.

Nyorekwa, E. T. & Odhiambo, N. M. (2014). Monetary policy performance in Tanzania (1961-2014): a review. *Banks and Bank Systems*, 8-15.

Omran, E. A. M. & Bilan, Y. (2020). "The Impact of Fiscal Policy on the Unemployment Rate". *Montenegrin Journal of Economics*, 16(*4*), 199-209.

Onifade, S. T., Ay, A., Asongu, S. & Bekun, F. V. (2020). Revisiting the trade and unemployment nexus: Empirical evidence from the Nigerian economy. *Journal of Public Affairs*, 20(*3*).

Onwuka, C. E. (2021). The impact of fiscal and monetary policy on unemployment rate in Nigeria. *SSRN Electronic Journal*, retrieved on 24th January, 2022, from https://doi.org/10.2139/ssrn. 3959996.

Pesaran, M. H., Shin, Y. & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of applied econometrics*, 16(*3*), 289-326.

Phipps, A. J., & Sheen, J. R. (1995). Macroeconomic Policy and Employment Growth in Australia. *The Australian Economic Review*, 28(*1*), 86–104.

Poon, A. (2000). *A Comparison of the Theories of Joseph Alois Schumpeter and John Maynard Keyne.*

Saani, M. R.,Abdulai, M.A. & Salifu, M. (2024). Inflation, Public Debt and Unemployment nexus in Ghana. An ARDL Analysis. Retrieved on 14th October, 2025, from https://doi.org/10.1080/23322039.2024.2345296.

Salis, K. Y. & Saibu, M. O. (2019). Macroeconomic Effects of Monetary and Fiscal Policies interactions on Economic Growth Dynamics in Nigeria. *A festschrift in Honour of Professor Oluwatayo Fakiyesi Edited by R.O.S Dauda, S.O Akin*, 391-410. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3931915.

Sanjo, G. J., Sende, N. B. & Mpeta, I. F. (2022). Effect of Trade Openness and Real Exchange Rate on Economic Growth in Tanzania. *Journal of Economics, Management and Trade*, 28(*7*), 47-64.

Saunders, M., Lewis, P., & Thornhill, A. (2016). *Research Methods for Business Students.* New Delhi India.

Schumputer, J. A. (1942). *The theory of Democracy.* California: University of Southern California. Retrieved on 10th April, 2024, from https://www.jstor.org/stable/29769747.

Selim, M. & Hassan, K. (2019). Interest-free monetary policy and its impact on inflation and unemployment rates. *ISRA International Journal of Islamic Finance*, 11(*1*), 46-61.

Sollow, R. M. (1988). *The Solow growth model- Long-Run Economic Growth.* Oxford: Oxford University Press.

Sula, O. & Oguzoglu, U. (2021). International reserves and economic growth. *Science Direct*, 72, 16-28.

Tahir. M., Mazhar, T. & Afridi, M. A,. (2019). Trade openness and sectoral growth in developing countries: some new insights. *Journal of Chinese Economic and Foreign studies*, 12(*2*), 90-103.

Tchereni, B. H. M., Sekhampu, T. J., & Ndovi, R. F. (2023). The Impact of Foreign Debt on Economic Growth in Malawi. *African Development Review*, 25, 85-90.

Titiloye,T. A. & Ishola, V. O. (2020). Effect of Fiscal Policy and Monetary Policy on Economic growth in Nigeria (1989-2018): A Time Series Analysis. Retrieved on 05th February, 2022 from https://ssrn.com/abstract=3706157.

United States Institute of Peace, (2023). Employment Generation. *Guidance for Employment Generation*, retrieved on 30th June, 2023 from https://www.usip.org/guiding-principles-stabilization-and-reconstruction-the-web-version/sustainable-economy/employment.

URT, (2010). *TheTanzania Mainland's 50 Years of Independence:A Review of the*

Role and Functions of the Bank of Tanzania (1961-2011). Dar Es Salaam: Bank Of Tanzania.

URT, (2021). *Intergrated labour force survey 2020/21 analytical report.* URT.

URT, (2023). Annual Report 2022/23. Dodoma: Bank of Tanzania.

URT, (2024). *Monetary Policy Framework.* Dar es Salaam. URT.

Vidakoviæ, N. (2002). Application of the Mundell-Fleming model on a small open economy. *Ekonomija Economics*, 11(*3*), 392-423.

Vladi, E. & Hysa, E. (2020). The Impact of Macroeconomic Indicators on Unemployment Rate. *ResearchGate*, 158-181.

Warsame, Z. A.,Mohamed, A. & Sid, I. (2024). On the Determinants of Unemployment in Somalia: What is the Role of External Debt? *International Journal of Sustainable Development & Planning*, 19(1), 161.

World Bank, (2023). *World development indicators database.* Washington, DC.

World Bank, (2025). *Total Reserves in Months of Imports- Sub Saharan Africa.* Geneva: WB.

World Bank, (2025). *Unempolyment, total (% of total labour force (Modeled ILO estimate)- Tanzania.* Washington DC: WB.

Yokoyama, I. , Higa, K. & Kawaguchi, D. (2015). The Effect of Exchange Rate Fluctuations on Employment in a Segmented Labor Market. *Research Institute of economy ,Trade and Industry*, 1-34.

Yusuph, S. & Omar, M. R. (2019). Trade openness and economic growth of Tanzania. *ResaerchGate*, 12(*3*) 1-10.

APPENDECES

Appendix 1: Data Collection checklist

Objective 1: Impacts of internal fiscal factors on employment growth from 1990 to

2022.

Variables	Measurement	Sources
1.Emp (Employment Growth)	Percentage	World bank
2. Total government expenditure	Millions of TZS	Bank of Tanzania
3.Total government revenue	Millions of TZS	Bank of Tanzania
4 .Economic growth(GDP)	Percentage	Bank of Tanzania

Objective 2: Impacts of external fiscal factors on employment growth from 1990 to

2022.

Variables	Measurement	Sources
1.Emp (Employment Growth)	Percentage	World Bank
2. Public external debt	Millions of TZS	Bank of Tanzania
3. Openness to trade	Percentage of GDP	World Bank
4 Economic growth (GDP)	Percentage	Bank of Tanzania

Objective 3: Impacts of internal monetary factors on employment growth from 1990

to 2022.

Variables	Measurement	Sources
1.Emp (Employment Growth)	Percentage	World Bank
2. Inflation rate	Percentage	Bank of Tanzania
3. Lending interest rate	Percentage	Bank of Tanzania
4 Economic growth (GDP)	Percentage	Bank of Tanzania

Objective 4: Impacts of external monetary factors on employment growth from 1990

to 2022

Variables	Measurement	Sources
1.Emp (Employment Growth)	Percentage	World Bank
2. Exchange rate	TZS/USD	Bank of Tanzania
3. Foreign reserve	Current US dollar including gold.	World Bank
4 Economic growth (GDP)	Percentage	Bank of Tanzania

Objective 5: Impacts of both internal, external fiscal-monetary factor interactions on employment growth from 1990 to 2022.

Variables	Measurement	Sources
1.EG (Employment Growth)	Percentage	World Bank
2. Total government expenditure +Total government revenue	Tanzania shilling's	Bank of Tanzania
3. Public external debt + Openness to trade	Percentage	World bank
4.Inflation rate +Interest rate	Percentage	Bank of Tanzania
5. Exchange rate + Foreign reserve	Percentage	World Bank
4 Economic growth (GDP)	Percentage	Bank of Tanzania

Appendix 2: Unit Root Test at First Difference

2 (a)Internal Fiscal Factors Unit Root Test at First Difference

| Variables | Augmented Dickey-Fuller Test | | | | |
| | With no trend | | With trend | | |
	ADF Calculated	ADF Critical at 5%	ADF Calculated	ADF Critical at 5%	Conclusion
lnEmp	-6.878	-2.983	-6.770	-3.576	Stationary
lnGDP	-5.518	-2.983	-5.426	-3.576	Stationary
lnRev	-5.116	-2.983	-5.569	-3.576	stationary
InExp	-4.100	-2.983	-5.179	-3.576	Stationary
InDdt	-7.185	-2.983	-7.074	-3.576	Stationary

Source: Author Compilation 2024, data from STATA.

2(b): External Fiscal Factors Unit Root at First Difference

| Variables | Augmented Dickey-Fuller Test | | | | |
| | With no trend | | With trend | | |
	ADF Calculated	ADF Critical at 5%	ADF Calculated	ADF Critical at 5%	Conclusion
lnEmp	-6.878	-2.983	-6.770	-3.576	Stationary
lnGDP	-5.518	-2.983	-5.426	-3.576	Stationary
lnOpp	-3.596	-2.983	-3.539	-3.576	Stationary
InExt	-5.116	-2.983	-5.292	-3.576	Stationary
InExtS	-4.107	-2.983	-4.625	-3.576	Stationary
InFDI	-7.520	-2.983	-8.427	-3.576	Stationary

Source: Authors compilation 2024, data from STATA.

2© Unit Root at First Difference Internal Monetary Factors

| Variables | Augmented Dickey-Fuller Test | | | | |
| | With trend | | With no trend | | |
	ADF Calculated	ADF Critical at 5%	ADF Calculated	ADF Critical at 5%	Conclusion
lnEmp	-6.878	-2.983	-6.770	-3.576	Stationary
lnGDP	-5.518	-2.983	-5.426	-3.576	Stationary
lnIf	-5.678	-2.983	-5.642	-3.576	Stationary
lnInt	-5.353	-2.983	-5.342	-3.576	Stationary
InFr	-8.936	-2.983	-10.276	-3.576	Stationary

Source: Authors compilation 2024 ,Data from STATA.

2(d) Unit Root at First difference External Monetary Factors

Variables	Augmented Dickey-Fuller Test				
	With no trend		With trend		
	ADF Calculated	ADF Critical at 5%	ADF Calculated	ADF Critical at 5%	Conclusion
lnEmp	-6.878	-2.983	-6.770	-3.576	Stationary
lnGDP	-5.518	-2.983	-5.426	-3.576	Stationary
InExch	-3.700	-2.983	-4.534	-3.576	Stationary
lnFr	-8.936	-2.983	-10.276	-3.576	Stationary
InM3	-9.280	-2.983	-9.222	-3.576	Stationary
lnGrt	-6.363	-2.983	-7.141	-3.576	Stationary

Source: Author Compilation 2024, Data from STATA.

2(e) Internal- External Fiscal and Monetary Factor Interactions Unit Root at First

Difference

Variables	Augmented Dickey-Fuller Test				
	With no trend		With trend		
	ADF Calculated	ADF Critical at 5%	ADF Calculated	ADF Critical at 5%	Conclusion
lnEmp	-6.830	-2.986	-6.703	-3.580	Stationary
lnGDP	-5.422	-2.986	-5.328	-3.580	Stationary
lnIntFisc	-3.368	-2.986	-5.398	-3.580	Stationary
lnIntMon	-5.500	-2.986	-5.520	-3.580	Stationary
lnExtFisc	-7.978	-2.986	-7.839	-3.580	Stationary
lnExtMon	-18.341	-2.986	-18.164	-3.580	Stationary

Source: Author´s compilation 2024, Data from STATA.

Appendix 3: Regression Diagnostic Test for Internal Fiscal Factors

3(a) Autocorrelation Test

Durbin-Watson d-statistic(19, 30)	2.286351

Source: Author´s compilation, 2024.

3(b).Heteroskedasticity Test (White's Test)

Source	chi2	df	p
Heteroskedasticity	30.00	29	0.4140
Skewness	11.13	18	0.8886
Kurtosis	2.31	1	0.1281
Total	43.45	48	0.6596

chi2(29)   =   30.00   Prob > chi2 =   0.4140

White's test for H_0: homoskedasticity against H_1: unrestricted heteroskedasticity

Source: Author´s compilation, 2024.

3© Ramsey Reset Test

Lags(p)	chi2	df	p
1	2.405	1	0.1210

Source: Author´s compilation, 2024.

Appendix 4: External Fiscal Factors Regression Diagnostic Tests

4(a)Test for Autocorrelation

Durbin-Watson d-statistic(15, 30)	2.255395

Source: Author´s compilation, 2024.

4 (b):Heteroskedasticity Test

Source	chi2	df	p
Heteroskedasticity	30.00	29	0.4140
Skewness	12.92	14	0.5326
Kurtosis	0.08	1	0.7711
Total	43.01	44	0.5141

$chi2(29) = 30.00$ $Prob > chi2 = 0.4140$
White's test for H_o: homoskedasticity against H_1: unrestricted heteroskedasticity

Source: Author´s compilation, 2024.

4©: Ramsey Reset Test

Lags(p)	chi2	df	Prob > chi2
1	0.074	1	0.7862

Source: Author´s compilation, 2024.

Appendix 5: Internal Monetary Factor Regression Diagnostic Tests

5(a)Test for Autocorrelation

urbin-Watson d-statistic(22, 30)	2.076649

Source: Author´s compilation, 2024.

5(b) Heteroskedasticity Test

Source	chi2	df	p
Heteroskedasticity	30.00	29	0.4140
Skewness	25.39	21	0.2307
Kurtosis	0.08	1	0.7827
Total	55.46	51	0.3102

$chi2(29) = 30.00$ Prob $> chi2 = 0.4140$

White's test for H_0: homoskedasticity against H_1: unrestricted heteroskedasticity

Source: Author´s compilation, 2024.

Table 5©Ramset Reset Test

Lags(p)	chi2	df	Prob > chi2
1	0.539	1	0.4628

Source: Author´s compilation, 2024.

Appendix 6: External Monetary Factors Regression Diagnostic Tests

6(a)Test for Autocorrelation

Durbin-Watson d-statistic(18, 30)	2.214615

Source: Author´s compilation 2024, Data from STATA.

6(b) Heteroskedasticity Test

Source	chi2	df	p
Heteroskedasticity	30.00	29	0.4140
Skewness	19.99	17	0.2746
Kurtosis	0.09	1	0.7599
Total	50.09	47	0.3520

$chi2(29) = 30.00$ $Prob > chi2 = 0.4140$

White's test for H_o: homoskedasticity against H_1: unrestricted heteroskedasticity

Source: Author´s compilation 2024, Data from STATA.

6©:Ramsey Reset Test

Lags(p)	chi2	df	Prob > chi2
1	0.706	1	0.4007

Source: Author´s compilation 2024, Data from STATA.

Appendix 7: Internal-External Fiscal and Monetary Factors Regression

Diagnostic Tests

7(a) Test for Autocorrelation

Durbin-Watson d-statistic(7, 29)	2.019805

Source: Author´s compilation, 2024.

7(b):Heteroskedasticity Test

Source	chi2	df	p
Heteroskedasticity	21.91	27	0.7421
Skewness	5.52	6	0.4792
Kurtosis	1.12	1	0.2907
Total	28.54	34	0.7320
chi2(27) = 21.91		Prob > chi2 = 0.7421	

White's test for H_o: homoskedasticity against H_1: unrestricted heteroskedasticity

Source: Author´s compilation, 2024.

7©:Ramsey Reset Test

Lags(p)	chi2	df	Prob > chi2
1	0.706	1	0.4007

Source: Author´s compilation, 2024.

Appendix 8: Data Set

Years	Emp	GDP	Rev	Exp	Ddebt	If	Int	M3	Opp	Ext	ExtS	FDI	Exch	Fr	Grt
1990	90	6.2	94655	98429	6563	35.7	26.0	178.1	50	6.4	4	10	196.6	192	27664
1991	90	2.8	133238	125933	4359	28.8	26.0	232.9	44	6.5	4.40	14	233.9	203	22875
1992	89	1.80	173566	161474	32277	22.0	30.0	352.3	52	6.7	5.30	17	335.0	327	32798
1993	89	0.4	164109	263413	44144	24.1	30.0	472.0	66	6.8	5.20	20	479.9	203	58313
1994	89	1.40	242444	374962	40557	35.3	33.4	731.1	64	7.2	4.20	50	523.5	332	106790
1995	89	3.7	331238	398023	59486	27.4	36.0	905.1	66	7.4	4.40	150	550.4	299	58505
1996	89	4.20	448372	420522	51704	21.0	35.3	818.1	52	7.3	4.20	149	595.6	467	46881.6
1997	89	3.3	572029	507153	41927	16.1	24.5	927.1	42	7.1	2.20	157.8	624.6	623	81415.6
1998	89	4.00	619083	730336	3669	12.8	22.5	1027.0	26	7.5	1.90	172.2	681.0	599	119358.8
1999	89	4.8	703149	816706	5740	7.9	18.7	1217.6	25	7.9	1.80	502.3	797.3	776	169945.6
2000	89	4.9	777644	1168778	7854	5.9	20.1	1397.7	24	7.2	1.30	247.2	803.3	974	280306.7
2001	89	6.00	929624	1305035	232174	5.1	19.8	1876.1	28	6.5	1.10	549.3	916.3	1173	286305.9
2002	88	7.20	1042955	1466135	83086	5.3	14.8	2355.6	27	7.2	0.70	395.6	976.3	1562	379849.4
2003	88	6.90	1217517	1733385	36514	5.3	16.3	2778.8	30	7.3	0.60	318.4	1063.6	2018	491342.6
2004	88	7.80	1459303	2516943	34496	4.7	15.4	3153.8	34	8.6	0.70	442.5	1043.0	2307	696672.5
2005	88	7.40	1773709	3164215	144945	5.0	15.9	4250.7	37	8.4	0.70	935.5	1165.5	2049	992975.4
2006	87	6.70	2124843	3873254	363194	7.3	15.7	5164.5	43	4.1	0.50	403.0	1261.6	2137	991448.6
2007	87	7.10	2739022	4474680	238008	7.0	14.6	6223.6	48	5.1	0.30	581.5	1132.1	2724	952225.5
2008	87	7.40	3634580	5208995	348346	10.3	13.7	7458.8	49	6.1	0.30	1383	1280.3	2873	1573195.4
2009	86	6.00	4293074	6734078	258675	12.1	13.8	8831.2	44	7.8	0.60	952.60	1313.3	3553	1420149.2
2010	86	6.40	4661540	8173749	559967	5.5	14.2	11012.6	48	9.0	0.60	1813	1453.5	3948	1534413.2
2011	86	7.90	5736266	9439407	1244330	12.7	14.6	1321.3	56	10.0	0.40	1230	1566.7	3745	1029918.6
2012	85	5.10	7221408	10764528	334864	16.0	14.2	14647.1	54	12.1	0.40	1800	1571.6	4068	1713999.5
2013	85	7.30	8442611	12714236	1069321	7.9	14.0	16106.8	49	14.0	0.60	2087	1578.6	4676	1572089.9
2014	84	7.00	10182454	13958161	226743	6.1	14.7	18614.2	45	16.0	0.60	1416	1725.8	4377	1523357.5
2015	84	7.00	10957765	14603714	799776	5.6	14.2	22115.3	41	18.2	1.00	1506	2148.5	4094	1121088.3
2016	84	7.00	14048034	17759598	2299151	5.2	13.7	22877.9	35	19.4	1.50	864.00	2172.6	4326	495356.6
2017	84	6.80	16639831	18889969	110862	5.3	18.3	24714.3	32	21.4	1.60	937.7	2230.1	5900	1092495.4
2018	84	7.00	17971804	20445960	598648	3.5	18.2	25823.5	33	22.4	1.90	971.6	2281.2	5045	930648.4
2019	84	7.00	18527293	22265371	3037178	3.4	16.7	28313.2	33	24.2	2.10	1217	2287.9	5568	461201.3
2020	84	4.80	21051754	24128140	376924	3.3	15.7	29920.6	30	25.6	2.00	943.8	2298.5	4768	927848.2
2021	84	4.90	20594735	26585306	3359220	3.7	16.8	34558.0	31	28.5	2.80	1191	2297.6	6386	702851.5
2022	84	4.70	24395566	31107770	20029212	4.3	16.8	38580.0	32	30.2	2.70	1265	2303.5	5177	708492.2

Appendix 9: Do File Data

Analysis BoTdata.dta

Appendix 10: Stata Commands

////BoT Data//////
tsset Years, yearly
　　　time variable: Years, 1990 to 2022
　　　　delta: 1 year

//////Statistical description

tabstat Emp GDP Rev Exp Ddebt If Int M3 Opp Ext ExtS FDI Exch Fr Grt,
statistics(mean max min median sd skewness kurtosis count)

//////Log transformation

gen lnEmp =log(Emp)

gen lnRev =log(Rev)

gen lnGDP= log(GDP)

gen lnExp=log(Exp)

gen lnDdebt=log (Ddebt)

gen lnDdebt=log(Ddebt)

gen lnIf=log(If)

gen lnInt=log(Int)

gen lnM3=log(M3)

gen lnOpp=log(Opp)

gen lnExt=log(Ext)

gen lnExtS= log(ExtS)

gen lnFDI=log(FDI)

gen lnExch=log(Exch)

gen lnFr=log(Fr)

gen lnGrt=log(Grt)

///////Differencing/////

gen dlnEmp=d.lnEmp

gen dlnRev =d.lnRev

gen dlnGDP=d.lnGDP

gen dlnExp=d.lnExp

gen dlnDdebt=d.lnDdebt

gen dlnIf=d.lnIf

gen dlnInt=d.lnInt

dfuller lnFr,lags(0)

 dfuller lnFr,trend lags(0)

  dfuller dlnFr,lags(0)////stationary

dfuller lnInt,lags(0)

dfuller lnInt,trend lags(0)
dfuller dlnInt,lags(0)///stationary

dfuller lnM3,lags(0)
dfuller lnM3,trend lags(0)////stationary
dfuller dlnM3,lags(0)

dfuller lnOpp,lags(0)
dfuller lnOpp,trend lags(0)
dfuller dlnOpp,lags(0)///stationary

dfuller lnExt,lags(0)
dfuller lnExt,trend lags(0)
dfuller dlnExt,lags(0)///stastionary

dfuller lnExtS,lags(0)
dfuller lnExtS,trend lags(0)
dfuller dlnExtS,lags(0)////Stationary
dfuller dlnExtS,trend lags(0)

dfuller lnFDI,lags(0) ////stationary at 10%
dfuller lnFDI,trend lags(0)
dfuller dlnFDI,lags(0)///stationary
dfuller lnExch,lags(0)///stationary

```
 dfuller lnGrt,lags(0)
 dfuller lnGrt,trend lags(0) ///stationary


////model 1
ardl lnEmp lnGDP lnRev lnExp lnDdebt lnIf lnInt, lag(1 3 1 0 1 0 3) btest
ec////F=3.097
 estat dwatson
estat bgodfrey,lags(1)
estat imtest,white////
estat hettest////
estat archlm///n
cusum9 lnEmp lnGDP lnRev lnExp lnDdebt lnIf lnInt, cs(cusum) lw(lower)
uw(upper)
drop cusum lower upper
varsoc lnEmp lnGDP lnrev lnExp lnDdebt lnIf  lnInt, maxlag(2)
var lnEmp lnGDP lnrev lnExp lnDdebt lnIf  lnInt, lags(1/2)
 vargranger


///model 2
ardl lnEmp lnGDP lnOpp lnExt lnExtS lnFDI lnFr, maxlag(3) btest ec
estat dwatson ///no problem
estat bgodfrey,lags(1)/////no problem
estat imtest,white/////no problem
estat hettest/////no problem
estat archlm////no problem
cusum9 lnEmp lnGDP lnOpp lnExt lnExtS lnFDI lnFr , cs(cusum) lw(lower)
uw(upper)
drop cusum lower upper
varsoc lnEmp lnGDP   lnOpp lnExt lnExtS lnFDI lnFr, maxlag(3)
 var lnEmp lnGDP   lnOpp lnExt lnExtS lnFDI lnFr, lags(1/3)
 vargranger


///model 3
ardl lnEmp lnGDP lnIf lnInt lnRev lnExp lnFr, lag(1 3 3 0 3 2 3) btest ec
estat dwatson
estat bgodfrey,lags(1)
estat imtest,white
cusum9 lnEmp lnGDP lnIf lnInt lnRev lnExp lnFr , cs(cusum) lw(lower) uw(upper)
var lnEmp lnGDP lnIf lnInt lnRev lnExp lnFr, lags(1/3)
 vargranger
```

```
///model 4
  ardl lnEmp lnGDP lnM3 lnExch lnFr lnGrt, lag(1 2 3 3 0 3)btest ec
 estat dwatson///No problem
 estat bgodfrey,lags(1)////No problem
 estat imtest,white///No problem
estat hettest ///no problem
estat archlm///No problem

 cusum9 lnEmp lnGDP lnM3 lnExch lnFr lnGrt , cs(cusum) lw(lower) uw(upper)
  varsoc lnEmp lnGDP   lnM3 lnExch lnFr lnGrt, maxlag(3)
  var lnEmp lnGDP  lnM3 lnExch lnFr lnGrt, lags(1/3)
   vargranger

 /////Model 5
 ///data were transformed into percentages before changing into logarithms
 ///Log transformation

tsset Years, yearly
      time variable:  Years, 1990 to 2021          . gen dlnEmp=d.lnEmp
delta:  1 year                                     . gen dlnGDP=d.lnGDP
. gen lnEmp=log(Emp)                               . gen dlnIntFisc= d.lnIntFisc
. gen lnGDP=log(GDP)                               . gen dlnIntMon =d.lnIntMon
. gen lnIntFisc=log(IntFisc)                       . gen dlnExtFisc=d.lnExtFisc
. gen lnIntMon=log(IntMon)                         . gen dlnExtMon =d.lnExtMon
. gen lnExtFisc=log(ExtFisc)
. gen lnExtMon=log(ExtMon)
///Data diffrencing
```

///Stationarity
```
dfuller lnEmp,lags(0)
dfuller lnEmp,trend lags(0)
dfuller dlnEmp,lags(0)///stationary
dfuller dlnEmp,trend lags(0)///stationary

 dfuller lnGDP,lags(0)
 dfuller lnGDP,trend lags(0)
 dfuller dlnGDP,lags(0)///Stationary
 dfuller dlnGDP,trend lags(0)///Stationary

dfuller lnIntFisc,lags(0)///Stationary
dfuller lnIntFisc,trend lags(0)///Non ststionary
```

```
dfuller dlnIntFisc,lags(0)///Stationary
dfuller dlnIntFisc,trend lags(0)////Stationary

dfuller lnIntMon,lags(0)
dfuller lnIntMon,trend lags(0)
dfuller dlnIntMon,lags(0)////Stationary
dfuller dlnIntMon,trend lags(0)////Stationary

dfuller lnExtFisc,lags(0)///Stationary
dfuller lnExtFisc,trend lags(0)////Stationary
dfuller dlnExtFisc,lags(0)////Statioinary
dfuller dlnExtFisc,trend lags(0)///Stationary

dfuller lnExtMon,lags(0)////Stationary
dfuller lnExtMon,trend lags(0)///Stionary
dfuller dlnExtMon,lags(0)
dfuller dlnExtMon,trend lags(0)

 ardl lnEmp lnGDP lnIntFisc lnIntMon lnExtFisc lnExtMon ,maxlag(3)btest ec
estat dwatson
estat bgodfrey,lags(1)
estat archlm
cusum9 lnEmp lnGDP lnIntFisc lnIntMon lnExtFisc lnExtMon , cs(cusum)
lw(lower) uw(upper)
```
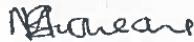
Appendix 11: Research Clearance Letter

THE UNITED REPUBLIC OF TANZANIA

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

THE OPEN UNIVERSITY OF TANZANIA

Ref. No OUT/PG202102551

28th February, 2024

Governor,

Bank of Tanzania,

P.O Box 2939,

DAR ES SALAAM.

Dear Governor,

RE: RESEARCH CLEARANCE FOR MS. REHEMA RAMADHAN MHENWA REG NO: PG202102551

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 **Ms. Rehema Ramadhan Mhenwa Reg. No: PG202102551)**, pursuing PhD. We here by grant this clearance to conduct a research titled **"Impacts of Macroeconomic Factors on Employment**

Growth in Tanzania". She will collect her data at your office from 29th February to 30th August 2024.

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