AN EMPIRICAL ANALYSIS OF THE EFFICACY OF FISCAL AND MONETARY POLICIES IN FOSTERING JOB CREATION AMONG EMERGING ECONOMIES: PANEL ARDL APPROACH

Dissertation submitted in fulfilment of the requirements for the degree Master of Commerce in Economics at the University of Mpumalanga

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DEDICATION

This dissertation is dedicated to Nombedesho and Anita Nkamba.

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ABSTRACT

Emerging economies continue to experience secular stagnation marked by high unemployment. The arrival of Covid-19 has taken some of these nations to the brink of collapse. While this unemployment has been caused by numerous factors and potential consequences, such as poverty, increased insecurity evokes a worrying future. A large variety of issues may occur if unemployment continues to rise which impels job creation policies to prevent such rising. The study investigates whether governments could look to repurpose the fiscal policy to encourage job creation among 11 selected emerging economies for the period 1997 to 2020. Moreover, the central bank can boost the economy by using the monetary policy combined with the fiscal policy as potential tools for job creation.

Unemployment is a proxy for job creation, while government expenditure, the real interest rate, and money supply represent fiscal and monetary policies respectively. Inflation has been included in the model. This relationship is examined using a panel autoregressive distributed lags (ARDL) model. Prior to this, the pooled ordinary least squares (OLS), fixed effect, and random effect models have been employed as a necessity for panel data estimation. A Hausman test provided guidance for the use of a random effect model that indicates government expenditure has a positive relationship with unemployment. The same relationship is seen in the ARDL model where an increase in government expenditure leads to an increase in unemployment, holding all other variables constant. Fiscal policy, therefore, does not foster job creation in emerging economies.

The monetary policy shows more promise as money supply in a previous time period and the real interest rate in a previous time period and long run have a negative and positive relationship respectively. Money supply increases lead to a decrease in unemployment, while real interest rate decreases also decrease unemployment. This indicates that an expansionary monetary policy encourages employment in these periods despite obtaining opposite results with present short run results. The inflation rate has a positive relationship with unemployment which is contrary to the Phillips curve hypothesis of an inverse relationship. The study recommends that governments focus on investment and infrastructure expenditures, which have a better track record of promoting job growth. With the interest rate showing the potential to induce employment, monetary policies should take on the additional mandate.

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LIST OF ABBREVIATIONS

ABBREVIATION	MEANING
AIC	Akaike information criterion
ARDL	Autoregressive distributive lags
ARRA	American recovery and reinvestment act
ADF	Augmented Dickey-Fuller
CPI	Consumer price index
ECM	Error correction model
ECT	Error correction term
FDI	Foreign direct investment
FEM	Fixed effects model
GDP	Gross domestic product
GEXP	Government expenditure
I	Real interest rate
IMF	International monetary fund
IPS	Im, Pesaran, and Shin
LLC	Levin, Lin, and Chu
M3	Money supply
MG	Mean group
OECD	Organization for economic cooperation and development

OLS	Ordinary least squares
POLS	Pooled ordinary least squares
PMG	Pooled mean group
PP	Phillip Perron
π	Inflation rate
REM	Random effects model
SUR	Seemingly unrelated regression
U	Unemployment
USA	United States of America
VAR	Vector autoregression model
VECM	Vector error correction model
VIF	Variance inflation factors

CHAPTER ONE: INTRODUCTION AND BACKGROUND

1.1 BACKGROUND OF THE STUDY

Most emerging economies have been experiencing secular stagnation. This was exacerbated by the arrival of Covid-19, which led to higher unemployment as keeping people employed when economic growth slows down is difficult (International Monetary Fund, 2021). Covid-19 has contributed to many of these emerging economies collapsing and having their unemployment worsening. The most affected emerging economies include Brazil, Mexico, Nigeria, India, and South Africa among others (United Nations, 2020). Brazil had an unemployment rate of 13,69% in 2020, which has been steadily rising for the past decade (Global Economy, 2021). India has shown a marginal decline in unemployment however, spiking from 5,27% in 2019 to 8,00% in 2020 (Global Economy, 2021).

South Africa presents the most worrying statistics by having the highest unemployment rate amongst Morgan Stanley Capital International (MSCI) emerging markets by the World Bank, and has consistently rose every year by a large margin since 1991. The estimate continues to rise as the unemployment rate was recorded at 35,3% as of the fourth quarter of 2021 (Statistics South Africa, 2022).

When looking at a few emerging economies individually, unemployment is caused by a wide variety of factors. However, there are unemployment causes that are specific to some of the countries. A Brazilian study by Rossi and Oliveira (2015) indicates that insufficient education and the low educational qualification of individuals in the labour market are the causes of unemployment. A similar conclusion has been drawn in South Africa as the inadequacy of education has led to higher unemployment rates (Statistics South Africa, 2017).

A study by the South African government has shown that apartheid has left a negative effect on education by excluding black people from training and education for higher skilled jobs in the past, and the effect is still felt in the present day (Department of Government Communication and Information Systems, 2014). India continues to face a rising unemployment rate due to an underdeveloped economy which is failing to create employment for the rising population growth rate (Raveendran, 2022). Leaving the rising unemployment neglected will bring even more challenges to the economy and those participating in it.

There is a large variety of issues that could arise if unemployment is not tended to. The most threatening issues include poverty and eventually security issues. Unemployment presents a

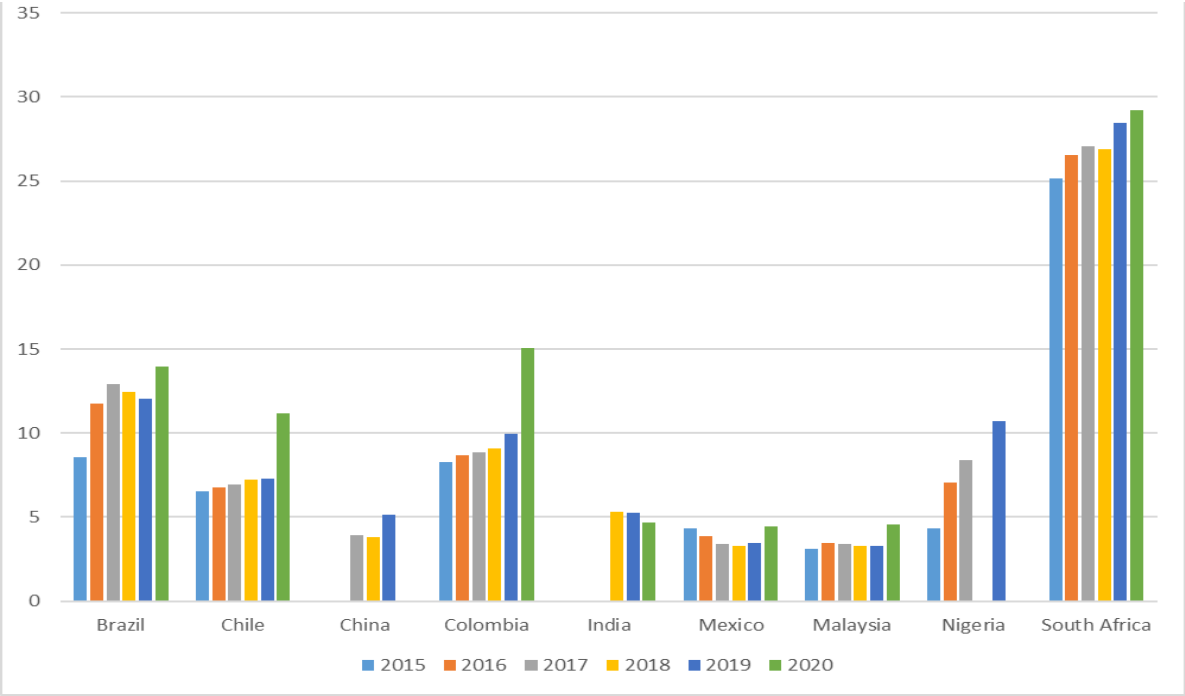
loss of income or lack thereof to individuals living in economies affected by high unemployment. This eventually becomes poverty. To provide for their households, individuals may resort to crime and illegal activities (Akwara, Akwara, Enwuchola, Adekunle & Udaw, 2013; Adesina, 2013).

According to Nichols, Mitchell, and Lindner (2013), long-term unemployment could even worsen people's mental and physical health as well as high mortality rates. The rising unemployment in many emerging economies, exacerbated by Covid-19, necessitates job creation policies and strategies to prevent a further rise in unemployment. The study investigates whether governments could look to repurpose the fiscal policy to encourage job creation. Additionally, the central bank can boost the economy by using monetary policy combined with fiscal policy as potential tools for job creation.

1.2 STATEMENT OF THE PROBLEM

The rising unemployment rate in emerging economies raises concerns regarding the future of those economies. It is important to emphasise that high levels of unemployment can only lead to a negative impact on individuals and the economy. The chart below displays the unemployment rates recorded in some of the emerging economies between 2015 and 2020.

Figure 1.1: Unemployment rate in emerging economies between 2015-2020



Source: *Computed by author*

As seen in Figure 1.1, Brazil has seen a net increase of 5,37% in its unemployment rate between 2015 and 2020. Chile's unemployment rate has been steadily rising, only to spike to 11,18% in 2020. A similar trend can be observed in Colombia, showing an even larger spike in 2020 to an unemployment rate of 15,04%. The unemployment rate in India seems to be stable at around 5%, while in 2020, Mexico returned to the same unemployment rate it attempted to reduce from 2015. Malaysia has managed to stabilize its unemployment rate until it rose to 4,54% in 2020, while Nigeria and South Africa have displayed an unemployment rate that has continued to rise in the same period. It is important to note, however, that each country has a unique way of defining and measuring unemployment. The nations seem different at first glance, however, the challenges facing them link the nations to each other more than the emerging economy title. Brazil suffers from an unemployment rate that has doubled since 2010 along with stagnating economic growth (Martuscelli, 2023). India and Egypt suffer from high youth unemployment along with rising poverty in the nations (Dunne, 2020; Pandey, 2022). Nigeria and South Africa are affected by unemployment and crime challenges (Statista, 2022). Mexico facing inflation challenges as well as China with political instability issues that can spill into the country's output and employment (Norzagaray, 2023; Centre for Strategic and International Studies, 2023). Colombia also finds itself in a difficult position due to high inflation and unemployment (Federal Ministry for Economic Cooperation and Development, 2022).

Emerging economies need to implement effective policy that leads to job creation. This study investigates the possibility of repurposing their fiscal and monetary policies to encourage job creation.

1.2.1 Questions Dealing with the Problem Statement

Research on the effects of the fiscal and monetary policy on job creation raises the following questions:

- Which theories address the relationship of the fiscal and monetary policy with job creation?
- What does existing literature say about the interaction between the fiscal policy and unemployment?
- What does existing literature say about the interaction between the monetary policy and unemployment?
- How effective are the fiscal policy tools in promoting job creation in emerging economies?

- How effective are the monetary policy tools in fostering job creation in emerging economies?

Answering these questions will provide insight into the effectiveness of the fiscal policy and monetary policy in creating jobs and will respond to the current research problem.

1.3 OBJECTIVES OF THE STUDY

The primary objective of this study is to analyse the efficacy of the fiscal and monetary policies in job creation in emerging economies using the econometric method.

To achieve the primary objective, the following secondary objectives are formulated:

- Identify different theories which address the use of the monetary and fiscal policies in fostering job creation.
- Review existing literature on the interaction between fiscal policy and unemployment.
- Analyse existing literature on the way the monetary policy tools interact with unemployment.
- Investigate the potential effect of fiscal policy in promoting job creation in emerging economies.
- Examine whether monetary policy has a significant effect in fostering job creation in emerging economies.

1.4 HYPOTHESIS OF THE STUDY

This study analyses the efficacy of the fiscal policy and monetary policy on job creation among emerging economies. Hence, the aim is to establish whether a relationship between the fiscal and monetary policy tools on the unemployment rate exists and if the tools are effective. Most governments around the world use government expenditure as a fiscal policy tool, hence its inclusion amongst the independent variables for the study. Government expenditure (GEXP) can be defined as the money spent by the public sector for the provision of services as well as the acquisition of goods (Corporate Finance Institute, 2022a). The services provided include healthcare, defence, education among others.

Central banks target inflation using intermedial monetary policy tools including money supply (M3) and the interest rate (I). Inflation (π) is the continuous and considerable rise in prices in general, commonly measured over a year (Mohr and Associates, 2019). To measure inflation, the study uses the GDP deflator since this measure includes increases in the price of goods

purchased by firms and the government which is not included in the consumer price index (CPI). Money supply (M3) is a combination of M1, which includes all coins and notes as well as demand deposits of the domestic private sector; M2, which is M1 as well as all other short-term and medium-term deposits of the domestic private sector; and all long-term deposits of the domestic private sector with monetary institutions (Mohr, 2015).

The classification of M3 may differ among the different emerging economies. The real interest rate can be defined as the lending interest once it has been fully adjusted for inflation by the GDP deflator with lending rates differing amongst different countries (World Bank, 2021).

The unemployment rate is used as a proxy for job creation. The prediction is that government spending should have a negative relationship with unemployment. The relationship with the inflation rate is expected to be negative based on the inverse relationship between inflation and unemployment according to the Phillips curve. Money supply (M3) is expected to have a negative relationship while the real interest rate (I) is expected to have a positive relationship with the unemployment rate. The coefficients for the independent variables are β_1, β_2, β_3, and β_4 respectively:

H_0: $\beta_1=\beta_2=\beta_3=\beta_4=0$

The null hypothesis states that there is no relationship between independent variables and unemployment.

H_A: $\beta_j \neq 0$

The alternate hypothesis states that there is at least one regressor (j) or more regressor variables affecting unemployment.

The study uses data from the World Bank for selected emerging economies. The countries are chosen from the IMF list of emerging economies that includes Brazil, China, Colombia, Egypt. Hungary, India, Indonesia, Malaysia, Mexico, Nigeria, and South Africa. Due to a lack of available data, Argentina, Chile, the Philippines, Poland, Russia, Saudi Arabia, Thailand, Turkey, and the United Arab Emirates have been excluded from the analysis.

The study adopts the panel ARDL model from Attamah, Anthony, and Ukpere (2015), which assesses the fiscal and monetary policy. The variables chosen are government expenditure, money supply (M3), the real interest rate, and inflation. Prior to conducting the panel ARDL model, the study also runs the basic process of a panel data model. This includes running a

Pooled Ordinary Least Squares model using the Breusch Pagan LM test, which allows for the use of a fixed effect model, into a Hausman test that helps choosing a random effect model.

1.5 SIGNIFICANCE OF THE STUDY

Most emerging economies have experienced a rising unemployment rate over the years (International Labour Organisation, 2018). This already being a cause for concern, Covid-19 negatively affected many of these emerging economies and has driven additional unemployment (United Nations, 2024; Lanau, 2021). If left unattended, unemployment may spiral into further poverty in these economies, which would result in potential health and security issues. The governments of these nations need to actively deter unemployment. This raises the possibility of repurposing the fiscal and monetary policies to combat unemployment. The main intention of the study is to investigate the efficacy of the fiscal policy and monetary policy on job creation among emerging economies. Literature reviewed in this study investigates the effect of monetary policy or fiscal policy separately. The combined effect may present a larger impact on job creation. Therefore, this study addresses this gap by analysing the merged effect of both monetary and fiscal policies on unemployment in emerging economies. Previous literature conduct studies on individual, OECD, Sub-Saharan African, and Developed nations. This study adds a unique angle to analysing the efficacy of these policies by using emerging economies. Therefore, the study contributes to the body of knowledge in the field. Furthermore, the study will suggest policy recommendations based on the findings.

1.6. CHAPTER CLASSIFICATION

Chapter 1: Introduction and Background to the study

This chapter introduces the topic by illustrating the rising unemployment rates in emerging economies. Readers are then introduced to the research questions with corresponding answers in the form of research objectives. The hypothesis of the study follows, which introduces readers to the different variables used as well as the expected relationships with the dependent variable. The chapter concludes with the significance of the study.

Chapter 2: Theoretical Literature

This chapter reviews different types of economic theories related to the topic. This begins with definitions for the monetary and fiscal policy proxies used in the study. The study then delves into different types of unemployment. The Classical theory, Keynesian theory, the Monetarist theory, Say’s law, Okun’s law, Neoclassical theory, Neo-Keynesian theory, and the evolution

of the monetary policy are all discussed to find their comments or views on the fiscal policy, the monetary policy, and whether this can foster job creation.

Chapter 3: Empirical Literature

This chapter reviews similar studies done in the past, which investigates similar relationships to those observed in this study. Past studies can prepare the reader for the potential findings of this study from the relationships between the independent and dependent variables.

Chapter 4: Data Source, Research Design, and Methodology

This chapter discusses the sources the study uses to obtain data on the variables investigated. The research design, methodology, and the required diagnostic tests used are also addressed in this chapter. The different statistical trends from each of the selected countries are also discussed in this chapter.

Chapter 5: Results Analysis, Findings, and Discussion

Chapter five presents the findings obtained from the study. After presenting the findings, the results are thoroughly analysed and interpreted. Following this, a discussion is facilitated to further dissect the findings and interpretations to formulate conclusions on the topic.

Chapter 6: Conclusions and recommendations

Chapter six forms conclusions based on the results and interpretations from chapter five. From these conclusions, policy recommendations and suggestions are provided. Additionally, the limitations of conducting the study as well as further areas of study are stated.

CHAPTER TWO: THEORETICAL LITERATURE REVIEW

2.1 INTRODUCTION

The study investigates the efficacy of the monetary and fiscal policy in fostering job creation. This chapter introduces the key concepts of monetary policy. Monetary policy and its tools, the money supply and interest as well as the target of many monetary policies, and inflation rate are discussed. The study also defines fiscal policy and government expenditure as part of a government's expenditure tools.

The chapter investigates the study's theoretical framework by assessing major economic theories underpinning monetary policy, fiscal policy, and job creation. It further explores different objectives specified in the monetary policies, including how these policies evolved from 1980 for the 20 emerging economies that form the International Monetary Fund's list. The chapter ends with a summary.

2.2 CLASSIFICATION OF CONCEPTS

2.2.1 Monetary Policy

Monetary policy is a set of actions used by the central bank in adjusting monetary policy tools to influence inflation. The main types of tools used are open market operations, discount rates, and reserve requirements. The money supply in a country also aims to achieve the goals and targets set. In South Africa, for example, besides protecting the value of the currency, the monetary policy also decides how much money the economy should have in circulation (South African Reserve Bank, 2020). The rand is the official currency of South Africa. The expansion of the monetary policy leads to desired effects on employment and increased output. However, the increase in money supply also leads to an increase in prices (Mathai, 2020).

During a recession, or in anticipation of one, a central bank implements an expansionary monetary policy with the objective of stimulating the economy. There are three options that can be undertaken to implement this version of the monetary policy: The central bank can decrease the discount rate, which is the interest rate that commercial banks face when borrowing money from central banks (Hall, 2021). The central bank can purchase government securities on the open market to achieve an expansionary monetary policy objective. Consequently, the demand for securities increases and this increase may raise their prices resulting in a decrease in interest rates and an injection of money into the economy. The implementation of stimulating monetary policy can also be achieved by the reduction of reserve

requirements. Reserve requirements are the amount of reserves that commercial banks are required to possess on hand by the central bank (Chen, 2021b).

A contractionary monetary policy, however, is a policy that central banks implement to combat inflation by limiting the amount of active money circulating in the economy (Amadeo, 2022b). While inflation can be healthy, high inflation can be damaging to economies and therefore may require central bank involvement. There are multiple methods central banks use to implement the contractionary policy. These include selling treasury notes, raising reserve requirements, and increasing discount rate. The sale of treasury notes (bills/ bonds) by the central bank to commercial banks reduces the credit on their books, leading to the banks having less money to lend given higher interest rates.

The reserve bank can also raise the reserve requirements for commercial banks by raising the discount rate, which is the interest rate charged to commercial banks overnight to meet these reserve requirements (Chen, 2020). By raising the discount rate, money supply in an economy is lowered as commercial banks charge higher interest for loans to compensate for the higher discount rate. Interest rates that are too high may also negatively affect economic activity to the point where unemployment occurs. This reduces the demand for goods and services as consumers buy less and firms reduce prices. The decline in prices slows down inflation (Amadeo, 2021).

In the United States, monetary policy is not only responsible for the stability of prices and moderate long-term interest rates, but also for encouraging maximum employment (Federal Reserve Bank of St. Louis., 2022). The Australian Reserve Bank currently uses approaches such as targeting the cash rate on commercial bank loans. The outcome of these cash rate changes takes effect on the following day after the announcement (Reserve Bank of Australia, 2022).

Before discussing the history of the monetary policy, it is important to define the nominal anchor concept. A nominal anchor is a variable or tool that policymakers use to contain the price level (Jahan, 2014). Over time, the nominal anchors by central banks have seen change with the goal of achieving stable price levels. The first is the gold standard, which was the nominal anchor for most of the world's central banks prior to World War I (Issing, 2010). The central bank exchanges a unit of domestic currency for a quantity of gold. This results in a volatile economy depending on the amount of gold under the possession of the central bank (Federal Reserve Board, 2018).

The use and maintenance of the fixed exchange rate followed after World War II where the central bank sold or purchased units of a domestic currency for a fixed amount of foreign currency. It is observed that, over time, a country with a fixed exchange rate and high inflation eventually inherits the same inflation as a foreign country (trading partner) that also uses fixed exchange rates. Fixed exchange rates suffered similar issues as the gold standard, coupled with high inflation. This required a shift from fixed exchange rates to less inflationary alternatives. There should be confidence in the central bank to hold large reserves and raise interest rates, even if there is a risk of the economy falling into a recession. Without this confidence, there are pre-emptive attempts to preserve wealth by shifting domestic currency assets into foreign currency assets. In the 1970s, many central banks made use of money supply targeting to reduce the high levels of inflation experienced during that decade. The belief was that through control of the money supply, the changes in inflation would be low and stable (Issing, 2010; Federal Reserve Board, 2018).

2.2.2 Inflation Rate

Inflation is the sustained increase in the general level of prices of goods and services consumed by households over a given period (Oner, 2022). A general price level fall is referred to as deflation. To monitor inflation, countries commonly use an indicator known as the consumer price index (CPI). The CPI measures the percentage change in the price of a basket of goods and services that are consumed by households (Reserve Bank of Australia, 2022).

There are two types of inflation: demand-pull and cost-push inflation. Demand-pull inflation occurs when there is an increase in the aggregate demand for goods and services while aggregate supply remains unchanged. In this case, the excess demand pulls up the prices of goods. Cost-push inflation occurs when the cost of production increases. The increase in the production cost pushes up the price level of goods and services. The increase in wages, salaries, and the cost of imported capital are some of the main sources leading to this type of inflation (Mohr, 2015).

Mostly known for being harmful to an economy, inflation may have negative and positive effects. According to Freyman (2021), when inflation is not monitored, there are three main issues that may arise. First, the higher prices may be larger than wage growth, which is harmful to individuals with fixed wages. Additionally, a wage-price spiral may occur as workers get concerned with rising prices and demand higher wages, resulting in higher production costs for

businesses and forcing a hike in prices. Lastly, inflation left unattended can lead to economic recessions.

Inflation may, however, be positive for an economy because it encourages production when the economy is not operating at full capacity. The presence of more money in the economy allows for more spending, which results in more aggregate demand and more production to meet the increased demand (Ross, 2021). According to the Federal Bank of St. Louis (2012), inflation is necessary to prevent the Paradox of Thrift, the phenomenon coined by Keynes (1936). The paradox states that consistent falling consumer prices, due to a nation becoming too productive, results in consumers waiting for better deals and holding off their spending (Ross, 2021).

2.2.3 Money Supply

Money Supply is the total amount of money circulating in an economy in a particular period. In South Africa for example, there are 3 types of money supply, namely M1, M2, and M3. Money supply M1 includes all coins and notes as well as demand deposits of the domestic private sector. M2 is the combination of M1 as well as all other short-term and medium-term deposits of the domestic private sector. M3 is equal to M2 plus all long-term deposits of the domestic private sector within monetary institutions (Mohr, 2015). The classification of M3 differs among different emerging economies. Some nations add M0 and M4 to the definition by classifying M0 as a narrow definition of money and M4 as a broad definition of money supply. Whereas M0 represents coins and notes in circulation, M4 is defined as M0 with the addition of bank accounts (Pettinger, 2017a).

One of the ways money supply is controlled in an economy is through setting reserve requirements. Central banks mandate commercial banks to keep a specific amount of funds in their reserves in reference to the amount of deposits in the accounts of their clients (Bajpai, 2022). As a result, a predetermined amount of money is always kept in the bank and never circulates. If the central bank intends for more money to circulate in an economy, the reserve requirement is reduced. Banks then have less money to lend and are more selective when issuing loans. Central banks use open market operations as an alternative method of adjusting the money supply in an economy. This is done by the central bank selling government bonds under sale and repurchase agreements to reduce the amount of money in the economy. In simpler terms, the central bank is taking money from commercial banks (International

Monetary Fund, 2022). This action is an attempt to steer shorter-term interest rates, which eventually influence long-term rates and economic activity.

2.2.4 Interest Rate

The real interest rate is the lending interest adjusted for inflation by the GDP deflator. The lending rates differ amongst different countries (World Bank, 2021). The nominal interest rate is the percentage increase in money that an individual pays to the lender for the use of money which is borrowed. Contrary to the real interest rate, the nominal interest rate does not take inflation into account. If the nominal interest rate on a loan is 8% and inflation is 5%, for example, that leaves the real interest rate being 3% (Federal Reserve Bank of San Francisco, 2003).

Interest rate is an important monetary policy tool used by central banks to control inflation and achieve desired monetary policy objectives (South African Reserve Bank, 2020; Mohr, 2015; Fourie & Burger, 2015). Central banks lower the discount rate to make it cheaper for commercial banks to access money and, as a result, the nominal interest rate becomes lower, encouraging individuals and corporations to borrow money and spend. As borrowing increases, money supply in an economy increases. Accordingly, the increased spending due to lowered interest rates encourage higher economic activity (Petroff, 2021).

Conversely, the increase in discount rate raises the cost of borrowing for commercial banks. As a result, these banks increase the interest rate charged to customers. The cost of borrowing in the economy increases, and this leads to a reduction in money supply (Corporate Finance Institute, 2022b).

2.2.5 Fiscal Policy

Fiscal Policy is a government's method of influencing an economy primarily using taxation and government spending (Horton & El-Ganainy, 2020). Government spending represents the money spent by a government for the production and purchasing of important services such as healthcare, education, and defence, as well as the money spent for the acquisition of goods (Corporate Finance Institute, 2022a). Additionally, government spending includes redistribution programmes such as unemployment insurance and social grants (Organisation for Economic Co-Operation and Development, 2009). Tax is a compulsory payment levied by the government. This can include taxes on imports, wealth, income, production, social contributions, and capital taxes (Eurostat, 2016). Eventually, tax revenue is used to finance

government spending on goods and services needed by the citizens of a country (Tanzi & Zee, 2001). Tax revenue makes up a large portion of a government's revenue.

In more detail, governments use fiscal policy to achieve different macroeconomic objectives depending on the state of the economy. When the economy is experiencing a recession, an expansionary fiscal policy is used to boost growth if the intention is to avoid a recession. This type of policy is required when an economy is in the contractionary phase of the business cycle. Expansionary fiscal policy is done through a budget deficit, which is the difference between government spending and taxation increasing (Mohr, 2015).

An expansionary fiscal policy is also implemented through the payment of subsidies, income tax cuts, and transfer payments such as welfare programs (Amadeo, 2022c). This is done with the objective of putting more money in the hands of consumers, handing them more purchasing power. The government believes that corporate tax cuts put more money into the possession of firms that are invested with the intention of creating employment. There is a risk that the implementation of tax cuts creates a budget deficit which is added to public debt. The tax cuts would then need be raised once the economy recovers to pay the debt, and failure to do so leads to debt growing to unsustainable levels (Congressional Research Service, 2020).

A contractionary fiscal policy results in a reduction in government spending or an increase in taxes. This policy is implemented to siphon money from the private economy. A contractionary fiscal policy is pursued with the intention of slowing unsustainable production. However, the increase in the tax level is rarely seen as a useful contractionary measure in modern times (Chen, 2020). Instead, a sound implementation of a contractionary fiscal policy works through the reduction of government expenditure and, in some cases, the expenditure in certain sectors. This type of fiscal policy is commonly used for economies that are expanding rapidly when inflation problems arise (Mohr, 2015).

Prior to 1930, governments around the world displayed a laissez-faire approach to their economies. However, the arrival of the Great Depression in 1929 saw the United States of America (USA) requiring the government to play a more proactive role in the economy (Horton & EL-Ganainy, 2020). World War II provided additional reasons for governments to play a more important role in the economy to regulate inflation, unemployment, and business cycles. From 1930 to 1944, during the peak of World War II, the U.S. government went from only accounting for 3,3% of the nation's GDP to accounting for 44% of the nation's GDP (Kramer, 2021).

More recently, governments take a backseat role, giving way to markets for the allocation of goods and services. With the global financial crisis which threatened economies worldwide and led to recession, numerous countries returned to more active fiscal policies (Horton & EL-Ganainy, 2020).

2.2.8 Unemployment

According to the Organisation for Economic Co-operation and Development (2022), unemployed people are those of working age who are without work, are currently available to work, and are taking the steps necessary to find employment. The unemployment rate is measured as a percentage of the labour force according to this definition. There are two definitions of unemployment: the strict definition and extended definition. A strict definition of unemployment, according to the Organisation for Economic Co-operation and Development (2022), defines the unemployed as those who actively look for employment. The extended definition includes individuals who want to work but are not actively looking for work (Fourie & Burger, 2015).

Emerging economies have different definitions for unemployment which results in their unemployment rates being measured differently. Most emerging economies measure unemployment based on the same definition except for China and India. These emerging economies measure the number of people who are actively looking for employment as a percentage of the labour force as the unemployment rate. India estimates the unemployment rate by interviewing a large sample of randomly selected households. In China, the urban surveyed rate is calculated by using a sample survey, which uses the ratio of the urban unemployed population to the sum of the employed population and the unemployed population (Trading Economics, 2022). The next section explains the types of unemployment.

2.2.8.1 Frictional Unemployment

Frictional unemployment occurs when individuals are moving between jobs due to a delay when they are looking for a job to move to (Pettinger, 2021c). This kind of unemployment is primarily caused by the mismatch between the workers and job availability in the market (Mohr, 2015). Employee dissatisfaction with work conditions particularly salaries, job responsibilities, and work location leads to the worker seeking a different job to meet their updated expectations (Corporate Finance Institute, 2021). Additionally, there is a possibility that the individuals looking for jobs are unaware of the available jobs, or they may not have the skills required for the job (Adesina, 2013). Frictional unemployment usually lasts for a

short period of time ranging from weeks to months, hence the term frictional (Boyce, 2022). Unemployment benefits from government result in frictional unemployment as the additional income allows workers to be selective in choosing their next job, extending the length of unemployment (Kagan, 2021).

2.2.8.2 Structural Unemployment

Structural unemployment occurs when there is a mismatch between the skill level of the labour force and the jobs available (Adesina, 2013; Fajana, 2000). Furthermore, it may be difficult to learn the skills for a new industry and technological advancements, which worsen structural unemployment. Technological developments also lead to some industries replacing labour with machinery. Growing technology occurring in all areas of life translates into increases in structural unemployment in the future due to workers without adequate skills being marginalized. Eventually, workers with skills may risk being seen as redundant with the growth rate of technology and artificial intelligence (Kenton, 2020). Workers may also find it challenging to move to new locations for work (Pettinger, 2019b; Adesina, 2013).

2.2.8.3 Seasonal Unemployment

Seasonal unemployment arises from specific occupations requiring workers for only certain seasons of the year such as agriculture (Alao, 2005; Mohr, 2015). According to Thakur (2022b), seasonal unemployment is a condition agreed upon between employers and employees, implying that workers are hired for a certain period of the year. Apart from farming, short-term projects such as construction are an additional reason for seasonal unemployment.

2.2.8.4 Cyclical Unemployment

Cyclical unemployment occurs when an economy is operating below full capacity or is experiencing a downturn due to a recession. The drop in aggregate demand decreases the need for workers, which raises unemployment (Fajana, 2000; Adesina, 2013). Generally, during downswing, firms employ fewer workers and produce much fewer goods as businesses attempt to raise profits by discontinuing redundant factors of production and laying off workers they do not need (Pettinger, 2021a; Fourie & Burger, 2015; Alao, 2005). This type of unemployment is temporary as it can rise and fall along with expansionary and contractionary periods in an economy (Nickolas, 2020).

2.2.8.5 Voluntary Unemployment

Voluntary unemployment occurs when individuals prefer to remain unemployed rather than take up available jobs (Pettinger, 2021b). This type of unemployment shares similar aspects with frictional and structural unemployment. For example, an unemployed graduate who declines a shelf-stacker job opportunity in the early stages of their unemployment would be classified as voluntary unemployment. This is also labelled as frictional unemployment as it would take time to find a suitable job for a degree holder. The link between voluntary unemployment and structural unemployment can be illustrated using an example of a pilot graduate: Fully automated planes would lead to skilled pilots falling out of employment. The pilot may find it difficult to obtain a job in a different industry and may turn down menial jobs with the hope of finding an alternative employment with a degree of skill or prestige (Pettinger, 2017b).

2.2.8.6 Underemployment

According to Maynard and Feldman, (2011), as cited in Niyimbanira, (2016), underemployment is when a worker finds employment which is not at the same standard as the goals or expectations an individual may have set for themselves. This type of underemployment can be classified as invisible underemployment. Time-related underemployment occurs when the number of hours an employed person works is not sufficient in relation to the industry standard (Hussmanns, 2007; Wilkins, 2006). This version of underemployment can be classified as visible underemployment (Chen, 2021c).

Time-related unemployment is further explained by including the fact that the individual experiencing this version of underemployment is willing and available to work for additional hours. However, the individual has worked for fewer hours than a specified threshold number of hours (Greenwood, 1999). Invisible underemployment, however, is regarded as impossible to measure as workers may not realize their skills could be better utilized in a different form of labour (Amadeo, 2021).

2.3 THEORETICAL FRAMEWORK

The theoretical framework section discusses ten theories that underpin the study. These include classical theory, Keynesian theory, the monetarist theory, neoclassical theory, neo-Keynesian theory, Hayek theory, Say’s law, and Okun’s law.

2.3.1 Classical View on Monetary Policy

The classical theory discusses money and its non-neutrality from as early as the 1700s during the gold standard era. The discussions began in an essay by Cantillon (1755), who stated that an increase in money supply stimulates spending. This spending then encourages production. However, the positive effect on production does not last long given that the higher demand leads to further higher demand. The result is a negative effect on production (Camargo & Cortez, 2011).

Similarly, Hume (1752) stated that an increase in money supply results in the rise of prices of commodities. Hume (1725) also argued that the effect of increased money supply is not felt immediately but over time, where everyone has to pay higher prices for commodities. These higher prices lead to a negative impact on production. Classical theory is one of the earliest instances of economic discussion on the phenomenon of rising prices. The theory discusses the increasing average price level known as inflation because of an increase in money supply in the economy. A similar view of rising prices from an increase in the quantity of money is shared by Newcomb (1885). A key variable in modern monetary policies is the adjustment of money supply. The earliest classical views on the monetary policy allude to money supply increases leading to positive effects on production. Inflation becomes the immediate concern.

The quantity theory of money discussed by Hume (1752) and Newcomb (1885) is also investigated by Fisher (1911). Upon investigation, Fisher (1911) confirmed the quantity theory of money and highlighted that the normal effects of an increase in the quantity of money lead to the exact proportional increase in the general price level. The starting point for the classical theory of money is the equation of exchange. This equation is an identity that relates to the volume of transactions at current prices to the supply of money multiplied by the turnover rate of each dollar (Froyen, 2013). The expression for the equation of exchange that focuses on income transactions is expressed as follows:

$$MV \equiv PY \quad \text{.....(2.1)}$$

Here M is the quantity of money, and V is the income velocity of money. Income velocity of money is the number of times on average a dollar is in a transaction. P is the price index for currently produced output and the level of current output is given by Y. Equation 2.1 can be rearranged into variables that are easier to measure as follows:

$$V \equiv \frac{PY}{M} \quad \text{.....(2.2)}$$

Fisher (1911) postulates that the equilibrium values in the equation of exchange, except the price level, are determined by other forces. Fisher (1922) also posited three conditions at which the price level varies. First, the price level varies directly as the quantity of money varies (M); second, the price level varies directly with the velocity of its circulation (V); and, last, the price level varies inversely with the volume of trade (T).

Fisher (1922) further argued against the assumption established by most classical economists from the gold standard era. The assumption is that the quantity of money is exogenously controlled by monetary policy authorities. Fisher's view is that the velocity of money is determined by payment technology and behaviours of the society. The velocity is increased by shorter payment periods. As a result, smaller average money is held. Velocity also increases when consumers frequently use charge accounts. The factors above determine the equilibrium level of velocity and can be regarded as fixed for the short-run (Froyen, 2013).

The output is fixed from the supply side and presents an equation of exchange that expresses a relationship of proportionality between the money supply which is given exogenously and the price level:

$$P = \frac{\bar{V}}{\bar{Y}} M \quad \text{.....(2.3)}$$

The equation above indicates the price level's dependence on the money supply.

Marshall (1887) stated in his business cycle theory that the non-neutrality of money is due to interest rates and sticky nominal wages. Marshall continued to explain that the non-neutrality of money is due to nominal wages that are sluggish and adjust slowly, resulting from the changes in the price level that transform the nominal wages into cycle-amplifying variations in real wages. The price level changes also result in a transformation of sticky nominal interest rates into cycle-amplifying movements in the real interest rates (Marshall, 1887; Eshag,1963). Consequently, the upswing resulting from rising prices is not matched by compensating for it with sticky interest rates and nominal wages. This results in the fall of the real values of interest rates causing real profits to rise. Accordingly, businessmen expand their operations, leading to employment and output rising (Marshall, 1887; Humphrey, 2004).

Marshall (1887) wrote about short-run non-neutrality and the neutrality of money in the long-run. Marshall further held that the expansion or the contraction of the currency does not have permanent effects on the real activity as it depends on real factors such as labour quantity or quality, production techniques, land, and capital (Eshag, 1963). These real variables do not

depend on money supply in the long-run, implying that money cannot affect the variables or levels of output and employment. As a result, money is neutral to the volume of real activity in the long-run (Humphrey, 2004). The main objective of the study is to analyse the efficacy of the monetary policy and fiscal policy in fostering job creation in emerging economies. Section 2.3.1 obtains the classical view on the monetary policy. Early classical views allude to the possibility of money supply increases improving production. The concern for inflation also arises from the increased demand as a result from increased money supply. Newer classical views imply money supply does not change employment levels.

The classical economist Pigou also shares a similar view that the values of prices and assets rise while wages fall when there is price and wage flexibility (Pigou, 1968). As a result, savings decrease, and consumption rises. This leads to a fall in real wages and a reduction in labour market supply and therefore increasing unemployment (Pigou, 1968; Myrick, 2012).

2.3.2 Classical View on the Fiscal Policy

Classical economists generally prefer the public sector to play a minimal role in aiding an economy during downturns. The expected role of government is the provision of public works, the defence of the country, and the maintenance of law and order. The economists from this era expected the state to limit itself to only achieving the core activities of the public sector. These activities include the guaranteeing of property rights, the sanctity of contracts, and protecting the political and economic liberties of individuals (Tanzi, 1997).

Classical economists emphasize the idea of the free market, where a smoothly adjusting mechanism leads to smooth harmony and order (Fourie & Burger, 2015). This approach proposes that allowing unrestrained markets lead to the economy tending towards equilibrium at full employment. Recession periods accompanied by higher unemployment are viewed as temporary due to external disturbances. The economy promptly and automatically returns to the full-employment equilibrium.

Classical economists never view unemployment as a real issue; therefore, no remedial actions are necessary to return to full employment, especially since no action from the government is required. Full employment materializes spontaneously, and any periods of prolonged unemployment and recession are seen as impossible. While the government refrains from intervention, wages adjust smoothly, which continues to ensure an equilibrium between demand and the supply of labour. Those wishing to work at the equilibrium wage determined by the market are employed. The result is the absence of unemployment except those who are

voluntarily unemployed and choose not to work at the equilibrium wage (Fourie & Burger, 2015).

The reason for the conservative attitude is a reaction to the interference of governments working with the market during the 18th Century. Such interference is seen as an obstacle to growth and damaging to economic activity. As a result, the role of the government in market regulation was much more limited during the 19th century. Laissez-faire is the dominant economic philosophy with 10% of the GDP consisting of public spending in most industrial countries in the 19th century (Tanzi & Schuknecht, 1997).

The classical economist's view of fiscal policy is that government expenditure does not result in an increase in the national output (Gabriel, Hlanganipai, Mangena, & Yewuka, 2014). Instead of being a driving force for economic growth, government expenditure is seen as a destabilizing force in the classical theory, and free markets are perceived as the method to achieve full employment and equilibrium in an economy. Additionally, there is an expectation for the government to play a limited role as the economy needs to be left to operate on its own.

Classical economists believe that unless financed by money creation and changes in the monetary policy, government expenditure does not affect price levels or employment in an economy (Ju-Huang, 2006). The reason for this can be attributed to government expenditure rising while the money supply is fixed. Government ends up competing with private firms in the money market, pushing interest rates even higher. The result of the increases in the interest rates is the discouragement of private investment, which leads to the rise of public investments. Private investment slows down due to the cost of financing loans becoming too high. Therefore, classical economists believe that an increase in government expenditure with money supply remaining constant does not lead to an increase in income but only substitutes private business investments with public programs (Froyen, 2008). Governments can borrow at any interest rate level as they can print additional money or increase taxes with the objective of refinancing loan borrowing costs (Gabriel *et al*., 2014). As a result, increases in government spending may have zero effect on a country's long-run economic growth. The classical view on both monetary and fiscal policies denounces the main objective of the study to repurpose this controls to foster employment. This is due to the classical belief of limited state intervention in economic phenomena.

2.3.3 Keynesian Theory on Monetary Policy

Keynes (1936) overturned the idea that free markets automatically provide full unemployment. The main assertion from the Keynesian school of thought is that aggregate demand is the most important driving force in the economy. Aggregate demand is the sum of spending from households, the government, and businesses. Keynes (1936) also postulated that free markets do not have any self-balancing mechanisms that result in full employment.

According to Jahan *et al.* (2014), Keynes also argued that inadequate aggregate demand leads to extended periods of high unemployment. Increases in demand come from four components, viz., consumption, investment, government spending, and net exports (Amadeo, 2022a). However, during a recession, spending goes down due to forces dampening demand. The reduction in consumer spending results in the reduction in investment spending from businesses due to these firms being compelled to adjust their production in response to the reduced demand for their products. Therefore, Keynesians view the importance of state intervention as necessary to control the business cycle. Business cycles are booms and busts in economic activity.

Keynesian economists advise the use of monetary policy to stimulate economies. Interest rate reductions encourage real investment. However, there is an exception that occurs during a liquidity trap, where money supply is increased to lower interest rates but fail to do so. A decrease in interest rates fail to boost output and employment when a liquidity trap occurs (Jahan *et al.*, 2014).

According to Blinder (2008), Keynesians used to view the monetary policy as powerless, but this has changed based on the influence that monetary policies have on aggregate demand. The Keynesian theory also states that changes in aggregate demand have the largest effect on short-run real output and employment but not on prices, whether they are anticipated or unanticipated. Blinder (2019) further maintained that the monetary policy produces real effects on employment and output only if some prices like nominal wages are rigid and do not adjust instantly. If some of the prices are not rigid, this results in injections of new money changing all prices by the same percentage.

There are challenges to rationalizing the rigidity of prices as real demand and supply do not change if nominal prices rise or fall proportionally. However, Keynesians share the belief that due to the somewhat rigidity of prices, fluctuations in components of spending such as investment, consumption, and government spending causes fluctuation in the output. Blinder

(1987) asserted that not all Keynesian economists, however, advocate for fine-tuning. Fine-tuning is the adjustment of government spending and the money supply every few months to keep the economy at full employment. Instead of fine-tuning, Keynesians prefer coarse tuning from stabilization with more modest goals due to the lags in policy implementation. One of the main tenets of Keynesian economists is the preference to combat unemployment instead of inflation (Blinder, 2008; Keynes, 1936; Essien *et al.*, 2016). It is concluded, based on empirical evidence, that the cost of inflation is low, hence Keynesians are usually advocates for more aggressive expansionary monetary and fiscal policies than non-Keynesians.

Early Keynesian models treated nominal wages as exogenous. This presented a problem for analysis as nominal wages are set as conditional on the state of the economy (McCallum, 1989). Treating nominal wages as exogenous was seen as preventing the proper analyses of the causes of inflation. Therefore, Phillips (1958) created a link for nominal wages as a function of conditions occurring in the past.

Phillips (1958) suggested that nominal wage rates are explained by recent values of the unemployment rate. If the demand for labour is high relative to labour supply, the employers bid up wages rapidly (Espinosa-Vega & Russel, 1997). The larger the discrepancy between labour supply and demand, the larger the upward pressure on nominal wages. The excess labour supply results in downward pressure on wages and rising unemployment.

The Phillips curve shows that the relationship between the unemployment rate and wage growth rate is non-linear (Gottschalk, 2002; Espinosa-Vega & Russel, 1997; Philips 1958). Tighter labour markets lead to employers bidding wages up rapidly, leading to looser labour markets with high unemployment rates that cause the workers to bid down the wages slowly. This confirms the Keynesian view of sluggish downward adjusting wages and the causes of high unemployment and recessions.

The Philips curve manages to link monetary policy and inflation. Monetary policy affects the level of aggregate employment in the economy by influencing aggregate demand conditions (Gottschalk, 2002). Therefore, monetary policy can apply its control over inflation with the Philips curve mechanism. Philips (1958) suggested multiple combinations of inflation rates and employment levels central banks can choose from.

According to Espinosa-Vega (1998), demand stimulus in Keynesian models through expansionary policies increases employment without rising inflation because nominal wages are treated as exogenous. The introduction of the Philips mechanism provides the link between

real and nominal variables. This shows evidence of a demand stimulus leading not only to higher employment but also higher inflation. Policymakers are now tasked with making a trade-off between the unemployment rate and the inflation rate.

According to Keynes (1936), monetary authorities not only control short-term interest rates but also influence long-term interest rates. Keynes states that monetary authorities should attempt to reduce unemployment that characterizes a long-run period equilibrium position instead of attempting to stabilize short-period fluctuations of the economy. The attempt to reduce unemployment is done by making a commitment to buy and sell gilt-edged bonds of all maturities at stated prices. By doing this, as opposed to discretionary monetary policy, the unemployment rate that characterizes the long-period equilibrium position in the economy is reduced (Dickens, 2011).

According to Camargo and Cortez (2011), Keynes held the view that the interest rate plays a large role in making changes to aggregate demand. Hence, increases in interest rates reduce aggregate demand, leading to a reduction in output and employment. Alternatively, the reduction of interest rates increases aggregate demand, leading to an increase in output and employment. Keynes (1936) stated that the state of liquidity preference and the quantity of money induces changes in the interest rates. In this case, the government can use monetary policy to make changes to the domestic interest rates to achieve specified goals.

The ability to achieve specified goals is attributed to the non-neutrality of money. If inflation is caused by excess demand, increases in the interest rates are made to restrain aggregate demand with the objective of controlling inflation. The increase in the interest rates causes an appreciation in the domestic currency, leading to slower price increases and causing a further contraction in aggregate demand (Camargo & Cortez, 2011). Therefore, the increase in domestic interest rates reduces inflation and reduces aggregate demand, further leading to a reduction in output and an increase in unemployment.

Keynesian economists firmly believe that the regulating bodies of the government have the responsibility to maintain the economy at full employment. This responsibility is emphasized by Keynesian economists. Additionally, Keynesians reason that full employment can be achieved by monitoring the level of aggregate demand (Keynes, 1936). Keynesian theorists also argue that aggregate demand affects unemployment in the short-run and that monetary policy directly affects aggregate demand.

Government regulating bodies have the opportunity to control the levels of unemployment through the use of monetary policy due its impact on aggregate demand in the short-run. Keynesian economists respond to criticisms on the impact of using monetary policy in the short-run by reiterating that the short-run lasts long enough to matter (Blinder, 2008). This group of economists suggest interest rates over the money supply as the best monetary policy tool for combatting unemployment. An expansionary monetary policy that reduces the interest rate along with a stimulating fiscal policy result in job creation (Essien *et al*., 2016). This in line with the main objective of the study to determine the efficacy of the fiscal and monetary policy in fostering job creation. Keynesian theory suggests the use of interest rates to facilitate employment.

2.3.4 Keynesian Theory on Fiscal Policy

Keynes (1936) advocated for the use of a countercyclical fiscal policy that acts against the direction of the business cycle. For example, Keynesian economists advocate for deficit spending with the objective of stabilizing wages and stimulating employment during economic downturns. Taxes are raised to cool the economy down and prevent inflation in the presence of abundant demand-side growth (Jahan *et al.*, 2014).

Keynes (1936) postulated that market economies did not have the automatic capacity to generate full employment. Instead, economic policy has the ability. According to Gabriel *et al.* (2014), Keynesians argue that markets do not always clear due to price and wage rigidity in the short-run. The rigidity in prices and wages results in firms failing to sell the inventory of goods that are produced, which in turn leads to more unsold inventory. The government is therefore advised to increase spending in the economy to stimulate aggregate demand when demand is low.

Fiscal policies pioneered by Keynes underscore the government's ability to influence the levels of production by adjusting tax levels and public spending (Reem, 2009). By doing this, inflation is curbed; the currency maintains a healthy value and employment increases. Taxation is regarded as the primary fiscal policy tool to reduce unemployment (Godslove & Wobilor, 2016).

Godslove and Wobilor (2016) further argued that higher taxes leave less disposable income in consumers' hands leading to less revenue accrued by businesses. This creates an additional ripple effect of fewer workers being hired or the laying off of some workers. Government spending on infrastructure can also be beneficial in creating employment. Keynesians advise

attributing focusing more on unemployment reduction rather than dealing with inflation in the sense that any costs from inflation that result from fighting unemployment are minimal. The Keynesian view on the fiscal policy encourages the main objective of the study even providing variables that may foster job creation. Keynesian economists believe that spending on government infrastructure and tax reduction provides a path to employment creation. The study will review this possibility.

2.3.5 Monetarist Theory

The monetarist's view money supply as the main concern for monetary policy authorities due to the inflation it may cause (Sullivan & Steven, 2003). This differs from Keynesians who prefer the use of the interest rate instead. While the Monetarists believe that monetary policy tools promote job creation in the short-run, they also acknowledge that inflation rises in the long term as a result of expansionary monetary policy (Amadeo, 2020; Sullivan & Steven, 2003).

Monetarists maintain the view that the money supply in an economy is the primary determinant of the GDP in the short-run and the level of prices over longer periods (Jahan & Papageorgiou, 2014). Accordingly, the objectives of monetary policy are best achieved by targeting the growth rate of the money supply in an economy. Additionally, from the monetarist point of view, monetary expansion is considered the main determinant of total spending (Brunner, 1968). Changes in aggregate spending lead to a variation in general price levels, output, and employment. The premise of this theory is that a stable economy is not subject to recurring periods of severe recession and inflation (Anderson & Carlson, 1970).

Consequently, emphasis is placed on reducing inflation over unemployment as rapid increases in the money supply would only result in much higher rates of inflation in the future (Pettinger, 2019a). The monetarists consider the central banks to be more powerful than the government due to their control of the money supply in an economy. Monetarists add that fiscal policy done in the absence of monetary policy is bound to exert little influence on aggregate spending. Therefore, by itself, fiscal policy has little influence on output and price levels.

Government expenditure, financed by borrowings and taxes and unaccompanied by an expansionary monetary policy leads to the crowding out of private expenditure, with a small increase in total spending. However, a change in money supply wields a stronger independent influence on total spending (Anderson & Carlson, 1970). For this reason, monetarists contemplate that monetary policy is far more effective than fiscal policy. Monetarists conclude

that any actions made by monetary authorities resulting in money stock changes should be the primary tool for economic stabilization.

Milton Friedman (1968) stated two important outcomes that a monetary policy can achieve. First, monetary policy has the power to prevent the money supply from being a disturbance in the economy. The absence of a monetary authority to control the stock of money results in large disasters in economies. Second, monetary policy can create a stable environment for an economy to operate on. It ensures that participants within an economy operate with the knowledge that average prices will remain stable in the future. Monetary policy is responsible for keeping inflation within the target to encourage a sound environment for an economic system. Monetarism does not view the monetary policy as responsible for fostering job creation with concern over the inflation that may arise from use in this manner. The theory does not consider the fiscal policy strong enough to affect output like employment. As result, Monetarism does not believe in fostering employment through the monetary and fiscal policy.

2.3.6 Hayek's Criticism of the Keynesian Theory of Unemployment

Hayek (1969) introduced three reasons why the connection between employment and aggregate demand is non-existent. Hayek criticises Keynesian theory, especially the connection made between monetary policy and unemployment. According to Keynesian theory, the link between monetary policy and unemployment is through aggregate demand. The first reason Hayek states that the Keynesian theory is erroneous is that in the modern economy, a small fraction of workers is employed in the last stage of production. A large share of productive resources lacks a direct relationship with final markets (Sanz-Bas, 2011). This is a valid point as aggregate demand refers to the total demand for goods sold at the final stage of production. The most evident demand is from consumers and not the firms or the markets producing highly specialized capital goods or conducting research and development in the earlier stages of production. Labour, capital goods, and raw materials of this kind do not always experience a change in demand along with the adjustment of monetary policy as Keynesians are mostly referring to the demand present in the final market. Therefore, the demand for workers by entrepreneurs in the earlier stages of production will be slightly affected.

The second reason why Hayek disagrees with Keynesian theory is based on the "Ricardo Effect." The Ricardo Effect is the stability of productive structure requiring the permanence of an equivalent pricing structure (Hayek, 1969). In more detail, the Ricardo Effect is the increase in profits when output prices increase. However, the increase will be greatest in the less capital-

intensive methods of production, raising incentives for the use of these methods rather than more capitalistic methods (Steele, 1988).

Within the Keynesian theory, the demand policy requires the modification of pricing structures promoting investments. However, relative prices also end up being modified, which forces the producers to change their production strategies since it is more profitable for them. This means that producers will stop purchasing higher-quality capital goods from their usual suppliers, and these suppliers who are not making as much money as they were before are forced to retrench employees to account for these losses.

Briefly, the change in relative prices due to the Keynesian demand policies discourage investment and, as a result, firms that create jobs to produce special capital goods face a much lower demand for their goods. These businesses then become less economically viable, which is what Hayek named the Ricardo Effect (Hayek, 1942). Keynesian demand policies then lead to a large increase in unemployment from Hayek's point of view.

The third and final reason for Hayek's criticism of the Keynesian theory is the absence of a direct relationship between aggregate spending and unemployment. Hayek states that unemployment is concentrated within certain sectors or industries, and it requires consumers to willingly spend their additional income which they acquired from the Keynesian policies on the troubled sectors to create jobs.

The distribution of this expenditure within the industry in a proportion not equivalent to the distribution of labour sees an increase in expenditure, not an increase in employment. The individuals in the economy who gain additional money from the Keynesian policies spend it on whatever suits them rather than spending it on those sectors that have unemployment. The increase in aggregate expenditure growing so large will eventually see parts of it reaching the sectors currently in crisis and will see employment rise.

Hayek was concerned that allowing for a large expenditure growth would result in high inflation rates (Blinder, 2008; Arevuo, 2012; Hayek, 1960; Sanz-Bas, 2011). Given the high unemployment accompanied by high inflation, the country should investigate achieving steady money growth to stabilize prices instead of driving the money supply in one direction or another. A stable rate of money supply growth prevents the issue of unemployment and inflation from rising rapidly (Spencer, 1975).

2.3.7 Say's Law

John Baptiste Say founded a controversial doctrine in economics by stating that supply creates its own demand. Say's law states that the production of goods and services causes incomes to be paid to the suppliers of the factors in the production of goods which include labour, land, and capital (Sowell, 2015). The total price of these goods is the sum of the wage payments, profits, and rent received. This means that income from the production of output is equal to the value of the output. The increased supply of the output means increases in income necessary to create the demand for the output, hence supply generates its own demand.

Say's Law has the following implications: First, an economy needs to always be close to full employment, therefore demand-deficient unemployment does not exist. Second, economic downturns are not due to a glut of supply. The glut of supply is the occurrence of excess supply for goods and services (Washington, 2010). Third, any unemployment arising is due to wages being kept above the equilibrium level. Last, to increase output, the focus should be placed on increasing production instead of demand (Pettinger, 2022).

Keynes' (1936) General Theory refutes Say's Law as Keynes states that supply creating its own demand implies that everything that is produced is purchased. Keynes also indicates that if Say's Law is true, then high unemployment rates and recessions are impossible from a theoretical point of view. If these phenomena occur, they are brief. Keynes (1936) pointed out that Say assumes that the economy is always operating up to its full capacity, meaning a new activity acts a substitute rather than an additional activity. Keynes' intention is to portray demand failure as the most important cause of recessions and unemployment (Kates, 1997).

Lange (1942) agrees with Keynes regarding Say's law. Lange interprets the law as the "proposition that there is no excess of the total supply of commodities because the total supply of all commodities is identically equal to the total demand for all commodities" (Lange, 1942:149). The common agreement between the two economists is that Say's law rules out recessions and unemployment due to total demand always being equal to total supply. Lange (1942) concludes that Say's law precludes monetary theory and that it is applied in a barter economy where money has no other role beyond being a medium of exchange. During this period, the average price level is indeterminate although prices could be determined (Kates, 1997).

2.3.8 Okun's Law

Okun (1962) observed that each percentage point in the unemployment rate that is above four percent has an association with roughly a 3% decrement in the real gross national product (GNP) from World War II to the 1960s. This percentage eventually becomes what is now known as the natural rate for unemployment. The natural unemployment rate consists of frictional and structural unemployment. However, cyclical unemployment is excluded from the definition (Beggs, 2019). Due to Okun's findings holding up well for the decade that followed, the trade-off with the ratio of three to one between the real gross national product growth (GNP) and the unemployment rate officially became Okun's law (Freeman, 2000).

Okun (1962) stated that the economy experiences a one-percentage-point increase in unemployment for every three-percentage-point decrease in the gross domestic product (GDP) from the long-run level. Alternatively, a three-percentage-point increase in the GDP from the long-run level leads to a one-percentage-point decrease in unemployment (Beggs, 2019). This indicates that unemployment is inversely proportional to the GDP and GNP. There is a concern that this law may not be fit for every country. Okun's law formula is expressed below:

$$\frac{y-y^*}{y^*} = -\beta(u-u^*) \quad \text{.....(2.4)}$$

Where y represents the actual GDP, y^* represents the potential GDP, β is the Okun coefficient, u is the unemployment rate of the current year, u^* denotes the unemployment rate of the previous year, and y-y^* is the output gap. The output gap is the difference between the actual GDP and potential GDP divided by the potential GDP. This is equal to the negative Okun coefficient multiplied by the change in unemployment (Thakur, 2022a). The negative sign on the Okun coefficient represents the inverse relationship between unemployment and the GDP.

2.3.9 Neoclassical Theory

Neoclassical economics focuses on the supply and demand of goods and services as the main driving forces behind pricing, production, and consumption (Kenton, 2021). The theory assumes that consumers perceive a product as being more valuable than the cost of production and that the perceived value of a product depends on the utility of the product. This in turn affects the demand for the product (Gordon, 2022). While classical economics attempts to calculate the value of products as the cost of capital and labour cost, neoclassical theory refutes the idea of product costs.

The argument from the neoclassical view is that consumers attempt to maximise their individual satisfaction and, therefore, consumers make informed decisions by evaluating the utility of the product. This approach coincides with the rational behaviour theory which states that people act rationally when making economic decisions (Gordon, 2022). In other words, competition leads to the efficient allocation of resources within the economy. Consequently, market equilibrium between demand and supply is said to be achieved by the efficient allocation of resources in the economy.

The Classical theory is regarded as one of the oldest theories that investigated unemployment and how to reduce it. To criticize Keynesian theory, the new classical economist Lucas (1972) created a model that assumed that employees rationally form expectations of prices as well as price and wage flexibility. The price flexibility leads to full employment being maintained. Furthermore, within his theory of rational expectations, Lucas (1972) stated that the use of an expansionary monetary policy increases inflation while the economy does not receive any boost.

If individuals in the economy are rational, only changes to the money supply that are unanticipated have an impact on employment. If the changes are anticipated, rational people adjust their price and wage demands in line with what they expect future inflation to be upon the announcement of monetary policy. The result is that the policy only influences inflation rates and prices rather than outputs and employment (Lucas, 1972).

This school of thought argues that employment increases through the downward adjustment of wages (Ogujiuba & Cornelissen, 2020). Additionally, unemployment occurs when wages are kept above market-clearing wages in an economy. From this, the economy has a surplus in labour supplied. The theory also states that a market equilibrium and growth at full employment should be the main priority of the government (Kenton, 2021).

According to Ogujiuba & Cornelissen (2020), new classical economists argue that increases in the quantity of money lead to an increase in the price level. The basis of the argument is through the quantity theory of money, where new classical economists state that an economy is at or near the natural level of real GDP. Therefore, an expansionary monetary policy leads to an increase in money supply, which would lead to price level increases due to the inflationary nature. This view disagrees with main objective of the study with the concern of inflation arising while using the monetary policy.

2.3.10 Neo-Keynesian Economics

Neo-Keynesian economics is a modern school of thought that evolved from classical Keynesian economics (Liberto, 2021). This group of economists share the belief that prices and wages are sticky, implying that prices and wages are slow to adjust during short-term economic fluctuations. Neo-Keynesian economics aims to develop a theory accounting for unemployment, business cycles, and credit rationing to address inconsistencies with standard microeconomic theory (Greenwald & Stiglitz, 1987).

This new Keynesian theory also makes a case for government intervention for market failures triggered by inefficiencies. The use of the expansionary monetary policy is questioned based on the argument that deficit spending promotes saving instead of increasing demand or economic growth (Liberto, 2021). Deficit spending refers to government expenditure that exceeds revenue in a fiscal year. This Keynesian approach to economic stimulus entails the government accumulating debt while spending to create demand and stimulate the economy (Chen, 2021a).

Consistent with Keynesian theory, New Keynesian models demonstrate the existence of involuntary unemployment. However, the models reveal that Keynes's purpose for deficit spending is not served (De Vroey, 2004). These models illustrated that demand expansion in economies did not require the intervention of the state. Additionally, the shirking efficiency wage model presents unemployment as a solution and not a problem. More specifically, unemployment is the solution to the problem of shirking, which is a worker's tendency to do less work when the wage return is smaller. Alternatively, a worker with a higher wage has more to lose if they lose employment, and therefore the worker works with higher effort (Pettinger, 2021b; Campbell, 2018). The objective of encouraging job creation through the repurposing of the fiscal and monetary is put into question. Particularly, deficit spending with the goal of stimulating output does not succeed, based on the findings of Neo-Keynesian economists.

2.4 EVOLUTION OF MONETARY POLICIES IN EMERGING ECONOMIES

Central banks are the regulatory authority in a country preventing a country's banking system from failing. These central banks also have the primary responsibility to provide the currency of the country they represent with price stability by controlling inflation. Central banks are also the sole printer of coins and notes that circulate in the economy and oversee a country's monetary policy (Heakal, 2021).

Central banks conduct monetary policy using regimes that provide a structure, and a set of goals and objectives that aid decision-making. Additionally, monetary policy regimes create a structure that assists in decision-making and makes communicating with the public easier. According to the Czech National Bank (2022), some monetary policy regimes have an implicit nominal anchor. This entails the central bank targeting a specific nominal variable internally within the central bank without announcing the nominal anchor explicitly. This regime succeeds if the central bank has high credibility, enabling the changes desired in inflation to be achieved without explicit targets. The commonly used monetary policy regimes include monetary targeting, exchange rate targeting, inflation targeting, and credit ceilings.

Monetary targeting is a monetary policy regime that involves the central bank managing the monetary aggregates as the intermediate target to influence the main objective of achieving price stability. While an inflation target may not be announced, central bank intervention is placed primarily on the money market. The central bank sets interest rates to control the monetary aggregates in the economy, and these aggregates are also seen as the main determinants of inflation in the long run (Carbonari, 2009). Controlling these monetary aggregates is the equivalent of stabilizing the inflation rate around a target value. A problem arises with the choice of the monetary aggregate to target. Due to market computerization, financial innovation, and globalization, the relationship between general price levels and monetary aggregates continues to weaken (Czech National Bank, 2022). There is a possibility that a central bank can fail to manage the selected monetary aggregate with the right amount of precision.

Exchange rate targeting as a monetary policy regime entails the central bank intervention in the market mechanism with the objective of maintaining the exchange rate at a desirable level (Haughton, 2017). This is achieved by a central bank using its net international reserves to alter the supply of a currency, keeping the currency exchange rate fixed. However, monetary policy is limited as it is only directed towards the exchange rate, implying that the central bank's ability to react to domestic or external shocks is constrained. Additionally, a major disadvantage of this monetary policy regime is that monetary policy may lose its autonomous nature. Instead, central banks opt for a flexible exchange rate as the intermediate target for monetary policy. In developing economies, the conditions of maintaining a fixed exchange rate have become more demanding, resulting in pressure to transition from a fixed exchange rate to a more flexible arrangement as a nominal anchor (Croce & Khan, 2000).

Central banks utilize inflation targeting monetary policy regime by publicly announcing an inflation target that is to be achieved and maintained (Czech National Bank, 2022). By committing to obtaining low inflation, the central bank and government begin this framework with the process of announcing a quantitative target for a particular period (Croce & Khan, 2000). The central bank will be responsible for achieving this target and it is important to regularly provide public information about the strategy and decisions made. By committing to transparency with the public, uncertainty over the future direction of monetary policy is reduced while also boosting the central bank's accountability and credibility. When an inflation target is set, various factors and macroeconomic developments are considered. Such factors also include the social loss that may result from the trade-off between inflation and economic growth (Juhro & Rummel, 2022). Additionally, the inflation target considers not only the annual short term but the medium and long term as well. Central banks use the official interest rate as the policy instrument and open market operations as the tool to achieve the desired inflation rate.

According to Parkin *et al.* (2012), the objectives of inflation targeting are to clearly state the goals of monetary policy publicly, to establish a framework of accountability, and to keep the inflation rate low as well as to keep a high and stable level of employment. During implementation, authorities need to decide which measure of inflation to use. The choices are between the GDP deflator and the CPI. The GDP deflator is a more appealing measure as it fully reflects domestic inflation.

The monetary policies and the tools used in the various emerging economies may display varying relationships between the independent and dependent variables in this study. It is important to explore monetary policy regimes that emerging economies' central banks may have been using over the sample period between 1980 and 2020. The regime could help in the attempt to find an explanation for why certain variables have particular relationships in random periods within the stated timeframe. The table below displays the evolution of monetary policy regimes from 1980 to 2020.

Table 2.1: Evolution of monetary policy regimes in emerging economies since 1980-2020

Types of Monetary Regime		**Countries**	**Period**
1.	Exchange rate Targeting	Brazil	1980 - 1985
		Chile	1980 - 1990
		China	1980 – 2020

		Egypt	1980 – 2002
		Hungary	1980 – 1994
		Indonesia	1997 – 2004
		Malaysia	1980 - 2020
		Mexico	1980 - 1994
		Nigeria	1987 – 2020
		Philippines	1980 – 1984
		Saudi Arabia	1980 – 1998
		South Africa	1980 - 1985
		Thailand	1997 - 1999
		Turkey	1980 - 2001
2.	Monetary Aggregate Targeting	India	1985 - 2015
		Indonesia	1988 – 1996
		Philippines	1985 – 2001
		South Africa	1986 – 1999
3.	Credit Ceilings	Indonesia	1980 – 1983
		Nigeria	1983 - 1986
4.	Inflation Targeting	Brazil	1999 – 2020
		Chile	2000 – 2020
		Colombia	2001 – 2020
		Egypt	2005 – 2020
		Hungary	2001 – 2020
		India	2016 – 2020
		Indonesia	2005 – 2020
		Mexico	2000 – 2020
		Philippines	2002 – 2020
		South Africa	2000 – 2020
		Turkey	2002 – 2020
5.	Combination of Exchange rate or Inflation or Monetary Aggregate targeting	Colombia	1993 – 1998
		Mexico	1995 – 1999
		Nigeria	1980 - 1981
		Saudi Arabia	2000 – 2020
		Thailand	1980 – 1996
		Thailand	2000 - 2020

Source: *Monetary Frameworks (2017a), Monetary Frameworks (2017b), Monetary Frameworks (2017c), Monetary Frameworks (2017d), Monetary Frameworks (2017e), Monetary Frameworks (2017a), Monetary Frameworks (2017a), Monetary Frameworks (2017f), Monetary Frameworks (2017g), Monetary Frameworks (2017h), Monetary Frameworks (2017i), Monetary Frameworks (2017j), Monetary Frameworks (2017k), Monetary Frameworks (2017l), Monetary Frameworks (2017m), Monetary Frameworks (2017n), Monetary Frameworks (2017o), Monetary Frameworks (2017p), Monetary Frameworks (2017q), Monetary Frameworks (2017r), Monetary Frameworks (2017s).*

Most emerging economies have opted to use a monetary policy that places emphasis on maintaining price stability as well as different secondary objectives through inflation targeting. Emerging economies such as Brazil, Chile, Colombia, Egypt, Hungary, India, Indonesia, the Philippines, South Africa, Thailand, and Turkey have all used a monetary policy focusing on inflation targeting for the past 15 years (Banco Central de La Repulica Argentina, 2021; Banco Central do Brasil, 2022; Central Bank of Chile, 2020; Central Bank of Colombia, 2019; Central

Bank of Egypt, 2016; Daily News of Hungary, 2022; Reserve Bank of India, 2022; Bank Indonesia, 2020; Central Bank of the Philippines, 2019; Garlach, 2022; Bank of Russia, 2022; South African Reserve Bank, 2022; Banchongduang, 2022; Central Bank of the Republic of Türkiye, 2022).

Mexico uses exchange rate monitoring but has added inflation control within its monetary policy toolkit (Mexico Projects, 2021). Currently, only Malaysia, Nigeria, and Saudi Arabia prioritize exchange rate targeting instead of inflation targeting (Monetary Frameworks, 2017). China attaches priority to price stability. However, three other objectives are included, viz., economic growth, employment promotion, and the maintenance of the balance of payments equilibrium, all sharing equal priority (Jones & Bowman, 2019).

While the Global recession of 2008-09 presented emerging economies with a major hurdle to overcome, the countries weathered the recession well due to large global policy support. The support included the implementation of monetary and fiscal stimulus in the two years that followed. Central banks of emerging economies lowered interest rates and the governments implemented fiscal packages that included tax cuts and infrastructure investments (Kose & Ohnsorge, 2020). However, the decade that followed the Global recession of 2008-09 is filled with weakness in the global economy. Commodity prices falling, paired with tightening policies amid resource revenues collapsing dampened the growth of emerging economies that relied on commodity exports.

The growth of emerging economies seriously slowed down between 2011 to 2016 which resulted in these nations struggling to properly utilize the fiscal and monetary stimulus (Kose & Ohnsorge, 2020). Emerging economies were faced with an additional hurdle with the arrival of Covid-19 in 2020. The response was the implementation of easing monetary and fiscal policies which have complemented each other in supporting the flow of aggregate demand and credit (Aguilar & Cantu, 2020).

2.5 SUMMARY

This chapter presents the theoretical literature review on the efficacy of fiscal and monetary policy in fostering job creation. The chapter introduces and defines the key concepts of the chapter, viz., monetary policy and its tools; fiscal policy and its tools; the unemployment rate, as well as all types of unemployment including underemployment. The chapter also discussed theories that the current study is founded on. Among others, classical economists raise the concern of inflation that may arise from an increase in an economy's money supply. Hence,

these economists advocate for minimal government interference in an economy. The classical view on fiscal policy is similar and their preference is for an autonomous, free market.

Keynesian economists emphasise the importance of aggregate demand being the driving force in the economy. The belief is to utilize monetary policy, particularly the interest rate, to stimulate economic activity. Keynesians advocate for government fine-tuning to keep the economy at full employment. This fine-tuning may include increased government spending and the efficient use of tax revenue. Monetarists followed with a similar concern for inflation just like classical economics that preceded them. Their concern also highlights increased money supply leading to a rise in the price level.

The chapter also covered the discussion of different monetary policy regimes, viz., regimes with implicit anchors, monetary targeting, exchange rate targeting, and inflation rate targeting. Different monetary policy frameworks and regimes used by each emerging economy between 1980 to 2020 and the overall performance of emerging economies in the past 15 years were discussed.

CHAPTER THREE: EMPIRICAL FRAMEWORK

3.1 INTRODUCTION

This chapter reviews existing literature looking at how effective fiscal and monetary policies are in creating jobs in different countries in the world. The chapter begins with a review of empirical studies that analyse the relationship between tax revenue and the unemployment rate. Following this, the study conducts a literature review on the relationship between government expenditure and unemployment. The chapter also reviews the literature on whether a relationship exists between public debt and unemployment. The chapter further explores studies that use both fiscal and monetary policy tools to combat unemployment. The effect of the exchange rate on unemployment is also included as a monetary policy that may indirectly affect unemployment. Foreign direct investment's (FDI) effect on unemployment also forms part of this literature review. It is believed that more jobs may be created through FDI, therefore governments could encourage foreign investors in their respective economies.

3.2 EMPIRICAL LITERATURE

3.2.1 The Effect of Tax Cuts on Unemployment

Many scholars investigated the relationship between fiscal policy and monetary policy with unemployment. Some of the studies examine the effects of each policy on unemployment separately while others investigate the combined effect of fiscal and monetary policies on unemployment. The use of a fiscal policy tool such as taxation displays varying levels of success toward combatting unemployment in different countries. Some governments implement tax cuts while other governments increase tax rates.

Different studies covered in this literature review show different effects that tax has on unemployment based on different methods of tax implementation. According to Garsous *et al.* (2015), a tax reduction program created 34% more jobs in 2009 than in previous years in Brazil. Particularly, 1 out of 4 jobs created in the Brazilian tourism industry are the result of fiscal policy in the country. The researchers used the difference-in-difference method to conduct the analysis. Brazilian municipalities' levels of unemployment before and after the introduction of tax credits were used for the comparison.

Other studies indicate that tax may not have a large effect on job creation. This is seen in a study by Adams and Gangnes (2010), which aimed to explore job creation through fiscal policy in the USA. The study analysed the American Recovery and Reinvestment Act (ARRA), which

was implemented with the intention of creating jobs in the USA economy. Fiscal policy is observed to have a positive contribution toward job creation in this case. The researchers also find that specific federal spending on government consumption and investment results in a much larger impact on employment than the impact of tax cuts.

A study by Heylen and Kerchove (2010) reiterated that tax cuts affect job creation, however, the effect is weak. The study investigates the fiscal policy and its effects on employment by age within OECD economies. Based on a four-period OLG model for small open economies, the results reveal that the reduction of non-employment benefit generosity along with labour tax cuts have the largest effects on employment. However, capital tax cuts and labour benefit tax cuts only have limited positive effects on employment. Most studies use tax revenues as a fiscal policy tool in their analysis rather than tax cuts.

3.2.2 The Effects of Tax Revenue on Unemployment

Dating back to the ideas of Keynesian economists, economic policy has the power to generate employment Keynes (1936). Through the use of taxation and government expenditure. A study conducted by Godslove and Wobilor (2016) intended to find the effect of fiscal policy on unemployment in Nigeria. The researchers used co-integration and the error correction model (ECM) with the dependent variable being the unemployment rate. The chosen independent variables include the government's tax revenue; government expenditure, and government debt stock. Government tax revenue is the only tool that is found to have a positive relationship with unemployment. This means that as the Nigerian government collects tax revenue, unemployment rises in the country.

The same results are seen in a study based in Egypt by Omran and Bilan (2020), which evaluated the impact of the fiscal policy on the unemployment rate in the country. While investigating the data from 1976 up until 2018, the researchers use the structural vector autoregressive model (VAR) with five independent variables. The results indicate that increases in the Egyptian government's tax revenue increase the unemployment rate. This is an interesting result as tax revenue assists governments in financing investments in infrastructure which may facilitate job creation, the investment in human capital, and the provision of public services for the country's citizens (World Bank, 2022).

The two studies from Nigeria and Egypt indicating that unemployment rises with tax revenue sheds light on the potential misuse of the tax revenue by governments or that this specific fiscal policy tool is not effective in fostering job creation. The studies further indicate that an increase

in government spending leads to a decrease in unemployment. Perhaps government expenditure can be the main fiscal policy tool to be implemented as the two studies above suggest. The other two fiscal policy tools used other than tax cuts, namely government expenditure and government debt stock, display a negative relationship with unemployment in Nigeria. In other words, the increase in these fiscal policy tools leads to an increase in employment in the country.

3.2.3 The Effects of Government Expenditure on Unemployment

Studies in recent years investigate the idea of government expenditure generating employment and have obtained contrasting results. A study by Holden and Sparrman (2011) displayed similar results to Omran and Bilan (2020). The study performed a panel data study using 20 OECD countries to identify whether government purchases have any effect on unemployment. This study has the advantage of covering many countries in comparison to other studies that looked at the effect of government spending on unemployment. Investigating the effect of government spending on unemployment in 20 countries over 47 years allows the comparison of the impact in different economic and political circumstances. The results show a statistically significant dampening effect of government purchases on unemployment among the OECD countries. Additional evidence further shows the effectiveness of government spending. This is seen in the study by Fakhri *et al.* (2022), who investigated the impact of fiscal policy on non-oil GDP in Saudi Arabia. While the study investigates the GDP as a whole, there are interesting effects on job creation. The methodology used includes the extended production function framework with non-oil GDP being the dependent variable, whereas the independent variables include the Saudi Arabian government's current and capital expenditures. The results indicate that government expenditure may indirectly have a much larger positive impact on job creation if the government focuses on the development of human capital and education.

Murwirapachena *et al.* (2013) focused on the relationship between fiscal policy and unemployment in South Africa. For estimation, the study uses a VAR with the independent variables being tax, government consumption spending, and government investment spending. The study's findings reveal that both tax and government consumption expenditure have a positive impact on unemployment while government investment expenditure has a negative impact on unemployment. Additionally, the study recommends that South Africa reduce the corporate tax rate to rates like those seen in OECD economies to encourage investment. The recommendations also suggest that the reduction of personal income tax rates raises the marginal propensity to save and consume by households, which eventually lowers

unemployment. Government spending seems to be an effective fiscal policy tool to reduce unemployment based on the number of reviewed studies showing a negative relationship with unemployment.

There are studies that obtain contrasting results to the Keynesian view. The results indicate that government expenditure increases unemployment. Keynesian economists refer to infrastructure expenditure as the most productive. This creates the idea that not all types of government expenditure can create employment. A study by Nepram, Singh, and Jaman (2021) found a positive and significant relationship between all types of government expenditure and unemployment using panel data from different states in India. The study recommends implementing a policy geared toward improving the productivity of government expenditure by cutting unproductive expenditures.

The positive relationship is also observed in a study by Obisike, Victoria, Nkechi, and Ezinne (2020) in Nigeria between 1981 and 2016. The study reviews the impact of social government expenditure on unemployment, specifically recurrent expenditure on health, education, and capital expenditure on health and education. The results show that recurrent and capital government expenditures are not statistically significant and display positive relationships. This study also places emphasis on the proper utilization of government expenditure. A positive relationship can also be seen between government expenditure and unemployment in Kenya, in a study by Gachari and Korir (2020), covering the period from 1986 to 2017. Based on multiple regression estimation techniques, tax revenue, and government expenditure are found to have the same positive relationship with unemployment. An explanation for the absence of the expected effect on unemployment could be the misallocation of funds or corruption practices. Potentially by ensuring that government expenditure reaches the destinations it is meant for, unemployment falls.

The positive relationship is also explained by government expenditure not having an immediate effect on unemployment as seen in a study by Fosu (2019). The study analyses the relationship between government expenditure and unemployment in Sub-Saharan countries from 1990 to 2017. Making use of the panel data analysis, the study finds a positive relationship between government consumption expenditure and unemployment. The reason for the relationship is that this type of spending consists of the purchases of goods and employee compensation. Hence, any effect on unemployment may not be immediate. An inverse relationship is also discovered between government investment expenditure due to the immediate effects this expenditure has on the labour market. Based on this evidence, governments should focus on

investments or infrastructure expenditures that can directly increase jobs. In a different study by Obayori (2016), government expenditure is seen as an effective tool in reducing unemployment in Nigeria. The study analyses the relationship between the fiscal policy between 1980 and 2012 with the co-integration test as the chosen statistical tool. This relationship can be attributed to the value this expenditure has in developing the economy. This emphasizes the need for the government to target infrastructure with public expenditure as jobs are created during projects and there is potential for the completed infrastructure to create jobs for maintenance.

Saraireh (2020) attempted to estimate the effect of government expenditure on unemployment in Jordan between 1990 and 2019. Using the ARDL technique, the study finds a negative relationship between government spending and unemployment. This is seen if the government focuses its spending on infrastructure, health, and education. A similar inverse relationship is observed again in some African countries in a study by Onuoha and Agbede (2019). The study used the generalised method of moments estimation technique to find the impact of disaggregated public expenditure on unemployment among 20 African countries between 2000 and 2017. The results show that education expenditure has an inverse relationship with unemployment while defence and health expenditure increase the unemployment rate. The defence and health expenditure could have been ineffective in decreasing unemployment because unemployment itself leads to even more crime. This is due to the unemployed taking on illegal activity to provide for themselves and their families.

3.2.4 The Effect of Public Debt on Unemployment

Governments could use public debt to fund developmental expenditure to curb unemployment. Perhaps such expenditure could create employment in different stages. Job creation from the construction of infrastructure funded by development expenditure and eventually operation and maintenance. This is contingent on public debt being channelled into such expenditure. Multiple studies have attempted to investigate whether this relationship exists. A study by Iwuoha (2020) investigated whether public debt could rescue Nigeria from rising unemployment. The study used a vector error correction model (VECM) to analyse data from 1981 to 2019. The results showed that public debt fails to assist in reducing unemployment in that country. A different study by Ogonna *et al.* (2016) in Nigeria between 1980 and 2015 also aimed to evaluate the relationship between public debt and unemployment. The study chose to use ARDL and concluded that public debt has not achieved its desired effect in the country. It found that increases in public debt did not reduce unemployment. This can be attributed to the

obstacle of implementing new development projects when the debt is being used to service previously existing debts.

Another study based in Nigeria by Gwazawa, Mukhtar, and Abdullahi (2021) investigated not only the impact of public debt on unemployment but also the impact of inflation on unemployment from 1985 to 2021 using the ARDL and Error Correction Model (ECM) for the analysis. The study found the same result as the other public debt studies in Nigeria by showing a positive relationship with unemployment. All three studies refer to corruption in the economy leading to the inefficient use of public debt. The absence of corruption could lead to public debt being more effective in combatting unemployment and the presence of a negative relationship. Governments should be more transparent about how public debt is spent to ensure more efficient allocation.

A study by Hassan and Nasser (2015) aimed to find the relationship between debt and unemployment in France, England, Greece, Germany, Spain, Portugal, Italy, Ireland, and the USA. Using the time-series model, the results obtained were like the aforementioned three Nigerian studies. The relationship between debt and unemployment is found to be positive in these countries. According to the studies covered, public debt has not been helpful in curbing unemployment. However, there is a study that recommends the use of external debt due to its efficacy. A study by Cahyadin and Ratwianingsih (2020) conducted in Indonesia, Malaysia, Thailand, and the Philippines between 1980 and 2017 using the ARDL and ECM to investigate the relationship found that external debt can decrease the unemployment rate if managed well.

3.2.5 The Effect of Monetary Policy Tools on Unemployment

Fiscal policy could be paired with monetary policy to establish the effect on unemployment. Attamah, Anthony, and Ukpere (2015) included both fiscal and monetary policy tools to investigate the effect on unemployment in Nigeria between the years 1980 to 2013. The fiscal policy tools include the Nigerian government's revenue and government expenditure. The three monetary policy tools are the interest rate, money supply (M2), and the exchange rate. Using the ordinary least squares (OLS) analysis method, the results indicated that government expenditure has a positive relationship with unemployment while government revenue has a negative and insignificant relationship with unemployment in Nigeria. Monetary policy, on the other hand, indicates that the exchange rate and money supply to have a positive and significant relationship with unemployment. The interest rate also has a positive relationship with unemployment but is not statistically significant. The study indicated that fiscal and monetary

policies are mostly ineffective in combatting unemployment, instead, the GDP should be targeted to influence unemployment.

A similar recommendation was made in a study by Benazić and Rami (2016) that focused on the monetary policy and unemployment in Croatia. The study made use of the bounds testing approach for the co-integration of time series to determine the impact of monetary policy on unemployment, providing insight into a country with a low unemployment rate such as Croatia. The variables used are the unemployment rate, the consumer price index, the money supply, and the real effective exchange rate. The findings show that money supply has an insignificant effect on unemployment in both the short and long-run, which disagrees with the monetarist theory that the quantity of money influences unemployment. The study also finds that the depreciation of the Croatian currency causes unemployment. However, this depreciation should allow exports to increase, leading to a rise in GDP and a decrease in employment as a result. The study also finds that increases in prices lead to an increase in unemployment in the long-run while a decrease in unemployment occurs when the prices increase in the short-run. However, the study finds the effect to be insignificant.

According to Lesetja Kganyago, the South African Reserve Bank governor, as cited in T*imes Live* (2017), unemployment is not the responsibility of the central bank, arguing that its addition to its mandate would damage the bank's credibility. This may explain why monetary policy is ineffective in combatting unemployment. A similar finding is obtained in a study conducted by Camargo and Cortez (2011), which attempted to investigate the fluctuations in unemployment caused by monetary policy in Mexico. The model made use of three variables, namely unemployment, monetary policy, and the output gap. Using the structural VAR model, the results indicated that the Mexican labour market is fluid as the monetary policy initially reduces unemployment only to eventually rise later. The overall effect of monetary policy on unemployment was found to be low, which could be the result of institutional rigidity and a large informal sector within the country.

Contrary to this, there are studies showing that monetary policy has large effects on unemployment. The current study draws from these studies and includes monetary policy to evaluate its impact on unemployment in the emerging economies context. Ekwe (2018) investigated the effect of monetary policy on unemployment in Nigeria, with the objective of finding ways to reduce poverty in the country through the monetary policy. The econometric model included the unemployment rate as the dependent variable while the treasury bill rate, the exchange rate, the money supply, and the interest rates are the independent variables. The

chosen estimation procedure is the co-integration analysis along with the error correction model (ECM). The findings revealed that money supply and the treasury bill rate have a positive relationship with unemployment in the country. Additionally, it is indicated that negative relationships between the monetary policy and exchange rates exist with unemployment. The study concludes that a decrease in the repo rate leads to an increase in the unemployment rate.

Sunday *et al.* (2016) also investigated the potential dynamic relationship between monetary policy and unemployment in Nigeria. The VAR is used for analysis due to its efficiency in forecasting and describing dynamic behaviour in economic time series. The variables used are the unemployment rate, monetary policy rate, change in money supply, and change in investment. The study finds a bidirectional causality relationship between unemployment and monetary policy. In more detail, the use of the interest rate in the monetary policy leads to an impact on unemployment in Nigeria. Veselinovic (2020) examined the effect of monetary policy and inflation on unemployment in Serbia. Using the Johansen VAR co-integration test, the model includes unemployment as a dependent variable and the key policy rate as well as the inflation rate as independent variables. The results indicated a significant impact of the inflation rate on unemployment while the key policy rate is insignificant in the long term. Additionally, the study recommended stimulating interest rates to induce positive changes in Serbian unemployment. A further three studies (Ekwe, 2018; Sunday *et al.*, 2016; Veselinovic, 2020) all pointed toward monetary policy fostering job creation.

Engler (2011) analysed the relationship between monetary policy and unemployment in open economies such as Germany and the USA. The study adopted the New Keynesian model with a two-country open economy. However, monopolistic competition has been included in the goods and the labour market (Engler, 2011). The study also used the markup in the labour market to determine unemployment and also models monetary policy as a standard Taylor rule. The rule guides central banks on interest rate adjustments in response to economic conditions, viz., unemployment and inflation. Named after the economist John Taylor, the rule set the goal of stabilising the economy in the short term and fostering growth in the long term by setting judicious interest rates (Gordon, 2023). The finding indicated that when there is an expansionary monetary policy shock in these countries, growth in the labour force demand occurs. In addition to this, the reduction of unemployment increases the utility of the workforce.

Altavilla and Ciccarelli (2009) examined the effects of the monetary policy on various unemployment dynamics under uncertainty in the USA and Europe. The inclusion of

uncertainty in the model is done to make the results more reliable, since not taking this aspect into account may lead to misleading conclusions. The authors of the study use a range of Bayesian models which would account for the uncertainty as well as simple linear autoregressive models with slight differences in uncertainty. The findings show that a monetary policy shock is less important than structural shocks to explain unemployment dynamics with the average responses to unemployment being similar in the USA and Europe. Altavilla and Ciccarelli's (2009) study found a minimal effect of monetary policy on unemployment in multiple economies compared to Engler's (2011) study, which was also conducted in more than one economy.

A study by Alexius and Holmlund (2007) investigated the relationship between the unemployment rate and monetary policy in Sweden with the use of two sets of variables labelled as exogenous and endogenous. The endogenous variables include unemployment rate, monetary policy, and the domestic output gap. The exogenous variables incorporate foreign output gap, productivity shocks, and structural budget deficit. Using a structural VAR model, results reveal that shocks to the monetary policy are responsible for 22% to 35% fluctuations in unemployment with 30% of these effects remaining for the decade that follows. This study shows that monetary policy shocks have a larger impact on unemployment than the aforementioned Altavilla and Ciccarelli's (2009) study.

Potentially, the negative relationship between money supply and unemployment is explained by the availability of more money in those economies allowing job creation to take place. The relationship that may exist between the interest rate and unemployment could be explained by the reduction of the real interest rate unlocking money in the economy to increase job opportunities (Pettinger, 2019a). The significant impact on the inflation rate in the Serbian study (Veselinovic 2020) discussed previously indicates a potential relationship that may exist with unemployment. While the South African Reserve Bank Governor Kganyago, as cited in *Times Live* (2017), stated that the central bank should not be responsible for unemployment, central banks' targeting of inflation may indirectly affect unemployment.

The attempt to stimulate job creation using the monetary policy may come with the risk of inflation from a sustained increase in the money supply in an economy. Two studies display two different views on inflation. A study by Wen (2011) analysed the effects of an increased monetary base on unemployment in both the short-run and long-run in the USA. The analysis used different tools in two studies and found that they all have similar outcomes. In one study, the author took the monetary base above the average rate and the monetary base below the

average over a 57-year period and split the two into their respective columns. The method in one of the studies investigates the 1% increase in the monetary base in comparison to unemployment over a 60-year period. The results from the 57-year study revealed that economic growth is higher in the years below the average rate (Wen, 2011). The resulted also indicated that there is nearly no impact on unemployment when there is a continuous increase in the monetary base by 1% in the short-run. However, unemployment increases significantly in the long-run (Wen, 2011). This happens because the continual increase in a monetary base will increase inflation, which, in turn, will be counter-productive by increasing unemployment rather than decreasing it in the long run.

A similar opinion of inflation by a European study investigated the relationship between monetary policy and unemployment. The central bank in Germany implemented changes in the interest rate to deal with the rising inflation at the time (Schettkat & Sun, 2008). The study revealed that monetary policy affects the economy both in the short-run and long-run. Unemployment and skill depreciation need to be addressed as the study indicates that the phenomenon becomes difficult to reduce after long-lasting high unemployment. This study provided support for an expansionary monetary policy to prevent high unemployment. This is in line with Stiglitz's (1997) study in the sense that a lack of intervention by the central bank has long-lasting costs. Finally, it was indicated that a monetary policy that constrains economic activity a lot less would have a significantly reduced effect on unemployment in Germany (Schettkat & Sun, 2008). Monetary policy can therefore be used to target both inflation and job creation.

Gali (2010) expanded the new Keynesian model by including multiple variables to portray money supply. Gali (2010) used a Taylor-type interest rate rule to describe the monetary policy and the results of the study indicate that the policy was optimal. The policy being optimal means that there are changes in the stability of prices and, as a result, real wages become real shocks. The study also provided evidence that monetary policy can respond to both inflation and unemployment. This study may not have the exchange rate as an explanatory variable, but it is important to investigate whether the exchange rate influences job creation.

3.2.6 The Effects of Exchange Rate Fluctuations on Unemployment

Some monetary policies aim to influence the value of their currencies and have control over exchange rates alongside targeting an inflation rate. The fluctuations seen in the exchange rate may have an influence on unemployment. A study by Bakhshi and Ebrahimi (2016) aimed to

find the effect of the real exchange rate on unemployment in Iran. The study used an ARDL model to analyse the relationship based on annual data covering the period between 1981 and 2012. The results demonstrated that GDP has a positive effect while the exchange rate has a negative effect on unemployment. Another study found a similar result in Malaysia. Shaari, Hussain, and Rahim (2013) tried to assess the effect of oil price changes and exchange rate volatility on unemployment. The study used monthly data from 2009 to 2011 with Johansen co-integration as the estimation technique. The results confirmed the existence of a long-term relationship between the variables. It also stated that the exchange rate has a short-term relationship with the unemployment rate. In more detail, the study determined that fluctuations in the exchange rate also lead to a rise in unemployment. The study recommended that the exchange rate to be regulated for the country to achieve more control over unemployment.

A study conducted by Ngiik *et al.* (2021) included the unemployment rate as an independent variable alongside government spending and the exchange rate to review the effect on economic growth. Employing data from 1988 to 2017, the study uses a VECM-based Granger Causality test which revealed that all the variables have a unidirectional causality with economic growth in the short run. By ensuring that the exchange rate remains under control, the economic environment would remain stable and conducive to economic growth and potentially reduce unemployment.

The exchange rate effect on unemployment was also observed in a study based in Nigeria conducted by Adzugbele *et al.* (2020). The study investigated the relationship between the exchange rate and unemployment from 1983 to 2015. The ARDL bounds testing approach was selected as the method to analyse the data. The results indicated that the depreciation of the exchange rate leads to an increase in the unemployment rate in Nigeria in the short and long run. According to Adzugbele *et al*. (2020), this effect is explained by the country's over-reliance on crude oil exports. Due to the currency exchange rate being volatile, a devastating effect would be felt by Nigerian manufacturers who import raw materials. The manufacturing sector would be unable to handle these shocks which may lead to unemployment. A study by Jeelani (2019) in India also investigated the impact of exchange rate volatility on unemployment. The study employed an ordinary least square model looking at the period between 2005 and 2015. The results showed that exchange rate uncertainty affects unemployment rate adversely in India. Similarly, Adzugbele *et al.* (2020) indicated that importing companies are negatively affected by exchange rate volatility and unemployment may arise.

The negative effects of exchange rate shocks on unemployment are also seen in Nigeria in a study conducted by Raji (2019). The study aimed to investigate the interaction between the real exchange rate and inflation with unemployment using quarterly data from 2003 to 2018. The study uses the Generalized Method of Moments estimation technique to avoid endogeneity among the explanatory variables. The results reveal that inflation and a depreciation in the real exchange rate have a harmful impact on unemployment. Policymakers in Nigeria are recommended to strive for a moderate level of inflation as the results suggest that achieving low and stable inflation may be instrumental in allowing exchange rate depreciation to reduce unemployment. A study by Semosa and Ogujiuba (2020) investigated the nexus between the exchange rate, unemployment, and inflation in South Africa using a Johansen co-integration test and VECM technique. The paper uses quarterly data during the period from 1994 to 2018. The results reveal that inflation had a negative relationship with unemployment, which is in line with the Phillips curve framework. The relationship between the exchange rate and inflation is found to be positive. The authors explain that a weak rand in the forex market only intensified inflation in South Africa during the period under study. The country's dependency on imports, especially intermediate goods, negatively impacts domestic businesses due to a weak rand.

The reliance on imported intermediate and manufactured goods by South Africa was explained further in a study by Van Dyk (2014). The study analysed quarterly data between 2003 and 2013 using the VECM as well as variance decompositions to determine the short-run and long-run impacts of the exchange rate on unemployment. The study found that the real exchange rate has a positive relationship with unemployment in the long-run, meaning that currency depreciation increases the unemployment rate. The study attributed this finding to the decrease in imports, leading to a reduced inflation rate due to low imports. It is assumed that the inflation rate increases because of higher costs of imports. The short-run relationship shows a conflicting result. The exchange rate is found to have a negative relationship with unemployment meaning, a depreciation in the currency reduces the unemployment rate in short-run. El-Amin and Al-Zu'bi (2022) investigated the effect of the real exchange rate and other macroeconomic variables on unemployment in the Moroccan economy. The paper analysed annual data for the period 1991 to 2016 using the ARDL model. The results revealed that a depreciation of the Moroccan domestic currency increases unemployment in the short-run and long-run. Additionally, the study also found that a rise in the inflation rate would also increase

unemployment in Morocco in the long-run. It is important to maintain the inflation rate at stable levels to avoid a rise in unemployment rate.

Usman and Elsalih (2018) tested the effects of the real exchange rate on unemployment in Brazil covering the period from 1981 to 2015. Using ARDL model, the results reveal that the pass-through effect of the real exchange rate appreciation is lower than the depreciation. In other words, the unemployment rate rose to a lesser extent due to domestic currency appreciation compared to depreciation. There is also evidence from studies where regulating exchange rate is found to be ineffective in fostering job creation. A study by Akarsu (2020) investigated the relationship between unemployment, the exchange rate, and exchange rate volatility in Turkey. The study analysed quarterly data between 2005 from 2019 and made use of the VAR analysis to solve the endogeneity problem. The exchange rate was not found to have a significant effect on unemployment as the labour market is not responsive to changes in exchange rate. As a result, expansionary monetary policy is ineffective when attempting to encourage labour demand growth.

3.2.7 The Effects of Foreign Direct Investment (FDI) on Unemployment

Foreign direct investment (FDI) encouragement is considered a strategic policy that would boost the GDP and reduce unemployment rate. The FDI serves as an additional method to fiscal and monetary policies to boost job creation in an economy. Multiple empirical studies provide evidence of an inverse relationship between FDI and unemployment. A study by Johnny, Timipere, Kroekme, and Markjackson (2018) investigated the impact of the FDI on unemployment in Nigeria covering the period from 1980 to 2015. Using the Johansen co-integration test to examine the long-run linear relationship, the results showed that foreign direct investment has a negative relationship with the unemployment rate. Therefore, an influx of FDI into the Nigerian economy would reduce unemployment.

Bayar and Sasmaz (2017) investigated the relationship between FDI and unemployment in 21 emerging economies covering the period between 1994 and 2014. The countries included Brazil, Chile, China, Colombia, Czech Republic, Egypt, Greece, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Peru, Philippines, Poland, Qatar, Russia, South Africa, Thailand, and Turkey. Using the Westerlund-Durbin-Hausman co-integration test for analysis, the results provided evidence that FDI inflows positively affect unemployment. The results, however, showed a negative effect of FDI on unemployment in Colombia, Mexico, and Russia. The positive effect was observed in Brazil, China, the Czech Republic, India, Korea, Poland,

Thailand, and Turkey. No significant effect on unemployment was obtained in the remaining countries. Additionally, from this data, a higher share of Brownfield investments, which consisted of acquisitions, led to a positive impact on unemployment.

Using a sample of countries with a higher share of brownfield investments, Mkombe *et al.* (2020) investigated the effect of FDI on youth unemployment in the Southern African Development Community (SADC) from 1994 to 2017. Using the Feasible Generalized Least Squares technique for the analysis, the results indicate that Brownfield has no significant effect on unemployment. The study explains that Brownfield investment has less employment creation capacity than Greenfield investments. Therefore, the governments in the SADC region should attract more Greenfield investments for FDI to have a reducing effect on unemployment.

Mustafa and Nessa (2020) investigated the impact of FDI on unemployment among Middle East and North Africa countries namely, Egypt, Jordan, Lebanon, Morocco, Tunisia, and Turkey due to the prevalence of high unemployment in the region. The study uses panel data between 1990 to 2018 and also differentiates between the long-run impact of FDI on unemployment, male unemployment, and female unemployment with the use of the Random Effect Model and Fixed Effect Model. Additionally, the panel VAR model is employed to find the short-run causal relationship. The results reveal that the FDI reduces unemployment in the long term. However, the causal relationship between FDI and unemployment is absent. The study suggests that policymakers need to attract FDI to combat unemployment. Along the same line, Karimov *et al*. (2020) investigated the relationship between FDI and unemployment in Turkey from 1980 to 2017. Using the Granger causality test, the results revealed that FDI decreases unemployment rate. The authors labelled FDI as crucial for the Turkish economy.

Chella and Phiri (2017) investigated the relationship between domestic investment, FDI, and unemployment in South Africa using data for the period 1970 to 2014. Using ARDL estimation technique, the results provided additional support for governments to create conducive economic environments beneficial for domestic investment to thrive and reduce unemployment. This can be done by keeping inflation low to attract investment. With that said, FDI was not found to have a direct impact on reducing unemployment. FDI flows need to be directed toward improving labour market conditions.

Irpan, Saad, Nor, Noor, and Ibrahim (2016) emphasised the importance of FDI in the Malaysian economy. Employing data from 1982 to 2012 and ARDL lags for the analysis. The authors established that FDI and foreign workers have significantly reduced the unemployment rate.

The authors recommended that Malaysian policymakers should prioritise attracting the kind of FDI that leads to a reduction in the unemployment rate.

Most of the literature reviewed investigates the effect of monetary policy or fiscal policy in isolation. The combined effect may present a larger impact on job creation. Therefore, this study addresses this gap by analysing the combined effect of both monetary and fiscal policies on unemployment in emerging economies. Additionally, most of the studies in the literature review only use one country when isolating the policy being analysed. There is a need to investigate whether the policies are effective at a larger scale amongst multiple countries. This study analyses 20 countries with the use of both monetary policy and fiscal policy to review the potential effect to contribute to the body of knowledge on this topic.

3.3 SUMMARY

The chapter begins with the government's main source of income, i.e., tax revenue. The relationship between this variable with unemployment in the studies reviewed reveals that tax revenue is not effective in fostering job creation. Instead, tax cuts result in unemployment reduction. However, this effect is not larger than the effect generated by government expenditure. Some studies investigating the relationship between government expenditure and unemployment reveal a negative relationship between the variables. However, there is an overwhelming number of studies that state a positive relationship between the two variables, indicating that when government expenditure rose, so did unemployment. This is attributed to the misallocation of government expenditure or even worse, corruption.

The question of whether public debt can fund efforts against unemployment justified its inclusion in the literature review. Most studies underline the potential for public debt to reduce unemployment, but mismanagement leads to a positive relationship between public debt and unemployment. The literature review also analyses the relationship between monetary policy and unemployment, which presents a mixture of effects. In some studies, the monetary policy and its tools were ineffective in combatting unemployment while other studies prove the effectiveness of the policy's ability to foster job creation. There is a concern about inflation arising from the increase of money supply tools like money supply. An external variable that may influence unemployment is the real exchange rate. Many studies included in the literature have shown how unemployment is influenced by fluctuations in the real exchange rate. Policymakers could try to moderate this rate to try to achieve the desired effects on unemployment. The next chapter addresses the methodology of the study.

CHAPTER FOUR: RESEARCH METHODOLOGY

4.1 INTRODUCTION

This chapter introduces readers to the methodology the study employs. The chapter begins by stating the source of the data and the time span of the data. Following this, the study specifies the model by showing the mathematical formulation and the econometric model. The econometric model is accompanied by the expected signs of each variable. The chapter goes on to explain the chosen estimation technique, which is the panel ARDL as well as the meaning of each symbol in the equation. The chapter includes the Hausman test due to the study making use of panel data. There are different categories of emerging economies from different research institutions, and all these groupings have been given a name. Necessary for any empirical study are the diagnostic tests that it employs. The specific tests used are the multicollinearity test, the heteroskedasticity test, an autocorrelation test, and a normality test. To use a panel ARDL model, the study needs to perform a unit root test. The study presents the findings for the unit root test using the augmented Dickey-Fuller test (ADF) and the Philips-Perron test. These tests allow the use of the ARDL model if the criteria are met. Following this, the selection of lags is necessary with a table showing the selection process.

4.2 DATA SOURCES

The study aims to determine how effective fiscal and monetary policies are in creating jobs among emerging economies. To quantify how many jobs are created in each nation, the study uses the unemployment rate as a proxy for job creation as a reduction in the unemployment rate indicates that more jobs are created. On the opposite side, the increase in the unemployment rate indicates fewer jobs were created as well as individuals becoming unemployed. The study accesses data for the unemployment rate among emerging economies from the World Bank. The World Bank has been chosen as the source of data due to its large collection of any kind of data for every country in the world. The group has stated its ever-improving ability to measure its results and the adoption of standardized metrics (World Bank, 2023). The World Bank database also provides access to all the independent variables, viz., government expenditure, the real interest rate, inflation, and money supply in the emerging economies selected for the study. The study uses annual data spanning from 1997 to 2020. Beginning the data prior to 1997 would prove difficult, due to limited data availability for some

of the countries and variables in earlier years. The data spans until 2020 to exclude the effects of the Covid-19 pandemic which occurs post 2020 in the emerging economies.

4.3 MODEL SPECIFICATION

The analysis adopts the model from Attamah, Anthony and Ukpere (2015), which includes both fiscal policy and monetary policy. The variable for fiscal policy is government expenditure. Monetary policy variables include the interest rate and money supply. The model the study uses is adding the inflation rate.

Mathematical formulation:

$$\boldsymbol{U_t = (Gexp_t, M3_t, \pi_t, i_t)} \text{.....(4.1)}$$

Econometric model:

$$\boldsymbol{U_t = \beta_0 + \beta_1 Gexp_t + \beta_2 M3_t + \beta_3 \pi_t + \beta_4 i_t + \epsilon_t} \text{.....(4.2)}$$

In the model, *U* denotes the unemployment rate as well as the dependent variable of the model. The model includes the fiscal policy tools where *Gexp* denotes government expenditure and is expected to have a negative sign. π represents the inflation rate in emerging economies and is also expected to have a negative sign. Two of these tools have been chosen from the monetary policy, firstly *i* represents the interest rate with the expectation of the sign being positive. Lastly, *M3* denotes money supply and is expected to have a positive sign.

Table 4.1: Variable description and data source

Variable	Description	Source	Expected sign
U	The unemployment rate is selected as the proxy for job creation. This rate indicates how many people of working age are without work while making the effort to find work. As a result, decreases in the unemployment rate indicate that more jobs have been created. An increasing unemployment rate indicates that there has been a failure to create employment and jobs may have been lost too.	World Bank's website	
Gexp	The fiscal policy is a government's primary method of influencing the economy (Horton & El-Ganainy, 2020). Government expenditure has been chosen to represent this policy as spending on production, infrastructure, investment, and social expenditure shows the government's approach to fiscal policy. According to Gabriel *et al.* (2016), Keynesian economists believe in the ability for government expenditure to stimulate aggregate demand. This is a path to job creation justifying the inclusion of this variable in the model.	World Bank's website	-
M3	Money supply represents money circulating in an economy. When a central bank aims to influence an economy using monetary policy, the money supply increases or decreases indicating a contractionary or expansionary policy. This variable is one of the two proxies for the monetary policy. Monetarists share a strong view on money supply's ability to foster growth and employment in the short run. This justifies the selection for the model.	World Bank's website	-
i	When a central bank aims to carry out a monetary policy, reserve requirements or discount rates are used to implement the policy. However, the real interest rate reflects the stance the reserve bank is taking. An increase in the real interest rate indicates a contractionary stance while a decrease in the interest rate shows an expansionary policy. For this reason, the real interest was chosen as one of the proxies for monetary policy. Keynesian economists postulate the idea of adjustments of interest rates in an expansionary monetary policy can encourage job creation (Essien *et al.*, 2016).	World Bank's website	+
π	The inflation rate is the increase in the general level of prices of goods and services households consume over a given period (Oner, 2022). This rate was chosen to represent inflation due to its efficiency in reflecting the rise in prices. Classical economists, Monetarists, and Neoclassical economists share a similar concern of inflation arising from expansionary monetary policies with the objective of fostering employment. The variable is included to view the relationship with job creation.	World Bank's website	+

4.4 BASICS OF PANEL DATA ANALYSIS

4.4.1 Advantages of Panel Data

The panel data ARDL model was selected since, as the data points are increased, more degrees of freedom are available and collinearity is reduced (Hsiao, 2007). Additionally, the researcher gains more informative data with more variability and efficiency due to the combination of time series and cross-sectional observations (Clower, 2019).

Finally, panel data models take a larger degree of heterogeneity into consideration, which characterises individuals and states which time series and cross-sectional models cannot (Adeleye, 2018b). In other words, statistical effects unmeasurable by cross-section or time series can be measured with panel data.

4.4.2 Pooled Ordinary Least Squares

Pooled Ordinary Least Squares (POLS) is a regression technique used to approximate the relationship between a regressor and regressands with panel data. The method collects data that occurs a period between different individuals or entities. The correlations between observations with individuals or groups are accounted for (Cloud, 2023). POLS assumes that the relationship between the dependent and independent variables is the same among the individuals and entities. The method involves running a single OLS regression on pooled data.

4.4.3 Breusch Pagan Test

The Breusch Pagan Lagrange multiplier test determines the significance of random effects in panel data models (Rehal, 2022). The LM test statistic with a chi-square of 1 degree of freedom is used as the test aims to measure the variance of the random effects term. The null hypothesis states that there are no effects in the model. The alternate hypothesis states that random effects are significant in the model and that REM is appropriate.

4.4.4 Fixed Effect Model

The fixed effects model (FEM) is designed to assess the impact of inherent characteristics of entities in panel data sets. The model assumes that time-invariant dummy variables can capture the effects of unchanging and unmeasured variables (Farkas, 2005). Fixed effects models find a way to estimate these unobservable factors as exclusion leads to sub-optimal regression models. While the model is designed to address this problem, newer issues such as bias from measurement error and challenges may arise once lagged variables are added.

The key advantage of FEM is the ability to control for all time-invariant omitted variables. This is especially important for variables that are impossible to observe. The disadvantage is that the number of additional parameters needs to be estimated. This is a challenge due to the difficulty of estimating variables that hardly vary over time (Ali, 2017).

4.4.5 Random Effects Model

Random effects models (REM) are a technique to analyse data that considers factors that may affect the outcomes among individuals or groups (Kumar, 2023). These factors vary randomly in the data, and the REM takes account of the causes of such variation. The advantage of the REM is that shrunken residuals can be estimated (Clarke, Crawford, Steele, & Vignoles, 2010). Very large models can be estimated quickly due to a relaxed dimensionality constraint (Shepard, 2011). REM also allows variables that vary in the same dimension to be included. A disadvantage is that the model assumes that individual random effects have no correlation with regressors. Additionally, REM assumes that multilateral resistance is normally distributed across countries.

4.4.6 Hausman Test

The Hausman test is responsible for identifying endogenous variables that may be present in a model as well as measuring the consistency and efficiency of MG and PMG estimates (Sulaiman, 2020). This reason for performing this test is due to endogenous variables in a model leading to OLS estimators failing. The Durbin-Wu Hausman test is chosen as it is mostly used for panel data analysis.

The test assists the choice between a FEM or REM, with REM taking preference. The null hypothesis of the test is that the model is a random effects model and the alternative hypothesis states that the model is fixed effects with a random effects model being the preference. The null hypothesis is rejected when the p-value is less than 5% (Glen, 2017).

4.5 PANEL AUTOREGRESSIVE DISTRIBUTED LAGS (ARDL)

Prior to the panel ARDL model, a panel unit root test is recommended which requires the variables to be stationary at level I(0) and at first difference I(1) which allows the use of the panel ARDL model (Garidzirai & Muzindutsi, 2020).

4.5.1 Unit Root Test

To find out whether a time series is stationary or non-stationary, a unit root test is performed. With the use of the ADF and Phillip Perron (PP) test, the presence of any unit roots indicates

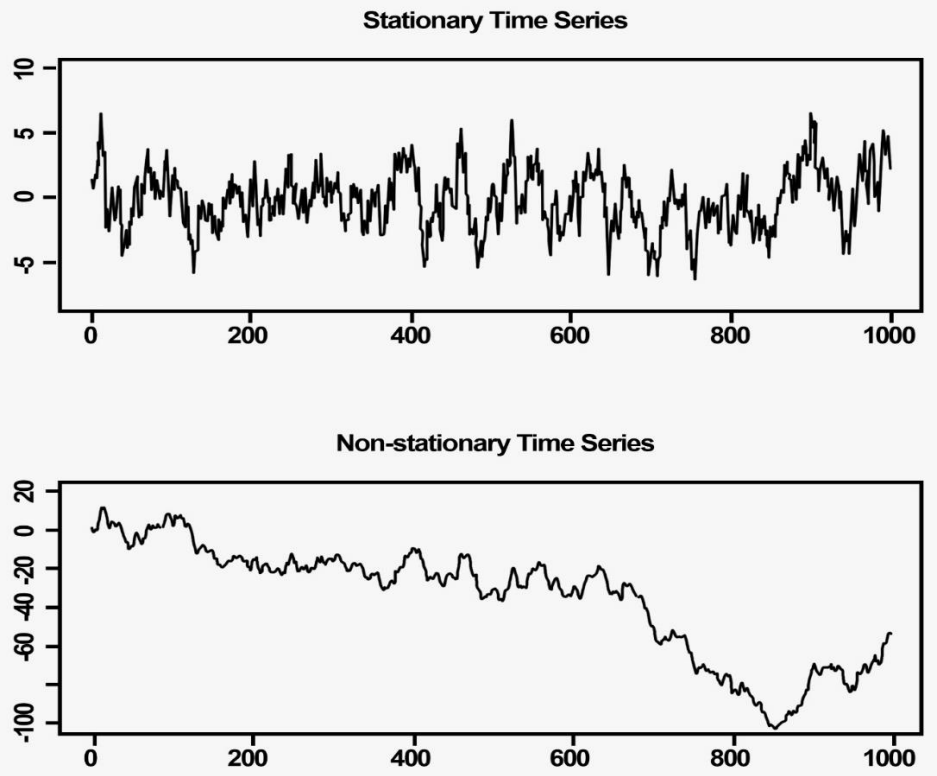
that the data is non-stationary. It is important to obtain unit roots because the limiting distributions of estimates are different from a stationary case (Sorensen, 2019). Stationarity is also important due to its ubiquity in time series analysis as most forecasting techniques assume that distributions have stationarity. The absence of stationarity can result in unexpected behaviours (Glen, 2022; Palachy, 2019).

Before proceeding, it is important to also gain a full understanding of what stationarity is. Stationarity is seen when the statistical properties of the stochastic process does not change over time (Palachy, 2019). Stationarity can also occur at different levels of strength, ranging from weak to strong. This introduces the different types of stationarity namely, strict, first-order, second-order, trend-stationary, and difference-stationary. Strict stationarity occurs when the joint distribution of any moments within the stochastic process is never dependent on time. This version of stationarity is never used in real-life models due to the definition being too strict (Glen, 2022).

The next form is first-order stationarity where the series means never change over time while the variance may change (Boshnakov, 2011). Second-order stationarity, also known as weak stationarity, is when the stochastic process has the same mean, variance, and autocovariance at all time points. This version of stationarity is very common (Glen, 2022). Trend-stationarity are models that can be linear or quadratic and fluctuate around the series mean. However, the amplitude of the fluctuations never increases or decreases across the series (Palachy, 2019).

Difference-stationary models only become stationary when differencing one or more times (Glen, 2022). The null hypothesis states there is a unit root and the alternate hypothesis states that the time series is stationary. The null hypothesis is rejected when the p-value lies below 0.05 (Glen, 2016). The figure below indicates the difference between stationary and non-stationary time series when displayed graphically.

Figure 4.1: Stationary time series and non-stationary time series



Source: O'Reilly (2022)

Augmented Dickey-Fuller (ADF) test

The first test the study uses is the ADF test. This test is an extension of the Dickey-Fuller with the main difference being that the ADF uses a similar procedure to the DF. However, autocorrelation is removed from the series (Verma, 2021). The original Dickey-Fuller test was developed in 1979 to detect the presence of a unit root in an autoregressive model (Mofatt, 2019). This approach was the simplest unit root test. However, economic and financial time series are mostly complex.

An assumption for the ADF test is that error terms are distributed identically and independently. During this, the test treats potential serial correlation in the error term with the addition of lagged and differenced terms of independent variables (Gujarati, 2003). Choosing the appropriate lag length is important as too many lags may reduce the effectiveness of the test. Selecting too few lags may result in over-rejecting the null hypothesis (Harris, 1995). This saw the introduction and need for the ADF test. The null hypothesis for the test is that there is a unit root and the alternate hypothesis is that the time series is stationary (Glen, 2022).

Phillips-Perron (PP) test

The PP test is a simple way to test for unit roots in univariate time series against alternatives, formulated by the Phillips and Perron (1988). The Phillips-Perron test builds on the Dickey-Fuller test. Like the ADF test, there are differences in the testing procedures for the two tests. The main distinction is that the PP test uses non-parametric statistical methods to address serial correlation found in error terms without the addition of lagged difference terms (Adeleye, 2018b). A study written by Davidson and MacKinnon (2004) reported that the PP test performs worse than the ADF test when dealing with finite samples.

4.5.2 Panel ARDL Model

Mean Group (MG)

According to Pesaran and Smith (1995), the Mean Group (MG) panel ARDL model is suggested to resolve bias due to heterogeneous slopes in Dynamic panels. The benefit of using MG lies in the consistency of the results when the estimator does not impose restrictions. This is seen as an improvement on other estimation techniques such as fixed effects and random effects because these methods do not take endogeneity that results from heterogeneity into consideration, leading to inconsistent results. The MG estimator coefficients are allowed to vary and be heterogeneous in the short-run and long-run (Manes, Schneider, & Tchetchik, 2016).

Pooled Mean Group (PMG)

The pooled mean group (PMG) is an estimator proposed by Pesaran, Shin, and Smith (1999) that combines pooling and averaging. The estimator allows short-run coefficients to be heterogeneous across countries while restricting the slope coefficients in the long-run to be homogeneous across countries (Pesaran Shin, & Smith, 1999). The short-run coefficients allowed to be heterogeneous include error variances, intercepts, and the speed of adjustment to long-run coefficient values. The PMG is an improvement on MG because the MG does not take cross-sectional dependence into account while the PMG does that makes the latter estimator more efficient due to the correct long-run restrictions. Additionally, the PMG is more robust to lag orders and outliers than the MG (Mlambo, 2022).

DFE models are subject to simultaneous equation bias due to the endogeneity between the error term and the lagged dependent variable. The Hausman test measures this endogeneity (Baltagi, Griffin, & Xiong, 2000). The model used to determine the efficacy of the fiscal and monetary policy on job creation is presented in a generalized ARDL model below:

$$y_{it} = \sum_{j=1}^{p} \delta_i \, y_{it-j} + \sum_{j=0}^{q} \beta'_{ij} \, x_{it-j} + \varphi_i + \varepsilon_{it} \quad \text{.....(4.3)}$$

Where y_{it} represents the dependent variable; δ_{ij} is the coefficient of the lagged variable also known as a scalar. β_{ij} are the coefficient vectors. $p, q, t = 1,2 \ldots T; i = 1, \ldots N$ represent the optimal lag order. φ_i denotes the unit-specific fixed effect and ε_{it} is the error term.

The re-parameterised ARDL error correction model is specified as:

$$\Delta y_{it} = \theta_i [y_{it-1} - \lambda'_i x_{it}] + \sum_{j=1}^{p-1} \xi_{ij} \, \Delta y_{it-j} + \sum_{j=0}^{q-1} \beta'_{ij} \, \Delta x_{it-j} + \varphi_i + \varepsilon_{it} \quad \text{.....(4.4)}$$

In equation 4.4, $\theta_i - (-1 - \delta_i)$ represents the group specific speed of adjustment coefficient where $\theta_i > 0$ is expected. λ'_i is the vector of long-run relationships, $[y_{i,t-1} - \lambda'_i X_{i,t}]$ is the error correction term (ECT). ξ_{ij} and β'_{ij} represent the short-run coefficients in the model.

4.6 CATEGORIES OF EMERGING COUNTRIES

The use of panel data analysis in the study suggests the investigation of multiple countries as opposed to one. The study places focus on the emerging markets or economies around the world. Multiple lists exist classifying different emerging economies based on their separate criteria. The International Monetary Fund (IMF) list, for example, looks at economic development in countries, ensuring the size and liquidity requirements are met and how accessible the country's market may be.

The IMF list includes Argentina, Brazil, Chile, China, Colombia, Egypt, Hungary, India, Indonesia, Malaysia, Mexico, Nigeria, Philippines, Poland, Russia, Saudi Arabia, South Africa, Thailand, Turkey, and the United Arab Emirates (Duttagupta & Pazarbasioglu, 2021). The S&P Dow Jones list has a list with only 24 countries (S&P Dow Jones Indices, 2022). The study uses the IMF list for emerging economies.

4.7 DIAGNOSTIC TESTS

4.7.1 Multicollinearity Test

Multicollinearity is a phenomenon that occurs when the change in one independent variable is correlated to the change in another variable, making it even harder to distinguish between the two. It is important to do this test to prevent correlation of independent variables. (Kutner, Nachtsheim, Neter, & Li, 2005). The two versions of multicollinearity which exist are perfect multicollinearity and less than-perfect multicollinearity. In perfect multicollinearity, the independent variables are usually difficult to determine and have standard errors that are

infinite. Less than-perfect multicollinearity on the other hand occurs when the independent variables can be determined but contain large standard errors. This prevents the accurate estimation of coefficients (Gujarati & Porter, 2009).

It is necessary for a multicollinearity test to be included within the model to aid in identifying and removing the source of the multicollinearity (Zainodin, Noraini, & Yap, 2011). The study adopts variance inflation factors (VIF) to test for multicollinearity. This test operates by finding the VIF of each independent variable to identify the strength of the correlation. A figure which lies between 1 and 5 indicates there is little multicollinearity, which does not warrant action. Higher values between 5 and 10 indicates that there is multicollinearity which requires correction (Frost, 2017b).

4.7.2 Heteroskedasticity Test

To achieve homoskedasticity, a heteroskedasticity test is required to ensure that the variance of the error term is consistent with all other independent variables in the model (Statistic Solutions, 2021). Heteroskedasticity occurs when there is an increase in the variances of the residuals with the addition of the fitted values (Frost, 2017a). This is an important test because not performing one allows the risk of heteroskedasticity being present, resulting in significance tests that may be too high or too low. In addition, the standard errors become biased, which also leads to bias in the test statistics and confidence intervals (Williams, 2020). The heteroskedasticity test chosen is the Breusch-Pagan test which makes use of the following formula:

$$X2 = n \cdot R^2 \cdot k \qquad (4.5)$$

n denotes the sample size with the k representing the number of independent variables in use. R^2 represents the coefficient of determination (Clark, 2018).

4.7.3 Autocorrelation

Autocorrelation occurs with the violation of Classical Assumption IV, which states that observations of the error term are uncorrelated. When the correlation coefficient - which lies between two observations and the expected value of the error term - is not equal to zero, there is the presence of autocorrelation in the error term (Studenmund, 2014). The autocorrelation test is important since not performing the test could result in the property minimum variance not being met. This results in an ordinary least squares (OLS) estimator that is inefficient, which will lead to an overestimated R^2 and higher t and F statistics (Ullah, 2020). A Durbin-Watson

test is required to test for the possibility of Serial correlation in the error term. The test provides an outcome between 0 and 4, with any outcomes closer to 0 representing stronger positive autocorrelation, while the outcomes closer to 4 represent a strong negative autocorrelation (Corporate Finance Institute, 2016).

4.7.4 Normality Testing

The Jarque-Bera normality test determines whether the residuals of the sample data are from a normally distributed population. It is important to perform this test because if there is no normality, test results will be unreliable (Origin Lab, 2015). The null hypothesis is that the residuals are normally distributed, and the alternative hypothesis is that the residuals are not normally distributed (Glen, 2016). The formula for the statistic is:

$$JB = n\,[(\sqrt{b1})^2 / 6 + (b_2 - 3)^2 / 24].$$

Here, n denotes the sample size; $\sqrt{b1}$ represents the sample skewness coefficient and b_2 is the kurtosis coefficient.

4.8 SELECTION OF LAGS

The selection of lags and lag length is important when using ARDL models. According to Lütkepohl (1993), incorrectly selecting a higher lag length increases the mean-square forecast errors of the model. Selecting a lower lag length than the true lag length produces autocorrelated errors. In the case of a VAR model, according to Braun and Mitnik (1993), an incorrect lag length leads to inconsistent estimates. The autoregressive process of lag length (p) includes the current value and is dependent on the first p lagged values (Liew, 2004). The different lags used eventually reach the stage of performing a hypothesis test. The final lags go through a process of deletion when found to be insignificant until the significant lag is found (Adeleye, 2018a). Lag-length selection criteria are a requirement as the outcomes of the criteria may influence the findings of a study (Liew, 2004). The various criteria are Akaike's information criterion (AIC), Hannan-Quinn criterion (HQC), final prediction error (FPE), Schwarz information criterion (SIC), and Bayesian information criterion.

4.9 CROSS-SECTION DEPENDENCE

Cross-sectional dependence occurs when units in the same cross-section are correlated (Tugcu, 2018). This phenomenon may occur due to unobserved common factors affecting all the units in different ways. Addressing this problem is important because the benefits gained from

running panel data over individual least squares regression are lost when cross-sectional dependence is ignored (De Hoyos & Safaridis, 2006).

The cross-sectional dependence test (CD test) developed by Pesaran (2004) helps identify the issue. De Hoyos and Safaridis (2004) recommend using the LM test for cross-sectional dependence if *T* (time) is larger than *N* (number of observations). However, if *N* is larger than *T* and the model is static, the Friedman test, Frees statistic, and the CD test may be used.

4.10 CONCLUSION

The chapter commenced with the sources from which the data were collected, as well as stating the time span of the data for each country. Following this, the chapter introduced the mathematical formulation and the econometric model. The chapter introduced and presented the basic process of the panel data model from panel OLS alongside the fixed and random effect model with the supervision of the Breusch Pagan LM and Hausman test. The chapter explained stationarity and the importance of investigating unit roots prior to deciding forecasting technique to employ. The study settled with the ADF test and the Philips-Perron test for stationarity. The results from these tests promote the use of the ARDL model if the criteria are met. The IMF criteria for emerging economics were- selected for the study. The necessary diagnostic tests to be employed in the study were stated, namely the multicollinearity test, the heteroskedasticity test, an autocorrelation test, and a normality test. Following this, the process of selecting lags is mentioned as the table is presented in the following chapter. A cross-section dependence test has also been employed. The next chapter presents the results of the study.

CHAPTER FIVE: EMPIRICAL RESULTS AND DISCUSSION

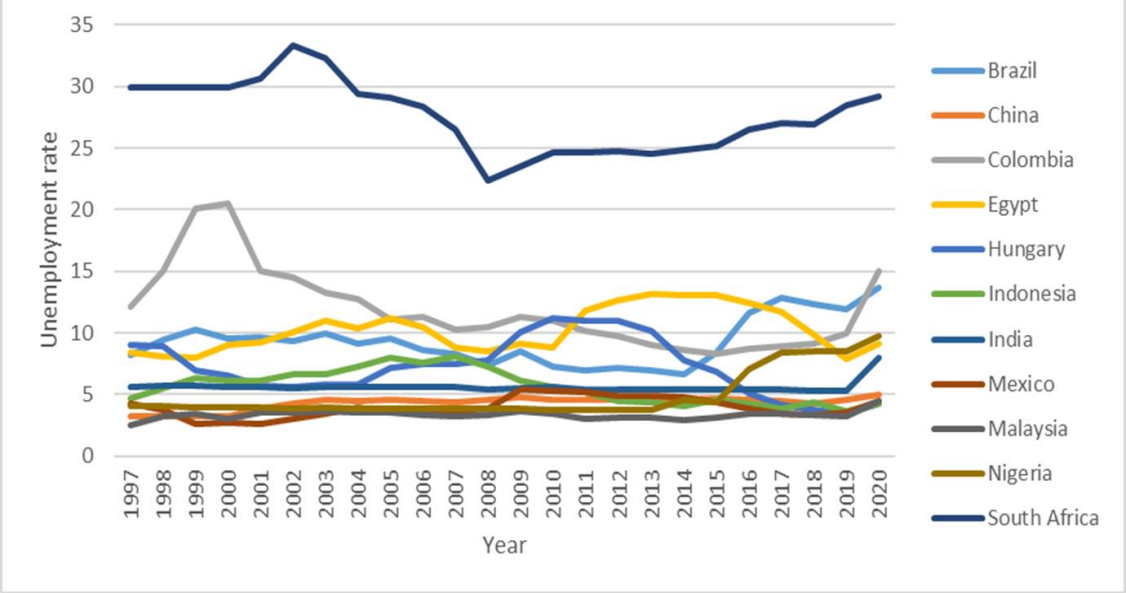
5.1. INTRODUCTION

This chapter presents the findings obtained when running a cross-section dependence test and the panel ordinary least squares (POLS) model. The Breusch Pagan LM test is employed to inform the study on proceeding to REM. The FEM and REM results are presented with a Hausman test assisting the choice between the two.

Following this, Unit root tests will advise the study on the suitability of the panel ARDL. If suitable, the results of the main model of the study, the panel ARDL, are presented. Following this, the results are interpreted to see whether they are in line with the hypotheses of expected outcomes. In the event of obtaining a different result from what is expected, possible reasons for these differences are discussed.

5.2 TREND GRAPHS

Figure 5.1: Unemployment rate among emerging economies

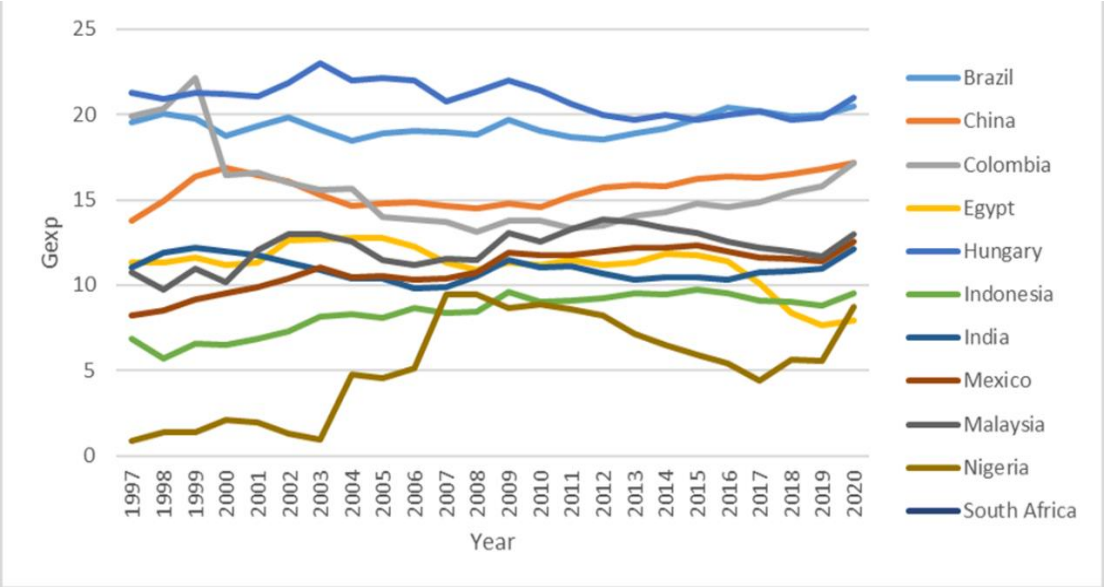


Source: Computed by the present author

Figure 5.1 represents unemployment rates among selected emerging economies between 1997 and 2020. China, Malaysia, and Mexico successfully keep unemployment levels below 5% during this period. Nigeria also maintains unemployment under the 5%, though it rose higher since 2016. Hungary, India, and Indonesia fluctuated above 5% but never rose higher than 10%. The same cannot be said for Brazil and Egypt, which sat higher than 10% on multiple

occasions. Colombia spent the late 1990s and early 2000s at unemployment rates higher than 10%, even floating around 20% during the early periods. South Africa is the only country from the chosen emerging economies to yield an unemployment rate higher than 20% throughout the period.

Figure 5.2: Government expenditure as a percentage of GDP

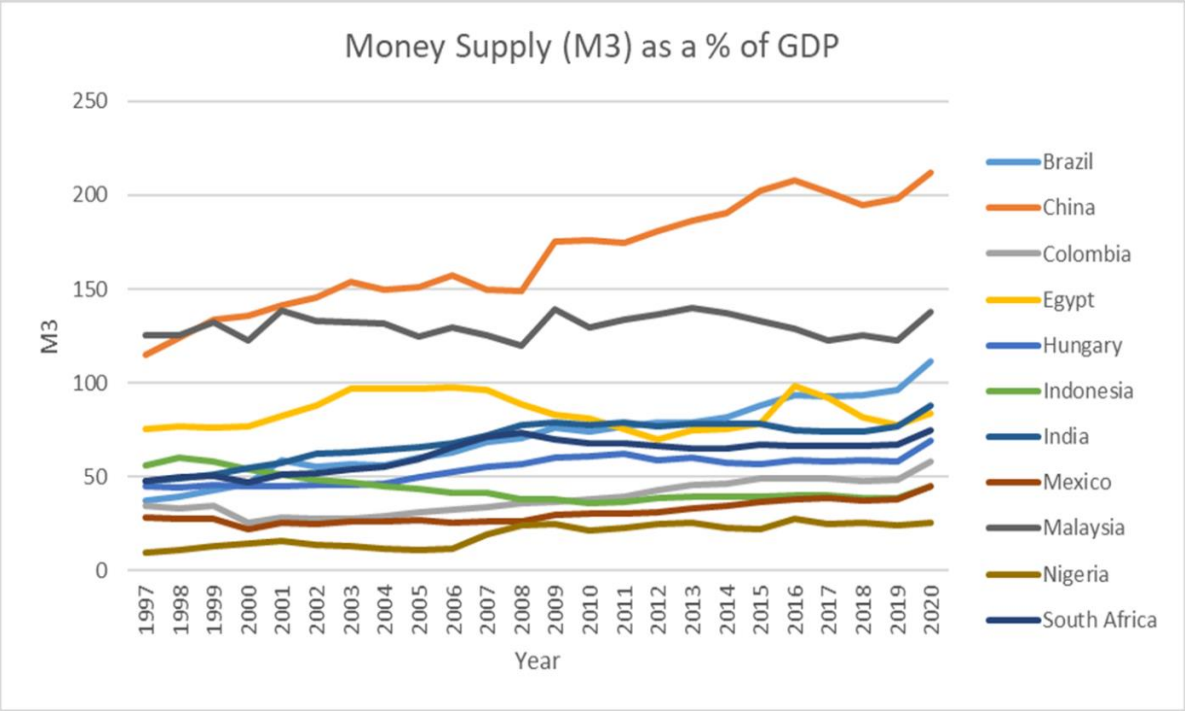


Source: Computed by the present author

Figure 5.2 shows government expenditure as a percentage of GDP among selected emerging economies for the period 1997 to 2020. Nigeria and Indonesia yielded the lowest spending percentage and never exceeded 10%. Nigeria showed the largest increase in spending from 0,91% in 1997 to 9% in 2020. Egypt, Mexico, Malaysia, and India steadily maintained expenditure between 10 and 15%. Egypt was also the only country with expenditure in 2020 lower than any other year in the period.

China and Brazil fell in between 15% and 20% during the period. Colombia did the opposite as it lay between these percentages at the beginning and end of the period but lay below 15% during the years in between. Hungary shows the highest government expenditure among the emerging economies selected and lay between 20% and 25% of GDP.

Figure 5.3: Money supply (M3) as a percentage of GDP

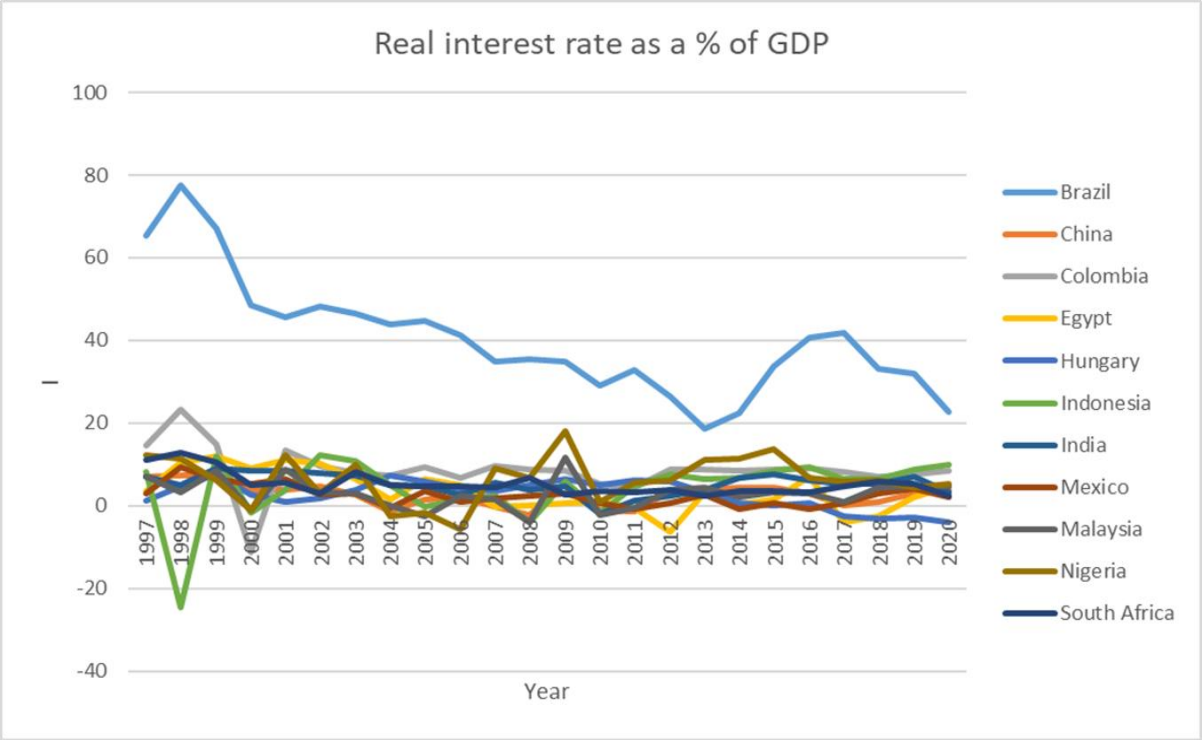


Source: Computed by the present author

Figure 5.3 represents money supply M3 as a percentage of GDP between 1997 and 2020. China has risen the highest over the years, concluding with over 200% in 2020. Malaysia has the second highest average M3 lying between 100 and 150%. Brazil, Egypt, and India spent most of the period in between 50 and 100%.

Brazil and Hungary were below 50% in the late 90s and gradually rose above that into the 2000s. A similar trend occurred in Colombia, however, the rise above 50% of GDP only occurred in the late 2010s. The opposite can be seen in Indonesia as M3 lay above 50% in the late 90s but dropped and stayed below 50% from 2000 onwards. Mexico and Nigeria had the lowest average M3 across the period and never rose above 50%.

Figure 5.4: Real interest rate as a percentage of GDP

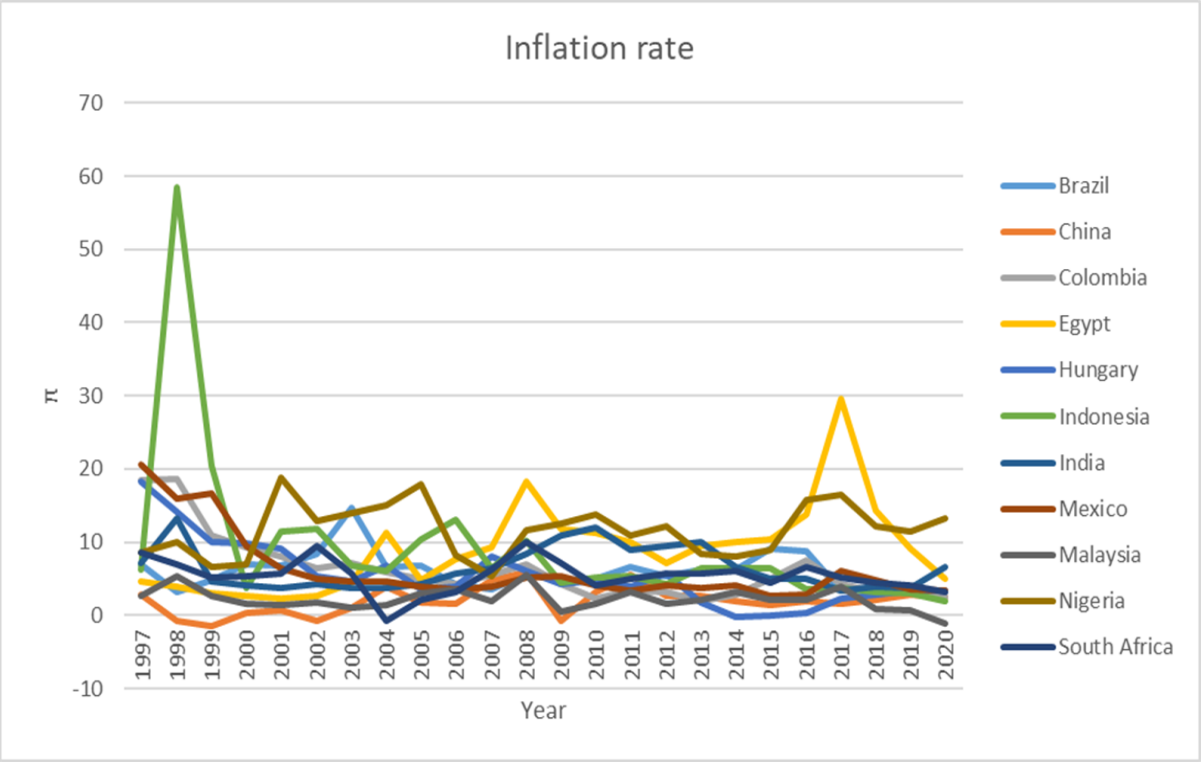


Source: Computed by the present author

Figure 5.4 shows a trend with the real interest rate (*I*) as a percentage of GDP in selected emerging economies from 1997 to 2020. Brazil's graph presents data points vastly different from the other ten countries. *I* peaked at 78% in 1998 and declined for the rest of the period. Brazil's lowest *I* occurred at 18% in 2013 and ended the period at 23%. Multiple countries had a negative *I* over the course of the period. None of the countries dropped as low as Indonesia in 1998, which reached -25%. The country did return above 0% and stayed positive for the rest of the 2010s.

Colombia is the only country to have *I* rise above 20% and the second lowest *I*. In 1998, Colombia peaked at 23%, then *I* dropped to -11% in 2000. Like Indonesia, Colombia returned to a positive *I* towards the end of the period. Nigeria was the only other country to nearly exceed 20% in 2009. While remaining stable for most of the period, Nigeria briefly dipped into a negative real interest rate. Egypt and Hungary continued the trend of periodically falling below 0% and returning to a positive figure. However, Hungary was the only country that ended the period negative. The remaining emerging economies managed to stay above 0% for the period.

Figure 5.5: Inflation rate



Source: Computed by the present author

Figure 5.5 shows the inflation rate among emerging economies from the period 1997 to 2020. Indonesia immediately stands out with a large spike in 1998. Inflation nearly reached 60%. However, the rate subsequently returned to normalcy in the years that followed. Egypt had the second-highest spike among emerging economies with inflation of nearly 30% in 2017. However, the rest of the years were consistent with inflation of the other countries outside of 2008.

Nigeria nearly reached 20% inflation on multiple occasions but managed to stay below that percentage. The country ended the period with the second-highest inflation rate. Malaysia started with the lowest inflation in 1997 and rose to an inflation rate similar to the rest of the countries. Following this, Malaysia fell into a negative inflation rate and the lowest of the entire chart in 2020. The rest of the countries managed to maintain inflation below 10% for most of the period, with brief spikes above that.

5.3 CROSS-SECTION DEPENDENCE TEST

Table 5.1: Cross-section dependence test

Test	Statistic	d.f.	Prob.
Breusch-Pagan LM	29.34751	55	0.9982
Pesaran scaled LM	-2.445868		0.0145
Pesaran CD	-0.766294		0.4435

Source: Estimated by the present author

Table 5.1 shows the results for the cross-section dependence test. The study focuses on the Breusch-Pagan LM test results due to the T > N in the data. Cross-section dependence indicates that there is a correlation among the countries in the panel data. There may be common unobserved factors. The result is important as the benefits gained from running panel data over individuals are lost when cross-section dependence is ignored.

The null hypothesis states that the data does not have cross-section dependence. Initial tests failed and rejected the null hypothesis as the probability was less than 0,05. To remedy this, generalised least square (GLS) weights, more specifically the method of seemingly unrelated regression (SUR) was applied. This is a preferred method due to T > N. The results are extracted after the implementation of SUR. According to the Breusch-Pagan LM test, the probability of 0,9982 is larger than 5%. The null hypothesis can thus be accepted, and the data no longer has cross-section dependence.

5.4 BASICS OF PANEL DATA

5.4.1 Panel OLS

Table 5.2: Panel OLS results

Variable	Coefficient	t-Statistic	Prob.
GEXP	0.738652	47.67077	0.0000***
I	-0.050278	-7.509615	0.0000***
M3	-0.040922	-42.83126	0.0000***
π	0.076258	6.614352	0.0000***
C	1.388060	5.615587	0.0000***
Weighted Statistics			
R-squared		0.959214	
Adjusted R-squared		0.958584	
Durbin-Watson stat		0.986351	

*** Statistically significant at 1%, ** Statistically significant at 5%, * Statistically significant at 10%

Source: Estimated by the present author

Table 5.2 represents the results from the panel OLS model. The data have been corrected for cross-section dependence. The R^2 measures the strength or goodness-of-fit of the relationship between the regressand and regressors (Studenmund, 2014). The adjusted R^2 at 96% indicates that the independent variables selected are very effective at describing the changes in the unemployment rate among the selected emerging economies between 1997 and 2020. The intercept C at 1,3% is statistically significant 1% level. This can be interpreted as a 1% increase in the intercept, holding GEXP, *I*, M3, π constant, leading to a 130% increase in unemployment amongst these emerging economies.

Money supply (M3) is the only variable assessed to have the expected negative sign in the relationship with unemployment. The variable is statistically significant at the 1% level, yielding a coefficient of -0,04. This can be interpreted as a 1% increase in money supply leading to a 0,04% decrease in the unemployment rate. The interest rate (*I*) also shares a negative relationship with unemployment. Also statistically significant at 1%, a 1% increase in *I* leads to a 0,05% decrease in unemployment. This is the opposite effect to the prediction of a positive relationship from the hypothesis.

The hypothesis also predicts inflation to have a negative relationship with unemployment. Instead, inflation (π) displays a positive coefficient of 0.08 while being statistically significant at 1%. Increments of 1% on π result in an 0,08% increase in the unemployment rate among emerging economies. This leads into the idea of inflation causing unemployment rather than the opposite effect seen in the Phillips curve. Government expenditure shows the largest effect on unemployment. The effect is not in line with the negative sign in the hypothesis. The results show that a 1% increase in government expenditure leads to a 0,73% increase in the unemployment rate for emerging economies. This finding is also statistically significant at 1%.

5.4.2 Breusch Pagan LM Test

Table 5.3: Breusch Pagan LM test

Test Hypothesis			
	Cross-section	Time	Both
Breusch-Pagan	2382.503	11.10101	2393.604
	(0.0000)	(0.0009)	(0.0000)

Source: Estimated by the present author

Table 5.3 shows the results of the Breusch pagan Lagrange multiplier test. The test determines whether random effects are significant in models (Rehal, 2022). The null hypothesis states that

there are no effects in the model. The alternate hypothesis states that random effects are significant in the model and that REM is appropriate. The results above give us 0,0000 for Cross-section, 0,0009 for Time, and 0,0000 for both. All these values fall under 0,05, indicating the rejection of the null hypothesis. Random effects are significant in the model. Therefore, the fixed effects and random effects models are employed with the Hausman test informing the final decision.

5.4.3 Fixed Effects Model with SUR

Table 5.4: Fixed effects model

Variable	**Coefficient**	**t-Statistic**	**Prob.**
GEXP	0.279458	23.09701	0.0000
I	-3.12E-05	-0.008182	0.9935
M3	-0.001351	-1.001449	0.3176
π	0.047740	8.328205	0.0000
C	4.561579	21.86735	0.0000
Effects Specification			
Cross-section fixed (dummy variables)			
Weighted Statistics			
R-squared		0.982957	
Adjusted R-squared		0.981999	
Durbin-Watson stat		1.262085	

*** Statistically significant at 1%, ** Statistically significant at 5%, * Statistically significant at 10%

Source: Estimated by the present author

Table 5.4 shows the results for the fixed effects model. The R^2 and adjusted R^2 of 98% indicate that the model's independent variables are highly effective at explaining the changes in the dependent variable. The intercept C has a coefficient of 4,56 and is statistically significant at 1%. A 1% increase on the intercept leads to a 4,56% increase in unemployment holding all other dependent variables constant.

The GEXP obtains a coefficient of 0,2794 and is statistically significant at the 1% level. Due to the positive sign, this can be interpreted as a 1% increase in government expenditure leading to a 0,27% increase in unemployment among emerging economies. This is the opposite sign to the expectation of a negative sign in the hypothesis. Another variable with an unexpected sign is the inflation rate (π).

Inflation obtains a positive coefficient of 0,048, which is statistically significant at a 1% level. When the inflation rate rises by 1%, holding all other variables constant, unemployment rises by 0,048% among emerging economies. This differs from the expected negative sign from the

hypothesis. The real interest rate (*I*) also obtains an unexpected negative sign when a positive sign is the expectation. However, the variable is not statistically significant.

Money supply (M3) is the only independent variable to show the expected negative sign for the relationship with unemployment. Although the expected negative relationship is observed, the variable is not statistically significant. Before using the Hausman test for the choice of model, the study employs the random effects model (REM).

5.4.4 Random Effects Model

Table 5.5: Random effects model

Variable	**Coefficient**	**t-Statistic**	**Prob.**
GEXP	0.303739	3.855940	0.0001***
I	0.004268	0.205717	0.8372
M3	-0.003911	-0.404376	0.6863
π	0.064541	2.683075	0.0078***
C	4.273674	1.702806	0.0898*
Weighted Statistics			
R-squared		0.075603	
Adjusted R-squared		0.061327	
Durbin-Watson stat		0.335220	

*** Statistically Significant at 1%, ** Statistically Significant at 5%, * Statistically Significant at 10%

Source: Estimated by the present author

Table 5.5 provides results for the Random effects model (REM). The REM is selected due to the Hausman test informing the decision. The R^2 and adjusted R^2 are low at 8% and 6% respectively. This is an indicator that the independent variables do not explain unemployment well in this specific model. The intercept C is statistically significant at 10% and is interpreted as a 4,27% increase in the unemployment rate while holding all the independent variables constant in emerging economies.

Government expenditure (GEXP) shows a statistically significant result at the 1% level. The 0,30 coefficient implies that every 1% increase in government expenditure causes a 0,30% increase in unemployment in emerging economies. Like the POLS result, this positive sign is not the expected negative sign with unemployment. The expectation is that additional investment by the government boosts the economic environment to foster job creation. Instead, unemployment rises with additional investment. Perhaps, governments need to place priority on expenditure that facilitate job creation such as infrastructure investment.

The real interest rate (*I*) also has a positive sign for the relationship with unemployment. However, the variable is not statistically significant. This is the expected sign stated in the hypothesis. The same occurs with Money supply (M3) and the negative sign. This variable is also not statistically significant. Inflation is statistically significant at 1% and presents a positive sign.

As with the other models in the study, the negative relationship between inflation and unemployment as seen in the Phillips curve does not apply to emerging economies in this period. According to the random effects model, a 1% increase in inflation results in a 0,06% increase in unemployment among emerging economies. An explanation for this result may be supply shocks causing firms to increase prices. Following this, workers will demand higher wages, but this gap is not met creating unemployment.

5.4.5. Hausman Test

Table 5.6: Hausman tests

Test Summary		**Chi-Sq. Statistic**	**Chi-Sq. d.f.**	**Prob**
Cross-section random		1.486861	4	0.8290
Cross-section random effects test comparisons:				
Variable	**Fixed**	**Random**	**Var(Diff.)**	**Prob.**
GEXP	0.292897	0.303739	0.000144	0.3656
I	0.005322	0.004268	0.000004	0.6147
M3	-0.002760	-0.003911	0.000003	0.5023
INF	0.064249	0.064541	0.000001	0.6997

Source: Estimated by the present author

Table 5.6 shows the results from the Durbin-Wu Hausman specification test. The test is employed to identify endogenous regressors in a model (Glen, 2016). Unknowingly using a model with this type of regressor leads to OLS estimators failing. The test operates by helping the user choose a FEM or REM, with REM being the preference.

The null hypothesis states that the random effects model is appropriate. The alternate hypothesis is that the model has fixed effects. The Cross-section random probability obtains a figure of 0,8290, which is larger than 0,05. This indicates a failure to reject the null hypothesis. The Hausman test recommends the REM results over the FEM.

5.4.6 Unit Root Test

Table 5.7: Results from panel unit root test

Variables	Level and difference	LLC	IPS	ADF	PP Fisher	Decision
U	Level	0.7893	0.4860	0.4754	0.6026	I(1)
	1st Difference	0.0449	0.0000	0.0000	0.0000	
Gexp	Level	0.0837	0.1403	0.2246	0.7410	I(1)
	1st Difference	0.0006	0.0000	0.0000	0.0000	
M3	Level	0.5793	0.9816	0.7127	0.7397	I(1)
	1st Difference	0.7411	0.0000	0.0000	0.0000	
I	Level	0.0000	0.0000	0.0000	0.0000	I(0)
π	Level	0.0000	0.0000	0.0000	0.0000	I(0)

Source: Estimated by the present author

The ARDL requires the variables in a model to be stationary at Level I(0) or 1st difference I(1). None of the variables should be stationary at I(2) to meet the criteria for use of the ARDL. Table 5.7 displays the results from the ADF–Fisher test as well as the Phillip Perron (PP)–Fisher test. The test results from the Levin, Lin and Chu (LLC) test and Im, Pesaran, and Shin W–statistics are included. The null hypothesis is rejected when the p-value lies below 0.05 (Glen, 2016). A result lower than 5% denotes stationarity in the variable for all the tests employed.

Unemployment (U) is non-stationary at I(0) for all four test results. Stationarity for U only occurs at I(1) when the test results meet the criteria to reject the null hypothesis. Government expenditure (GEXP) is also non-stationary at I(0) and only becomes stationary at I(1). A similar outcome occurs with Money supply (M3), which fails to reject the null hypothesis of non-stationarity at I(0).

The variable only becomes stationary at I(1). The LLC result is larger than 5%, however the IPS, ADF, and PP–Fisher tests all fall below 0.5. The real interest rate (*I*) yields a unique result to the other variables with all the test statistics meeting the decision criteria. *I* is stationary at I(0). Inflation (π) also obtains stationarity at I(0) based on the results of the 4 tests.

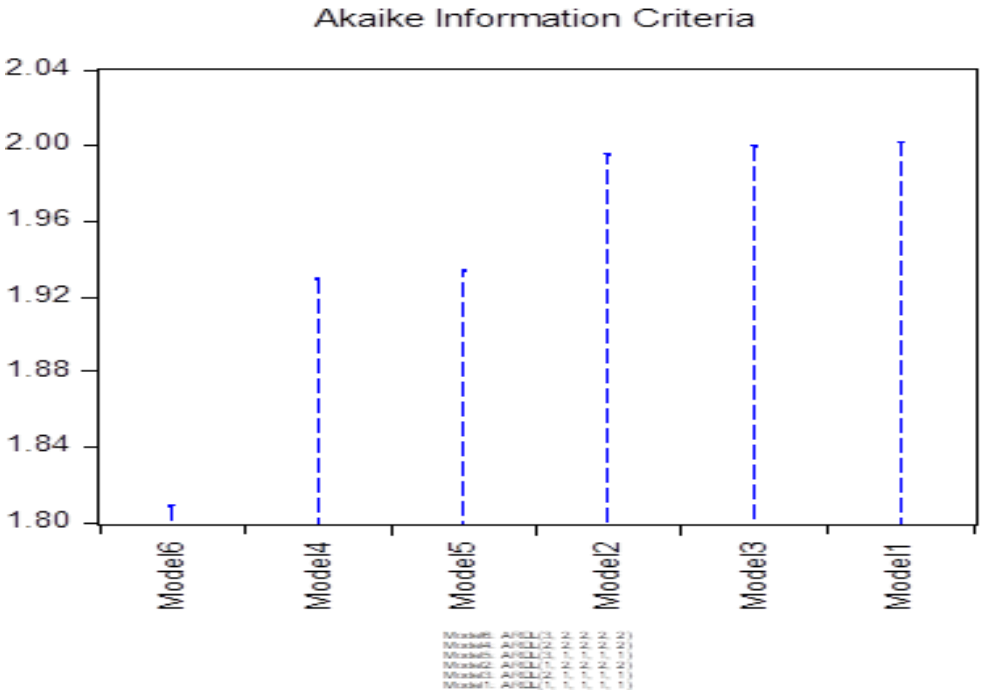
5.4.7 Lag Length Criteria

Table 5.8: Selection of optimal lags

Model	LogL	AIC*	BIC	HQ	Specification
6	-83.895921	1.808623	3.671403	2.559947	ARDL(3, 2, 2, 2, 2)
4	-108.868156	1.929594	3.628450	2.614802	ARDL(2, 2, 2, 2, 2)
5	-142.355382	1.933813	3.140894	2.420671	ARDL(3, 1, 1, 1, 1)
2	-127.455002	1.995281	3.530212	2.614372	ARDL(1, 2, 2, 2, 2)
3	-160.919278	1.999301	3.042458	2.420043	ARDL(2, 1, 1, 1, 1)
1	-172.138837	2.001202	2.880434	2.355827	ARDL(1, 1, 1, 1, 1)

Source: Estimated by the present author

Figure 5.6: Akaike information criteria



Source: Estimated by the present author

The study employs the AIC to select the lag length. Figure 5.6 and table 5.8 inform the study on model 6 as the most suitable length for the model. The table lists multiple models from 1 to 6. Model 6 is also classified as 3, 2, 2, 2, 2 which represents the lag length for the dependent variable on the far left and all the independent variable lags to the right. Model 6 is chosen due to having the smallest statistic which lies above 1.8. The model uses three lags for the dependent variable and 2 lags for each of the regressors.

5.5. RESULTS AND DISCUSSION

5.5.1 Panel ARDL Model

Table 5.9: Panel ARDL model

Variable	Coefficient	t-Statistic	Prob.*
Long Run-Equation			
GEXP	0.251131	11.67744	0.0000***
I	0.046104	1.767143	0.0794*
M3	-0.000922	-0.598984	0.5502
π	0.271806	7.373276	0.0000***
Short-Run Equation			
ECT	-0.127041	-2.362846	0.0195**
D(U(-1))	-0.147744	-0.527588	0.5986
D(U(-2))	-0.082360	-0.525706	0.5999
D(GEXP)	0.225401	1.334126	0.1843
D(GEXP(-1))	0.085412	0.586151	0.5587
D(I)	-0.088028	-2.625745	0.0096***
D(I(-1))	0.048068	2.430847	0.0163**
D(M3)	0.089178	2.662376	0.0087***
D(M3(-1))	-0.094751	-2.190884	0.0301**
D(π)	0.024820	0.696101	0.4875
D(π(-1))	0.046048	2.126762	0.0352**

*** Statistically significant at 1%, ** Statistically significant at 5%, * Statistically significant at 10%

Source: Estimated by the present author

Table 5.9 provides the results for the panel ARDL model which comprises the variables unemployment (U), government expenditure (GEXP), real interest rate (I), money supply (M3), and inflation rate (π). The error correction term (ECT) represents the speed of adjustment coefficient of the cointegrating equation. The estimated coefficient is –0,1270, which can be interpreted as 0,13% of departures from the long-run equilibrium is corrected each period. The coefficient has the correct negative sign and is statistically significant at the 5% level. The negative sign is required to conclude that the variables are cointegrated and the regressors, government expenditure, interest, money supply (M3), and inflation jointly Granger-cause unemployment in the long run.

Government expenditure is statistically significant at less than 1% in the long run. The sign is positive, which is different from the expected negative sign when the hypothesis of the study was drafted. This is indicative of a direct relationship as a 1% increase in government expenditure leads to a 0,25% increase in unemployment in the long run. The positive sign is also present in the short run as well as in the random effects model used earlier in the study. The random effects government expenditure is seen to have a larger positive impact on unemployment at 0,30%. Government expenditure short run results are not statistically

significant without a lag and one lag in the past. The expectation for a government expenditure negative sign is supported by the Keynesian view of government spending eventually leading to an increase in employment (Reem, 2009). Instead, government spending contributes to unemployment. Due to government expenditure being a primary technique to implement fiscal policy, an expansionary fiscal policy has not fostered job creation in the case of emerging economies in the long run.

The unexpected positive sign can be potentially linked to where the government is spending. Governments of emerging economies may be focusing on expenditure that does not have a mandate to create employment. Government expenditure on health and security may not foster job creation in the way that infrastructure spending or investment would. The Nepram *et al.* (2021) study had a similar result and encouraged the Indian government to change the policy on government expenditure. The study conducted by Obisike *et al.* (2020) also obtained a positive sign for government expenditure on unemployment but attributes the result to recurrent social government expenditure on health and capital expenditure. Government spending may also have a large share in the purchase of goods and employee compensation (Fosu, 2019). The government could focus spending on sectors that may directly or indirectly influence employment. Sectors expected to influence unemployment include infrastructure, investment expenditure, and education (Obayori, 2016; Onuoha & Agbede, 2019).

Additional job creation may result from the construction and maintenance of public infrastructure projects. New roads and railways can create new economic linkages and opportunities between communities that did not exist before. Education trains and equips an upcoming workforce with skills that can improve productivity. Governments also need to eliminate any presence of corrupt practices that lead to the exact fruitless expenditure that may lead to a positive relationship in the results. This is in line with Gachari and Korir (2020), who explain the absent effect on unemployment as a misallocation of funds.

Real interest rate (I) presents a positive relationship with unemployment and is statistically significant at 10% in the long run. A 1% increase in the real interest rate results in a 0,05% increase in unemployment among emerging economies. The positive sign also exists in the short run equation with the real interest rate one time period in the past. The variable is statistically significant at 5% and represents a 1% increase in the real interest rate, leading to a 0,05% increase in unemployment one time period in the past for the short run. These findings are consistent with the hypothesis of a positive sign. Due to the nature of this relationship, a decrease in the real interest rate should lead to a decrease in unemployment. Monetary policy

can foster job creation through real interest rate reductions in the short run one lag in the past and long run. When the real interest rate decreases, the contractionary effect on money's ability to flow in the economy relaxes and the employment level rises (Pettinger, 2019a). This is in line with Attamah, Anthony, and Ukpere (2015), who also reported a positive relationship between real interest and unemployment. Lower interest rates charged on loans by banks should increase investment and encourage job creation.

The real interest rate without a lag has a negative relationship with unemployment in the short run. The variable is statistically significant at a 1% level, and a 1% increase in real interest leads to a 0,09% decrease in unemployment among emerging economies. In other words, a decrease in the real interest rate increases unemployment rather than creating jobs. This is indicative of a policy lag for intended interest rate changes to take effect. Although the central bank takes a policy stance, there are lags between the time the stance is taken and the time when aggregate demand reflects the changes. The short run sign is negative but eventually becomes positive in the long run. The expected positive relationship with unemployment from the hypothesis takes place after some delay until the long run. New loans reflecting interest changes may also take slightly longer. Once these loans are given to businesses, there will be a delay on the part of the company investing the funds, with job creation only reflecting in the long run. Changes in the real interest rate do not always prioritize job creation. The intended effects of changes in the real interest rate experiences delays due to policy and impact lags. The effect on job creation, which is not the focus, takes an even longer time to reflect. The short run real interest rate temporarily has a negative relationship with unemployment. This is in line with Ekwe (2018), where the interest rate had a similar negative relationship, which is contrary to the expected positive. There is a negative relationship in the current period that eventually becomes positive with time due to impact lags. The previous period positive signs provide evidence for an attainable direct relationship.

Money Supply (M3) in the long-run shows the expected negative sign. However, the variable is not statistically significant. In the short run, money supply without a lag is statistically significant at a 1% level. Among emerging economies, a 1% increase in the money supply is associated with a 0,09% increase in unemployment. The positive sign assessed here contradicts the expected negative sign from the hypothesis. In the short run, monetary policy, through a money supply increase, has a direct relationship with unemployment. Based on this result, a rise in money supply M3 increased unemployment rather than fostering employment. This result is in line with the study by Attamah, Anthony, and Ukpere (2015) and Ekwe (2018)

where the inflation that arises from continuous increases in money supply reduces employment. This is also in line with Wen (2011) who also finds that rising monetary bases become counter-productive by increasing unemployment. There are variables other than money supply linked to monetary policy creating the rise in unemployment. Supply-side unemployment far beyond the reach of the monetary policy may explain the results. Frictional, seasonal, voluntary, and structural unemployment rise alongside changes in the monetary policy rather than being caused by them.

Money supply with one lag is statically significant at 5% and has a negative sign. This can be interpreted as a 1% increase in money supply leading to a 0,09% decrease in unemployment one time period in the past among emerging economies. This is the expected negative sign from the hypothesis with the view that more money supply circulating in an economy encourages aggregate demand and fosters an environment for job creation. This result corresponds with real interest rate with one lag having the expected positive sign. The monetary policy in the previous period succeeded in promoting employment.

The inflation rate (π) displays a positive sign in the long run. Inflation is statistically significant at the 1% level and a 1% increase in inflation leads to a 0,27% increase in unemployment. This result is contrary to the Phillips curve theory, which states the existence of an inverse relationship and postulates the trade-off between unemployment and inflation. The positive sign is identical to the sign in the random effects model. However, inflation from the REM is smaller at 0,06%. Supply shocks cause this unexpected relationship. A supply shock such as the rise in oil prices could have triggered inflation while unemployment continues to rise. Firms proceed by raising prices to cover additional costs to the dissatisfaction of workers. These workers will in turn demand higher wages. The businesses will not meet this demand and proceed by cutting costs and reducing employees. The positive result is in line with Veselinovic (2020), where the sign may be explained by the workers' anticipation of inflation, creating a demand for higher wages (Touny, 2013). This expectation, paired with higher inflation, may lead to higher unemployment.

The same positive relationship is present in the short run with inflation without a lag. However, the variable is not statistically significant. This is in line with Benazic and Rami (2016), who found an insignificant impact of inflation on unemployment. Short run inflation one lag in the past shares a similar positive relationship with unemployment in the long run. The result is also statistically significant at the 5% level and indicates that a 1% increase in inflation leads to a 0,05% increase in unemployment in the short run. Perhaps, the effect of rising wages leading

to higher inflation and unemployment as seen in Veselinovic (2020) also occurs in the short run relationship between inflation and unemployment.

Table 5.10: Results from cross-section short run

Country	Error Correction term (ECT)	Prob*
All Countries	-0.127041	0.0195*
Brazil	-0.083558	0.0002*
China	-0.542353	0.0000*
Colombia	-0.026538	0.0018*
Egypt	0.067390	0.0001*
Hungary	-0.113575	0.0001*
Indonesia	-0.247787	0.0000*
India	-0.198338	0.0005*
Mexico	-0.270520	0.0000*
Malaysia	-0.030237	0.0314*
Nigeria	0.035401	0.0216*
South Africa	0.012667	0.0000*

*Statistically significant at 5% (as $p<0.05$)

Source: Estimated by the present author

Table 5.10 presents results from the cross-section short run. The error correction term (ECT) is required to have a negative sign and be statistically significant. When these requirements are met, it confirms that divergence from the equilibrium occurring in a period is corrected in the following period (Engle & Granger, 1987).

The ECT for all countries is -0,127041 with a probability of 0,0195, making the term statistically significant at 5%. This denotes that, for all countries, 13% of the deviations between the long-run and short-run are restored in the next period. Most of the countries meet the criteria with negative signs and statistical significance.

Only three African countries, viz., Egypt, Nigeria, and South Africa, fail to meet the conditions as they obtain positive signs. However, all three countries are statistically significant at the 1% level. The short-run deviations in these countries are not restored in the long-run. As a result, given the explosive nature of the ECTs, the study cannot interpret the cross-section short run coefficients.

5.6 SUMMARY

This chapter begins with trend graphs of all the variables in the study. Following this, the basics of panel data are conducted beginning with a panel OLS model. Following the interpretation, a Breusch Pagan LM test advises the study on the use of a fixed effect model. The random

effects model is also conducted with a Hausman test informing the choice between the two models.

The study then conducts a panel ARDL model beginning with the unit root test. After this, lag length criteria are selected, leading to the results and discussion of the main panel ARDL model. Based on the results for government expenditure, fiscal policy has failed in fostering job creation. The results also indicate that monetary policy is only successful in encouraging job creation in a previous period and in the long-run. The policy fails to achieve this in the present day. The chapter ends with cross-section short-run results. The following chapter provides the concluding remarks of the study.

CHAPTER SIX: CONCLUSION, POLICY RECOMMENDATIONS, AND LIMITATIONS

6.1 INTRODUCTION

This chapter summarises the findings obtained from investigating the research questions stated at the beginning of the study. The study investigates the efficacy of fiscal and monetary policies in fostering job creation among emerging economies. Here, interesting results from the findings and the study's contribution are stated in response to the study objectives. The chapter suggests policy recommendations based on the findings and presents the study limitations and list possible areas for future research.

6.2 THEORETICAL BASIS OF THE STUDY

The first theoretical objective for this study is to identify different theories which address the use of the monetary and fiscal policies in fostering job creation. This is achieved with a theoretical literature review in Chapter 2. Among others, classical economists raise the concern of inflation that may arise from an increase in money supply. Hence, these economists advocate for minimal government interference in an economy. The classical view on fiscal policy is similar and their preference is for an autonomous, free market. Recessions accompanied with higher unemployment are considered temporary, and unrestrained markets lead to an economy tending towards equilibrium at full employment. The expectation is for the state to focus on achieving the core activities of the public sector such as provision of public works and maintaining law, order, and defence in a country.

Keynesian economists emphasise the importance of aggregate demand as the driving force in the economy. The belief is to utilize monetary policy, particularly domestic interest rates, to stimulate economic activity. An interest rate reduction is expected to lead to an increase in aggregate demand that boosts output and employment. Keynesians also advocate for government fine-tuning to keep the economy at full employment. This fine-tuning may include increased government spending and the efficient use of tax revenue.

Monetarists followed with a similar concern for inflation. Monetarists also highlight the issue of an increased money supply leading to price rises. Monetarists view monetary expansion as a potential drawback of total spending. This change in total spending leads to variations in output, employment, and inflation. These economists also emphasize that monetary policy is

far more effective than fiscal policy due to its minimal influence on output and price levels. Neoclassical economists argue that expansionary monetary policies increase inflation while the economy does not receive a boost. Rational people adjust their price and wage demands in line with what they expect the future inflation to be upon the announcement of monetary policy. The policy only affects inflation rates rather than employment.

Chapter 2 also covers the discussion of different monetary policy regimes, namely regimes with implicit anchors, monetary targeting, exchange rate targeting, and inflation rate targeting. Different monetary policy frameworks and regimes used by different emerging economies between 1980 to 2020 and the overall performance of those emerging economies were discussed. In the past 15 years, Brazil, Chile, Colombia, Egypt, Hungary, India, Indonesia, the Philippines, South Africa, Thailand, and Turkey utilise an inflation targeting monetary policy regime. Malaysia, Nigeria, and Saudi Arabia place importance on exchange rate targeting instead of inflation targeting while Mexico targets both. China uses inflation targeting but emphasizes the importance of economic growth, employment promotion, and the maintenance of the balance of payments equilibrium.

The second and third theoretical objectives for this study are to review existing literature on the interaction between fiscal and monetary policies with unemployment respectively. The empirical literature review in Chapter 3 provides insight into what kind of relationship fiscal and monetary policies may have with job creation. The chapter begins by reviewing studies investigating the effect of tax cuts on unemployment. The reviewed studies show that more jobs are created because of tax cuts. Increased tax revenue leads to a rise in unemployment in separate studies. However, studies argue that this revenue can fund future government investment in infrastructure that would then boost job creation. The view is that the effect of tax on job creation is limited in comparison to government consumption and investment.

Empirical literature on the effect of government spending on unemployment have come to contradictory conclusions. Based on past studies, government expenditure has a negative relationship with unemployment when spending is focused on education, human capital, and investment into infrastructure. Other studies indicate a positive relationship between government expenditure and unemployment. These studies clarify that an emphasis on spending towards defence and health is likely to not decrease unemployment, which may explain the results.

The effect of monetary policy on job creation has similar conflicting results. Multiple studies consider monetary policy ineffective in combatting unemployment. This can be attributed to institutional rigidity and, in some cases, inflation leading to unemployment. Other studies point toward the monetary policy as a tool for encouraging employment. In each case, the interest rate obtains the desired direct relationship, showing the tool's potential to foster employment. The authors suggest stimulating this variable to induce employment. Literature also warns policymakers on money supply increases due to the inflation that may arise.

Literature for variables not included within the model have also been reviewed. Most studies find that exchange rate fluctuations affect unemployment. The researchers recommend that policymakers monitor the exchange rate since ensuring this remains under control, the economic environment is stabilised for economic growth and employment. Public debt can be more effective in reducing unemployment in the absence of corruption. Foreign direct investment reduces unemployment especially when countries attract Greenfield investments.

6.3 KEY FINDINGS

Unemployment continues to affect emerging economies. Research needs to be done to devise appropriate interventions to contain the negative impact of unemployment on individuals and economies themselves. This study aims to investigate the possibility of using fiscal and monetary policies to foster job creation amongst the selected emerging economies. The investigation uses data from 11 emerging economies between 1997 and 2020, with unemployment chosen as a proxy for job creation. Government expenditure represents the fiscal policy tool while monetary policy is proxied by money supply (M3) and the real interest rate. Inflation has been included to investigate the interaction with unemployment since the objective of monetary policy is to curb its growth.

Before discussing the key findings of the study that respond to the research objectives, it is important to briefly articulate the methodology that was used to achieve these results. Panel ARDL was the chosen estimation technique. Before this, the study ran the basic process of panel data. The study presents the results from the pooled ordinary least squares model. A Breusch Pagan LM test was employed to assist the decision to remain with a POLS or fixed effects model. The Hausman test aided the study in choosing between a fixed effects or random effects model with the latter being the preference.

The only statistically significant relationships are the positive signs for government expenditure and the inflation rate. Interestingly, both government expenditure and inflation

share similar direct relationships to those in the ARDL model. Following this process, panel unit root tests, namely ADF and the Phillip Perron (PP)–Fisher test are conducted with all the variables stationary at either level I(0) or 1st difference I(1). This allows the use of an ARDL model. The study conducts the process of selecting the appropriate lag length and criterion of which the AIC is chosen. Unemployment uses 3 lags, while the regressors use 2 lags each.

The panel ARDL model provided some interesting and unexpected findings. The following research objective of the study looks at the relationship and effects of fiscal policy on unemployment in emerging economies. It is found that government expenditure has a positive relationship with unemployment. This also means that an expansionary fiscal policy through government expenditure does not foster job creation in the long run among emerging economies. This leads to the question of where the government is spending? Certain types of government expenditure do not have a mandate to encourage employment. There is potential for job creation if governments from emerging economies focus spending on infrastructure, direct investment expenditure, and education. Jobs are created as the fruits of these investments in the future. However, direct employment also results from the construction of new infrastructure. Governments need to remain alert in not misallocating expenditure as this may also reflect in the undesired relationship assessed with unemployment.

The final objective of the study is to examine whether monetary policy has a significant effect in fostering job creation in emerging economies. The first monetary policy variable is the real interest rate. It provides more interesting results in the short run. The real interest rate without any lags has a negative relationship with unemployment. Stated differently, an expansionary monetary policy where the real interest rate is reduced leads to an increase in unemployment.

The effect of this type of monetary policy takes time to reflect on unemployment. This is indicative of an impact lag on the policy where a stance taken by the central bank experiences a delay to reflects the changes on aggregate demand and unemployment. The intended effect of real interest rate reductions is to stimulate economic activity, which the study expected to help foster employment. This is seen in the positive sign in the long run relationship between the real interest rate and unemployment. This relationship only appears in the long run once it is allowed to reflect.

The real interest rate in the long run and with one lag in the short run both present a positive sign with unemployment. In other words, a decrease in the real interest rate leads to a decrease in unemployment. This indicates that an expansionary monetary policy fosters job creation in

emerging economies from the real interest rate point of view. The jobs created as due to changes in the interest rate takes at least one period - in this case one year. Once the economy is no longer restricted and an expansionary monetary policy is in effect, businesses seeking to borrow money should have less trouble due to lower interest rates charged. These businesses should be freer to invest in activities that promote employment. Similar results are seen with the other proxy for the monetary policy, money supply (M3).

Unfortunately, the relationship between money supply and unemployment is not statistically significant in the long run. However, both money supply with and without a lag are statistically significant in the short run, interestingly with differing signs. Money supply with one lag shows the expected negative relationship with unemployment. This indicates that monetary policy encourages job creation in emerging economies in the previous period from the money supply point of view. This is the expectation since more money circulating in an economy boosts aggregate demand. Additionally, businesses have access to additional funds to participate in activities that may increase employment.

Money supply without a lag shows a positive relationship with unemployment in the short run. This suggests that increases in the money supply leads to increases in unemployment in emerging economies in the present day. It may not be coincidental that both the real interest rate and money from the present period without a lag suggest that an expansionary monetary policy does not foster job creation. Supply side causes such as seasonal, voluntary, and structural unemployment are responsible for an expansionary monetary policy being nugatory in fostering an economic environment for employment to rise. Inflation also plays a part in the rise of unemployment as the rising money supply eventually becomes counter-productive. Following this discovery, it is important to investigate how inflation fares.

Inflation in the long-run and short-run with a lag is shown to be a statistically significant factor affecting unemployment. Only inflation in the present period is not statistically significant. The expectation for a negative relationship between inflation and unemployment comes from the inverse relationship depicted in the Phillips curve. Instead, inflation in the long run and short run with one lag present a positive relationship with unemployment. A possible explanation could be the supply shocks, such as a rise in oil prices, raising inflation. This occurs with businesses in emerging economies raising prices to cover these oil price changes. Workers follow by demanding higher wages with the businesses unable to meet these demands and raising unemployment.

Table 6.1: Research objective summary

Research objective	How it was answered	Chapter
Identify different theories which address the use of the monetary and fiscal policies in fostering job creation.	In Chapter 2, a complete overview of the monetary, fiscal policies and unemployment have been discussed. This includes a discussion on different theories that underpin the fiscal and monetary policies and the relationship with unemployment. Definitions, key concepts, types of unemployment, fiscal and monetary policy tools and regimes have also been discussed.	Chapter 2
Review existing literature on the interaction between fiscal policy and unemployment.	A review of existing literature in Chapter 3 shows that tax cuts create employment in some cases. Tax revenue increases unemployment, however, the effect of tax is limited compared to government consumption and investment. Some studies have noticed a positive relationship between government expenditure with unemployment while other studies observed a negative relationship. It depends on which kind of expenditure the government prioritizes.	Chapter 3
Analyse existing literature on the way the monetary policy tools interact with unemployment.	The review of existing literature in Chapter 3 shows that monetary policy has been ineffective in combatting unemployment in multiple countries. Other studies indicate that monetary policy encourages employment particularly when using the interest rate. Money supply raises concern for inflation that may arise which is why the real interest rate is preferred.	Chapter 3
Investigate the potential effect of fiscal policy in promoting job creation in emerging economies.	Using a panel ARDL analysis and a random effects model, the efficacy of fiscal and monetary policies in fostering job creation among emerging economies is evaluated in Chapter 5. Based on the analysis, there is a positive relationship between fiscal policy and the proxy for job creation, unemployment in the long run. In other words, an expansionary fiscal policy does not foster job creation among emerging economies.	Chapter 5
Examine whether monetary policy has a significant effect in fostering job creation in emerging economies.	Using a panel ARDL analysis and a random effects model, the efficacy of fiscal and monetary policies in fostering job creation among emerging economies is evaluated in Chapter 5. Based on the analysis, there is a positive relationship between money supply unemployment in the short run. There is also a positive relationship between the real interest rate and unemployment. In the short run, an expansionary monetary policy does not foster job creation. However, the signs change in the long run, indicating a delay for changes in the monetary policy to take effect on unemployment. The monetary policy eventually encourages job creation in the long run.	Chapter 5

6.4 POLICY RECOMMENDATIONS

While many emerging economies continue to see economic growth, unemployment still exists with a rising trend. Problems may arise if unemployment is not addressed, indicating the need for an intervention. The study set the objective to examine the potential effect of fiscal and

monetary policies on promoting job creation in emerging economies. Based on the results of the study, policy recommendations are brought forward with the hope of inducing employment.

The study recommends that policymakers from emerging economies continue the use of government spending as one of the primary ways to conduct fiscal policy. However, governments need to emphasize increasing expenditures and investments that may encourage job creation. This requires a focus on less consumption expenditure and more on investment expenditure. Such expenditure should be on infrastructure investments such as the construction of railways, roads, hospitals, and schools. These investments will open new economic opportunities that create more jobs and aid communities concurrently.

Based on the results of the study, the recommendations to policymakers involved in applying monetary policy are presented below. Monetary policy can take on an additional mandate to foster job creation. The real interest rate has shown strong potential to guide the economy into an environment conducive to creating employment in the short and long-run. The real interest rate, as a monetary policy tool, is better than increasing the money supply due to potential inflation the latter may create. There may, however, be a challenge for monetary policy to aid job creation when it is supply-side causes of unemployment. Even so, demand-side unemployment may be catered for. The effects of the real interest rate on fostering job creation do not occur immediately and can eventually take effect in the long run.

6.5 LIMITATIONS TO THE STUDY AND FUTURE STUDIES

The study targeted a sample size of data which began in 1980. However, emerging economies had differing levels of data availability. Some countries had multiple years of missing data, although the period between 1997 and 2020 had the least complications. Countries such as Argentina, Chile, Philippines, Poland, Russia, Saudi Arabia, Thailand, Turkey, and the United Arab Emirates had missing data for some of the independent variables.

Obtaining data and information revolving around the central banks of Poland and Russia was difficult due to most of the period overlapping with the existence of the Soviet Union. Tax revenue formed part of the original fiscal policy tools for the study as a regressand alongside government expenditure. Obtaining tax revenue data for all these countries was unsuccessful, and the variable was dropped from the model. Areas for future studies could be to take a deeper dive into supply shocks that may cause inflation and potentially unemployment. Investigating the effect of oil price shocks on unemployment may provide a clearer insight. Another future

study may have a closer look at the relationship of different types of government expenditure on fostering job creation.

6.6 CONCLUDING REMARKS

This chapter summarises the findings of the study and provides policy recommendations based on the results. Following this, limitations that were faced by the study are discussed as well as future areas of study to reduce unemployment.

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APPENDICES

Appendix A: Ethical Clearance Certificate

UNIVERSITY OF MPUMALANGA

Ref: UMP/Nkamba/10/2022
Date: 7 October 2022

Xhantilomzi Nkamba [201880024]
School of Development Studies
University of Mpumalanga

RE: APPROVAL FOR ETHICAL CLEARANCE FOR THE STUDY:
An Empirical Analysis of the Efficacy of Fiscal and Monetary Policies in Fostering Job Creation among Emerging Economies: Panel ARDL Approach

Reference is made to the above heading.

The Chairperson, on behalf of the Faculty Research Ethics Committee (Faculty of Economics, Development, and Business Sciences) UMP, certifies that the above-mentioned study does not have ethical issues with its dataset. The study is based on published secondary data already in the public domain.

Any alteration/s to the approved research protocol such as Questionnaire/Interviews Schedule, Informed Consent Form, Title of the Project, Location of the study, Research Approach, etc. must be reviewed and approved by the FREC before its implementation.

PLEASE NOTE: **The Ethical Clearance certificate is only valid for 3 years from the date of issue.** Thereafter, Recertification must be applied for on an annual basis.

Ogujiuba Kanayo ***PhD***
Chairperson: FREC
Faculty of Economics, Development and Business Sciences
University of Mpumalanga

Appendix B: Editor's Certificate

Helen Bond
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079 395 5873

12 December 2023

CERTIFICATE

Xhantilomzi Nkamba

Dear Xhantilomzi

Thank you for using Impela Editing Services to edit your Master's dissertation entitled *"AN EMPIRICAL ANALYSIS OF THE EFFICACY OF FISCAL AND MONETARY POLICIES IN FOSTERING JOB CREATION AMONG EMERGING ECONOMIES: PANEL ARDL APPROACH"*.

I have proofread for errors of grammar, punctuation, spelling, syntax and typing mistakes. I have formatted and checked the references according the institution's requirement.

Please note that Impela Editing accepts no responsibility for changes made by the author after emailing the final draft.

I wish you the very best in your submission.

Kind regards

Helen Bond (Bachelor of Arts, HDE)

Appendix C: Plagiarism Report