

INVESTIGATING THE EFFECTS OF GOVERNMENT EXPENDITURE AND MONEY
SUPPLY ON UNEMPLOYMENT IN NAMIBIA

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WILHELMINE NAAPOPYE SHIGWEDHA

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SUPERVISOR: PROF. TERESIA KAULIHOWA (NUST)

Abstract

Over the years, Namibia continue to experienced rapid growth of unemployment. The purpose of this study is to investigate the effects of government expenditure and money supply on unemployment in Namibia. The annual data employed in the study covered the period from 1980 to 2018. The study applied the ARDL or bound cointegration approach which is said to be more appropriate for the estimation of small sample studies and variable combination of the order of integration (I (0) and I (1)). Granger causality tests were also performed in the study to establish existence of causality between the variables used in the models. The empirical results established cointegration relations between unemployment, government expenditure, money supply and inflation in Namibia. The results further indicated that both government expenditure and money supply have an impact on unemployment in the country. A negative and statistically significant at 5 per cent relationship was observed between government expenditure and unemployment as well as between money supply and unemployment at 10 per cent level of significant. Evidence of short-run causality between government expenditure and unemployment as well as between money supply and unemployment was also found. Finally, the study recommends that for an effective combat of the unemployment problem in Namibia, there is a need for the government to focus on investment, employment generation and provide basic business enhancing facilities such as stable power supply, water and operational facilities to trickle down to the masses

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Finally, I wish to express my gratitude to my family and friends for their profound support and encouragement during the course of my studies.

Dedication

I dedicate this thesis to my family and friends who have been supporting and encouraging me throughout my studies.

Declaration

I, Wilhelmine Naapopye Shigwedha, hereby declare that this study is my own work and is a true reflection of my research, and that this work, or any part thereof has not been submitted for a degree at any other institution.

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LIST OF ACRONYMS

ADF	Augmented Dickey-Fuller
ARDL	Autoregressive Distributed Lag
BoN	Bank of Namibia
ECM	Error Correction Model
ECT	Error Correction Term
M2	Broad Money Supply
GDP	Gross Domestic Product
MLIREC	Ministry of Labour, Industrial Relations and Employment Creation
NDP	National Development Plan
NLFS	Namibia Labour Force Survey
NSA	Namibia Statistics Agency
PP	Phillips-Perron

CHAPTER ONE: INTRODUCTION

1.1 Introduction and background of study

Economists still argue on the basic dilemma, whether expansionary government expenditure or money supply can enhance economic growth that translates into a low level of unemployment (Attamah, Anthony & Ukpere, 2015). Both government expenditure and money supply play a role in the mitigation of unemployment as well as stabilising the economy. Countries facing downturns around the world continue to pursue a range of fiscal strategies such as expenditure on public work projects and tax cuts.

The idea that government expenditure would lead to the creation of employment, and therefore, per capita income is logical when it comes to theory and may have worked for many countries. However, an increase in government expenditure without targeting employment creation would not have that effect as policy makers' willingness to use fiscal policy to reduce unemployment is tempered by a high level of debt. Poorly managed fiscal policy generally leads to deficit spending with minimal or no effect on unemployment. On the other hand, if the tax incentive is used to attract foreign investment and thereby create employment, this would be more targeted at fiscal policy. However, Government expenditure alone may not be enough to curb unemployment especially in a case such as that of Namibia where unemployment is 33.4 per cent (Namibia Statistics Agency, 2018). Additionally, emerging countries use monetary policy variables such as money supply to target employment. The basis is that when interest is low, companies would borrow money to expand which then leads to job creation.

The concept of unemployment is perceived differently among economists. The classical economist's argument on the concept of unemployment is based on the Walrasian General Equilibrium Model (Sodipo & Ogunrinola, 2011). The Classicalist assumes full employment of labour as well as the flexibility of prices and wages which brings about full employment in the event of unemployment (Humphrey, 1974). They view labour and other resources as always fully employed which then assumes the general unemployment to be impossible. However, if there is any unemployment, it is presumed to be temporary or abnormal such that it will not persist for long as there are economic factors that inherently work towards returning it to equilibrium. Based on the above assumption the classicalist believes that unemployment is caused by government intervention, wrong calculations and inaccurate decisions by entrepreneurs as well as artificial resistance (Sodipo & Ogunrinola, 2011).

The Keynesian economist, on the other hand, argues that the economy is not necessarily at the full employment output level all the time and equilibrium can be realised at a level of output below full employment and corresponding to that level, part of the labour force remains unemployed. Keynesians believe that increasing the aggregate demand will restore full employment and not reduce the money wage as espoused by the classical views. The Keynesians premised their argument on the assumption that wages are flexible such that workers through their union could resist wage cuts. This view renders the classical predictions unrealistic. Hence, unlike the Classicalists, the Keynesians recommend fiscal policy measures in reducing unemployment (Wickens, 2008).

Even though the effects of government expenditure and money supply on unemployment have not been investigated extensively, a number of studies have been conducted. For instance, the study by Attamah, Anthony and Ukpere (2015) who investigated the impact of fiscal and monetary policies on unemployment in Nigeria and found both fiscal and monetary policy to have a positive and significant impact on unemployment in both the short and long run. In addition, Sunde (2015) investigated the effects on monetary policy on unemployment in Namibia and established that the monetary policy has an influence on unemployment in the short run but, ineffective in the long run leading to mixed views in the literature.

The recent rising trends of the unemployment rate in Namibia called for concern among policymakers (Sunde & Akanbi, 2016). Despite the huge government expenditure on sectors such as education, health, agricultural and infrastructure development, there has been a persistent decreasing level of employment in the country. In addition, the positive annual growth of broad money supply continued to be experienced with 9.5 per cent in 2017 compared to a growth of 4.9 per cent in 2016 (Bank of Namibia, 2017). Hence the relevant question arising from such a scenario is to what extent government expenditure and money supply affected the rate of employment in Namibia?

1.2 Problem Statement

The unemployment rate in Namibia continues to increase in recent years although the government expenditure and the growth of broad money supply have been increasing on average. The country's unemployment rate was estimated to be 34 per cent in 2016, a marked increase from 28 per cent recorded in 2014 (Namibia Statistics Agency, 2016).

According to Mankiw and Taylor (2007), an increase in government expenditure and money supply is hypothesised to lead to an increase in employment thereby reducing unemployment. When government expenditure increases, the aggregate demand directly increases and this induces firms to increase production resulting in an increase in national output. The expansion of production causes the firms to employ more factor inputs and pays them more factor income, thus leading to an increase in national income. As a result, an increase in national output will lead to a rise in the demand for labour in the economy resulting in a fall in unemployment. Similarly, an increase in money supply will raise the number of reserves in the banking system causing a fall in interbank rates, which will lead to a fall in the level of interest rates in the economy. Lower interest rates are expected to decrease the incentive to save, and the costs of borrowing; the result is an increase in consumption and investment expenditure. As consumption and investment expenditure increase, aggregate demand will also increase due to an increase in national output. An increase in national output will lead to a rise in the demand for labour in the economy thereby reducing unemployment.

A number of studies were carried out on the high unemployment rate in many countries but adopted different approaches. Some scholars looked at the informal sector and microfinance bank approach as a way of combating unemployment while others looked at increasing the level of inflation (Zenou, 2008 & Resurreccion, 2014).

Empirical studies on the Namibian unemployment rate have been devoted to unemployment determinants and its impacts on economic growth. Besides, current

empirical literature has reported mixed findings on the effects of both fiscal and monetary policy on the unemployment rate. The veracity of this regarding the Namibian case can only be ascertained with further empirical work, which is the objective of this study.

1.3 Objectives of the study

The main objective of the study is to investigate the effects of government expenditure and money supply on unemployment in Namibia. The specific objectives are to:

- i. investigate the relationship between government expenditure and unemployment in Namibia.
- ii. investigate the relationship between money supply and unemployment in Namibia.
- iii. establish the direction of causality between government expenditure and unemployment in Namibia.
- iv. establish the direction of causality between money supply and unemployment in Namibia.

1.4 Hypotheses of the study

This section presents hypotheses on government expenditure on unemployment as well as a hypothesis of money supply on unemployment as follows:

- i. **H_0** : There is no relationship between government expenditure and unemployment in Namibia;
 H_1 : There is a relationship between government expenditure and unemployment in Namibia.
- ii. **H_0** : Government expenditure does not Granger cause unemployment in Namibia,

- H₁*: Government expenditure Granger causes unemployment in Namibia;
- iii. *H₀*: There is no relationship between money supply and unemployment in Namibia;
H₁: There is a relationship between money supply and unemployment in Namibia;
- iv. *H₀*: Money supply does not Granger cause unemployment in Namibia;
H₁: Money supply Granger causes unemployment in Namibia.

1.5 Significance of the study

Unemployment negatively impacts the Namibian government's ability to generate income and reduces economic activities in the country. This is because when unemployment is high, fewer people pay taxes to the government. At the same time, unemployment leads to low consumer spending as a result of fewer people with disposable income to spend on goods and services. Low consumer spending makes it more difficult for businesses to flourish and expand, thus, dampens the economic growth. As such, this study serves as a guide for policy formulation towards promoting employment opportunities which will reduce the unemployment level in the country, thereby increasing economic activities. The study also contributes to the existing literature.

1.6 Limitation of the study

The study acknowledges the problem of inadequate data on unemployment as a result of the Labour Force Surveys in Namibia which in the past have been conducted once every four years making data on unemployment scarce in the country. In addressing this shortage the study utilised the database of Hartman (1988) which was also adapted by Eita and Ashipala (2010) and Shifotoka (2015) to cover the gap. The database was put together using the method of interpolation and extrapolation to generate the unknown data.

The study also acknowledges lack of broad money supply data for the period before independence. During this period Namibia or South West Africa, as it was called then, was placed under the South African administration by the League of Nations after the First World War. In addressing this gap, the broad money supply data for South Africa was used.

1.7 Research Ethics

All sources of information and data used in this study are acknowledged through the Harvard referencing style and the results are reported as obtained.

1.8 Organisation of Study

The study is structured as follows: Chapter one gives is the introduction and gives a general overview of the study. It defines the research background and highlights the research objectives, problem statement and limitations. Chapter two provides an overview of the variables used in the study. Chapter three reviewed the related theoretical and empirical literature in the context of the study. The model specification and analytical framework adopted in this study are discussed in Chapter four, and the empirical results are reported in Chapter five. Chapter six concludes the discussion and highlights policy implications.

CHAPTER TWO: OVERVIEW OF UNEMPLOYMENT, GOVERNMENT EXPENDITURE AND BROAD MONEY SUPPLY IN NAMIBIA

2.1 Introduction

Chapter two presents an overview of the variables used in the study including the historical trends. The three sections in this Chapter are: Section 2.2 which provides an overview of unemployment in Namibia; Section 2.3 provides an overview of the government expenditure in Namibia, and Section 2.4 which discusses the overview of the broad money supply in Namibia.

2.2 Overview of unemployment in Namibia

2.2.1 Unemployment definition in Namibia

In line with the international statistical standards, unemployment in Namibia is defined based on three criteria, namely, being without work, being available for work and actively seeking work. The combination of the three criteria leads to what is referred to as the strict definition. However, in the broader sense, unemployment is defined as all persons within the economically active population or working age group who meet the following two criteria, irrespective of whether or not they are actively seeking work: being without work and being available for work (Namibia Statistics Agency, 2016).

To understand the size and characteristics of the labour force in the country, the Namibian government with the assistance of the International Labour Organisation (ILO), developed indicators and committed itself to conducting labour force surveys for the timely update.

The labour force surveys are household surveys conducted on a sample basis covering all 14 regions in the country with the aim of generating key socio-economic indicators for the assessment of labour market conditions in the country for planning purposes. All aspects of people's work such as employment, unemployment, underemployment, occupation, industry, education and training are covered in the labour force survey (Namibia Statistics Agency, 2016). Before the year 2012, labour force surveys were conducted every after four years by the Ministry of Labour and Social Welfare (currently known as the Ministry of Labour, Industrial Relations and Employment Creation (MLIREC)). However, from 2012 to date, the survey has been conducted every year by the Namibia Statistics Agency (NSA) in close collaboration with the MLIREC.

2.2.2 Types of unemployment

For a country to devise appropriate policies in addressing the unemployment challenges, there is need to understand the types of unemployment that the country is facing. The different types of unemployment are described below:

2.2.2.1 Cyclical unemployment

Cyclical unemployment arises with changes in economic activity over the business cycle. This type of unemployment occurs when the demand for goods and services decreases resulting in retrenching a large number of workers by businesses in an effort to cut costs (Baumol & Blinder, 1979). Given the effects of climate and weather conditions on Namibia's agricultural and fishing sectors which results in a huge lay off of workers by industries/factories, cyclical unemployment is common in the country. Policies that aimed

at stimulating aggregate demand such as the expansionary fiscal and monetary policy, could help reduce this type of unemployment. This is because they tend to increase the aggregate demand such that businesses that are experiencing a stronger demand are likely to employ more people thereby reducing unemployment.

2.2.2.2 Seasonal unemployment

This type of unemployment arises from changes in the season (Baumol & Blinder, 1979). Seasonal unemployment includes farm workers who harvest crops and resort workers among others. This is also common in Namibia especially in the agricultural and fishing sectors where more employment opportunities are created during the harvesting period especially in the grapes and fishing industries.

2.2.2.3 Frictional unemployment

According to Baumol and Blinder (1979) frictional unemployment is a result of a normal turnover in the labour market. It occurs when people change occupations. It is known to be a short-lived type of unemployment as people expect to find a new job immediately.

2.2.2.4 Structural unemployment

Structural unemployment is driven by skills mismatch between the people looking for jobs and the available job opportunities. The cause of structural unemployment is generally believed to be factors such as the nature of the educational system and how it responds to labour market needs, industrial revolutions and available job opportunities among others (Baumol & Blinder, 1979). According to Sunde and Akanbi (2016), the unemployment

rate in Namibia is largely structural in nature such that there are more people with qualifications but few job opportunities to match them in the country.

2.2.3 Possible causes of unemployment in Namibia

Lack of or low level of qualification: According to the Labour Force reports, unemployment proved to be concentrated among those without formal education (such as the primary and secondary education) that would allow them to find employment. This make them to not qualify for the available jobs in the market.

Skills Mismatch: Young people should be able to make an easy transition from school to work with the skills and knowledge they would have acquired. However, inability to do so has seen the youth giving up on searching for jobs. The issue of employers not considering school leavers for jobs due to lack of experience is a challenge. According to a study commissioned by Namibia Employers Federation in 2010 in partnership with the Institute of Public Policy Research (IPPR), there is skills gap that have seen many companies strangling to fill critical post that require specialist skills (Links, 2010).

Increase in Population: The increasing population in the country is seen as one of the reasons for the rising rate of youth unemployment. It is crucial that government factor youth growth into national and social development planning. According to the 2011 Namibia Population and Housing census, Namibia is a nation of young people, with 37 per cent of the total population being 15 years of age and below a median age of 21. The persistently high unemployment suggests a lack of effective policy interventions. To date,

policies that have been implemented have largely been supply-side initiatives aimed at the structural causes of youth unemployment (Suonpaa & Matswetu, 2012). Therefore, there is a need to identify and propose policies that can help do away with the lack of effective policy interventions.

Employment creation has not been placed at the centre of national planning:

Although the government has recognized since independence that unemployment is one of Namibia's major problems that needs to be addressed, it has not given employment creation prominence in the successive national development plans. The emphasis of NDPs has been on GDP growth, based on the belief that when the economy grows, employment will grow automatically. However, economic growth over the past decade has not resulted in the growth of employment. Therefore, in order to achieve significant growth in employment, the goal of employment creation must be mainstreamed in all relevant policies, programmes and projects within the public and private sectors.

There is no national coordination mechanism for employment creation:

Many programmes and projects are being carried out by Government Offices, Ministries and Agencies, state-owned enterprises and non-governmental organizations that are geared towards employment creation, but they are fragmented and sometimes duplicative. Because of the fragmentation and lack of effective coordination, these efforts fail to make an impact on unemployment levels.

The Namibian economy is not sufficiently diversified:

Namibian economy is dominated by extractive sectors that are high contributors to GDP but require relatively few workers.

The growth in the economy comes from sectors such as mining that do not create employment because they relies heavily on machinery (Namibia Statistic Agency, 2018). There is need to invest in to labour-intensive sectors such as agriculture, manufacturing, tourism, logistic and housing as they have a high demand for human resources.

The labour market has shortage of critical skills: Namibia has over the years experienced a shortage of skilled labour in both the public and private sectors. This problem is evident in the number of foreign nationals that are hired to work in Namibia, especially in big projects that require a skilled labour force. This situation is also exacerbated by the fact that the education institutions do not produce sufficient graduates in the areas most-needed by industry.

2.2.4 Measures put in place to reduce unemployment in Namibia

Below are some of the interventions and programmes that the government introduced with the aim of promoting employment creation:

National Employment Policy: The second Namibia's National Employment Policy (NEP) was developed in 2013. The policy contains programmes and projects that have the potential to create massive employment. However the implementation of this policy could not achieve the desired results, due to among others, lack of financial resources and an effective national employment creation coordinating mechanism.

Targeted Intervention Programme for Employment and Economic Growth (TIPEEG): In 2011 the government through the National Planning Commission initiated

the TIPEEG programme aimed to address the problem of unemployment both in short and medium term in the country. The programme was targeted to create 104000 direct as well as indirect jobs between the years 2011 and 2014 focussing on sectors such as agriculture, tourism, transport, housing (including sanitation) and public work (National Planning Commission, 2011).

Mass Housing Programme (MHP) Initiative: Namibia launched the mass housing programme in 2013 under the Ministry of Urban and rural Development with the aim of constructing approximately 185 000 housing units by the year 2030. This initiative was aimed at addressing the housing needs in the country while at the same time create employment. The first phase of the MHP estimated that the construction of 10.000 houses could create 25.000 jobs, with an additional 5000 in the work of land servicing and the provision of construction materials.

Namibia Integrated Employment Information System (NIEIS): The Namibia Integrated Employment Information System (NIEIS) is a database and interactive employment search system established pursuant to the Employment Service Act, 2011 (Act 8 of 2011). The Act obliges employers to report job vacancies to the Employment Services Bureau in order to facilitate recruitment and job searches by registered job seekers through NIEIS.

Promotion of Small and Medium enterprises (SMEs) and Entrepreneurship Support: Several initiatives have been introduced by the government aimed at promoting employment creation through the provision of finance, mentorship, training and other

support to existing and emerging entrepreneurs. These initiatives are administered by various Ministries and Agencies. Such initiatives include among others the Business and Entrepreneurial Development and Promotion Programmes under the Ministry of Industrialisation, Trade and SME Development.

National Development Plans: The National Development Plans (NDP1, NDP2, NDP3, NDP4 and now NDP5) were designed to provide direction in terms of planning, implementation and outcomes to Namibia's national development agenda. This national development programme has set up goals and priority areas for achieving Namibia's Vision 2030, a shorthand for the country's economic development and industrialization. The current development plan (NDP5) is built on four key pillars of economic progression, social transformation, environmental sustainability, and good governance. The NDP5 sets a number of targets relating to employment. It seeks to promote economic growth with job creation and poverty reduction, to promote skills development for greater employability of the youth, and for the establishment of SMEs. More NDP5 seeks to promote the development and growth of SMEs in line with the Growth At Home Strategy which puts emphasis on the need for value addition to the country's resources so as to create employment. The plan also proposes the reform of the education and training system to make it more demand-driven so that it produces skills needed by industry.

2.2.5 Evolution / trend of unemployment in Namibia 1980 to 2018

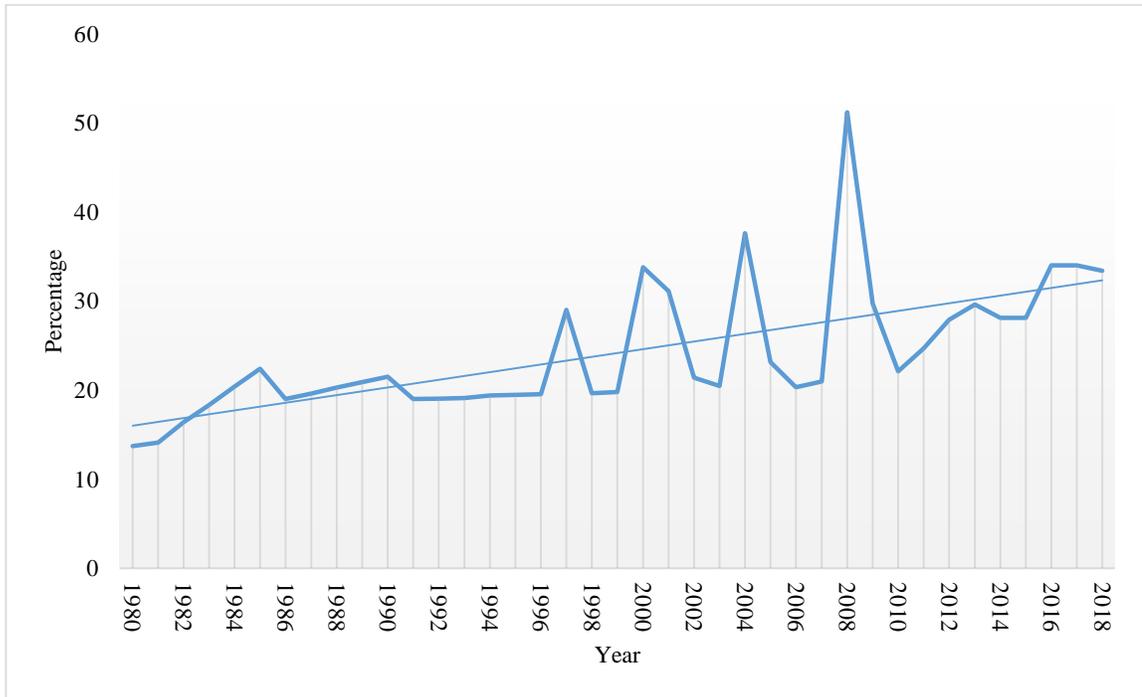
Figure 1 below shows the trend in annual unemployment rates in Namibia from 1980 to 2018. An upward trend was depicted in the unemployment rate over the period under review. The Namibian unemployment rate displayed modest fluctuations around an

average level of 19 per cent during the 1980s and 1990s. There has been an increase in unemployment rate from 1980 to 1985. This increase was attributed to the war that the country was facing during that period which causes distraction in the country and destroyed infrastructures resulting in to loss of jobs which interns worsened the unemployment performances (Mwinga, 2012).

Namibia carried out its first full scaled labour force survey in 1997 where an unemployment rate of 29 per cent was recorded. According to the Ministry of Labour and Social Welfare (1997), the high rate was mainly attributed to lack of skills and low education attainment during that period. In addition the highest unemployment rate of unemployment of 51.2 per cent was recorded in 2008. This was mainly attributed to the methodology used in the 2008 Labour Force Survey such that subsistence farmers were not counted as employed and other inconsistencies in labour data resulted from under recording. Other contributing factors includes the closing of Ramatex in 2007 and the 2008 global financial crisis. The effects of the global economic crisis triggered an increase in unemployment resulting from either closure of companies, downsizing and workers' retrenchments especially in the mining and fishing industries as a result of a decrease in international demand for the respective commodities (Namibia Statistics Agency, 2012).

Moreover, the drought that the country experienced in 2013 to 2016 saw unemployment increasing by 3.8 per cent, from 30.2 per cent in 2013 to 34 per cent in 2016. The current unemployment rate in Namibia as per the Labour Force Survey (2018) is 33.4 per cent with females recorded the highest unemployment rate of 34.3 per cent compared to their male counterparts who recorded a 32.5 per cent. The youth unemployment rate increase

from 43.4 per cent in 2016 to 46.1 per cent in 2018. Additionally, rural areas recorded a higher unemployment rate than the urban areas with 33.5 per cent and 33.4 per cent, respectively (Namibia Statistics Agency, 2018).



Source: Author's compilation

Figure 2.1: Annual unemployment rate

Unlike unemployment, the potential consequences of employment in Namibia are many. Employment has the potential to promote social, economic and political stability in the country. Employment often puts the youth in advantaged position where they are likely to earn higher future earnings or at a decreased probability of being unemployed again due to experiences, or better of still being completely included in the labour market. Economically, employment could lead to the labor market stability and decreased welfare costs (Sunde & Akanbi, 2016).

2.3 Overview of government expenditure in Namibia

2.3.1 Definition and overview of government expenditure in Namibia

The government expenditure in Namibia as part of the fiscal policy tool comprises two components namely, operational and developmental expenditure. Operational expenditure makes up over 80 per cent of the total budget with more than a third of that amount allocated to personal related expenditure. Development expenditure, on the other hand, favours the priority areas of the National Development Plan (NDP) of which about a third of the total capital expenditure is allocated to these sectors (Nakale, Sikanda, & Mabuku, 2015)

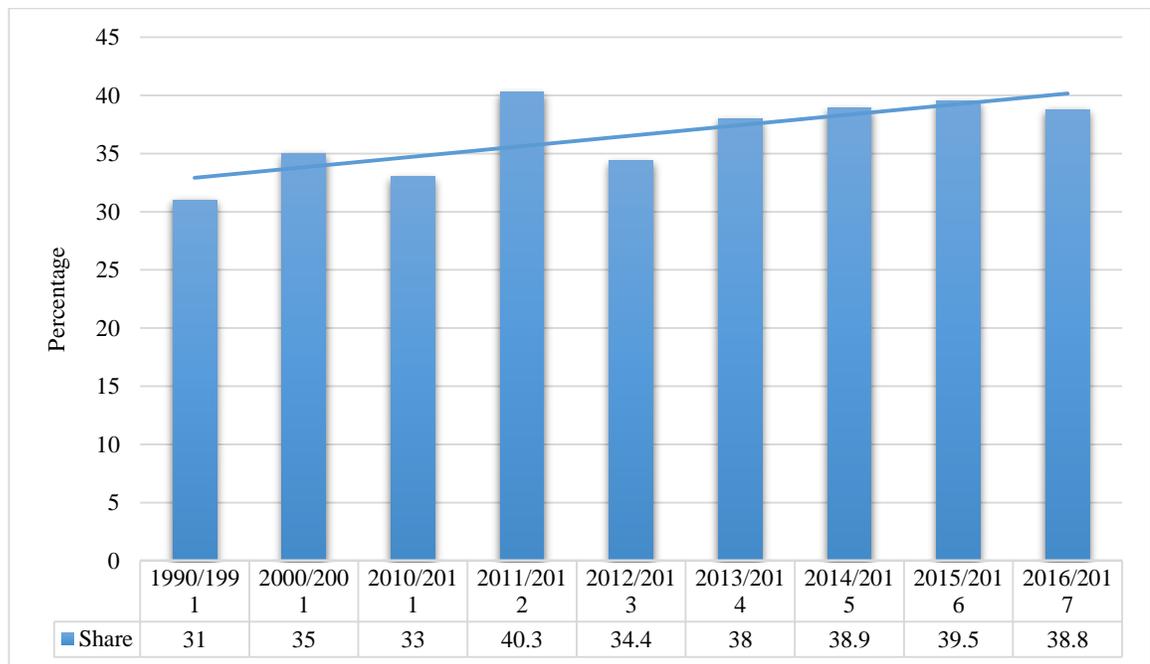
Since the country's independence, the government developed fiscal policy measures in order to increase revenue and promote growth. The government uses budget as an instrument for allocating resources in order to stabilize the economy. Clear economic and fiscal policy were set out by the government in its white paper in 1995 titled "Towards sustainable fiscal policy" (Ministry of Finance, 1995). The white paper was aimed at strengthening macroeconomic stability, reducing income inequality, generate adequate jobs, reducing the budget deficit, increasing income inequality and achieving a sustainable fiscal position.

2.3.2 Evolution / trend of government expenditure in Namibia 1980 to 2018

Since independence, Namibia has recorded a high growth in total expenditure with the 2000/01 financial year recording a 35 per cent total expenditure as a share of Gross Domestic Product (GDP) compared to 31 per cent recorded in 1990/91. Personal

expenditures were found to have been dominating the increase in government expenditure between the two periods, recording an increase from 40 percent in 1992 to 57 percent in 1996/97(Bank of Namibia, 2001).

Moreover, the share of total government expenditure to GDP increased from 34 per cent in the 2011/12 financial year to 40 per cent in the 2015/16 financial year. This increment was attributed to the demand-side oriented and counter cyclical fiscal measures (Bank of Namibia, 2011, 2017). Conversely, the country’s labour market was stagnant and unresponsive to the economic growth that the country experienced in recent years. The result was that fiscal policy became ineffective in enhancing the economy’s production capacity to create employment opportunities thereby reducing unemployment.



Source: Author’s compilation

Figure 2.2: Total expenditure as a percentage of GDP

2.4 Overview of broad money supply (M2) in Namibia

2.4.1 Definition of broad money supply (M2) in Namibia

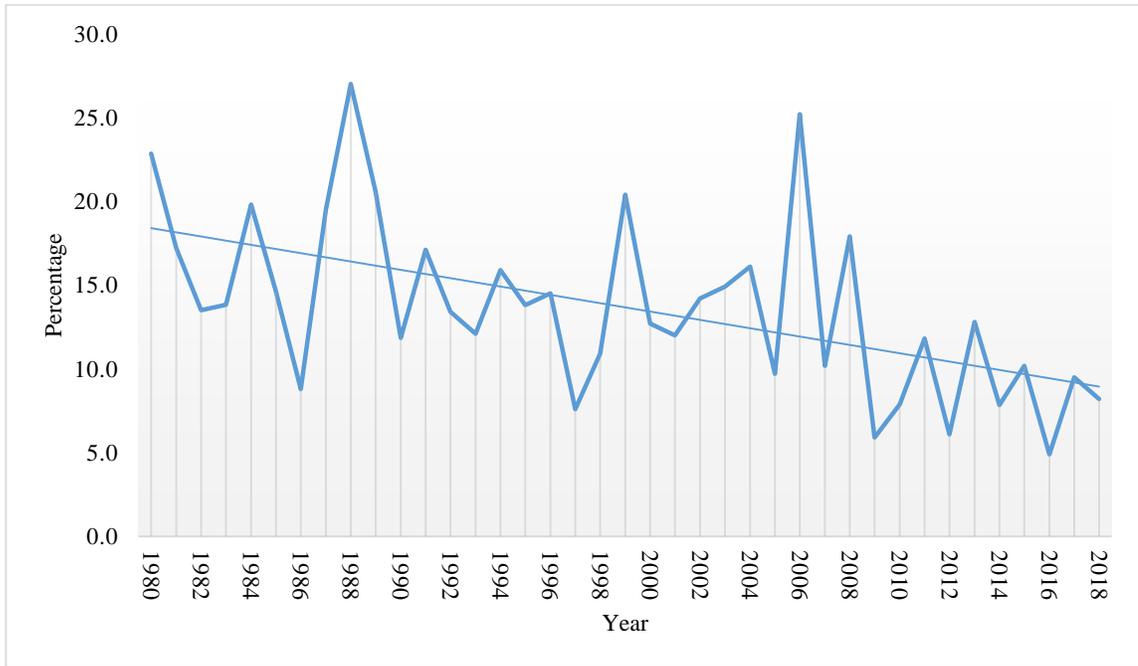
In the Namibian context, broad money supply (M2) comprises of narrow money plus other deposits. Other deposits translate as the sum of currency outside depository corporations, transferable and other deposits in national currency of the resident sectors, excluding deposits of the Central Government and those of the depository corporations (Bank of Namibia, 2017).

2.4.2 Evolution / trend of broad money supply (M2) in Namibia 1980 to 2018

Figure 3 shows the trend of broad money supply in Namibia from 1980 to 2018. A downward fluctuating trend was depicted in the annual growth rate of broad money supply during the period under review. Between 1990 and 1998, the growth of broad money supply, grew by a quarterly average of about 3.06 per cent. During this period, M2 growth balances between 1990 and 1991 and stabilised around an average of about 3.5 per cent between the year 1991 and 1995. The year 1996 witness a reversal in trend as M2 growth slowed down. The rapid increase in M2 growth in the early 1990's was said to be attributed to the widening and deepening of the financial system after independence. In addition, the behaviour of the M2 growth during that period tracked the movements in the consumer price index which reported a quarterly average of about 2.6 per cent for the entire period (Ikhide & Katjomuise, 1999).

A high growth of 25.2 per cent was recorded in 2006 resulting from net foreign assets as the growth of domestic credit slowed. The lowest growth of 4.9 per cent in broad money

supply recorded in 2016 was mainly attributed to a decline in net foreign assets of other depository corporation as well as a slower growth in credit extended to the private sector (Bank of Namibia, 2016).



Source: Author's compilation

Figure 2.3: Annual growth rate in broad money supply

CHAPTER THREE: THEORETICAL AND EMPIRICAL LITERATURE REVIEW

3.1 Introduction

This chapter reviews the theoretical and related empirical literature regarding the effects of government expenditure and money supply policy on unemployment. The literature review chapter is divided into two parts namely theoretical and empirical literature.

3.2 Theoretical Literature

There are different views in the schools of economists regarding the effects of government expenditure and money supply on unemployment. The theoretical framework of this study was based on the Keynesian theory that unemployment can be controlled and combated by the use of fiscal and monetary policy tools making it more suited for this study in examining the effect of government expenditure and money supply on unemployment in Namibia. Other reviewed theories include the classical quantity theory of money and monetarists views. Keynesian, classicalist and the monetarist have argued over the lead between fiscal and monetary policy frameworks in transforming macroeconomic policy application. The sections below discuss some of these views.

3.2.1 The Keynesian theory

The Keynesian economists' argument is that unemployment is a natural consequence that can be reduced through a reduction in interest rates and government investment in infrastructure. They believe that fiscal policy can be effective in reducing unemployment such that in a recession, expansionary fiscal policy will increase the aggregate demand

thereby causing a higher output which then leads to employment creation (Schiller, 2006). The Keynesian view of unemployment is based on the sticky wages assumption in the labour market. This assumption implies that employees backed by unions would strongly reject any wage cuts and consequently unemployment will continue to be experienced as wages would never fall to the market clearing position. Hence, Keynesians believe in the government's intervention to adjust quantities of demand on the assumption of the existence of the equilibrium in the economy (Wickens, 2008). The classical economists on the other hand, believe that prices and wages are flexible which automatically brings about full employment. They are of the opinion that unemployment could be solved by cutting down wages which would then increase the demand for labour, stimulate economic activity and create employment. (Sodipo & Ogunrinola, 2011).

The Hayek economists however, argued that the Keynesian policy of reducing unemployment results in inflation such that money supply would have to be increased by the monetary authority to keep levels of unemployment low (Sanz-Bas, 2011). Hayek believes that monetary policy can be effective in times of extensive unemployment of all kinds throughout the economy. Even though Hayek believed that there was a connection between expansionary monetary policies towards upholding full employment, he viewed the connection as indirect thereby not finding the conduct of monetary policy with central planning as such (Arevuo, 2012).

3.2.2 Classical quantity theory of money

The classical economists hypothesise the operation of monetary policy premised on the quantity theory of money as advocated by Friedman (1989). The classical economists

argue that the greater the supply of money in the economy, the greater the likelihood of it leading to increased demand which then enhances the value of money in the economy. According to the classical theory, equilibrium is achievable in the long-run since the level of supply of commodities are able to automatically self-correct due to the forces of both demand and supply. In their views, in the long-run full employment can always be a normal situation given that resource underemployment and demand deficiency is impossible in the economy. The classical economists maintain the notion of neutrality of money and they assume that the amount of money printed by the central bank only impacts economic variables like gross domestic product (GDP), employment and consumer spending among others (Humphrey, 1974).

The classical views that private enterprise economy ensures full employment automatically was challenged by Keynes. Keynes believe that employment depends on effective demand however, adequate effective demand to generate full employment is not guaranteed such that when there when unemployment exist, the classical view of public finance is no longer valid (Dewett & Navalur, 2012). The aggregate demand function of employment under the Keynesian framework does not automatically adjust itself to that of aggregate supply. This also applies to demand and supply of output. The above adjustments can only be realized through an effective operation of fiscal policy. Moreover, Keynes is of the view that the government has to positively regulate and control the economy through the use of taxes and expenditure. Such that an increase in government expenditure leads to an increase in economic growth. Thus, under the Keynesian theory, expansionary fiscal policy is a method to attain and maintain the level of full employment (Abu & Abdullahi, 2010).

3.2.3 Monetarist theory

In addition to the two above theories, the monetarists believe that monetary policy is the most powerful instrument to stabilise the economy and has an influence on economic activity than fiscal policy (Dwivedi, 2005). They argue that fiscal policy will only cause a temporary increase in real output such that in the long run, expansionary fiscal policy will only cause inflation and not increase real GDP. According to the monetarists in order to reduce unemployment, it is necessary to use supply-side policies such as reducing the power of trades unions which increase the flexibility of labour markets. Monetarists are famous for their proposition of the large significance of money in an economy and greatly refute the idea of government interference through its public spending. They rather advocate for critical control to the stock of money provided there is free market enterprise. This is an indication that in the absence of government actions through the use of fiscal policy, markets tend to be more coherent in managing unemployment crises.

3.3 Empirical Literature Review

Among the reviewed empirical literature, Eita and Ashipala (2010) studied the causes of unemployment in Namibia over the period 1971 to 2007 through the use of the Engle-Granger two-step econometric technique. The study revealed that unemployment in Namibia is affected by inflation, actual output, aggregate demand and investment. Investment which form part of the total expenditure was found to have a negative relationship with unemployment. This implies that in order to reduce unemployment in Namibia, investment should be increased thereby conforming to the economic theory.

In a similar study, Sunde and Akanbi (2016) investigated the sources of unemployment in Namibia for the period 1980 to 2013 using the structural vector autoregressive (SVAR) method. Apart from the differences in the methodology, the approach of Sunde and Akanbi differed from that of Eite and Ashipala (2010) because they added additional variables namely employment and productivity to their model and used more recent time series data. Sunde and Akanbi (2016) found a combination of various shocks and hysteresis mechanism to be the cause of the persistently high unemployment in the country. The study also revealed that labour supply, real wages and aggregate demand impact unemployment in Namibia. Furthermore, the price shocks were found to affect unemployment in the long run while productivity shocks only explain a small fraction of unemployment in both the short and long run.

Alexius and Holmlund (2007) investigated the relationship between monetary policy and the Swedish unemployment fluctuation by employing the structural vector autoregressive model (SVAR). The results show that 22 and 30 per cent of fluctuations in unemployment in Sweden are caused by shocks to monetary policy thereby concluding that monetary policy has an effect on unemployment in both the short run and the long run. However, this study only concentrated on one monetary policy variable which is the real interest rate. Using the same model, Tagkalakis (2013) studied the unemployment effects of fiscal policy in Greece. The results proved that unemployment and growth effects can be quite significant in the case of cuts in government spending and consumption as well as investment. In addition, an increase in tax leads to a reduction in output and an increase in unemployment. The impact of fiscal policy on output and unemployment was found to be more significant when considering recent year developments in the country as both

output and unemployment proved to respond in a more persistent manner compared to pre-crisis years.

Sunde (2015) explored the effect of monetary policy on unemployment in Namibia over the period 1980 to 2013 by employing SVAR. The study used both exchange and bank lending rates as monetary variables and revealed that monetary policy affects unemployment in Namibia in the short run but it is ineffective in the long run. On the contrary, studies by Alexius and Holmlund (2007) and Jacobs, Kuper and Sterken (2003) established that monetary policy has an effect on unemployment in both the short and the long run. As such, the inclusion of money supply and fiscal policy measures in this study will contribute to existing literature on the effects of fiscal and monetary policy on unemployment in Namibia.

In another study, Attamah, Anthony and Ukpere (2015) investigated the impact of fiscal and monetary policies on unemployment in Nigeria over the period 1980 to 2013 using the ordinary least square (OLS) method. The results show that government expenditure, money supply and exchange rate have a positive and significant impact on unemployment in Nigeria. In the same country Etale and Ujuju (2016) specifically explored the effect of government expenditure and money supply on unemployment using the multiple regression technique. Although there are differences in the methodology between the two studies, they obtained similar results on the effects of government expenditure and money supply on unemployment. However, their results on the exchange rate contradict that of Attamah, Anthony and Ukpere (2015) as the exchange rate was found to have a statistically significant negative impact on unemployment.

Similarly, Sebuliba (2017) examined the impact of monetary and fiscal policy dynamics on inflation and unemployment in Uganda using both the Ordinary Least Squares (OLS) and Auto Regressive Distributed Lag (ARDL) methods. The use of the Fully Modified Least Squares (FMOLS) in the study found total government expenditure to be negatively and significantly related to unemployment. This implies that an increase in government expenditure will lead to employment creation thereby reducing unemployment in the country. However, the results of the Dynamic Least Squares (DOLS) found the relationship between fiscal variables and unemployment to be negative and statistically insignificant. Other variables such as tax revenue and trade openness showed a positive and statistically significant relationship with unemployment. With regards to monetary policy, the results revealed that both interest rate and exchange rate have a negative impact on unemployment and are statistically insignificant. Money supply, inflation and structural break all showed a positive and insignificant relationship with unemployment which does not conform to economic theories which suggests existence of a negative relationship between unemployment and each of the two variables.

Onodugo et al. (2017) studied the impact of public sector expenditures and private sector investment on unemployment over the period 1980 to 2013. They found that capital expenditure and private sector investment have a positive impact on unemployment in medium to long-run while recurrent expenditure was not statistically strong enough to do the same. In a related manner, Fedderke, Perkins, and Luiz, (2006) used the Vector Error Correction Model (VECM) using time series data for the period 1976 to 2002 to study the effect of public sector spending in infrastructure on economic growth in South Africa. The

study results revealed stronger evidence that increased government expenditure could lead to output growth and more employment in the country. The results are in conformity with the postulations of Onodugo et al. (2017) and Nwosa (2014).

The reviewed literature implied that government expenditure and money supply positively impact unemployment in many countries in various ways. However, the extent to which government expenditure and money supply boost economic growth thereby reducing unemployment varies from country to country. The fundamental question that follows is will Namibia necessarily enjoy greater low unemployment rates as a result of the increase in government expenditure and money supply? This is an empirical issue that needs further examining.

CHAPTER FOUR: RESEARCH METHODOLOGY

4.1 Introduction

The previous chapter looked at the existing literature both theoretical and empirical on the subject matter under study. Chapter four describes the research methodology applied in this study with specific emphasis on data source, variables measurements and data. The procedures for data analysis are therefore explained in this chapter starting from integration test (unit root test), cointegration test, error correction model and causality test.

4.2 Data Sources

The study used annual time series data over the period 1980 to 2018. The data for the various variables used were obtained from the database of the Namibia Statistic Agency (NSA), Bank of Namibia (BoN), the database of Eita and Ashipala (2010), as well as that of Shifotoka (2015). The statistical and econometric software package called Eviews 9.0 was used to estimate the regression model in addressing the study objectives.

4.3 Measurements of Variables

To facilitate the analysis, the variables used in the model consist of unemployment rate (U) used as regressand. The regressors are government expenditure (GE), broad money supply (M2) and inflation rate (I) as a control variable added to the model. The variables are measured as follows:

Annual Unemployment rate (U) : This study used a broad definition of unemployment as per the Labour Force Survey where unemployment is defined as all persons within the economically active population or working age group who meet the following two criteria, irrespective of whether or not they are actively seeking work: being without work and being available for work. Unemployment rate is measured as the ratio of unemployed persons to the total labour force (Namibia Statistic Agency, 2018).

Annual Government expenditure (GE): The government expenditure in Namibia as part of the fiscal policy tool comprises of two components namely, operational and developmental expenditure. In this study government expenditure is measured as a ratio of total government expenditure to GDP.

Annual Broad money supply (M2) and Inflation (I): The study used the annual growth of broad money supply. It comprises of narrow money plus other deposits. Where other deposits translate as the sum of currency outside depository corporations, transferable and other deposits in national currency of the resident sectors, excluding deposits of the Central Government and those of the depository corporations (Bank of Namibia, 2017).

Annual inflation rate (I): The annual inflation rate is measured as the change in the consumer price index of the month under review to the same month in the previous year. This is the rate at which average prices of consumer goods changed over the past 12 month period (Ogbokor, 2004).

4.4 Data Analysis

4.4.1 Model Specification

The study adopted the Autoregressive Distributed Lag (ARDL) model that was introduced by Pesaran, Shin and Smith (2001) to investigate the effects of the government expenditure and money supply on unemployment in Namibia. The ARDL model is considered to be efficient in estimations that involve small sample size. The model also allows testing for the existence of a relationship between variables in levels using a combination of variables I (1) and I (0) as regressors. This makes it well suited for this study as it ascertains the relative contribution of government expenditure and money supply to unemployment. The generalised ARDL model is stated as follows:

$$\Delta U_t = \alpha_{0i} + \sum_{i=1}^p \beta_i U_{t-i} + \sum_{i=1}^{q_1} \delta_i \Delta GE_{t-i} + \sum_{i=1}^{q_2} \delta_i \Delta M2_{t-i} + \sum_{i=1}^{q_3} \delta_i \Delta I_{t-i} + \varepsilon_{it} \quad (1)$$

Where Δ is the first difference operator, U_t is a dependent variable and the variable $GE_t, M2_t$ and I_t represents the explanatory variables to be purely I(0) or I(1) or a combination of the two; α is the constant; β and δ are coefficients; $i=1, \dots, k$; p, q_1, q_2, q_3 are optimal lag orders and ε_{it} is a vector of error term.

Table 4.1 below summarised the expected signs of the coefficients of the exogenous variables used in this study.

Table 4.1 Summary of a Priori Expectation

Variables	Expected Signs/relationship	Rationale
Government Expenditure (GE)	Negative(-)	Government expenditure is expected to have a negative relation with unemployment as increase in public expenditure further increases aggregate demand which in turn leads to job creation thereby reducing unemployment levels. Hence, a negative link between government expenditure and unemployment. This explanation is based on the Keynesian theory of aggregate demand, which assumes that employment creation is derived from total aggregate demand (Schiller, 2006).
Money Supply (M2)	Negative (-)	Money supply is expected to have a negative link with unemployment. An increase in money supply is likely to reduce unemployment as a result of low interest rates and increased domestic investments (Mankiw & Taylor, 2007)
Inflation rate (I)	Negative (-)	There exists an inverse relationship between inflation and unemployment. This explanation is based on the Phillips curve which relates the rate of inflation with the rate of unemployment. According to the Phillips curve, as the level of unemployment decreases, the inflation rate increases and vice versa (Jelilov, Obasa & Isik, 2016)

Source: Author's compilation

4.4.2 Analytical Framework

4.4.2.1 Unit root test

The Unit root test also known as the stationarity test, is a statistical test that is used to determine the order of integration. The Augmented Dickey-Fuller (ADF) test and the Phillips-Perrons (PP) test are commonly used unit root tests and in this study, the presence of a unit root is determined using the two tests. The ADF test corrects for a high order serial correlation by adding lag differences while the PP test corrects any serial correlation and heteroscedasticity in the errors by directly modifying the t-statistics (Gujarati, Porter & Gunasekar 2012).

The general ADF test estimates the regression equation as follows;

$$X_t = \alpha_t + \beta_t t + \rho X_{t-1} + \sum \delta \Delta X_{t-1} + \mu_t \quad (2)$$

Where, X_t denotes the level of the variable under consideration, t represent the time trend and μ_t denote the normally distributed random error term with zero mean and constant variance. The PP test on the other hand, encompasses fitting the regression. The PP test equation is as follows:

$$Y_t = Z_1 + \lambda y_{t-1} + Z_2(t - T/2) + \sum_{i=0}^n \delta_i \Delta Y_{t-1} + \mu 2_t \quad (3)$$

Where, Y_t is the first difference operator, T represent the estimated sample size and $\mu 2_t$ denotes the covariance stationary disturbance error term. Unit root test hypothesis are;

$H_0: \rho = 0$ (The variable has unit root/non stationary)

$H_1: \rho \neq 0$ (The variable has no unit root/stationary)

The null hypothesis is rejected if the test statistics is less than the critical value with a significant aspects (in this case 5 percent) in pursuit of the stationary alternative hypothesis (Perman & Byrne, 2006).

4.4.2.2 Cointegration test

After establishing the variables order of integration, the model that leads to the stationary relations among variables and where standard inference is possible can now be set up. Cointegration is the necessary criteria for stationarity among non-stationary variables (Sjö, 2008). The Cointegration test is conducted to establish whether there exists a long-run relationship between variables. According to Gujarati et al. (2012), the cointegration of two or more time series suggests that there exists a long-run or equilibrium relationship between them. Cointegration is derived from the existence of a significant link between two or more series in order to establish an equilibrium relationship that results in the long run. Economic variables are described as cointegrated under the circumstances of linear composition under stationarity. Therefore, a cointegrating relationship between economic variables could particularly exhibit a long-term or equilibrium phenomenon. Importantly, the cointegrating variables can possibly digress from the conventional short-run relationship, however, they would regain their initial relation in the long run. Therefore, the economic interpretation of cointegration implies that although the series may independently display non-stationarity, subsequently, they converge jointly which in turn drives the stochastic trends to stationarity. The techniques used in determining the long-run relationship between series that are non-stationaries are the Granger (1981) and the Engle and Granger (1987) (Pesaran et al., 2001) bound test or ARDL cointegration and, Johansen and Juselius (1990) cointegration.

This study employed the ARDL approach to cointegration also referred to as a bound test. According to Pesaran et al. (2001), the ARDL cointegration techniques are used in determining the long-run relationship between series regardless of whether the variables

in use are I(0), I(1) or a combination of the two. An ARDL equation known as the Unrestricted Error Correction Model (UECM) is constructed in order to perform the bound F test in probing the existence of a long-run relationship as shown below:

$$\Delta U_t = \alpha_0 + \sum_{i=1}^p \alpha_{1i} \Delta U_{t-i} + \sum_{i=1}^{q_1} \alpha_{2i} \Delta GE_{t-i} + \sum_{i=1}^{q_2} \alpha_{3i} \Delta M2_{t-i} + \sum_{i=1}^{q_3} \alpha_{4i} \Delta I_{t-i} + \beta_1 U_{t-1} + \beta_2 GE_{t-1} + \beta_3 \Delta M2_{t-1} + \beta_4 I_{t-1} + \varepsilon_t \quad (4)$$

Where: α_0 is the intercept term and Δ is the first difference operator. Equation (2) can be viewed as an ARDL of order (p, q_1, q_2, q_3) and is explained by its past values. The order (p, q_1, q_2, q_3) are lags established by using one or more of the information criteria such as the Akaike's Information Criteria (AIC), Hannan-Quinn (HQ), Schwarz Information Criterion (SC), Final Prediction error (FPE) and Likelihood Ratio (LR). The null and alternative hypothesis for the bound tests are as follows:

$H_0: \beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$ (There is no long-run relationship / there is no cointegration)

$H_1: \beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq 0$ (A long-run relationship exists / there is cointegration)

In deciding between the two hypotheses, the calculated F-statistic value is assessed against the critical values. Based on the numbers of variables, the critical values consist of lower and upper bounds. The distinction between the two is that the lower bound is based on the assumption that all of the variables integrated of order zero while the upper bound is based on the assumption that all of the variables integrated of order one. If the computed F-statistic falls below the lower bound, it implies that there is no co-integration hence the failure to reject the null hypothesis. However, if the F-statistic exceeds the upper bound,

it suggests the existence of cointegration thereby rejecting the null hypothesis. The test is found to be inconclusive if the F-statistic falls between the lower and upper bounds.

The long-run elasticities from the estimation of UECM in equation (2) are the coefficient of one lagged explanatory variable divided by the coefficient of one lagged dependent variable. The long-run inequality, elasticities from equation (2) are β_2/β_1 , β_3/β_1 and β_4/β_1 . The short-run effects on the other hand, are captured by the coefficients of the first-differenced variables in equation (2). From the bound test results, if variables are not cointegrated, the short-run ARDL (p, q_1, q_2, q_3) will be specified as:

$$\Delta U_t = \beta_0 + \sum_{i=1}^p \alpha_{1i} \Delta U_{t-i} + \sum_{i=1}^{q_1} \alpha_{2i} \Delta GE_{t-i} + \sum_{i=1}^{q_2} \alpha_{3i} \Delta M2_{t-i} + \sum_{i=1}^{q_3} \alpha_{4i} \Delta I_{t-i} + \varepsilon_t \quad (5)$$

However, if there is cointegration, the error correction model (ECM) is specified.

4.4.2.3 Error Correction Model

If a number of series are found to be cointegrated, it implies that they have common stochastic trends and have a long-run equilibrium. This long-run equilibrium is a result of short term or temporary effects random shocks. Hence, the series eventually adjusts for these. This short term adjustment process is therefore referred to as an Error Correction Process. The ECM captures both short term departures from the long run equilibrium and the long run equilibrium in the model to describe how the series behave when they move out of the long-run equilibrium, without losing long-run information (Dağdeviren and Sohrabji, 2012).

The ECM is specified below:

$$\Delta U_t = \beta_0 + \sum_{i=1}^p \alpha_{1i} \Delta U_{t-i} + \sum_{i=1}^{q_1} \alpha_{2i} \Delta GE_{t-i} + \sum_{i=1}^{q_2} \alpha_{3i} \Delta M2_{t-i} + \sum_{i=1}^{q_3} \alpha_{4i} \Delta I_{t-i} + \lambda_1 ECT_{t-1} + \varepsilon_t \quad (6)$$

Where λ represent the speed of adjustment parameter while error correction term (ECT) is the residual obtained from the estimated cointegration model of equation (2). The coefficient of the error correction (λ) is expected to be less than zero, which implies cointegration relation. The ECT shows how much of the disequilibrium is being corrected. Specifically, ECT shows the extent to which any disequilibrium in the previous period is adjusted in U_t . A positive coefficient of the ECT indicates a divergence from the equilibrium, while a negative coefficient indicates convergence to equilibrium.

4.4.2.4 Granger causality test

Causality refers to the capability of a given variable to predict the other variable. According to Granger (1988), the existence of cointegration between a dependent and independent variable implies the existence of at least one directional causation. Once the existence of cointegration among variables is established, the causality relationship should be investigated within a dynamic error correction framework.

The ECM provides the opportunity to differentiate between the long and short-run Granger causality where the short-run dynamics are captured in the individual coefficients of the lagged terms, whereas the ECT contains information of the long-run causality. Henceforth, the significance of each explanatory variable lags depicts the short-run causality. In addition, a negative and statistically significant ECT is assumed to signify a long-run causality. The short-run causal effect is represented by the t-statistic on the

explanatory variable while for the long-run relationship, the t-statistics of the coefficient lagged ECT indicate that there is Granger causality.

The hypotheses are as follows:

H_{01} : Unemployment does not Granger cause Government Expenditure

H_{11} : Unemployment Granger causes Government Expenditure

H_{02} : Unemployment does not Granger cause Money Supply

H_{12} : Unemployment Granger causes Money Supply

H_{03} : Government expenditure does not Granger cause unemployment

H_{13} : Government expenditure Granger causes unemployment

H_{04} : Money Supply does not Granger cause unemployment

H_{14} : Money Supply Granger causes unemployment

The Granger causality test primarily considers prediction than causation. This is in view of the fact that although past phenomena can possibly cause or predict the future, on the other hand, future events are unable to cause or predict past events. Thus, the following outcomes are possible:

- Unidirectional causality: This occurs when X/Y Granger causes Y/X, but not vice versa.

- Bi-directional causality: This occurs when X Granger causes Y and Y Granger causes X.
- Bi-directional causality: This occurs when Y Granger causes X and X Granger causes Y.
- Independence: This is when neither variable Granger causes the other.

4.4.2.5 Diagnostic checks

The diagnostic check is done by testing for robustness through employing various diagnostics tests of the residuals. The model's robustness was determined by checking for autocorrelation, heteroscedasticity, the cumulative sum of recursive residuals (CUSUM) and the CUSUM of square, stability test, Ramsey RESET and the normality of the residual. In order to fail to reject the null hypothesis of no autocorrelation, it is required for that the probability of the observed R-squared be greater than 5 per cent. Else, the alternative hypothesis of autocorrelation must hold. With regards to heteroscedasticity, the null hypothesis states that the residual is homoscedastic (if the P-value of the F and Chi-square is greater than 5 per cent), else the alternative hypothesis of heteroscedasticity (if the P-value of the F and Chi-square is smaller than 5 per cent) has to hold. With respect to the stability test, if the plot of CUSUM statistics stays within the critical bounds of 5 per cent significance level, the null hypothesis that all coefficients in the error correction model are stable cannot be rejected. However, if either of the lines falls outside the critical bound then the null hypothesis can be rejected at the 5 per cent level of significance. Regarding the Ramsey RESET also known as the likelihood test, if the F-statistic is greater than the critical value at 5 per cent significance level then one rejects the null hypothesis

of correct specification. This then indicates that there is a functional form misspecification in the model. Lastly, with respect to normality, the null hypothesis states that, residuals are normally distributed. The Jarque-Bera normality test was used, and if the residual is normally distributed then the coefficient of the residual is insignificant ($P\text{-value} > 0.05$), otherwise the alternative hypothesis must hold.

CHAPTER FIVE: RESULTS AND DISCUSSION

5.1 Introduction

In this chapter, the empirical results are presented as per the empirical model developed in Chapter four. The chapter is divided into the following sections: Section 5.2 covers the data analysis results with the following sub-sections: 5.2.1 unit root results; 5.2.2 presents the results of the long-run coefficient; 5.2.3 discusses the results of the bound test; ECM results are presented in 5.2.4 ; whereas 5.2.5 presents the Wald test results and 5.2.6 covers the diagnostic and stability test. The last section presents the summary of the chapter.

5.2 Data Analysis

5.2.1 Unit root test

Table 5.1: Stationarity test results

Variable	Model Specification	ADF		PP		Order Of Integration
		Levels	1 st Difference	Levels	1 st Difference	
U	Constant	-0.6188	-9.3925*	-3.3205*	-16.331*	I(0)
	Constant and Trend	-7.1237*	-9.2431*	-11.938*	-15.945*	
	None	1.9825	-8.6759*	0.5961	-12.069*	
GE	Constant	-5.2332*	-7.7290*	-5.0947*	-8.5514*	I(0)
	Constant and Trend	-4.7967**	-7.6096*	-4.7199*	-8.3572*	
	None	0.4546	-7.8534*	0.5173	-8.6799*	
M2	Constant	-3.1792**	-10.476*	-5.1425*	-27.116*	I(0)
	Constant and Trend	-6.5448*	-10.321*	-6.5723*	-26.319*	
	None	-1.2339	-10.585*	-1.6295***	-21.018*	
I	Constant	-2.3466	-8.0823*	-2.0808	-14.403*	I(1)
	Constant and Trend	-4.7072*	-7.9685*	-4.7008*	-14.226*	
	None	-1.3809	-8.1008*	-1.2501	-10.779*	

Source: Author's compilation

*Note that *, **, *** indicate significance at 1, 5 and 10%, respectively.*

Prior to time series analysis, the unit root test was conducted by employing the Augmented Dickey-Fuller (ADF) and the Phillips-Perrons (PP) tests in determining the order of integration of the variables and to avoid spurious results. The calculated value of the ADF and PP tests for each variable were compared with the critical value at 1, 5 and 10 per cent levels of significance, both in their absolute forms to determine the stationarity of the variables.

The results in Table 5.1 revealed that there is a mixture of integration of order one (I (1)) and order zero (I (0)) of underlying variables and hence, the ARDL approach was used to test the cointegration of the model. Unemployment, government expenditure, money supply and private expenditure were observed to be I (0). Inflation, on the other hand, was found to be I (1). Given that there exists a combination of I (0) and I (1) variables, the model could be cointegrated. This study, therefore, proceeded to examine the presence of cointegration among the variables by applying the bound test.

5.2.2 ARDL Model Long Run results

Table 5.2 ARDL Model Long Run Coefficient estimate

Dependent Variable U				
ARDL(1,1,0,1)				
Variables	Coefficient	Std. Error	t-Statistic	Prob.
GE	-0.023265	0.534598	-0.043519	0.9656
M2	-0.366671	0.202401	-1.811609	0.0797
I	-0.674086	0.288553	-2.336094	0.0261
C	36.124440	13.584329	2.659273	0.0123

Source: Author's compilation

The long-run relationship between the unemployment rate and the variables included in the model is given as follows:

$$U_t = 36.1244 - 0.0233GE_t - 0.3667M2_t - 0.6741I_t \quad (7)$$

(t-values) (-0.0435) (-1.8116) (-2.3361)

The ARDL estimates for the long-run coefficients in Table 5.2. Equation 5 above indicates that when unemployment is used as a dependent variable the relationship between government expenditure and unemployment is negative and statistically insignificant. In other words, an increase in government expenditure has been associated with a decrease in unemployment by 0.0435 percent in the long-run. This result is consistent with the findings of Sebuliba, (2017). However, money supply was found to be negatively and statistically significantly (but only at 10% significance level) associated with unemployment such that an increase in money supply would decrease unemployment in the long-run.

Although the results of the two relationships above are in line with the theories outlined in Table 4.1 where negative signs were expected for the two relationships, the results contradict that of Sunde (2015) who found monetary policy in Namibia to not have an effect on unemployment in the long run. Inflation was also found to have an inverse relationship with unemployment.

5.2.3 Cointegration Test

Table 5.3 Bound test results

Bound Test					
Dependent Variable	F-Statistics	K	Significance Level	Bound Critical Values	
				I(0)	I(1)
U	5.932270	3	10%	2.72	3.77
			5%	3.23	4.35
			1%	4.29	5.61

Source: Author's compilation

The results in Table 5.1 shows that the variables were I (0) and I (1) thus, the ARDL approach was used to test for cointegration. The Bound test for cointegration is based on the joint F-statistic under the null hypothesis of no cointegration. Using the Akaike information criteria (AIC), a maximum lag order of 1 was chosen for the conditional ARDL model.

The results of the bound test for cointegration in Table 5.2 shows that the computed F-statistic is 5.932 and with $k=3$, the lower and upper bounds are 3.23 and 4.35, respectively at 5 per cent level of significance. Given that the computed F-statistic lies above the upper bound, the null hypothesis of no cointegration can be rejected. This confirms the existence of cointegration among the variables, thus proving there exists a long-run relationship among the variables. This implies that government expenditure, money supply and inflation are important factors in determining long run unemployment in the in Namibia. This finding is supported by the results of Eita and Ashipala (2010) as well as that of Sunde and Akanbi (2016) who found unemployment in Namibia to be affected by inflation, aggregate demand and investment among others in the long-run.

Given the above results, the study proceeded to estimate the error correction model which was used to establish the causality among the variables by employing the Wald test.

5.2.4 Error Correction Model

Table 5.4: Error correction model results

Dependent Variable ΔU				
ARDL(1,1,0,1)				
Variables	Coefficient	Std. Error	t-Statistic	Prob.
C	0.586135	0.770728	0.760496	0.4531
$\Delta U(-1)$	0.163193	0.173671	0.939669	0.3551
ΔGE	-1.822609	0.612242	-2.976943	0.0058
$\Delta GE(-1)$	0.152524	0.483702	0.315326	0.7548
$\Delta M2$	-0.273992	0.138455	-1.978927	0.0574
ΔI	0.052720	0.292005	0.180545	0.8580
$\Delta I(-1)$	0.693685	0.338099	2.051721	0.0493
$ECT(-1)$	-1.063270	0.231020	-4.602492	0.0001
R^2	0.596612			
Adjusted R^2	0.499243			
F-statistic	6.127299			
Prob(F-statistic)	0.000188			
Durbin-Watson stat	1.992430			

Source: Author's compilation

$$\Delta U_t = 0.5861 + 0.1632\Delta U_{t-1} - 1.8226\Delta GE_t + 0.1525\Delta GE_{t-1} - 0.2740\Delta M2_t + 0.0527\Delta I_t + 0.6937\Delta I_{t-1} - 1.0633ECT_{t-1} \quad (8)$$

The appropriate number of lags of 1 period was used in testing the model as determined by the Akaike's information criterion.

The error correction estimates in Table 5.4 shows that the unlagged coefficients for government expenditure and money supply are negative and statistically significant. Similar results were also found by Tagkalakis (2013) and Sebuliba (2017). This suggests that the two variables are inversely related to unemployment in the short-run.

The negative and statistically significant results above support the theories in Table 4.1 with the views that an expansionary fiscal policy (increase in government expenditure) further increases aggregate demand which in turn leads to job creation thereby reducing unemployment levels. Hence, a negative link between government expenditure and unemployment. This explanation is based on the Keynesian theory of aggregate demand, which assumes that employment creation is derived from total aggregate demand (Schiller, 2006). Similarly, an expansionary monetary policy (an increase in money supply) makes borrowing cheaper and easier thereby allowing more economic activities to occur which then reduces unemployment (Mankiw & Taylor, 2007).

The results of the lagged coefficient of government expenditure, however, were found to be positive but statistically insignificant which suggests that an increase in government expenditure results in an increase in unemployment. Although this result contradicts the above theory, it is relevant to the Namibian situation where unemployment continues to be high while the government expenditure is reported to be increasing every year as shown in Figure 2. Furthermore, the lagged coefficient of inflation was found to be positive and statistically significantly associated with unemployment. The error correction term (ECT_{t-1}) measures the speed at which unemployment adjusts to changes in explanatory variables (government expenditure, money supply and inflation) before converging to its equilibrium level. Based on the results in Table 5.4, ECT_{t-1} is negative and statistically significant at 5 per cent level of significance where the coefficient of -1.063 indicates a high rate of convergence to equilibrium. The R-squared (R^2) of 0.5966 implies that 59.66 per cent variations in Unemployment are jointly explained by

government expenditure, money supply and inflation. The Durbin-Watson statistic of 1.992430 imply that the null hypothesis of no autocorrelation in the residual cannot be rejected.

5.2.5 Granger Causality Test

Table 5.5: Granger causality results

Dependent Variables	Short-run Causality <i>F-statistic(p-value)</i>				Long-run Causality <i>t-statistic</i>	Joint Causality <i>F-statistic</i>
	U	GE	M2	I	<i>(p-value)</i>	<i>(p-value)</i>
U	-	4.5839 (0.0186)**	3.9162 (0.0574)***	2.1724 (0.1321)	-4.6025 (0.0001)**	6.3028 (0.0003)**
GE	1.2924 (0.2643)	-	6.6232 (0.0151)**	0.0033 (0.9543)	-2.5871 (0.0146)**	3.6032 (0.0159)**
M2	2.2004 (0.1289)	4.9973 (0.0137)**	-	1.1883 (0.2846)	-3.8857 (0.0005)**	6.5131 (0.0002)**
I	0.0329 (0.8573)	0.1401 (0.7109)	0.2072 (0.8140)	-	-2.3978 (0.0229)**	1.9532 (0.1148)

Source: Author's Compilation

This study examined the causal relationship between the variables using the error correction based Granger causality models. The causality results are presented in Table 5.5. The short-run causality tests are based on estimated values of the Wald F-statistic and the associated P-value on lagged dependent variables, while the long-run causality is based on the t-statistic value of the lagged error correction term variable.

There is evidence of a short-run unidirectional causal relationship from Government expenditure to unemployment as well as money supply to unemployment at 5 and 10 per cent levels of significance, respectively. These results imply that the government expenditure and money supply have an important role in reducing unemployment in

Namibia. This essentially means that the policymakers have to strengthen the effective use of government expenditures and money supply in combating the high rate of unemployment in the country. There is also evidence of a long-run causal relationship from government expenditure, money supply and inflation to unemployment. The results of the long-run causality are in line with the outcome of the bound cointegration test in Table 5.3. In addition to the above, a joint causality was also confirmed at 5 per cent level of significance.

5.2.6 Diagnostic Tests

Table: 5.6 Diagnostic tests results

Tests		
Breusch-Godfrey Serial Correlation LM Test	<i>F- Statistics (P-Value)</i>	0.394 (0.54)
Heteroskedasticity Test: Breusch-Pagan-Godfrey	<i>F- Statistics (P-Value)</i>	1.609 (0.17)
Ramsey RESET Test	<i>F- Statistics (P-Value)</i>	4.288 (0.05)
Normality Test	<i>Jarque Bera (P-Value)</i>	1.269 (0.53)

Source: Author's Compilation

Diagnostic testing were conducted to establish the robustness and adequacy of the model. The diagnostic tests that were performed include the: Breush-Godfrey Serial Correlation test, Breusch-Pagan-Godfrey Heteroskedasticity test, Jarque-Bera normality test, Ramsey RESET test and stability test (CUSUM). The results of the diagnostic tests are reflected in Table 5.5 and Figure 4(a-b).

Using the 5 per cent level of significance, the results show no evidence of a serial correlation and heteroscedasticity in the disturbance term. The model was also found to

be normally distributed. In addition, the Ramsey RESET test indicates that the model is well specified. In addition, the Cumulative Sum of Recursive Residuals (CUSUM) and CUSUM of square in Figure 4(a-b) show that the test statistic are within the boundaries, thus confirming the stability of the model. Effectively, therefore, the diagnostic test results imply consistency of residuals, robustness and adequacy of the model.

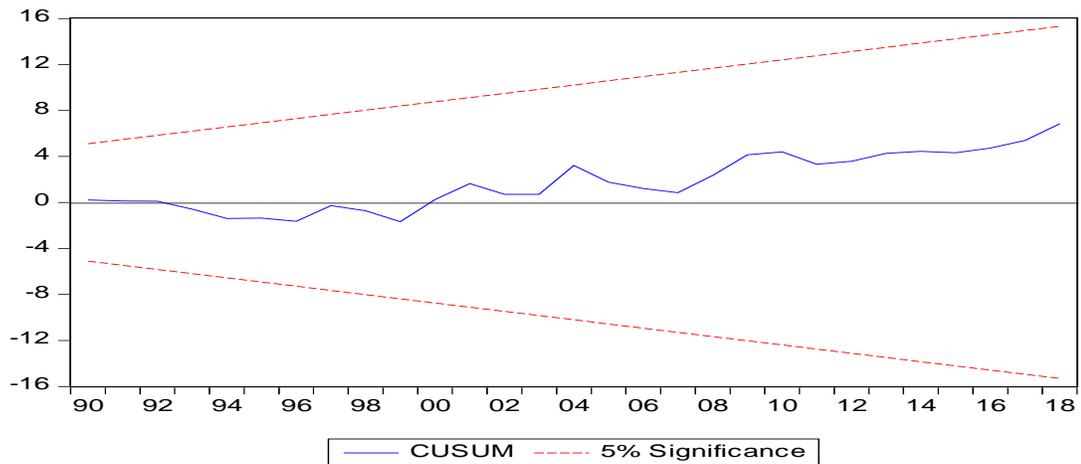


Figure 5.1(a): U Plot of Cumulative of Recursive Residuals

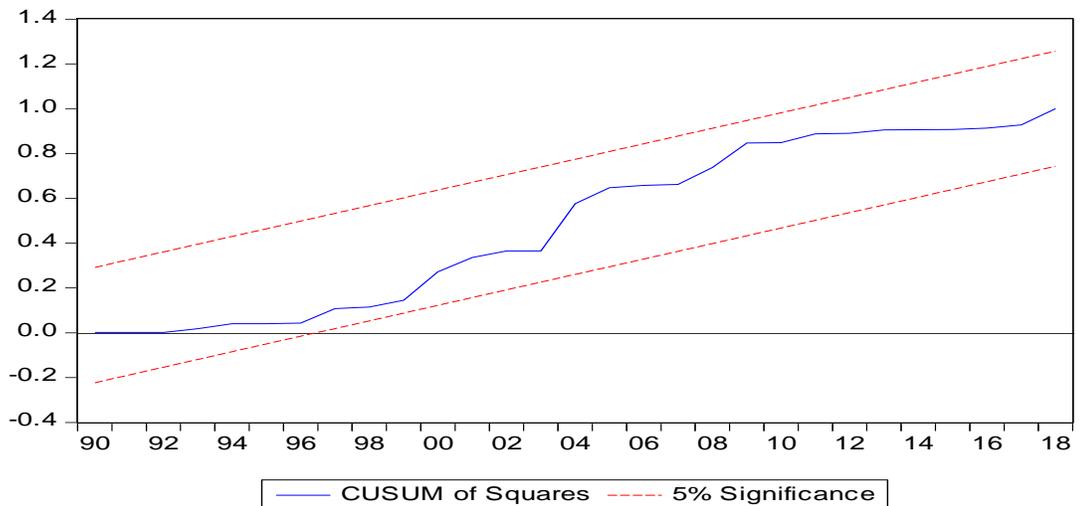


Figure 5.1(b): Plot of CUSUM of square

5.3 Summary

This chapter discussed the empirical findings and presented an analysis of the study. A mixture of $I(0)$ and $I(1)$ was found among the variables. This study proceeded to examine the presence of cointegration among the variables by applying the bound test in which the presence of cointegration was found. The error correction model was estimated and the lagged error correction term was found to be negative and statistically significant. In tracing the direction of causality between public expenditure and unemployment; money supply and unemployment, the Wald test was conducted. Finally, diagnostic testing was conducted to establish the robustness and adequacy of the models of which the results suggested consistency of residuals, robustness and adequacy of the model.

CHAPTER SIX: CONCLUSIONS AND POLICY IMPLICATIONS

6.1 Introduction

Chapter five covered the empirical results as estimated and interpreted. In this chapter, the general conclusion, policy recommendations and suggestions for future research will be discussed.

6.2 Conclusions

Government expenditure is often believed to have considerable effects on macroeconomic performance since no one can be excluded from using it. Thus, it benefits almost every active player in the economy. On the other hand, the monetarists reckoned supply of money to have an impact on economic balance especially in the short-run. According to the monetarists, given that aggregate expenditure is a result of money supply, it can impact employment levels as well as output and prices in the economy (Dwivedi, 2005). As such, this study was aimed at investigating the effect of government expenditure and money supply on unemployment in Namibia

To achieve the study objectives, time series data for the period of 1980 to 2018 were used. Unit root tests were conducted to test the stationarity level of the data thereby determining the order of integration. The unit root test results indicated that unemployment, government expenditure and money supply are $I(0)$ while inflation is $I(1)$. The study revealed the existence of cointegrating relationships amongst the variables used, thus implying the existence of a long-run relationship.

The study employed the ARDL approach to cointegration introduced by Pesaran et al. (2001) to examine the long-run relationship between the underlying variables. Inflation was also included in the model as a control variable.

The long-run results revealed that the relationship between government expenditure and unemployment is negative and statistically insignificant. While money supply was found to be negatively and statistically significantly (but only at 10% significance level) associated with unemployment. Moreover, the short-run results also revealed that the government expenditure and money supply relate negatively to unemployment and are both statistically significant. This means that a fiscal expansion (increase in government expenditure) will reduce the unemployment rate in Namibia. Similarly, an increase in money supply will lead to an increase in consumption and investment expenditure which then increases the aggregate demand thereby reducing unemployment (Mankiw & Taylor, 2007).

Besides, the Granger causality test indicates evidence of a short-run unidirectional causal relationship from Government expenditure to unemployment as well as money supply to unemployment at 5 and 10 per cent levels of significance, respectively. The long-run causal relationship between the variables was also confirmed using the t-statistic value of the lagged error correction term. A joint causality was also confirmed at 5 per cent level of significance. The performed diagnostic tests including CUSUM techniques for stability test results imply consistency of residuals, robustness and adequacy of the models.

6.3 Policy Recommendations

Government expenditure and money supply proved to be influential in areas of employment generation in Namibia. This study, therefore, recommends that in strengthening effective combat of the unemployment problem in Namibia, there is a need for policy makers to focus on investment, employment generation and economic growth that has potential to trickle down to the masses. As such, foreign and domestic investors should be encouraged to invest in the sectors such as agriculture, manufacturing, mining, fishing and service to diversify the economy and increase employment generation, thereby reducing unemployment.

Although the results established that both expansionary monetary and fiscal policy were effective in reducing unemployment in Namibia, the rate of unemployment continues to be high in the country. According to Ka-Fu (2000), an increase in government expenditure without targeting employment creation would not have that effect as policy makers' willingness to use fiscal policy to reduce unemployment may be disrupted by a high level of debt. A poorly managed fiscal policy generally leads to deficit spending with minimal or no effect on unemployment. Therefore, the analysis implies that effective demand-side policies are crucial for unemployment in Namibia both in the short and long run. Thus, there is a need for the government to strengthen dialogue with the private sector to have an integrated approach to employment creation in the country.

Policy interventions to address the high rate of unemployment in the country should also focus on the youth, as they are the majority of the unemployed people. The government over the years has continued to prioritise expenditure on education among others in the

country. There is therefore a need to increase spending on training schemes to provide the required or demanding skills to the unemployed people in the country.

6.4 Direction for Future Research

The model developed in this study may suffer from some shortcomings. Hence, future research may be considered. Firstly, this study uses annual time series data of a small sample of 38 observations, which may not cover some aspects that a bigger sample or quarterly data can cover. It is commendable therefore to use a bigger sample data in the future for a similar study to obtain a more comprehensive and finer conclusion.

Secondly, this study used aggregated data, hence future studies should also use disaggregated data to uncover the effects of government expenditure and money supply on unemployment in Namibia, specifically, at regional level.

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