FISCAL POLICY AND UNEMPLOYMENT IN SOUTH AFRICA:  
1980 to 2010

BY

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Unemployment is one of the greatest and most complex challenges facing South Africa. Just like most developing countries, South Africa has been using the fiscal policy framework as a tool to alleviate the high rates of unemployment. This study examined the impact of fiscal policy on unemployment in South Africa. The study used annual time series data for the period 1980 to 2010. A vector error correction model was used to determine the effects of fiscal policy aggregates on unemployment in South Africa. The fiscal policy aggregates considered in this study were government investment expenditure, government consumption expenditure and tax. Results from this study revealed that government consumption expenditure and tax have a positive impact on unemployment while government investment expenditure negatively affects unemployment in South Africa. Policy recommendations were made using these results.

**Keywords:** Fiscal policy, Unemployment, South Africa.
DECLARATION

I, Genius Murwirapachen, the undersigned, hereby declare that this dissertation is my own original work and that it has not been submitted, and will not be presented at any other university for a similar or any other degree award.

Signature .................................................................

Date .........../......./.......


ACKNOWLEDGEMENTS

The compilation of this study could have ended a complete fiasco with all dreams of graduating sinking in the mud of oblivion had it not been of the incredibly unstinted support, guidance and tutelage that I received from some wonderful people around me. I hereby acknowledge my indebtedness to the following persons without whose implausible auspices and tremendous patronage this study could have dilapidated even before its infancy.

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DEDICATION

“To my grandmother Gladys Murwirapachena”
LIST OF ACRONYMS

ADF               Augmented Dickey-Fuller
ANC               African National Congress
ASGISA            Accelerated and Shared Growth Initiative for South Africa
BEE               Black Economic-Empowerment
CJB               Child Justice Bill
DF                Dickey Fuller
DNA               Deoxyribonucleic acid
DTI               Department of Trade and Industry
ECM               Error Correction Model
EPO               Economic Policy Outlook
EU                European Union
FIFA              Federation of International Football Association
GDP               Gross Domestic Product
GEAR              Growth, Employment and Redistribution
GFSY              Government Financial Statistic Yearbook
GLS               Generalized least squares
HDR               Human Development Report
HIV               Human Immunodeficiency Virus
JIPSA             Joint Initiative for Priority Skills Acquisition
LDC               Least Developed Countries
LFS               Labour Force Survey
MTBPS             Medium Term Budget Policy Statement
MTEP              Medium Term Expenditure Planning
OECD              Organisation for Economic Co-operation and Development
OHS               October Household Survey
OLS               Ordinary Least Squares
PFMA              Public Finance Management Act
RDP               Reconstruction and Development Program
RBC               Real business cycle
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Full Form</th>
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<tr>
<td>SADC</td>
<td>Southern African Development Community</td>
</tr>
<tr>
<td>SARB</td>
<td>South African Reserve Bank</td>
</tr>
<tr>
<td>SARS</td>
<td>South African Revenue Service</td>
</tr>
<tr>
<td>SME</td>
<td>Small and Medium Enterprise</td>
</tr>
<tr>
<td>StatsSA</td>
<td>Statistics South Africa</td>
</tr>
<tr>
<td>UIF</td>
<td>Unemployment Insurance Fund</td>
</tr>
<tr>
<td>UNDP</td>
<td>United Nations Development Programme</td>
</tr>
<tr>
<td>USA</td>
<td>United States of America</td>
</tr>
<tr>
<td>VAR</td>
<td>Vector Autoregression</td>
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<tr>
<td>VECM</td>
<td>Vector Error Correction Modelling</td>
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CHAPTER ONE

INTRODUCTION

1.1 Background of study
The role of government in the economy has always been a topical issue for debate. Some economic agents argue against large governments while others believe that without the government taking a more active and participatory role to steer the economy, countries could move from unstable growth to prolonged recessions and massive rates of unemployment. As a result, there is a growing debate about the effects of fiscal policy on unemployment. Various theorists and researchers have come up with conflicting conclusions regarding these two economic phenomena. This study therefore seeks to contribute to the debate by examining the impact of fiscal policy on unemployment using data from South Africa.

Since 1980, the South African government has used fiscal policy as a tool to influence the level of economic behaviour in an effort to achieve the economic objectives of high economic growth and full employment. The period up to 2010 has been dominated by several years of an expansionary fiscal policy stance which has seen the government constantly advocating for national budget deficits. Over the period 1980 to 2010 government expenditure exceeded government revenue (budget deficit) except in the 2007/08 and 2008/09 fiscal years when the government recorded surpluses (DTI, 2011). The buoyancy in government revenue for the 2007/08 and 2008/09 fiscal years was sustained by economic growth (Treasury, 2008). Ocran (2009) indicated that economic growth in South Africa created a significantly large base for revenue collection which led to budget surpluses in 2008 and 2009. Budget deficits in the other years were explained by Du Plessis and Smit (2007) who identified four phases in South Africa’s public finance reform. The period between 1980 and 1993 was characterized by high expenditure and insufficient revenue collection, with deficits reaching 7.0 per cent of GDP. During 1994 to 1996, economic recovery began. The government’s RDP was introduced into departmental plans and budgets, with a comprehensive reprioritisation of public expenditure. A new constitutional order with its fiscal and financial institutions took shape, and budget deficit averaged 4.7 per cent of GDP. This was followed by a period of consolidation between 1996 and 2000. The period saw expenditure moderation, and consistent primary surpluses, accompanied by a shrinking deficit. It
also witnessed the introduction of the Medium Term Expenditure Planning (MTEP), the Public Finance Management Act (PFMA), a strong focus on improved management of the public finances, increasing transparency and accountability, and substantial investment in tax reform and revenue administration capacity. This resulted in the budget deficit declining to 2.5 per cent of GDP. Fiscal and monetary policies converged to reduce and stabilise inflation. From 2001, a more expansionary fiscal stance was adopted. The fiscal year 2001/02 marked the beginning of a new phase with more expansionary fiscal policy.¹

Before 1994, economic policies were principally made in favour of mainly the minority white South African population (Woolard, 2002). This was further explained by Kingdon and Knight (2007) who postulated that after 1994, a critical element of the mandate of the new South African government was to attempt to undo the harm of decades of racially based policies. According to Kingdon and Knight (2007), specific attention was given to those that impacted on the economy, either directly or indirectly. Consequently, the government adopted an expansionary fiscal policy framework to remove the discrimination and social injustices caused by the apartheid regime. The expansionary fiscal policy framework aimed at reducing unemployment and achieve substantial economic growth rates, among other objectives. Barker (2007) explained the policy tools used by the government since 1994, these include: (a) The Reconstruction and Development Programme (RDP), (b) The Growth, Employment and Redistribution Policy (GEAR) and (c) The Accelerated and Shared Growth Initiative for South Africa (ASGISA).

The RDP macroeconomic strategy proposed growth and development through reconstruction and redistribution. It sought a leading role for government to guide the mixed economy through reconstruction and development; and argued for a living wage as a pre-requisite for achieving the required level of economic growth and employment (Bhorat, 2004 as cited in Du Plessis and Smit, 2007). According to Barker (2007), the policy set out various socio-economic commitments which included the creation of about 2.5 million jobs over a ten year period. However, the slow performance of the economy negatively affected the RDP, with achievements

falling below expectations (Adelzadeh, 1996). This led to the formulation of the Growth, Employment and Redistribution policy (GEAR).

The GEAR policy was introduced in 1996 as a replacement to the RDP. As explained by Adelzadeh (1996), this policy was designed to achieve high rates of economic growth, to expand the private sector, to improve output and employment, achieve fiscal reform and encourage trade and investment. The stated purpose of GEAR was to increase economic growth at a 4.2 per cent rate between 1996 and 2000. This strategy predicted, amongst other things, employment growth averaging 270 000 jobs per annum from 1996 to 2000, with the number of new jobs created rising over time from 126 000 in 1996 to 409 000 in 2000 (GEAR 1996, as cited in Adelzadeh, 1996). Unfortunately, these projections were not realised, in terms of the labour market, the experience of the second half of the 1990s appears to have fallen short of even the baseline scenario contained in the GEAR document, which projected a net increase in employment of slightly more than 100 000 jobs per annum (Bhorat, 2004). This led to the implementation of the Accelerated and Shared Growth Initiative for South Africa (ASGISA).

ASGISA was introduced in 2004 with the core objective of halving poverty and unemployment by 2014. Burda et al (2005) distinguished ASGISA relative to its two predecessors, GEAR and the RDP, by its strong emphasis on defined, and very specific growth-enhancing projects. The policy envisaged that an improvement in economic growth will come with rapidly improving employment creation since labour demand is derived demand. According to the Treasury (2006), there has been a considerable improvement in economic growth which averaged at about 3 per cent during the first decade of freedom. Since 2004 growth has tended to exceed 4 per cent per year, reaching about 5 per cent in 2005. This was welcomed following Bhorat (2006) who postulated that if economic growth is increased, unemployment levels will fall in the society. The World Bank (2005) indicated that a 2 per cent increase in growth rates will result in a reduction in unemployment ranging from 1 to 7 per cent, depending on the country.

According to Barker (2007), high levels of unemployment have always been recorded in South Africa over the years. Before 1994, unemployment was dominant in the black South African communities due to discriminatory labour market practises. The massive investment in state education for white school-children in the 1950s and 1960s resulted in white workers securing
the skills that enabled them to get high income jobs in the 1970s and 1980s without the need for policies such as job reservation (Woolard, 2002). Restrictive past economic practices thus prevented much of the population from vertical mobility within the labour market. Over the period 1980 to 2010, an upward trend in unemployment has been recorded. Chicheke (2009) cited that unemployment rates rose from 9.8 per cent in 1980 to 30.4 per cent in 2002. Thus, unemployment reached its highest in 2002 using the strict definition. South Africa suffered a sharp rise in unemployment rate between 1984 and 1986 by 16 percentage points from 12.4 per cent to 28.4 per cent but slowly dropped to 21 per cent in 1992. Between 1984 and 1992 unemployment rates averaged 20.9 per cent. During the pre apartheid era, unemployment rates averaged 17.9 per cent compared to the average of 24.9 per cent in the post apartheid era (Chicheke, 2009). According to Van Seventer (2002) these changes in unemployment rates were attributed to the failure of job creation in resource based industries such as agriculture and mining. These industries failed to create employment as would be expected in a process of structural change and development. This failure is explained by commodity price trends, technical conditions (in mining) and domestic market deregulation and fear of potential land tenure claims and labour rights (in agriculture). These structural factors have been problematic in the economy and limited South Africa’s growth potential, therefore attributing to high unemployment rates in the country.

According to Arora and Vamvakidis (2004), unemployment in present day South Africa is particularly concentrated among historically disadvantaged groups and is higher among the rural, female, uneducated, and young segments of the population. This assertion was confirmed by Barker (2007) who highlighted that unemployment in South Africa has considerably differed according to race, gender and age. The unemployment rate for Africans has been very high and persistent above the unemployment rates of the other racial groups. The unemployment rate for Coloureds was lower in the late 1990s than in the early 2000s. Amongst the Asians and Indians, unemployment has not yet exceeded 30 per cent and is generally lower than that of Africans and Coloureds. Whites persistently have lower unemployment rates than the rest of the other racial
groups. The unemployment rates for whites have not grown beyond 10 per cent since 1994 (Barker, 2007).

1.2 Statement of the problem
Considering the fiscal policy framework adopted by the South African government, it is imperatively relevant to ask how this has transformed the wellbeing of the economy. Elevated levels of unemployment can be recognised as a distinct problem that has challenged South Africa even sixteen years in democracy. In consideration of the government’s spending and taxation patterns over the years, the questions that basically come to mind concern the performance of the economy in relation to unemployment. Did the expansionary fiscal policy stance manage to alleviate unemployment? What are the consequences of such a fiscal policy stance relative to unemployment? This study aims to provide answers to these questions by examining the impact of fiscal policy on unemployment in South Africa.

1.3 Objectives of the study
The main objective of this study is to examine the impact of fiscal policy on unemployment in South Africa. The specific objectives are;

- To examine the impact of government expenditure on unemployment,
- To examine the impact of taxation on unemployment and
- To make conclusions and policy recommendations based on the outcomes.

1.4 Hypothesis of the study
The hypothesis to be tested is that fiscal policy in South Africa has positively influenced the country’s unemployment.

1.5 Significance of the study
In South Africa, the effects of fiscal policy on unemployment have not received adequate attention in literature. Most studies did not exactly examine the relationship between the two economic phenomena but rather studied unemployment and fiscal policy separately. This motivates the desire to analyse the relationship between the two variables using South Africa as a

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case study. In addition, this study is an important source of information for policy makers in the government as it assists in formulating policies. Government policy makers need precise information on how the fiscal policy framework has affected unemployment; hence this study helps them to devise effective policies. Furthermore, the study serves up as a good source of information for researchers, as the results will inform debates on this subject. It also contributes to empirical literature on the impact of fiscal policy on unemployment in South Africa. As a result, this will help to determine the overall wellbeing of the South African citizens.

At an international level, this study contributes to the ongoing debate of whether large governments are good for growth and fosters employment in developing countries. This is imperatively significant especially in this decade when a number of economies are moving towards the mixed economic system. Information on the relationship between the variables discussed in this study also help economic agents in developing countries to make rationally informed decisions that maximise the overall wellbeing of the economy.

This study is also worthwhile because the unemployment rate in South Africa has never been as satisfactory as the government would want it to be, as envisaged in the ASGISA policy where the government aims to halve the unemployment rate by 2014. According to Du Plessis, et al (2007), the average job creation rate between 1994 and 1999 was 28%; from 1999 to 2004 it was 21% and finally increased to 31% during the period 2004 to 2007. Du Plessis, et al (2007) further on cites that South Africa’s average job creation rate is lower when compared to the world standards. This makes it relevant to study the impact of fiscal policy on unemployment in South Africa.

1.6 Organisation of study

Following this introductory chapter is Chapter two which presents an overview of trends in the behaviour of fiscal policy variables and unemployment in South Africa. Chapter three reviews both the theoretical and empirical literature pertaining to the relationship between fiscal policy and unemployment. Chapter four discusses the methodology and the sources of data. Chapter five estimates the regression model and discusses results. Chapter six presents policy recommendations.
CHAPTER TWO

FISCAL POLICY AND UNEMPLOYMENT IN SOUTH AFRICA

2.1 Introduction
This chapter serves to highlight taxation and government spending patterns as well as trends in South Africa’s unemployment. The first part of the chapter discusses trends in taxation and government spending; with the second part concentrating on changes in unemployment. The last part of the chapter underscores policy tools implemented by the government to alleviate unemployment and achieve macroeconomic equilibrium. Reducing unemployment is South Africa’s most critical challenge. The government remains committed to halving unemployment from its 2004 level of 28 per cent by 2014 (Banerjee et al, 2008). According to Kingdon and Knight (2007), fiscal policy has been used as a fundamental tool to fight high rates of unemployment in South Africa. This assertion was confirmed by Ocran (2009), who hypothesised that the South African government conditioned its fiscal policy framework to focus on the acceleration of economic growth and employment creation. The government aims to achieve this through the manipulation of taxes and government spending.

2.2 Fiscal policy in South Africa
Fiscal policy is defined as a decision by the government, usually relating to government taxation and spending, with the goal of influencing macroeconomic conditions (Froyen, 1999). According to the Treasury (1998), fiscal policy in South Africa embodies three broad aims. These aims are: a) revenue raising, b) allocation of expenditure to different economic agents and c) the use of resources in a manner which minimises costs, maximises delivery and avoids the duplication of services that can be provided at a lower cost by the private sector. Fiscal policy is therefore a government tool that comprises of two main components, these are; taxation and government expenditures (Jacobs, 2000). Government expenditure comprises of mainly two aspects; government investment expenditure and government consumption expenditure.
2.2.1 Taxation trends (1980 – 2010)

The South African government has always tried to maximise its revenue through the manipulation of tax rates. In its bid to maximise revenue, the government also paid tremendous attention to minimise a decline in private investment. Between 1980 and 2010 tax revenue on income and wealth significantly grew from about R7 312 million in 1980 to about R382 806 million in 2010 (DTI, 2011). This growth in tax revenue emanated from the expansion of the South African economic capacity, productivity and increases in investment activities which improved the tax base of the government. Government tax revenue slightly grew between 1980 and 1993, averaging only R24 259 million over the thirteen years. The minimal tax revenue collection could have been as a result of economic sanctions against the apartheid regime as well as the political unrests in South Africa (Levy, 1999). Over this period, government tax revenue never exceeded R50 000 million, the maximum tax revenue collected in the period was R49 725 million in 1993 (DTI, 2011).

Upon attaining democracy, government tax revenue spontaneously increased in South Africa. It sharply increased from a minimal figure of R 59 845 million in 1994 to R 382 806 million in 2010, averaging R 190 663 million over the seventeen years (DTI, 2011). The buoyancy in government tax revenue stemmed from political stability which promoted investment, lifting of sanctions levelled against the apartheid regime, productivity due to technological advancements and mobility, among other reasons. Over the thirty year period (1980 to 2010), the highest tax revenue collected was R387 634 million recorded in 2009. This decreased to R382 806 million in 2010 (DTI, 2011). The utmost tax revenue in 2009 is attributed to the massive investment towards the 2010 FIFA Soccer World Cup event among other factors.

The principal source of direct tax revenue in South Africa is income tax on both businesses and individuals. Tax rates are however determined with the notion to promote investment, foster economic growth and nurture a growth in employment creation (Du Plessis and Smit, 2007). Between 1980 and 2000, the tax rate on companies never exceeded 16 per cent, but averaged 13 per cent over the twenty years (DTI, 2011). The pre-democracy tax rates were to promote domestic investment as a way to alleviate the consequences of economic sanctions against South Africa (Levy, 1999). Subsequently, Du Plessis and Smit, (2007) suggested that the post apartheid portion (1994 to 2000) was because the government had dedicated the 1994 to 1996 period to be
an economic recovery phase, followed by a period of consolidation (1996 to 2000), where strong focus was on a substantial investment in tax reform and revenue administration capacity.

Treasury (2011) notes that the standard corporate tax rates for South Africa averaged 29 per cent between 2004 and 2011. The standard tax rate was marked at 30 per cent in the 2004/05 fiscal and was reduced to 29 per cent in the 2005/06 fiscal year. The rate remained at 29 per cent until the 2008/09 fiscal year when it was reduced to 28 per cent, a rate that has been maintained until the 2011/12 fiscal year. These high tax rates were to finance the government’s desired massive expenditures (Treasury, 2010). According to the DTI (2011), tax rates averaged 28 per cent between 2008 and 2010 mainly to finance the massive government expenditure towards the FIFA soccer world cup hosted by the country in 2010. In the year 2011/12, the tax rate on companies remained at 28 per cent so as to consolidate and encourage businesses to make use of the legacies of the 2010 FIFA soccer world cup (Treasury, 2011).

Another form of income tax in South Africa is tax on individuals. Currently, individuals are taxed on a progressive basis up to a maximum rate of 40% on taxable income exceeding R552 000 per annum (Treasury, 2011). A uniform rate of tax is applied to all individuals, irrespective of gender or marital status, and without child rebates. Tax on the income of non-South African residents is source-based. This means that all income arising from a source within (or deemed to be within) South Africa is taxed, irrespective of the residence of the recipient of the income (Treasury, 2011). The 2011/12 income tax table may be used to illustrate South Africa’s progressive income tax framework. According to the Treasury (2011) the income tax table is as shown in Table 2.1. The first column of the income tax table (Table 2.1) sets out the taxable income brackets. A person who receives a salary of R12 000 per month earns taxable income of R144 000 per annum and thus be in the second tax bracket (between R140 001 and R221 000). The second column sets out the rates of tax. A person who earns R144 000 per annum is liable for tax of R25 200 + 25% of the amount above R140 000 before rebates. To work out how much the person must pay, the rebate is subtracted from the tax liability before rebates. A tax rebate is the amount paid back to tax payers by the government. In the fiscal year 2011/12, the tax rebate for persons under the age of 65 was R10 260. An additional rebate of R5 675 is granted for persons 65 years and older. Assuming that the person in our example is under 65 year old, the tax
liability for the year would be R15 940 (that is, R26 200 – R10 260). The tax liability will be different to that of a person with a higher taxable income bracket.

**Table 2.1: Income tax table for the year of assessment ending 29 February 2012**

<table>
<thead>
<tr>
<th>Taxable Income (R)</th>
<th>Rates of tax</th>
</tr>
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<tbody>
<tr>
<td>0 – 140 000</td>
<td>18% of each R1</td>
</tr>
<tr>
<td>140 001 – 221 000</td>
<td>R25 200 + 25% of the amount above R140 000</td>
</tr>
<tr>
<td>221 001 – 305 000</td>
<td>R45 450 + 30% of the amount above R221 000</td>
</tr>
<tr>
<td>305 001 – 431 000</td>
<td>R70 650 + 35% of the amount above R305 000</td>
</tr>
<tr>
<td>431 001 – 552 000</td>
<td>R114 750 + 38% of the amount above R431 000</td>
</tr>
<tr>
<td>552 001 and above</td>
<td>R160 730 + 40% of the amount above R552 000</td>
</tr>
</tbody>
</table>

**Tax rebates for the year of assessment ending 29 February 2012**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td>R10 260</td>
</tr>
<tr>
<td>Additional (Persons 65 and older)</td>
<td>R5 675</td>
</tr>
</tbody>
</table>

*Source: Treasury (2011)*

Between 1994 and 2001, the rate of tax on individuals has never gone below 40 per cent (Kingdon and Knight 2007). This may be because income tax was viewed as the primary source of funding for the South African government. According to the Treasury (2010), it is only after 2002 that the rate decreased below 40 per cent, reaching a minimum level of 29.3 per cent in 2007. After 2002, the government tried to change towards an expansionary fiscal policy framework which saw the gradual decline in the income tax rate. The collective tax revenue for South Africa over the period 1980 to 2010 is shown by figure 2.1.
Figure 2.1: Government tax revenue (1980 – 2010)

From figure 2.1, tax on income and wealth over the period 1980 to 2010 grow at an exponential rate. The minimum tax revenue to be ever collected in the period was in the year 1980 whilst the maximum was collected in 2008. Between 1994 and 2002, tax revenue increased at an increasing rate. This is because the period was considered as a period of fiscal and macroeconomic consolidation, were certain tax policy changes and policy announcements that provide reference points for future reform in the post 2002 tax reform era were made. Over this period, personal income tax was used to raise the bulk of tax revenue, approximately 42.6 per cent was raised in 1999/00 (Treasury, 2002). The period between 2002 and 2010 was a period of fiscal stabilisation. The government was now able to comfortably adopt and support an expansionary fiscal stance as set out in the 2002 budget, which is characterized by strong expenditure growth and continued tax relief in the face of adverse global conditions. Since 2002, the National Treasury stepped up the pace of fundamental income tax reforms with the distinct purpose of

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aggressively broadening the tax base, thereby affording significant rate reduction in line with international trends (Treasury, 2002). This broadening of the tax base increased the tax revenue collected in current terms over the period up to 2010.

Tax revenue as a percentage of GDP has been significantly constant which shows that the government has been more consistent in its tax collections over the years. Table 2.1 shows the tax revenue as a percentage of GDP for some selected years in the post apartheid era.

**Table 2.2: Tax Revenue as a Percentage of GDP for selected fiscal years**

<table>
<thead>
<tr>
<th>Year</th>
<th>1997/08</th>
<th>2000/01</th>
<th>2003/04</th>
<th>2006/07</th>
<th>2009/10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tax Revenue (R m)</td>
<td>163 491</td>
<td>215 592</td>
<td>299 431</td>
<td>541 224</td>
<td>657 552</td>
</tr>
<tr>
<td>Percentage of GDP</td>
<td>23.4%</td>
<td>23.7%</td>
<td>23.4%</td>
<td>27.0%</td>
<td>24.1%</td>
</tr>
<tr>
<td>GDP (R billion)</td>
<td>698</td>
<td>911</td>
<td>1 277</td>
<td>1 833</td>
<td>2 450</td>
</tr>
</tbody>
</table>

Source: Treasury (2010)

Despite significant improvements in the economy which fostered economic growth, table 2.2 shows that the South African tax revenue as a percentage of GDP remained constant at an absolute level of 23 per cent. An exception is however recorded in the 2006/07 fiscal year where the tax revenue as a percentage of GDP levelled at 27 per cent. Reasons for this hike include that the fiscal stance presented in the 2006 budget provided for robust growth in public services and infrastructure investment. According to the Treasury (2006), this was found on an outstanding revenue performance over the past years and the continuing strength of the financial environment. Du Plessis et al, (2007) argue that the government believed that sustained increases in expenditure on transport, education and health would support economic development, lower business costs, improve skills levels and raise living standards; hence an incremental hike in the tax revenue as a percentage of GDP in the 2006/07 fiscal year. The tax revenue as a percentage of GDP however declined to 24 per cent in the 2009/10 fiscal year. In summary, it can be concluded that the government has not been heavily taxing the economic agents. The exponential increase in tax revenue in South Africa has been due to other reasons that include the substantially significant economic growth that has been absolutely enjoyed by the country.
2.2.2 An overview of government revenue (1980 – 2010)

South Africa has been using counter-cyclical fiscal policy which enables the government to respond flexibly to the effects of the economic cycle (Treasury, 2009). In adopting this stance, the government manages its borrowing in a way that requires it to save temporary revenue gains when the economy is strong, and to borrow to compensate for temporary revenue losses when the economy is weak. According to the Treasury (2010), this results in the government experiencing a cyclical decline in debt stock during the positive phase of the business cycle (sometimes referred to as creating fiscal space) and a cyclical increase in debt stock during the negative phase of the business cycle. This means that expenditure and tax policy decisions made when revenue is cyclically high will still be affordable when cyclical revenues reverse.

Government revenue grew exponentially between 1980 and 2008, before declining in 2009 and 2010 (DTI, 2011). For the period 1980 to 1993, government revenue slightly increased, averaging R38 828 million per year over the thirteen year period. The least revenue received in this period was R9 866 million in 1980 and the highest was R82 246 million in 1993 (DTI, 2011). Reasons for government revenue not reaching R100 000 million per year within the thirteen year period include minimal tax revenue collections (DTI, 2011) and the negative impact of economic sanctions (Levy, 1999). According to the DTI (2011), government tax revenue between 1980 and 1993 averaged only R24 259 million per year leading to minimal total revenue over the years. Consequently, Levy (1999) criticised the minimal revenue collection on the impact of economic sanctions levelled against the apartheid regime and political unrests in the country.

However, government revenue hugely grew in the apartheid era. It grew from R97 531 million in 1994 to R689 672 million in 2008 before decreasing to R657 552 million in 2009 and R640 000 million in 2010, averaging R337 553 million per year over the seventeen year period (DTI, 2011). The growth in government revenue emanated from various reasons that include access to international markets upon attaining democracy and political stability in the country (Levy, 1999) as well as massive economic growth and investment (Du Plessis and Smit, 2007). Strong revenue performance and sound debt management in post apartheid South Africa have resulted in lower public borrowing and lower interest costs, releasing resources for public spending.

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4 Treasury, 2009 “Budget Review: Fiscal policy”
(Treasury, 2002). However, this was attained in line with the counter-cyclical fiscal policy stance (MTBPS, 1998 and Budget Speech, 2001).

From 1996 to 2000 fiscal policy concentrated on consolidating the South African public finances, addressing an unsustainable budget deficit in particular (Treasury, 2002). However, since 2001, there was a shift in focus, with both tax reforms and spending increases directed at reinforcing growth. The fiscal framework since 2002 aimed at increasing the resources available for social spending, with particular emphasis on responding to poverty and vulnerability; provide for increased investment in infrastructure, focusing on extending service delivery and economic opportunities to poor communities and; reduce tax rates for all, with substantial relief to low- and middle-income earners, to reduce the costs of employment and boost consumer spending (Treasury, 2009). This has seen government revenue generously increasing, however at insubstantial rates. The South African total government revenue between 1980 and 2010 is graphically depicted by figure 2.2.

**Figure 2.2: Total Government Revenue (1980 – 2010)**

Source: Own graph (Department of Trade and Industry, 2010)

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5 Treasury, 2002 “Budget Review: Fiscal policy and the budget framework
Figure 2.2 shows that government revenue increased exponentially since 1980. However, enormous revenue increases are observed since 1989. The increase in government revenue is attributed to various factors including economic growth as explained by Du Plessis and Smit (2007) that the South African economy has undergone an extensively profound transformation. In real terms, the South African economy was about 40 per cent larger than it was in 1993. According to Du Plessis and Smit (2007), growth averaged on an annual basis 5 per cent during the three years 2004-2006, up from 3 per cent in the preceding decade (1994-2003) and a mere 1 per cent in the decade 1984-93. The economy grew by an average of 5.1 per cent in the four years to 2010. Economic growth provided the government with a large base for revenue collection. This has seen the revenue growing from R97 531 million in 1994 to R640 000 million in the 2010; averaging about R337 553 million for the 17 years after 1994. Over the period 1980 to 2010, government revenue grew from R9 866 million in 1980 to R640 000 million in 2010, averaging R202 645 million per year over the thirty year period.

A strong fiscal position in South Africa has improved government savings significantly. The government now positively contributes to the effort to bolster economic savings and investment, which serves to enhance the sustainability of the broader macroeconomic environment. This helps to lower the cost of capital, increase investment, and build the supply side of the economy. Revenue growth has also remained strong, in line with a rapidly growing economy. The growth in revenue has enabled government to provide tax relief in successive budgets to offset the cost of inflation on the economy and strengthen economic activity when needed. Tax relief has also helped to balance the rise in tax revenues occasioned by changes in tax policy, administration, and the broadening of the tax base (Treasury, 2007). Prior to 2000, prudent fiscal policy helped to lower debt service costs and the cost of capital in the economy as a whole, supporting growth across the economy as interest rates declined and freeing additional resources for productive expenditure. After 2000, government budgeted for stronger growth in non-interest expenditure and was able to enact annual reductions in tax rates. Increasing the deficit as a result of falling revenue was a sensible economic strategy the government could use to cushion the economy from effects of the downturn. Increasing spending further when revenue is falling, especially spending that could not be easily reversed, could not be justified.

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2.2.3 Government Expenditure (1980 – 2010)

Every year the government spends several millions of rand on providing a better life for South Africans. Over the thirty years to 2010, the South African governments strongly increased public spending (Treasury, 2010). From 1980 to 1993 expenditure by the apartheid government was to boost the economic, political and social wellbeing of the minority white South Africans. During this period government expenditure mainly benefited white South Africans who selectively had access to good education, health facilities and recreational services. Upon regime change in 1994, government expenditure focused on undoing the inequalities created by the preceding apartheid regime. From 1994 to 2010, services that attracted substantial attention from the ANC led government were; education, infrastructure (capital expenditure), social welfare, debt, housing, health, protection, and water and agriculture (Treasury, 2010). This study classifies government spending into two main categories; government investment expenditure and government consumption expenditure.

Government investment expenditure (also called capital expenditure) consumes much of the government’s revenue. This includes all expenditure by the government towards infrastructural development in the country. The assumption as cited in Du Plessis and Smit (2007) is that improving a country’s infrastructure raises the particular country’s long term growth potential. Lewis (2002) explained the advantages of a highly functional infrastructure which include an increase in investment. Capital investment by the public sector raises the country’s future growth potential by providing economic infrastructure required for trade and expanded economic activity. This ultimately leads to higher employment and lower cost of doing business as indicated by Kingdon and Knight (2007).

Capital expenditure increased from R4 002 million in 1980 to R10 685 million in 1993, averaging R8 203 million per year over the thirteen years (DTI, 2011). During this period low government revenue collections restricted the government’s capital investment. Logically, it is also imperative to note that the government’s developmental obligation was only on a few communities that furthered the interests of the minority whites. Black South African communities were totally neglected (Levy, 1999) which resulted in less government obligation to spend on investment. Nevertheless, upon attaining democracy in 1994 government capital expenditure sharply grew as a reflection of an inclusive budget that did not discriminate on
account of race or gender. Specific attention was however given to the previously disadvantaged black South Africans (Treasury, 2007). Government investment expenditure exponentially increased from a minimum of R11 358 million in 1994 to R80 819 million in 2010, averaging R38 382 million per year over the seventeen years (DTI, 2011). The massive public investment expenditure was a result of social infrastructure programmes such as hospital revitalisation, school building and sanitation, among other programs (Treasury, 2010). These activities are crucial in the delivery of government services and have thus received enormous attention. The Treasury (2010) also postulated that spending on capital averaged 5.8 per cent of total expenditure between 1994 and 2010 and is expected to average 7.2 per cent between 2010 and 2013. For the period 1980 to 2010, government investment expenditure exponentially increased from R4 002 million (in 1980) to R80 819 million (in 2010), averaging R24 753 million per year over the thirty years. The highest capital investment expenditure recorded over the period is R89 437 million observed in 2008 (DTI, 2011). According to Treasury (2010) the figure was a result of massive government spending towards a successful 2010 FIFA Soccer World Cup. Government investment expenditure over the period 1980 to 2010 is shown by figure 2.3.

**Figure 2.3: Government investment expenditure (1980 – 2010)**

![Graph showing government investment expenditure (1980–2010)]

Source: Own graph (Department of Trade and Industry, 2010)
Figure 2.3 shows that government investment expenditure has grown substantially well since 1980. Investment expenditure was greater in the post apartheid era than during the apartheid period. The maximum investment expenditure recorded in the apartheid era was R11 568 million of 1989. This was relatively lower than the post apartheid figure of R89 437 million recorded in 2008. Reasons for low expenditures during apartheid and massive expenditures in democracy include, among others, the role played by the ANC led government which assumed the major responsibility of improving economic performance. Massive government investment expenditure occurred since 2006, with the maximum investment expenditure recorded in 2008. Reasons for this hike in government investment spending also include the goal to halve poverty and unemployment by 2014, according to the ASGISA policy, as set out in 2004. Equally to note is the expenditure towards infrastructural development en route to hosting a top-class 2010 FIFA Soccer World Cup. After winning the bid, in 2006, to host the 2010 mega-event, South Africa invested much in the development of its infrastructure. This therefore demanded an increase in the year-on-year increase in government investment expenditure.

The second category of government spending discussed is government consumption expenditure. This encompasses all the spending by government that does not yield immediate monetary returns to the government. The priorities of government, guided by the medium-term strategic framework include education, health, rural development, fighting crime, creating jobs among others. While the bulk of resources are allocated to these functions, a significant share of additional spending goes to fund higher-than-budgeted salary increases and occupation specific dispensations for certain professionals (Treasury, 2010). According to the Budget Review (2010), public consumption spending growth since 1980 averaged 8.2 per cent a year or 2.2 per cent in real terms.

In 2010, almost 14 million South Africans received social grants. This number was set to increase as a result of the extension of the child support grant to recipients’ 18th birthday. The Unemployment Insurance Fund (UIF) has also been growing at a faster rate up to 2010. However, it has been able to cope with the surge in unemployment and the resultant increase in claims (Treasury, 2010).
The fight against crime has also drawn on the work of the criminal justice sector review over the years. Efforts to overhaul the forensic and investigative capacity of the police, together with the enhanced use of available technology have been given maximum effort in South Africa. In 2009 R5.4 billion was allocated to interventions aimed at improving criminal justice services, the creation of an integrated fingerprint and DNA database, improving detective capacity, upgrading IT and telecommunications systems and increasing the number of police officials from 183 000 in 2008 to over 204 000 in 2011/12. Funding was provided for additional policing capacity during the 2010 FIFA World Cup, for construction of new prisons and for the implementation of the Child Justice Bill (Treasury, 2009).

Government consumption spending also focused on health facilities, services and combating the causes of ill-health in South Africa (Treasury, 2009). In 2009, R1.8 billion was spent to introduce three new child vaccines to prevent infant and child deaths. The tuberculosis and HIV and Aids programs both received fiscal attention. Screening of pregnant mothers coming into the public health system and the phasing in of an improved drug regimen that prevents mother-to-child HIV transmission was also extended. By the year 2009 the anti-retroviral program covered 630 000 people, the figure increased to 920 000 people in 2010 and is expected to rise to 2.1 million people in 2012/13 (Budget, 2010). According to Treasury (2010), the government budgeted to spend R8.4 billion on health facilities and services in the year 2010.

According to the 2010 budget review, education has always been among the biggest consumers of government revenue. In 2010, 17 per cent of the government expenditure was directed towards education. The Treasury, in its 2010 budget review blames the discriminatory apartheid education system in defence to the massive expenditures towards education. Their argument is that the Treasury spends more money on education because it seeks to undo the harm caused by the apartheid regime. The belief is that black South Africans were discriminated prior to job market entry. The quality of education offered to the black South Africans during apartheid was less in value, making them uncompetitive in the job market. Promoting education among black South Africans will therefore help to alleviate unemployment among the blacks whose unemployment rate averages 30 per cent since 1994, compared to the 10 per cent average of white South Africans (Barker, 2007). In summary, total government consumption expenditure
has grown significantly over the years. Figure 2.4 shows total government consumption expenditure over the period 1980 to 2010.

**Figure 2.4: Government consumption expenditure (1980 – 2010)**

![Graph showing government consumption expenditure over years](image)

Source: Own graph (Department of Trade and Industry, 2010)

Figure 2.4 shows that government consumption expenditure increased from R8 965 million in 1980 to R573 540 million in 2010, averaging R157 856 million per year over the thirty years. However, consumption expenditure was low during the apartheid period, averaging R37 413 million per year between 1980 and 1993. This could be a result of the apartheid regime whose fiscal consumption expenditure excluded the majority of South Africans and mostly benefited the minority white citizens. Consumption expenditure substantially increased between 1994 and 2010, averaging R257 044 million per year over the seventeen years. During the post apartheid period, it rose from a minimum of R96 503 million in 1994 to a maximum of R573 540 million in 2010. The Treasury (2000)\(^7\) explains that this was because of its primary objective to achieve a marked redistribution of spending in favour of previously disadvantaged communities using a sound fiscal policy framework that eliminates unsustainable deficit spending and increasing

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\(^7\) Treasury 2000, “Budget Review: Economic Policy and Outlook”
public debt. The adoption of such a macroeconomic policy managed to restrain inflation (which fell to a year-on-year rate of 1.7 per cent, with core inflation declining from 15.3 per cent in 1994 to an average of 7.7 per cent in 1999). It reduced inequality between races and increased investment by an annual average of 2.8 per cent. However, the challenges of unemployment and poverty remained severe (Treasury, 2000).

The trend in government expenditure can also be explained using expenditure as a percentage of GDP as shown by Table 2.3.

**Table 2.3: Expenditure as a percentage of GDP**

<table>
<thead>
<tr>
<th>Year</th>
<th>1997/98</th>
<th>2000/01</th>
<th>2003/04</th>
<th>2006/07</th>
<th>2009/10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expenditure (R m)</td>
<td>189 947</td>
<td>233 934</td>
<td>328 662</td>
<td>518 447</td>
<td>835 324</td>
</tr>
<tr>
<td>Percentage of GDP</td>
<td>27.2%</td>
<td>25.6%</td>
<td>25.7%</td>
<td>28.3%</td>
<td>34.1%</td>
</tr>
<tr>
<td>GDP (R billion)</td>
<td>698</td>
<td>911</td>
<td>1 277</td>
<td>1 833</td>
<td>2 450</td>
</tr>
</tbody>
</table>

Source: Own table (Treasury, 2010)

Table 2.3 shows that government expenditure as a percentage of GDP averaged 26 per cent between 1997 and 2004. It increased to an annual rate of 28 per cent in the fiscal year 2006/07, before jumping to a higher rate of 34 per cent in the fiscal year 2009/10. This is attributed to the reasons explained above (ASGISA and the 2010 FIFA Soccer World Cup, among others).

### 2.2.4 Government Revenue versus Expenditure (Deficit/Surplus: 1980 – 2010)

Fiscal deficits were at the forefront of macroeconomic adjustment policies in the 1980s and 1990s, in both developing and industrial countries (Jacobs, 2000). According to Fatas and Mihov (1998), deficits were originally blamed for the assortment of ills that had beset developing countries. These ills as cited in Easterly and Schmidt-Hebbel (1994) include over indebtedness, high inflation, poor investment and shoddy growth performance. Since 1980, budget deficits occupied a centre stage in South Africa, being a tool for the massive reform programs which were initiated upon attaining democracy (DTI, 2011). From 1980 to 2010, the South African fiscal trends show government expenditure exceeding government revenue except in 2007 and 2008 when the government recorded respective budget surpluses of R22 777 million
and R34.400 million (Treasury, 2010). The trends in government revenue and expenditure are shown by figure 2.5.

**Figure 2.5: Government Revenue versus Government Expenditure (1980 – 2010)**

As shown by figure 2.5, government expenditure exceeded government revenue (budget deficit) throughout the period of study except in 2007 and 2008 when the government recorded surpluses. The Treasury (2010) praised the sustained economic growth for maintaining buoyancy in government revenue. According to the 2008 Budget Review (on Fiscal Policy) the government accredited economic growth for the surpluses recorded in 2007 and 2008. The Treasury (2009) mentioned that economic growth created a significantly large base for revenue collection which led to budget surpluses in 2007 and 2008. The budget deficit in 2007 was explained by Du Plessis and Smit (2007) who identified four phases in South Africa’s public finance reform. The period up to the democratic transition in 1994 was characterized by high expenditure and insufficient revenue collection, with deficits reaching 7.0 per cent of GDP. During 1994 to 1996, economic recovery began. The government’s RDP was introduced into departmental plans and
budgets, with a comprehensive reprioritisation of public expenditure. A new constitutional order with its fiscal and financial institutions took shape, and budget deficit averaged 4.7 per cent. This was followed by a period of consolidation between 1996 and 2000. The period saw expenditure moderation, and consistent primary surpluses, accompanied by a shrinking deficit. It also witnessed the introduction of the Medium Term Expenditure Planning (MTEP), the Public Finance Management Act (PFMA), a strong focus on improved management of the public finances, increasing transparency and accountability, and substantial investment in tax reform and revenue administration capacity. This resulted in the budget deficit declining to 2.5 per cent of GDP. Fiscal and monetary policies converged to reduce and stabilise inflation. From 2001, a more expansionary fiscal stance was adopted. The fiscal year 2001/02 marked the beginning of a new phase with more expansionary fiscal policy. Budget deficit/surplus trends as a percentage of GDP over the years 1980 to 2010 are shown by figure 2.6.

Figure 2.6: Budget deficit/surplus as a percentage of GDP (1980 – 2010)

Source: Department of Trade and Industry (2010)

As shown by figure 2.6, the year 1993 recorded the highest level of deficit in the period of study. The two successive years, 1992 and 1993, may be identified as years of transition when the apartheid regime experienced too much resistance to provide for free and fair elections governed by the will of every South African. Preparations for the first democratic elections in South Africa resulted in massive government spending as reflected by the deficit recorded in 1992 and 1993. The period 1994 to 1997 recorded the next highest successive budget deficit of almost 5 per cent of GDP per year. Budget deficit decreased between 1998 and 2001 before becoming constant at about 1 per cent in 2002. Between 2005 and 2007, the budget deficit decreased to the extent that the ANC government recording its first ever budget surpluses of 0.4 per cent and 0.8 per cent of GDP in 2006 and 2007 respectively. According to the Treasury (2000), reasons for the shrinking deficits include the government’s desire to achieve a marked redistribution of spending in favour of previously disadvantaged communities using a sound fiscal policy framework that eliminates unsustainable deficit spending and increasing public debt, among other issues. This was initiated to support the sustainability of government finances and contribute to ensuring that the economic achievements of the past years are protected from cyclical and external risks (Treasury, 2008)\textsuperscript{9}. The deficit in 2009, among other reasons, emanates from the government intensifying its fixed capital investment towards the 2010 FIFA World Cup.

2.3 Unemployment trends in South Africa (1980 – 2010)

Unemployment is one of the greatest and most complex challenges facing South Africa. According to Treasury (1998), the number of people without formal sector employment continues to rise as the number of work-seekers that enter the labour force each year exceeds the number of new formal sector employment opportunities. Unemployment increased from 9.8 per cent in 1980 to 22.5 per cent in 1993 averaging 17.9 per cent over the period (DTI, 2011). It reached a climax of 28.4 per cent in 1986 (DTI, 2011). In 1981, South Africa recorded an unemployment rate of 6.8 which is the minimum rate of unemployment to be ever recorded in the country since 1980 (StatSA, 2010). The deviations in South African unemployment between 1980 and 1993 emanate from massive political unrests in the country coupled with economic instability as a result of sanctions and other reasons. Since 1990, the unemployment rate has grown steadily in South Africa. It increased from 19.1 per cent in 1994 to 26.1 per cent in 2010,

\textsuperscript{9} Treasury, 2008 “Budget Review: Fiscal Policy
averaging 24.8 per cent between the years (StatSA, 2010). The behaviour of unemployment in the country since 1994 has been significantly influenced by government economic policies. Policies such as RDP, GEAR and ASGISA have managed to contain the rates of unemployment in South Africa after apartheid. However, factors leading to the increase in unemployment include increases in population and the labour force.

The preliminary 1996 census results suggested that South Africa had a total population of 38 million people. A survey by the Statistics South Africa (2008) revealed that the country’s population grew by 20 per cent and the number of households at double that rate (by 39 per cent) between 1996 and 2007. According to the Economic Outlook (1998), the number of young people leaving secondary or tertiary education and entering the labour market each year increased from 350 000 in the mid-1980s to around 450 000 in 1998. As the schooling system improved and the demographic peak moved into the labour market, new entrants to the labour market rose to over 600 000 in 2002 (SARB, 2003). This supports the assertion by Bhorat and Oosthuizen (2005) that without a turn-around in job creation, the existing mismatch between the demand and supply of entry-level jobs will continue to escalate. Therefore, this makes unemployment a challenging phenomenon in South Africa before and even in the post-apartheid era.

Barker (2007) identified an unemployed person as one who is without work, is currently available for work, and is seeking work or wanting to work. According to the Treasury (2009), South Africa suffers from an abundance of unskilled labour and periodic shortages of skilled labour. In support to this assertion, the SARB in its 2010 Annual Economic Report cited that in periods of rapid GDP growth the demand for skilled labour rises sharply, and can at times act as a constraint to growth. Whereas skilled labour shortages were a growing concern during 1996, the current slowdown should moderate excess demand. The long-term trend in net emigration, however, continues to act as a drain on the supply of skilled labour. The acute spike in unemployment is part of a structural problem that has been decades in the making (SARB, 2006). According to the 2008 Economic Policy Outlook, unemployment grew from below 10 per cent to 17.7 per cent between 1980 and 1985, and then accelerated to 27.1 per cent in 2003. The publication further on cites that the post-1994 increase in joblessness occurred as more people joined the labour force, many of them seeking work for the first time. The long-term decline of
agriculture and mining, in combination with a widespread increase in pent-up demand for services as apartheid restrictions fell away, resulted in considerable changes in the structure of the economy. In confirmation, the Treasury (2009) postulates that more than 6 million work-seekers have entered the labour force since 1994, yet the economy has only created some 4 million jobs. The result has been a growing pool of lower-skilled workers facing long-term unemployment.

Banerjee et al (2008) accentuated that the unemployment rate in South Africa declined from a peak of 30.4 per cent in 2002 to 25.5 per cent in 2007. This was due to the rise in the pace of employment creation which was consistent with the upward trend in economic growth over the years. However, rates of labour market participation remain relatively low. South Africa’s current labour force participation rate of 56.2 per cent is lower than rates in African countries such as Cameroon (64.3 per cent) and Ethiopia (65.3 per cent), and is considerably lower than developed nations such as the US (75.4 per cent) and UK (76.2 per cent).

Reasons to this low labour market participation rate in South Africa include the 2008 – 2009 recession which resulted in a sharp fall in employment, with South Africa recording job losses of more than 870 000 (SARB, 2010). According to the 2010 Economic Policy Outlook, the unemployment rate during this period increased by 2.4 percentage points to 24.3 per cent. Taking into consideration the high number of people who stopped looking for work during that period, the broad unemployment rate increased sharply from 26.7 per cent to 31.1 per cent. The trend in South African unemployment is illustrated using the strict definition over the period 1980 to 2010 using data from the Statistics South Africa. This is as shown in figure 2.7.

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Figure 2.7 shows that the unemployment rate increased from 9.8 per cent in 1980 to 26.1 per cent in 2010, averaging 21.7 per cent over the years. The year 1981 recorded the lowest unemployment rate of 6.1 per cent, while the highest rate of unemployment (30.4 per cent) was recorded in 2002. The continuous increase in unemployment may be due to reasons which include the gradual increase in the labour force participation over the years. In addition, the real output growth in the economic recovery, which had started in the middle of 1993, was not matched by a satisfactory growth in total employment. The decline in the unemployment rate from the maximum rate of 30.4 per cent in 2002 can be clearly linked to the government’s efforts to fight the problem of unemployment. The introduction of fiscal policy tools such as ASGISA (2004) played a significant role in the downward trend in unemployment. Furthermore, the preparations for the 2010 FIFA Soccer World Cup mega event hugely contributed to the decline in unemployment. According to the Annual Economic Report (2008), continued infrastructural development related to the hosting of the 2010 FIFA World Cup tournament and various other infrastructural developments, such as the Gautrain Rapid Rail link, contributed meaningfully to the creation of jobs between 2006 and 2008. The upward trend in the unemployment curve since 2008 can be explained better by reasons which include job losses due to electrical related back-
logs and the financial market turmoil which intensified and rapidly spread across the globe in 2008 (SARB, 2008). According to StatsSA (2009), the overall employment in South Africa further decreased by 2.0 per cent in 2009 representing a loss of more than 300 000 jobs. Consequently, the official unemployment rate rose to 24.3 per cent in 2009, compared with a rate of 23.9 per cent in the preceding year. In summary, employment growth during the past years has responded positively to the growth momentum in the domestic economy. Overall employment levels rose from 10.4 million in 1999 to 12.8 million in 2006 (Annual Economic Report, 2007).

Unemployment in South Africa differs according to numerous factors which include race, gender and educational qualification. Black South Africans have the largest share of the unemployment rate (31.5 per cent), followed by Coloureds (22.4 per cent), Indian/Asians (15.8 per cent) while White South Africans had the least share of 5.1 per cent (Barker, 2007). Of these respective unemployment rates, women have a largest share relative to their male counterparts. South African unemployment according to population group and gender is shown in table 2.4.

Table 2.4: Unemployment according to race and gender, September 2005

<table>
<thead>
<tr>
<th></th>
<th>African</th>
<th>Coloured</th>
<th>Indian/Asian</th>
<th>White</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>Number (000)</td>
<td>3 910</td>
<td>385</td>
<td>82</td>
<td>106</td>
</tr>
<tr>
<td></td>
<td>Rate</td>
<td>31.5</td>
<td>22.4</td>
<td>15.8</td>
<td>5.1</td>
</tr>
<tr>
<td>Male</td>
<td>Number (000)</td>
<td>1 774</td>
<td>192</td>
<td>46</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>Rate</td>
<td>26.6</td>
<td>20.6</td>
<td>14.0</td>
<td>3.6</td>
</tr>
<tr>
<td>Female</td>
<td>Number (000)</td>
<td>2 133</td>
<td>192</td>
<td>37</td>
<td>64</td>
</tr>
<tr>
<td></td>
<td>Rate</td>
<td>37.1</td>
<td>24.6</td>
<td>18.6</td>
<td>6.9</td>
</tr>
</tbody>
</table>

Source: Barker (2007).

Table 2.4 shows that the highest unemployment rate, according to the strict definition, is found among the Africans, especially African women. According to table 2.4, the unemployment rate among Africans was 31.5 per cent, compared to 5 per cent among whites. A total of 3.9 million were regarded as unemployed (Barker, 2007). The unemployment problem is particularly serious among women, with an unemployment rate of 32 per cent compared with only 23 per cent among men. Among African women, the unemployment rate is 37 per cent compared to only 27
per cent for African men. Reasons for high unemployment rates among African women include inaccessibility to basic education coupled with cultures and beliefs that disqualified women to seek employment or compete with their male counterparts (Lewis, 2002).

Educational qualification also determines unemployment in South Africa. According to Bhorat (2004), employers often use educational qualification as a selection device. If the level of education increases, the selection criteria may also be raised. This assertion was also cited by Lewis (2002) who emphasised that formal job creation for the unskilled and semi-skilled categories of labour has been dismal in the history of South Africa. In his research, Lewis (2002) discovered that more than 1.3 million jobs were lost by the unskilled and semi-skilled between 1981 and 1999. Unemployment according to educational qualification is shown in figure 2.8.

Figure 2.8: Educational level of the unemployed in South Africa (2005)

![Educational level of the unemployed in South Africa (2005)](image)


Figure 2.8 shows that in 2005, unemployment was highly concentrated among the less educated who had a collective unemployment rate of 95 per cent (Grade 12 had 29 per cent, those with Grade 8-11 had 43 per cent, while those with no education at all or hold Grade 7 had 23 per cent). A relative comparison of the unemployment rate of the less educated (of 95 per cent) to that of their educated counterparts (of 5 per cent) endorses the notion highlighted by Bhorat
(2004) that unemployment is high among the less and not-educated South Africans. This judgment is also sustained by Barker (2007) who further postulated that if only those with a degree or a postgraduate degree are considered (that is, if we exclude those with certificates and diplomas), the unemployment rate of this category will decline to 16 per cent.

Unemployment in South Africa also differs according to the area of geographical location. Kingdon and Knight (2007) argued that as the reality of the rise of unemployment has been grasped, it became a matter of common sense that the limits of what the government can do about unemployment are acknowledged. Priorities for which section of the unemployed government policy should target ought to be set. For example, it is now recognised that significant parts of the unemployed youth may be unemployable due to their lack of any previous employment experience, long duration of unemployment and lack of skills. Table 2.5 shows the unemployment rates by each South African province.

**Table 2.5: Unemployment rates by province (2001 – 2005)**

<table>
<thead>
<tr>
<th>Province</th>
<th>Sep'01</th>
<th>Sep'02</th>
<th>Sep'03</th>
<th>Sep'04</th>
<th>Sep'05</th>
</tr>
</thead>
<tbody>
<tr>
<td>Western Cape</td>
<td>17.7</td>
<td>19.6</td>
<td>19.5</td>
<td>18.6</td>
<td>18.9</td>
</tr>
<tr>
<td>Eastern Cape</td>
<td>31.4</td>
<td>32.7</td>
<td>31.7</td>
<td>29.6</td>
<td>29.9</td>
</tr>
<tr>
<td>Northern Cape</td>
<td>25.0</td>
<td>24.9</td>
<td>26.4</td>
<td>24.5</td>
<td>24.7</td>
</tr>
<tr>
<td>Free State</td>
<td>27.0</td>
<td>29.0</td>
<td>28.0</td>
<td>28.6</td>
<td>30.2</td>
</tr>
<tr>
<td>KwaZulu-Natal</td>
<td>33.8</td>
<td>35.0</td>
<td>31.6</td>
<td>28.7</td>
<td>32.8</td>
</tr>
<tr>
<td>North West</td>
<td>28.6</td>
<td>30.6</td>
<td>28.4</td>
<td>28.0</td>
<td>27.4</td>
</tr>
<tr>
<td>Gauteng</td>
<td>30.4</td>
<td>30.5</td>
<td>27.6</td>
<td>25.7</td>
<td>22.8</td>
</tr>
<tr>
<td>Mpumalanga</td>
<td>29.2</td>
<td>30.1</td>
<td>25.3</td>
<td>24.8</td>
<td>26.9</td>
</tr>
<tr>
<td>Limpopo</td>
<td>34.6</td>
<td>34.1</td>
<td>31.1</td>
<td>27.8</td>
<td>30.1</td>
</tr>
<tr>
<td>RSA Average</td>
<td>29.4</td>
<td>30.4</td>
<td>28.0</td>
<td>26.2</td>
<td>26.7</td>
</tr>
</tbody>
</table>


Table 2.5 shows that over the period 2001 to 2005, the Western Cape had the lowest unemployment rate averaging 18.9 per cent. Reasons attributing to this include the level of economic development in the province. The KwaZulu-Natal, Eastern Cape, Free State and
Limpopo provinces recorded unemployment rates which were higher than elsewhere. This is because the majority of people in these provinces live in the rural areas with less skill to acquire employment or accumulate wealth. In addition, economic progress in these provinces has been significantly lower due to diplomatic economic marginalisation and lack of investment. In provinces such as Gauteng and North West, there has been a steady decline in the unemployment rate since 2002. This was attributed to reasons which include that Gauteng proudly hosts the industrial capital city of South Africa (Johannesburg). Industrialisation in Johannesburg, Pretoria and other areas within the Gauteng province boosts employment creation which makes the province better than the others in terms of the unemployment rate.

Kingdon and Knight (2007), and Rodrik (2006) respectively showed how developing countries elsewhere coped with similar labour market problems. They postulated that while informal employment grew rapidly in South Africa, its levels remain quite low by international standards of developing countries. The informal economy created about 18 per cent of jobs in the year 2000, compared to 85 percent in Ghana and almost 80 percent in Tanzania (Guliwe, 2006). This shows that if utilized properly, the informal economy can reduce the high unemployment levels. Guliwe (2006) compared unemployment in South Africa to unemployment in other middle income countries. This is shown by figure 2.9.

**Figure 2.9: Unemployment in SA compared to other middle-income countries, early 2000s**

![Unemployment rate chart](chart.png)

Source: Guliwe (2006)
Figure 2.9 reflects not only the racialised nature of unemployment but is also an indication of the huge inequalities existing in South Africa. It confirms the idea that South Africa is one of the highly unequal societies in the world. According to the Human Development Report (HDR) of the United Nations Development Programme (UNDP), South Africa has dropped several points down the international human development index. Out of a list of 159 countries, South Africa lies in 120th position. South Africa’s score today is at the same level as it was under Apartheid in 1975, and it has declined significantly from its position in 1994\textsuperscript{11}.

Despite numerous attempts to alleviate or rather curb unemployment in South Africa; the problem seems to maintain its stubborn stance. Reasons for the unbearably higher levels of unemployment emanate from the basis that it has multifaceted causes which might take long to deal with. In some instances, when the government addresses one cause of unemployment, another one crops up, thereby maintaining the horrendously higher rates. However, the South African government has since 1994 both implicitly and explicitly tried hard to fight the problem of unemployment.

2.4 Review of Economic Policies

The period before 1994 was characterised by economic policies that favoured mainly the minority white South Africans. Laws that formed part of the apartheid system of racial segregation include the “Bantu Building Workers Act No 27 of 1951”. This Act legalised the training of blacks in skilled labour in the construction industry, but limited the places in which they were permitted to work. Sections 15 and 19 of the Act made it an offense for blacks to work in the employ of whites performing skilled labour in their homes. Another law is the “Industrial Conciliation Act No 28 of 1956” which encouraged employees to form trade unions. However, it prohibited the registration of any new mixed unions and imposed racially separate branches and all-white executive committees on existing mixed unions. The Act prohibited strikes in essential industries for both black and white workers, and banned political affiliations for unions. Clause 77 of the Act legalised the reservation of skilled jobs for white workers. This was to ensure that whites will not be exploited by the lower standard of living of any other race. These two and

\textsuperscript{11} Guliwe, T (2006). “Exploring the state of youth unemployment in South Africa: A Disaster in the making” National Labour and Economic Development Institute
other Acts succeeded in segregating the black South Africans and making their standards of living worse off.

After the 1994 elections, a critical element of the mandate of the new South African government was to attempt to undo the harm of decades of racially based policies. Precise attention was given to those that impacted on the economy, either directly or indirectly. Accordingly, the government adopted an expansionary fiscal policy framework to remove the discrimination and social injustices caused by the apartheid regime. The expansionary fiscal policy framework aimed at reducing unemployment and achieve substantial economic growth rates, among other objectives. According to Webster (2006), the policy tools used by the government since 1994 include: a) The Reconstruction and Development Programme (RDP), b) The Growth, Employment and Redistribution Policy (GEAR), c) The Accelerated and Shared Growth Initiative for South Africa (ASGISA) and d) The Affirmative Action.

2.4.1 The Reconstruction and Development Programme (RDP)

The RDP was the ANC’s main policy platform immediately after the 1994 democratic elections. It proposed growth and development through reconstruction and redistribution. The strategy sought a leading and enabling role for government in guiding the mixed economy through reconstruction and development. The policy set out various socio-economic commitments which included the creation of about 2.5 million jobs over a ten year period (Jansen, 2001). It was economically successful in articulating the main aspirations of the movement for post-apartheid South Africa. These aspirations were growth, development, reconstruction and redistribution, in a consistent macroeconomic framework, using the Keynesian paradigm. However, although the government appeared to have been content with the RDP’s broadly humanitarian thrusts, problems began to surface from 1995. The economy, in particular, was not growing at the predicted rates. The slow performance of the economy in turn impacted negatively on the RDP, with achievements falling below expectations (Adelzadeh, 1996). This phenomenon led to the formulation of the Growth, Employment and Redistribution policy.

2.4.2 The Growth, Employment and Redistribution Policy (GEAR)

In 1996 the government introduced the GEAR policy as a replacement to the RDP strategy. The GEAR package of policies were designed to achieve high rates of economic growth, to expand
the private sector, to improve output and employment, achieve fiscal reform and encourage trade and investment. GEAR came two years after the formal end of a regime whose economic policy sought to ensure that the benefits of growth would accrue to the white minority (Weeks, 1996). Furthermore, GEAR sought to achieve redistribution and improvement in basic living conditions as a result of generally, revitalised economic performance. It rested on the assumption that the expansion of the private sector would have a substantial impact on the economy, whilst the role of the state would largely be a facilitative one. The evolving thinking was that the re-distributive role of the RDP was to be attained by a more indirect route. Its stated purpose was to increase economic growth with a 4.2 rate programmed for 1996-2000. This strategy predicted, amongst other things, employment growth averaging 270 000 jobs per annum from 1996 to 2000, with the number of new jobs created rising over time from 126 000 in 1996 to 409 000 in 2000 (see GEAR, 1996). Unfortunately, for a variety of reasons, these projections were not realised. In fact, in terms of the labour market, the experience of the second half of the 1990s appeared to have fallen short of even the baseline scenario contained in the GEAR document, which projected a net increase in (non-agricultural formal) employment of slightly more than 100 000 jobs per annum (Bhorat and Oosthuizen, 2005).

2.4.3 The Accelerated and Shared Growth Initiative for South Africa (ASGISA)

ASGISA establishes the core objective of the post-apartheid government as one to halve poverty and unemployment by 2014. This macroeconomic tool is distinguished, relative to its two predecessors, the RDP and GEAR, by its strong emphasis on defined, and very specific growth-enhancing projects (Bhorat, 2006). The delivery of physical infrastructure and a detailed programme for the provision of skills are just two examples of such interventions. Having achieved the critical need for macroeconomic stability, arguably the core of GEAR, the emphasis was to be shifted through ASGISA to a more detailed programme of activities designed to deliver the desired 6 per cent economic growth rate per year. The improvement in economic growth, it was envisaged, will come with rapidly improving employment creation since labour demand is derived demand. There has been a considerable improvement in economic growth which averaged at about 3 per cent during the first decade of freedom. Since 2004 growth has tended to exceed 4 per cent per year, reaching about 5 per cent in 2005 (Treasury, 2006). According to Du Plessis et al (2007), if economic growth is increased, unemployment levels will fall in the society. The World Bank (2009) indicated that a 2 per cent increase in growth rates
will result in a reduction in unemployment ranging from 1 to 7 per cent, depending on the country. Bhorat (2006) also highlights that as incomes grow, there is a high likelihood that this will also affect the distribution of that income. Put differently, economic growth often brings with it some change in the levels of employment. ASGISA also aimed, through JIPSA, to develop scarce skills in South Africa, with its main job being to identify urgent skills needed thus providing quick and effective solutions. Solutions include special training programmes, bringing back South Africans working outside the country, and drawing in new immigrants where necessary. It also includes mentoring and overseas placement of trainees to fast-track their development. Up to now, the policy has not lived up to the expectations of the government. However, the conclusion on whether the policy was a complete fiasco will wait until the year 2014.

2.4.4 The Affirmative Action
The Employment Equity Act stipulates a duty to apply affirmative action to designated employers (Barker, 2007). These are employers either with more than 50 employees or with less than 50 employees but with an annual turnover above a defined amount. The Act requires that such employers introduce a process of ensuring that, over time, there is progress towards employment equity. It ascertains that designated employers must ensure that suitably qualified people from designated groups (black people, women and disabled people) have equal employment opportunities and are equitably represented in all occupational categories and levels in the workforce. The Act requires designated employers to prepare plans for progress towards employment equity, and to submit these plans to the Department of Labour for assessment. This approach aims to encourage workplace transformation through self regulation by employer and employee parties. It also helps to alleviate the skyrocketing levels of unemployment in the designated groups. However, the eventual success of the Act largely depends on how the Department of Labour applies the Act and its approach to the employment equity plans submitted by the employers.

2.5 Conclusion
This chapter gave an overview of the fiscal policy framework and unemployment trends in South Africa over the period 1980 to 2010. The first part of the chapter discussed trends in taxation and government spending. It was discovered in this chapter that government tax revenue grew
exponentially between 1980 and 2010. Upon attaining democracy in 1994, government tax revenue spontaneously increased in South Africa. The buoyancy in government tax revenue stemmed from political stability which promoted investment, lifting of sanctions levelled against the apartheid regime, productivity due to technological advancements and mobility, among other reasons. Both government investment and consumption expenditures increased substantially well since 1980. Expenditure was greater in the post apartheid era than during the apartheid period. Reasons for massive expenditures in a democratic South Africa include, among others, the responsibility assumed by the ANC led government to create sustainable and inclusive economic development.

The second part of this chapter concentrated on unemployment trends in South Africa. It was noted in this chapter that the rate of unemployment increased from 9.8 per cent in 1980 to 26.1 per cent in 2010, averaging 21.7 per cent over the years. The year 1981 recorded the lowest unemployment rate of 6.1 per cent, while the highest rate of unemployment (30.4 per cent) was recorded in 2002. The continuous increase in unemployment was due to reasons including the gradual increase in the labour force participation over the years. In addition, the real output growth in the economic recovery, which had started in the middle of 1993, was not matched by a satisfactory growth in total employment.

The last part of this chapter highlighted policy tools implemented by the government to alleviate unemployment and achieve macroeconomic equilibrium. Several policy tools used by the government since 1994 include: the Reconstruction and Development Programme (RDP), the Growth, Employment and Redistribution Policy (GEAR), the Accelerated and Shared Growth Initiative for South Africa (ASGISA), the New Growth Path (NGP), among others. These have helped in redistributing wealth across races and lowering unemployment rates in previously disadvantaged South Africans.

Other factors external to the scope of fiscal policy are also affecting unemployment in South Africa. Therefore it is imperatively unfair and subjectively unthankful to conclude that the fiscal policy attempts to curb unemployment in post apartheid South Africa were a complete fiasco. Seemingly, it lies within the noblest of an economic mind to give credit to the efforts of fiscal policy in fighting the problem of unemployment in South Africa.
CHAPTER THREE

LITERATURE REVIEW

3.0 Introduction
This chapter presents theoretical and empirical literature on the effects of fiscal policy on unemployment. The first part of this chapter deals with the theoretical literature. The empirical section explores studies that have been conducted by previous researchers regarding fiscal policy and unemployment. The section on empirical literature is divided into three sub-sections. Subsequent to this introductory section, is section 3.1 which covers theoretical literature on unemployment and fiscal policy. The following theories are going to be reviewed: the Keynesian theory of unemployment, the public choice theory, the theory of fiscal policy and the natural rate theory. Section 3.2 presents empirical findings on fiscal policy and unemployment. Finally, section 3.3 concludes the chapter.

3.1 Theoretical Literature
This section presents the views of various theories regarding the effects of fiscal policy on unemployment. The theoretical underpinnings discussed are from the Keynesian, Public choice, Monetarist and the Fiscal Policy Theory.

3.1.1 The Keynesian theory of unemployment
Keynes proposed that unemployment is a result of insufficient aggregate demand. He assumed wages to be rigid downwards resulting in high levels of unemployment. Keynes criticized the Classical assumption that the cause of unemployment was disequilibrium in the labour market. In his view, the economy was chronically unstable and subject to fluctuations, that supply and demand could well balance out at an equilibrium that did not deliver full employment. Keynes argued that unemployment came about because aggregate demand was insufficient to generate enough jobs in the economy so as to satisfy all those seeking jobs at any given wage rate. According to Keynes, the remedial action to solve the unemployment phenomenon was for the government to adopt an expansionary fiscal policy framework which would stimulate aggregate demand, thereby leading to increased employment.
The Keynesian assumption that wages are sticky downwards, in other words meant that workers would not be happy about taking wage cuts and would resist them. This means that wages would not necessarily fall enough to clear the market and hence unemployment would linger. Figure 3.1 explains the behaviour of wages in a Keynesian view. As shown by Figure 3.1, when the demand for labour falls from $L^{D_0}$ to $L^{D_1}$ (maybe due to the onset of a recession), the wage rate should fall from $W_0$ to $W_1$, so that the market clears. However, Keynesians argue that because wages are sticky downwards, this would not happen, the wage rate would remain at $W_0$ and unemployment of $AB$ would persist. The Keynesians term this unemployment the demand deficient unemployment.

**Figure 3.1: The Labour Market**

![Diagram showing the labour market](image)

Source: Froyen (1999)

Keynesian economists believe that the economy can settle at any equilibrium. They therefore recommend that the government gets actively involved in the economy to manage the level of demand. The policies implemented by the government in this instance are known as demand-management policies. Demand management means adjusting the level of aggregate demand to try to ensure that the economy arrives at full employment equilibrium. If there is a shortfall in demand, such as in a recession (a deflationary gap) then the government will need to reflate the
economy. If there is an excess of demand, such as in a boom, then the government will need to deflate the economy. Reflationary policies to boost the level of economic activity might include: (a) increasing the level of government expenditure, (b) cutting taxation (either direct or indirect) to encourage spending, (c) cutting interest rates to encourage saving; and (d) allowing some money supply growth.

The first two policies would be considered expansionary fiscal policies, while the second two are expansionary monetary policies. The impact of them should be to increase aggregate demand and therefore the level of output. Figure 3.2 shows this:

Figure 3.2: Reflationary Policies

![Graph showing the impact of reflationary policies on aggregate demand and output](https://example.com/graph.png)

Source: Froyen (1999)

The reflationary policies increase aggregate demand (shift from AD₁ to AD₂) which in turn boosts the level of output from Q₁ to Q₂. The increase in aggregate demand will lead to the demand of more labour (since labour demand is derived from the demand of goods and services). It is also imperative to note that the reflationary policies relatively increased the price level from P₁ to P₂. However, the impact on the price level has been small, though if demand increased any more it may well be inflationary. Keynes identified this type of inflation as demand-pull inflation.
Keynesians believe that at unchanged interest rates, higher levels of government spending and/or massive reductions in tax rates increase the level of aggregate demand. To meet the increased demand of goods, output must rise. They cite that private sector aggregate demand is unstable primarily because of the volatility of investment demand. Their underlining assumption is that even for a given money stock, changes in private sector aggregate demand may cause large and prolonged fluctuations in employment. Consequently they advocate fiscal policy to be used to offset such changes in aggregate demand and to stabilise employment.

The Keynesian economists assume that an autonomous decline in investment demand would reduce aggregate demand, that is, output will fall below the initial level in the short run. In the long run, suppliers of labour will make a downward adjustment of their expected prices as they observe the lower actual prices. The aggregate supply curve will shift to the right as the expected price levels decline. Workers now see a given money wage as representing a higher expected real wage. Labour supply and employment for a given price level will increase. This can be presented in Figure 3.3 as follows:

**Figure 3.3: Effects of an Autonomous Decline in Investment: Keynesian View**
Figure 3.3 shows that an autonomous decline in investment will shift the aggregate demand curve from $Y_D^0$ to $Y_D^1$. In the short run, output will fall below $Y_0$ to $Y_1$. In the long run, the aggregate supply curve will shift out to $Y^S (P^e = P)$ as labour suppliers come to expect a lower price level, corresponding to lower aggregate demand. Rather than wait for this adjustment, the Keynesians advocate aggregate demand management policies, in this case an expansionary fiscal policy, to restore the level of aggregate demand to $Y^D_0$. Expansionary fiscal policy in this case entails increasing government spending and/or reducing taxation as a measure to stimulate aggregate demand.

In yet another explanation, Keynesians assumed the amount of employment (in an individual firm, industry and in the aggregate) to depend on the amount of the proceeds which the entrepreneurs expect to receive from the corresponding output. The fundamental assumption is that entrepreneurs endeavour to fix the amount of employment at the level which they expect to maximise the excess of the proceeds over the factor cost.

Under this context, if we assume $Z$ to be the aggregate supply price of the output from employing $N$ labourers, the relationship between $Z$ and $N$ being written as:

$$Z = f(N)$$

(3.1)

This can be called the aggregate labour supply function. Similarly, assuming $D$ to be the proceeds which entrepreneurs expect to receive from the employment of $N$ labourers, the relationship between $D$ and $N$ being written as:

$$D = f(N)$$

(3.2)

Equation 3.2 shows the aggregate labour demand function.

In this regard, Keynesians conclusively emphasised that if for a given value of $N$ the expected proceeds are greater than the aggregate supply price (if $D > Z$) there will be an incentive for entrepreneurs to increase employment beyond $N$. If necessary, they even raise costs by competing with one another for the factors of production, up to the value of $N$ for which $Z$ has become equal to $D$. Thus the volume of employment is given by the point of intersection between the aggregate demand function and the aggregate supply function. At this point the entrepreneurs' expectation of profits will be maximised. The value of $D$ at the point of the
aggregate demand function, where it is intersected by the aggregate supply function, will be called the effective demand.

Friedman (1940s) criticized the Keynesian theory of unemployment citing that government spending can push out spending by private businesses because less money is available in the market for private borrowing. The suggestion is that problems caused by the use of fiscal policy to control the economy may be alleviated through the use of monetary policy. Monetarism focuses on the role of money in the economy rather than the government using expenditure to control economic activity. According to monetarists, the best thing for the economy is to keep an eye on the money supply and let the market take care of itself. This implies that markets (without government interference through fiscal policy) are more efficient at dealing with unemployment. Subsequently, the New Classical economists argued that Keynesian economics required remarkably short-sighted behaviour from people, which totally contradicted the economic understanding of their behaviour at a micro level. To address this they introduced a set of macroeconomic theories which were based on optimising microeconomic behaviour. These theories have been developed into the Real Business Cycle theory which argues that business cycle fluctuations can to a large extent be accounted for by real (in contrast to nominal) shocks.

The Keynesian theory of unemployment can also be criticised because it advocates for a centrally planned economy. If the government is expected to spend funds to thwart depressions, it is implied that the government knows what is best for the economy as a whole. Keynesian economic policies therefore have a fundamentally collectivist approach. This encourages centralized planning, which leads to mal-investment of capital, resulting in business cycles. Keynes' study of the aggregate relations in an economy is misleading, as recessions are caused by micro-economic factors. In reality, temporary governmental fixes usually become permanent and expanding government programs. Such programs suppress the private sector and civil society. Therefore, Keynes’ approach might work best in a totalitarian state.

The relevance of Keynes’ theory of unemployment to Less-Developed Countries (LDCs) can also been criticised. Keynes assumed that capital equipment, technology, organisation, labour and their efficiency remain constant. The suggestion is that problems relating to employment in developing countries arise only on account of the deficiency of demand. However, the problem in case of LDCs is to increase capital equipment, to improve technology and labour efficiency.
Solving this problem will take a long process and cannot be solved in the short-run. In most developing countries the basic cause of unemployment is low rate of savings and investment. The Keynesian approach is industry-oriented while most of the LDCs are agriculturists. Due to this, increases in national income by deficit spending will lead to increases in demand for food. This will raise the prices of food grains. Therefore, relying too much on Keynesian approach could mislead economists, and can plunge the economy into an inflationary spiral. Also to note is that the principle of multiplier does not work much in LDCs because increased income levels will be absorbed by high prices.

3.1.2 The Public-choice theory

The theory was co-authored by Buchanan and Tullock (1962) who argued that macroeconomic policy makers act to maximise personal welfare or utility rather than social good. According to the theory, bureaucrats are ordinary men who make most of their decisions in terms of what benefits them, not society as a whole. The theory suggests that when elected officials make fiscal policy decisions, their emphasis is on votes, that is, votes are the central goal variable motivating policy makers. The relevant loss function in this theory is one that measures variables that are directly important to policy makers. Within the public-choice framework, one representation of the appropriate loss function that the policymaker seeks to achieve is:

\[ L = b_1 VL \quad b_1 > 0 \]

Where \( L \) is the social welfare loss, \( VL \) is the vote loss and \( b_1 \) is the weight given to votes lost. Equivalently, the policymaker could be assumed to maximise votes gained. Macroeconomic goal variables enter the picture because the behaviour of the economy affects votes. Therefore, vote loss might be represented as:

\[ VL = c_0 + c_1 (U - U^*)^2 + c_2 (P - P^*)^2 + c_3 (y - y^*)^2 \]

Where, \( U \) is the level of employment, \( P \) is the inflation rate, \( y \) is the growth in real income, \( U^* \), \( P^* \) and \( y^* \) represent the target levels of these variables respectively, \( c_1, c_2 \) and \( c_3 \) represent the loss of votes resulting from the macroeconomic goal variables from target levels. The representation assumes that vote loss depends on the squared deviation from the target level, assuming that a heavy weight is given to large deviations from desired target levels. The \( c_0 \)
parameter represents all other influences on voter behaviour; such influences include foreign policy questions and other domestic issues.

The public choice view of policymaker behaviour argues that actions by a policymaker who aims to minimise vote loss differ from actions of those who wish to minimise social loss. This is a result of the “collective rationality”, where vote loss because of “macroeconomic concerns” is proportional to social-welfare loss. The collective rationality assumption means that when macroeconomic variables affect voting behaviour, voters reward or punish incumbent politicians depending on their performance in minimising social welfare loss. In this case, the optimal strategy to minimise vote loss (equation 3.3) is to minimise social-welfare loss (equation 3.4). The public choice literature suggests that in the absence of collective rationality, the behaviour of the vote-maximising policymaker deviates from social-welfare-maximising behaviour.

The public choice theory is built upon various assumptions. These assumptions include the following:

Voters are myopic. Advocates to the public choice view argue that voting behaviour is heavily influenced by the state of the economy over the few quarters before the election and the level of economic activity is the variable whose recent performance determines votes. Incumbent politicians desire re-election and a booming pre-election economy helps to achieve that. As a consequence to that, political business cycles are witnessed in which aggregate demand is overly stimulated in the pre-election period, leading to inflation after the election.

Unemployment is more likely to result in vote loss than is inflation. The inflation process is presumed to be sufficiently complex and ill understood that politicians can avoid blame for inflation more easily than they can avoid blame for unemployment. The belief is that inflation is blamed on events which are not under the control of the political party in power, but ideally on the political party previously in power. As a consequence, the public choice theory argues that elected officials rarely respond to inflation with restrictive policies, but will respond to unemployment with expansionary policies. Therefore, the fiscal policy process will have an inflation bias.

A deficit bias exists in the budget process. The inflationary bias is reinforced by the inherent bias toward budget deficits that the public choice theorists believe to be a characteristic of democratic
government fiscal policies. Budget deficit emanate from the notion that elected politicians enjoy spending public monies on projects that yield some demonstrable benefits to their constituents.

However, the public choice theory can be criticised on the argument that even though the model proves to be useful in explaining an important element of politics, it does not imply that all individuals act in accordance with the behavioural assumption made or that any one individual acts in this way at all times. The assumption of collective choice can explain only some undetermined fraction of collective action. The hypothesis that voters are myopic is directly inconsistent and holds no waters in the modern world. Voters today are so rational that they can distinguish between politicians who strive for personal gains and those that seek to maximise social welfare. Also to note is the far-fetched assumption that the inflation process is presumed to be sufficiently complex and ill understood. Reality has it that the continuous increase in prices of commodities erodes the purchasing power of one’s income, resulting in the particular person being worse off than before which leads to actions against incumbent politicians.

3.1.3 The Theory of Fiscal Policy
The theory of fiscal policy owes much to Richard Musgrave (1959) who tremendously took part in its development. According to this theory, policymakers are assumed to have no other objectives besides the promotion of social welfare and public interest of the citizens. The social welfare does not depend on any single variable or indicator, but on several indicators, some are of an economic nature while others are of a social nature. The way in which the policymakers rank these indicators change with time or with the government in power. In representative democracies this ranking is assumed to reflect the preferences of the citizens and changes in those preferences. Economic indicators include economic growth, employment growth, productivity growth, inflation rate, unemployment, and income distribution. Social indicators include life expectancy, incidence of crime, literacy rates, the quality of the physical environment, and the incidence of illnesses.

The policymakers responsible for economic policy will focus on economic indicators. They have some perception of the weight that each of these indicators ($y_i$) has on the welfare function ($W$). Thus we can write the equation:

$$W = f(y_1, y_2, ..., y_n)$$

(3.5)
Policymakers are aware that indicators \((y_i)\) can be influenced by changes in particular policy instruments \((x_j)\). These instruments are the handles available to the policy makers to modify the social welfare and steer it toward optimum levels. This therefore means that each indicator is a function of the policy instruments \((x_j)\). Thus, we can write the equation:

\[ y_i = f(x_1, x_2, x_3, \ldots, x_i) \]  \hspace{1cm} (3.6)

A particular instrument \((x_i)\) is especially efficient in influencing a specific indicator \((y_i)\). Efficiency in this context means that the change in an instrument \((\Delta x)\) is necessary to change an indicator by a given amount \((\Delta y)\). If a small or realistic change in an instrument can produce a significant change in an indicator, then the instrument is considered efficient with respect to that indicator. When efficient instruments are available to promote desirable objectives, economic policy becomes easier. Policy instruments include, for example, various taxes; particular features of taxes such as deductions and rates; various categories of expenditures; particular features of expenditures; and so on. Fiscal deficits can also be seen as indirect instruments to pursue stabilization policies. They are influenced by changing taxes and spending. Non-fiscal economic instruments are the exchange rate, the interest rate, regulations and so on.

The Theory of Fiscal Policy (Musgrave 1959, as cited in Tanzi, 2004) states that if some technical conditions are satisfied then the implicit system of equation formed by the relationships mentioned above can be solved for the values of the instruments that would maximize the social welfare \((W)\). This mathematical solution may require too large changes in the instruments. However, if the instruments are efficient, the solution of the equation will require changes in their value that are technically or politically feasible. The theory of fiscal policy is built upon several assumptions. These assumptions include the following:

There is a Nerve Centre (office or a place) where the “government” decides which policy instruments to use to influence the economic objectives that it considers important to promote and to maximize the social welfare. The existence of a Nerve Centre implies: a unitary form of government; a unified budget; and a prime minister, president or finance minister with the political power to set the desired objectives and to change the policy instruments in the desired direction and by the needed magnitude.
Those in the government have only the public interest of the citizens in mind when they make policy decisions. They are not influenced by their personal interests, or by the special interests of particular groups or geographical areas. There are no effective lobbies operating outside the electoral process and there is no scope for corruption, rent seeking or “state capture”. Policymakers avoid “populist” policies that go against the public interest, even when these policies have short run appeal that could help those in power win the next election. This therefore means that the electoral cycle plays no role in budgetary decisions.

When it makes the budgetary decisions, the government has available to it the best economic analyses that money can buy. Policymakers are able to determine, with a reasonable degree of accuracy, that a given change in policy instrument is expected to cause a given change in a particular objective. This will rule out policy decisions based on “gut feelings”, impressions, ideology, wrong data, biased forecasts, electoral promises, or antagonism toward previous governments.

The executive branch has much control over the policy instruments (that is, over the proposed laws) as it is feasible in a democratic society. This assumption has the outcome that the parliament has the prerogative to approve or turn down the proposals submitted to them by the executive. It also has the privilege to improve the proposals or amend them in some relevant ways. However, it should not have the prerogative to change them in fundamental ways; or to delay unduly action on proposals submitted by the executive. It is the executive branch of government that, within clear constitutional limits, must control the instruments of economic policy, not the parliament.

The theory of fiscal policy can be criticised because it is based on a normative theory which tells how the world should behave, not how it really is. The theory is based on a view of the world as seen by the citizens of particular countries. It is far from the reality that exists in other countries, both industrial and especially developing countries. Thus, while the theory is still useful in telling us what the world should be like, it is less useful in telling us how much of the world actually behaves. The theory can also be criticised because of its deep suspicion of governments and scepticism. The assumption that policymakers and bureaucrats can be separated from their personal interests and incentives in pursuit of the public interest is unrealistic. In reality
bureaucrats usually prioritise their personal interests and incentives at the expense of social welfare. This therefore renders the theory of fiscal policy closer to infeasible.

3.1.4 The Natural Rate Theory

The theory of the natural rates of unemployment and output was developed by Milton Friedman (1969). It states that there exists an equilibrium level of output and an accompanying rate of unemployment determined by the supply of the factors of production, technology, and institutions of the economy (i.e. determined by real factors). Friedman believed that changes in aggregate demand (dominated by changes in the supply of money) cause temporary movements of the economy away from the natural rate. Economists subscribing to Friedman’s propositions (monetarists) do not agree with the classical position that output is completely supply determined even in the short run. They believe that equilibrating forces cause the levels of output and employment to return to their natural rate over a longer period. Friedman defined the natural rate of unemployment as the rate of unemployment which has the property that it is consistent with equilibrium in the structure real wage rates. It is thus the level of unemployment where labour demand equals labour supply at an equilibrium real wage. This situation is depicted in figure 3.4a.

The labour demand schedule in part $a$ is the marginal product of labour schedule (MPN). At $N^*$, the natural rate of employment, labour demand is equated with labour supply, where in drawing the labour supply schedule $N^s [W / (P^e = P)]$. This stipulates that the price level expected by labour suppliers is equal to the actual price level ($P^e = P$). It is only at this level of employment where there is no tendency for the real wages to change. Labour suppliers have a correct expectation of the price level, and hence there will not be a tendency for labour supply to change.
The natural rate of unemployment can be found simply by subtracting those employed from the total labour force to find the number unemployed and by expressing this as a percentage of the
total labour force. The production function in figure 3.4b shows \( y^* \) as the level of output that will result from an employment level \( N^* \). In this context, \( y^* \) is the natural rate of output.

Also to note from figure 3.4 is that the natural rates of output and employment depend on the supply of factors of production and technology of the economy (supply side factors). The natural rates of output and employment do not depend on the level of aggregate demand. The difference between the monetarists and the classical economists is that monetarists do not assume that the economy is necessarily at these natural levels of employment and output in the short run. Just like the Keynesians, the monetarists assume that labour suppliers do not have perfect information about the real wages. They must base their labour supply decisions on the expected real wage \((W/P^e)\). In the short run, labour supply may therefore not be given by the supply schedule in Figure 3.4a; hence \( P^e \) may not be equal to \( P \). In this case employment and output will not be at their natural rates.

The monetarist framework view on the effectiveness of fiscal policy was expressed by Friedman who expressed that the state of the budget had no significant effect on the course of nominal income, on deflation, or on cyclical fluctuations. Friedman rejected the Keynesian proposition that fiscal policy was effective, he argued that fiscal policy by itself is largely ineffective; and what matters is what happens to the quantity of money. The monetarists put forward that should the government need to increase spending (with tax rates not changed), the new spending must be financed by the printing of money or by selling of bonds. Similarly, for a tax cut, if spending is to be unchanged, lost tax revenues must be replaced by sales of bonds to the public or by printing of new money. If a tax cut or spending increase is financed by printing new money, we both have a monetary policy action (\( M \) increases) and fiscal policy action (\( G \) increases or \( T \) falls).

In terms of the IS-LM framework, both the IS and LM curves shift. Monetarists do not argue that this type of policy change will be ineffective. They do argue that the policy effect will come mainly because the stock of money changes. Figure 3.5 explains the reasons why monetarists reached the conclusion that fiscal policy will have little, if any, systematic effect on nominal income over short periods of time.
Figure 3.5 Effects of an Increase in Government Spending: The Monetarist Case

From figure 3.5, an increase in government spending shifts the IS curve from $IS_0$ to $IS_1$. The effect of the increase in government spending in the monetarist case is primarily to cause the interest rate to rise (from $r_0$ to $r_1$). Income level (and hence, aggregate demand) is changed slightly (from $y_0$ to $y_1$). Monetarists believe that this is due to the dependence of the relative effectiveness of monetary and fiscal policy on the slopes of the IS and LM curves; particularly on the assumed magnitude of the interest elasticity of money demand and of investment demand. Monetarists assume that the interest elasticity of money demand is small (hence the LM curve is steep). An increase in government spending initially increases aggregate demand. As income begins to rise, the demand for transactions balances increase. With the money stock fixed, this increase exerts pressure on the interest rate, which rises until money supply and demand are again equal. If money demand is interest-inelastic, a large increase in the interest rate is required to re-equilibrate money demand with the fixed money supply. In the monetarist view, the IS curve is relatively flat. Investment demand is highly sensitive to changes in the interest rate. This implies that a rise in the interest rate required to keep the money market in equilibrium will cause
the private sector aggregate demand to decline substantially as government spending begins to stimulate income. This reduction in private sector aggregate demand is termed *crowding out*. In the monetarist view, such crowding out occurs almost on a rand for rand with an increase in government spending. The final result is that aggregate demand and, hence, income are increased very little by an increase in government spending.

Neo-Keynesian economists criticised the monetarist propositions arguing that the demand for money is intrinsic to supply. Also to note are conservative economists who argued that demand for money cannot be predicted as hypothesised by the monetarists. Stiglitz *et al.* (2003) also argued that the relationship between output growth and money supply growth is weak when economic growth is low. Other critics to the monetarist view cite the following: a) growth in the money supply is erratic due to structural change in economy making controlling the money supply meaningless; b) controlling money supply can lead to recession, for example, in the 1980s, the UK pursued strict money supply targets but this caused a deep recession. This was because monetary policy was too tight trying to meet artificial money supply targets and; c) if you want to control unemployment; it makes more sense to target unemployment directly rather than through the intermediary of the money supply.

Conclusively, the fiscal policy and unemployment related theories reviewed have the general conclusion that fiscal policy (in some instances together with monetary policy) is very important for stabilizing the economy. Through the use of various levers for fiscal policy (government spending, and taxation) as well as for monetary policy (such as interest rates and monetary targets), fiscal policy can swiftly alleviate the ills facing an economy. This implies that fiscal policy is substantially necessary in fighting economic evils such as unemployment. However, theorists differ in their perception on how fiscal policy can be used to achieve the desired outcomes. Some suggest rules to be followed on the conduct of fiscal policy while others advocate not for any discretion. The conflicting views by the competing schools of thought have left non-conclusive results about what fiscal policy can and cannot do. The next section reviews how these theories have been empirically tested.
3.2 Empirical Literature
A lot of researchers examined the relationship between fiscal policy and unemployment using different methods and countries. They realised various results depending on the country, method and time of study. In this section we present the various studies done, the methods used, the countries of research and the results obtained. The section is divided into three categories; literature from developed countries, literature from developing countries and literature from South Africa.

3.2.1 Literature from Developed Countries

In the study on the effects of fiscal policy on consumption and employment, Fatas and Mihov (1998) studied the dynamic impact of fiscal policy on employment implied by a large class of general equilibrium models in the USA for the period 1960 to 1996. The study used quarterly data and the VAR method was applied to get empirical results. Results from the study showed that positive innovations in government spending are followed by strong and persistent increases in employment. The effects are particularly pronounced when government wage expenditures increase. The study compared these findings to several variations of a standard real business cycle model and found that the positive conditional correlation in the responses of employment cannot be matched by the model under plausible assumptions for the values of the calibration parameters. Results from the study were compatible with the Keynesian theory of unemployment which suggests that an expansionary fiscal policy framework stimulates aggregate demand leading to an increase in employment.

Kneller et al (1999) in the study on fiscal policy and growth used a data set covering 22 OECD countries for the period 1970 to 1995. The study used panel data from two sources; the Government Financial Statistic Yearbook (GFSY) and the World Bank Tables (WBT). Fiscal variables were classified into four types, distortionary or non-distortionary taxation and productive or non-productive expenditures. Distortionary taxes were those which affect the investment decisions of agents, creating tax wedges and hence distorting the steady-state rate of
growth. Non-distortionary taxation did not affect saving/investment decisions because of the assumed nature of the preference function, and hence has no effect on unemployment. Productive government expenditures were those that are included as arguments in the private production function and hence have a direct effect upon unemployment. If they were not then they were classified as unproductive expenditures and do not affect the steady-state rate of unemployment. The study aggregated the IMF’s functional classifications of fiscal data into seven main categories, and tests for the sensitivity of the results to this classification of the data. The data was annual, but the study followed the standard practice of taking 5-year averages to remove the effects of the business cycle, and then applied static panel econometric techniques. At a later stage the study considered the sensitivity of its findings to different time aggregations of the data. Results from the study showed that the sample countries grew, on average, around 2.8 per cent (per capita) per annum, with investment ratios in excess of 20 per cent and labour force growth around 1 per cent per annum. Among the fiscal variables, their distortionary tax category yielded about twice as much revenue (18 per cent of GDP on average), as non-distortionary taxes, while the two main expenditure categories each accounted for about 15 per cent of GDP. Results from the study agreed with the Keynesian and the fiscal policy theories which assume that fiscal policy is a necessary tool to stimulate growth and employment.

Tanzi and Zee (1997) in the study on fiscal policy and long run growth discussed in a systematic and comprehensive way the existing literature on the relationship between the growth of countries' economies and various public finance instruments. These instruments included tax policy, expenditure policy, and overall budgetary policy, from the perspectives of allocative efficiency, macroeconomic stability, and income distribution. The study reviewed both the conceptual linkages between each of the instruments and growth and the empirical evidence of such relationships. From the analysis, Tanzi and Zee (1997) discovered that fiscal policy could play a fundamental role in affecting the long-run growth and employment performances in developed countries. Findings from the study were compatible with economic theory and are relevant to this study.

In the study on government size and unemployment, Feldmann (2006) used data from 19 industrial countries for the period 1985 to 2002. The countries include all major industrial countries and countries with different cultural backgrounds that is, Anglo-Saxon countries,
Scandinavian countries, countries from continental Western Europe, and Japan. The study analysed how the size of the government sector affects unemployment. Controlling for the impact of the business cycle as well as for the impact of all major labour market institutions and unobserved country effects, Feldmann (2006) found that a large government sector was likely to increase unemployment. The regression coefficients were estimated using the random effects, generalized least squares (GLS) procedure that incorporates time-invariant country effects (Swamy-Arora method). This enabled Feldmann (2006) to exploit both the cross-country and the time-series variation included in the sample while simultaneously controlling for unobserved country effects. Results from the study suggested that large governments appear to have a particularly detrimental effect on women and the low skilled and to substantially increase long term unemployment. In another statement the study highlighted that dominant state owned enterprises, a large share of public investment in total investment as well as high top marginal income tax rates and low income threshold levels at which they apply are particularly detrimental.

The work of Feldmann (2006) agreed with the work of Abrams (1999) who studied the effects of government size on the unemployment rate. The study presented statistical evidence for a connection between the size of government and the unemployment rate in the U.S.A for the period 1945 to 2002 using the generalised least squares estimates (GLS). Results from the study suggested empirical evidence that the growth-maximising size of government (and tax level) as a share of GDP for the United States is approximately 23 percent. The study also found that increases in the U.S. government expenditure as a percentage of GDP since 1949 was responsible for increases in the unemployment rate. This contributed to slowing down the growth in the U.S. economy. Abrams (1999) concluded that reducing the U.S. government's average share of GDP from 36.7 per cent to 23 per cent lowered the reported unemployment rate by approximately 2.9 per cent. Applying Okun's Law, this raised U.S real GDP by approximately 5.8 per cent. Furthermore, the study concluded that a sizable amount of the slowdown in U.S. GDP growth was attributable to expansions in the size of government and its policies which have raised the U.S. natural rate of unemployment. Findings from the study supported the theoretical hypothesis that increases in government size, *ceteris paribus*, generally provided expenditure and tax effects that raised reported unemployment.
Rose (1981) in the study on big governments examined the negative consequences that are likely to arise from a big government in the U.S.A. In the study, three generic effects were postulated: a) a loss of effectiveness, because of the use of weaker means-ends programme technologies for new programmes; b) an increase in contradictions between existing, growing and new programmes and; c) a possible reduction of consent, insofar as growth increases the “impropriety” of government actions. The growth of government was shown to be unbalanced, that is, to occur in incommensurable ways and at varying rates for major resources (government revenue, personnel, and laws); government organizations; and programme outputs. The different character of growth in each element was examined, and particular consequences hypothesised for resource elements singly, for internal characteristics of organisations, and for their combination in programmes. The analysis suggested that while much growth involves no intrinsic problems of size (as long as economic resources are available to meet the costs), there is likely to be disproportionate loss of effectiveness, and increasing contradictions between programmes if big government grows bigger still.

Hercowitz and Strawczynski (2004) in the study on cyclical ratcheting in government spending studied the role of business cycles in the phenomenon of increasing government spending/GDP ratios in 22 OECD countries. The study used an empirical framework that included both long-run and cyclical considerations in the determination of government spending using annual panel data covering 1975 to 1998. Hercowitz and Strawczynski (2004) used the generalised least square (GLS) procedure to deal with cross-section heteroskedasticity, with weights computed from the residual variances for each country in a preliminary OLS regression. Results from the study suggested that the prolonged rise in the spending/GDP ratio was partially explained by cyclical upward ratcheting due to asymmetric fiscal behaviour. The ratio increased during recessions and was only partially reduced in expansions. The long-run ratcheting effect was estimated at approximately 2 per cent of GDP. Also analysed were the cyclical changes in the composition of government spending (government consumption, transfers and subsidies, and capital expenditure), as well as a possible link between cyclical ratcheting and government weakness. The study is compatible with various theoretical literatures that recommend fiscal policy as a tool to deal with business cycles. Such theories include the theory of fiscal policy and the Keynesian theory.
In conclusion, the reviewed studies in the developed countries enclose a general discernment that fiscal policy contraction has a negative effect on unemployment. In other words, unemployment is lowered by contractionary fiscal shocks. However, it is imperatively noble to note that fiscal policies react differently to macroeconomic shocks in different countries. Some react in a systematic way but some exercise discretion. This has made it very difficult to have a common fiscal policy in many developed nations. Moreover, the impossibility of a common fiscal policy is the differences in economic structures across the developed countries. This translates into different responses to shocks.

3.2.2 Literature from Developing Countries

Fiscal policy is increasingly becoming an important tool for the control of unemployment and other macroeconomic variables such as economic growth and income inequalities. Its importance, particularly in developing countries has led several studies to investigate the effect of fiscal policy on these important fundamentals. These include studies by Giavazzi, Jappelli, and Pagano (2000), Aizenman and Marion (1993), Brett (2005), Pepinsky (2007), Agénor, Nabli, Yousef, and Jensen (2007), Zenou (2008), Schclarek (2007), among others.

Giavazzi, Jappelli, and Pagano (2000) searched for non-linear effects of fiscal policy using time series data of 101 developing countries over the period 1970 to 1994. The study tested if there was evidence of non-linearities in the effects of fiscal policy on national saving and unemployment in developing countries. Giavazzi et al (2000) looked for asymmetries between fiscal expansions and fiscal contractions, and for the possibility that the growth rate of the public debt affect the way in which national saving and unemployment respond to a fiscal impulse. In doing this, the study kept the 70 per cent threshold for the debt/income ratio and a threshold of 4 per cent for the change in the debt/income ratio in two consecutive years. The study used an OLS fixed effect estimator and found some evidence of a non-linear effect for both taxes and government spending. The offsetting effect of the interaction terms was slightly weaker for fiscal contractions than for expansions. All the relevant coefficients were statistically significant at the 1 per cent level, and the effect of taxes was positive in normal times, smaller during large fiscal contractions, and even smaller during large fiscal expansions. Results from this study were compatible with economic theory.
In the study on policy uncertainty and growth, Aizenman and Marion (1993) explored the links between policy uncertainty, economic growth and unemployment in 46 developing countries over the period 1970 to 1985. The study used annual cross sectional data in an endogenous growth model where domestic investment was characterised by irreversibility and policy fluctuates between a high and a low tax regime. Aizenman and Marion (1993) made use of the VAR model and results from the study showed that the magnitude of policy fluctuation and the persistence of policy jointly determine the pattern of investment, economic growth and unemployment. In the study, cross section regression confirmed that for 46 developing countries over the period 1970-1985, policy uncertainty was negatively correlated with investment, economic growth and unemployment. These results were consistent with economic theory.

Brett (2005) in the study on corporatism to liberalisation analysed the shift from corporatist to liberal economic policy regimes that led to the crisis of the late 1990s in Zimbabwe. The study outlined the rationale for both regimes, reviewing the reasons for their introduction, their major achievements and failures. Furthermore, it assessed how the regimes contributed to the subsequent adoption of the dysfunctional policies of the late 1990s. The argument was that the failures of both these regimes were avoidable, so was the outcome of ‘political’ rather than economic variables. Brett (2005) concluded by calling for economic policies that take more account of their political implications, and of the need to strengthen state capacity in weak states.

In a study similar to the work of Brett (2005), Pepinsky (2007) analysed autocracy, elections and fiscal policy in Malaysia. The study used a time-series analysis of Malaysian fiscal expenditures over the period 1967 to 1997 to show that the ruling coalition systematically increased federal government spending before elections. Using the VAR model, the study discovered that authoritarian regimes often used fiscal policy to reward political supporters and to punish political opponents. The study stated that many authoritarian regimes with political institutions like parties, legislatures, and elections, take elections as a focal point for budget expenditures and the distribution of government patronage. In addition to marshalling private resources to distribute patronage, the study noticed that the Malaysian government manipulates the government’s official position. Findings from the study have important implications for the growing literature on political institutions under autocratic regimes and the politics of patronage and redistribution in the developing world. The results were consistent with economic theory,
notably the public choice theory which assumes politicians to use fiscal policy to buy votes and maximise personal gains, as opposed to social welfare. Moreover, the results are reliable as they reflect the usual behaviour of autocratic governments such as those in Zimbabwe and Malaysia.

Agénor *et al* (2007) in the study on labour market policies on growth, employment, urban inequality, and rural welfare in labour-exporting countries in the Middle East and North Africa, analysed the impact of labour market policies on labour exporting countries. The study conducted various experiments, such as a reduction in payroll taxation, cuts in public sector wages and employment, and a reduction in trade unions’ bargaining power. Results from the study suggested that overseas employment may be substituted for domestic informal sector employment as the main buffer in labour market adjustment. In addition, the study argued that to foster broad-based welfare-enhancing job creation in the region, labour market reforms must take account of general equilibrium effects, including crowding-in effects on private investment and variations in income remittances and international migration patterns. Finally, the study argued that labour market reforms should be viewed as a component of a more comprehensive program of structural reforms aimed at spurring growth and employment. Results from the study are also relative to the South African labour market which also suffers from the brain drain. Policy recommendations from the study are also applicable to South Africa.

In line with the work of Agénor *et al* (2007), Zenou (2008) in the study on job search and mobility in developing countries developed a labour market model in which the formal sector was characterised by search frictions whereas the informal sector was competitive. The study showed that unique steady-state equilibrium existed in South American countries. Subsequently, the study then considered different policies financed by tax on firms' profits. Results suggested that reducing the unemployment benefit or the firms' entry cost in the formal sector induces higher job creation and formal employment. Furthermore, the study revealed that the reduction in unemployment benefits reduces the size of the informal sector but has an ambiguous effect on wages. The study also found that an employment/wage subsidy policy and a hiring subsidy policy had different implications. In particular, an employment/wage subsidy increased the size of the informal sector while a hiring subsidy decreased the size of the informal sector. Results from the study are also applicable to the South African economy which strives to promote informal sector employment.
Schclarek (2007) in the study on fiscal policy and private consumption used annual panel data over the period 1970 to 2000 for 40 countries from all over the world to examine the impact of fiscal policy on private consumption and employment. Of these countries, 19 were industrialized and 21 were developing. The study empirically studied the effects of fiscal policy shocks on private consumption and employment using the VAR model. It also investigated whether the initial financing needs of the government or previous fiscal deficits affected that relationship. The study used panel data econometric estimations and discovered that government consumption and employment shocks have Keynesian effects for both industrial and developing countries. In the case of tax shocks, the evidence was mixed. Furthermore, there was no evidence that favoured the hypothesis of expansionary fiscal consolidations. Results from the study were compatible with economic theory.

In conclusion, the reviewed studies from developing countries envisaged a rather controversial discernment regarding the impact of fiscal policy on unemployment. In this section we realised that fiscal policy reacts differently to macroeconomic shocks in different countries. In some instances fiscal policy had a negative impact on unemployment, while in other cases fiscal policy had a positive impact on unemployment. However, although a general conclusion on the impact of fiscal policy on unemployment in developing countries cannot be easily ascertained, it is nobly rational to conclude from the cited researches that government taxation and expenditure have Keynesian effects on unemployment in developing countries. This nonetheless depends on how one analyse the facts.

### 3.2.3 Literature from South Africa

The dynamic environment in which fiscal policy operates inspired economic investigations on the effect of fiscal policy on unemployment in South Africa. Studies examining the rise of unemployment in South Africa and how the government tried to address it have been documented. Such studies include the works of Banerjee et al (2008), Kingdon, and Knight (2007), Stryker et al (2001), Klasen and Woolard (2008), Agénon (2004), among others.

Banerjee, Galiani, Levinsohn, McLaren and Woolard (2008) in the study on why unemployment has risen in South Africa documented the rise of unemployment in South Africa since the transition in 1994. The study used representative household surveys and described how changes in labour supply interacted with stagnant labour demand to produce employment rates that
peaked between 2001 and 2003. It postulated that compositional changes in employment at the sectoral level widened the gap between the skill-level of the employed and the unemployed. Using nationally-representative panel data, the study showed that stable unemployment rates mask high individual-level transition rates in labour market status. It highlighted several key constraints to addressing unemployment in South Africa. The study noted at the outset that changes in the unemployment rate could be viewed as resulting from either a temporary shock or a more permanent structural change. It proceeded by using several nationally representative household surveys to investigate multiple aspects of South African unemployment. On the more aggregate level, the study noted that the demand for unskilled labour had fallen and that this was particularly manifested in the agricultural and mining sectors.

Concurrent with the decline in the demand for less skilled labour, there was a large increase in the supply of less skilled labour. Much of this increase was in the form of a large influx of African women into the labour market. The result of the increased supply and decreased demand was increased unemployment. The study concluded that unemployment was near equilibrium levels and was unlikely to self-correct without policy intervention. Banerjee et al (2008) therefore suggested that there were several policy options including a wage subsidy, a search subsidy, reduced regulations for first jobs, and government employment. The study also proposed transportation subsidies, housing policy, business location policy, and infrastructure investment, among others to alleviate structural unemployment. It also recommended training programs and training subsidies as short term remedies to the mismatch between the skill set of the unemployed and the skills required in the labour market. Banerjee et al (2008) suggested in conclusion that in the longer run, educational reform was required to ease the mismatch and increase human capital. Results from this study were compatible with both theoretical literature and the existing situation in South Africa. This is because the dominant type of unemployment in the country is structural unemployment where the majority of the unemployed are the less skilled South Africans who need some form of education to get jobs.

In the study on unemployment in South Africa, Kingdon, and Knight (2007) examined the factors behind the sharp rise in unemployment in the post-apartheid South Africa. The study investigated the role of labour legislation and the system of labour market governance, and evaluated the impact of the government's active labour market policies. It identified the
knowledge gaps about the functioning of the labour market and drew some policy prescriptions. The study analysed unemployment using household surveys spanning 1995–2003 and explained the rise in unemployment by the slow growth of the economy, and thus slow growth in the demand for labour relative to the rapidly growing supply, together with labour market inflexibility. Kingdon, and Knight (2007) argued that if unemployment was to be tackled, it was crucial to pursue a set of policies that promote South Africa's rate of economic growth to promote job-creation. The study also concluded that labour market regulations require reconsideration, giving greater weight to the concerns of employers and investors, and to the interests of the unemployed and informally employed poor who are beyond the reach of the labour institutions but can be hurt by them nevertheless. It highlighted that lack of appropriate data hinders analysis of important aspects such as entry into, exit from and duration of unemployment. The argument that policies that promote economic growth are good for job creation is consistent with the Keynesian theory which suggests that the demand for labour is a result of stimulated aggregate demand. Therefore, suggestions from this study are compatible with economic theory.

Stryker, Cassim, Rajaratnam, Bhorat, Leibbrandt, and Plunkett (2001) researched on how to increase the demand for South African labour and reduce unemployment using data for the period 1995 to 2000. The study used household surveys to review the problems that South Africa faced as it emerged from apartheid and wrestled with the multiple objectives of reducing poverty, increasing employment, restructuring the economy in a more open direction, and raising the rate of economic growth. It set out different ways in which the demand for labour could be increased. A number of important conclusions were drawn from the study. The conclusions related to the various ways in which government policy can be used to stimulate the demand for labour. The study concluded that South Africa should follow macroeconomic policies that encourage growth and investment; identify the sectors in which expansion of employment was likely to be greatest and ensure that barriers to growth in these sectors are minimised; establish an environment that encourages growth of SMMEs; find ways of improving the skills of youth and other labour market participants so that the demand for skilled labour can be spread among a broader segment of the potential work force and; create a legislative and regulatory environment in the labour market that encourages firms to hire and train labour. Results from the study agreed with results from the work of Kingdon, and Knight (2007) which suggested economic growth targeting policies if South Africa was to reduce unemployment.
In the study on surviving unemployment without state support, Klasen and Woolard (2008) examined how unemployment can persist without access to unemployment compensation in South Africa. Analysing household surveys from 1993, 1995, 1998, 2004 and 2006, results from the study suggested that household formation response of the unemployed was the critical way in which the unemployed assure access to resources. The study suggested that unemployment delayed the setting up of an individual household by young persons, in some cases by decades. According to the study, unemployment sometimes leads to the dissolution of existing households and a return of constituent members to parents and other relatives and friends. Access to state transfers (in particular, non-contributory old age pensions) plays an important role in this private safety net. The study discovered that some unemployed did not benefit from this safety net, and the presence of unemployed members pulled many households supporting them into poverty. Furthermore, the study also showed that the household formation response draws some of the unemployed away from employment opportunities, and thus lowers their employment prospects. The work of Klasen and Woolard (2008) is consistent with reality in South Africa where unemployment delays marriages or even destroys existing marriages. Government grants such as child support and old age grants are playing a major role in sustaining the unemployed.

Fedderke, Perkins, and Luiz, (2006) in the study on infrastructure investment in long run economic growth examined the impact of public sector spending in infrastructure on economic growth in South Africa. The study employed the vector error correction model (VECM) using time series data for the period 1976 to 2002. Results from the study suggested some evidence of crowding in by public expenditure. Assuming that the public sector finances only infrastructure, the study reported evidence of a feedback relationship between employment growth and infrastructure investment from a newly constructed database measuring the stock of infrastructure over time. The study reported much stronger evidence that government expenditure might lead to output growth and more employment in South Africa. Results from the study are realistic and compatible with economic theory. Government spending in infrastructure makes it easy for firms to conduct business leading to substantial levels of economic growth and an increase in employment. Government investment in transport, communication and other industries attract private investment leading to an increase in aggregate demand and the creation of new jobs.
In South Africa a large gap exists in literature regarding the effect of fiscal policy on unemployment. However, the reviewed studies have shown that unemployment has been a challenging phenomenon in the history of South Africa. Government expenditure and tax have been found to be a tool used by the government to alleviate the extent of unemployment in the country. It is nevertheless rational to note with great sadness that the government’s effort towards unemployment has unfortunately ended up a complete fiasco. This is evidenced by the sky rocketing unemployment rates which hovered throughout a decade and half rule of the ANC government.
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3.3 Conclusion

This chapter presented theoretical and empirical literature regarding the effects of fiscal policy on unemployment. The first part of this chapter dealt with theoretical literature. Theories reviewed in this chapter are the Keynesian theory of unemployment, the public choice theory, the theory of fiscal policy and the natural rate theory. The theory of fiscal policy agreed with the Keynesian role of fiscal policy on the assumption that policymakers have no other objectives beside the promotion of social welfare. Differently, the public choice theory assumed politicians to be people who use the fiscal policy framework to maximise their personal welfare, as opposed to social welfare. The natural rate theory assumed that changes in aggregate demand may cause the levels of output and employment to return to their natural rate over a longer period.

The second part of this chapter explored empirical studies conducted by previous researchers on fiscal policy and unemployment in developed and developing countries as well as in South Africa. Studies reviewed employed several quantitative and qualitative models to test the impact of fiscal policy on unemployment. Most of the studies concluded that fiscal policy aggregates such as government expenditure and tax significantly affect unemployment in both developed and developing countries as well as in South Africa. However, it is important to note that in South Africa a large gap exists in literature regarding the effects of fiscal policy on unemployment.
CHAPTER FOUR

METHODOLOGY

4.1 Introduction
This chapter is underpinned by literature in the previous chapters. The chapter provides an analytical framework for the study. It is divided into five sections. The first section develops an analytical model while the second section defines the variables used in the model and the third section discusses the data sources. A review of estimation techniques for the study of the impact of fiscal policy on unemployment is presented in the fourth section, while the fifth section concludes the chapter.

4.2 Theoretical Framework
The theoretical framework is drawn from the Musgrave (1959) fiscal policy theory. The theory cites that economic indicators (employment, economic growth, inflation, among others) can be influenced by changes in particular policy instruments (taxes, expenditures, exchange rates, among others). This means that each economic indicator is a function of the policy instruments. Thus, the equation can be written as;

\[ y_i = f(x_1, x_2, x_3, ..., x_j) \]

Where:
y_i = economic indicator and
x_1, ..., x_j = policy instrument.

According to Musgrave (1959), a particular instrument is efficient in influencing a specific indicator. This means that the change in an instrument (\(\Delta x\)) is necessary to change an indicator by a given amount (\(\Delta y\)). If a small change in an instrument can produce a significant change in an indicator, then the instrument is considered efficient with respect to that indicator. When efficient instruments are available to promote desirable objectives, economic policy becomes easier.
4.3 Model Specification and Definition of Variables

This study adopted the model outlined in Baxter and King (1993), as discussed further in Fatas and Mihov (1998) who regressed employment against fiscal and non fiscal variables, that is; employment was regressed as a function of: government spending, consumption, investment, economic growth, taxation, treasury bills. The model is modified to test for the effects of fiscal policy on unemployment in South Africa. Unemployment is modelled as a function of fiscal policy variables (government consumption spending, government investment spending and government taxation). This is expressed as follows:

\[ \text{UNEMPLOY} = \beta_0 + \beta_1 \text{GOVSPEND} + \beta_2 \text{GOVIN} + \beta_3 \text{TAX} + \mu \] .................................................. (4.2)

In order to avoid any form of misconception of empirical results, a description of all variables that appear in the estimated equation is provided. All the variables are converted to logarithms so as to remove trends and to obtain elasticity coefficients on these variables. The model (in 4.2) thus assumes the form:

\[ \ln \text{UNEMPLOY} = \beta_0 + \beta_1 \ln \text{GOVSPEND} + \beta_2 \ln \text{GOVIN} + \beta_3 \ln \text{TAX} + \mu \] .................................................. (4.3)

\text{LUNEMPLOY} = \text{the logarithm of unemployment in South Africa. This study uses the unemployment rate based on the strict definition. The strict definition states that the unemployed are those people within the economically active population, who: did not work during the seven days prior to the interview, want to work and are available to start work within a week of the interview, and have taken active steps to look for work or to start some form of self employment in the four weeks prior to the interview (StatsSA, 1996).}

\text{LGOVSPEND} = \text{the logarithm of the aggregate government consumption expenditure. The final consumption expenditure by general government at constant 2000 prices is used to denote government consumption spending.}

\text{LGOVIN} = \text{the logarithm of government investment expenditure. Gross fixed capital formation from government is used to account for government investment expenditure.}
\textbf{LTAX} = the logarithm of government taxation on economic agents. Current taxes on income and wealth at current prices will be used as a proxy for taxes. This will be used because it is difficult to obtain time series data of consolidated government tax collections.

\( \mu \) = an error term.

\textbf{4.4 Expected signs}
A summary of each of the explanatory variables is presented in order to explain equation 4.3. The impact of the aggregate government consumption expenditure (GOVSPEND) on unemployment is expected to be negative. An increase in government spending increases the aggregate demand (AD) which leads to more employment being created (decrease in unemployment). This follows the Keynesian hypothesis that assumes employment demand to be derived from aggregate demand. Therefore, a negative sign is expected for the coefficient of aggregate government consumption.

Government investment expenditure (GOVIN) is expected to have a negative impact on unemployment. The more the government spends on investment, the higher will be the level of employment in the country (with unemployment decreasing). Government investment in infrastructural development will attract private investment which in turn creates jobs for the economy. Investment by the government in public enterprises means more jobs are created, thus, increased employment levels.

Government taxation on economic agents (TAX) is expected to have a positive relationship with unemployment. The higher the tax rates, the lower the employment levels in an economy; and vice-versa. Sky-scraping tax rates discourage private investment. This is because they increase the cost of production and leaves entrepreneurs with minimum incentives to do business.

\textbf{4.5 Data sources}
This study employs annual data covering the period 1980 to 2010. Data on fiscal policy variables and data on unemployment is obtained from the electronic database of the Department of Trade and Industry (DTI).
4.6 Research techniques
This study uses the Dickey-Fuller and the Augmented Dickey-Fuller unit root tests for stationarity. Variables are tested for stationarity because most economic series are not stationary in their levels which lead to estimations being meaningless. To test for co-integration, the study uses the Johansen and Juselius (1991, 1995) technique. This technique is preferred because it captures the underlying time series properties of the data and is a systems equation test that provides estimates of all cointegrating relationships that may exist within a vector of non-stationary variables or a mixture of stationary and non-stationary variables. In this section the techniques employed to test for stationarity and co-integration are reviewed.

4.6.1 Testing for stationarity
Brooks (2002:319) identified a stationary series as one with a constant mean, constant variance and constant auto covariance for each given lag. The stationarity of a series can strongly influence its behaviour and properties. If a series is non stationary it must be differenced $d$ times before it becomes stationary, then it is said to be integrated of order $d$. This would be written as $I(d)$. If we apply the difference operator more than $d$ times to an $I(d)$ process it will still result in a stationary series (however with an MA error structure). An $I(0)$ series is a stationary series, while an $I(1)$ series contains one unit root. An $I(2)$ series contains two unit roots and so would require differencing twice to induce stationarity. $I(1)$ and $I(2)$ series can wander a long way from their mean value and cross this mean value rarely, while $I(0)$ series should cross the mean frequently. A series that is not stationary is referred to as non-stationary. A non-stationary time series will have a time varying mean or a time varying variance or both. The use of non-stationary data can lead to dangers of running nonsense or spurious regression. If two stationary variables are generated as independent random series, when one of those variables is regressed on the other, the t-ratio on the slope coefficient would be expected not to be significantly different from zero, and the value of $R^2$ would be expected to be too low.

If non-stationary variables are employed in a regression, then the standard assumptions for asymptotic analysis will not be valid. Thus, the usual t-ratios will not follow a t-distribution and the F-statistic will not follow an F-distribution. As a result of spurious and or nonsense regression, unit root or stationarity tests should be done on all the variables before estimating the parameters and testing for co-integration. Various tests of stationarity exist; these include the
graphical analysis and the correlogram tests among others. In this study the Dickey-Fuller and the Augmented Dickey-Fuller unit root tests are discussed.

4.6.2 Dickey–Fuller and the Augmented Dickey–Fuller test

Over the past years the unit root test has become a widely popular test for stationarity. Dickey (1979) and Fuller (1976) pioneered the work on testing for a unit root in time series analysis. The basic objective of the test is to examine the null hypothesis that \( \phi = 1 \) in.

\[
y_t = \Phi y_{t-1} + \mu_t \]

Thus the hypotheses of interest are:

\( H_0 \): Series contains a unit root

\( H_1 \): Series is stationary.

In practice, the models under the null \((H_0)\) and alternative \((H_1)\) hypotheses in the three cases are as follows:

- When there is a test for a random walk against a stationary autoregressive process of order one AR(1)
- When there is a test for a random walk against a stationary AR (1) with drift.
- When there is a test for a random walk against a stationary AR (1) with drift and a deterministic time trend.

The Dickey Fuller test employed the following equation for ease of computation and interpretation:

\[
\Delta y_t = \beta_1 + \beta_2 y_{t-1} + u \]

In equation \((4.5)\) \( y_t \) is the relevant time series, \( \Delta \) is a first difference operator, \( t \) is a linear trend and \( u_t \) is the error term. The error term should satisfy the assumptions of normality, constant error variance and independent error terms. If the error terms are not independent in equation \((4.5)\), results based on the Dickey-fuller tests will be biased (Choga, 2009). The Dickey Fuller test is valid only if \( u_t \) is assumed not to be auto correlated, but would be so if there was autocorrelation in the dependent variable of the regression \( \Delta y_t \). The test would therefore be ‘oversized’, that is, the true size of the test would be higher than the nominal size used.
solution to this shortfall is to use the Augmented Dickey-Fuller (ADF). The ADF supplements the test by using lags to the dependent variable. The alternative model in the ADF case can be written as:

\[ \Delta y_t = \beta_1 + \beta_2 t + \psi y_{t-1} + \sum_{i=1}^{\infty} \Delta y_{t-i} + u_t \] \hspace{1cm} (4.6)

The lags of \( \Delta y_t \) now infuse any dynamic structure present in the dependent variable, to ensure that \( u_t \) is not auto correlated. Equations (4.5) and (4.6) can be estimated without including a trend term and without a constant. The test is conducted on \( \psi \), and the same critical values from the Dickey Fuller tables are used. The null hypothesis of a unit root is rejected in favour of the stationary alternative; in each case the test statistic is more negative than the critical value. In other words, the more negative it is, the stronger the rejection of the hypothesis that there is a unit root at some level of confidence.

The Dickey-Fuller test, as with any other unit root tests, has its own weaknesses. According to Gujarati (2003:819) most tests of the Dickey –Fuller type have low power. This means that they tend to accept the null of unit root more frequently than is warranted. Therefore, these may find a unit root even when none exists. Power depends on the time span of the data more than mere size of the sample. It is also important to note that the Dickey-Fuller test is weak in its ability to detect a false null hypothesis.

4.6.3 Co-integration and vector error correction modelling (VECM)

The reason for undertaking co-integration tests is to determine whether all the variables in the unemployment model are co-integrated. According to Gujarati (2003:830) co-integration of two or more times series suggest that there is a long-run or equilibrium relationship between them. Co-integration exists when two or more series are linked to form an equilibrium relationship spanning into the long-run. Variables are defined as co-integrated if a linear combination of them is stationary. A co-integrating relationship may in other words be seen as a long-term or equilibrium occurrence. This is because it is possible that co-integrating variables may deviate from their relationship in the short run, but their association would return in the long-run.

Several ways of testing for co-integration, exist; these include the Engle-Granger approach which is residual based and the Johansen and Juselius (1991, 1995) technique which is based on maximum likelihood estimation on a VAR system, among other ways. However it is crucial to
note that the majority of these techniques have numerous problems when applied to multivariate models.

In this study the vector autoregressive (VAR) based co-integration tests using the methodology developed by Johansen (1991, 1995) is used. This is because it has several advantages over other co-integration techniques. Johansen technique has the existence of more than one co-integrating vectors which is allowed for with two tests to help establishing the number of co-integrating vectors. Likewise, once the number of co-integrating relationships has been established, a series of likelihood-ratio tests can be performed to test different hypotheses about them. Johansen technique which is based on full system estimation can help to eliminate simultaneous-equation bias and raise efficiency relative to single equation methods.

**4.6.4 Johansen technique based on VAR**

The Johansen (1995) test for co-integration is applied in this study. This is because the maximum likelihood framework involved is known to offer better properties than the traditional Engle and Granger approach which is residual based. The following steps are involved when implementing the Johansen technique:

a) **Step 1: Testing the order of integration**

The first step in the Johansen approach is to test for the order of integration of the variables under examination. All variables are preset to assess their order of integration. When all the variables are integrated of the same order we can then proceed with the co-integration test. The data must be plotted to see if a linear time trend is present.

b) **Step 2: Setting the appropriate lag length of the model**

Estimate the model and determine the rank of $\Pi$

c) **Step 3: Choosing the appropriate model regarding the deterministic components in the multivariate system**

Analyse the normalised co-integrating vector(s) and speed of adjustment coefficients.

d) **Step 4: Determine the number of co-integrating vectors**

Apply causality tests on the error correction model to identify a structural model and determine whether the estimated model is reasonable.
Assuming a set of variables \([\text{LUNEMPLOY}; \text{LGOVSPEND}; \text{LGOVIN}; \text{LTAX};]\) that are in I(1) are thought to be co-integrated. A VAR with \(k\) lags containing these variables could be set up as:

\[
y_t = \beta_1y_{t-1} + \beta_2y_{t-2} + \ldots + \beta_ky_{t-k} + u_t \tag{4.7}
\]

In order to use the Johansen test, the VAR needs to be turned into a vector error correction model (VECM) \(y_t\) of the form:

\[
\Delta y_t = \Gamma_1\Delta y_{t-1} + \ldots + \Gamma_{k-1}\Delta y_{t-k+1} + \Pi y_{t-k} + \Psi D_t + \mu + \varepsilon_t, \quad t = 1, \ldots, T \tag{4.8}
\]

Where \(D_t\) are deterministic variables such as dummies and \(\mu\) is vector of constants. The hypothesis of reduced rank, \(r\), of the long-term impact matrix \(\Pi = \alpha\beta'\) is then used to formulate the hypothesis of co-integration. In this case \(\alpha\) represents the speed of adjustment matrix, indicating the speed with which the system responds to last period’s deviations from the equilibrium relationship and \(\beta\) is a matrix of long run coefficients. Estimates of \(\beta\) are found by solving the eigenvalue problem so that the eigenvectors corresponding to the \(r\) largest eigenvalues form the estimated \(\beta\) matrix. The size of the eigenvalues provides a measure of how large the correlation between the co-integrating relationship and the stationary part of the model is. The next step is to establish how many co-integrating vectors exist for each of the relationships. According to Brooks (2002), two test statistic are employed, the \(\lambda_{\text{max}}\) statistic and the \(\lambda_{\text{trace}}\) statistic. The \(\lambda_{\text{max}}\) statistic is of the form:

\[
\lambda_{\text{trace}} = -T\ln(1 - \lambda_{s+1}) \tag{4.9}
\]

where \(T\) is the sample size, the \(\lambda\)’s are the eigenvalues (ordered in descending order), \(r\) is the number of co-integrating vectors (which lies between zero and \(p\)) \(p\) is full rank and \(s\) is the hypothesized number of co-integrating vectors. The \(\lambda_{\text{max}}\) statistic tests the null hypothesis of \(r = s\) co-integrating vectors against the alternative that \(r = s+1\). The \(\lambda_{\text{trace}}\) statistic is as follows:

\[
\lambda_{\text{trace}} = -T \sum_{i=s+1}^{p} \ln(1 - \lambda_i) \tag{4.10}
\]

It tests the null hypothesis that there are \(r-s\) co-integrating vectors against the alternative that \(r \geq s+1\). Johansen and Juselius (1990) provide critical values for the statistics. The distribution of the test statistic is non-standard, and the critical value depends on the value of \(r-s\), the number of
non-stationary components and whether constants are included in each of the equations. In each case, the null hypothesis is rejected if the test statistic is greater than the critical value.

4.6.5 The Vector Error Correction Model (VECM)

It is appropriate to estimate an error correction model if the relevant variables are co-integrated. In a vector error-correction model, the short-term dynamics of the variables in the system are influenced by the deviation from equilibrium:

\[ \Delta y_t = \beta_1 \Delta x_t + \beta_2 (y_{t-1} - y_{x,t-1}) + \mu_t \]  \hspace{1cm} \text{(4.11)}

The error correction term is given by \( y_{t-1} - y_{x,t-1} \). The implied coefficient on \( xt-1 \) of one in this term suggests a proportional long run relationship between \( y \) and \( x \). Error correction models are interpreted as: \( y \) is supposed to change between \( t-1 \) and \( t \) as a result of changes in the values of the explanatory variables \( x \) between \( t-1 \) and \( t \), and also in part to correct for any disequilibrium that existed during the previous period. The error correction term would appear without any lag for this would imply that \( y \) changes between \( t-1 \) and \( t \) in response to a disequilibrium at time \( t \). \( y \) defines the long run relationship between \( x \) and \( y \) while \( \beta_1 \) describes the short run relationship between changes in \( x \) and changes in \( y \). \( \beta_2 \) describes the speed of adjustment back to equilibrium, and its strict definition is that it measures the proportion of the last period’s equilibrium error that is corrected.

The ECM has several advantages attributed to it. These reasons include the idea that it is a convenient model measuring the correction from disequilibrium of the previous period which has a very good economic implication. Additionally, ECMs are designed in terms of first differences which usually eliminate trends from the variables involved. ECMs resolve the problem of spurious regressions. The other advantage of ECMs is the ease with which they can fit into the general-to-specific approach to econometric modelling, which is a search for the most economical ECM model that best fits given data sets. Lastly, the fact that the disequilibrium error term is stationary because the ECM has important implications such as: the fact that the two variables are co-integrated implies that there is some adjustment process which prevents the errors in the long-run relationship becoming larger and larger.
4.6.6 Diagnostic checks

This is a crucial stage in the impact of fiscal policy on unemployment because it validates the parameter estimation outcomes achieved by the estimated model. Diagnostic checks test the stochastic properties of the model such as residual autocorrelation, heteroskedasticity and normality, among others. The multivariate extensions of these residuals tests will be applied in this study; and hence, they are briefly discussed here.

4.6.6.1 Heteroskedasticity

Brooks (2002) posits that there are a number of formal statistical tests for heteroscedasticity. The White’s (1980) general test for heteroscedasticity is one such popular test. This test is useful because it takes into account several assumptions. It assumes that the regression model estimated is of the standard linear. Regression produces residuals which are regressed to test the joint significance of the regression. The null hypothesis for the White test is homoscedasticity and if we fail to reject the null hypothesis then we have homoscedasticity. If we reject the null hypothesis, then we have heteroscedasticity.

4.6.6.2 Residual normality test

The Bera-Jarque (BJ) test is among the most commonly used tests for normality. It uses the property of a normally distributed random variable that the entire distribution is characterised by the first two moments- the mean and the variance. The Bera-Jarque test statistic asymptotically follows an $X^2$ under the null hypothesis that the distribution of the series is symmetric. The null hypothesis of normality would be rejected if the residuals from the model are either significantly skewed or leptokurtic/ platykurtic (or both).

4.6.6.3 Autocorrelation Langrange Multiplier (LM) tests

Langrange Multiplier (LM) test centers on the value of the $R^2$ for the auxiliary regression. If one or more coefficients in an equation are statistically significant, then the value of $R^2$ for that equation will be relatively significant, while if none of the variables is significant, $R^2$ will be relatively low. The LM test operates by obtaining $R^2$ from the auxiliary regression and multiplying it by the number of observations, $T$. It can be shown as:

$$TR^2 \approx \chi^2(m)$$

\[ (4.12) \]
where \( m \) is the number of regressors in the auxiliary regression (excluding the constant term), equivalent to the number of restrictions that would have to be placed under the F-tests approach.

4.6.7 Impulse response and variance decomposition

This shows how unemployment reacts to shocks in itself and the fiscal policy variables. Also shown is the shock which is relatively the most important and the average period it takes for unemployment to restore its equilibrium following such a shock. The usual block F-tests and an examination of causality in a VAR show which of the variables in the model have statistically significant influences on the future values of each of the variables in the system. However, these tests will not reveal whether changes in a value of a given variable have a negative or positive influence on the other variables in the system, or how long it would take for the effect to work through the system (Brooks, 2002: 341). To provide such information, Lütkepohl and Reimers (1992) and Mellander et al (1992) developed impulse response and forecast error variance decomposition analyses for a VAR process with cointegrated variables as discussed below:

4.6.7.1 Impulse response analysis

Impulse response analysis traces out the responsiveness of the dependent variable in the VAR to shocks to each of the other variables. It shows the sign, magnitude and persistence of real and nominal shocks to unemployment (in this context). A shock to a variable in a VAR does not only directly affect that variable, but is also transmitted to all other endogenous variables in the system through the dynamic structure of the VAR. For each variable from the equations separately, a unit or one-time shock is applied to the forecast error and the effects upon the VAR system over time are observed. The impulse response analysis is applied on the VECM and, provided that the system is stable, the shock should gradually die away (Brooks, 2002: 341).

There are several ways of performing impulse response analysis, but the Cholesky orthogonalisation approach to impulse response analysis, which is a multivariate model extension of the Cholesky factorisation technique, is preferred in this study. This approach is preferred because, unlike other approaches, it incorporates a small sample degrees of freedom adjustment when estimating the residual covariance matrix used to derive the Cholesky factor (Lütkepohl, 1991: 155-158).
4.6.7.2 Variance decomposition analysis

Further information on the linkages between unemployment and fiscal policy variables can be obtained from variance decompositions, which measure the proportion of forecast error variance in a variable that is explained by innovations (impulses) in itself and the other variables. Variance decompositions performed on the VECM may provide some information on the relative importance of shocks to fiscal policy variables in explaining variations in unemployment. In other words, variance decompositions give the proportion of the movements in the dependent variables that are due to their ‘own’ shocks (innovations), versus shocks to the other variables (Brooks, 2002: 342). Brooks also observed that own series shocks explain most of the forecast error variance of the series in a VAR. The same factorisation technique and information used in estimating impulse responses is applied in the variance decompositions.
4.7 Conclusion
This chapter was divided into five sections to clearly provide an analytical framework for the study. The first section developed the theoretical model used in this study. The theoretical framework was drawn from the Musgrave (1959) fiscal policy theory which cites that economic indicators can be influenced by changes in particular policy instruments.

The second section of this chapter specified that the study adopted the model outlined in Baxter and King (1993), as discussed further in Fatas and Mihov (1998) who regressed employment against fiscal and non fiscal variables. The study modified the model to test for the effects of fiscal policy on unemployment in South Africa. Fiscal policy variables considered are: gross fixed capital formation from government which is used to account for government investment expenditure (GOVIN); aggregate government consumption expenditure which is used to account for government spending (GOVSPEND); and current taxes on income and wealth at current prices which is used as proxy for taxes (TAX). This section of the chapter also defined the variables used in the model. The third section of the chapter gave a summary of expected signs as well as discussing the data sources. The study employed annual data covering the period 1980 to 2010. All data series is obtained from the electronic database of the Department of Trade and Industry (DTI).

In the fourth section of the chapter, a review of estimation techniques for the study was presented. The Dickey-Fuller and the Augmented Dickey-Fuller unit root tests for stationarity are to be used. To test for co-integration, the study uses the Johansen and Juselius (1991, 1995) technique. When implementing this technique, the study will test for the order of integration, set the appropriate lag length, choose the appropriate model; and determine the number of co-integrating vectors. Diagnostic checks are also to be done; these are the Jarque-Bera for residual normality test, the White test for heteroskedasticity, and the Lagrange Multiplier test for serial correlation. Finally, impulse response analysis and variance decomposition are to be performed.
CHAPTER FIVE

PRESENTATION AND ANALYSIS OF EMPIRICAL FINDINGS

5.1 Introduction
The main aim of this chapter is to provide answers to the questions raised in the first chapter. Results from this chapter explain the impact of fiscal policy on unemployment in South Africa. An analysis is conducted according to the analytical framework presented in chapter four. The chapter is divided into six subsections. The unit root test is presented first, followed by cointegration tests. This leads to the formulation of the vector error correction model (VECM) which shall be followed by diagnostic checks, impulsive response and variance decomposition. A conclusion for the chapter is finally given.

5.2 Unit root/stationarity test results
The preliminary stage in the Johansen procedure is to test whether the time series are stationary. Usually a visual plot of the series is plotted first before pursuing any formal test. Therefore, an informally graphical analysis is conducted before the Dickey-Fuller and the Augmented Dickey-Fuller tests which are formal. This provides for a preliminary examination which gives an idea of structural breaks, trends and stationarity of the data set. The graphical results from the test for stationarity are presented in figure 5.1(a) which shows data in levels and 5.1(b) for first differenced data. The Dickey-Fuller and the Augmented Dickey-Fuller results are shown in table 5.1.

Figure 5.1(a) shows that unemployment (UNEMPLOY), government investment expenditure (GOVIN), government consumption expenditure (GOVSPEND) and taxation (TAX) show a trendy behaviour. All the variables have a growth trend, except for GOVIN which has a downward trend until 1993 followed by a growth trend in the years after. The series in levels is clearly non-stationary. Figure 5.1(b) shows that all the differenced variables fluctuate around the zero mean hence the variables are likely to be integrated of order one I(1). This implies that the data is stationary if integrated of order one. The first order integrated series ensure that economic data is stationary for the purpose of avoiding spurious regressions. To identify if time series data are stationary, one checks if the plots on a graph are fluctuating around the zero mean. Data that
fluctuate around the zero mean indicate stationarity. However, one cannot precisely base conclusions on the graphical analysis because it is an informal test for stationarity. Therefore, other formal tests are conducted to reinforce findings from the graphical findings. In this regard, the Dickey-Fuller and the Augmented Dickey-Fuller is adopted and the results are presented in table 5.1.

**Figure 5.1(a) Plots of variables in levels for 1980 – 2010**
Figure 5.1(b) Plots of first differenced variables for 1980-2010
### Table 5.1: Dickey-Fuller and Augmented Dickey-Fuller tests

<table>
<thead>
<tr>
<th>Order of integration</th>
<th>Variable</th>
<th>Dickey-Fuller</th>
<th>Augmented Dickey-Fuller</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Intercept</td>
<td>Trend and intercept</td>
</tr>
<tr>
<td>Level</td>
<td>LUNEMPLOY</td>
<td>-1.499</td>
<td>-2.332</td>
</tr>
<tr>
<td>1(^{st}) Diff</td>
<td>DUNEMPLOY</td>
<td>-1.497</td>
<td>-5.429***</td>
</tr>
<tr>
<td>Level</td>
<td>LGOVIN</td>
<td>-1.787</td>
<td>-2.101</td>
</tr>
<tr>
<td>1(^{st}) Diff</td>
<td>DGOVIN</td>
<td>-2.772***</td>
<td>-3.126**</td>
</tr>
<tr>
<td>Level</td>
<td>LGOVSPEND</td>
<td>1.954**</td>
<td>-2.467</td>
</tr>
<tr>
<td>1(^{st}) Diff</td>
<td>DGOVSPEND</td>
<td>-3.937***</td>
<td>-4.048***</td>
</tr>
<tr>
<td>Level</td>
<td>LTAX</td>
<td>-0.381</td>
<td>-1.422</td>
</tr>
<tr>
<td>1(^{st}) Diff</td>
<td>DTAX</td>
<td>-3.985***</td>
<td>-4.626***</td>
</tr>
<tr>
<td>5%**</td>
<td>Critical Value</td>
<td>-1.952</td>
<td>-3.190</td>
</tr>
<tr>
<td>10%*</td>
<td></td>
<td>-1.610</td>
<td>-2.890</td>
</tr>
</tbody>
</table>

*** represents stationary at 1% level of significance  
** represents stationary at 5% level of significance  
* represents stationary at 10% level of significance  
L represents Logarithms of variables  
D represents that the variable has been differenced.
Table 5.1 shows the Dickey-Fuller and the Augmented Dickey-Fuller results. Both tests have a null hypothesis of unit root. The null hypothesis is rejected if the test statistic has a more absolute value compared to the critical values at all levels of significance. If the null hypothesis is rejected, it means that we fail to reject the alternative hypothesis of stationarity, thus indicating that there is no unit root, that is, the series is stationary. For the intercept, all the data in levels except for GOVSPEND which is stationary at 5% significance level possess unit roots as reflected by the non-rejection of the null hypothesis at both 1% and 5% significance levels. All the differenced variables except for UNEMPLOY, are stationary at 1% significant level hence the null hypothesis of unit root is rejected. For the Dickey-Fuller on trends and intercepts, variables in levels are non-stationary. When first differenced all variables on trends and intercepts except for GOVIN which is stationary at 5%, are stationary at 1% significance level.

The Augmented Dickey-Fuller is much stricter. It tests variables in (a) intercepts, (b) trends and intercepts and (c) no trend and no intercept. For variables in levels the test in intercepts revealed that none of the variables is stationary. All differenced variables on intercept are stationary at 1% significance level except for GOVIN which is stationary at 10% significance level. On trend and intercept all variables are non-stationary in levels. When first differenced, all variables on trend and intercept are stationary at 1% significance level except for GOVIN and GOVSPEND which are both stationary at 5% significance level. For the test under no trend and no intercept, all variables in levels are non-stationary except for GOVSPEND and TAX which are stationary at 1% significance level. When first differenced, all the variables are stationary at 1% significance level except for GOVSPEND and TAX which are non-stationary.

Both methods used to test for stationarity have significantly revealed that the data series are non-stationary in levels and stationary when first differenced. Therefore, the series are integrated of the same order I(1).

5.3 Tests for Cointegration

Since it is established that the variables are integrated of the same order, this section performs cointegration to determine the existence of a long-run equilibrium relationship amongst the variables. One lag was selected using the lag order selection criteria. Cointegration of variables means that the linear combination of the variables is stationary. The main advantage of the
Cointegration approach is that it allows for the integration of the long-run and short-run relationship between variables within a single combined framework. Two conditions must be met for two or more variables to be cointegrated. First, they must be integrated of the same order. Secondly, linear combinations of the variables from the regression of the non stationary variables (in levels form) must be stationary. The Johansen’s (Johansen and Juselius 1990) maximum likelihood approach is used to test for cointegration.

Testing for cointegration using a model with many variables has always been a daunting task for researchers. An example of the problems emanating from such a model is that of too many cointegrating equations which are difficult to interpret. The best option when faced with such a scenario is to estimate a simplified model (parsimonious) with few variables but with the risk of an omitted variable bias (misspecification). One other way is to apply the pair-wise correlation matrix to guide the variable selection exercise. Table 5.2 shows results for the pair-wise correlation matrix used to determine the exact relationship between the four variables involved in this study.

Table 5.2: Pair-wise Correlation results

<table>
<thead>
<tr>
<th></th>
<th>UNEMPLOY</th>
<th>GOVIN</th>
<th>GOVSPEND</th>
<th>TAX</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNEMPLOY</td>
<td>1.00</td>
<td>-0.29</td>
<td>0.68</td>
<td>0.74</td>
</tr>
<tr>
<td>GOVIN</td>
<td>-0.29</td>
<td>1.00</td>
<td>0.22</td>
<td>0.05</td>
</tr>
<tr>
<td>GOVSPEND</td>
<td>0.67</td>
<td>0.22</td>
<td>1.00</td>
<td>0.95</td>
</tr>
<tr>
<td>TAX</td>
<td>0.74</td>
<td>0.06</td>
<td>0.95</td>
<td>1.00</td>
</tr>
</tbody>
</table>

From the pair-wise correlation results shown in table 5.2, it is observed that TAX is highly correlated with UNEMPLOY, followed by GOVSPEND. Both variables (TAX and GOVSPEND) are positively correlated with the dependent variable (UNEMPLOY). This positive correlation is in line with theoretical underpinnings which suggest that increases in tax levels will discourage private investment and increases the levels of unemployment in an economy. Therefore, the higher the tax levels, the higher are the levels of unemployment.
GOVIN has a negative correlation with UNEMPLOY. This confirms theoretical suggestions which assume that an increase in government investment expenditure will increase economic growth, tax revenue and facilitate more government consumption expenditure coupled with a decline in unemployment.

The Johansen technique requires an indication of the lag order and the deterministic trend assumption of the VAR. To select the lag order for the VAR, the information criteria approach is applied as a direction in choosing the lag order. In this study, the selection is made using a maximum of 3 lags in order to permit adjustment in the model and accomplish well behaved residuals. Table 5.3 confirms the lag lengths selected by different information criteria.

Table 5.3: Lag order selection criteria

<table>
<thead>
<tr>
<th>Lag</th>
<th>LogL</th>
<th>LR</th>
<th>FPE</th>
<th>AIC</th>
<th>SC</th>
<th>HQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>106.2145</td>
<td>NA</td>
<td>7.93e-09</td>
<td>-7.301036</td>
<td>-7.110721</td>
<td>-7.242854</td>
</tr>
<tr>
<td>1</td>
<td>257.6708</td>
<td>248.8211*</td>
<td>5.06e-13*</td>
<td>-16.97649*</td>
<td>-16.02491*</td>
<td>-16.68558*</td>
</tr>
<tr>
<td>2</td>
<td>268.9879</td>
<td>15.35889</td>
<td>7.65e-13</td>
<td>-16.64199</td>
<td>-14.92916</td>
<td>-16.11836</td>
</tr>
<tr>
<td>3</td>
<td>279.1943</td>
<td>10.93544</td>
<td>1.43e-12</td>
<td>-16.22817</td>
<td>-13.75407</td>
<td>-15.47181</td>
</tr>
</tbody>
</table>

Notes
* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

Table 5.3 shows that all the criteria selected 1 lag. Therefore, the information criteria approach has produced agreeing results and a conclusion to adopt 1 lag can be made. Subsequently, the Johansen cointegration test is conducted using 1 lag for the VAR.
The Johansen cointegration based on the trace test is shown in table 5.4(a). The trace test shows the null hypothesis that the number of cointegrating equations is greater than the number of variables involved. The null hypothesis fails to be rejected if the test statistic is smaller than critical values of the trace tests. Table 5.4(b) presents the results of the Johansen cointegration test based on the maximum eigenvalue. The maximum eigenvalue test is conducted on a null hypothesis of the number of cointegrating equations \( r \) against the alternative hypothesis of number of cointegration equations plus one \( r + 1 \). The null hypothesis fails to be rejected when the test statistic is smaller than the maximum eigenvalue test’s critical values.

**Table 5.4(a): Cointegration Rank Test (Trace)**

<table>
<thead>
<tr>
<th>Hypothesised No. Of CE(s)</th>
<th>Eigenvalue</th>
<th>Trace Statistic</th>
<th>0.05 Critical Value</th>
<th>Prob**</th>
</tr>
</thead>
<tbody>
<tr>
<td>None*</td>
<td>0.551866</td>
<td>52.51157</td>
<td>47.85613</td>
<td>0.0171</td>
</tr>
<tr>
<td>At most 1</td>
<td>0.432243</td>
<td>29.23433</td>
<td>29.79707</td>
<td>0.0580</td>
</tr>
<tr>
<td>At most 2</td>
<td>0.330640</td>
<td>12.81852</td>
<td>15.49471</td>
<td>0.1216</td>
</tr>
<tr>
<td>At most 3</td>
<td>0.039772</td>
<td>1.176937</td>
<td>3.841466</td>
<td>0.2780</td>
</tr>
</tbody>
</table>

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level

*denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haung-Michelis (1999) p-values**
<table>
<thead>
<tr>
<th>Hypothesised No. Of CE(s)</th>
<th>Eigenvalue</th>
<th>Max-Eigen Statistic</th>
<th>0.05 Critical Value</th>
<th>Prob,**</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>0.551866</td>
<td>23.27723</td>
<td>27.58434</td>
<td>0.1619</td>
</tr>
<tr>
<td>At most 1</td>
<td>0.432243</td>
<td>16.41581</td>
<td>21.13162</td>
<td>0.2015</td>
</tr>
<tr>
<td>At most 2</td>
<td>0.330640</td>
<td>11.64158</td>
<td>14.26460</td>
<td>0.1248</td>
</tr>
<tr>
<td>At most 3</td>
<td>0.039772</td>
<td>1.176937</td>
<td>3.841466</td>
<td>0.2780</td>
</tr>
</tbody>
</table>

Max-eigenvalue test indicates no cointegration at the 0.05 level
*denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haung-Michelis (1999) p-values

From table 5.4(a) the trace test which is the much stricter test reflected that at least one cointegrating equation exist at 5% significance level. The null hypothesis of no cointegrating vectors is rejected since the trace (test) statistic of 52.51 is greater than the 5% critical value of approximately 47.86. Using the same explanation, the null hypothesis that there is at most 1 cointegrating vector cannot be rejected since the test statistic of approximately 29.23 is less than the 5% critical value of about 29.80. Therefore, the trace statistics specified 1 cointegrating relationship at 5% significance level. The maximum eigenvalue test in table 5.4(b) revealed that there are no cointegrating equations at 5% significance level. This is because the test statistics are smaller than the critical values. Using the maximum eigenvalue test, we fail to reject the null hypothesis that there is no cointegration at 5% significance level. Therefore, it can be concluded that there is one significant long run relationship between the given variables (using the trace test). Since variables can either have short or long run effects, a vector error correction model (VECM) is used to disaggregate these effects.

A summary of results shown in table 5.4(a) indicated the existence of one cointegration vector. The cointegration vector represents the deviations of the endogenous variable from its long run
equilibrium level. Figure 5.2 suggests that over the period 1980 to 2010 the deviations of unemployment from equilibrium were stationary and this is critical for its use as an error correction model.

**Figure 5.2: Cointegration vector**
5.4 Vector Error Correction Model (VECM)

The discovery of a cointegration equation in the previous section implies that a VECM can be used. This allows us to distinguish between the long and short run impacts of variables so as to establish the extent of influence that fiscal policy has on unemployment. Using the outcomes from the cointegration test the VECM shall be specified. The VECM results are presented in tables 5.5 and 5.6.

Table 5.5: Results of the long run cointegration equation

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Standard error</th>
<th>t-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-10.624</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>UNEMPLOY(-1)</td>
<td>1.000</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>GOVIN(-1)</td>
<td>-0.782</td>
<td>0.365</td>
<td>-2.142</td>
</tr>
<tr>
<td>GOVSPEND(-1)</td>
<td>3.013</td>
<td>1.455</td>
<td>2.071</td>
</tr>
<tr>
<td>TAX(-1)</td>
<td>-0.619</td>
<td>0.266</td>
<td>-2.329</td>
</tr>
</tbody>
</table>

The long run impact of fiscal policy variables on unemployment as shown by table 5.5 is illustrated using equation 5.1:

\[
UNEMPLOY = -10.624 - 0.782GOVIN + 3.013GOVSPEND - 0.619TAX 
\] (5.1)

Equation 5.1 shows that GOVIN and TAX have a negative long run relationship with UNEMPLOY. In addition, the results also show that GOVSPEND has a positive long run relationship with UNEMPLOY. All the explanatory variables are statistically significant in explaining unemployment since they have absolute t-values greater than 2. The results suggest that a unit increase in GOVIN reduces unemployment by approximately 0.782 while a unit increase in GOVSPEND increases unemployment by approximately 3.013. Furthermore, the results suggest that a unit increase in TAX reduces unemployment by approximately 0.619; and vice-versa.
The negative relationship between GOVIN and unemployment is compatible with economic theory. In theoretical suggestions, government investment expenditure promotes private investment and economic growth which leads to lower levels of unemployment. The positive relationship between GOVSPEND and unemployment is compatible with economic theory which suggests that too much government consumption expenditure would result in large governments which are bad for economic growth and employment. The relationship between TAX and unemployment does not concur with theory, which assumes a reinforcing relationship between the two economic variables. Theory dictates that the higher the taxes, the more discouraged is investment which leads to high unemployment levels. Evidence of error correction is shown by results in Table 5.6.

**Table 5.6: Error correction results**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Standard error</th>
<th>t-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>D(UNEMPLOY)</td>
<td>-0.316</td>
<td>0.085</td>
<td>-3.738</td>
</tr>
<tr>
<td>D(GOVIN)</td>
<td>0.069</td>
<td>0.043</td>
<td>1.603</td>
</tr>
<tr>
<td>D(GOVSPEND)</td>
<td>-0.019</td>
<td>0.014</td>
<td>-1.378</td>
</tr>
<tr>
<td>D(TAX)</td>
<td>-0.015</td>
<td>0.035</td>
<td>-0.431</td>
</tr>
</tbody>
</table>

The coefficient of D(UNEMPLOY), that is, -0.316 shows that the speed of adjustment is approximately 31.6 per cent. This implies that if there is a deviation from equilibrium, only 31.6 per cent is corrected in one year as the variable moves towards restoring equilibrium. Therefore, this means that there is no strong pressure on unemployment to restore long run equilibrium whenever there is a disturbance. This speed of adjustment is statistically significant with an absolute t-value of approximately 3.738. The low speed of adjustment by unemployment may reflect the existence of some factors affecting unemployment in South Africa, other than fiscal policy. These factors include the level of education, demographic factors, monetary policy and foreign policy, among others.
The impact of fiscal policy on unemployment was also estimated using the ordinary least squares (OLS) model. The estimation results are shown in table 5.6.

**Table 5.7: Modelling fiscal policy and unemployment in South Africa using OLS**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Standard error</th>
<th>t-Statistic</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>D(LUNEMPLOY)(_t-1)</td>
<td>0.182</td>
<td>0.145</td>
<td>1.258</td>
<td>0.221</td>
</tr>
<tr>
<td>D(LGOVIN)</td>
<td>-0.549</td>
<td>0.277</td>
<td>-1.981</td>
<td>0.060</td>
</tr>
<tr>
<td>D(LGOVSPEND)</td>
<td>0.269</td>
<td>0.869</td>
<td>0.310</td>
<td>0.760</td>
</tr>
<tr>
<td>D(LTAX)</td>
<td>0.198</td>
<td>0.234</td>
<td>0.848</td>
<td>0.405</td>
</tr>
<tr>
<td>DUMMY(_{1985})</td>
<td>0.235</td>
<td>0.059</td>
<td>3.961</td>
<td>0.0006</td>
</tr>
<tr>
<td>ECT(_t-1)</td>
<td>-0.502</td>
<td>0.135</td>
<td>-3.694</td>
<td>0.0012</td>
</tr>
</tbody>
</table>

R-squared: 0.642  
Adjusted R-squared: 0.564  
Durbin-Watson stat: 2.098

Results from the estimated unemployment model in table 5.7 shows that unemployment in South Africa is also determined by unemployment in the previous period as indicated by the inclusion of the lagged unemployment variable (DUNEMPLOY\(_{t-1}\)). The positive coefficient of 0.182 on DUNEMPLOY\(_{t-1}\) shows that the lagged variable has a positive relationship with the current unemployment, however at a statistically insignificant t-value of 1.258. The dummy in 1985 is a result of a sharp change in our series which was due to reasons including excessive government expenditure towards the South African civil war.

Table 5.6 also shows that the data used in the study is robust. This is indicated by an adjusted R\(^2\) above 50 per cent (approximately 56.4 per cent in this study). The adjusted R\(^2\) which measures the closeness of fit in the regression model suggests that the statistical fitness of the model to the
data is satisfactory. The Durbin-Watson (DW) result of 2.098 shows that the model does not suffer from serial correlation, that is, there is no auto correlation. The error correction term (ECT) for the unemployment model shows the equilibrium error which is rectified in the previous year (ECT_{t-1}). This result means that the speed of adjustment in the unemployment model is 50.2% within a year. The negative sign of the error correction term confirms economic theory. Also to note is the error correction term’s high t-statistic of -3.694 which indicates that the result is statistically significant at 1% level of significance. This error term agrees with the validity of an equilibrium relationship among the variables in the cointegration equation. Therefore, this implies that neglecting the cointegration of the variables would have established a wrongly specified model.

To observe the fitness of the model the actual versus fitted residuals can be presented in the form of a graph. This is depicted in figure 5.3. Although there is still a considerable margin of error figure 5.3 shows that the model fits the data in a fairly reasonable way. The scaled residuals show that there is white noise. In other words, the test generally confirms the adequacy of the restricted error correction specification.

**Figure 5.3: Actual versus Fitted residuals**
5.5 Diagnostic checks
Diagnostic checks are crucially important to the unemployment model because they validate the parameter evaluation of the outcomes achieved by the model. This arises because if there is a problem in the residuals from the estimated model it means the model is not efficient and the estimated parameters will be biased. In this section, the VAR model was subjected to diagnostic checks. The fitness of the model was tested in three main ways. Firstly, serial correlation shall be tested using the langrage multiplier (LM) test, followed by the White test for heteroskedesticity and finally the Jarque-Bera for normality test. Diagnostic checks results are shown in table 5.8.

Table 5.8: Diagnostic checks results

<table>
<thead>
<tr>
<th>Test</th>
<th>Null Hypothesis</th>
<th>t-Statistic</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Langrage Multiplier (LM)</td>
<td>No serial correlation</td>
<td>12.144</td>
<td>0.734</td>
</tr>
<tr>
<td>White (CH-sq)</td>
<td>No conditional heteroskedesticity</td>
<td>88.082</td>
<td>0.251</td>
</tr>
<tr>
<td>Jarque-Bera (JB)</td>
<td>There is a normal distribution</td>
<td>0.265</td>
<td>0.876</td>
</tr>
</tbody>
</table>

Results from table 5.8 shows that the test for serial correlation produced an LM statistic of 12.144 with a probability of 0.734. The problem of serial correlation arises when a variable has relationships with itself in a manner that the value of such a variable in past periods had an effect on its future values. The LM results suggest that we cannot reject the null hypothesis of no serial correlation. The test for heteroskedesticity using White test with no cross terms produced a CH-sq of 88.082 at a probability of 0.251. The presence of heteroskedestheticity means the model have some misspecifications hence conclusive results cannot be derived from such a model. The null hypothesis of no heteroskedesticity or no misspecification will thus not be rejected. Therefore, the model does not suffer from any misspecifications hence can be relied on. The null hypothesis for the Jarque-Bera test states that there is a normal distribution. The results obtained for this particular test show a Jarque-Bera statistic of 0.265 with a probability of 0.876. The null hypothesis was only going to be rejected if the probability was less than 5%. In this case probability is greater therefore we fail to reject the null hypothesis of a normal distribution.
The diagnostic checks have all revealed the suitability of the model. There is no serial correlation and no misspecification while the errors are normally distributed. Therefore, the results from this research can be relied on. Compelling conclusions on the impact of fiscal policy on unemployment can be deduced and applicable policies can be safely formulated.

5.6 Impulse response analysis
Impulse response analysis reveals a wealth of information on dynamic effects that is missing in both static studies and those dynamic studies that do not employ these techniques. Figure 5.4 presents the results from the impulse response analysis performed on the VECM regression.

Figure 5.4: Impulse response of unemployment

Since this study focuses on the impact of fiscal policy on unemployment, only the responses of unemployment to fiscal policy variables and to itself are reported in figure 5.4. These impulse response functions show the dynamic response of unemployment to a one-period standard...
deviation shock to the innovations of the system and also indicate the directions and persistence of the response to each of the shocks over a 10 years period. For the most part, the impulse response functions have the expected pattern and confirm the results from the short run relationship analysis. Shocks to all the variables are significant although they are not persistent. A one-period standard deviation shock to GOVIN and TAX marginally appreciates unemployment by about 3 per cent each but the impact dies off quickly in a period of about 6 years. Furthermore, a one period standard deviation shock to GOVSPEND depreciates unemployment by about 3 per cent, but also gradually levels off in about 6 years. This result suggests that an expansionary fiscal policy depreciates unemployment by 3 per cent, while results on GOVIN and TAX implied that an increase in both variables appreciates unemployment by 3 per cent on average.

5.7 Variance decomposition analysis
Variance decomposition analysis provides for a means of determining the relative importance of shocks in explaining variations in the variable of interest. In the context of this study, it therefore provides a way of determining the relative importance of shocks to each of the fiscal policy variables in explaining variations in unemployment. The results of the variance decomposition analysis are presented in table 5.9 and these show the proportion of the forecast error variance in unemployment explained by its own innovations and innovations in fiscal policy variables.

<table>
<thead>
<tr>
<th>Period</th>
<th>S.E</th>
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<th>GOVSPEND</th>
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Since this study focuses on the movements of unemployment following shocks to itself or fiscal policy variables, the study reports only the variance decomposition in unemployment and analyse the relative importance of each of the fiscal policy variables in influencing its movements.

The study allows the variance decompositions for 10 years in order to ascertain the effects when the variables are allowed to affect unemployment for a relatively longer time. In the first year, all of the variance in unemployment is explained by its own innovations (shocks), as suggested in Brooks (2002: 342). For the 5th year ahead forecast error variance, reported in column 2 of table 5.9 under S.E., unemployment itself explains about 81 per cent of its variation, while fiscal policy variables explain only the remaining 19 per cent. Of this 19 per cent, GOVIN explains about 4.7 per cent, GOVSPEND about 5.5 per cent and TAX about 8.5 per cent.

However, after a period of 10 years, unemployment explains about 58 per cent of its own variation, while fiscal policy variables explain the remaining 42 per cent. The influence of GOVIN increases substantially to about 12 per cent, while GOVSPEND increases to about 13.8 per cent and TAX increases to about 15.5 per cent, explaining the largest component of the 42 per cent variation in unemployment that is explained by fiscal policy variables. This result is compatible with economic theory. Shocks to the fiscal policy variables continued to explain a significant proportion of the variation in unemployment. Therefore, these results are similar to those from the impulse response analysis in that all the fiscal policy variables have a significant impact on unemployment in the short run.
5.8 Conclusion

This chapter was divided into six sections. The first section presented the unit root test where the Dickey-Fuller and the Augmented Dickey-Fuller tests were used to test for stationarity. Both methods revealed that the data series are non-stationary in levels and stationary when first differenced. Therefore, the series are integrated of the same order I(1).

Cointegration tests were presented in the second section where the Johansen’s maximum likelihood approach was used. As envisaged in the approach a pair-wise correlation matrix was presented to guide the variable selection exercise. The lag order information criteria approach was applied as a direction in choosing the lag order. A maximum of 3 lags was used in order to permit adjustments in the model and accomplish well behaved residuals. All the information criteria approaches used selected 1 lag; therefore, a conclusion to adopt 1 lag for VAR was made. The trace and maximum eigen-value cointegration tests were used to test for cointegration. The trace test which is the much stricter test reflected that at least one cointegrating equation existed at 5% significance level. The null hypothesis of no cointegrating vectors was rejected since the trace was greater than the critical value. The maximum eigen-value test revealed that there are no cointegrating equations at 5% significance level. Therefore, it was concluded that there is one significant long run relationship between the given variables (using the trace test).

Since variables can either have short or long run effects, a vector error correction model (VECM) was presented in the third section to disaggregate these effects. All the explanatory variables proved to be statistically significant in explaining unemployment. Results in this section revealed that GOVIN has a negative impact on unemployment; GOVSPEND has a positive impact on unemployment; and TAX has a negative impact on unemployment.

The last sections of this chapter respectively presented diagnostic checks, impulsive response and variance decomposition. Diagnostic checks revealed the suitability of the model. There is no serial correlation and no misspecification while the errors are normally distributed. Both the impulse response and variance decomposition produced results that are compatible with economic theory. Therefore, the results from this research can be relied on. Compelling conclusions on the impact of fiscal policy on unemployment can be deduced and applicable policies can be safely formulated.
CHAPTER SIX

CONCLUSIONS AND POLICY RECOMMENDATIONS

6.1 Summary of the study and conclusions

The first chapter outlined that the aim of this study was to determine the impact of fiscal policy on unemployment in South Africa. Chapter two of this study gave an overview of the fiscal policy framework and unemployment in South Africa. This led to the analysis of applicable theoretical and empirical literature in the third chapter. The methodology to this study was given in the fourth chapter while the fifth chapter analysed and interpreted results. In this chapter, a detailed summary of the study is given. This leads to policy recommendations after which the limitations of the study shall be mentioned.

An overview of South African trends revealed that fiscal policy in South Africa is characterized by massive government expenditures and insufficient revenue collection. This has seen the government incurring consecutive budget deficits throughout the years except in the 2007 and 2008 fiscal years. The expansionary fiscal policy stance was adopted with the main motive to reduce unemployment, among other macroeconomic objectives. To boost economic activity, the ANC government implemented several tools which include the RDP, GEAR and ASGISA policies. However, unemployment has been persistently sky rocketing and relatively high in South Africa, averaging about 23 per cent in the post apartheid era. Using this background, the government’s fiscal policy framework can be given credit on managing to alleviate the scourge of unemployment in South Africa over the period.

The literature reviewed in this study disclosed that fiscal policy may have comprehensive effects on employment. Theories considered in this study are: the Keynesian theory of unemployment, the public choice theory, the theory of fiscal policy, and the natural rate theory. Although most of these theories disagreed on some of their assumptions, the majority of the theories agreed on the belief that policy makers can use fiscal policy as a tool to manage aggregate demand, thereby affecting employment in the economy. Most of the empirical literature reviewed in this study disclosed that fiscal policy aggregates such as government expenditure and tax significantly affect unemployment in both developed and developing countries as well as in South Africa.
However, it was noted that in South Africa a large gap exists in literature regarding the effect of fiscal policy on unemployment.

An analysis of data was performed using the outlined methodology. The data was tested for stationarity using the Dickey Fuller and Augmented Dickey–Fuller tests. This was followed by cointegration, after which the vector error correction modelling was carried out. Diagnostic checks, impulse response and variable decomposition were also conducted. When testing for stationarity, all variables in this study were stationary in their first differences hence they proved to be integrated of the first order. The study adopted one lag which was used in the cointegration analysis. The trace cointegration test reflected that at least one cointegrating equation exist at 5% significance level. This led to the use of the vector error correction model (VECM). All the explanatory variables proved to be statistically significant in explaining unemployment. The correlation matrix was used to determine the exact relationship between the four variables involved in this study. Diagnostic checks performed proved that the unemployment model is quite suitable in capturing the influence of the explanatory variables on unemployment in South Africa. Estimation results revealed that government investment expenditure (GOVIN) has a negative impact on unemployment. The results also showed that government consumption expenditure (GOVSPEND) positively affects unemployment. VECM results on TAX had a wrong sign, so the study used theoretical suggestions that high levels of tax increase unemployment. The conclusions regarding the three aspects of fiscal policy considered in this study are in line with theory and reality. Therefore, the policy recommendations in this study can be relied on.

6.2 Policy implications and recommendations

Results in this study have a number of policy implications. This section divides them into tax policy, government investment expenditure policy and government consumption expenditure policy.

6.2.1 Tax policy

The long run equation in the previous chapter however suggested that tax has a negative impact on unemployment. However, theory suggests that tax has a positive impact on unemployment. Using the impact of tax on unemployment as prescribed by theory as well as the coefficient of tax from the long run equation suggested by VECM results, it implies that a 1 unit rise in South
Africa’s tax rate would lead to a 0.619 increase in the level of unemployment in the country. Therefore, to fight the problem of unemployment, tax rates should be lowered. However, this remedy is only applicable if all forms of taxes are collectively grouped and treated as an aggregate. Consequently, the separation of the various forms of taxation existing in South Africa is essential. This assists in identifying forms that should be reduced, remain the same and those to be increased in order to improve the level of employment in the country. According to Treasury (2009), forms of taxation used in South Africa include corporate income tax, personal income tax, customs and excise duties, fuel levies, as well as VAT and tax administration. This study only gives recommendations for corporate and personal income taxes because the two constitute the bulk of government revenue.

Perez (2008) mentioned that empirical evidence from OECD studies suggested that investment is adversely affected by corporate taxation through the user cost of capital. As cited in Perez (2008), OECD economists found that the effect of corporate taxes is strongest on industries that are older and more profitable because of their larger tax bases. Younger and smaller firms are less affected because they are less profitable. Treasury (2011) notes that the standard corporate tax rates for South Africa averaged 29 per cent between 2004 and 2011. The standard tax rate was marked at 30 per cent in the 2004/05 fiscal and was reduced to 29 per cent in the 2005/06 fiscal year. The rate remained at 29 per cent until the 2008/09 fiscal year when it was reduced to 28 per cent, a rate that has been maintained until the 2011/12 fiscal year. Compared to countries like Ireland that had a low corporate tax rate of 12.5 per cent and Hong Kong (15 per cent), South Africa’s average corporate tax rate of 29 per cent is obviously too high to promote investment and alleviate high rates of unemployment. The low corporate tax rates in Ireland have yielded very low levels of unemployment. According to the Trading Economics online publication, Ireland's unemployment rate averaged 10.55 per cent from 1983 until 2010, reaching a historical high of 17.30 per cent in 1985 and a record low of 3.70 per cent in 2001. Therefore, the South African government should generously reduce corporate taxes. Averages below the 20 per cent mark as adopted by other OECD countries like Iceland, Turkey, Poland and Ireland (Perez, 2008) would help to promote further investments through expansion by existing businesses who currently suffer from massive corporate tax burdens. Lowering the corporate tax rate in South Africa would reduce the cost of production, increase GDP and promote employment.
Also to be reconsidered is South Africa’s personal income tax rates that are progressive to 40 per cent according to Treasury (2011). These are similar to tax rates in other countries such as Japan and France, and lower than rates in other countries like China and Germany (45 per cent), U.K (50 per cent) and Denmark (51.5 per cent). However, the South African personal income tax rates are above rates in countries like US (35 per cent), Mexico (30 per cent), Botswana (25 per cent), Egypt (20 per cent) and Russia (13 per cent). According to the Treasury (2011), South African residents are taxed on worldwide income. Non-residents are taxed on their South African-source income and capital gains from the disposal of immovable property and assets of a permanent establishment in South Africa. This system is similar to the one used in the U.S but the main difference is that the US charges rates (progressive to 35 per cent) lower than South Africa’s 40 per cent. As an emerging economy, South Africa should adopt policies that promote aggregate demand, boost economic growth and lower staggering rates of unemployment. In addition to raising the average propensity to save, lower income tax rates boost the household’s propensity to consume and increase aggregate demand. A rise in aggregate demand would also increase employment levels since the demand for labour is derived demand. Therefore, the South African government should emulate the relatively lower personal income tax rates adopted by other emerging markets like Mexico and India (30 per cent), Egypt (20 per cent), Brazil (27.5 per cent) and Botswana (25 per cent). Halving the 40 per cent tax rate would result in more disposable income for South African citizens. This leads to a rise in demand for both capital and consumption goods, eventually creating the much desired jobs in the country.

6.2.2 Government investment expenditure policy

Estimation results in this study also revealed that government investment expenditure has a negative impact on unemployment, that is, a 1 unit increase in government investment expenditure leads to a 0.782 decrease in unemployment. This implies that the government should spend more on investment in order to improve employment levels in the country. In South Africa, government investment expenditure is concentrated on education, health services, agriculture support and rural development, housing and municipal infrastructure, fighting crime, among others (Treasury, 2009). As cited in the Budget speech (2009), the government’s contribution to public education is the largest investment, because the government believes that it is the key to reduce poverty and accelerate long-term economic growth. Priorities such as
improving health facilities, fighting crime and building infrastructure capacitate the economy to be a safe investment destination which helps to alleviate the problem of unemployment.

According to the OECD Policy Brief (2008), infrastructure systems such as transport, electricity, telecommunications and water, play a vital role in economic and social development. They are a means towards ensuring the delivery of goods and services that promote economic prosperity and growth, and contribute to quality of life. Therefore, the South African government should spend more on investment as a way to promote economic prosperity and growth. Coupled to this, the bulk of government expenditure should be allocated to education to make sure that South Africans skills remain relevant to the economic progress. The government should also spend more on educating mostly the semi-skilled and unskilled especially those in rural areas where unemployment rates are drastically prevalent. Rural citizens should get minimum education to take advantage of comprehensive agricultural support programs. Agricultural extension officers should be deployed to rural areas to implement basic agricultural education as well as to monitor and promote fundamental agricultural practices. Unemployment in South African urban areas is also a result of rural to urban migration emanating from unavailability of decent employment opportunities in the rural areas. If the government spends more on investing in the promotion of agriculture in rural areas, the problems stemming from unemployment in both rural and urban areas may be alleviated.

6.2.3 Government consumption expenditure policy

Furthermore, the estimation results revealed that government consumption expenditure positively affects unemployment. Precisely, a 1 unit increase in government consumption expenditure increases unemployment by approximately 3.013. Government consumption expenditure includes expenditure on items such as defence and security, social grants, and purchases of goods and services (including compensation to employees). It may have a positive effect on economic growth and employment if directed towards resources more productive in the public sector. Activities such as fighting corruption, improving efficiency and effectiveness as well as justice, defence and security should be allocated more funds from the budget because they improve the productivity of the public sector. However, consumption on grants, parastatals and related activities should be minimised.
6.3. Limitations of the study and areas of further research
Inaccessibility to data on the actual variables suggested by the theoretical model regarding the impact of fiscal policy on unemployment is one of the limitations faced by the study. Consequently, it means that some of the variables were either excluded in the empirical model, or proxies have been found for those variables. The risk involved in using proxies is that they may not correctly represent the impact of the actual variables, resulting in inconsistent results. However, this problem seems not to significantly affect the findings presented in this study because it supports both the theoretical and empirical knowledge regarding the impact of fiscal policy on unemployment. Another limitation arises from the use of aggregate unemployment whilst in actual fact fiscal policy may differently affect sectoral unemployment. This research did not examine the causality between fiscal policy aggregates and unemployment in South Africa. Therefore, further research should be conducted on the causality between fiscal policy aggregates and unemployment, giving attention to sectoral unemployment.
REFERENCES


Webster, E (2006) “Cosatu at the crossroads: serving the core or the working poor?” South African Labour Bulletin vol 29 pg 1


APPENDIX

South African data used in regression

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Source: DTI and StatSA (2011)