FISCAL POLICY STANCE, ECONOMIC GROWTH, MACROECONOMIC FACTORS AND PUBLIC EXPENDITURE IN KENYA

JAMES M. GATAUWA

B.Com, MBA, (Nairobi)

A THESIS SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF DOCTOR OF PHILOSOPHY IN BUSINESS ADMINISTRATION, SCHOOL OF BUSINESS, UNIVERSITY OF NAIROBI.

2018

DECLARATION

Declaration by the Candidate

This thesis is my original work and has not been submitted to any University for any award.

Signed…………………………   Date……………………..

James M. Gatauwa

D80/60132/2010

Declaration by the Supervisors

This is to certify that this thesis has been submitted for examination with our approval as the University Supervisors.

Signed…………………………   Date…………………….

Prof. Erasmus S. Kaijage, PhD.

Barclays Endowment Chair Professor,

Department of Finance and Accounting,

School of Business, University of Nairobi, Kenya.

Signed…………………………   Date……………………..

Dr. Sifunjo E. Kisaka, PhD.

Department of Finance and Accounting,

School of Business, University of Nairobi, Kenya.

Signed…………………………   Date……………………..

Prof. Tabitha W. Kiriti-Nganga, PhD.

Professor of Economics,

School of Economics, University of Nairobi, Kenya.

DEDICATION

To my *LORD JESUS CHRIST* for bestowing upon me the inspiration and motivation

to pursue knowledge

To my family for the moral support, encouragement and drive in pursuit of doctoral

studies

ACKNOWLEDGEMENTS

TABLE OF CONTENTS

ix

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS AND ACRONYMS

ADF	Augmented Dickey Fuller
ADL	Autoregressive Distributed Lag Model
AIC	Akaike Information Criterion
FPE	Final Prediction Error
GDP	Gross Domestic Product
GFC	Global Financial Crisis
GMM	General Method of Moments
GNI	Gross National Income
HQ	Hannan-Quinn Information Criterion
KNBS	Kenya National Bureau of Statistics
LM	Lagrange Multiplier
LogL	Log Likelihood
LR	Likelihood Ratio
OECD	Organization for Economic Co-operation and Development
OLS	Ordinary Least Squares
SC	Schwartz Information Criterion
SVAR	Structural Vector Autoregression Approach
UK	United Kingdom
UNCTAD	United Nations Conference on Trade and Development
US	United States of America
VAR	Vector Autoregressive Model
VECM	Vector Error Correction Model

DEFINITION OF KEY TERMS

Fiscal Policy Stance – Fiscal policy stance is either contractionary or expansionary. Contractionary or tight fiscal stance is when there is an increasing fiscal surplus or a decreasing fiscal deficit over a time period. Expansionary or loose fiscal policy stance is when the fiscal balance is in deficit and the level of deficit is increasing or the extent of surplus is decreasing compared to other time periods (Pailwar, 2008).

Economic Growth – Economic growth refers to the level of gross domestic product growth in a country or region. Pailwar (2008) indicates that economic growth can further be explained by economic growth cycles in terms of boom, recession and depression.

Macroeconomic Factors – Dornbusch et al. (2004) describes macroeconomic factors to be indicators of the economic behaviour and policies that affect an economy. They include unemployment rates, inflation rates, public debt and foreign aid and grants.

Public Expenditure – It refers to the government expenses on various activities and it can be classified into recurrent expenditure and development expenditure (Barro & Grilli, 1994; Njeru, 2003).

ABSTRACT

There has been growing concerns on the level of public expenditure or government spending yet there are limited public resources available to attain various social and economic needs of citizens in a nation. Hence, governments should be more prudent in public spending regardless of whether an economy is contracting or expanding. The goal of this study was to examine the relationship among fiscal policy stance, economic growth, macroeconomic factors and public expenditure in Kenya. Therefore the specific objectives of the study were to: Examine the effect of fiscal policy stance on public expenditure in Kenya, establish the influence of economic growth on the relationship between fiscal policy stance and public expenditure in Kenya, establish the influence of macroeconomic factors on the relationship between fiscal policy stance and public expenditure in Kenya and finally examine the joint effect of fiscal policy stance, economic growth, macroeconomic factors and public expenditure in Kenya. Four hypotheses were formulated and tested to achieve the study objectives. The study was anchored on Fiscal policy theory, Wagner's Law, Peacock-Wiseman hypothesis, Pure theory of public expenditure and Marxist theory of business cycles. The study adopted a positivist research philosophy and structured as a longitudinal study using a causal research design focussing on Kenya over the study period from 1964 to 2015. The main study findings were as follows: First, there is a weak relationship between fiscal policy stance and public expenditure. Second, economic growth has an intervening influence on the relationship between fiscal policy stance and public expenditure. Third, macroeconomic factors have an intervening influence on the relationship between fiscal policy stance and public expenditure and lastly fiscal policy stance (budget deficit), foreign aid & grants and the lagged public expenditure have a statistically significant effect on public expenditure. The findings of the study support Wagner's Law. The conclusions of the study are that fiscal policy is not a strong policy tool that can be used by the government to directly determine the level of public expenditure. However, fiscal policy stance indirectly affects the level of public expenditure through economic growth and macroeconomic factors. Furthermore, economic growth and macroeconomic factors have an intervening influence on the relationship between fiscal policy stance and public expenditure. The study contribution to knowledge is providing evidence on the relationship between fiscal policy stance and public expenditure in Kenya considering that there is limited empirical evidence in the finance literature. Also the study proves that economic growth and macroeconomic factors have an intervening effect on the relationship between fiscal policy stance and public expenditure in Kenya. The recommendations for further research are that a qualitative approach can be adopted in determining the effects on public expenditure and a cross-country study approach can be undertaken in examining the interrelationships amongst the variables.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Public finance deals with the funding of state undertakings especially the financial activities of the public treasury as defined by Musgrave (1959) who further explains that public finance has various features such as public revenue and public expenditure. Bhatia (2008) describes public expenditure as the amounts that a government spends in its own activities, the general public and the economy and aiding other countries. Fiscal policy is a government discretionary measure that influences the direction of the economy by making adjustments in the level and composition of public spending and funding. Fiscal policy stance can be defined as the expected or desired impact on an economy through changes in public spending and funding and it can either be expansionary or contractionary. Fiscal policy is a tool that governments use in controlling the level of public expenditure as argued by Tanzi (2006) and Perotti (2007) since fiscal policy aims at redistributing and reallocating economic resources while enhancing stabilization in an economy. However as much as fiscal policy would be expected to influence public expenditure, there are variables such as economic growth and macroeconomic factors that influence that relationship.

It is expected that fiscal policy stance would influence the level of public expenditure as established by the theory of fiscal policy. This is because the key objectives of fiscal policy are redistribution and reallocation of resources (Musgrave, 1959; Johansen, 1965; Tanzi, 2006). The level of public expenditure being influenced by fiscal policy stance is also supported by the Peacock-Wiseman hypothesis since the changing levels of tax revenues would then influence public expenditure in a country.

Even though the theory of fiscal policy is the main anchoring theory in this study, there is the Wagner's law of increasing state activities, Peacock-Wiseman hypothesis, pure theory of public expenditure and Marxist theory of business cycles that also support the study on examining the relationship between fiscal policy stance, economic growth, macroeconomic factors and public expenditure in Kenya.

Over the years, public expenditure levels have been seen to be either pro-cyclical, that is increasing during booms and declining during recessions or countercyclical which entails declining public expenditure during booms and increasing during recessions. The counter-cyclicality of public expenditure is preferable since it enhances macroeconomic stability as compared to pro-cyclicality of public expenditure (Alesina & Tabellini, 2005; Blanchard, 2010).

Public finance can be viewed in normative and positive perspectives as argued by Musgrave (1959) whereby the normative economic perspective is concerned with how public economic activities should be undertaken especially on the quality of economic policies while the positive economic perspective is concerned with the prediction of responses by firms and individuals to economic variations. This study takes a positive economic perspective since interrelationships among the study variables is being tested.

The study is focussed on the Kenyan context due to several reasons. First, Kenya is one of the most vibrant and largest economies in East Africa accounting for 40% of the region's Gross Domestic Product (GDP) according to a 2015 development indicators report by the World Bank. Second, the economy is market based and is the

most liberal economic system in East Africa which translates to an economy that highly promotes competition and foreign investment. It would then be remarkable to examine how variables at the macroeconomic level would then influence public expenditure hence the need to focus the study in the Kenyan context. Finally, there is insufficient evidence on the interrelationship among the study variables in the Kenyan context. Hence that forms a valid basis to contextualize the study in Kenya so as to examine the above interrelationships.

1.1.1 Fiscal Policy Stance

Dornbusch et al. (2004) state that one of the main policy tools the government can use to enhance economic growth at a reasonable rate with low inflation is fiscal policy. It is a policy tool that is utilized in shortening recessions and regulating booms by adjusting the level and structure of public spending and funding. Fiscal policy stance can be termed as contractionary or tight when there is an increasing fiscal surplus or a decreasing fiscal deficit over a time period. On the other hand, fiscal policy stance can be expansionary or loose when the fiscal balance is in deficit and the level of deficit is increasing or the extent of surplus is decreasing compared to other time periods (Pailwar, 2008).

Alesina and Tabellini (2005) and Blanchard (2010) indicate that fiscal policy in developed economies has mainly been counter cyclical whereas in developing economies it has been pro-cyclical which is regarded as a suboptimal policy due to a political agency problem. Perotti (2007) also concurs with the argument that countercyclical fiscal policy, that is an expansionary fiscal stance when the economy is at a boom, would be optimal as compared to pro-cyclical policy since it would

3

enhance macroeconomic stability. However, Canuto (2009) and Svante (2010) have dissenting views where they argue that pro-cyclical policies are preferable especially when economies are facing economic turmoil.

The relationship between fiscal policy stance and public expenditure has not been extensively examined. However, Stancik and Valila (2012) while testing the effect of fiscal policy stance on public expenditure found that changes in fiscal policy stance affects what constitutes public expenditure where contractionary fiscal policy increases the proportion of investment but liberates recurrent expenditure. Also Kirchgassner (2001) and Brownbridge and Canagarajah (2008) have examined fiscal policy stance and public expenditure and the findings generally indicated that fiscal policy should focus on controlling the level of public spending and further allocate more resources to the education and health sectors.

1.1.2 Economic Growth

Economic growth refers to the level of GDP growth in an economy or a country (Dornbusch et al., 2004). The analysis of economic growth cycles is a method that can explain economic conditions in an economy. Pailwar (2008) indicates that economic conditions can be explained by economic growth cycles in terms of boom, recession and depression. A boom is when an economy expands and the rate of growth is higher than the rate of growth at full employment level of output while a recession is when the actual growth rate is lower than the growth rate at the full employment level. A depression can be described as the acute and severe contraction of economic activities.

During a boom it is expected that public expenditure would increase steadily as argued by Wagner's Law while in a recession public expenditure is expected to be declining. Therefore Wagner's law seems to support pro-cyclicality of public expenditure which has been the case in developing economies. However in developed economies, public expenditure has been countercyclical whereby it has been declining during booms and it has resulted to enhancing economic stability (Alesina & Tabellini, 2005).

There has been a long debate in the public finance literature on whether economic growth affects public expenditure or vice versa. These contrasting notions were put across by Wagner (1863) while explaining the law of increasing state activities by arguing that economic growth would affect public expenditure. Also Peacock and Wiseman (1961) seem to concur with Wagner's law. However, Keynes (1936) argued that public expenditure would affect economic growth especially through loans from the private sector and then forwarding it to them through several expenditure programmes.

1.1.3 Macroeconomic Factors

Dornbusch et al. (2004) define macroeconomics as involved with the behaviour of a nation's economy as a whole such as booms and recessions, the output of goods and services in a country, the economic growth of a country, inflation and unemployment. Hence, macroeconomic factors are indicators of the economic behaviour and policies that affect an economy. Tanzi (2006) argues that the key macroeconomic factors that can be influenced significantly by fiscal policy stance are unemployment rates, inflation rates and economic growth. The other macroeconomic factors that would

explain the economic behaviour of an economy are public debt and foreign aid & grants.

Unemployment rate is the fraction of the labour force that is out of work and looking for a job or expecting a recall from a layoff while inflation is the rate of change in the general price level (Dornbusch et al., 2004). Public debt mainly constitutes of internal and external borrowings made by a government while foreign aid & grants constitute the amount of aid and grants sourced from other countries. Generally, studies on macroeconomic factors and public expenditure done by Fan and Rao (2003) and Tayeh and Mustafa (2011) argue that macroeconomic factors in a nation can determine public expenditure levels. This implies that macroeconomic stability would ignite changes in public expenditure.

1.1.4 Public Expenditure in Kenya

Public expenditure entails government expenses on various activities and it can be classified into recurrent expenditure and development expenditure (Barro & Grilli, 1994; Njeru, 2003). Njeru (2003) describes recurrent expenditure as obtaining goods and services by a government for immediate consumption in order to fulfil the needs of the general public while development expenditure is the acquisition of goods and services by a government for the intention of creating future benefits like infrastructure or other development projects.

In Kenya, the level of public expenditure over the years has undergone remarkable changes with recurrent expenditure being much higher than development expenditure as seen in various KNBS economic surveys. For instance, in 1990 development

expenditure was an average of 20% of the total expenditure while the remaining proportion being recurrent expenditure. However, the levels of development expenditure rose to about 24% of the total public expenditure in 2012/2013. The exception seems to be in the years 1997–2000 when recurrent expenditure almost constituted the entire public expenditure as a result of worsened economic conditions.

1.1.5 Public Finance in Kenya

Public finance mainly deals with public revenue and public expenditure. Public finance can be analysed on a national or county level in the Kenyan context. However, in this study the focus is on the national level since it would enhance analysis of study variables on a macroeconomic perspective. Tax revenue has mainly been the largest component of public revenue for instance in the 2012/2013 KNBS statistical abstract, tax revenue was Ksh. 866.35 billion as compared to Ksh. 48.74 billion of non-tax revenue.

In regards to public expenditure, the level of recurrent expenditure has been significantly higher than development expenditure as noted in various KNBS statistical abstracts such as the year 2012/2013 where recurrent expenditure was Ksh. 930.16 billion as compared to development expenditure of Ksh. 193.26 billion. However both public expenditure and public revenue have been on the rise and are above Ksh. 1 trillion. This means that as the Kenyan economy continues to report increases in economic growth annually, for instance from 0.6% in 2002 to 4.7% in 2013 then it also translates to an increase in public finances.

1.1.6 Kenya in the Context of the Study

The Republic of Kenya is a country located within the East African region and it has a population of approximately 43 million people and it covers a total area of 591, 971 square kilometres. According to the Republic of Kenya in 2015 the GDP was US $60,937 million and the GDP growth rate was 5.6% and the GDP per capita was US $1,376.71. According to the World Bank, Kenya had a GDP of $60,937 million; Tanzania had US $49,184 million; Uganda had US $26,312 million; Rwanda had US $7,890 million and Burundi US $3,094 million. This indicates that Kenya is the largest economy in East Africa according to GDP size. Kenya is the only East African nation that was ranked at the middle income status in 2014 as a result of attaining Gross National Income (GNI) per capita of US $1,290 which is above GNI per capita of US $1,046 for a country to be ranked as a middle income nation according to the World Bank rankings. In 2015, Kenya's GNI per capita was $1,340.

Kenya is one of the most vibrant and largest economies in East Africa accounting for over 40% of the region's GDP according to the World Bank as evidenced by the trade exports of US $6,110.51 million and trade imports of US $18,406.74 million. However the East African Community (EAC) is one of the largest trading partners of Kenya as evidenced by trade exports to EAC of US $1,430.82 million which accounts for 23.42% of Kenya's total exports and trade imports from EAC of US $686.54 million. Also the Kenyan economy is market based and is one of the most liberal economic systems in East Africa which implies that it highly promotes competition and foreign investment. It would then be remarkable to examine how variables at the macroeconomic level would then influence public expenditure hence the need to focus the study in the Kenyan context.

Kenya as a country has common climatic conditions, trade policies agricultural and socio-cultural practices similar to her neighbours. This implies to a large extent the homogeneity of Kenya as a study context in comparison to a cross-country context of East Africa. Therefore a focus on the Kenyan context is a chance to examine the interrelationship among fiscal policy stance, macroeconomic factors, economic growth and public expenditure in depth and then make conclusions that can be inferred with other similar studies in other countries.

There is insufficient evidence on the interrelationship among fiscal policy stance, macroeconomic factors, economic growth and public expenditure in the Kenyan context. This forms a valid basis to contextualize the study in Kenya so as to examine the above interrelationships. Furthermore, there are instances of methodological challenges when undertaking cross-country regressions such as the uncertainty of presumed underlying models and parameters. Hence there would be non-robustness of the outcomes and ambiguous policy implications resulting to the build up of common criticism of studies based on cross-country regressions (Easterly, 2005; Rodrik, 2012). The study being based in Kenya contributes to the body of knowledge and also prompts further intellectual pursuit on the study variables.

1.2 Research Problem

Fiscal policy is a tool that a government can use to redistribute and reallocate resources and enhance macroeconomic stabilization. The theory of fiscal policy asserts that fiscal policy influences the level of public expenditure and that fiscal policy aims at redistributing and reallocating resources other than stabilization of an

economy (Musgrave, 1959; Johansen, 1965; Tanzi, 2006). However the theory of fiscal policy has not explicitly stated the extent to which fiscal stance affects public expenditure.

In the empirical literature, the relationship between fiscal policy stance and public expenditure has not been clearly determined except by Stancik and Valila (2012) whose study findings indicated that changes in fiscal stance affected the level of public expenditure with contractionary fiscal stance increasing the share of development expenditure and loosening recurrent expenditure. Therefore in examining the relationship between fiscal policy stance and public expenditure, this study sought to test the role of fiscal policy in redistribution and reallocation of resources.

The influence of macroeconomic factors and economic growth on the relationship between fiscal policy and public expenditure has not been clearly established. However, most studies have explored the relationship between selected macroeconomic factors such as; inflation rate, unemployment rate, foreign aid and public expenditure (Njeru, 2003; Remmer, 2004; Tayeh & Mustafa, 2011; Ayo et al. 2012) where generally the findings indicate a significant relationship. Also a number of studies have tested fiscal policy and economic growth (M'Amanja & Morrisey, 2005; Perotti, 2007; Semmler et al., 2007) with the general findings showing that fiscal policy would affect economic growth. Furthermore, there is insufficient evidence on the relation between fiscal policy stance and economic growth which this study sought to examine.

There are differing theoretical assertions on the nature of public expenditure growth. For instance, Wagner (1863) argues that public expenditure tends to grow in a smooth manner relative to economic growth whereas Peacock and Wiseman (1961) argue that public expenditure tends to move in a step-like manner in relation to economic growth especially during war times or in other social disturbances. The step-like behaviour has been attributed to public expenditure being dependent on tax revenues since during normal times peoples notions about the tolerable burden of taxation tends to be stable. Hence this study sought to test whether public expenditure growth exhibits a smooth or step-like pattern.

There is limited empirical evidence on the key determinants of public expenditure growth except by studies done by Sans and Velazquez (2002) and Shonchoy (2010) in Europe and developing countries respectively. The general findings of these studies indicate that political and institutional variables, size of the economy, population density, prices and governance have significant effects on public expenditure. In the Kenyan context, Muthui et al. (2013) investigated how various public expenditure components affect economic growth from 1964 to 2011 and the findings indicated that public expenditure on health, security and transport have a positive relationship with growth. Nafula et al. (2004) evaluated budget mechanisms and public expenditure tracking. The study found that public expenditure in Kenya is faced with numerous challenges of wastage and leakages of resources. Njeru (2003) analysed the impact of foreign aid on public expenditure and findings indicating that there is a positive and significant relation between public expenditure and foreign aid.

From the foregoing, the interrelationship among fiscal policy stance, economic growth, macroeconomic factors and public expenditure in the Kenyan context has been insufficiently studied. Kenya was selected as the main study context because it is one of the most vibrant economies in East Africa and there is insufficient evidence on the interrelationship among the study variables in the Kenyan context. This study sought to investigate the effect of fiscal policy stance on public expenditure while considering the influence of macroeconomic factors and economic growth. Hence the study sought to answer the general question; what is the effect of fiscal policy stance on public expenditure while considering the influence of macroeconomic factors and economic growth?

1.3 Research Objectives

1.3.1 General Objective

The general objective of this study was to establish the influence of economic growth and macroeconomic factors on the relationship between fiscal policy stance and public expenditure in Kenya.

1.3.2 Specific Objectives

i.   To examine the effect of fiscal policy stance on public expenditure in Kenya.

ii. To establish the influence of economic growth on the relationship between fiscal policy stance and public expenditure in Kenya.

iii. To establish the influence of macroeconomic factors on the relationship between fiscal policy stance and public expenditure in Kenya.

iv. To examine the joint effect of fiscal policy stance, economic growth and macroeconomic factors on public expenditure in Kenya.

1.4 Value of the Study

First, this study sought to make a contribution to the limited evidence available on the key determinants of public expenditure in Kenya by reviewing literature on the relationship between fiscal policy stance and public expenditure taking into consideration economic growth and macroeconomic factors. Hence the study not only contributes to the finance literature but it prompts intellectual pursuit of further research on these interrelationships. Second, the study sought to review and refine the existing theories underpinning this study as explained in the second chapter. That was undertaken by reviewing the links and any existing conceptual gaps between the theoretical relationships investigated.

Third, policy recommendations have been made in relation to fiscal policy and public expenditure considering the fiscal space in the economy during the study period. The literature review and research findings also inform policy makers on the interventions required in undertaking public expenditure while also enhancing economic stability considering that an economy undergoes various growth cycles. Fourth, the study also contributes to the practice in public finance mainly regarding public expenditure. Finance practitioners would find this study insightful on the aspects of to what extent fiscal policy stance affects public expenditure considering the existing macroeconomic environment.

1.5 Scope of the Study

This study focuses on examining the interrelationship among fiscal policy stance, economic growth, macroeconomic factors and public expenditure in Kenya. That is mainly due to the fact that the interrelationship among the study variables has been

insufficiently studied. This study sought to undertake an extensive investigation of the interrelationship among those variables while testing the extent of significance and whether the relationship is negative or positive. Furthermore the choice of the study variables would enhance the testing of the intervening influence of economic growth and macroeconomic factors on the relationship between fiscal policy stance and public expenditure.

The theoretical underpinning of this study is anchored on the theory of fiscal policy, Wagner's law, Peacock-Wiseman hypothesis, Pure theory of public expenditure and Marxist theory of business cycles. The study has a focus on a population period from 1964 to 2015 being the time period when Kenya has been a sovereign state or a republic. The time period is relevant since it allows the application of time series models that require long time periods in order to adequately test the strength of the relationships among the variables and to conduct a trend analysis and prediction of the variables using the time series data.

1.6 Basic Assumption of the Study

The basic assumption of a study is usually the items that are out of the researcher's control but if they cease to exist then the study would be insignificant. There were basic assumptions made in this study. First, it was based in the Kenyan context where the relationship among fiscal policy stance, economic growth, macroeconomic factors and public expenditure is examined. Second, the study period was from 1964 to 2015 which represented the population period. Finally, time series modelling was undertaken in order to establish the cause and effect between variables and thus generating sensible and robust results.

1.7 Organisation of the Thesis

This thesis is organised into five chapters, starting from chapter one which presents the background of the study by introducing the main concepts of the study which are fiscal policy stance, economic growth, macroeconomic factors, public expenditure and public finance context in Kenya. This then forms a basis of presenting the research problem, research questions and objectives. The chapter also covers the value of the study, scope and basic assumption of the study.

Chapter two provides a review of theoretical and empirical studies on the interrelationships between the study variables which are fiscal policy stance, economic growth, macroeconomic factors and public expenditure while relevant theories underpinning the study are discussed. The review culminates into a summary of identified research gaps and the conceptual framework derived to address the study gaps. Also the hypotheses of the study have been provided in the chapter.

The research design adopted, research philosophy, approaches used in the study with regard to data collection and analysis and operationalization of study variables is presented in chapter three. Chapter four presents the data analysis conducted in the study starting with descriptive statistics, correlation analysis, unit root tests, cointegration tests, autocorrelation tests and heteroscedasticity tests. This study is based on four hypotheses which are individually tested and discussed in the same chapter. Chapter five concludes the study with a summary of the findings and conclusions. Contributions of the study to policy, to theory and to knowledge are also presented in chapter five. The chapter also underscores the limitations of the study and presents suggestions for further research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter begins with the discussion of the theoretical underpinning of the study which captures the relevant theories that place the research into context in section 2.2. Then section 2.3 presents the empirical review which gives a critical and analytical review of literature on fiscal policy stance, economic growth, macroeconomic factors and public expenditure. Then a summary of literature review and research gaps is presented in section 2.3.5. A conceptual model is developed while also explaining the relationships among the study variables. Finally, the chapter highlights the hypotheses tested in the study.

2.2 Theoretical Underpinning of the Study

This section captures the theories that underpin the study which include theory of fiscal policy, Wagner's Law of increasing state activities, Peacock-Wiseman hypothesis, Pure theory of public expenditure and Marxist theory of business cycles.

2.2.1 Theory of Fiscal Policy

The theory states that the objective of fiscal policy entails redistributing income, reallocating resources as well as stabilization of an economy. The theory of fiscal policy was developed on the academic work of Musgrave (1959) and Johansen (1965). There is a general expectation that policymakers have a key goal of enhancing the social wellbeing of the general public which is dependent on several indicators depending on the government in power (Tanzi, 2006). Hence this theory asserts that fiscal policy can influence the increase or decrease in public spending depending on

priorities at hand which underpins hypothesis one but it does not explicitly state whether it supports pro-cyclical or countercyclical measures. Also the theory underpins hypothesis two and three as supported by the stabilization goal of fiscal policy which aims to influence economic stability through changes in public expenditure and revenue.

Musgrave (1959) and Johansen (1965) give several assumptions that are pertinent to this theory. The first one is that the public budgeting process entails public finance decisions formulated within the public budget only. The second one is that the budgeting decisions devised by the government are based on analysis underpinned on reliable data and objective forecasts. The third one is that policy makers have the best public interests taken into consideration and lastly, the government should exercise control over economic policies in order to make feasible decisions.

The theory of fiscal policy has a few shortcomings which include; its scepticism that policymakers can be disjointed from their individual goals and attaining public welfare and finally the theory would have higher validity if stronger organizational systems are in place (Tanzi, 2006). In summary, this theory seems to adopt a normative economic perspective in the sense that it explains the measures that should be implemented as opposed to the resultant effect when fiscal policy is implemented. In essence, the theory has not explicitly explained the interaction of public revenue and public expenditure in an economy unlike other theories. In conclusion, this theory supports hypothesis one and it is aligned to objective one in the sense that fiscal policy aims to redistribute and reallocate resources in a country. Furthermore, the theory of fiscal policy supports hypothesis two in the sense that fiscal policy through

one of its goals of stabilization seeks to influence the economic stability and growth in an economy.

2.2.2 Wagner's Law of Increasing State Activities

Wagner's Law argues that there is a long run tendency for government spending to increase in relation to national income. Wagner (1863) based the law of increasing state activities on the German economic context and observed that all types of governments exhibited increasing public spending regardless of their sizes. Therefore it is expected that when there is economic growth, then macroeconomic factors such as unemployment rates would be favourable hence influencing the level of government expenditure. However, the theory does not explicitly state the interrelationship between macroeconomic factors and public expenditure and neither does it clearly state the composition of government expenditure.

Musgrave (1959) argued that Wagner's focus was on the size of the public sector in the total economy but argued that it would be far more beneficial to adopt a disintegrated approach by focusing on public expenditure on the basis of recurrent expenditure, development expenditure and transfer payments. Henrekson, (1993) contends that the contribution of Wagner to theories in public finance is outstanding considering that in the pre-Wagner period the general assertions were that as the national output of a country grew then state activities were expected to shrink.

Wagner's law has resulted to divergent discussions in the public finance literature. First, is the approach of empirically testing the theory and second is the use of time series versus cross-sectional analysis in testing the theory. Nevertheless, Henrekson

(1993) pointed out that examining Wagner's law should zero in on public expenditure trends in a nation for a significant time rather than on a sample of nations at various income levels. Wagner's law poses a challenge in testing it empirically since its formulation is not clear hence leaving it to economists to use varying approaches in its application.

In summary, this theory supports hypothesis two in the aspect of economic growth and public expenditure. Wagner's law main argument is that public expenditure growth is directly proportional to growth of output in a country. The hypothesis two is also aligned to objective two which states that economic growth has an intervening influence on the relation between fiscal policy stance and public expenditure in Kenya.

2.2.3 Peacock – Wiseman Hypothesis

The hypothesis states that public expenditure increases in a step-like manner unlike the smooth and continuous pattern. Peacock and Wiseman (1961) gave a displacement hypothesis that explains temporary rise in government spending versus GDP in the United Kingdom (UK) for the period 1890 to 1955. Peacock and Wiseman stated that public expenditure in the UK did have a smooth pattern but seemed to surge up at distinct durations especially steep peaks during war then steady patterns afterwards. The trends are connected to the fact that public expenditure relies mainly on the tax revenues and furthermore the public's tolerable tax burden is stable unless there is unusual disturbance. Hence the Peacock-Wiseman hypothesis underpins hypothesis one whereby public expenditure are expected to be influenced by tax revenues as

explained by the fiscal surplus or fiscal deficit, that is the difference between public revenues and public expenditure.

The hypothesis also argues that large scale social disturbances such as war changes the tolerable burden of tax by the general public which as a result of increased spending leading to the displacement effect, which moves spending and revenues to new increased levels. Therefore, when the previous lower tax and expenditure levels are superseded by new and higher budgetary levels, then a displacement effect emerges. It is notable that even after the public spending and revenues have attained new levels, the tolerable tax burden changes in adjustment to the new levels.

The Peacock-Wiseman hypothesis has not explained the method that proves a displacement effect arising after a large scale social disturbance but instead the hypothesis depended on observations in public expenditure against GDP for countries after the Second World War (Henry & Olekalns, 2000). Diamond (1997) and Nomura (1995) undertook their statistical testing based on Wagner's law whereby it involved undertaking a joint test of the displacement effect. Alternatively, Henry and Olekalns (2000) have undertaken univariate testing of the displacement hypothesis where they examine data in the UK for evidence of various changes in the proportion of government spending to GDP.

In essence, Peacock-Wiseman hypothesis supports hypothesis two in the sense that public expenditure is expected to grow in a step-like pattern in the presence of economic growth unlike Wagner's law which contends that public expenditure growth is smooth. Peacock-Wiseman hypothesis also supports hypothesis one in the sense

that government expenditure depends mainly on the public revenues raised through taxation.

2.2.4 Pure Theory of Public Expenditure

The adoption of the *laissez-faire* philosophy and the free market mechanism led to the increased focus on this theory. Samuelson (1954) argued that there is a significant difference between private goods and public goods. While private goods can be distributed among different people, public goods are those that a person's spending of the commodity would not deprive another person from spending it. However, other researchers have made contributions to the various differences between private goods and public goods especially on the extent to which they provide collective benefits.

Musgrave (1959) built on Samuelson's work laying the foundation for present day descriptions of what are pure or impure public goods and private goods. According to Musgrave (1959) a pure public good is entirely non-rival in consumption and non-excludable meaning that once the good is produced for an individual then additional persons can use it at no extra costs while also being very challenging to prevent other people from using it.

Samuelson's (1954) main argument is that a public good would be relatively similar across continents globally. This means that the value of public goods and private goods is dependent on the economic conditions in a nation. It is notable that Samuelson's contribution does not appear to support the Keynesian economic assertions that public expenditure is countercyclical to economic growth. This indicates that the theory seems to support pro-cyclical policy measures whereby it is

expected that public expenditure would increase during booms and the opposite in recessions. However the contribution of economic policy on the levels of spending has not been clearly indicated. In conclusion, this theory supports hypothesis two in the context of economic growth and public expenditure. The theory contends that the value of public goods is dependent on the economic conditions prevailing in an economy. That implies that the level of public expenditure would be influenced by the economic growth in a country.

2.2.5 Marxist Theory of Business Cycles

Karl Marx and Frederick Engels feature among the initial writers acknowledging the presence of business cycles from way back in the 19th century. Bell and Cleaver (2002) compare these writings in these periods in the area of crisis theory and noted a connection between crisis and class struggle. The vital discrepancies result from Marx's explanation of the theories of surplus value that permits the integration of crisis and class struggle.

There is a general concurrence among Marxist analysts that capitalism can lead to a few types of crises. One of them is the business cycle recession which is fixed in the short term even though in post-World War II fiscal policies have mainly been used to hasten the termination of a recession. This indicates the influence of fiscal policy on public spending. The second one is a long term crisis that needs organisational reforms in order to be resolved within capitalism. This shows that capitalism would explain the prevailing economic conditions which would then affect the spending of various classes of households and government. In summary, the theory supports hypothesis two in the context of the relation between fiscal policy stance and

economic growth. Marxist theory contends that fiscal policy is a government measure used to influence the state of an economy as stability is sought to be achieved as well as reallocation and redistribution of resources in an economy.

2.3 Empirical Literature Review

This section entails a review of empirical studies done in Kenya and other countries on the relationships among fiscal policy stance, economic growth, macroeconomic factors and public expenditure.

2.3.1 Fiscal Policy Stance and Public Expenditure

Fiscal policy is usually pro-cyclical or counter-cyclical depending on the prevailing economic conditions in a country or region. It is notable that pro-cyclical fiscal policies have been common to developing countries whereas developed countries have been adopting counter-cyclical policies (Perotti, 2007; UNCTAD, 2010). These divergent results could be credited to developing nations' experiences of deficient borrowing potential, political factors, policy conditions inflicted by the international financial institutions and the nature of fiscal rules implemented (Alesina & Tabellini, 2005). Counter-cyclical policies have been endorsed because they enhance macroeconomic stability. Perotti (2007) emphasizes that counter-cyclical fiscal policy would be optimal if certain conditions hold such as; all credit markets are perfect for all agents such as individuals, firms and government and that firms and individuals are credit constrained.

Studies on fiscal policy and public expenditure are insufficient but on fiscal policy and economic growth or a descriptive analysis of the impact of fiscal policy has

generally been examined. However studies done by Stancik and Valila (2012) using panel data analysis examined the effect of fiscal stance on public expenditure composition. The findings indicate that contractionary fiscal policy stance increases the level of development expenditure while loosening recurrent expenditure. The influence of economic growth on the effect of fiscal stance on public expenditure has not been examined.

On budget deficit and public expenditure, most studies report a positive relation between budget deficit and public spending. Beetsma et al. (2008) used a panel regression analysis to examine the effects of increases in public expenditure on trade balances and budget deficits in 14 EU countries from 1970 to 2004. The findings indicate that a 1% GDP rise in public expenditure leads to a 1.2% on impact increase and a 1.6% peak increase in GDP. In addition, the public expenditure increase would lead to increases in budget deficits.

On fiscal policy and growth, Brownbridge and Canagarajah (2008) argue that fiscal policy should focus on halting the deterioration of human capital by allocating greater resources to recurrent expenditures in the education and health sectors, while also ensuring that macroeconomic stability is not compromised by higher domestic borrowing or that fiscal sustainability is not threatened by excessive external borrowing for capital projects. Also Kirchgassner (2001) using a conceptual research approach while focussing on a study period of 30 years seem to concur to the notion that fiscal policy is a key tool in reallocation and redistribution of resources. Specifically the study examines the effect of fiscal institutions on public finance and finds that statutory fiscal institutions have mainly been effective in reducing public

expenditure. Also budgetary procedures present a feasible alternative way of attaining fiscal sustainability.

On the other hand, Tanzi (2006) undertook a conceptual research and found that there is asymmetric information between policymakers and civil servants who draft legislative proposals on the various fiscal instruments such as taxes, aid and public expenditure and also disagreements in the use of these instruments hence posing the weakness of fiscal policy. However the study is unclear on the link between economic growth and fiscal policy stance and also the extent to which fiscal policy stance affects public expenditure.

2.3.2 Fiscal Policy Stance, Macroeconomic Factors and Public Expenditure

UNCTAD (2010) using a descriptive research approach examines macroeconomic policy and development during the 2008 global financial crisis (GFC). The research argues that the popular notion before the crisis was that countries undergoing economic distress should implement prudent measures in the form of tight fiscal policies to achieve macroeconomic stability. Canuto (2009) and Svante (2010) using a descriptive research approach, support the view that in a crisis period and recession, which is characterized by rising unemployment, rising interest rates and a fall in commodity prices, countries should implement contractionary economic policies. However, Brixiova (2010) and UNCTAD (2010) argue that non-restrictive policies are beneficial to all economies inclusive of Africa in order to stimulate aggregate demand in an economy as part of post-crisis recovery.

The fiscal policy adopted by a country would influence the macroeconomic factors and essentially the levels of public expenditure. Perotti (2007) argues that a rise in the interest rate regulated by the monetary authorities would lead to some fall in the output gap and a slowdown in inflation. Fan and Rao (2003) using regression analysis from 1980 to 1998 across 43 developing nations in Asia, Africa and Latin America contend that the macroeconomic reforms of a nation can determine the level of public expenditure in a country. This implies that changes in macroeconomic factors would affect the level of public expenditure while influenced by the fiscal policy adopted by a government.

Studies on the relationship between macroeconomic factors and public expenditure report varied findings. For instance, Njeru (2003) using cointegration approach for the period 1970 to 1999 in Kenya contends that the level of foreign aid would affect the amounts of public expenditure. This means that economies which mainly finance their budgets using a significant amount of debt, the public expenditures in those economies would be affected. Remmer (2004) using time series cross sectional regression analysis from 1970 to 1999 in 120 middle and lower income countries, sought to examine whether foreign aid generates incentives and opportunities for public expenditure growth. The study findings indicate that foreign aid generates incentives for the growth of public expenditure. Similarly, Fan and Rao (2003) investigated the trends and impact of public expenditure in developing countries and found that public debt levels can determine the level of public expenditure.

On the interrelation between unemployment rate and inflation rate on public expenditure, Tayeh and Mustafa (2011) using correlation analysis from 1979 to 2000

in Jordan found that unemployment rates and inflation rates have a significant relationship with public expenditure. The study further argues that a government uses fiscal policy to fight inflation since it would respond by reducing public spending when inflation increases and when the share of unemployment rises, it is inclined to increase public spending. However the study did not extend the modelling to advanced methodologies such as using the error correction model to test the interrelationships among the variables.

Magazzino (2011) using time series data from 1970 to 2009 in the Mediterranean countries found that public expenditure growth and inflation have a long run relation in Portugal. Granger causality tests were also undertaken and the findings indicate that there is bi-directional flow for public expenditure growth and inflation in Italy in the short run, unidirectional flow from inflation to public expenditure in Portugal in the long run, in France a unidirectional flow in the short run but in the opposite direction (from public expenditure to inflation) in Cyprus, Malta and Spain.

Similarly, Ezirim et al. (2008) undertook a study on public expenditure and inflation from 1970 to 2002 using cointegration analysis and Granger causality testing. The study found that public expenditure and inflation are cointegrated thus implying that they have a long run interrelation. Ayo et al. (2012) indicate that from public expenditure to inflation rate, there exists unidirectional causality. However, there are studies that report a weak relationship between inflation and public expenditure. For instance, Han and Mulligan (2008) using time series data from 1973 to 1990 based on eighty countries indicate that permanently high non-defence public expenditure across countries is weakly related to inflation. Generally the studies on inflation and public

expenditure present mixed findings yet they use Granger causality tests to explore these interrelationships. The differences in economic environment such as whether a developed or developing region, whether the data used is time series or cross-sectional or the theoretical underpinning of the study could be some of the reasons that could explain the divergence of results.

There has been extensive literature on budget deficits and their effects on economies. Nevertheless there was a study done by Alesina and Perotti (1994) that sought to examine the institutional determinants of budget deficits. The study contends that budget deficits should only be observed during wars and recessions since those are times when public expenditure is temporarily high. Interestingly the study findings indicate that fiscal illusion by voters due to their ignorance on government budget constraints and asymmetric stabilization policies that entail politicians always willing to run deficits during recessions contribute to the rising levels of budget deficits.

2.3.3 Fiscal Policy Stance, Economic Growth and Public Expenditure

There are various studies that have been undertaken to test the interrelation between fiscal policy and economic growth. Semmler et al. (2007) using time series data argue that the scope of fiscal policy to influence economic growth depends on the underlying model of growth but studies done by Temple (2003); Glomm and Rioja (2006) while supporting the Solow (1956) model of growth, view fiscal policy as having an insignificant influence on long term growth. This implies that there are divergent research findings on the extent to which fiscal policy would influence economic growth.

On the other hand, Temple (2003) argues that for policy to have an influence on the level of output then it requires more attention from policy makers and advisors, otherwise policy has been overlooked due to a misplaced focus on consequences of the long term growth rate and undervaluation of level effects. Similarly, Tanzi and Zee (1996) analysed fiscal policy by reviewing literature where the study noted that fiscal policy affects the growth of economies in the long run.

Greiner et al. (2005) argue that a time series approach on economic growth can be very vital to undertake in establishing growth strategies since it would ultimately allow use of econometric time series methods and drafting important implications for growth policies. Hence most studies such as M'Amanja and Morrisey (2005); Perotti (2007); Semmler et al. (2007) while analysing the effect of fiscal policy on economic growth have adopted time series techniques in data analysis. However, Tanzi and Zee (1996) used a literature review perspective to recommend that fiscal policy can affect economic growth while Brownbridge and Canagarajah (2008) have used a descriptive research approach to examine fiscal policy for growth in Tajikistan and the study concludes that fiscal policy must play a greater role in strengthening the supply side of the economy through delivery of key public services which can complement private investment and enhance human capital.

M'Amanja and Morrisey (2005) sought to test the effect of fiscal policy on economic growth in Kenya from 1964 to 2002 using time series techniques such as the autoregressive distributed lag (ARDL) model. The findings indicate that productive government expenditure has strong adverse effects on growth while government investment is vital to growth in the long run. However, Perotti (2007) while using the

structural vector autoregression approach (SVAR) faults the use of Granger causality tests used by M'Amanja and Morrisey (2005) because the methodology fails to capture the structural shocks on fiscal policy which indicates challenges of identification and definition of the relevant variables. On the other hand, Semmler et al. (2007) used a calibration technique to establish the use of fiscal policy in promoting economic growth and found that foreign aid and the level of production have a positive linear effect on GDP.

The finance literature on public expenditure and economic growth presents mixed findings. For instance, studies undertaken by Barro (1991) and Romer (1990) found that public expenditure affects economic growth hence supporting the Keynesian view. Similarly, Sakyi and Adams (2012) using ARDL and cointegration approach from 1960 to 2008 in Ghana found that democracy and government spending have a positive influence on GDP growth in the short run and long run. Gurgul and Lach (2010) using linear and nonlinear Granger causality tests from the first to the third quarter of 2008 in Poland found that total public expenditure affects economic growth. However for sub-categories of public expenditure, mixed results were reported. That is expenditure on net interest payments affected economic growth, other remaining expenditure was affected by economic growth while expenditure on human resources and physical resources was found to have no effect on economic growth.

Various studies such as Srinivasan (2013) using Error Correction Model (ECM) and cointegration from the period 1973 to 2012 in India, report that economic growth affects public expenditure hence concurring to the assertions of Wagner's law.

However, we have studies that find no significant relationship between economic growth and public expenditure. For instance, Bagdigen and Cetintas (2003) investigated the interaction between economic growth and public spending in Turkey using Granger causality tests and found no causality in both directions.

Similarly, studies on components of public expenditure such as education and defence do not have a significant relation with economic growth. Deskins et al. (2010) using a series of fixed effects regressions from 1992 to 2002 in the US using panel data found that education spending does not have a significant relation with economic growth. Also, Heo (2010) using augmented Solow model from 1954 to 2005 in the US found that defence expenditure does not significantly impact on the US economy. However, Dao (2012) using simultaneous equation modelling from 2008 to 2010 in selected developing economies found that health spending affects the growth of an economy.

2.3.4 Public Expenditure in Kenya

The empirical literature on public expenditure as evidenced by studies conducted by Sans and Velazquez (2002) and Shonchoy (2010) in OECD countries and developing countries respectively, indicate that there are factors or determinants of public expenditure. The findings show that political and institutional variables, size of the economy, population density, prices and governance have significant effects on expenditure. The key determinants seem to be similar to other studies done even though there are research methodological differences with Shonchoy (2010) using panel data models while Sans and Velazquez (2002) have adopted a three stage least squares method. However these studies have not examined the effect of

macroeconomic factors such as inflation, unemployment or foreign aid & grants on public expenditure.

In Kenya, the existing literature on public expenditure has mainly been the reports on public expenditure trends, statistical abstracts, economic surveys and a few research articles. For instance, Muthui et al. (2013) investigated how public expenditure affects economic growth from 1964 to 2011 using the vector error correction model. The findings indicate that government spending on health, public order and security and transport have a positive relation with economic growth. However, public expenditure on education has a mixed relationship with economic growth. Njeru (2003) examined foreign aid and public expenditure in Kenya using a utility modelling approach where the findings demonstrate that there is a positive and significant relation between the proportion of public expenditure in GDP and the proportion of foreign aid. However, Kenya has been emerging as less reliant on foreign aid to support public expenditure.

It is notable that some of the studies examining public expenditure have sought to test the effect of economic growth apart from other macroeconomic factors such as inflation, unemployment and foreign aid & grants. Mosoti (2014) examined public expenditure growth in Kenya from 1980 to 2012 using OLS modelling. The findings indicate that population and GDP positively affects public expenditure growth while free primary education has a positive effect on public expenditure growth. However, inflation and foreign aid has an insignificant effect on public expenditure growth. Even though the study did not test the effect of fiscal policy on public expenditure, the study conclusions are that fiscal policy should be undertaken carefully in order to ensure that public expenditure is managed sustainably.

On the relationship between public expenditure and private investments, Njuru et al. (2014) examined the effect of government spending on private investment in Kenya. The study adopted a vector autoregressive (VAR) technique using time series data from 1963 to 2012. The results show that both recurrent and development expenditure enhance private investment. The study further concludes that there is need for government to reallocate funds towards projects that are valuable to the private sector.

There are also some studies that examine the interaction of public expenditure with other variables apart from macroeconomic factors. For instance, according to a research report done by Bird and Kirira (2009) on the role of government institutions and donor partners on enhancing public environmental expenditure, there should be a consolidation of budgeted amounts on public expenditure on environment since it would enhance more accountability and synergy. The study also recommends that donor partners have a role to play in that they should consider sector budget support instead of multi-donor basket funds and traditional project interventions. Nafula et al. (2004) also examined public expenditure accountability in Kenya using a descriptive research approach. The study found that Kenya was faced with numerous challenges of wastage of resources mainly due to weak procurement procedures, corruption and weak monitoring systems. Hence, that justified the need of public expenditure tracking surveys.

2.3.5 Summary of Literature Review and Research Gaps

The empirical review of economic growth, macroeconomic factors, fiscal policy stance and public expenditure do not provide a direct and neither a clear causal link among these variables. This indicates a research gap in the interrelationship among these variables which was investigated in this study. In summary, there are contextual, conceptual and methodological gaps emerging from the review of literature.

First, there is a contextual gap emerging on the key determinants of public expenditure in Kenya since they have been insufficiently studied. For instance, Muthui et al. (2013) examined public expenditure and economic growth but did not show the influence of fiscal policy stance and other macroeconomic variables on their main study objective. A similar study is by Mosoti (2014) where public expenditure growth was examined and selected macroeconomic factors such as inflation, foreign aid and GDP were tested as to their effect on public expenditure growth.

Second, there is a conceptual gap emerging from the literature in that there are insufficient studies on the effect of fiscal policy stance on public expenditure except Stancik and Valila (2012) that examined how a change in fiscal policy stance would affect public expenditure even though the study did not show the link to economic growth. Other studies linking fiscal policy and public expenditure such as Kirchgassner (2001); Brownbridge and Canagarajah (2008) mainly explore the role of fiscal policy in controlling the level of public expenditure.

Third, there is a methodological gap emerging from the review of literature ranging from descriptive research methodologies to causal analytical research methodologies.

The question is whether the use of alternative research methodologies such as using mathematical modelling would yield to more robust results. Studies done by Kirchgassner (2001); Brownbridge and Canagarajah (2008); Brixiova (2010) have examined the effects of fiscal policy on public expenditure using a descriptive approach yet Stancik and Valila (2012) investigated a similar relationship using panel data modelling across countries and the effects of contractionary and expansionary fiscal stance on public expenditure were determined. This implies that the use of advanced methods of research such as VAR, VECM, panel data modelling among others exhibit finer details of a particular relationship or study effect being tested.

Table 2.1: Summary of Previous Studies and Knowledge Gaps

Author(s)	Focus of the Study	Methodology	Findings	Research Gaps	Bridging the Gaps in the Study
Kirchgassner (2001)	To examine the effects of fiscal institutions on public finance.	Conceptual research approach	Statutory fiscal institutions have mainly been effective in reducing public expenditure.	The interaction of fiscal policy and macroeconomic factors was not clearly highlighted.	The interaction of fiscal policy and macroeconomic factors was investigated.
Sans and Velazquez (2002)	To analyse the determinants of functional distribution of government expenditure.	Ordinary Least Squares (OLS) Model	Income, organizational factors, population density and age structure have significant effect on government expenditure.	The role of fiscal policy stance on government expenditure was not determined.	The effect of fiscal policy stance on public expenditure was established.
Bagdigen and Cetintas (2003)	To examine public expenditure and economic growth in Turkey.	Granger Causality	Public expenditure is not affected by economic growth or vice versa.	The influence of other macroeconomic factors on public expenditure was not determined.	The influence of macroeconomic factors and economic growth on the effect of fiscal policy and public expenditure was done.

Fan and Rao (2003)	The trends and impact of public expenditure in developing countries.	Ordinary Least Squares (OLS) Model	Debt levels can determine the level of public expenditure.	The interrelation of fiscal policy stance, public expenditure and growth was not examined.	The interrelationship among fiscal policy, economic growth and public expenditure was examined.
Njeru (2003)	Foreign aid and public expenditure in Kenya.	Cointegration Approach	Positive relation between foreign aid and public expenditure.	The study did not show how debt, macroeconomic factors and public expenditure would relate.	The interrelationship among debt, macroeconomic factors and public expenditure was investigated.
Alesina and Tabellini (2005)	Analysis of the use of pro-cyclical policies in comparison to counter-cyclical policies.	Ordinary Least Squares (OLS) Model	In recessions or crisis periods, countries should adopt pro-cyclical economic policies.	The study did not clearly indicate how pro-cyclical policies can assist economies stimulate aggregate demand or output during recessions.	The influence of fiscal policy stance on economic growth and public expenditure was evaluated.
M'Amanja and Morrissey (2005)	Fiscal policy and economic growth in Kenya.	Autoregressive Distributed Lag (ADL) Model	Productive government spending has significant adverse effects on growth while government investment is vital to growth.	Testing of fiscal policy cyclicality was not done. Also the effect of fiscal policy on other macroeconomic factors was not done.	The type of fiscal policy adopted over the study period was determined and the effects on inflation and unemployment.

Perotti (2007)	To examine fiscal policy in developing nations.	Structural Vector Autoregression Approach (SVAR)	Pro-cyclical fiscal policy depends on factors such as credit constraints, political-economic reasons and hidden deficits.	The effect of fiscal policy stance on macroeconomic factors was not done. The role of redistribution and reallocation by fiscal policy was not done.	The effect of fiscal policy stance, economic growth and macroeconomic factors on public expenditure was examined.
Semmler et al (2007)	To establish the use of fiscal policy in promoting economic growth.	Time Series Modeling	Foreign aid and the level of production have a positive linear effect on GDP.	The study did not clearly explain the interrelation of fiscal policy stance, public expenditure and other macroeconomic factors.	The relationship among fiscal stance, macroeconomic factors, economic growth and public expenditure was analysed.
Brownbridge and Canagarajah (2008)	To examine fiscal policy for growth and development in Tajikistan.	Descriptive research approach	Fiscal policy has a main role in strengthening the supply side of the economy through delivery of key public services.	The descriptive research approach is used to examine the variables while the study period chosen is short.	The time series technique was used over a long time period since it was expected to provide robust results.
Han and Mulligan (2008)	To investigate the relationship between inflation and public expenditure.	Time series modelling	There is a weak relationship between inflation and non-defence public expenditure.	The effect of other macroeconomic factors was not determined.	The effect of macroeconomic factors on public expenditure was examined.

38

Brixiova (2010)	To investigate the state of African economies in the post 2008 global financial crisis.	Descriptive research approach	In 2009 Africa's high growth was affected by the crisis by being hit hard through the real channels.	The influence of macroeconomic factors on the effect of fiscal policies on public expenditure has not been examined.	The effect of fiscal policy, macroeconomic factors on expenditure was examined.
Deskins et al. (2010)	To test the interrelation between education public spending and economic growth.	Fixed effects regressions	Education public spending has no significant relationship with economic growth.	The effect of fiscal policy on public spending was not clearly established.	The effect of fiscal policy stance on public expenditure was examined.
Gurgul and Lach (2010)	The causal linkage between expenditure and economic growth in Poland.	Granger Causality	Using Granger causality tests, the findings support Keynes theory that public expenditure affects economic growth.	The study period was short yet a time series technique was used.	The study examined the variables over a long time period using time series so as to establish trends and forecasts.
Shonchoy (2010)	To investigate the determinants that influence government expenditure in developing nations.	Panel data models	Political and institutional variables, size of the economy and governance have a significant effect on government expenditure.	The role of fiscal policy on government expenditure has not been determined.	The influence of fiscal policy on public expenditure was established.

Tayeh and Mustafa (2011)	To examine the determinants of public expenditure in Jordan.	Cointegration Approach	Population, unemployment and inflation are highly related to public expenditure.	The effect of fiscal policy and other factors that could affect public expenditure was not examined.	The effects of fiscal policy stance, macroeconomic factors and economic growth on expenditure were examined.
Ayo et al (2012)	Economic growth, public spending and inflation in Nigeria.	Cointegration Technique Vector Error Correction Model (VECM)	Unidirectional causality exists from growth to government spending to inflation.	The effect of fiscal policy stance and macroeconomic factors on public expenditure was not examined.	The relationship among economic growth, macroeconomic factors and public expenditure was examined.
Stancik and Valila (2012)	To test the effect of fiscal stance on public expenditure.	Panel data analysis using General Method of Moments (GMM)	Contractionary fiscal stance increases the level of development expenditure and loosens recurrent expenditure.	The study did not clearly explain the influence of economic growth on the relation between fiscal stance and public spending.	The effect of economic growth on the interrelation between fiscal stance and public expenditure was examined.
Muthui et al (2013)	Public expenditure components and economic growth in Kenya.	VECM approach	Education public spending has a positive relation with economic growth.	The study did not clearly show the influence of fiscal policy stance and macroeconomic factors on public expenditure.	The effect of fiscal policy stance and macroeconomic factors on public expenditure was investigated.

Srinivasan (2013)	To examine public expenditure and economic growth in India.	Cointegration Approach VECM	Economic growth affects public expenditure hence supporting Wagner's Law.	The role of fiscal policy and the effects on development or recurrent expenditure was not clearly established.	The effect of fiscal policy stance, economic growth on public expenditure was determined.
Mosoti (2014)	To determine the causes of public expenditure growth.	OLS Modelling	Population and GDP have a positive relationship with public expenditure growth. Inflation and foreign aid have an insignificant effect on public expenditure growth.	The effect of fiscal policy on public expenditure was not clearly established. Also OLS modelling was used yet the data was time series.	The effect of fiscal policy on public expenditure was examined. Also more robust modelling approaches were used in testing the interrelationships among the study variables.
Njuru et al. (2014)	Public expenditure and private investment in Kenya.	VAR Modelling	The findings show that both recurrent and development expenditure enhance private investment.	The influence of macroeconomic factors on government expenditure was not clearly established.	The influence of macroeconomic factors on public expenditure was determined.

Source: Literature Reviewed by Researcher (2018)

2.4 Conceptual Framework

The conceptual framework has blended the viewpoints of several theories of public expenditure, fiscal policy stance and macroeconomic factors as discussed in the theoretical section previously. The conceptual framework presents the conceptualized interaction among fiscal policy stance (independent variable), economic growth (intervening variable), macroeconomic factors (intervening variable) and public expenditure (dependent variable). The framework postulates that fiscal policy stance would affect the level of public expenditure and also that economic growth and macroeconomic factors are expected to influence the relationship between fiscal policy and public expenditure.

In this framework, it is assumed there is a relationship between fiscal policy stance and public expenditure which is consistent with Stancik and Valila (2012) and Tanzi (2006). Furthermore, the theory of fiscal policy asserts that fiscal policy aims to redistribute and reallocate resources in the various sectors of an economy. Therefore, the theoretical underpinning of the relation between fiscal policy stance and public expenditure holds. Fiscal policy stance indicators are budget deficits and tax revenues which represent the independent variables in this framework. There are studies that have used similar measures such as Amanja and Morrissey (2005) while Clark and Dilnot (2001) argue that fiscal policy stance can best be measured by the extent of public deficits. Even though Philip and Janssen (2001) note that there is no standard definition of fiscal stance, the study acknowledges that measuring the fiscal balances would suffice. This study has

formulated hypothesis one which is aligned to objective one which sought to examine the effect of fiscal policy stance on public expenditure in Kenya.
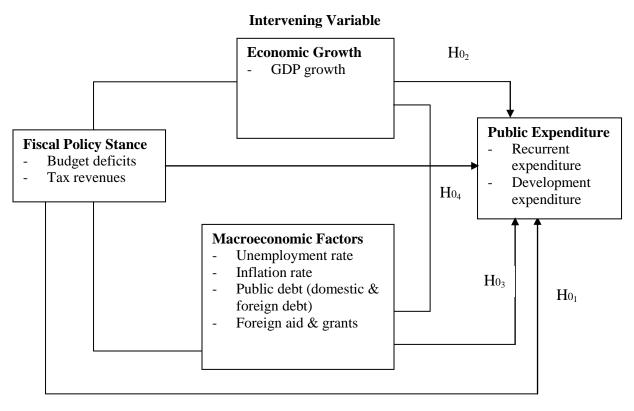
Economic growth as measured by GDP growth and macroeconomic factors (inflation rate, unemployment rate and foreign aid & grants) are the intervening variables in the framework. There are several macroeconomic factors but this study has focussed on inflation, unemployment and foreign aid & grants since the other macroeconomic factors have extensively been studied in cross-country studies. The other reason of focusing on the three macroeconomic factors is due to the fact that there is inconclusive evidence on how they interrelate with public expenditure. Economic growth has also been classified as a macroeconomic factor in some studies but this study examined economic growth separately from the other three macroeconomic factors. The key reason is so as to clearly examine the aspect of economic stabilization in the context of fiscal policy stance considering that there is divergence in the relation between fiscal policy stance and economic growth.

The proposition in this study is that economic growth and macroeconomic factors intermediate the relation between fiscal policy stance and public expenditure. The proposition is supported both theoretically and empirically. On the intervening influence of economic growth on the interaction of fiscal policy stance and public expenditure, the theory of fiscal policy asserts that fiscal policy aims to ultimately attain stabilization in an economy which underpins the relation between fiscal policy and economic growth. Wagner's law and Peacock-Wiseman hypothesis state that economic growth and public

expenditure have a positive relationship since public expenditure tends to grow as an economy expands.

The proposition of the economic growth intervening influence is also supported empirically with a few studies conducted on fiscal policy and economic growth (Temple, 2003; Amanja and Morrissey, 2005; Glomm and Rioja, 2006; Semmler et al. 2007; Perotti, 2007) and economic growth and public expenditure (Romer, 1990; Barro, 1991; Bagdigen and Cetintas, 2003; Sakyi and Adams, 2012; Srinivasan, 2013). However, these studies have varied findings which also make the examination of the variables inconclusive. Furthermore, there is no single study in literature that has examined the intervening influence of economic growth on the relation between fiscal stance and public expenditure. That testing of intervening influence is also consistent with MacKinnon et al. (2002). Hence it is hypothesized in hypothesis two which is also aligned to objective two that economic growth has an intervening influence on the relation between fiscal policy stance and public expenditure in Kenya.

Public expenditure is the dependent variable in this study and it is represented by recurrent and development expenditure. However, the general proposition is that economic growth and macroeconomic factors have an intervening influence on the relation between fiscal policy stance and public expenditure. Hence, it was hypothesized in hypothesis four that there is a joint effect of fiscal policy stance, economic growth and macroeconomic factors on public expenditure in Kenya. That hypothesis is aligned to objective four of the study.

Figure 2.1: Conceptual Framework

Intervening Variable

```
              ┌──────────────────────┐
              │  Economic Growth     │          H0₂
              │  -   GDP growth      │
              └──────────────────────┘
```

$$\text{Intervening Variable}$$

Economic Growth - GDP growth	H_{0_2}
Fiscal Policy Stance - Budget deficits - Tax revenues	**Public Expenditure** - Recurrent expenditure - Development expenditure
	H_{0_4}
Macroeconomic Factors - Unemployment rate - Inflation rate - Public debt (domestic & foreign debt) - Foreign aid & grants	H_{0_3} H_{0_1}

Independent Variable   **Intervening Variable**   **Dependent Variable**

Source: Researcher (2018)

2.5 Hypotheses of the Study

This study tested the following null hypotheses;

H_{01}: Fiscal policy stance does not affect public expenditure in Kenya.

H_{02}: Economic growth does not influence the relationship between fiscal policy stance and public expenditure in Kenya.

H_{03}: Macroeconomic factors do not influence the relationship between fiscal policy stance and public expenditure in Kenya.

H_{04}: Fiscal policy stance, macroeconomic factors and economic growth do not have a joint effect on public expenditure in Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter focused mainly on the approaches that were adopted in implementing the study. The chapter gives a discussion of the philosophical orientation of the study in section 3.2 and the research design and the data collection approach are in section 3.3 and 3.4 respectively. The operationalization of the study variables is outlined in section 3.5 and section 3.6 captures the data analysis process while highlighting the models used in the study.

3.2 Research Philosophy

Research philosophy refers to the foundation and nature of knowledge as it relates to the development of knowledge and is based on key assumptions about the way in which researchers view the world (Saunders et al., 2007). Research in the social sciences is distinguished into two main research philosophies namely, positivism and phenomenology. This study adopted a positivist research philosophy since it focused on facts, causality, scientific laws and testing of hypotheses. The positivist paradigm in research follows Comte (1842) argument that all phenomena are subject to invariable fundamental laws. Creswell (2007) argues that research that is cause and effect oriented, deterministic based on a priori theories and has emphasis on empirical data collection then a positivist research philosophy is the most appropriate. On the other hand

47

phenomenology would be preferable where the researcher would rely on using experience and intuition.

Under the positivist paradigm, problem solving follows a pattern of hypothesis formulation and testing mostly using quantitative approaches which leads to the verification or rejection of hypotheses (Stiles, 2003). Hence the emphasis is on operationalization of concepts so that they can be measured, utilizing quantitative data based on large samples and testing of hypothesis. Therefore the positivist paradigm was used in the study since it allows examination of the relationship between fiscal policy stance, economic growth, macroeconomic factors and public expenditure in Kenya.

3.3 Research Design

The research design is mainly the blueprint that guides a study in solving a research problem. There are several types of research designs such as exploratory design, experimental design, descriptive design and causal design. The study adopted the causal analytical design for several reasons. Firstly, the research design enabled the determination of the cause and effect of the interrelationships between fiscal policy stance, economic growth and macroeconomic factors and public expenditure in Kenya. Secondly, the research design enhanced the testing of hypotheses using analytical models where the interrelationships between the variables were examined. Thirdly, the study used time series data that required analysis over a long time period and the causal analytical design was appropriate since the effects on variables was being tested. Furthermore, Zikmund (2002) indicates that the main goal of undertaking causal research

is to determine the cause and effect relationships among variables. Generally, the research design was longitudinal since the variables covered a long time period which enabled the establishment of cause and effect among the variables.

3.4 Data Collection

The study period was 1964 to 2015 while the population was the Kenyan economy where the universe of all the variables was captured. The data on public expenditure was recurrent and development expenditures while data on economic growth was the GDP growth over the study period. Fiscal policy stance involved data on tax revenues and budget deficits determined as the annual deficit or surplus balance. Budget deficit is calculated as the difference between the budgeted public revenues and public expenditure over the study period. Macroeconomic factors involved data on unemployment rates, inflation rates and foreign aid & grants. Public debt data entailed the monetary amounts of the domestic and foreign borrowings.

The data collection was from secondary data sources, specifically from the Kenya National Bureau of Statistics (KNBS) reports. Secondary data was mainly used since it was available on the study variables from the KNBS reports which are reliable and credible. Studies such as M'Amanja and Morrissey (2005) and Muthui et al. (2013) have used KNBS reports on data pertaining variables such as fiscal policy and public expenditure. Furthermore, secondary data is advantageous when a study entails a long study period such as 1964 to 2015. Therefore, secondary data was more reliable since it also permitted a trend analysis of the study variables such as public expenditure.

The secondary data entailed the study variables which are public expenditure, macroeconomic factors, fiscal policy stance and economic growth from KNBS economic surveys and statistical abstracts. However data on budget deficits was collected from the annual budget estimates books. The data collection instrument was a secondary data collection sheet as shown in appendix I. Annual data was obtained on economic growth and macroeconomic factors from KNBS economic surveys while annual data on public expenditure and fiscal policy stance was collected from KNBS statistical abstracts.

3.5 Operationalization of the Research Variables

The measurement of variables enhances hypothesis testing and answering complex research issues (Sekaran, 2003). The variables in this study include; fiscal policy stance, economic growth, macroeconomic factors and public expenditure. For each variable, operationalization has been undertaken where it entails explaining what it means and how each is measured, that is operationalizing each variable and highlighting the respective parameters. The measurement of these variables is shown in Table 3.1.

Table 3.1: Operationalization of Study Variables

Construct	Operationalization of the Construct	Hypothesis	Measure
Fiscal Policy Stance	Changes in the level and composition of public expenditure and funding	$H0_1$, $H0_2$, $H0_3$, $H0_4$	Budget deficits/surplus Tax revenues
Economic Growth	The economic growth of the economy	$H0_2$, $H0_4$	GDP growth
Macroeconomic Factors			
Unemployment rate	The rate of unemployment	$H0_3$, $H0_4$	Unemployment rate
Inflation rate	Change in general price level	$H0_3$, $H0_4$	Inflation rate
Foreign Aid & Grants	The amount of aid and grants sourced from foreign countries	$H0_3$, $H0_4$	Foreign aid plus external grants
Public Debt	External and internal borrowing by government	$H0_3$, $H0_4$	Amount of total public debt borrowed
Public Expenditure			
Recurrent expenditure	Government spending on goods & services for current use	$H0_1$, $H0_2$, $H0_4$	Expenditure on goods & services for current use
Development expenditure	Government spending on goods & services meant for creating future benefits	$H0_1$, $H0_2$, $H0_4$	Expenditure meant for development

Source: Researcher (2018)

In the next section there is Table 3.2 that gives a summary of the hypotheses and the expected outcomes for the study variables from the previous studies reviewed in the literature review. The table is meant to give a perspective of the expected research findings in comparison to the findings obtained in this study. For instance, Stancik and Valila (2012) and Kirchgassner (2001) found a negative relationship between fiscal policy stance and public expenditure. There are several studies that have investigated the interrelation among economic growth, fiscal policy and public expenditure. Studies done by Glomm and Rioja (2006) and M'Amanja and Morrisey (2005) examined fiscal policy and public expenditure and found a negative relationship. On the other hand, Srinivasan (2013) and Deskins et al. (2010) found a negative relation between economic growth and

public expenditure. However, Bagdigen and Cetintas (2003) and Gurgul and Lach (2010) found a positive relation indicating a divergence in the nature of the relationships tested yet from the same set of variables.

There is insufficient literature on studies testing the intervening influence of inflation, unemployment or even foreign aid and grants on the interrelation between fiscal policy stance and public expenditure. However, we have studies such as Magazzino (2011) and Tayeh and Mustafa (2011) that found a negative relation between inflation and public expenditure while Han and Mulligan (2008) found a positive relationship indicating a divergence in the nature of the research findings. On foreign aid and grants and public expenditure, Njeru (2003) and Remmer (2004) have similar findings of a positive relation while Tayeh and Mustafa (2011) found a negative relation between unemployment and public expenditure. Lastly, Canuto (2009) and UNCTAD (2010) are studies on the general interaction between fiscal policy and macroeconomic factors.

Lastly, in hypothesis four, we have studies that have tested the interaction among fiscal policy, public expenditure and economic growth such as Semmler et al. (2007) and Muthui et al. (2013). These studies while using VECM models found a positive relation between the variables. In conclusion, Table 3.2 sought to give a summary of the nature of the relationships from previous studies under each hypothesis and thus giving a direction of the expected relationships that were established in this study when hypothesis testing was undertaken in chapter four.

Table 3.2: Summary of Hypotheses, Analytical Methods and Nature of Relationship

Hypothesis	Type of Analysis	Nature of the Relationship	References
Ho$_1$: Fiscal policy stance does not affect public expenditure in Kenya.	• VECM analysis	Negative Negative	Stancik and Valila (2012) Kirchgassner (2001)
Ho$_2$: Economic growth does not influence the relationship between fiscal policy stance and public expenditure in Kenya.	• Stepwise regression analysis	Positive Negative Negative Negative Negative Positive Positive	Semmler et al. (2007) Glomm and Rioja (2006) M'Amanja and Morrisey (2005) Srinivasan (2013) Deskins et al. (2010) Gurgul and Lach (2010) Bagdigen and Cetintas (2003)
Ho$_3$: Macroeconomic factors do not influence the relationship between fiscal policy stance and public expenditure in Kenya.	• Stepwise regression analysis	Negative Positive Negative Negative Positive Positive Positive Positive Positive	Canuto (2009) UNCTAD (2010) Magazzino (2011) Tayeh and Mustafa (2011) Beetsma et al. (2008) Han and Mulligan (2008) Remmer (2004) Fan and Rao (2003) Njeru (2003)
Ho$_4$: Fiscal policy stance, macroeconomic factors and economic growth do not have a joint effect on public expenditure in Kenya.	• VECM analysis	Positive Positive	Mosoti (2014) Muthui et al. (2013)

Source: Researcher (2018)

3.6 Data Analysis

This section seeks to explain the approaches used in analysing the data in order to test the hypotheses of the study. Therefore, descriptive statistics including the mean, median, standard deviation, skewness and kurtosis of the time series data was determined as part of data description or explaining the key features of the data used in this study. Correlation analysis among the variables was also undertaken. Diagnostic tests such as unit root tests, cointegration tests, Granger causality tests, autocorrelation tests and heteroscedasticity tests were done in order to determine the most appropriate models to

be used. Several models were used to test hypotheses one to four and in essence examining the relationships among the study variables.

3.6.1 Conceptual Models

Conceptual models are usually used in expressing one set of variables against another. They express the notion of one variable depending on another. Therefore to examine the effect of fiscal policy stance on public expenditure the following conceptual model is applicable;

$$y = f(x)$$

Where;

y = public expenditure

x = fiscal policy stance

In establishing the intervening influence of economic growth on the relation between fiscal policy stance and public expenditure, the following conceptual models are applicable;

$$y = f(x)$$

$$z = f(x)$$

$$y = f(x, z)$$

Where;

y = public expenditure

x = fiscal policy stance

z = economic growth

In establishing the influence of macroeconomic factors on the relation between fiscal policy stance and public expenditure, the following conceptual models are applicable;

$y = f(x)$

$z = f(x)$

$y = f(x, z)$

Where;

y = public expenditure

x = fiscal policy stance

z = macroeconomic factors (unemployment rate, inflation rate, public debt and foreign aid & grants)

In examining the relationship among fiscal policy stance, macroeconomic factors, economic growth and public expenditure, the following conceptual model is applicable;

$y = f(x_1, x_2, x_3, x_4, x_5, x_6)$

Where;

y = public expenditure

x_1 to x_6 = fiscal policy stance, economic growth and macroeconomic factors

3.6.2 Analytical Models

Analytical models are the equations used to test the relationships between variables using the time series data. For instance, in order to test the effect of fiscal policy stance on public expenditure a VECM model was used while in testing the effect of fiscal policy stance on inflation rate and unemployment rate VAR models were used. The choice of the models was arrived at after having undertaken diagnostic tests such as cointegration test results as indicated in Table 4.4 and ascertained that they were the most appropriate. VECM models were mainly used where there was cointegration between variables but where there was no cointegration between variables then a VAR model was used. These models are also applicable where there is existence of lags in the time series data being used to analyse the relationships between the study variables.

3.6.2.1 Fiscal Policy Stance and Public Expenditure

The following VECM model was used to test the relationship as indicated next;

$$PExp_t = \alpha_{10} + \alpha_{11}\,PExp_{t-1} + \alpha_{12}\,FP_{t-1} + \varepsilon_{1t} \tag{1}$$

Where:

$PExp_t$ is public expenditure during a particular year and $PExp_{t-1}$ is the lagged value of public expenditure

FP_t is the fiscal policy stance in a particular year and FP_{t-1} is the lagged value of fiscal policy stance

α_{10} is the constants or intercepts

$\alpha_{11,}\,\alpha_{12}$ are the model coefficients

ε_{1t} is the random error terms.

3.6.2.2 Fiscal Policy Stance, Economic Growth and Public Expenditure

In establishing the influence of economic growth on the relationship between fiscal policy stance and public expenditure, three steps were involved in establishing the intervening influence according to Baron and Kenny (1986) approach and further supported by MacKinnon et al. (2002). The first step involved regressing fiscal policy stance against public expenditure using a VECM model as follows;

$$PExp_t = \alpha_{10} + \alpha_{11} PExp_{t-1} + \alpha_{12} FP_{t-1} + \varepsilon_{1t} \tag{2}$$

The second step involved regressing fiscal policy stance against economic growth using a VECM model as follows;

$$FP_t = \alpha_{10} + \alpha_{11} EG_{t-1} + \alpha_{12} FP_{t-1} + \varepsilon_{1t} \tag{3}$$

The final step involved regressing fiscal policy stance and economic growth on public expenditure using a VECM model as follows;

$$Y_t = \beta_0 + \beta_1 Y_{t-1} + \sum_{i=1}^{m} \gamma_i X_{it} + \varepsilon_t \tag{4}$$

Where:

Y_t = Dependent Variable

Y_{t-1} = Lagged Dependent Variable

X_{it} = Independent Variables

β_0 = The Constant or Intercept

β_1 = Model Coefficient of the Lagged Dependent Variable

γ_i = Model Coefficients of the Independent Variables

ε_t = Error Term or Structural Shock

3.6.2.3 Fiscal Policy Stance, Macroeconomic Factors and Public Expenditure

In establishing the influence of macroeconomic factors on the relationship between fiscal policy stance and public expenditure, three steps were involved as per the Baron and Kenny (1986) approach in testing the intervening influence. The first step involved regressing fiscal policy stance against public expenditure using a VECM model as follows:

$$\text{PExp}_t = \alpha_{10} + \alpha_{11}\,\text{PExp}_{t\text{-}1} + \alpha_{12}\,\text{FP}_{t\text{-}1} + \varepsilon_{1t} \tag{5}$$

The second step involved regressing fiscal policy stance against macroeconomic factors using VAR models for unemployment rate and inflation rate while a VECM model for foreign aid & grants as shown;

$$\text{Unemp}_t = \alpha_{10} + \alpha_{11}\,\text{FP}_t + \varepsilon_{1t} \tag{6}$$

$$\text{Infl}_t = \alpha_{20} + \alpha_{21}\,\text{FP}_t + \varepsilon_{2t} \tag{7}$$

$$\text{FGrnt}_t = \alpha_{30} + \alpha_{31}\,\text{FP}_t + \varepsilon_{3t} \tag{8}$$

The final step involved regressing fiscal policy stance, macroeconomic factors against public expenditure using a VECM model as shown;

$$Y_t = \beta_0 + \beta_1 Y_{t-1} + \sum_{i=1}^{m} \gamma_i\, X_{it} + \varepsilon_t \tag{9}$$

Where:

Y_t = Dependent Variable

Y_{t-1} = Lagged Dependent Variable

X_{it} = Independent Variables

β_0 = The Constant or Intercept

β_1 = Model Coefficient of the Lagged Dependent Variable

γ_i = Model Coefficients of the Independent Variables

ε_t = Error Term or Structural Shock

3.6.2.4 Fiscal Policy Stance, Economic Growth, Macroeconomic Factors and Public Expenditure

In examining the joint effect of fiscal policy stance, macroeconomic factors and economic growth on public expenditure, a VECM model was used. One of the reasons justifying the use of the model is because time series data was used and secondly the cointegration testing (see results in Table 4.4) indicated that the variables were cointegrated. Furthermore, we have studies in the empirical literature that have examined similar variables using VECM models such as Semmler et al. (2007); Hans and Mulligan (2008); Ayo et al. (2012); Srinivasan (2013) and Muthui et al. (2013). Therefore the VECM model used is shown next;

$$Y_t = \beta_0 + \beta_1 Y_{t-1} + \sum_{i=1}^{m} \gamma_i \, X_{it} + \varepsilon_t \tag{10}$$

Where:

Y_t = Dependent Variable

Y_{t-1} = Lagged Dependent Variable

X_{it} = Independent Variables

β_0 = The Constant or Intercept

β_1 = Model Coefficient of the Lagged Dependent Variable

γ_i = Model Coefficients of the Independent Variables

ε_t = Error Term or Structural Shock

In summary, the analysis of data involved establishing the descriptive statistics, diagnostic testing and hypothesis testing which includes modelling. Descriptive statistics are determined in order to explain the key features of the data. It involves the determination of the mean, median, standard deviation, skewness, kurtosis and Jacque-Bera of the time series data. These statistics mainly assist in explaining the distribution of the data especially if it is a normal distribution or not.

The next step entails diagnostic testing which provides information on how the time series would be modelled. This means that diagnostic tests serve as indicators of model adequacy. In this study one of the diagnostic tests that helped determine the model to be used was the Johansen cointegration test. In instances where there is cointegration between variables then a VECM model is used while if cointegration does not exist then a VAR model is used. Unit root tests were done to ensure that the study variables were all stationery so as to obtain sensible results. Granger causality tests were conducted so as to determine if a variable causes another or simply determining the level of causation between variables. Autocorrelation tests were also undertaken in order to establish if there was correlation between the variables taking into consideration the time lag. Lastly heteroscedasticity tests were conducted so as to establish if the variance of each error term was constant. In order to obtain robust results, the variance of each error term should be constant.

Hypothesis testing was conducted in order to determine the strength of the relationships between the study variables. This means establishing if there is a significant or

insignificant relationship between variables in the study. Before modelling was done, lag selection was undertaken which involves determining the number of time lags existing in variables. Lag selection was done using various lag testing techniques where the lag value that was the lowest was selected.

The VECM/VAR modelling was then conducted. Based on the diagnostic test results on cointegration, VECM models were used where there was cointegration between variables whereas VAR models were used where there was no cointegration between variables. Long run causality and short run causality using the Wald test statistic was undertaken in order to establish if a variable causes another in the short run or long run. In VAR modelling, joint significance was determined between variables using the Wald test statistic. Finally, post diagnostic tests such as serial correlation test and heteroscedasticity tests were done after modelling was undertaken in order to establish the robustness of the models. The Table 3.3 shows a summary of the statistical tests of hypotheses in the study;

Table 3:3: Summary of Research Objectives, Hypotheses, Analytical Methods and

Interpretation of Results

Objectives	Hypotheses	Type of Analysis	Interpretation
To examine the effect of fiscal policy stance on public expenditure in Kenya.	**Ho1:** Fiscal policy stance does not affect public expenditure in Kenya.	• VECM analysis	• Relationship exists if at least one of the regression coefficients is significant.
To establish the influence of economic growth on the relationship between fiscal policy stance and public expenditure in Kenya.	**Ho2:** Economic growth does not influence the relationship between fiscal policy stance and public expenditure in Kenya.	• Stepwise regression analysis	• Relationship exists if at least one of the regression coefficients is significant.
To establish the influence of macroeconomic factors on the relationship between fiscal policy stance and public expenditure in Kenya.	**Ho3:** Macroeconomic factors do not influence the relationship between fiscal policy stance and public expenditure in Kenya.	• Stepwise regression analysis	• Relationship exists if at least one of the regression coefficients is significant.
To examine the joint effect of fiscal policy stance, economic growth, macroeconomic factors on public expenditure in Kenya.	**Ho4:** Fiscal policy stance, economic growth and macroeconomic factors do not have a joint effect on public expenditure in Kenya.	• VECM analysis	• Relationship exists if at least one of the regression coefficients is significant.

Source: Researcher (2018)

CHAPTER FOUR

DATA ANALYSIS, PRESENTATIONS AND DISCUSSIONS

4.1 Introduction

This study sought to investigate the influence of economic growth and macroeconomic factors on the relationship between fiscal policy stance and public expenditure. Section 4.2 entails descriptive statistics which include summary statistics and some diagnostic tests. Section 4.3 includes the testing of the four hypotheses while section 4.4 gives a discussion of fiscal policy stance, economic growth, macroeconomic factors and public expenditure. Section 4.5 concludes with the chapter summary.

4.2 Descriptive Statistics

This section provides a summary of various measures which include the mean, median, standard deviation, skewness and kurtosis on the study variables. Then diagnostic tests are captured which include correlation analysis, multicollinearity tests, unit root tests, cointegration tests, Granger causality tests, autocorrelation tests and heteroscedasticity tests.

4.2.1 Summary Statistics

In the study, the summary statistics of fiscal policy stance, economic growth, macroeconomic factors and public expenditure on their mean, median, standard deviation, skewness and kurtosis are shown in Table 4.1.

Table 4.1: Summary Statistics of the Study Variables

	Budget Deficit Ksh. M	Tax Ksh. M	Economic Growth (%)	Unemploy-ment Rate (%)	Inflation Rate (%)	Foreign Aid & Grants Ksh. M	Public Debt Ksh. M	Recurrent Expenditure Ksh. M	Development Expenditure Ksh. M	Public Expenditure Ksh. M
Mean	42507.66	123379.8	4.17	9.51	9.95	6537.43	303509.6	154004.7	38755.66	192760.3
Median	395.50	30486.6	4.50	9.55	9.60	3875.64	77990.60	42632.13	10795.19	53007.75
Maximum	692000.0	1021597.0	14.50	12.20	28.80	57082.00	2601432.0	1150769.3	802740.1	1953509.0
Minimum	-44986.00	735.32	0.20	6.90	-0.50	3.42	1722.20	1080.80	272.40	1362.40
Std. Dev.	100432.6	196962.8	2.69	1.08	6.13	10793.38	425124.8	225055.6	70916.40	294372.1
Skewness	2.14	1.95	0.92	0.15	1.01	2.82	1.69	1.82	2.34	1.96
Kurtosis	6.24	5.84	5.53	3.83	4.35	12.18	5.28	5.61	7.51	6.13
Jarque-Bera	59.90	48.39	20.47	1.61	12.31	241.87	34.56	41.77	87.96	52.44
Probability	0.00	0.00	0.00	0.45	0.00	0.00	0.00	0.00	0.00	0.00
Sum	2125383.0	6168990.0	208.40	475.40	497.40	326871.7	15175481	7700234.0	1937783.0	9638017.0
Sum Sq. Dev.	4.94E+11	1.90E+12	355.13	57.49	1841.57	5.71E+09	8.86E+12	2.48E+12	2.46E+11	4.25E+12

Source: Researcher's Computations (2018)

Table 4.1 gives a summary of measures of central tendency which include the mean and median and also the measures of dispersion such as the standard deviation. Budget deficit has a mean of Ksh. 42507.66 million with a standard deviation of Ksh. 100432.6 million. Tax has a mean of Ksh. 123379.8 million with a standard deviation of Ksh. 196962.8 million while economic growth has a mean of 4.168 with a standard deviation of 2.69. Inflation rate has a mean of 9.95 with a standard deviation of 6.13 while unemployment rate has a mean of 9.508 with a standard deviation of 1.08. Foreign aid & grants have a mean of Ksh. 6537.43 million with a standard deviation of Ksh. 10793.38 million while public debt has a mean of Ksh. 303509.6 million with a standard deviation of Ksh. 425124.8 million.

For public expenditure, the mean is Ksh. 192760.3 million with a standard deviation of Ksh. 294372.1 million. Recurrent expenditure has a mean of Ksh. 154004.7 million with a standard deviation of Ksh. 225055.6 million while development expenditure has a mean of Ksh. 38755.66 million with a standard deviation of Ksh. 70916.40 million.

Skewness is a measure of asymmetry of the distribution of the series around its mean. It is evident that budget deficit, tax, economic growth, inflation, foreign aid & grants, public debt, recurrent expenditure, development expenditure and public expenditure are positively distributed with a skewness of 2.14, 1.95, 0.92, 1.01, 2.82, 1.69, 1.82, 2.34 and 1.96 for budget deficit, economic growth, inflation, foreign aid & grants, public debt, recurrent expenditure, development expenditure and public expenditure respectively. Positive skewness essentially means that the distribution has a long right tail while

negative skewness indicates a distribution with a long left tail. Unemployment rate has a low value of skewness of 0.15.

Kurtosis is a measure of the tailedness of the probability distribution of a real-valued random variable. In essence, kurtosis informs on the peakedness of a distribution. For the study variables in Table 4.1 they have a kurtosis that is above the value of 3 implying that the distribution is peaked or leptokurtic relative to the normal distribution. However, unemployment rate is moderately peaked with a value of 3.83 while development expenditure is highly peaked with a value of 7.51.

4.2.2 Results of Diagnostic Tests

This section on diagnostic testing provides a discussion of the results on correlation analysis, multicollinearity tests, unit root tests, cointegration tests, granger causality tests, autocorrelation tests and heteroscedasticity tests.

4.2.2.1 Results of Correlation Analysis

The movement of public expenditure, macroeconomic factors, fiscal policy stance and economic growth over the study period are examined in correlation analysis as shown in Table 4.2. Correlation analysis is usually conducted to determine the variables that are highly correlated and those that are less correlated. This means that in cases of highly correlated variables, one can linearly predict one variable from the other with a significant level of accuracy.

Table 4.2: Results of Correlation Analysis

	Tax	Budget Deficit	Economic Growth	Unemploy-ment Rate	Inflation Rate	Foreign Aid & Grants	Public Debt	Recurrent Expenditure	Development Expenditure	Public Expenditure
Tax	1.00									
Budget Deficit	0.96	1.00								
Economic Growth	0.01	0.06	1.00							
Unemployment Rate	-0.05	-0.08	-0.07	1.00						
Inflation Rate	-0.06	-0.08	-0.27	0.08	1.00					
Foreign Aid & Grants	0.69	0.69	-0.06	-0.01	-0.01	1.00				
Public Debt	0.97	0.91	-0.07	-0.03	-0.09	0.67	1.00			
Recurrent Expenditure	0.99	0.94	-0.04	-0.04	-0.06	0.72	0.99	1.00		
Development Expenditure	0.98	0.98	0.01	-0.07	-0.05	0.68	0.94	0.97	1.00	
Public Expenditure	0.99	0.96	-0.03	-0.05	-0.06	0.71	0.98	0.99	0.98	1.00

Source: Researcher's Computations (2018)
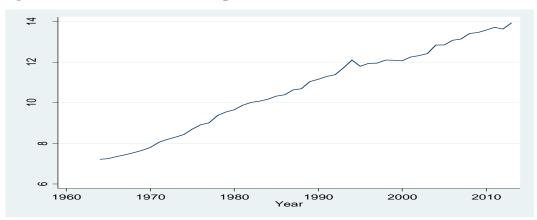
As indicated in Table 4.2, budget deficit has a strong positive correlation with tax; public debt; recurrent expenditure; development expenditure and public expenditure with a correlation of r = 0.96, 0.91, 0.94, 0.98 and 0.96 respectively. There is also a strong positive correlation between tax and public debt; tax and recurrent expenditure; tax and development expenditure and tax and public expenditure with a correlation of r = 0.97, 0.99, 0.98 and 0.99 respectively. Public debt has a strong positive correlation with recurrent expenditure; development expenditure and public expenditure with a correlation of r = 0.98, 0.94 and 0.98 respectively. Finally, recurrent expenditure and development expenditure; public expenditure and recurrent expenditure; and public expenditure and development expenditure have a strong correlation of r = 0.97, 0.99 and 0.98 respectively. The strong positive correlation between the variables indicates that they move in the same direction implying a strong positive relationship among them.

There is a weak positive correlation between economic growth and tax; economic growth and budget deficit; and unemployment rate and inflation rate with a correlation of r = 0.01, 0.06 and 0.08 respectively. The weak positive correlation implies that the variables have a weak positive relationship or may only be remotely related. However, economic growth has a weak negative correlation with foreign aid & grants; public debt; recurrent expenditure and public expenditure with a correlation of r = -0.06, -0.07, -0.04 and -0.03 respectively. Also inflation rate has a weak negative correlation with all the study variables except with unemployment rate while also unemployment rate has a weak negative correlation with all the study variables except with inflation rate. The weak

negative correlation implies that the variables have a weak relationship or are remotely negatively related.

4.2.2.2 Trend Analysis on Public Expenditure
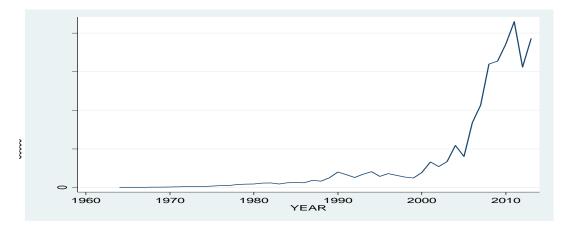
Trend analysis is a method of time series data analysis that entails comparing the data of a variable over a certain time period in order to highlight its general pattern and to project the future direction of that pattern. The total public expenditure from 1964 to 2015 is shown in Figure 4.1 (a). The graph indicates an increasing smooth trend in public expenditure which concurs with Wagner's Law that public expenditure growth tends to be smooth over time. Also Henrekson (1993) concurs with Wagner's findings on the nature of public expenditure growth and further emphasizes the need to focus on the time series behaviour of public expenditure as addressed in this study. That is unlike the Peacock and Wiseman hypothesis which argues that public expenditure tends to move in a step-like manner as argued by Peacock and Wiseman (1961) and supported in a subsequent study by Henry and Olekalns (2000).

Figure 4.1 (a): Annual Public Expenditure

Source: Kenya National Bureau of Statistics Reports
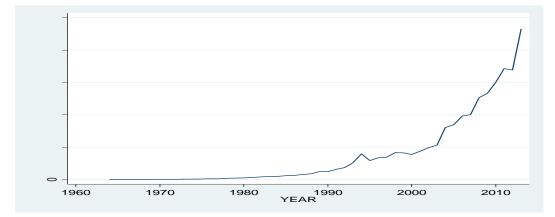
Figure 4.1 (b): Annual Development Expenditure

Source: Kenya National Bureau of Statistics Reports

However when disaggregating public expenditure into development and recurrent expenditure as shown in Figures 4.1 (b) and 4.1 (c) expenditure is seen to be increasing gradually from 1964 but increasing sharply from about 2003 to 2015.

Figure 4.1 (c): Annual Recurrent Expenditure

Source: Kenya National Bureau of Statistics Reports
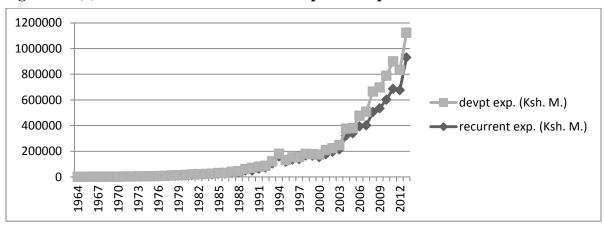
Figure 4.1 (d): Annual Recurrent and Development Expenditure

Source: Kenya National Bureau of Statistics Reports

The Figure 4.1 (d) indicates that recurrent expenditure and development expenditure have been increasing over time and they tend to move in a similar pattern. This indicates that they are highly correlated. This further suggests that over time as the country has been reporting increased economic activity then also public expenditure has been on the rise.

4.2.2.3 Multicollinearity Tests

Multicollinearity test are usually conducted in order to determine if any two or more independent variables are highly correlated or not. Therefore a multicollinearity problem makes a statistically significant variable insignificant by increasing its standard error. Multicollinearity tests were done using variance inflation factors (VIF) as indicated in appendix III whereby there were no VIF values above 10. This means that there is absence of multicollinearity between variables.

4.2.2.4 Results of Unit Root Tests

One of the basic assumptions of the classical linear regression is that variables should have a constant mean and variance while the covariance between the values of two time periods should be zero. The breach of that assumption would lead to spurious regression results. To overcome that short fall, the unit root tests were conducted on the variables to ascertain whether they are stationary or non-stationary. Several tests can be used to test for unit roots, but the widely acceptable and more reliable Augmented Dickey-Fuller (ADF) tests were employed in the study. If a variable is stationary at level, i.e. without running any differencing, then it is said to be integrated of order zero or I(0) and if it becomes stationary after differencing, then the variable is said to be an I(d) variable, where d represents the number of times it has been differenced.

The ADF test assisted in establishing if a variable was stationary at level or at first differencing or at second differencing. The unit root tests were done for all the variables in the study as shown in Table 4.3. The results in Table 4.3 indicate that economic growth (p=0.0015), unemployment rate (p=0.0042) and inflation rate (p=0.0000) are stationary at level which means that these variables have a constant mean and variance over time. The results in the table indicate that tax, foreign aid & grants and development expenditure are stationary on first differencing as evidenced by the p-values of 0.0000, 0.0099 and 0.0000 respectively. Budget deficit, public debt, recurrent expenditure and public expenditure are stationary upon second differencing indicating that they are integrated at order two, I(2).

Table 4.3: Results of Unit Root Tests

Variable	ADF Statistic at Level	ADF Statistic at First Differencing	ADF Statistic at Second Differencing
Tax	-0.5459 (0.8728)	-6.9760 (0.0000)	
Budget Deficit	-0.2621 (0.9223)	-0.7274 (0.8293)	-10.7528 (0.0000)
Economic Growth	-4.2361 (0.0015)		
Unemployment Rate	-3.8872 (0.0042)		
Inflation Rate	-5.5615 (0.0000)		
Foreign Aid & Grants	1.1795 (0.9975)	-3.6062 (0.0099)	
Public Debt	7.1693 (1.0000)	2.2168 (0.9999)	-12.9333 (0.0000)
Recurrent Expenditure	8.0696 (1.0000)	2.5409 (1.0000)	-13.8973 (0.0000)
Development Expenditure	-0.2716 (0.9214)	-8.3704 (0.0000)	
Public Expenditure	9.5844 (1.0000)	4.5209 (1.0000)	-16.1278 (0.0000)

Source: Researcher's Computations (2018)

4.2.2.5 Results of Cointegration Tests

Cointegration tests are done to check if variables are cointegrated. Any two or more variables are said to be cointegrated if they have a long-run relationship between them. To test for co-integration, the Johansen test was undertaken using the trace statistic and maximum Eigen values. For cointegration to exist, the trace statistic should be greater than the critical values at 5% level of significance. The null hypothesis of the Johansen cointegration test states that if there is no rank, then there is no cointegration. If variables are found to be cointegrated, then the relationship between these variables can be modelled using the vector error correction mechanism (VECM) otherwise if there is no cointegration, then vector autoregressive (VAR) models are used.

Table 4.4: Results of Johansen Cointegration Trace Statistic Test

	Hypothesized No. of CE(s)	Eigen value	Trace Statistic	0.05 Critical Value	Prob.	Decision
Budget Deficit & Public Expenditure	None*	0.7121	67.3906	20.2618	0.0000	Reject H_0
	At most 1	0.1469	7.6267	9.1645	0.0971	Fail to reject H_0
Budget Deficit & Recurrent Expenditure	None*	0.6929	63.6804	20.2618	0.0000	Reject H_0
	At most 1	0.1360	7.0190	9.1645	0.1254	Fail to reject H_0
Budget Deficit & Development Expenditure	None*	0.2969	24.9769	20.2618	0.0104	Reject H_0
	At most 1	0.1548	8.0709	9.1645	0.0803	Fail to reject H_0
Tax & Public Expenditure	None*	0.4578	50.7290	20.2618	0.0000	Reject H_0
	At most 1*	0.3733	21.9590	9.1645	0.0001	Reject H_0
Tax & Recurrent Expenditure	None*	0.5181	56.6370	20.2618	0.0000	Reject H_0
	At most 1*	0.3781	22.3222	9.1645	0.0001	Reject H_0
Tax & Development Expenditure	None*	0.3736	28.4927	20.2618	0.0029	Reject H_0
	At most 1	0.1182	6.0388	9.1645	0.1877	Fail to reject H_0
Budget Deficit & Unemployment Rate	None	0.1507	13.9976	20.2618	0.2896	Fail to reject H_0
	At most 1	0.1204	6.1599	9.1645	0.1787	Fail to reject H_0
Budget Deficit & Inflation Rate	None	0.1834	17.8665	20.2618	0.1034	Fail to reject H_0
	At most 1	0.1560	8.1415	9.1645	0.0779	Fail to reject H_0
Budget Deficit & Public Debt	None*	0.5500	44.7895	20.2618	0.0000	Reject H_0

	At most 1	0.1258	6.4561	9.1645	0.1583	Fail to reject H_0
Budget Deficit & Foreign Aid and Grants	None*	0.3664	23.8262	20.2618	0.0155	Reject H_0
	At most 1	0.0393	1.9244	9.1645	0.7927	Fail to reject H_0
Tax & Unemployment Rate	None*	0.3115	24.5437	20.2618	0.0121	Reject H_0
	At most 1	0.1289	6.6260	9.1645	0.1476	Fail to reject H_0
Tax & Inflation Rate	None*	0.3396	28.3674	20.2618	0.0031	Reject H_0
	At most 1	0.1614	8.4514	9.1645	0.0682	Fail to reject H_0
Tax & Public Debt	None*	0.3824	34.6947	20.2618	0.0003	Reject H_0
	At most 1*	0.2141	11.5660	9.1645	0.0172	Reject H_0
Tax & Foreign Aid and Grants	None*	0.3047	27.7818	20.2618	0.0038	Reject H_0
	At most 1*	0.1938	10.3415	9.1645	0.0298	Reject H_0
Budget Deficit & Economic Growth	None*	0.2833	22.8470	20.2618	0.0216	Reject H_0
	At most 1	0.1332	6.8587	9.1645	0.1341	Fail to reject H_0
Tax & Economic Growth	None*	0.3861	40.1734	20.2618	0.0000	Reject H_0
	At most 1*	0.2946	16.7532	9.1645	0.0016	Fail to reject H_0

* denotes rejection of the null hypothesis at the 0.05 level of significance

 Source: Researcher's Computations (2018)

4.2.2.6 Results of Granger Causality Tests

Granger causality tests were developed from the research of Granger (1969) where the test seeks to determine if a variable x causes variable y and vice versa. This study undertook Granger causality tests so as to determine if one variable causes another or simply testing the level of prediction of one variable against another. Granger causality test undertaken between two variables is referred to as two way causation. The tests are done on any two variables that are not differenced or integrated at the same level. For instance, Granger causality testing between budget deficit and economic growth was done since they were integrated at order two or I(2) and order zero or I(0) respectively. The null hypothesis in the Granger causality test states that a variable x does not Granger cause variable y in the first regression while variable y does not Granger cause variable x in the second regression at 5% level of significance.

Table 4.5: Results of Granger Causality Tests

Null Hypothesis	f-Statistic	Probability
Budget deficit and development expenditure	0.7476	0.4796
Development expenditure and budget deficit	2.0310	0.1436
Recurrent expenditure and tax revenue	2.4433	0.0988
Tax revenue and recurrent expenditure	0.6179	0.5438
Tax revenue and public expenditure	0.2904	0.7494
Public expenditure and tax revenue	2.4340	0.0997
Budget deficit and tax revenue	0.4930	0.6142
Tax revenue and budget deficit	1.6651	0.2011
Budget deficit and economic growth	0.2468	0.7824
Economic growth and budget deficit	1.3203	0.2777
Tax revenue and economic growth	3.1838	0.0514
Economic growth and tax revenue	0.3677	0.6945
Tax revenue and inflation rate	0.0103	0.9898
Inflation rate and tax revenue	1.5524	0.2234
Budget deficit and inflation rate	0.7747	0.4672
Inflation rate and budget deficit	0.6156	0.5450
Tax revenue and unemployment rate	0.0311	0.9694
Unemployment rate and tax revenue	0.0905	0.9137
Budget deficit and unemployment rate	0.0366	0.9641
Unemployment rate and budget deficit	0.0233	0.9770
Foreign aid & grants and budget deficit	1.5967	0.2143
Budget deficit and foreign aid & grants	0.2880	0.7512
Public debt and tax revenue	0.4434	0.6448
Tax revenue and public debt	0.3199	0.7279

Source: Researcher's Computations (2018)

The results in Table 4.5 indicate that budget deficit does not Granger-cause development expenditure and vice versa at 5% level of significance as indicated by the p-values of 0.4796 and 0.1436. Tax does not Granger-cause recurrent expenditure and vice versa at 5% level of significance as indicated by the p-values of 0.5438 and 0.0988. Tax does not Granger-cause public expenditure and vice versa at 5% level of significance as indicated by the p-values of 0.7494 and 0.0997. Also budget deficit does not Granger-cause tax and vice versa at 5% level of significance as indicated by the p-values of 0.6142 and 0.2011.

Table 4.5 shows that budget deficit does not Granger-cause economic growth and vice versa at 5% level of significance as indicated by the p-values of 0.7824 and 0.2777. Table 4.5 indicates that tax does not Granger-cause economic growth and vice versa at 5% level of significance as indicated by the p-values of 0.05135 and 0.69452. Tax does not Granger-cause inflation rate and vice versa at 5% level of significance as indicated by the p-values of 0.9898 and 0.2234. Also budget deficit does not Granger-cause inflation rate and vice versa as indicated by the p-values of 0.4672 and 0.5450 respectively. Tax does not Granger-cause unemployment rate and vice versa at 5% level of significance as indicated by the p-values of 0.9694 and 0.9137. Budget deficit does not Granger-cause unemployment rate and vice versa as indicated by the p-values of 0.9641 and 0.9770 respectively. Foreign aid and grants does not Granger-cause budget deficit and vice versa at 5% level of significance as indicated by the p-values of 0.2143 and 0.7512 respectively. Public debt does not Granger-cause tax and vice versa at 5% level of significance as indicated by the p-values of 0.6448 and 0.7279 respectively.

4.2.2.7 Autocorrelation Tests

Autocorrelation also known as serial correlation refers to the correlation between values of a random process at different times as a function of the time lag. It can be described as the delayed correlation of a given series. According to the classical linear regression model assumptions, there should be no autocorrelation between any set of variables. There are various tests that can be undertaken to test for autocorrelation such as the Durbin Watson statistics mainly used in ordinary least squares models and the Ljung-Box Q statistics or LM (Lagrange Multiplier) test which is conducted for models with lagged variables. This study undertook autocorrelation tests using the LM test so as to check if there was autocorrelation between variables and the results are shown next.

Table 4.6: Breusch-Godfrey Serial Correlation LM Test on Public Expenditure and Fiscal Policy Stance (Tax, Budget Deficit)

F-statistic	5.678905	Prob. F(2,45)	0.0063
Obs*R-squared	10.07652	Prob. Chi-Square(2)	0.0065

Source: Researcher's Computations (2018)

From the Table 4.6, there is serial correlation as seen in the Breusch-Godfrey serial correlation LM Test as indicated by the *p*-value of 0.0065 at 5% level of significance. To eliminate serial correlation, the lagged variable of the dependent variable was introduced and then the LM test were run again to check if serial correlation had been eliminated.

Table 4.7: Breusch-Godfrey Serial Correlation LM Test

F-statistic	1.244262	Prob. F(3,40)	0.3065
Obs*R-squared	4.011657	Prob. Chi-Square(3)	0.2602

Source: Researcher's Computations (2018)

From the Table 4.7, there is no serial correlation since the *p*-value of 0.2602 is greater than 5% level of significance. The LM Test results confirm that there is no serial correlation between the variables. Therefore, hypothesis testing can be done since there is no serial correlation between the variables.

Table 4.8: Breusch-Godfrey Serial Correlation LM Test on Recurrent Expenditure and Fiscal Policy Stance (Tax, Budget Deficit)

F-statistic	8.259652	Prob. F(2,45)	0.0009
Obs*R-squared	13.42611	Prob. Chi-Square(2)	0.0012

Source: Researcher's Computations (2018)

Table 4.8 shows that there is serial correlation as seen in the Breusch-Godfrey serial correlation LM Test as indicated by the *p*-value of 0.0012 at 5% level of significance. To eliminate serial correlation, the lagged variable of the dependent variable was introduced and then the LM test were run again to check if serial correlation had been eliminated.

Table 4.9: Breusch-Godfrey Serial Correlation LM Test

F-statistic	2.480408	Prob. F(3,40)	0.0749
Obs*R-squared	7.372016	Prob. Chi-Square(3)	0.0609

Source: Researcher's Computations (2018)

Table 4.9 above indicates there is no serial correlation since the *p*-value of 0.0609 is greater than 5% level of significance. The LM Test results confirm that there is no serial correlation between the variables. Therefore, hypothesis testing can be done since there is no serial correlation between the variables.

Table 4.10: Breusch-Godfrey Serial Correlation LM Test on Development Expenditure and Fiscal Policy Stance (Tax, Budget Deficit)

F-statistic	11.74711	Prob. F(2,45)	0.0001
Obs*R-squared	17.15051	Prob. Chi-Square(2)	0.0002

Source: Researcher's Computations (2018)

The results in Table 4.10 show that there is serial correlation as seen in the Breusch-Godfrey serial correlation LM Test as indicated by the *p*-value of 0.0002 at 5% level of significance. To eliminate serial correlation, the lagged variable of the dependent variable was introduced and then the LM test was run again to check if serial correlation had been eliminated.

Table 4.11: Breusch-Godfrey Serial Correlation LM Test

F-statistic	0.453520	Prob. F(1,44)	0.5042
Obs*R-squared	0.499904	Prob. Chi-Square(1)	0.4795

Source: Researcher's Computations (2018)

In Table 4.11, there is no serial correlation since the *p*-value of 0.4795 is greater than 5% level of significance. The LM Test results confirm that there is no serial correlation

between the variables. Therefore, hypothesis testing can be done since there is no serial correlation between the variables.

Table 4.12: Breusch-Godfrey Serial Correlation LM Test on Economic Growth and Fiscal Policy Stance (Tax, Budget Deficit)

F-statistic	1.596385	Prob. F(2,43)	0.2144
Obs*R-squared	3.386801	Prob. Chi-Square(2)	0.1839

Source: Researcher's Computations (2018)

The null hypothesis under the LM test states that there is no serial correlation at 5% level of significance. From the Breusch-Godfrey Serial Correlation LM Test, the *p*-value is 0.1839 meaning that there is no serial correlation between the variables. Therefore, hypothesis testing can be undertaken.

Table 4.13: Breusch-Godfrey Serial Correlation LM Test on Inflation Rate and Fiscal Policy Stance (Tax, Budget Deficit)

F-statistic	2.585368	Prob. F(2,45)	0.0865
Obs*R-squared	5.153140	Prob. Chi-Square(2)	0.0760

Source: Researcher's Computations (2018)

In Table 4.13, there is no serial correlation as seen in the Breusch-Godfrey serial correlation LM Test as indicated by the *p*-value of 0.0760 at 5% level of significance. Therefore, hypothesis testing can be done since there is no serial correlation between the variables.

Table 4.14: Breusch-Godfrey Serial Correlation LM Test on Unemployment Rate and Fiscal Policy Stance (Tax, Budget Deficit)

F-statistic	9.912815	Prob. F(2,45)	0.0003
Obs*R-squared	15.29151	Prob. Chi-Square(2)	0.0005

Source: Researcher's Computations (2018)

Table 4.14 shows that there is serial correlation as seen in the Breusch-Godfrey serial correlation LM Test as indicated by the *p*-value of 0.0005 at 5% level of significance. To eliminate serial correlation, the lagged variable of the dependent variable was introduced and then the LM test were run again to check if serial correlation had been eliminated.

Table 4.15: Breusch-Godfrey Serial Correlation LM Test

F-statistic	2.670644	Prob. F(2,43)	0.0807
Obs*R-squared	5.414071	Prob. Chi-Square(2)	0.0667

Source: Researcher's Computations (2018)

In Table 4.15, there is no serial correlation since the *p*-value of 0.0667 is greater than 5% level of significance. Therefore, hypothesis testing can be done since there is no serial correlation between the variables.

Table 4.16: Breusch-Godfrey Serial Correlation LM Test on Public Debt & Fiscal Policy Stance (Tax, Budget Deficit)

F-statistic	29.26647	Prob. F(2,45)	0.0000
Obs*R-squared	28.26778	Prob. Chi-Square(2)	0.0000

Source: Researcher's Computations (2018)

From the Table 4.16, there is serial correlation as seen in the Breusch-Godfrey serial correlation LM Test as indicated by the *p*-value of 0.0000 at 5% level of significance. To eliminate serial correlation, the lagged variable of the dependent variable was introduced and then the LM test were run again to check if serial correlation had been eliminated. The serial correlation test results shown in the table below involved the introduction of a lagged variable of the dependent variable of public debt.

Table 4.17: Breusch-Godfrey Serial Correlation LM Test

F-statistic	22.19788	Prob. F(3,40)	0.0000
Obs*R-squared	29.36292	Prob. Chi-Square(3)	0.0000

Source: Researcher's Computations (2018)

In Table 4.17 above, there is serial correlation as indicated by a *p*-value of 0.0000 at 5% level of significance. The LM Test results indicate that there is serial correlation between the variables despite including a three (3) lagged variable of public debt. Therefore, public debt would not be effective in modelling or hypothesis testing and neither forecasting.

Table 4.18: Breusch-Godfrey Serial Correlation LM Test on Foreign Aid & Grants and Fiscal Policy Stance (Tax, Budget Deficit)

F-statistic	10.19837	Prob. F(2,45)	0.0002
Obs*R-squared	15.59462	Prob. Chi-Square(2)	0.0004

Source: Researcher's Computations (2018)

The results in Table 4.18 indicate that there is serial correlation as seen in the Breusch-Godfrey serial correlation LM Test as indicated by the p-value of 0.0004 at 5% level of significance. To eliminate serial correlation, the lagged variable of the dependent variable was introduced and then the LM test were run again to check if serial correlation had been eliminated.

Table 4.19: Breusch-Godfrey Serial Correlation LM Test

F-statistic	1.606430	Prob. F(4,38)	0.1926
Obs*R-squared	6.653424	Prob. Chi-Square(4)	0.1554

Source: Researcher's Computations (2018)

As indicated in Table 4.19 above, there is no serial correlation since the p-value of 0.1554 is greater than 5% level of significance. Therefore, hypothesis testing was done since there is no serial correlation between the variables.

4.2.2.8 Heteroscedasticity Tests

Heteroscedasticity means that the variance of each error term is not a constant number. That means that the error or disturbance term has unequal variance. Therefore homoscedasticity is the assumption that the variance of each error term is constant. The null hypothesis of the heteroscedasticity test states that there is no heteroscedasticity at 5% level of significance. The heteroscedasticity test results are shown below.

Fiscal Policy Stance, Inflation Rate, Unemployment Rate, Foreign Aid & Grants, Economic Growth and Public Expenditure

As indicated in the Table 4.20 below, the observed R^2 is 10.6439 while the *p*-value is 0.1000 meaning that there is no heteroscedasticity between the variables at 5% level of significance.

Table 4.20: Heteroscedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.938234	Prob. F(6,43)	0.0962
Obs*R-squared	10.64390	Prob. Chi-Square(6)	0.1000
Scaled explained SS	16.30218	Prob. Chi-Square(6)	0.0122

Source: Researcher's Computations (2018)

Fiscal Policy Stance, Inflation Rate, Unemployment Rate, Foreign Aid & Grants, Economic Growth and Development Expenditure

Table 4.21 shows that the observed R^2 is 6.718287 while the corresponding *p*-value is 0.3477 meaning that there is no heteroscedasticity between the variables at 5% level of significance.

Table 4.21: Heteroscedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.112426	Prob. F(6,43)	0.3711
Obs*R-squared	6.718287	Prob. Chi-Square(6)	0.3477
Scaled explained SS	4.122902	Prob. Chi-Square(6)	0.6600

Source: Researcher's Computations (2018)

Fiscal Policy Stance, Inflation Rate, Unemployment Rate, Foreign Aid & Grants, Economic Growth and Recurrent Expenditure

The results in Table 4.22 indicate that the observed R^2 is 12.04713 while the *p*-value is 0.609 meaning that there is no heteroscedasticity between the variables at 5% level of significance.

Table 4.22: Heteroscedasticity Test: Breusch-Pagan-Godfrey

F-statistic	2.274868	Prob. F(6,43)	0.0539
Obs*R-squared	12.04713	Prob. Chi-Square(6)	0.0609
Scaled explained SS	8.354430	Prob. Chi-Square(6)	0.2133

Source: Researcher's Computations (2018)

4.3 The Relationship between Fiscal Policy Stance, Economic Growth, Macroeconomic Factors and Public Expenditure

The examination of fiscal policy stance, economic growth, macroeconomic factors and public expenditure entails several steps before arriving at the research findings. The first step involves undertaking lag selection which entails determining the number of lags a model should contain. Secondly, VECM modelling would be undertaken between the variables if they are cointegrated otherwise VAR modelling would be done if no cointegration exists between the variables. Thirdly, the Wald test of short run causality would be conducted to check if there is short run causality between the variables in VECM modelling whereas the test for joint significance would be undertaken in VAR modelling. Fourthly, a serial correlation test would be done to check if there is correlation between the variables. Finally, heteroscedasticity test would be done to determine if there is heteroscedasticity between the variables.

It should be noted that in order to use the OLS modelling, then the time series data has to meet the classical linear regression model assumptions. Some of the key assumptions that have to be met include; the error terms of the models should have equal variance or homoscedasticity, the correlation between the disturbance terms should be zero, there should be no perfect multicollinearity among the variables and the data should be stationary, that is, the data should have a constant mean and variance over time. Therefore if some of the assumptions of classical linear regression are violated then OLS modelling may not be appropriate in testing the relationships between the study variables since the results would be spurious. Hence alternative modelling techniques such as VAR modelling and VECM modelling would suffice.

4.3.1 Fiscal Policy Stance and Public Expenditure

The first objective of the study was to examine the effect of fiscal policy stance on public expenditure in Kenya. This objective informed the formulation of null hypothesis one as follows:

H0$_1$: Fiscal policy stance does not affect public expenditure in Kenya.

Before the modelling was done, lag selection was done to determine the number of lags in each variable and in essence how many lags can be used in a model for analysis. The common techniques used in establishing the lag structure include the FPE, AIC, SC and HQ. The techniques were used in establishing the total lags in all the study variables and also the number of lags in each study variable.

One advantage of the above lag selection techniques is that they are useful for not only in-sample but also out of-sample forecasting performance of a regression model. The smaller the FPE, AIC, SC and HQ value, the better the model. Table 4.23 shows the lag length selection of the relationship between fiscal policy stance and public expenditure. The abbreviations LogL and LR stand for log likelihood and likelihood ratio respectively.

Table 4.23: Lag Length Selection

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-644.7833	NA	3.42e+08	28.16449	28.28375	28.20917
1	-452.3442	351.4105	117779.3	20.18888	20.66592*	20.36758
2	-437.8954	24.50021*	93478.64*	19.95197*	20.78679	20.26470*
3	-430.9990	10.79427	103876.2	20.04344	21.23603	20.49019
4	-426.9937	5.746833	132508.2	20.26059	21.81096	20.84137

* indicates lag order selected by the criterion
Significance level at 5%

Source: Researcher's Computations (2018)

From Table 4.23, two (2) lags were selected since under the AIC, FPE, LR and HQ the lag value was the lowest. After the lag selection was done, the effect of fiscal policy stance on public expenditure was undertaken. A VECM model was used to test hypothesis one. Before running the VECM model, diagnostic tests were done such as Johansen cointegration test and Stationarity test so as to ensure that the model would generate robust results. The data was tested for Stationarity at level and if it was not stationary then it was made stationary at first differencing or second differencing. For the cointegration tests, there was cointegration between fiscal policy stance and public expenditure hence a VECM model being the most appropriate model to be used. The VECM model is as shown below;

Table 4.24: VECM Model of Fiscal Policy Stance and Public Expenditure

D(PEXP) = C(1)*(PEXP(-1) - 1.03485617939*TAX(-1) + 1.23422707728E-07*BDEFIC(-1)
 - 0.150503713201) + C(2) *D(PEXP(-1)) + C(3)*D(PEXP(-2)) + C(4)*D(TAX(-1)) + C(5)
 *D(TAX(-2)) + C(6)*D(BDEFIC(-1)) + C(7)*D(BDEFIC(-2)) + C(8)

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.251640	0.270345	-0.930811	0.3577
C(2)	-0.253809	0.224387	-1.131122	0.2649
C(3)	-0.007484	0.205753	-0.036373	0.9712
C(4)	-0.003788	0.190341	-0.019899	0.9842
C(5)	-0.157971	0.156606	-1.008717	0.3193
C(6)	-1.41E-06	1.02E-06	-1.377510	0.1762
C(7)	5.87E-08	1.05E-06	0.056019	0.9556
C(8)	0.211818	0.048616	4.357002	0.0001

R-squared	0.128431	Mean dependent var	0.142247
Adjusted R-squared	-0.028004	S.D. dependent var	0.122805
S.E. of regression	0.124513	Akaike info criterion	-1.174978
Sum squared resid	0.604633	Schwarz criterion	-0.860059
Log likelihood	35.61198	Hannan-Quinn criter.	-1.056472
F-statistic	0.820986	Durbin-Watson stat	1.974580
Prob(F-statistic)	0.575843		

Source: Researcher's Computations (2018)

In Table 4.24, the effect of fiscal policy stance on public expenditure is statistically insignificant as indicated in the p-values while the R^2 is 12.84% meaning that 12.84% of the variations in public expenditure can be explained by fiscal policy stance. The *p*-value of C(1) or the constant is 0.3577 meaning that there is no long run causality running from fiscal policy stance to public expenditure. Short run causality was also tested using the Wald test as indicated in Tables 4.25 and 4.26.

Table 4.25: Wald Test for Tax and Public Expenditure

Test Statistic	Value	df	Probability
F-statistic	0.621301	(2, 39)	0.5425
Chi-square	1.242602	2	0.5372

Null Hypothesis: C(4)=C(5)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(4)	-0.003788	0.190341
C(5)	-0.157971	0.156606

Source: Researcher's Computations (2018)

In the Wald test, the null hypothesis states that there is no short run causality from tax to public expenditure if the coefficients of tax C(4) and C(5) all equal to zero. If the coefficients are equal to zero, then there is no short run causality. From the Wald Test results indicated in Table 4.25, we accept the null hypothesis that there is no short run causality running from tax to public expenditure as indicated by the *p*-value of 0.5372.

Table 4.26: Wald Test for Budget Deficit and Public Expenditure

Test Statistic	Value	df	Probability
F-statistic	0.997535	(2, 39)	0.3780
Chi-square	1.995070	2	0.3688

Null Hypothesis: C(6)=C(7)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(6)	-1.41E-06	1.02E-06
C(7)	5.87E-08	1.05E-06

Source: Researcher's Computations (2018)

The null hypothesis states that there is no short run causality from budget deficit to public expenditure if the coefficients of budget deficit C(6), C(7) all equal to zero. If the coefficients are equal to zero, then there is no short run causality. To test for short run causality, we use the Wald Test. As indicated in Table 4.26, we can accept the null hypothesis that there is no short run causality as indicated in the *p*-value of 0.3688. In summary, there is no long run and short run causality running from tax and budget deficit to public expenditure. Post diagnostic tests were done such as serial correlation tests and heteroscedasticity tests so as to determine the robustness of the VECM model. The results are as indicated in Tables 4.27 and 4.28.

Table 4.27: Serial Correlation Test in the Model

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.084254	Prob. F(2,37)	0.3487
Obs*R-squared	2.602086	Prob. Chi-Square(2)	0.2722

Source: Researcher's Computations (2018)

As indicated in Table 4.27, there is no serial correlation as indicated by the *p*-value of 0.2722. This means that the variables in the VECM model are not correlated. Table 4.28 highlights the heteroscedasticity test results done in order to determine if there is heteroscedasticity between the variables after running the model.

Table 4.28: Heteroscedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	3.204110	Prob. F(9,37)	0.0058
Obs*R-squared	20.58628	Prob. Chi-Square(9)	0.0146
Scaled explained SS	31.74708	Prob. Chi-Square(9)	0.0002

Source: Researcher's Computations (2018)

The results in Table 4.28 indicate that there is heteroscedasticity as shown by the *p*-value of 0.0146 at 5% level of significance while the corresponding R^2 is 20.58628.

4.3.1.1 Fiscal Policy Stance and Recurrent Expenditure

The effect of fiscal policy stance on recurrent expenditure was also established using a VECM model and similar pre-diagnostic checking and post diagnostic checking was undertaken. Table 4.29 shows the lag length criteria/selection method used.

Table 4.29: Lag Length Selection

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-650.2900	NA	4.35e+08	28.40391	28.52317	28.44859
1	-453.3590	359.6131	123092.5	20.23300	20.71004*	20.41170
2	-436.7182	28.21708*	88814.68*	19.90079*	20.73561	20.21352*
3	-428.0622	13.54854	91424.27	19.91575	21.10834	20.36250
4	-425.1641	4.158077	122376.2	20.18105	21.73142	20.76183

* indicates lag order selected by the criterion
Significance level at 5%

Source: Researcher's Computations (2018)

In Table 4.29, two (2) lags were selected since under the LR, FPE, AIC and HQ the lag value was the lowest. After the lag selection was done, the effect of fiscal policy stance on public expenditure was undertaken. A VECM model was used to test hypothesis one. Before running the VECM model, diagnostic tests were done such as Johansen cointegration test and Stationarity test so as to ensure that the model would generate robust results. The data was tested for Stationarity at level and if it was not stationary then it was made stationary at first differencing or second differencing. For the cointegration tests, there was cointegration between fiscal policy stance and recurrent

expenditure hence a VECM model being the most appropriate model to be used. The VECM model is as shown below;

Table 4.30: VECM Model for Fiscal Policy Stance and Recurrent Expenditure

D(RECUR) = C(1)*(RECUR(-1) - 1.09439442108*TAX(-1) + 3.02095143163E-07*BDEFIC(-1)
    + 0.692336931879) + C(2) *D(RECUR(-1)) + C(3)*D(RECUR(-2)) + C(4)*D(TAX(-1)) +
    C(5)*D(TAX(-2)) + C(6)*D(BDEFIC(-1)) + C(7)*D(BDEFIC(-2)) + C(8)

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.218791	0.165707	-1.320352	0.1944
C(2)	-0.277179	0.207882	-1.333349	0.1902
C(3)	0.005265	0.241675	0.021787	0.9827
C(4)	0.036567	0.159434	0.229357	0.8198
C(5)	-0.198036	0.136479	-1.451042	0.1548
C(6)	-1.83E-06	1.11E-06	-1.648477	0.1073
C(7)	-2.55E-07	1.14E-06	-0.223115	0.8246
C(8)	0.216628	0.054969	3.940873	0.0003

R-squared	0.145229	Mean dependent var	0.140679
Adjusted R-squared	-0.008192	S.D. dependent var	0.121696
S.E. of regression	0.122193	Akaike info criterion	-1.212588
Sum squared resid	0.582315	Schwarz criterion	-0.897670
Log likelihood	36.49582	Hannan-Quinn criter.	-1.094082
F-statistic	0.946605	Durbin-Watson stat	1.994099
Prob(F-statistic)	0.482722		

Source: Researcher's Computations (2018)

From table 4.30, the effect of fiscal policy stance on recurrent expenditure is statistically insignificant as indicated in the p-values while the R^2 is 14.52% meaning that 14.52% of the variations in recurrent expenditure can be explained by fiscal policy stance. The *p*-value of C(1) or the constant is 0.1944 meaning that there is no long run causality running from fiscal policy stance to recurrent expenditure. Short run causality was also tested using the Wald test as indicated in Tables 4.31 and 4.32.

Table 4.31: Wald Test of Tax and Recurrent Expenditure

Test Statistic	Value	df	Probability
F-statistic	1.241021	(2, 39)	0.3003
Chi-square	2.482042	2	0.2891

Null Hypothesis: C(4)=C(5)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(4)	0.036567	0.159434
C(5)	-0.198036	0.136479

Source: Researcher's Computations (2018)

As indicated in Table 4.31, there was no short run causality running from budget deficit to recurrent expenditure as indicated by the *p*-value of 0.2891.

Table 4.32: Wald Test of Budget Deficit and Recurrent Expenditure

Test Statistic	Value	df	Probability
F-statistic	1.404529	(2, 39)	0.2576
Chi-square	2.809058	2	0.2455

Null Hypothesis: C(6)=C(7)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(6)	-1.83E-06	1.11E-06
C(7)	-2.55E-07	1.14E-06

Source: Researcher 's Computations (2018)

In Table 4.32 the results show that there is no short run causality running from budget deficit to recurrent expenditure as indicated by the *p*-value of 0.2455. In summary, there is neither long run nor short run causality running from tax and budget deficit to recurrent

expenditure. Serial correlation test was done in order to determine if there was any autocorrelation between the variables after running the model as indicated in Table 4.33.

Table 4.33: Serial Correlation Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.475893	Prob. F(2,37)	0.6251
Obs*R-squared	1.178705	Prob. Chi-Square(2)	0.5547

Source: Researcher's Computations (2018)

As shown in Table 4.33 above, we accept the null hypothesis that there is no serial correlation in the series residual as indicated by the *p*-value of 0.5547. Table 4.34 highlights the heteroscedasticity test results done in order to determine if there was heteroscedasticity between the variables after running the model.

Table 4.34: Heteroscedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	5.945660	Prob. F(9,37)	0.0000
Obs*R-squared	27.78685	Prob. Chi-Square(9)	0.0010
Scaled explained SS	47.47749	Prob. Chi-Square(9)	0.0000

Source: Researcher's Computations (2018)

As indicated in Table 4.34, we reject the null hypothesis that states that there is no heteroscedasticity as indicated by the *p*-value of 0.001 at 5% level of significance while the corresponding R^2 is 27.78685.

4.3.1.2 Fiscal Policy Stance and Development Expenditure

The effect of fiscal policy stance on development expenditure was also established using a VECM model and pre-diagnostic checking and post diagnostic checking was undertaken. Table 4.35 shows the lag length criteria/selection method used.

Table 4.35: Lag Length Selection

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-682.4762	NA	1.76e+09	29.80331	29.92257	29.84799
1	-495.7418	340.9934	777173.0*	22.07573	22.55277*	22.25443*
2	-493.1618	4.374696	1033413.	22.35486	23.18968	22.66759
3	-477.3008	24.82592*	777684.3	22.05656*	23.24915	22.50331
4	-472.7872	6.476045	970361.0	22.25162	23.80199	22.83240

 * indicates lag order selected by the criterion
 Significance level at 5%

Source: Researcher's Computations (2018)

In Table 4.35, three (3) lags were selected since under the FPE, SC and HQ the lag value was the lowest. After the lag selection was done, the effect of fiscal policy stance on development expenditure was undertaken. A VECM model was used to test hypothesis one. Before running the VECM model, diagnostic tests were done such as Johansen cointegration test and Stationarity test so as to ensure that the model would generate robust results. The data was tested for Stationarity at level and if it was not stationary then it was made stationary at first differencing or second differencing. For the cointegration tests, there was cointegration between fiscal policy stance and development expenditure hence a VECM model being the most appropriate model to be used. The VECM model is as shown next;

Table 4.36: VECM Model for Fiscal Policy Stance and Development Expenditure

D(DEV) = C(1)*(DEV(-1) - 0.976138840865*TAX(-1) - 5.77496508736E-06*BDEFIC(-1)
    + 1.10840586842) + C(2)*D(DEV(-1)) + C(3)*D(DEV(-2)) + C(4)*D(DEV(-3))
    + C(5)*D(TAX(-1)) + C(6)*D(TAX(-2)) + C(7)*D(TAX(-3)) + C(8)*D(BDEFIC(-1)) + C(9)
    *D(BDEFIC(-2)) + C(10)*D(BDEFIC(-3)) + C(11)

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.137986	0.135585	-1.017712	0.3158
C(2)	-0.104978	0.207005	-0.507131	0.6152
C(3)	-0.012646	0.202130	-0.062562	0.9505
C(4)	0.221253	0.187094	1.182579	0.2449
C(5)	-0.123856	0.276484	-0.447968	0.6569
C(6)	0.216128	0.255025	0.847480	0.4025
C(7)	0.203285	0.272137	0.746995	0.4601
C(8)	-1.19E-06	2.64E-06	-0.453143	0.6532
C(9)	-1.13E-06	2.37E-06	-0.477259	0.6361
C(10)	-1.75E-06	2.48E-06	-0.707843	0.4837
C(11)	0.119427	0.084444	1.414273	0.1661

R-squared	0.194759	Mean dependent var		0.148310
Adjusted R-squared	-0.035309	S.D. dependent var		0.246581
S.E. of regression	0.250897	Akaike info criterion		0.277419
Sum squared resid	2.203226	Schwarz criterion		0.714703
Log likelihood	4.619360	Hannan-Quinn criter.		0.441228
F-statistic	0.846526	Durbin-Watson stat		2.065735
Prob(F-statistic)	0.588852			

Source: Researcher's Computations (2018)

From Table 4.36, the effect of fiscal policy stance on development expenditure is statistically insignificant as indicated in the p-values while the R^2 is 19.48% meaning that 19.48% of the variations in development expenditure can be explained by fiscal policy stance. The *p*-value of C(1) or the constant is 0.3158 meaning that there is no long run causality running from fiscal policy stance to development expenditure. Short run causality was also tested using the Wald test as indicated in Tables 4.37 and 4.38.

Table 4.37: Wald Test for Tax on Development Expenditure

Test Statistic	Value	df	Probability
F-statistic	0.731706	(3, 35)	0.5401
Chi-square	2.195119	3	0.5329

Null Hypothesis: C(5)=C(6)=C(7)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(5)	-0.123856	0.276484
C(6)	0.216128	0.255025
C(7)	0.203285	0.272137

Source: Researcher's Computations (2018)

Table 4.37 shows that there was no short run causality running from tax to development expenditure as indicated by the *p*-value of 0.5329.

Table 4.38: Wald Test for Budget Deficit on Development Expenditure

Test Statistic	Value	df	Probability
F-statistic	0.194625	(3, 35)	0.8994
Chi-square	0.583876	3	0.9001

Null Hypothesis: C(8)=C(9)=C(10)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(8)	-1.19E-06	2.64E-06
C(9)	-1.13E-06	2.37E-06
C(10)	-1.75E-06	2.48E-06

Source: Researcher's Computations (2018)

The results in Table 4.38 indicate that there was no short run causality running from budget deficit to development expenditure as indicated by the *p*-value of 0.9001. Serial

correlation test was done in order to determine if there was any autocorrelation between the variables after running the model as indicated in Table 4.39.

Table 4.39: Serial Correlation Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.475752	Prob. F(3,32)	0.2397
Obs*R-squared	5.590697	Prob. Chi-Square(3)	0.1333

Source: Researcher's Computations (2018)

From Table 4.39 above, we accept the null hypothesis that there is no serial correlation in the series residual as indicated by the *p*-value of 0.1333. Heteroscedasticity test was done in order to determine if there was heteroscedasticity between the variables after running the model as indicated in Table 4.40.

Table 4.40: Heteroscedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	2.610153	Prob. F(12,33)	0.0145
Obs*R-squared	22.39993	Prob. Chi-Square(12)	0.0333
Scaled explained SS	10.44098	Prob. Chi-Square(12)	0.5773

Source: Researcher's Computations (2018)

As indicated in Table 4.40, we reject the null hypothesis that states that there is no heteroscedasticity as indicated by the *p*-value of 0.0333 at 5% level of significance while the corresponding R^2 is 22.39993.

4.3.1.3 Discussion of Fiscal Policy Stance and Public Expenditure

The study findings indicate that there is no statistically significant effect of fiscal policy stance on public expenditure implying that there are other variables that explain the effect on public expenditure. Furthermore, these results seem to validate one of the assumptions of the theory of fiscal policy that policy makers have a lower incentive to pursue public interests in comparison to their personal interests. Again these study findings validate the assertions of Kirchgassner (2001) and Brownbridge and Canagarajah (2008) that fiscal policy should aim to effectively control the level of public expenditure and that budgetary procedures present an alternative feasible way to attaining fiscal sustainability.

However the study findings differ from those of Stancik and Valila (2012) who found that contractionary fiscal stance increases the level of development expenditure and loosens recurrent expenditure. On the other hand, most of the control variables used in Stancik and Valila's study such as long term government interest rate, population, unemployment rate, foreign direct investment inflows and other parameters of urbanisation had no significant effect on the relation between fiscal policy stance and public expenditure.

4.3.2 Fiscal Policy Stance, Economic Growth and Public Expenditure

The second objective of this study was to establish the influence of economic growth on the relationship between fiscal policy stance and public expenditure in Kenya. The hypothesis tested to achieve this objective was:

H02: Economic growth does not influence the relationship between fiscal policy stance and public expenditure in Kenya.

Stepwise regression was undertaken where it involved three main steps. The first step entailed regressing fiscal policy stance on public expenditure, the second step involved regressing fiscal policy stance on economic growth while the third step involved regressing fiscal policy stance and economic growth on public expenditure. The three steps were used based on mediation analysis done by Baron and Kenny (1986) and further supported by MacKinnon et al. (2002) on the key steps in establishing if a variable has a mediating or intervening influence on a dependent to independent variable relationship. Furthermore, there can be various forms of intervening effects ranging from full mediation, partial mediation or no mediation.

According to Baron and Kenny (1986) full mediation is when the independent to dependent relationship is insignificant but the effect on the dependent variable is significant when the intervening variable is introduced. Partial mediation exists when the independent to dependent relationship is less significant compared to the relationship among the independent variable, intervening variable and the dependent variable. Lastly no mediation is when the independent to dependent relationship is insignificant and also insignificant effect on the dependent variable when the intervening variable is introduced.

The first step of testing intervening or mediating influence which involved fiscal policy stance and public expenditure is summarized in the previous section 4.3.1. The model

used was VECM and the results are indicated in Table 4.24 where they show that the effect of fiscal policy stance on public expenditure is statistically insignificant.

The second step of testing intervening or mediating influence which entailed fiscal policy stance and economic growth was established using a VECM model as determined by the existence of cointegration between the variables in a model. Pre-diagnostic checking and post diagnostic checking was undertaken. Table 4.41 shows the lag length criteria/selection method used in testing the effect of fiscal policy stance on economic growth.

Table 4.41: Lag Length Selection

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-771.0984	NA	8.31e+10	33.65645	33.77571	33.70113
1	-590.0648	330.5831	46941845*	26.17673*	26.65377*	26.35543*
2	-586.9909	5.212178	61092833	26.43439	27.26920	26.74712
3	-573.4892	21.13315*	50941094	26.23866	27.43125	26.68541
4	-568.8531	6.651798	63224488	26.42840	27.97877	27.00917

* indicates lag order selected by the criterion
Significance level at 5%

Source: Researcher's Computations (2018)

From the Table 4.41, one (1) lag was selected since under the FPE, AIC, SC and HQ the lag value was the lowest. After the lag selection was done, the effect of fiscal policy stance on economic growth was undertaken. A VECM model was used to test the hypothesis. Before running the VECM model, diagnostic tests were done such as Johansen cointegration test and Stationarity test so as to ensure that the model would generate robust results. The data was tested for Stationarity at level and if it was not stationary then it was made stationary at first differencing or second differencing. For the

cointegration tests, there was cointegration between fiscal policy stance and economic growth hence a VECM model being the most appropriate model to be used. The VECM model is as shown next in Table 4.42.

Table 4.42: VECM Model for Fiscal Policy Stance and Economic Growth

D(ECONG) = C(1)*(ECONG(-1) + 1.04851253678*TAX(-1) - 1.03871427468E-05*BDEFIC(-1)
   - 14.5272113118) + C(2)*D(ECONG(-1)) + C(3)*D(TAX(-1)) + C(4)*D(BDEFIC(-1)) + C(5)

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-1.044203	0.187351	-5.573517	0.0000
C(2)	0.121683	0.139693	0.871075	0.3886
C(3)	1.555897	2.148352	0.724228	0.4728
C(4)	8.21E-06	1.58E-05	0.521292	0.6048
C(5)	-0.203948	0.461810	-0.441628	0.6610

R-squared	0.512022	Mean dependent var	0.087500
Adjusted R-squared	0.466629	S.D. dependent var	3.231798
S.E. of regression	2.360256	Akaike info criterion	4.653750
Sum squared resid	239.5448	Schwarz criterion	4.848667
Log likelihood	-106.6900	Hannan-Quinn criter.	4.727409
F-statistic	11.27967	Durbin-Watson stat	1.517122
Prob(F-statistic)	0.000002		

Source: Researcher's Computations (2018)

From Table 4.42, the effect of fiscal policy stance on economic growth is statistically insignificant as indicated in the p-values while the R^2 is 51.2% meaning that 51.2% of the variations in economic growth can be explained by fiscal policy stance. The *p*-value of C(1) or the constant is 0.0000 meaning that there is a long run causality running from fiscal policy stance to economic growth. The f-statistic is 0.000002 meaning that the model fits the data well. Short run causality was also tested using the Wald test as indicated in Tables 4.43 and 4.44.

Table 4.43: Wald Test for Tax on Economic Growth

Test Statistic	Value	df	Probability
t-statistic	0.724228	43	0.4728
F-statistic	0.524506	(1, 43)	0.4728
Chi-square	0.524506	1	0.4689

Null Hypothesis: C(3)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(3)	1.555897	2.148352

Source: Researcher's Computations (2018)

As indicated in Table 4.43, there was no short run causality running from tax to economic growth as indicated by the p-value of 0.4689.

Table 4.44: Wald Test for Budget Deficit on Economic Growth

Test Statistic	Value	df	Probability
t-statistic	0.521292	43	0.6048
F-statistic	0.271746	(1, 43)	0.6048
Chi-square	0.271746	1	0.6022

Null Hypothesis: C(4)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(4)	8.21E-06	1.58E-05

Source: Researcher's Computations (2018)

Table 4.44 indicates that there was no short run causality running from budget deficit to economic growth as indicated by the p-value of 0.6022. Table 4.45 indicates the serial correlation test undertaken so as to determine if there was any autocorrelation between the variables after running the model.

Table 4.45: Serial Correlation Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	7.181737	Prob. F(1,42)	0.0105
Obs*R-squared	7.009175	Prob. Chi-Square(1)	0.0081

Source: Researcher's Computations (2018)

Table 4.45 results show that we reject the null hypothesis that there is no serial correlation in the series residual as indicated by the *p*-value of 0.0081. Heteroscedasticity test was done in order to determine if there was heteroscedasticity between the variables after running the model as indicated in Table 4.46.

Table 4.46: Heteroscedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.083394	Prob. F(6,41)	0.3883
Obs*R-squared	6.568740	Prob. Chi-Square(6)	0.3626
Scaled explained SS	7.753723	Prob. Chi-Square(6)	0.2567

Source: Researcher's Computations (2018)

As shown in Table 4.46, we accept the null hypothesis that states that there is no heteroscedasticity as indicated by the *p*-value of 0.3626 at 5% level of significance while the corresponding R^2 is 6.568740.

The final step of testing intervening influence involves regressing fiscal policy stance and economic growth on public expenditure using a VECM model as determined by the existence of cointegration between the variables. Pre-diagnostic checking and post diagnostic checking was undertaken. Table 4.47 shows the lag length criteria/selection

method used in testing the effect of fiscal policy stance and economic growth on public expenditure.

Table 4.47: Lag Length Selection

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1338.147	NA	2.59e+20	58.35420	58.51321	58.41377
1	-1117.845	392.7118	3.60e+16	49.47152	50.26658*	49.76935
2	-1093.203	39.64067*	2.52e+16*	49.09580*	50.52691	49.63190*
3	-1078.703	20.80462	2.80e+16	49.16101	51.22817	49.93538
4	-1065.798	16.27239	3.49e+16	49.29554	51.99875	50.30818

* indicates lag order selected by the criterion
Significance level at 5%

Source: Researcher's Computations (2018)

The results in Table 4.47 indicate that two (2) lags were selected since under the LR, FPE, AIC and HQ the lag value was the lowest. After the lag selection was done, the effect of fiscal policy stance and economic growth on public expenditure was undertaken. A VECM model was used to test the hypothesis. Before running the VECM model, diagnostic tests were done such as Johansen cointegration test and Stationarity test so as to ensure that the model would generate robust results. The data was tested for Stationarity at level and if it was not stationary then it was made stationary at first differencing or second differencing. For the cointegration tests, there was cointegration between fiscal policy stance, economic growth and public expenditure hence a VECM model being the most appropriate model to be used. The VECM model is as shown next in Table 4.48.

Table 4.48: VECM Model for Fiscal Policy Stance, Economic Growth and Public Expenditure

D(PEXP) = C(1)*(PEXP(-1) + 17254.5019034*TAX(-1) - 0.555828617665*BDEFIC(-1) + 22833.7504095
  *ECONG(-1) - 433109.506478) + C(2) *D(PEXP(-1)) + C(3)*D(PEXP(-2)) + C(4)*D(TAX(-1)) + C(5)
  *D(TAX(-2)) + C(6)*D(BDEFIC(-1)) + C(7)*D(BDEFIC(-2)) + C(8) *D(ECONG(-1)) + C(9)*D(ECONG(-2))
  + C(10)

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.264607	0.077014	3.435818	0.0015
C(2)	-0.670086	0.305600	-2.192692	0.0347
C(3)	-0.010339	0.295119	-0.035034	0.9722
C(4)	16279.59	38737.21	0.420257	0.6767
C(5)	-36613.46	27482.71	-1.332237	0.1909
C(6)	-0.194314	0.222949	-0.871559	0.3891
C(7)	0.188864	0.250937	0.752636	0.4564
C(8)	-3111.858	1504.511	-2.068352	0.0478
C(9)	-1480.582	1578.495	-0.937971	0.3543
C(10)	44391.28	9773.105	4.542188	0.0001

R-squared	0.743859	Mean dependent var	26379.71
Adjusted R-squared	0.681554	S.D. dependent var	50108.75
S.E. of regression	28276.87	Akaike info criterion	23.52378
Sum squared resid	2.96E+10	Schwarz criterion	23.91743
Log likelihood	-542.8088	Hannan-Quinn criter.	23.67191
F-statistic	11.93906	Durbin-Watson stat	1.914769
Prob(F-statistic)	0.000000		

Source: Researcher's Computations (2018)

From Table 4.48, the effect of fiscal policy stance and economic growth on public expenditure is statistically significant as indicated in the *p*-values while the R^2 is 74.39% meaning that 74.39% of the variations in public expenditure can be explained by fiscal policy stance and economic growth. The *p*-value of C(1) or the constant is 0.0015 meaning that there is a long run causality running from fiscal policy stance and economic growth to public expenditure. The f-statistic is 0.000000 meaning that the model fits the data well. Short run causality was also tested using the Wald test as indicated in Tables 4.49, 4.50 and 4.51.

Table 4.49: Wald Test for Tax on Public Expenditure

Test Statistic	Value	df	Probability
F-statistic	1.029971	(2, 37)	0.3670
Chi-square	2.059942	2	0.3570

Null Hypothesis: C(4)=C(5)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(4)	16279.59	38737.21
C(5)	-36613.46	27482.71

Source: Researcher's Computations (2018)

As indicated in Table 4.49, there was no short run causality running from tax to public expenditure as indicated by the *p*-value of 0.3570.

Table 4.50: Wald Test for Budget Deficit on Public Expenditure

Test Statistic	Value	df	Probability
F-statistic	0.781015	(2, 37)	0.4653
Chi-square	1.562029	2	0.4579

Null Hypothesis: C(6)=C(7)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(6)	-0.194314	0.222949
C(7)	0.188864	0.250937

Source: Researcher's Computations (2018)

Table 4.50 results show that there was no short run causality running from budget deficit to public expenditure as indicated by the *p*-value of 0.4579.

Table 4.51: Wald Test for Economic Growth on Public Expenditure

Test Statistic	Value	df	Probability
F-statistic	1.443792	(2, 37)	0.2490
Chi-square	2.887584	2	0.2360

Null Hypothesis: C(8)=C(9)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(8)	-3111.858	1832.043
C(9)	-1480.582	1578.495

Source: Researcher's Computations (2018)

As indicated in Table 4.51, there was no short run causality running from economic growth to public expenditure as indicated by the *p*-value of 0.2360. Table 4.52 indicates the serial correlation test undertaken so as to determine if there was any autocorrelation between the variables after running the model.

Table 4.52: Serial Correlation Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.394928	Prob. F(2,35)	0.6767
Obs*R-squared	1.037256	Prob. Chi-Square(2)	0.5953

Source: Researcher's Computations (2018)

From Table 4.52, we accept the null hypothesis that there is no serial correlation in the series residual as indicated by the *p*-value of 0.5953. Heteroscedasticity test was done in order to determine if there was heteroscedasticity between the variables after running the model as indicated in Table 4.53.

Table 4.53: Heteroscedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	2.105546	Prob. F(12,34)	0.0440
Obs*R-squared	20.03707	Prob. Chi-Square(12)	0.0664
Scaled explained SS	31.94662	Prob. Chi-Square(12)	0.0014

Source: Researcher's Computations (2018)

As indicated in Table 4.53, we accept the null hypothesis that states that there is no heteroscedasticity as indicated by the *p*-value of 0.0664 at 5% level of significance while the corresponding R^2 is 20.03707.

In the final step of testing intervening influence which involves regressing fiscal policy stance and economic growth on public expenditure using a VECM model as indicated in Table 4.48, the results indicate that the lagged variable of economic growth and public expenditure have a significant influence on public expenditure. Therefore, economic growth has a mediating/intervening influence on the relationship between fiscal policy stance and public expenditure.

Table 4.54 gives a summary of the model coefficients before and after the intervening variable is introduced as also indicated in Tables 4.24 and 4.48 respectively. Also the percentage change as a result of the intervening variable which is economic growth is also shown.

Table 4.54: Intervening Influence of Economic Growth on Fiscal Policy Stance and Public Expenditure

Variables		Coefficients without intervening variable	Coefficients with intervening variable	% Change in the coefficients
Fiscal Policy Stance	Tax(-1)	-0.0038	16279.59	100
	Tax(-2)	-0.1580	-36613.46	99.99
	Budget Deficit (-1)	-0.00000141	-0.1943	99.99
	Budget Deficit (-2)	0.0000000587	0.1889	99.99
Economic Growth	Economic Growth (-1)		-3111.86	
	Economic Growth (-2)		-1480.58	

Source: Researcher's Computations (2018)

As indicated in Table 4.54, there is a significant change in the model coefficients after the intervening variable (economic growth) is introduced in the relationship between fiscal policy stance and public expenditure. The percentage changes are approximately 100%. Therefore, economic growth has a mediating influence on the relationship between fiscal policy stance and public expenditure since there is a significant change in the variable coefficients and also in the final step of testing intervening influence the model results are statistically significant unlike the results in step one and step two.

4.3.2.1 Discussion of Fiscal Policy Stance and Economic Growth

The statistically insignificant effect of fiscal policy stance on economic growth implies that there could be other variables or factors that could explain the effect on economic growth apart from fiscal policy stance. That is also considering that economic growth is one of the several macroeconomic factors that express the economic state of a country.

112

Studies conducted by Temple (2003) and Glomm and Rioja (2006) contend that fiscal policy has an insignificant influence on the economic growth in the long term. These studies are in support of the classical study of Solow (1956) model of economic growth. However, M'Amanja and Morrisey (2005) in testing the effect of fiscal policy on economic growth in Kenya found that productive public expenditure has a strong adverse effect on growth. On the other hand, this study found a weak effect of fiscal policy stance on economic growth. The divergence of research findings could be attributed to the differences in methodology since this study used VECM modelling as opposed to ARDL modelling and the regressing of only fiscal policy stance as a single independent variable against economic growth.

4.3.3 Fiscal Policy Stance, Macroeconomic Factors and Public Expenditure

The third objective of this study was to establish the influence of macroeconomic factors on the relationship between fiscal policy stance and public expenditure in Kenya. The hypothesis tested to achieve this objective was:

H_{03}: *Macroeconomic factors do not influence the relationship between fiscal policy stance and public expenditure in Kenya.*

Stepwise regression was undertaken where it involved three main steps. The first step involved regressing fiscal policy stance on public expenditure, the second step entailed regressing fiscal policy stance on macroeconomic factors while the third step involved regressing fiscal policy stance and macroeconomic factors on public expenditure.

Essentially the testing of hypothesis three sought to determine if there was full mediation, partial mediation, inconsistent mediation or no mediation.

The first step of testing intervening or mediating influence which involved fiscal policy stance and public expenditure is summarized in the previous section 4.3.1. The model used was VECM and the results are indicated in Table 4.24 where they show that the effect of fiscal policy stance on public expenditure is statistically insignificant.

The second step of testing intervening or mediating influence which entailed fiscal policy stance and each of the macroeconomic factors namely; inflation rate, unemployment rate and foreign aid & grants. The effect of fiscal policy stance on macroeconomic factors was established using VAR and VECM models as determined by the existence or non-existence of cointegration between the variables in a model. Pre-diagnostic checking and post diagnostic checking was undertaken.

4.3.3.1 Fiscal Policy Stance and Inflation Rate

The effect of fiscal policy stance on inflation rate was established using a VAR model. Pre-diagnostic checking and post diagnostic checking was undertaken. Table 4.55 shows the lag length criteria/selection method used in testing the effect of fiscal policy stance on inflation rate.

Table 4.55: Lag Length Selection

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-825.3494	NA	8.79e+11	36.01519	36.13445	36.05987
1	-649.8255	320.5220	6.31e+08	28.77502	29.25206*	28.95372*
2	-642.0468	13.18992	6.69e+08	28.82812	29.66294	29.14085
3	-628.9424	20.51129*	5.68e+08*	28.64967*	29.84226	29.09642
4	-620.4125	12.23850	5.95e+08	28.67011	30.22048	29.25089

* indicates lag order selected by the criterion
Significance level at 5%
Source: Researcher's Computations (2018)

From Table 4.55, three (3) lags were selected since under the LR, FPE and AIC the lag value was the lowest. After the lag selection was done, the effect of fiscal policy stance on inflation rate was undertaken. Before running the VAR model, diagnostic tests were done such as Johansen cointegration test and Stationarity test so as to ensure that the model would generate robust results. The data was tested for Stationarity at level and if it was not stationary then it was made stationary at first differencing or second differencing. For the cointegration tests, there was no cointegration between fiscal policy stance and inflation rate hence a VAR model being the most appropriate model to be used. The VAR model is as shown next in Table 4.56.

Table 4.56: VAR Model for Fiscal Policy Stance and Inflation Rate

Equation: INFL = C(1)*INFL(-1) + C(2)*INFL(-2) + C(3)*INFL(-3) + C(4)*TAX(-1) + C(5)*TAX(-2)
  + C(6)*TAX(-3) + C(7)*BDEFIC(-1) + C(8)*BDEFIC(-2) + C(9)*BDEFIC(-3) + C(10)

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.120961	0.174718	0.692323	0.4931
C(2)	0.336349	0.162970	2.063868	0.0461
C(3)	0.110923	0.179778	0.616998	0.5410
C(4)	-1.510121	6.557149	-0.230301	0.8191
C(5)	-2.374565	9.267427	-0.256227	0.7992
C(6)	3.906250	6.039229	0.646813	0.5217
C(7)	4.25E-05	4.66E-05	0.912172	0.3676
C(8)	-8.49E-05	6.55E-05	-1.297048	0.2026
C(9)	3.92E-05	6.00E-05	0.652339	0.5182
C(10)	5.026319	6.155116	0.816608	0.4194

R-squared	0.207301	Mean dependent var	10.12128
Adjusted R-squared	0.014482	S.D. dependent var	6.285108
S.E. of regression	6.239432	Akaike info criterion	6.685958
Sum squared resid	1440.429	Schwarz criterion	7.079606
Log likelihood	-147.1200	Hannan-Quinn criter.	6.834090
F-statistic	1.075106	Durbin-Watson stat	1.981043
Prob(F-statistic)	0.403453		

Source: Researcher's Computations (2018)

From Table 4.56, the effect of fiscal policy stance on inflation rate is statistically insignificant as indicated in the p-values except the two lagged variable of inflation with a *p*-value of 0.0461 at 5% level of significance. The R^2 is 20.73% meaning that 20.73% of the variations in inflation can be explained by fiscal policy stance. The joint significance between budget deficit and inflation rate was tested using the Wald test as indicated next.

Table 4.57: Joint Significance between Budget Deficit and Inflation Rate

Test Statistic	Value	df	Probability
Chi-square	1.824088	3	0.6097

Null Hypothesis: C(7)=C(8)=C(9)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(7)	4.25E-05	4.66E-05
C(8)	-8.49E-05	6.55E-05
C(9)	3.92E-05	6.00E-05

Source: Researcher's Computations (2018)

From the Table 4.57, we accept the null hypothesis that budget deficit and its lagged variables cannot jointly influence inflation rate as indicated by the p-value of 0.6097.

Table 4.58: Joint Significance between Budget Deficit and Tax

Test Statistic	Value	df	Probability
Chi-square	3.872157	3	0.2756

Null Hypothesis: C(17)=C(18)=C(19)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(17)	-1.41E-06	1.15E-06
C(18)	-2.06E-07	1.62E-06
C(19)	2.33E-06	1.49E-06

Source: Researcher's Computations (2018)

As indicated in Table 4.58, we accept the null hypothesis that budget deficit and its lagged variables cannot jointly influence tax as indicated by the p-value of 0.2756.

Table 4.59: Joint Significance between Tax and Budget Deficit

Test Statistic	Value	Df	Probability
Chi-square	8.684858	3	0.0338

Null Hypothesis: C(24)=C(25)=C(26)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(24)	14754.16	20391.02
C(25)	19467.77	28819.27
C(26)	-28788.12	18780.42

Source: Researcher's Computations (2018)

From the Table 4.59, we reject the null hypothesis that tax and its lagged variables cannot jointly influence budget deficit as indicated by the *p*-value of 0.0338. Therefore there is joint significance between tax and budget deficit. Table 4.60 indicates the serial correlation test undertaken so as to determine if there was any autocorrelation between the variables after running the model.

Table 4.60: Serial Correlation Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	2.623811	Prob. F(3,34)	0.0663
Obs*R-squared	8.835556	Prob. Chi-Square(3)	0.0316

Source: Researcher's Computations (2018)

There is serial correlation in the model as indicated by the *p*-value of 0.0316 while the corresponding R^2 is 8.835556. Table 4.61 shows the results of the heteroscedasticity test done in order to determine if there was heteroscedasticity between the variables after running the model.

Table 4.61: Heteroscedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.652829	Prob. F(9,37)	0.1363
Obs*R-squared	13.47741	Prob. Chi-Square(9)	0.1422
Scaled explained SS	8.002532	Prob. Chi-Square(9)	0.5339

Source: Researcher's Computations (2018)

We accept the null hypothesis that states that there is no heteroscedasticity as indicated by the *p*-value of 0.1422 at 5% level of significance while the corresponding R^2 is 13.47741.

4.3.3.2 Fiscal Policy Stance and Unemployment Rate

The effect of fiscal policy stance on unemployment rate was established using a VAR model. Pre-diagnostic checking and post diagnostic checking was undertaken. Table 4.62 shows the lag length criteria/selection method used in testing the effect of fiscal policy stance on unemployment rate.

Table 4.62: Lag Length Selection

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-746.1435	NA	2.81e+10	32.57146	32.69072	32.61613
1	-566.5815	327.8959	16909874*	25.15572*	25.63276*	25.33442*
2	-564.2337	3.981151	22713229	25.44494	26.27976	25.75767
3	-552.9257	17.69950*	20834333	25.34459	26.53719	25.79135
4	-550.2837	3.790674	28200078	25.62103	27.17140	26.20181

* indicates lag order selected by the criterion
Significance level at 5%

Source: Researcher's Computations (2018)

From the Table 4.62, one (1) lag was selected since under the FPE, AIC, SC and HQ the lag value was the lowest. After the lag selection was done, the effect of fiscal policy stance on unemployment rate was undertaken. Before running the VAR model, diagnostic tests were done such as the Johansen cointegration test and Stationarity tests so as to ensure that the model would generate robust results. The data was tested for Stationarity at level and if it was not stationary then it was made stationary at first differencing or second differencing. For the cointegration tests, there was no cointegration between fiscal policy stance and unemployment rate hence a VAR model being the most appropriate model to be used. The VAR model is as shown in Table 4.63.

Table 4.63: VAR Model for Fiscal Policy Stance and Unemployment Rate

Equation: UNEMP = C(1)*UNEMP(-1) + C(2)*LNTAX(-1) + C(3)*BDEFIC(-1) + C(4)

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.515862	0.126849	4.066725	0.0002
C(2)	0.005419	0.085496	0.063386	0.9497
C(3)	-5.45E-07	1.92E-06	-0.283869	0.7778
C(4)	4.548747	1.489158	3.054576	0.0038
R-squared	0.272725	Mean dependent var		9.491837
Adjusted R-squared	0.224240	S.D. dependent var		1.088354
S.E. of regression	0.958593	Akaike info criterion		2.831407
Sum squared resid	41.35050	Schwarz criterion		2.985841
Log likelihood	-65.36946	Hannan-Quinn criter.		2.889999
F-statistic	5.624927	Durbin-Watson stat		2.250381
Prob(F-statistic)	0.002315			

Source: Researcher's Computations (2018)

From Table 4.63, the effect of fiscal policy stance on unemployment rate is statistically insignificant as indicated in the *p*-values except the lagged variable of unemployment with a *p*-value of 0.0002 at 5% level of significance. The R^2 is 27.27% meaning that 27.27% of the variations in unemployment can be explained by fiscal policy stance. The

joint significance between budget deficit and unemployment rate was tested using the Wald test as indicated next.

Table 4.64: Joint Significance between Budget Deficit and Unemployment Rate

Test Statistic	Value	df	Probability
t-statistic	-0.283869	45	0.7778
F-statistic	0.080582	(1, 45)	0.7778
Chi-square	0.080582	1	0.7765

Null Hypothesis: C(3)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(3)	-5.45E-07	1.92E-06

Source: Researcher's Computations (2018)

As shown in Table 4.64, we accept the null hypothesis that budget deficit and its lagged variables cannot jointly influence unemployment rate as indicated by the *p*-value of 0.7765.

Table 4.65: Joint Significance between Tax and Unemployment Rate

Test Statistic	Value	df	Probability
t-statistic	0.063386	45	0.9497
F-statistic	0.004018	(1, 45)	0.9497
Chi-square	0.004018	1	0.9495

Null Hypothesis: C(2)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(2)	0.005419	0.085496

Source: Researcher's Computations (2018)

From the Table 4.65, we accept the null hypothesis that tax and its lagged variables cannot jointly influence unemployment rate as indicated by the p-value of 0.9495.

Table 4.66: Joint Significance between Budget Deficit and Tax

Test Statistic	Value	df	Probability
t-statistic	0.002497	45	0.9980
F-statistic	6.24E-06	(1, 45)	0.9980
Chi-square	6.24E-06	1	0.9980

Null Hypothesis: C(7)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(7)	8.28E-10	3.31E-07

Source: Researcher's Computations (2018)

From the Table 4.66, we accept the null hypothesis that budget deficit and its lagged variables cannot jointly influence tax as indicated by the p-value of 0.9980.

Table 4.67: Joint Significance between Tax and Budget Deficit

Test Statistic	Value	Df	Probability
t-statistic	1.828546	45	0.0741
F-statistic	3.343580	(1, 45)	0.0741
Chi-square	3.343580	1	0.0675

Null Hypothesis: C(10)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(10)	3561.533	1947.741

Source: Researcher's Computations (2018)

From the Table 4.67, we accept the null hypothesis that tax and its lagged variables cannot jointly influence budget deficit as indicated by the *p*-value of 0.0675. Serial correlation test was done in order to determine if there was any autocorrelation between the variables after running the model as indicated in Table 4.68.

Table 4.68: Serial Correlation Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	2.699867	Prob. F(1,44)	0.1075
Obs*R-squared	2.832845	Prob. Chi-Square(1)	0.0924

Source: Researcher's Computations (2018)

As indicated in Table 4.68 above, we accept the null hypothesis that there is no serial correlation in the series residual as indicated by the *p*-value of 0.0924. Heteroscedasticity test was done in order to determine if there was heteroscedasticity between the variables after running the model as indicated in Table 4.69.

Table 4.69: Heteroscedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	5.935836	Prob. F(3,45)	0.0017
Obs*R-squared	13.89273	Prob. Chi-Square(3)	0.0031
Scaled explained SS	29.35110	Prob. Chi-Square(3)	0.0000

Source: Researcher's Computations (2018)

As indicated in Table 4.69, we reject the null hypothesis that states that there is no heteroscedasticity as indicated by the *p*-value of 0.0031 at 5% level of significance while the corresponding R^2 is 13.89273.

4.3.3.3 Fiscal Policy Stance and Foreign Aid & Grants

The effect of fiscal policy stance on foreign aid & grants was also established using a VECM model and pre-diagnostic checking and post diagnostic checking was undertaken. Table 4.70 shows the lag length criteria/selection method used.

Table 4.70: Lag Length Selection

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-726.7147	NA	1.21e+10	31.72673	31.84599	31.77140
1	-548.7075	325.0566	7773853.*	24.37859*	24.85562*	24.55729*
2	-547.8435	1.465054	11137648	24.73233	25.56714	25.04505
3	-533.4792	22.48327*	8945075.	24.49909	25.69169	24.94585
4	-529.1570	6.201374	11254568	24.70248	26.25285	25.28326

* indicates lag order selected by the criterion
Significance level at 5%

Source: Researcher's Computations (2018)

From the Table 4.70, one (1) lag was selected since under the FPE, AIC, SC and HQ the lag value was the lowest. After the lag selection was done, the effect of fiscal policy stance on foreign aid & grants was undertaken. A VECM model was used to test the hypothesis. Before running the VECM model, diagnostic tests were done such as Johansen cointegration test and Stationarity test so as to ensure that the model would generate robust results. The data was tested for Stationarity at level and if it was not stationary then it was made stationary at first differencing or second differencing. For the cointegration tests, there was cointegration between fiscal policy stance and foreign aid & grants hence a VECM model being the most appropriate model to be used. The VECM model is as shown next;

Table 4.71: VECM Model for Fiscal Policy Stance and Foreign Aid & Grants

D(FAID) = C(1)*(FAID(-1) - 1.57215141671*TAX(-1) + 6.50736179382E-06*BDEFIC(-1)
    + 8.97000160415) + C(2) *D(FAID(-1)) + C(3)*D(TAX(-1)) + C(4)*D(BDEFIC(-1)) + C(5)

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.515110	0.118614	-4.342744	0.0001
C(2)	0.002664	0.132603	0.020088	0.9841
C(3)	-0.071623	0.645929	-0.110883	0.9122
C(4)	-2.08E-06	4.36E-06	-0.475706	0.6367
C(5)	0.132701	0.135081	0.982388	0.3314

R-squared	0.333789	Mean dependent var	0.107992
Adjusted R-squared	0.271816	S.D. dependent var	0.810732
S.E. of regression	0.691827	Akaike info criterion	2.199372
Sum squared resid	20.58088	Schwarz criterion	2.394289
Log likelihood	-47.78493	Hannan-Quinn criter.	2.273031
F-statistic	5.386027	Durbin-Watson stat	2.085435
Prob(F-statistic)	0.001319		

Source: Researcher's Computations (2018)

From Table 4.71, the effect of fiscal policy stance on foreign aid & grants is statistically insignificant as indicated in the *p*-values while the R^2 is 33.38% meaning that 33.38% of the variations in foreign aid & grants can be explained by fiscal policy stance. The p-value of C(1) or the constant is 0.0001 meaning that there is a long run causality running from fiscal policy stance to foreign aid & grants. Short run causality was also tested using the Wald test as indicated in Tables 4.72 and 4.73.

Table 4.72: Wald Test for Tax on Foreign Aid & Grants

Test Statistic	Value	df	Probability
t-statistic	-0.110883	43	0.9122
F-statistic	0.012295	(1, 43)	0.9122
Chi-square	0.012295	1	0.9117

Null Hypothesis: C(3)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(3)	-0.071623	0.645929

Source: Researcher's Computations (2018)

The results in Table 4.72 show that there was no short run causality running from tax to foreign aid & grants as indicated by the *p*-value of 0.9117.

Table 4.73: Wald Test for Budget Deficit on Foreign Aid & Grants

Test Statistic	Value	df	Probability
t-statistic	-0.475706	43	0.6367
F-statistic	0.226297	(1, 43)	0.6367
Chi-square	0.226297	1	0.6343

Null Hypothesis: C(4)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(4)	-2.08E-06	4.36E-06

Source: Researcher's Computations (2018)

As indicated in Table 4.73, there was no short run causality running from budget deficit to foreign aid & grants as indicated by the *p*-value of 0.6343. Serial correlation test was done in order to determine if there was any autocorrelation between the variables after running the model as indicated in Table 4.74.

Table 4.74: Serial Correlation Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.776253	Prob. F(1,42)	0.1898
Obs*R-squared	1.947635	Prob. Chi-Square(1)	0.1628

Source: Researcher's Computations (2018)

From the Table 4.74, we accept the null hypothesis that there is no serial correlation in the series residual as indicated by the *p*-value of 0.1628. Table 4.75 shows the results of the heteroscedasticity test done in order to determine if there was heteroscedasticity between the variables after running the model.

Table 4.75: Heteroscedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	3.126331	Prob. F(6,41)	0.0129
Obs*R-squared	15.06716	Prob. Chi-Square(6)	0.0197
Scaled explained SS	17.75203	Prob. Chi-Square(6)	0.0069

Source: Researcher's Computations (2018)

As indicated in Table 4.75, we reject the null hypothesis that states that there is no heteroscedasticity as indicated by the *p*-value of 0.0197 at 5% level of significance while the corresponding R^2 is 15.06716.

The final step of testing intervening influence involves regressing fiscal policy stance and macroeconomic factors on public expenditure using a VECM model as determined by the existence of cointegration between the variables. Pre-diagnostic checking and post diagnostic checking was undertaken. Table 4.76 shows the lag length criteria/selection

127

method used in testing the effect of fiscal policy stance and macroeconomic factors on public expenditure.

Table 4.76: Lag Length Selection

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1505.305	NA	1.39e+21	65.70892	65.94744	65.79827
1	-1263.439	410.1202	1.82e+17*	56.75824	58.42787*	57.38369*
2	-1228.389	50.29027	2.06e+17	56.79951	59.90025	57.96106
3	-1194.576	39.69305	2.82e+17	56.89461	61.42646	58.59227
4	-1138.364	51.32436*	1.88e+17	56.01581*	61.97877	58.24957

* indicates lag order selected by the criterion
Significance level at 5%

Source: Researcher's Computations (2018)

From the Table 4.76, one (1) lag was selected since under the FPE, SC and HQ the lag value was the lowest. After the lag selection was done, the effect of fiscal policy stance and macroeconomic factors on public expenditure was undertaken. A VECM model was used to test the hypothesis. Before running the VECM model, diagnostic tests were done such as Johansen cointegration test and Stationarity test so as to ensure that the model would generate robust results. The data was tested for Stationarity at level and if it was not stationary then it was made stationary at first differencing or second differencing. For the cointegration tests, there was cointegration between fiscal policy stance, macroeconomic factors and public expenditure hence a VECM model being the most appropriate model to be used. The VECM model is as shown next in Table 4.77.

Table 4.77: VECM Model for Fiscal Policy Stance, Macroeconomic Factors and Public Expenditure

D(PEXP) = C(1)*(PEXP(-1) - 15736.2245224*LNTAX(-1) - 0.24453168855*BDEFIC(-1) + 2431.8744158
    *INFL(-1) - 13380.6980862*UNEMP(-1) + 1.26755271764*FAID(-1) + 88692.7003921)
    + C(2)*D(PEXP(-1)) + C(3)*D(TAX(-1)) + C(4)*D(BDEFIC(-1)) + C(5)*D(INFL(-1)) + C(6)
    *D(UNEMP(-1)) + C(7)*D(FAID(-1)) + C(8)

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.342478	0.038840	8.817671	0.0000
C(2)	-0.912425	0.205434	-4.441446	0.0001
C(3)	27691.44	25462.30	1.087547	0.2833
C(4)	-0.478694	0.215678	-2.219485	0.0322
C(5)	-633.4364	497.5667	-1.273068	0.2103
C(6)	3182.388	3428.008	0.928349	0.3588
C(7)	1.774987	0.671363	2.643857	0.0117
C(8)	44128.90	5763.727	7.656313	0.0000

R-squared	0.783399	Mean dependent var	25833.03
Adjusted R-squared	0.745494	S.D. dependent var	49717.29
S.E. of regression	25081.69	Akaike info criterion	23.24868
Sum squared resid	2.52E+10	Schwarz criterion	23.56054
Log likelihood	-549.9682	Hannan-Quinn criter.	23.36653
F-statistic	20.66730	Durbin-Watson stat	1.849100
Prob(F-statistic)	0.000000		

Source: Researcher's Computations (2018)

From Table 4.77, the effect of fiscal policy stance and macroeconomic factors on public expenditure is statistically significant as indicated in the *p*-values while the R^2 is 78.34% meaning that 78.34% of the variations in public expenditure can be explained by fiscal policy stance and the macroeconomic factors. As indicated in Table 4.77 fiscal policy stance (budget deficit), foreign aid & grants and the lagged variable of public expenditure have a significant effect on public expenditure. The *p*-value of C(1) or the constant is 0.0000 meaning that there is a long run causality running from fiscal policy stance and macroeconomic factors to public expenditure. The f-statistic is 0.000000 meaning that the model fits the data well. Short run causality was also tested using the Wald test as indicated in Tables 4.78, 4.79, 4.80, 4.81 and 4.82.

Table 4.78: Wald Test for Tax on Public Expenditure

Test Statistic	Value	Df	Probability
t-statistic	1.087547	40	0.2833
F-statistic	1.182758	(1, 40)	0.2833
Chi-square	1.182758	1	0.2768

Null Hypothesis: C(3)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(3)	27691.44	25462.30

Source: Researcher's Computations (2018)

As indicated in Table 4.78, there was no short run causality running from tax to public expenditure as indicated by the p-value of 0.2768.

Table 4.79: Wald Test for Budget Deficit on Public Expenditure

Test Statistic	Value	Df	Probability
t-statistic	-2.219485	40	0.0322
F-statistic	4.926113	(1, 40)	0.0322
Chi-square	4.926113	1	0.0265

Null Hypothesis: C(4)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(4)	-0.478694	0.215678

Source: Researcher's Computations (2018)

The results in Table 4.79 indicate that there was short run causality running from budget deficit to public expenditure as indicated by the p-value of 0.0265.

Table 4.80: Wald Test for Inflation Rate on Public Expenditure

Test Statistic	Value	df	Probability
t-statistic	-1.273068	40	0.2103
F-statistic	1.620703	(1, 40)	0.2103
Chi-square	1.620703	1	0.2030

Null Hypothesis: C(5)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(5)	-633.4364	497.5667

Source: Researcher's Computations (2018)

As indicated in Table 4.80, there was no short run causality running from inflation rate to public expenditure as indicated by the *p*-value of 0.2030.

Table 4.81: Wald Test for Unemployment Rate on Public Expenditure

Test Statistic	Value	df	Probability
t-statistic	0.928349	40	0.3588
F-statistic	0.861832	(1, 40)	0.3588
Chi-square	0.861832	1	0.3532

Null Hypothesis: C(6)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(6)	3182.388	3428.008

Source: Researcher's Computations (2018)

According to the results in Table 4.81, there was no short run causality running from unemployment rate to public expenditure as indicated by the *p*-value of 0.3532.

Table 4.82: Wald Test for Foreign Aid & Grants on Public Expenditure

Test Statistic	Value	df	Probability
t-statistic	2.643857	40	0.0117
F-statistic	6.989978	(1, 40)	0.0117
Chi-square	6.989978	1	0.0082

Null Hypothesis: C(7)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(7)	1.774987	0.671363

Source: Researcher's Computations (2018)

As indicated in Table 4.82, there was short run causality running from foreign aid & grants to public expenditure as indicated by the *p*-value of 0.0082. Table 4.83 shows the results of the serial correlation test undertaken in order to determine if there was any autocorrelation between the variables after running the model.

Table 4.83: Serial Correlation Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.699733	Prob. F(1,39)	0.4080
Obs*R-squared	0.846030	Prob. Chi-Square(1)	0.3577

Source: Researcher's Computations (2018)

From the Table 4.83, we accept the null hypothesis that there is no serial correlation in the series residual as indicated by the *p*-value of 0.3577. Heteroscedasticity test was done in order to determine if there was heteroscedasticity between the variables after running the model as indicated in Table 4.84.

132

Table 4.84: Heteroscedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.290103	Prob. F(12,35)	0.2675
Obs*R-squared	14.72031	Prob. Chi-Square(12)	0.2571
Scaled explained SS	46.13026	Prob. Chi-Square(12)	0.0000

Source: Researcher's Computations (2018)

Table 4.84 results indicate that we accept the null hypothesis that states there is no heteroscedasticity as indicated by the *p*-value of 0.2571 at 5% level of significance while the corresponding R^2 is 14.72031.

The final step of testing the intervening influence which involves regressing fiscal policy stance and macroeconomic factors on public expenditure using a VECM model is indicated in table 4.77. The results show that fiscal policy stance and foreign aid & grants have a significant influence on public expenditure. Therefore, foreign aid & grants as one of the macroeconomic factors has a mediating/intervening influence on the relationship between fiscal policy stance and public expenditure.

Table 4.85 shown next gives a summary of the model coefficients before and after the intervening variable is introduced as also indicated in Tables 4.24 and 4.77 respectively. Also the percentage change as a result of the intervening variable which is macroeconomic factors is also indicated.

Table 4.85: Intervening Influence of Macroeconomic Factors on Fiscal Policy Stance and Public Expenditure

Variables		Coefficients without intervening variable	Coefficients with intervening variable	% Change in the coefficients
Fiscal Policy Stance	Tax(-1)	-0.0038	27691.44	100%
	Tax(-2)	-0.1580		
	Budget Deficit (-1)	-0.00000141	-0.4787	99.99%
	Budget Deficit (-2)	0.0000000587		
Macroeconomic Factors	Inflation (-1)		-633.44	
	Unemployment (-1)		3182.39	
	Foreign Aid & Grants (-1)		1.775	

Source: Researcher's Computations (2018)

As indicated in Table 4.85, there is a significant change in the model coefficients after the intervening variable (macroeconomic factors) is introduced in the relationship between fiscal policy stance and public expenditure. The percentage changes are approximately 100%.

In the final step of testing intervening influence which involves regressing fiscal policy stance and macroeconomic factors on public expenditure using a VECM model, the results indicate that the lagged variable of public expenditure, fiscal policy stance (budget deficit) and foreign aid & grants have a significant influence on public expenditure. However, the model results in step one and two are statistically insignificant. This means that foreign aid and grants as a macroeconomic factor has a mediating influence on the relationship between fiscal policy stance and public expenditure.

4.3.3.4 Discussion of Fiscal Policy Stance and Macroeconomic Factors

The study findings indicate a weak effect of fiscal policy stance on each individual macroeconomic variable. This implies that there could be several other variables that could explain a more significant effect on each of the macroeconomic variables other than fiscal policy stance. The direct effect of fiscal policy stance on macroeconomic factors has not been widely examined. For instance, Canuto (2009) and Svante (2010) argued that during a worsening macroeconomic environment such as increased level of unemployment, then countries should adopt restrictive fiscal policies yet these studies do not clearly show how fiscal policy would influence a particular set of macroeconomic factors. This study contributes to the finance literature by examining the relationship between fiscal policy stance and macroeconomic factors which is a relationship insufficiently explored in empirical literature.

4.3.4 Fiscal Policy Stance, Macroeconomic Factors, Economic Growth and Public Expenditure

The final objective of this study was to examine the joint effect of fiscal policy stance, economic growth and macroeconomic factors on public expenditure in Kenya. Based on this objective, the hypothesis formulated was:

H_{04}: *Fiscal policy stance, macroeconomic factors and economic growth do not have a joint effect on public expenditure in Kenya.*

The effect of fiscal policy stance, macroeconomic factors and economic growth on public expenditure was established using a VECM model as determined by the existence of cointegration between the variables in a model. Table 4.86 shows the lag length criteria/selection method used in testing the effect of fiscal policy stance, macroeconomic factors and economic growth on public expenditure.

Table 4.86: Lag Length Selection

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1424.823	NA	2.56e+18	62.25316	62.53143	62.35741
1	-1179.444	405.4080*	5.15e+14*	53.71497	55.94114*	54.54890*
2	-1135.047	59.84006	7.29e+14	53.91508	58.08915	55.47871
3	-1079.330	58.13959	8.30e+14	53.62303	59.74500	55.91636
4	-1003.498	56.04972	6.81e+14	52.45642*	60.52630	55.47944

* indicates lag order selected by the criterion
Significance level at 5%

Source: Researcher's Computations (2018)

From the Table 4.86, one (1) lag was selected since under the LR, FPE, SC and HQ the lag value was the lowest. After the lag selection was done, the effect of fiscal policy

136

stance, economic growth and macroeconomic factors on public expenditure was undertaken. A VECM model was used to test the hypothesis. Before running the VECM model, diagnostic tests were done such as Johansen cointegration test and Stationarity test so as to ensure that the model would generate robust results. The data was tested for Stationarity at level and if it was not stationary then it was made stationary at first differencing or second differencing. For the cointegration tests, there was cointegration between fiscal policy stance, economic growth, macroeconomic factors and public expenditure hence a VECM model being the most appropriate model to be used. The VECM model is as shown next;

Table 4.87: VECM Model for Fiscal Policy Stance, Economic Growth, Macroeconomic Factors and Public Expenditure

D(PEXP) = C(1)*(PEXP(-1) - 9857.55814181*TAX(-1) - 0.204423972575*BDEFIC(-1)
  + 2704.60930532*INFL(-1) - 12428.8865707*UNEMP(-1) + 1.16649497603*FAID(-1)
  + 4910.72723364*ECONG(-1) - 4587.19901276) + C(2)*D(PEXP(-1)) + C(3)*D(TAX(-1)) + C(4)
  *D(BDEFIC(-1)) + C(5)*D(INFL(-1)) + C(6)*D(UNEMP(-1)) + C(7) *D(FAID(-1)) + C(8)*D(ECONG(-1)) +C(9)

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.321258	0.037053	8.670243	0.0000
C(2)	-0.871875	0.204833	-4.256523	0.0001
C(3)	24205.61	25709.10	0.941519	0.3522
C(4)	-0.496914	0.220301	-2.255617	0.0298
C(5)	-682.9195	506.7241	-1.347715	0.1855
C(6)	2527.594	3475.739	0.727211	0.4714
C(7)	1.662271	0.674513	2.464400	0.0182
C(8)	-503.5120	1171.532	-0.429789	0.6697
C(9)	43966.67	5844.424	7.522841	0.0000

R-squared	0.782557	Mean dependent var	25833.03
Adjusted R-squared	0.737953	S.D. dependent var	49717.29
S.E. of regression	25450.53	Akaike info criterion	23.29422
Sum squared resid	2.53E+10	Schwarz criterion	23.64507
Log likelihood	-550.0613	Hannan-Quinn criter.	23.42681
F-statistic	17.54466	Durbin-Watson stat	1.853361
Prob(F-statistic)	0.000000		

Source: Researcher's Computations (2018)

From table 4.87, the effect of fiscal policy stance (budget deficit), foreign aid & grants and the lagged variable of public expenditure on public expenditure is statistically significant as indicated by the p-values while the R^2 is 78.26% meaning that 78.26% of the variations in public expenditure can be explained by fiscal policy stance, foreign aid & grants and the lagged variable of public expenditure. The *p*-value of C(1) or the constant is 0.0000 meaning that there is a long run causality running from fiscal policy stance and foreign aid & grants to public expenditure. The f-statistic is 0.000000 meaning that the model fits the data well. Short run causality was also tested using the Wald test as indicated in Tables 4.88, 4.89, 4.90, 4.91, 4.92 and 4.93.

Table 4.88: Wald Test for Tax on Public Expenditure

Test Statistic	Value	Df	Probability
t-statistic	0.941519	39	0.3522
F-statistic	0.886458	(1, 39)	0.3522
Chi-square	0.886458	1	0.3464

Null Hypothesis: C(3)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(3)	24205.61	25709.10

Source: Researcher's Computations (2018)

As indicated in Table 4.88, there was no short run causality running from tax to public expenditure as indicated by the *p*-value of 0.3464.

Table 4.89: Wald Test for Budget Deficit on Public Expenditure

Test Statistic	Value	Df	Probability
t-statistic	-2.255617	39	0.0298
F-statistic	5.087806	(1, 39)	0.0298
Chi-square	5.087806	1	0.0241

Null Hypothesis: C(4)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(4)	-0.496914	0.220301

Source: Researcher's Computations (2018)

As shown in Table 4.89, there was short run causality running from budget deficit to public expenditure as indicated by the *p*-value of 0.0241.

Table 4.90: Wald Test for Inflation Rate on Public Expenditure

Test Statistic	Value	Df	Probability
t-statistic	-1.347715	39	0.1855
F-statistic	1.816335	(1, 39)	0.1855
Chi-square	1.816335	1	0.1778

Null Hypothesis: C(5)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(5)	-682.9195	506.7241

Source: Researcher's Computations (2018)

As indicated in Table 4.90, there was no short run causality running from inflation rate to public expenditure as indicated by the *p*-value of 0.1778.

Table 4.91: Wald Test for Unemployment Rate on Public Expenditure

Test Statistic	Value	Df	Probability
t-statistic	0.727211	39	0.4714
F-statistic	0.528835	(1, 39)	0.4714
Chi-square	0.528835	1	0.4671

Null Hypothesis: C(6)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(6)	2527.594	3475.739

Source: Researcher's Computations (2018)

The results in Table 4.91 show that there was no short run causality running from unemployment rate to public expenditure as indicated by the *p*-value of 0.4671.

Table 4.92: Wald Test for Foreign Aid & Grants on Public Expenditure

Test Statistic	Value	Df	Probability
t-statistic	2.464400	39	0.0182
F-statistic	6.073268	(1, 39)	0.0182
Chi-square	6.073268	1	0.0137

Null Hypothesis: C(7)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(7)	1.662271	0.674513

Source: Researcher's Computations (2018)

As shown in Table 4.92, there was short run causality running from foreign aid & grants to public expenditure as indicated by the *p*-value of 0.0137.

Table 4.93: Wald Test for Economic Growth on Public Expenditure

Test Statistic	Value	Df	Probability
t-statistic	-0.429789	39	0.6697
F-statistic	0.184719	(1, 39)	0.6697
Chi-square	0.184719	1	0.6673

Null Hypothesis: C(8)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(8)	-503.5120	1171.532

Source: Researcher's Computations (2018)

As indicated in Table 4.93, there was no short run causality running from economic growth to public expenditure as indicated by the *p*-value of 0.6673. Serial correlation test was done in order to determine if there was any autocorrelation between the variables after running the model as indicated in Table 4.94.

Table 4.94: Serial Correlation

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.578581	Prob. F(1,38)	0.4516
Obs*R-squared	0.719879	Prob. Chi-Square(1)	0.3962

Source: Researcher's Computations (2018)

From the Table 4.94, we accept the null hypothesis that there is no serial correlation in the series residual as indicated by the *p*-value of 0.3962. Heteroscedasticity test was done in order to determine if there was heteroscedasticity between the variables after running the model as indicated in Table 4.95.

Table 4.95: Heteroscedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.070221	Prob. F(14,33)	0.4166
Obs*R-squared	14.98838	Prob. Chi-Square(14)	0.3789
Scaled explained SS	45.93006	Prob. Chi-Square(14)	0.0000

Source: Researcher's Computations (2018)

As indicated in Table 4.95, we accept the null hypothesis that states that there is no heteroscedasticity as indicated by the *p*-value of 0.3789 at 5% level of significance while the corresponding R^2 is 14.98838.

4.3.4.1 Discussion of Fiscal Policy Stance, Macroeconomic Factors, Economic Growth and Public Expenditure

This study found that fiscal policy stance (budget deficit) has a negative and statistically significant relation with public expenditure. These findings differ from those of Beetsma et al. (2008) where they found that budget deficits have a positive relationship with public expenditure. Also the study findings indicate that foreign aid & grants significantly affect public expenditure which concurs with those of Njeru (2003) and also with study findings by Remmer (2004) that foreign aid generates incentives and opportunities for public expenditure growth. On economic growth and public expenditure, Bagdigen and Cetintas (2003) found that there was no statistically significant relation between economic growth and public expenditure which concurs with the study findings. Also Deskins et al. (2010) had similar findings that education public spending has no significant relationship with the growth of an economy. However, Srinivasan (2013) found that public expenditure is affected by economic growth hence

142

supporting Wagner's law of increasing state activities. On inflation rate and public expenditure, Magazzino (2011) found that there was a long run relation between inflation and public expenditure growth in Portugal. However, Han and Mulligan (2008) found a weak relationship between inflation and non-defence public spending. Similarly, this study found that there was a weak effect of inflation rate on public expenditure.

The significant effect of foreign aid & grants on public expenditure in Kenya implies that it is a key factor in explaining the level of public expenditure. The lagged value of public expenditure has a significant effect on public expenditure which implies that the previous year's public expenditure is a key determinant on the public expenditure amounts in a particular current year. Also budget deficits have a statistically significant relationship with public expenditure implying that fiscal policy stance has an influence on the levels of public expenditure in a country.

The other variables have a weak effect on public expenditure which implies that there could be other variables that explain the effects on public expenditure apart from the lagged values of public expenditure, fiscal policy stance (budget deficit) and foreign aid & grants. Furthermore, the weak effect of fiscal policy stance on public expenditure implies that fiscal policy is not effective in controlling the levels of public expenditure. That should inform policy makers on how to utilize fiscal policy in the attainment of the goals of fiscal policy on redistribution and reallocation of resources as postulated by Musgrave (1959) and Johansen (1965) in the theory of fiscal policy.

4.4 Chapter Summary

The data description and analysis began with a summary of measures of central tendency which included the mean and median. Also the measures of dispersion such as the standard deviation were analyzed. On skewness, budget deficit, tax, economic growth, inflation, foreign aid & grants, public debt, recurrent expenditure, development expenditure and public expenditure are positively distributed. On the other hand, unemployment rate has a low value of skewness of 0.15. On kurtosis, the study variables had a kurtosis value above three (3) implying that the distribution is peaked or leptokurtic relative to the normal distribution. However, unemployment rate is moderately peaked with a value of 3.83 while development expenditure is highly peaked with a value of 7.51.

Diagnostic tests were undertaken with regard to the study variables which included the correlation analysis, unit root tests, cointegration tests, granger causality tests, autocorrelation tests and heteroscedasticity tests. The diagnostic checking was undertaken in order to fully establish the behaviour of the data with regard to the best approach in the modelling approach to be adopted. More specifically diagnostic testing aided in establishing the type of models to be used in testing the hypotheses of the study.

The study findings indicate that fiscal policy stance has a weak effect on public expenditure even though the lagged value of public expenditure has a strong effect on public expenditure at a particular time period. That implies that fiscal policy stance cannot directly affect public expenditure but can only affect public expenditure indirectly

through economic growth and macroeconomic factors. Also fiscal policy is not a strong tool in controlling the level of public expenditure and that the lagged public expenditure (public expenditure the previous year) has a significant influence on the public expenditure in the current year. According to the research findings, economic growth and macroeconomic factors had an intervening influence on the relationship between fiscal policy stance and public expenditure. This means that economic growth and macroeconomic factors have full mediation on the relationship between fiscal policy stance and public expenditure.

In examining the joint effect of fiscal policy stance, economic growth and macroeconomic factors on public expenditure in Kenya using a VECM model, the results indicated that fiscal policy stance (budget deficit), foreign aid & grants and the lagged public expenditure had a significant effect on public expenditure in a particular year. Furthermore there was no heteroscedasticity and neither serial correlation in the VECM model implying that the model was robust. As indicated in table 4.96, the study rejected the second, third and fourth null hypotheses while accepting null hypothesis one.

Table 4.96: Summary of Research Objectives, Hypotheses, Test Results and Interpretation of Results

Objective	Null Hypothesis	Type of Analysis	Interpretation
To examine the effect of fiscal policy stance on public expenditure in Kenya.	$H0_1$: Fiscal policy stance does not affect public expenditure in Kenya.	• VECM analysis	• Relationship exists if at least one of the regression coefficients is significant. • *Failed to reject the Hypothesis*
To establish the influence of economic growth on the relationship between fiscal policy stance and public expenditure in Kenya.	$H0_2$: Economic growth does not influence the relationship between fiscal policy stance and public expenditure in Kenya.	• Stepwise regression analysis	• Relationship exists if at least one of the regression coefficients is significant. • *Rejected the Hypothesis*
To establish the influence of macroeconomic factors on the relationship between fiscal policy stance and public expenditure in Kenya.	$H0_3$: Macroeconomic factors do not influence the relationship between fiscal policy stance and public expenditure in Kenya.	• Stepwise regression analysis	• Relationship exists if at least one of the regression coefficients is significant. • *Rejected the Hypothesis*
To explain the relationship among fiscal policy stance, economic growth, macroeconomic factors and public expenditure in Kenya.	$H0_4$: Fiscal policy stance, economic growth and macroeconomic factors do not have a joint effect on public expenditure in Kenya.	• VECM analysis	• Relationship exists if at least one of the regression coefficients is significant. • *Rejected the Hypothesis*

Source: Researcher (2018)

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter mainly summarizes the study findings, the conclusions and recommendations of the study. Section 5.2 captures the summary of findings while section 5.3 contains the conclusions of the study. Section 5.4 entails the contribution of the study and section 5.5 summarizes the policy recommendations while section 5.6 captures the limitations of the study. Section 5.7 entails the suggestions for further research.

5.2 Summary of Findings

The correlation analysis of the study indicated that there was strong positive correlation between recurrent expenditure and tax; budget deficit and public debt; development expenditure and tax; budget deficit and recurrent expenditure; public debt and recurrent expenditure; public expenditure and tax, budget deficit, public debt, recurrent expenditure and development expenditure as indicated by correlation values above 0.9. However there was a weak positive correlation between economic growth and tax, economic growth and budget deficit and finally inflation rate and unemployment rate as indicated by correlation values of less than 0.08.

There is an increasing smooth trend in public expenditure as indicated in chapter four. That smooth pattern concurs with Wagner's Law that public expenditure growth tends to be smooth over time. Also Henrekson (1993) concurs with Wagner's findings on the

147

nature of public expenditure growth and further emphasizes the need to focus on the time series behaviour of public expenditure as addressed in this study. That is unlike the Peacock and Wiseman hypothesis which argues that public expenditure tends to move in a step-like manner as argued by Peacock and Wiseman (1961) and supported in a subsequent study by Henry and Olekalns (2000). On the disaggregation of public expenditure into development and recurrent expenditure the trend graph indicates that expenditure is seen to be increasing gradually from 1964 but increasing sharply from about 2003 to 2015. That implies a significant increase in public spending in the past decade as compared to past decades.

On the diagnostic checking, unit root tests were the first to be undertaken using the ADF test. In order to undertake time series modelling, the unit root tests were done in order to ensure that all the variables were stationary. If a variable was stationary at level then it is said to be integrated at order zero while a variable that becomes stationary after first differencing then it becomes integrated at level one. Economic growth, inflation rate and unemployment rate were stationary at level while budget deficit, public debt, recurrent expenditure and public expenditure were stationary at second differencing.

Cointegration tests were undertaken so as to determine if any two variables are cointegrated. That is if any two variables have a long run relationship between them. The cointegration test results using Johansen cointegration tests showed that there was cointegration between all the study variables except between fiscal policy stance and unemployment rate and fiscal policy stance and inflation rate. The presence of

cointegration between any two variables meant that the appropriate model to test the relationship was a VECM model while a VAR model was used where variables did not have cointegration between them. Granger causality tests were also undertaken to test if a variable granger causes another and vice versa. The findings indicated that fiscal policy stance does not granger cause recurrent expenditure, development expenditure and neither public expenditure and vice versa. Also economic growth does not granger cause fiscal policy stance and vice versa and also fiscal policy stance does not granger cause any of the macroeconomic factors and vice versa.

Autocorrelation tests or serial correlation tests were also undertaken in order to determine if there was autocorrelation in a series of variables using the LM test. The findings indicated that there was no serial correlation between fiscal policy stance and economic growth and neither between fiscal policy stance and inflation rate. However there was serial correlation between fiscal policy stance and public expenditure, recurrent expenditure, development expenditure, unemployment rate and foreign aid & grants. To eliminate serial correlation between the variables, a lag was introduced in the dependent variable. Finally, heteroscedasticity tests were done in order to determine whether the variance of the error terms were constant or not. The results showed that the error terms had equal variance in the relationship between fiscal policy stance, economic growth, macroeconomic factors and public expenditure hence implying the presence of homoscedasticity or otherwise no heteroscedasticity in the error terms.

The first hypothesis (H_{01}) explored the effect of fiscal policy stance on public expenditure in Kenya. Using a VECM model, the results indicated that fiscal policy stance had an insignificant effect on public expenditure. There was also a weak negative effect of fiscal policy stance on recurrent expenditure and development expenditure. The study findings also showed a negative relationship existing between fiscal policy stance and public expenditure which is similar to the findings of Kirchgassner (2001) and Stancik and Valila (2012). This implies that the relationship is countercyclical even though it is weak. The weak effect of fiscal policy stance on public expenditure further highlights the result that fiscal policy stance does not directly affect public expenditure. However, the theory of fiscal policy asserts that fiscal policy should aim at redistributing and reallocating resources even though fiscal policy makers may not have the incentives to pursue public interests significantly and the fiscal institutions may not be strong enough to execute the control of public expenditure effectively.

The second hypothesis (H_{02}) sought to establish the intervening influence of economic growth on the relationship between fiscal policy stance and public expenditure in Kenya. Using the stepwise regression approach, the results indicated a full mediating or intervening influence. This means that the level of economic growth in a country would significantly influence the relationship between fiscal policy stance and public expenditure. Therefore the null hypothesis was rejected.

The third hypothesis (H$_{03}$) sought to establish the influence of macroeconomic factors on the relationship between fiscal policy stance and public expenditure in Kenya. The first step of establishing the intervening influence involved regressing fiscal policy stance and public expenditure which showed a weak effect. The second step of regressing fiscal policy stance on macroeconomic factors also showed a weak effect. However the third step of regressing fiscal policy stance and macroeconomic factors on public expenditure the results indicated a significant effect on public expenditure. Hence the conclusion is that macroeconomic factors have an intervening influence on the relationship between fiscal policy stance and public expenditure. Therefore the null hypothesis was rejected.

The fourth hypothesis (H$_{04}$) sought to examine the joint effect of fiscal policy stance, economic growth and macroeconomic factors on public expenditure in Kenya. The results indicate that fiscal policy stance (budget deficit), foreign aid & grants and the lagged public expenditure have a significant effect on public expenditure. This implies that budget deficit levels and the foreign aid & grants obtained by the government have a significant influence on the levels of public expenditure in Kenya. The study findings also indicated that fiscal policy stance (budget deficit) and public expenditure have a negative significant relationship indicating that fiscal policy stance has a strong influence on public expenditure in consideration of economic growth and macroeconomic factors. This implies that fiscal policy stance has an indirect effect on public expenditure levels in Kenya since fiscal policy only has a strong effect on public expenditure in the presence of economic growth and macroeconomic factors.

151

5.3 Conclusions of the Study

The study sought to establish the influence of economic growth and macroeconomic factors on the relation between fiscal policy stance and public expenditure in Kenya. The study was anchored on several theories as discussed in chapter two while showing the linkages among the study variables. Furthermore, the study used the positivist research philosophy in testing the four hypotheses.

From the data analyses, there were several conclusions drawn. First, the results indicated that fiscal policy stance had an insignificant effect on public expenditure. Also there was a weak effect of fiscal policy stance on recurrent expenditure and development expenditure. It should be noted that fiscal policy is a key government tool that can be used to control the redistribution and reallocation of how public resources should be spent. Therefore fiscal policy is not a strong policy tool that can directly be used by the government to determine the level of public expenditure.

The second conclusion is that economic growth has a full mediating or intervening influence on the relationship between fiscal policy stance and public expenditure in Kenya. This means that the level of economic growth in a country would significantly influence the relationship between fiscal policy stance and public expenditure.

The third conclusion is that macroeconomic factors have an intervening influence on the relationship between fiscal policy stance and public expenditure in Kenya. This implies

that the macroeconomic framework in Kenya would influence the nature of fiscal policy stance and in effect the levels of public expenditure.

The final conclusion is that fiscal policy stance (budget deficit), foreign aid & grants and the lagged public expenditure have a significant effect on public expenditure in Kenya. This implies that budget deficit levels and the foreign aid & grants obtained by the government have a significant influence on the levels of public expenditure in Kenya. This is considering that the amounts of foreign aid received would enable the government to meet some of its obligations on recurrent expenditure and also the amount of aid received contributes to implementing some of the government's development expenditure plans.

5.4 Contribution of the Study

There were varied results on the influence of economic growth and macroeconomic factors on the relationship between fiscal policy stance and public expenditure in Kenya. Therefore, the findings in this study contribute to the body of knowledge in the interrelation among economic growth, macroeconomic factors, fiscal policy stance and public expenditure in Kenya. This section highlights the contribution to knowledge and theory.

5.4.1 Contribution to Knowledge

The study has contributed to knowledge in several ways; firstly, the effect of fiscal policy stance on public expenditure was examined using a VECM model. However from the VECM results, the lagged value of public expenditure had a strong effect on public expenditure in a current year. This study attempted to examine the relationship between fiscal policy stance and public expenditure which is insufficiently examined in the finance literature except by studies done by Stancik and Valila (2012) where panel data was used while applying the GMM as a method of analysis. However, this study explored the relationship using time series data while applying the VECM modelling as a method of analysis. The study contributes to knowledge since it is one of the few studies providing evidence on the relationship between fiscal policy stance and public expenditure. Furthermore, this study proves that fiscal stance indirectly affects public expenditure mainly through economic growth and macroeconomic factors.

Secondly, the study examined the influence of macroeconomic factors on the relationship between the fiscal policy stance and public expenditure in Kenya. The results indicate that foreign aid and grants have a significant effect on public expenditure even though inflation rate and unemployment rate had a statistically insignificant effect on the relationship. The testing of that intervening influence has not been extensively examined in the empirical literature hence this study sheds more light on the influence of macroeconomic factors on the relationship between fiscal policy stance and public expenditure in Kenya. The study also examined the intervening effect of economic growth on the relationship between fiscal policy stance and public expenditure in Kenya.

Even though some studies have looked at the effect of economic growth on public expenditure, none had introduced fiscal policy stance in that relationship. However, the study findings indicate that economic growth has an intervening effect on the relationship between fiscal policy stance and public expenditure. The key knowledge contribution is that economic growth and macroeconomic factors mediate on the relationship between fiscal policy stance and public expenditure. This means that fiscal policy makers must first consider the existing macroeconomic environment before they can effectively start to control the level of public expenditure.

Lastly, the study provides some level of validity on the theoretical and analytical models that were tested. This is due to the fact that the models used were able to test and examine the relationships existing between the study variables and also in alignment to the theoretical assertions discussed in this study. This implies that models which include VAR and VECM models can be used in future studies. For any weaknesses present in the models they can be overcome by making relevant adjustments in the future studies.

5.4.2 Contribution to Theory

There have been different theoretical assertions on the nature of public expenditure growth. The study contributes to the argument of public expenditure growth patterns in Kenya where the findings show that public expenditure grows in a smooth manner as argued by Wagner's Law of increasing state activities. That is unlike the Peacock-Wiseman hypothesis that argues that public expenditure tends to move in a step-like manner.

155

The theory of fiscal policy argues that the goals of fiscal policy extend beyond stabilization since fiscal tools can also be used for redistributing income and for reallocating resources. However the theory is not clear on the relationship between fiscal policy and public expenditure considering that policy also aims at redistribution and reallocation of income. The study findings showed that fiscal policy stance had a weak effect on public expenditure thus implying that fiscal policy is ineffective in controlling the levels of public expenditure. Hence these findings expose a weakness on the theory of fiscal policy that in some instances policy makers may not be in full control of the level of public expenditure.

The Marxist theory of business cycles contends that capitalism produces a periodic business cycle recession which is resolved after a short period and a long lasting economic crisis that requires significant intervention. Fiscal policy stance is a key tool that governments use in regulating booms and containing recessions. The theoretical expectation that fiscal stance would regulate economic growth significantly does not hold as seen in the study findings. Nevertheless, fiscal stance and economic growth combined significantly affect the level of public expenditure in Kenya.

5.5 Policy Recommendations

The study findings are of significance to various stakeholders such as policy makers, scholars and researchers. The effect of fiscal policy stance on public expenditure as evidenced in the study findings seem to validate one of the assumptions of the theory of

fiscal policy that policy makers have a lower incentive to pursue public interests in comparison to their personal interests. Therefore this calls for policy makers being proactive in the key fiscal policy agenda of the redistribution and reallocation of resources.

Macroeconomic factors which include unemployment rate, inflation rate and foreign aid & grants have a relationship with the level of public expenditure as evidenced by the study findings. Hence, policy makers should take into consideration the macroeconomic framework of a country and link it with the interrelationship with public expenditure so as to make optimal analysis on the level of public spending.

5.6 Limitations of the Study

There were challenges faced in undertaking this study. One of the limitations was that the study was quantitative in nature where it involved time series modelling over a long study period thus being limited to quantitative measures only. The qualitative aspects of the study variables were not examined yet a combination of both quantitative and qualitative measures would have been more insightful. Another limitation is that the data collected was secondary hence limiting the level of accuracy of the analysis conducted to the accuracy of the data. Furthermore, data on unemployment rate was not available in some of the statistical abstracts and economic surveys hence the need to use the World Bank development indicators reports.

Secondly, the study was also limited to the Kenyan context considering that there was insufficient literature on the interrelationships among the study variables hence focusing on the country perspective. Furthermore, most of the studies in empirical literature were contextualized in developed economies with a few in selected African countries. Hence this study focussing on Kenya alone limited the generalization of the research findings to other regions across the world. Despite the limitations faced in this study, the quality was not undermined since secondary data was collected from reliable sources, quantitative and in-depth analysis of the Kenyan context was undertaken.

5.7 Suggestions for Further Research

In the pursuit of this study several research gaps emerge that need to be bridged in future studies. This study used a longitudinal research design entailing time series data and future studies could use panel data and then compare the research findings. Furthermore qualitative measures could be investigated in future studies on the key variables that influence public expenditure.

The context of the study was Kenya and future studies could focus on the East African countries which constitute a larger population or sample of study. However, precaution should be taken while analysing the similarities in the interrelationships being investigated in the various countries since there could be instances of methodological challenges when undertaking cross-country regressions such as the uncertainty of presumed underlying models and parameters leading to ambiguous policy implications.

REFERENCES

Alesina, A., & Perotti, R. (1994). The political economy of budget deficits. *National Bureau of Economic Research Working Paper Series*, No. 4673.

Alesina, A., & Tabellini, G. (2005). Why is fiscal policy often pro-cyclical? *National Bureau of Economic Research Working Paper Series*, No. 11600.

Ayo, O., Nwosa, P., & Ditimi, A. (2012). A trivariate causality test among economic growth, government expenditure and inflation rate: Evidence from Nigeria. *Research Journal of Finance and Accounting*, 3(1), 65–73.

Bagdigen, M., & Cetintas, H. (2003). Causality between public expenditure and economic growth: The Turkish case. *MPRA Paper* No. 8576.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173–1182.

Barro, R. (1991). Economic growth in a cross section of countries. *Quarterly Journal of Economics*, 106, 407– 444.

Barro, R., & Grilli, V. (1994). *European macroeconomics.* Macmillan.

Beetsma, R., Giuliodori, M., & Klaassen, F. (2008). The effects of public spending shocks on trade balances and budget deficits in the European Union. *Journal of the European Economic Association*, 6(2-3), 414–423.

Bell, P., & Cleaver, H. (2002). Marx's theory of crisis as a theory of class struggle. *The Commoner*, Retrieved 16/11/2015, from http://www.thecommoner.org

Bhatia, H. (2008). *Public finance*. (26 Ed.). Vikas Publishing House PVT Ltd.

Bird, N., & Kirira, N. (2009). Government institutions, public expenditure and the role of development partners: Meeting Kenya's environmental challenges. *Overseas Development Institute Report*.

Blanchard, O. (2010). Lessons of the global crisis for macroeconomic policy. *IMF Working Paper*, Research Department.

Brixiova, Z. (2010). Africa in the post-crisis global economy: Turning the recovery into strong, sustained and shared growth. *The Committee of Ten Policy Briefs (C-10 PB)* http://www.afdb.org/

Brownbridge, M., & Canagarajah, S. (2008). Fiscal policy for growth and development in Tajikistan. *World Bank Policy Research Working Paper* No. 4532, World Bank.

Burnside, C., & Dollar, D. (2000). Aid policies and growth. *American Economic Review*, 90(4), 847–868.

Canuto, O. (2009). Fiscal policy in developing countries: implications from the current crisis, *65th Annual Congress of the International Institute of Public Finance (IIPF)*, Cape Town, South Africa.

Clark, T., & Dilnot, A. (2002). Measuring the UK fiscal stance since the Second World War. *The Institute for Fiscal Studies, Briefing Note* No. 26.

Comte, A. (1842). *A system of positive philosophy*. Bachelier, Paris.

Creswell, J. (2007). *Qualitative inquiry and research design: Choosing among five approaches*. Sage Publications.

Dao, M.Q. (2012). Government expenditure and growth in developing countries. *Progress in Development Studies*, 12(1), 77–82.

Deskins, J., Hill, B., & Ullrich, L. (2010). Education spending and state economic growth: Are all dollars created equal? *Economic Development Quarterly*, 24(1) 45–59.

Diamond, J. (1997). Econometric testing of the displacement effect: A reconsideration. *Finanzarchiv*, 35(3), 387–404.

Dornbusch, R., Fischer, S., & Startz, R. (2004). *Macroeconomics*. 9th Ed, New Delhi: McGraw Hill.

Easterby-Smith, M., Richard, T., & Andy, L. (1991), *Management Research*. An Introduction, Sage: London.

Easterly, W. (2005). *National economic policies and economic growth: A reappraisal*. In P. Aghion and S. Durlauf (Eds.), Handbook of Economic Growth. Amsterdam: North-Holland: Elsevier.

Engle, R.F., & Granger, C.W.J. (1987). Co-integration and error correction: Representation, estimation and testing. *Econometrica*, 5(2), 251–276.

Ezirim, C., Moughalu, M., & Elike, M. (2008). Inflation versus public expenditure growth in the US: An empirical investigation. *North American Journal of Finance and Banking Research*, 2(2), 26–40.

Fan, S., & Rao, N. (2003). Public spending in developing countries: Trends, determination and impact. *EPTD Discussion Paper* No. 99.

Glomm, G., & Rioja, F. (2006). *Fiscal policy and long-run growth in Brazil*. Mimeo, Indiana University.

Government of Kenya (2015). *Economic Survey*. Nairobi: Government Printer.

Granger, O.W. (1969). Investigating causal relations by econometric models and cross spectral methods, *Econometrica*, 37, 424–438.

Greiner, A., Semmler, W., & Gong, G. (2005). *The forces of economic growth - a time series perspective*. Princeton University Press.

Gurgul, H., & Lach, L. (2010). Causality analysis between public expenditure and economic growth of Polish economy. *Statistics in Transition*, 11(2), 329–359.

Han, S., & Mulligan, B. (2008). Inflation and the size of government. *Federal Reserve Bank of St. Louis Review*, 90(3), 245–267.

Henrekson, M. (1993). Wagner's Law: A spurious relationship? *Public Finance*, 48(2), 406–415.

Henry, O., & Olekalns, N. (2000). The displacement hypothesis and government spending in the United Kingdom: some new long-run evidence. *The University of Melbourne Working Paper* No. 750. Retrieved on 2/09/2015.

Heo, U. (2010). The relationship between defence spending and economic growth in the United States. *Political Research Quarterly*, 63(4), 760–770.

Hussey, J., & Hussey, R. (1997). *Business Research*. A Practical Guide for Undergraduate and Postgraduate Students, Palgrave: Basingstoke.

Johansen, L. (1965). *Public economics.* Amsterdam: North Holland Publishing Co.

Keynes J.M. (1936). *The general theory of employment, interest and money*, (vol. 7). Cambridge: MacMillan.

Kirchgassner, G. (2001). The effects of fiscal institutions on public finance: A survey of the empirical evidence. *CESifo Working Paper Series* No. 617, CESifo GmbH.

M'Amanja, D., & Morrissey, O. (2005). Fiscal policy and economic growth in Kenya. *CREDIT Research Paper* No. 05/06.

MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G., & Sheets, V. (2002). A comparison of methods to test mediation and other intervening variable effects. *Psychological Methods*, 7, 83–104.

Magazzino, C. (2011). The nexus between public expenditure and inflation in the Mediterranean countries. *MPRA Paper* No. 28493.

Mosoti, M. (2014). The growth of public expenditure in Kenya: Exploring the causes (1980-2012). Unpublished M.A. Thesis, University of Nairobi.

Musgrave, R. (1959). *The theory of public finance*. New York: McGraw-Hill.

Muthui, J., Kosimbei, G., Maingi, J., & Thuku, G. (2013). The impact of public expenditure components on economic growth in Kenya 1964-2011. *International Journal of Business and Social Science*, 4(4), 233–253.

Nafula, N., Kimalu, P., Kiringai, J., Owino, R., Manda, D., & Karingi, S. (2004). Budget mechanisms and public expenditure tracking in Kenya. *KIPPRA Discussion Paper* No. 37, KIPPRA.

Njeru, J. (2003). The impact of foreign aid on public expenditure: The case of Kenya. *AERC Research Paper* No. 135, AERC.

Njuru, S., Ombuki, C., Wawire, N., & Okeri, S. (2014). Impact of government expenditure on private investment in Kenya. *Researchjournali's Journal of Economics*, 2(8), 1–19.

Nomura, M. (1995). Wagner's hypothesis and displacement effect in Japan, 1960-1991. *Public Finance*, 50(1), 121–135.

Pailwar, V. (2008). *Economic environment of business*. Prentice-Hall of India, Private Limited, New Delhi.

Peacock, A., & Wiseman, J. (1961). *The growth of public expenditure in the United Kingdom*. Princeton University Press, Princeton.

Perotti, R. (2007). Fiscal policy in developing countries: A framework and some questions. *World Bank Research Working Paper* No. 4365, World Bank.

Philip, R., & Janssen, J. (2001). Developing an indicator of fiscal stance for New Zealand. Retrieved from google.com on 04/09/2015.

Remmer, K. (2004). Does foreign aid promote the expansion of government? *American Journal of Political Science*, 48(1), 77–92.

Rodrik, D. (2012). Why we learn nothing from regressing economic growth on policies. *Seoul Journal of Economics*, 25(2), 137–151.

Romer, P. (1990). Human capital and growth: Theory and evidence. *Carnegie-Rochester Conference Series on Public Policy*, 40, 47–57.

Sakyi, D., & Adams, S. (2012). Democracy, government spending and economic growth: The case of Ghana, 1960–2008. *Margin—The Journal of Applied Economic Research*, 6(3), 361–383.

Samuelson, P. (1954). The pure theory of public expenditure. *The Review of Economics and Statistics,* 36(4), 387–389.

Sans, I., & Velazquez, F. (2002). Determinants of the composition of government expenditure by functions. *European Economy Group Working Paper* No.13.

Saunders, M., Lewis, P., & Thornhill, A. (2007). *Research methods for business students*, Prentice Hall Financial Times, Fourth Edition.

Sekaran, U. (2003). *Research methods for business: A skill building approach*, New York: John Wiley & Sons.

Semmler, W., Greiner, A., Diallo, B., Rezai, A., & Rajaram, A. (2007). Fiscal policy, public expenditure composition and growth. *World Bank Policy Research Working Paper* No. 4405, World Bank.

Shonchoy, A. (2010). What is happening with the government expenditure of developing countries – A panel data study. *Proceedings of the German Development Economics Conference*, Hannover, Germany.

Solow, R. (1956). A contribution to the theory of economic growth. *Quarterly Journal of Economics* 70, 65–94.

Srinivasan, P. (2013). Causality between public expenditure and economic growth: The Indian case. *Int. Journal of Economics and Management*, 7(2), 335–347.

Stancik, J., & Valila, T. (2012). Changes in the fiscal stance and the composition of public spending. *Empirical Economics*, 43, 199–217.

Stiles, J. (2003). A philosophical justification for a realist approach to strategic alliance research. *Qualitative Market Research: An Internal Journal*, 6(4), 263–271.

Svante, O. (2010). Public finances and monetary policy. Retrieved on 3/09/2013, from http://www.bis.org/review/r100428d.pdf.

Tanzi, V. (2006). Fiscal policy: when theory collides with reality. *CEPS Working Document*, No. 246.

Tanzi, V., & Zee, H. (1996). Fiscal policy and long run growth. *IMF Working Paper* No. 96/119.

Tayeh, S., & Mustafa, M. (2011). The determinants of public expenditures in Jordan. *International Journal of Business and Social Science*, 2(8), 45 – 49.

Temple, J. (2003). The long-run implications of growth theories. *Journal of Economic Surveys*, 17(3), 497–510.

UNCTAD (2010). *The financial crisis, macroeconomic policy and the challenge of development in Africa*, Geneva. Retrieved on 31/01/2014.

Wagner, A. (1863). Grundlegung der politischen ökonomie. Retrieved on 31/01/2014 from http://www.google.com.

World Bank. (2014). *World Development Indicators*. The World Bank: Washington, DC.

Zikmund, W. (2002). *Business research methods*. (7th Ed.). Thomson/South-Western.

APPENDICES

Appendix I: Extract of Secondary Data Collection Sheet

Variable	Data Collected	Annual Secondary Data from 1964 to 2015						
Fiscal Policy Stance								
Expansionary or Contractionary fiscal policy stance	Tax revenues and Budget deficits							
Economic Growth								
The state of the economy	Gross Domestic Product (GDP) rates and GDP in figures							
Macroeconomic Factors								
Unemployment	Unemployment rate							
Inflation	Inflation rate							
Foreign Aid & Grants	Amount of foreign aid & grants							
Public Debt	External and internal borrowing by the government							
Public Expenditure								
Recurrent expenditure	Expenditure on goods and services for current use							
Development expenditure	Expenditure meant for development							

Appendix II: Research Philosophies

	Positivism	Phenomenology	
Independence	The observer is independent of what is being observed.	The observer interacts with subject being observed.	Interaction
Value freedom	The choice of what to study, and how to study it, can be determined by objective criteria rather than by human beliefs and interests.	Inherent biasness in the choice of what to study, and how to study it as researchers are driven by their own interests, beliefs, skills and values.	Value laden
Cauaslity	The aim of social science should be to identify causal explanations and fundamental laws that explain regularities in human social behaviour.	The aim of social science is to try to understand what is happening.	No cause and effect
Hypothetico-deductive	Science proceeds through a process of hypothesising fundamental laws and then deducing what kinds of observations will demonstrate the truth or falsity of these hypotheses.	Develop ideas through induction from evidence; mutual simultaneous shaping of factors.	No Hypothetico-deductive reasoning
Operationalisation	Concepts need to be operationalised in a way which enables facts to be measured quantitatively; static design – categories isolated before study.	Qualitative methods – small samples investigated in depth or over time; emerging design – categories identified during research process.	Operationalisation
Reductionism	Problems as a whole are better understood if they are reduced into the simplest possible elements.	Problems as a whole are better understood if the totality of the situation is looked at.	No Reductionism
Generalisation	In order to be able to generalise about regularities in human and social behaviour it is necessary to select samples of sufficient size; aim of generalisations is to lead to prediction, explanation and understanding.	Everything is contextual; patterns identified – theories then developed for understanding.	Generalisation

Adapted from Easterby-Smith et al. (1991); Hussey and Hussey (1997); Creswell (2007)

Appendix III: MULTICOLLINEARITY TEST

Variance Inflation Factors

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
Tax Revenue	0.037688	2.902585	2.457612
Budget Deficit	0.068960	2.301692	2.105191
Inflation Rate	349655.5	1.189105	1.189056
Unemployment Rate	15737858	1.011251	1.010785
Foreign Aid & Grants	0.543789	1.523599	1.520533
Economic Growth	1806140.	1.040642	1.039826

Source: Researcher's Computations (2018)

Appendix IV: Secondary Data on the Study Variables

YEAR	Recurrent Expenditure	Devpt Expenditure	Unemployment Rate	Inflation Rate	Public Debt	Budget Deficits	Foreign Aid & grants	Public Expenditure	Economic Growth	TAX
1964	1080.8	281.6	10.3	7	1722.2	45	94.66	1362.4	0.3	735.32
1965	1138.4	272.4	10.2	8	1908.8	103	96.02	1410.8	0.5	794.88
1966	1265.2	285	8.8	6.7	2108.8	-890	50.5	1550.2	14.5	886.44
1967	1370.6	327	8.6	4.6	2372	183	12.82	1697.6	3.9	1068.3
1968	1488.2	391.6	7.9	1.5	2433.2	63	4.26	1879.8	7.5	1185.38
1969	1610.2	489.2	10.2	-0.5	2848.4	182	3.42	2099.4	6.7	1304
1970	1822.8	614.2	6.9	2	3202.8	136	17.96	2437	6.3	1523.58
1971	2226.34	909.78	11.2	3.7	3402.6	-832	3.96	3136.12	6.7	1859.74
1972	2573.4	1037.04	12.2	5.4	3886	-983	20.8	3610.44	6.5	2156.12
1973	2791.56	1236.54	12.2	11.1	4728.6	-38	5.88	4028.1	7	2342.72
1974	3274.52	1328.8	11.9	15.8	5309.2	379	63.72	4603.32	4.1	3210.48
1975	4180.84	1850.82	10.6	17.8	6232.2	194	125.8	6031.66	1.2	3969.16
1976	4971.86	2490.32	9.4	9.9	8012.6	-1722	140.16	7462.18	5.6	4570.96
1977	5740.28	2455	9.4	11.7	8848	1256	210.38	8195.28	8.6	5317.8
1978	8046.18	3761.62	9.3	12.3	10524	-732	180.98	11807.8	6.4	7995.54
1979	9550.36	4401.86	9.5	8.4	11558	-969	266	13952.22	4.1	8394.38
1980	10985.2	4640.92	8.3	12.8	17152.4	1318	382.96	15626.12	3	10302.48
1981	13786.52	5654.3	10.2	12.6	21725.4	-176	392.08	19440.82	5.3	12171.98
1982	16605	5841.38	7.9	22.3	26272	-5515	395.84	22446.38	3.4	13450.18
1983	19353.36	4460.5	7.8	14.5	36773	-3464	463.04	23813.86	2.3	14113.68
1984	19927.2	6115.8	7.5	9.1	44208.8	-464	211.5	26043	0.9	15962.08
1985	23969.18	6465.72	7.6	10.7	43699.6	412	163.58	30434.9	4.8	17460.98
1986	26386.72	6181.98	8.6	5.7	55142	713	231.66	32568.7	5.6	21272.52
1987	32017.58	9246.06	8.5	8.7	63076.6	1469	624.28	41263.64	4.9	24814.42

1988	35805.02	8172.08	8.4	12.3	77636	4310	6594.06	43977.1	5.2	29066.24
1989	49459.24	12579.16	9.7	13.3	78345.2	-23328	3990.74	62038.4	5	31906.96
1990	50035	20086.7	10	15.8	95162.8	-12965	3760.54	70121.7	4.3	36612.74
1991	63909.24	16562.4	10.1	19.6	121016.8	8910	5059.82	80471.64	2.1	42057.8
1992	74337.66	12997.34	10.1	27.3	166932	-2708	4062.92	87335	0.5	49529.32
1993	104266.4	17028.06	10.1	4.6	319497.4	-28159	4397.1	121294.5	0.2	61414.26
1994	159621.6	20532.16	10	28.8	287205.6	-44986	5574.66	180153.8	3	94011.32
1995	117776.8	14303.4	9.9	1.6	276701	9440	5419.58	132080.2	4.8	108110.7
1996	134953	17930.2	9.9	9	267461.6	3993	5296	152883.2	4.6	74663
1997	138534.8	15647.8	9.9	11.2	245528.4	2899	5783	154182.6	2.3	78,655
1998	166691.8	13558.9	9.8	6.6	258334.6	-25474	5272	180250.7	1.8	92,315
1999	165525.3	12344.32	9.8	5.8	328893.2	8747	4920	177869.6	1.4	100,289
2000	154755.5	19417.66	9.8	10	306694.9	25023	4247	174173.2	0.2	103,649
2001	176530.2	33067.9	9.7	5.8	577940.4	24951	12461	209598.1	1.2	109,650
2002	197115.8	27056.93	9.7	2	595339.3	7345	9121	224172.7	0.6	106,829
2003	213785.5	33606.38	9.6	9.8	642641.7	15681	5592	247391.8	3	112,897
2004	321754	54558	9.6	11.6	698862	67417	7963	376312	5.1	276,629
2005	339689	40141	9.5	10.3	687954	71455	12880	379830	5.9	339,626
2006	393206	83917	9.5	6	717687.5	103139	23800	477123	6.3	288,669
2007	401828	106839.8	9.5	4.3	715540.9	161279	39480	508667.8	7.1	346,563
2008	505435.4	159941	9.4	16.2	748456.4	233164	57082	665376.4	1.5	408,447
2009	534448.4	163665.1	9.4	10.5	918778.7	225823	18065	698113.5	2.7	468,152
2010	602141.9	186155.8	9.3	4.1	1082652	262697	20710	788297.7	5.8	523,633
2011	686541.5	214754.3	9.3	14	1322598	344460	18769	901295.8	4.4	626,669
2012	754732.9	261975.8	9.2	9.4	1517730	341552	15286	1016709	4.6	695887
2013	941192.1	300204.2	9.2	5.7	1732743	350050	17123	1241396	4.7	786196
2014	1021922.9	511070.2	11.8	6.9	2217312	444600	26957	1532993	5.4	911803
2015	1150769.3	802740.1	11.3	6.6	2601432	692000	27384	1953509	5.7	1021597

Source: Kenya National Bureau of Statistics Economic Surveys and Statistical Abstracts, World Bank Development Indicators Annual Reports