THE RELATIONSHIP BETWEEN PUBLIC EXPENDITURE AND ECONOMIC GROWTH IN KENYA

BY

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DECLARATION

This project is my original work and has not been submitted for a degree in any other university.

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This project has been submitted with my approval as the University Supervisor.

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DEDICATION

This work is dedicated to my family
ACKNOWLEDGEMENT

I thank God for giving me the wisdom and courage and for guiding me throughout my life for without Him I would not have come this far. I would also like to acknowledge the following for their contributions which facilitated the completion of this project.

Secondly, special thanks go to my supervisor Dr. Josiah Aduda, for providing unlimited, invaluable and active guidance throughout the study. His immense command and knowledge of the subject matter enabled me to shape this research project to the product that it is now.

Thirdly, I also thank my family for letting me steal their valuable time to work on this project. It is my hope that their sacrifice has finally paid off.

Finally, I owe my gratitude to a number of people who in one way or another contributed towards completion of this project especially my fellow colleagues at work and students.
ABSTRACT

The question whether or not government expansion causes economic growth has divided policy makers into two distinctive theoretical camps, as proponents of either big government or small government. Economic theory would suggest that on some occasions lower levels of public expenditure would enhance economic growth while on other occasions higher levels of public expenditure would be more desirable. The objective of this research was to investigate the effects of public expenditure on the economic growth of Kenya.

The study used a correlation design. An 11-year period between 2002 and 2012 was selected on which the research was based. Secondary data was collected from the Central Bank of Kenya, Kenya National Bureau of statistics, and World Bank database website. Data was analyzed using descriptive analysis and OLS regression.

The study found that public expenditure has a strong positive effect on economic growth. The study concludes that public expenditure in Kenya as measured by percentage change in public expenditure for capital formation has a positive impact on economic growth. It is recommended that the government of Kenya should focus on promoting private investments to grow the economy and on the other hand examine the role of trade openness as there is some evidence that rising exports may hamper economic growth of Kenya.
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<tr>
<td>ADF</td>
<td>Augmented Dickey-Fuller</td>
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<td>ECM</td>
<td>Error Correction Models</td>
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<td>EG</td>
<td>Economic Growth</td>
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<td>EU</td>
<td>European Union</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>GNP</td>
<td>Gross Net Product</td>
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<tr>
<td>OECD</td>
<td>Organisation for Economic Co-operation and Development</td>
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<td>OLS</td>
<td>Ordinary Least Squares</td>
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<td>PE</td>
<td>Public Expenditure</td>
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CHAPTER ONE: INTRODUCTION

1.1 Background of Study

Public expenditure (or government expenditure) includes all government consumption and investment but excludes transfer payments made by a state. Government acquisition of goods and services for current use to directly satisfy individual or collective needs of the members of the community is classed as government final consumption expenditure. Government acquisition of goods and services intended to create future benefits, such as infrastructure investment or research spending, is classed as government investment (gross fixed capital formation) (Barro and Grilli, 1994). According to Wells (1890) economic growth is the increase in the amount of the goods and services produced by an economy over time. It is conventionally measured as the percent rate of increase in real gross domestic product, or real GDP. Growth is usually calculated in real terms—i.e., inflation-adjusted terms—to eliminate the distorting effect of inflation on the price of goods produced. In economics, "economic growth" or "economic growth theory" typically refers to growth of potential output, i.e., production at "full employment".

Proponents of government intervention in economic activity maintain that such intervention can spur long term growth. They cite government's role in ensuring efficiency in resource allocation, regulation of markets, stabilization of the economy, and harmonization of social conflicts as some of the ways in which government could facilitate economic growth. In the context of endogenous growth, government role in promoting accumulation of knowledge, research and development, productive public investment, human capital development, law and order can generate growth both in the short- and long-run (Easterly and Rebelo (1993), Chrystal and Price (1995),
Mauro (1995), Folster and Henrekson (1999). Opponents hold the view that government operations are inherently bureaucratic and inefficient and therefore stifle rather than promote growth. It seems then that as to whether government’s fiscal policy stimulates or stifles growth remains an empirical question. Even so, the existing empirical findings are mixed, with some researchers finding the relationship between fiscal policy and growth either positive, negative, or indeterminate.

The size of government expenditures and its effect on long-run economic growth, and vice versa, has been an issue of sustained interest for decades. One set of studies has explored the principal causes of growth in the public sector. Wagner’s Law - the “Law of increasing expansion of public and particularly state activities” (Wagner, 1893) - is one of the earliest attempts that emphasises economic growth as the fundamental determinant of public sector growth. Empirical tests of this hypothesis, either in the form of standard regression analysis (Ganti and Kolluri, 1979; and Georgakopoulos and Loizides, 1994) or in the form of error-correction regression (Kolluri, Panik and Wanab, 2000), have yielded results that differ considerably from country to country.

The other set of studies has been directed towards assessing the effects of the general flow of government services on private decision making and, more specifically, on the impact of public expenditure on long-run economic growth. Macroeconomics, especially the Keynesian school of thought, suggests that public expenditure accelerates economic growth. Thus, government expenditure is regarded as an exogenous force that changes aggregate output. Here, again, empirical work, either in
standard regression forms (Landau, 1983) or error-correction regressions (Ghali, 1998) finds diverse results.

Although each line of enquiry has thrown interesting light on the phenomena, in neither case has the assumed causative process been subjected to rigorous empirical pre-testing. Purely a priori judgements for choosing between the two competing postulates are rendered difficult for at least three reasons: Firstly, there is the possibility of feedback in macro relations, which tend to obscure both the direction and the nature of causality. Secondly, as demonstrated by Ahsan, Kwan and Sahni (1992) in the public expenditure national income nexus, failure to account for omitted variables can give rise to misleading causal ordering among variables and, in general, yields biased results. Thirdly, if co-integration among the variables of the system is admitted, then the error-correction terms would provide an additional source of causality. Indeed, a principal feature of co-integrated variables is that their time paths are influenced by the extent of any deviation from long-run equilibrium. Thus, omission of the error correction terms would entail a mi-specification error and potentially bias the results. In the context of tri-variate systems such an outcome is very possible because the introduction of a third variable in the system can alter the causal inference based on the simple bi-variate system.

1.1.1 Public Expenditure

Traditional models of public finance including the median voter (Bowen, 1943; Black, 1948), the Tiebout (1956) and Peterson (1981) view of competition amongst local governments, and the complementary theories of public choice (Bish and
Ostrom 1979; March and Olsen 1989) are built on the assumption that government fiscal policies are a function of the preferences of economic agents. Assuming that political agents are responsive, these theoretical views of the public sector indicate that government fiscal policy will adjust to the changing preferences or circumstances of economic agents. Therefore, changes in government fiscal policies depend on agents' changing demands for government services.

Much of what government does is not for immediate consumption but can be interpreted as an input to productive activity. This includes not only the obvious infrastructure spending like roads, bridges, and government buildings, but also activities that facilitate the accumulation of human and social capital. Such activities include education, health care provision, environmental protection, safety and protection of property rights. In fact, most government activity probably can be interpreted as some kind of investment. Even investments in “quality of life” attributes such as parks, recreational and cultural services are playing an increasing important role in the functioning of local economies (Deller et al. 2001).

In a sense, public expenditure can be seen as an endogenous element in a regional growth process. There is significant empirical work that demonstrates that as income increases the demand for public services will also increase; there will be a natural tendency to increase public expenditure. From a demand perspective the question hinges on the income elasticity of demand. But from a supply perspective we argue that public expenditure is much like private capital and exhibits diminishing marginal returns. Governments that have a high level of spending therefore have limited
incentives to expand spending while those with relatively small government sectors will want to increase public spending (Dissart and Deller 2000).

1.1.2 Economic Growth

Economic growth occurs whenever people take resources and rearrange them in ways that make them more valuable. Although the term is often used in discussions of short-term economic performance, in the context of economic theory it generally refers to an increase in wealth over an extended period. Economic growth is usually distinguished from economic development, the latter term being restricted to economies that are close to the subsistence level. The term economic growth is applied to economies already experiencing rising per capita incomes. In Rostow's phraseology economic growth begins somewhere between the stage of take-off and the stage of maturity; or in Clark's terms, between the stage dominated by primary and the stage dominated by secondary production. The most striking aspect in such development is generally the enormous decrease in the proportion of the labour force employed in agriculture. There are other aspects of growth. The decline in agriculture and the rise of industry and services has led to concentration of the population in cities, first in what has come to be described as the "core city" and later in the suburbs (McCabe and Vinzant 1999).

In earlier years public utility investment (including investment in transportation) was more important than manufacturing investment, but in the course of growth this relationship was reversed. There has also been a rise in the importance of durable consumer goods in total output. In the U.S. experience, the rate of growth of capital
goods production at first exceeded the rate of growth of total output, but later this too was reversed. Likewise, business construction or plant expenditures loomed large in the earlier period as an object of business investment compared to the recent era. Whether other countries will go through the same experience at similar stages in their growth remains to be seen (Rajkumar & Swarrop, 2007).

Comparative growth rates for a group of developed countries show how uneven the process of growth can be. Partly this unevenness reflects the extraordinary nature of the 1913–50 period, which included two major wars and a severe and prolonged depression. There are sizable differences, however, in the growth rates of the various countries as between the 1870–1913 and 1950–73 periods and the period since 1973. For the most part, these differences indicate an acceleration on rates of growth from the first to the second period and a marked slowdown in growth rates from the second to the current period. Many writers have attributed this to the more rapid growth of business investment during the middle of the three periods (Kolluri et al., 2000).

1.1.3 Public expenditure and Economic Growth

The question of whether or not public expenditure stimulates growth has dominated theoretical and empirical debate. One viewpoint corresponding to Keynesians is that government involvement in economic activity is vital for growth, but this view is opposed by monetarists who hold that government operations are inherently bureaucratic and inefficient and therefore stifle rather than promote growth. Wagnerian propositions on the matter indicate that as income increases, inevitably,
At least three hypotheses have characterized the relationship between government expenditure and economic growth. The earliest of the three dates back to 1883, 1890 when the German economist, Adolph Wagner, introduced his 'law of expanding state expenditure'. It suggests that government expenditure (G) tends to increase at a faster pace than the rate of growth of the economy (GDP), particularly during times of economic expansion. The increase in government expenditure can manifest itself in many ways. For instance, there will be increased expenditure on law and order and other administrative functions of the state. Income-elastic expenditure on cultural and welfare services such as education and health care will also rise. Last, but not least, income-elastic expenditure on public goods such as railroads, airports, highways and other infrastructure-type investments will increase due to absence of sufficient private sector incentives to do so. A growing economy generates additional tax revenues that provide the opportunity for policy makers to enhance popular public sector programs and government subsidies (Kolluri et al., 2000).

Two other competing hypotheses that have been advanced in regards to the relationship between government expenditure and economic growth are: the Fiscal Stimulus hypothesis and the Budget Stickiness hypothesis. The Fiscal Stimulus hypothesis suggests that government expenditure should increase in response to an ongoing or expected economic contraction. If government policy makers adopt forward-looking policies, government expenditure may be used to help offset the
negative effects of an economic slowdown. While periods of economic weakness are usually characterized by higher unemployment, lower private sector investments, lower household spending, in addition to a variety of economic dislocations, periods of economic expansion are typically accompanied by the reverse effects. The Fiscal Stimulus hypothesis suggests that governments should spend more and tax less when the economy slows and, by implication, do the reverse when economic growth resumes. Under the Budget Stickiness hypothesis, government expenditure may remain unchanged, even in the face of a decline in economic activity on the presumption that many public expenditure programs are set by politicians to deliberately target those expenditures on the projected ‘long-term’ growth path of the economy; hence, once set, those budgets may become too ‘sticky’ to respond to short-run fluctuations in economic activity and its impact on government revenues (Kolluri et al., 2000).

There is consensus that a relatively minor part of public expenditure, typically unemployment benefits, is a purely cyclical phenomenon, so that changes in the level of output matter only to the extent that the cyclical slack in the economy is affected. A different and more complex issue is the one addressed in this paper, namely, how non-cyclical expenditures may be linked to non-cyclical movements in output over time. The empirical literature has tackled this issue from different corners. A branch of the literature investigates the determinants of the size of government across countries, focusing on alternative explanations such as per capita income (Borcherding, 1985), the relative price of government-provided goods and services (Baumol, 1967) demographic structures (Heller & Diamond, 1990), the size (Alesina and Wacziarg, 1998) or the degree of openness of the economy (Rodrik, 1998).
A growing strand of research aims at explaining cross-country structural differences in the size of government on the basis of political fundamentals that shape the extent of the deficit bias related with free-riding in government expenditure provision and governments' myopia. It has been shown that the size of government tends to be larger in parliamentary than in presidential regimes (Persson and Tabellini, 2000) and that countries with proportional electoral rules are characterized by higher government expenditure shares on GDP than countries with majoritarian election (Persson, et al., 2006) and by government expenditure tilted towards transfers rather than purchases of goods and services (Milesi-Ferretti, Perotti and Rostagno, 2002). It has also been shown that the fiscal performance of countries is affected by the way budgetary processes are structured (von Hagen and Harden, 1995, Hallerberg, Strauch and von Hagen, 2001).

Recent models of economic growth can generate long-term growth without relying on exogenous changes in technology or population. Some of the models amount to theories of technological progress (Romer 1986; this issue) and others to theories of population change (Becker and Barro 1988). A general feature of these models is the presence of constant or increasing returns in the factors that can be accumulated (Lucas 1988; Romer 1989; Rebelo 1991). One strand of the literature on endogenous economic growth concerns models in which private and social returns to investment diverge, so that decentralized choices lead to suboptimal rates of saving and economic growth (Arrow 1962; Romer 1986). In this setting, private returns to scale may be diminishing, but social returns—which reflect spillovers of knowledge or other externalities—can be constant or increasing. Another line of research involves models without externalities, in which the privately determined choices of saving and growth
are Pareto optimal (Rebelo 1991). These models rely on constant returns to private
capital, broadly defined to encompass human and nonhuman capital.

1.1.4 Public expenditure and Economic Growth in Kenya

The Kenyan economy, East Africa's largest, has experienced considerable growth in
the past few years, driven by several key factors. The country enjoys some particular
advantages: a reasonably well-educated labour force, a vital port that serves as an
entry point for goods destined for countries in the East African and Central Africa
interior, abundant wildlife and kilometres of attractive coastline and above all, a
government that is committed to implementing business reforms.

Kenya's economy is market-based, with a few state-owned infrastructure enterprises,
and maintains a liberalized external trade system. The country is generally perceived
as Eastern and central Africa's hub for Financial, Communication and Transportation
services. As at May 2010, economic prospects are positive with 4-5% GDP growth
expected, largely because of expansions in tourism, telecommunications, transport,
construction and a recovery in agriculture. These improvements are supported by a
large pool of English speaking professional workers. There is a high level of computer
literacy, especially among the youth. The government, generally perceived as
investment friendly, has enacted several regulatory reforms to simplify both foreign
and local investment. An increasingly significant portion of Kenya's foreign inflows is
from remittances by non-resident Kenyans who work in the US, Middle East, Europe,
Asia and Antarctica. Compared to its neighbours, Kenya has a well-developed social
and physical infrastructure. It is considered the main alternative location to South Africa, for major corporations seeking entry into the African continent.

Economic growth in Kenya has been hampered by corruption and by reliance upon several primary goods whose prices have remained low. Low infrastructure investment threatens Kenya's long-term position as the largest East African economy. In the key December 2002 elections, Daniel Arap Moi's 24-year-old reign ended, and a new opposition government took on the formidable economic problems facing the nation. After some early progress in rooting out corruption and encouraging donor support, the Kibaki government was rocked by high-level graft scandals in 2005 and 2006. In 2006, the World Bank and IMF delayed loans pending action by the government on corruption. The international financial institutions and donors have since resumed lending, despite little action on the government's part to deal with corruption. Unemployment is very high. The country has experienced chronic budget deficits, inflationary pressures, and sharp currency depreciation - as a result of high food and fuel import prices. The discovery of oil in March 2012 provides an opportunity for Kenya to balance its growing trade deficit if the deposits are found to be commercially viable and Kenya is able to develop a port and pipeline to export its oil.

1.2 Problem Statement

The question whether or not government expansion causes economic growth has divided policy makers into two distinctive theoretical camps, as proponents of either big government or small government. Economic theory would suggest that on some
occasions lower levels of public expenditure would enhance economic growth while on other occasions higher levels of public expenditure would be more desirable. From an empirical perspective the evidence generated becomes more confusing as a number of studies favour one or the other approach. Extensive research has been undertaken in an attempt to gauge the extent to which public expenditure (PE) affects economic growth (EG). Theoretically speaking, the pendulum appears to be swaying towards the conventional wisdom, i.e., GS is a source of economic instability. From an empirical perspective, however, the evidence generated points towards a more mixed picture.

The empirical evidence on the relation between economic growth and government investment has been mixed. Barro (1991) in a study of 98 developed and developing economies finds a positive but insignificant relation between public investment and economic growth over the 1960-1985 period. Easterly and Rebelo (1993) find a positive association between public investment and economic growth, in particular, transport and communication. Devarajan et al. (1996) find a negative relation between the capital component of public investment and economic growth for a group of developing economies. They attribute this to the misallocation of public capital expenditure by developing countries causing them to be unproductive at the margin.

defense, agriculture, transport and communication on economic growth with data spanning from 1972 to 2008. The results of the few studies that have been carried out in Kenya have been conflicting. There is therefore a gap in literature as far as a study on the effects of public expenditure on economic growth in Kenya is concerned. The following research question is therefore explored: how does public expenditure affect economic growth in Kenya?

1.3 Research Objective

The objective of this research was to investigate the effects of public expenditure on the economic growth of Kenya.

1.4 Value of the Study

The study will be significant to the government in the sense that Kenya has faced fluctuating economic growth rates in the past decade. Understanding the effects of public expenditure on economic growth will therefore be important in explaining these fluctuations.

The findings of this study will be significant to academicians in that it will add to the knowledge of the researchers in this field of study. Further studies can therefore be carried out as this is used as a reference point. Recommendations provided for further research will also guide in areas that need more research.
The findings will also be significant to policymakers in that it will serve as a guide to them when making government policies such as fiscal and monetary policies. Should some of the factors related to public expenditure in this study be found to significantly influence economic growth, such information can then guide policy decisions.
CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter presents the literature review. First, a theoretical review is provided focusing on theories that explain the issues of public expenditure and its effects on economic growth. Secondly, the empirical review of the studies that have been done on the effects of public expenditure on economic growth is made. The research gap is then provided.

2.2 Theoretical Review

This study will be based on three main theories. These are: Keynesian theory, Classical Economic theory and the multiplier effect theory. These are presented below.

2.2.1 Multiplier Effect and Public Expenditure

Proponents of public expenditure often point to the fiscal multiplier as a way that spending can fuel growth. The multiplier is a factor by which some measure of economy-wide output (such as GDP) increases in response to a given amount of public expenditure. According to the multiplier theory, an initial burst of public expenditure trickles through the economy and is re-spent over and over again, thus growing the economy. A multiplier of 1.0 implies that if government created a project that hired 100 people, it would put exactly 100 (100 x 1.0) people into the workforce. A multiplier larger than 1 implies more employment, and a number smaller than 1 implies net job loss.
The fiscal multiplier is seen as a way that public expenditure can fuel growth. However, Barro & Redlick (2009), Ramey (2009) found that in practice, unproductive government spending is likely to have a smaller multiplier effect and that government spending may actually decrease economic growth, possibly due to inefficient use of money. In fact, a large pool of studies found no positive correlation between public expenditure and economic growth. For instance, Mueller & Stratmann (2002) in a study of 76 countries, Akpan (2005) and Laudau (1983), Wadal and Kamel (2009), Tomori and Adebiyi (2002), Fosu (2001) and Adebiyi (2003) found a statistically significant but negative relationship between public expenditure and economic growth.

2.2.2 Keynesian Theory

This theory suggests that governments should play a much larger role in the economy. His vision was one of reformed capitalism, managed capitalism—capitalism saved both from socialism and from itself. Keynes talked about a "somewhat comprehensive socialization of investment" and the state's taking "an ever greater responsibility for directly organizing investment." Fiscal policy would enable wise managers to stabilize the economy without resorting to actual controls. The bulk of decision making would remain with the decentralized market rather than with the central planner. Keynes (1964) advocated for public expenditure to create jobs and employ capital that has been unemployed or underutilized when an economy is in a downturn with high unemployment of labour and capital. Keynes's theory postulates that public expenditure is needed to increase economic output and promote growth.
Keynes provided both a specific rationale for government's taking a bigger role in the economy and a more general confidence in the ability of government to intervene and manage effectively. Despite Keynes's fascination with uncertainty and his speculative talents in the marketplace, Keynesians deemed "government knowledge" to be superior to that of the marketplace. He argued that when the economy is in a downturn and unemployment of labour and capital is high, governments can spend money to create jobs and employ capital that have been unemployed or underutilized. Keynes's theory has been one of the implicit rationales for the current federal stimulus spending: it is needed to boost economic output and promote growth (Ramey, 2009).

2.2.3 Classical Theories

The term 'Classical' refers to work done by a group of economists in the 18th and 19th centuries. Much of this work was developing theories about the way markets and market economies work. Much of this work has subsequently been updated by modern economists and they are generally termed neo-classical economists, the word neo meaning 'new'. Classical economists were not renowned for being a happy, optimistic bunch of economists (in terms of their economic thinking). Some believed that population growth would be too rapid for the resources available. If this wasn't enough to depress the rate of long-term growth (and the rest of the population along with it) then diminishing returns would cause further problems for growth (Barro, 1990).

They believed that the government should not intervene to try to correct this as it would only make things worse and so the only way to encourage growth was to allow
free trade and free markets. This approach is known as a 'laissez-faire' approach. Essentially this approach places total reliance on markets and anything that prevent markets clearing properly should be done away with. Much of Adam Smith's early work was on this theme, and he introduced the notion of an invisible hand that guided economic activity and led to the optimum equilibrium (Barro, 1990).

2.3 Empirical Review

There is a fair amount of research on the relationship between public spending and outcomes. The research on endogenous growth in the 1990s had produced several models linking public spending with the economy's long-term growth rate. Mittnik and Neumann (2003), and De la Croix and Delavallade (2006), among others, have studied the relationship between public spending and economic growth. A number of these studies find conflicting results regarding the growth impact of different types of sectoral spending. For example, Easterly and Rebelo (1993) show that public investment in transport and communication in developing countries is positively correlated with growth with a very high coefficient. On the other hand, using data from 43 developing countries over 20 years, Devarajan et al. (1996) find that capital spending—in particular, public investments in transport and communication—has a negative correlation with real per capita GDP growth.

The empirical evidence on the relation between economic growth and government investment has been mixed. Barro (1991) in a study of 98 developed and developing economies finds a positive but insignificant relation between public investment and economic growth over the 1960-1985 period. Easterly and Rebelo (1993) find a
positive association between public investment and economic growth, in particular, transport and communication. Devarajan et al. (1996) find a negative relation between the capital component of public investment and economic growth for a group of developing economies. They attribute this to the misallocation of public capital expenditure by developing countries causing them to be unproductive at the margin.

The studies of Hulton (1996), Pritchett (1996) and Aschauer (2000) examine the effectiveness of public capital in economic growth. Pritchett argues that public investment may not create productive capital in the developing countries due to inappropriate use. His argument is based on estimates of an implied relative effectiveness coefficient on public capital investment which is defined as the ratio of government investment that passes into public capital growth if the returns to capital on private and public capital are equal. Hulton constructs an index of government capital effectiveness by aggregating mainline telephone faults per 100 telephone calls, electricity generation losses as a percent of total output, the percentage of paved roads in good condition and diesel locomotive availability as a percent of the total. Assigning each of these indicators quartile rankings and then averaging across these rankings to obtain an aggregate infrastructure effectiveness index, he finds that infrastructure effectiveness is the single most important variable explaining growth differentials between countries. Aschauer, uses the same indicators as Hulton, however, normalizes each indicator rather than assigning it a quartile ranking and averages the normalized indicators to construct a public capital effectiveness index. Examining both the effects of the quantity and effectiveness of public capital on economic growth, Aschauer concludes that both these factors lead to increases in output per head.
Arpaia & Turrini (2004) analysed both the long and the short-run relation between government expenditure and potential output in EU countries. From a long-term perspective, it improves the understanding of the links between output growth and public finances sustainability. Over a medium- to short-run horizon, it provides a benchmark to evaluate the stance of expenditure policy. In the analysis, the panel dimension of the data set is exploited in such a way: (i) to improve the power of statistical tests for the analysis of the dynamic properties of macroeconomic series through panel unit root and panel cointegration tests; (ii) to obtain country-specific information on adjustment dynamics by means of pooled mean group estimation (Pesaran, Shin and Smith, 1999). Results show that, over a sample comprising EU-15 countries over the 1970-2003 period, it cannot be rejected the hypothesis of a common long-term elasticity between cyclically-adjusted primary expenditure and potential output close to unity. The long-run elasticity is however not stable over time (it decreased considerably over the decades) and is significantly higher than unity in catching-up countries, in fast-ageing countries, in low-debt countries, and in countries with weak numerical rules for the control of public expenditure. The average speed of adjustment of government expenditure to its long-tern relation is 3 years, but there are significant differences across countries. Anglo-saxon and Nordic countries exhibit in general a faster adjustment process, while adjustment in Southern European countries appears somehow slower.

Cooray (2009) investigates the role of the government in economic growth by extending the neoclassical production function to incorporate two dimensions of the government - the size and the quality dimensions. The government size- and quality-augmented model, where size is measured by government expenditure and quality by
governance, is tested on a cross section of 71 economies. Estimation is also carried out on the sample by income distribution. The empirical results indicate that both the size and quality of the government are important for economic growth. It is argued that investing in the capacity for enhanced governance is a priority for the improved growth performance of the countries examined.

Alexiou (2009) provides further evidence on the relationship between economic growth and public expenditure. For the first time two different panel data methodologies have been applied to seven transition economies in the South Eastern Europe (SEE), generating significant results which, if considered, may enhance the economic performance of the countries in the region. More specifically, the evidence generated indicate that four out of the five variables used in the estimation i.e. public expenditure on capital formation, development assistance, private investment and trade-openness all have positive and significant effect on economic growth. Population growth in contrast, is found to be statistically insignificant.

Loizides & Vamvoukas (2004) sought to examine if the relative size of government (measured as the share of total expenditure in GNP can be determined to Granger cause the rate of economic growth, or if the rate of economic growth can be determined to Granger cause the relative size of government. For this purpose, they first used a bivariate error correction model within a Granger causality framework, as well as adding unemployment and inflation (separately) as explanatory variables, creating a simple ‘trivariate’ analysis for each of these two variables. The combined analysis of bivariate and trivariate tests offers a rich menu of possible causal patterns.
Using data on Greece, UK and Ireland, the analysis shows: i) government size Granger causes economic growth in all countries of the sample in the short run and in the long run for Ireland and the UK; ii) economic growth Granger causes increases in the relative size of government in Greece, and, when inflation is included, in the UK.

Nijkamp & Poot (2002) conducted a meta-analysis of past empirical studies of fiscal policy and growth and found that in a sample of 41 studies, 29% indicate a negative relationship between fiscal policy and growth, 17% a positive one, and 54% an inconclusive relationship. One of the contributory factors to these varied empirical results is the measure used to proxy for fiscal policy. Different investigators have used different measures of public expenditure as proxies for government size, e.g. total public expenditure, government consumption, total government revenue, or functional categories of government expenditure among others. Most of these measures are expressed as shares in GDP (GNP) either as levels or as growth rates. Admittedly, the choice of a given measure depends on which data series are available to the researcher, and given that some measures are better than others, results are bound to differ.

Singh and Sahni (1984) initially examined the causal link between government expenditure and national income. Subsequently, their work has generated many other studies, the results of which range the full continuum from no causality to bidirectional causality between these two variables. Ram (1987), among the existing causality studies, suggested that differences in the nature of underlying data, the test procedure and the period studied may explain the diversity in results. A few years
later, Ahsan, Kwan and Sahni (1992) added various other factors that may explain the inconsistency amongst the results obtained by different authors, one of which is the influence of 'omitted' variables. It is suggested that failure to account for omitted variables can give rise to a misleading causal ordering among the variables.

Bone, Haque & Osborn (2007) examined the growth effects of government expenditure for a panel of 30 developing countries over the 1970s and 1980s, with a particular focus on disaggregated government expenditures. Their methodology improves on previous research on this topic by explicitly recognizing the role of the government budget constraint and the possible biases arising from omitted variables. Their primary results are twofold. First, the share of government capital expenditure in GDP is positively and significantly correlated with economic growth, but current expenditure is insignificant. Second, at the disaggregated level, government investment in education and total expenditures in education are the only outlays that are significantly associated with growth once the budget constraint and omitted variables are taken into consideration.

Wahab & Kolluri (2007) evaluated the asymmetries in the conditional relation of government expenditure and economic growth. They argued that traditional test specifications of this relationship suffer from aggregation (or omitted variables) biases by failing to distinguish between diverse economic growth experiences and their impact on government expenditure. They re-examined the evidence concerning Wagner’s Law using a proposed conditional test specification that is capable of: (a) separating periods of strong and weak economic growth. (b) accommodating possible
asymmetries in the marginal responses of government expenditure to variations in economic growth and (c) distinguishing between positive and negative asymmetries in such responses. They present evidence showing that: (a) the majority of government expenditure responses tend to occur during periods of an economic slowdown characterized by GDP growth that is below trend-growth; and (b) there is little evidence suggesting that government expenditure increases markedly during periods of an economic expansion when GDP growth is at/above trend-growth. Results from several tests of hypotheses also corroborate these findings. When they aggregated response coefficients across periods of above trend-growth and below trend-growth, they obtained an elastic aggregate response coefficient for OECD countries in line with Wagner's proposition. However, the evidence seems less forthcoming for EU economies. Nonetheless, the estimated cumulative response coefficient from their conditional asymmetric specification exceeds the estimated response coefficient from a traditional symmetric test specification which appears biased against finding support for Wagner's proposition due to omission of important directional asymmetry variables from the estimating equation.

Based on country-specific single equation models, Kolluri et al. (2000) investigate G7 countries over the 1960-1993 period. They find that government expenditure is generally cointegrated with income, that the long-term income elasticities of government expenditure is slightly above unity in all countries both for government consumption and government transfers, and that short-term elasticities differ widely across countries and average around 0.5 (implying about 1/0.5=2 years for public expenditure to return to its long-term relation with GDP). Akitoby et al. (2004), focus on a set of developing countries between 1970 and 2002. Unit root and cointegration
tests on individual country series reveal that government expenditure is often cointegrated with income; country-level ECM estimation yields long-term income elasticities on average slightly above unity and short-term elasticities on average around 0.3. Wahab (2004) analyses a group of OECD countries over the 1950-2000 period. In this paper, individual country series are checked for unit roots and panel estimations for ECM specifications are performed for alternative country groupings. It is found that over the whole sample government expenditure increases less than proportionately with income (long-term income elasticity slightly below unity). The same result is obtained by limiting the sample only to EU countries. The response of government expenditure to GDP, however, is found to be asymmetric. While government expenditure increases less than proportionally when growth is below trend, it falls more than proportionally when growth is below trend.

M’Amanja & Morrissey (2005) carried out a study on fiscal policy and economic growth in Kenya. The question of whether or not fiscal policy stimulates growth has dominated theoretical and empirical debate for a long time. One viewpoint believes that government involvement in economic activity is vital for growth, but an opposing view holds that government operations are inherently bureaucratic and inefficient and therefore stifles rather than promotes growth. In the empirical literature, results are equally mixed. The aim of this paper is not to resolve the raging debate but to add to the fiscal policy-growth literature by examining the case of a small open developing country, Kenya. They used time series techniques to investigate the relationship between various measures of fiscal policy on growth on annual data for the period 1964 – 2002. Categorising government expenditure into productive and unproductive and tax revenue into distortionary and non-distortionary, they found unproductive
expenditure and nondistortionary tax revenue to be neutral to growth as predicted by economic theory. However, contrary to expectations, productive expenditure has strong adverse effect on growth whilst there was no evidence of distortionary effects on growth of distortionary taxes. On the other hand, government investment was found to be beneficial to growth in the long run. These results should prove useful to policy makers in Kenya in formulating expenditure and tax policies to ensure unproductive expenditures are curtailed while at the same time boosting public investment.

Rajkumar & Swarrop (2007) studied the links between public spending, governance, and outcomes. They examined the role of governance—measured by the level of corruption and the quality of bureaucracy—in determining the efficacy of public spending in improving human development outcomes. Their analysis contributes to our understanding of the relationship between public spending, governance and outcomes, and helps explain the surprising result that public spending often does not yield the expected improvement in outcomes. They show empirically that the differences in the efficacy of public spending can be largely explained by the quality of governance. Public health spending lowers child mortality rates more in countries with good governance. Similarly, public spending on primary education becomes more effective in increasing primary education attainment in countries with good governance. More generally, public spending has virtually no impact on health and education outcomes in poorly governed countries. These findings have important implications for enhancing the development effectiveness of public spending. The lessons are particularly relevant for developing countries, where public spending on education and health is relatively low, and the state of governance is often poor.
Muthui, et al. (2013) carried out a study to find out the impact of public expenditure composition on economic growth in Kenya from 1964 to 2011. The specific objectives of the study were to investigate the impact of government expenditure on components: education, infrastructure, health, defense and public order and security on economic growth in Kenya. This study employed use of annual Kenyan data for the period 1964 to 2011 for all the variables. The study conducted Stationarity Test, Causality Test, Cointegration Tests before using vector error correction model to estimate the data. The survey showed that though government expenditure on education is positively related to economic growth it does not spur any significant change to growth. Based on this, investing in more and better-distributed education in the labour force will help create conditions that could lead to higher productivity and higher economic growth. On health while an increased expenditure on improving health might be justified purely on the grounds of its impact on labour productivity. This supports the case for investments in health as a form of human capital. To reduce the huge budget outlay for importing medicine and drugs, this study recommended for government to support research and development in this sector locally. It was also noted that the government should encourage programs like Build Operate and Transfer (BOT) to foster increased investment and provision of public utilities. As a result of this relationship between private and public investment, the government should come up with policies that brings a balance between the two.

Mudaki & Masaviru (2012) investigated the impact of public spending on education, health, economic affairs, defense, agriculture, transport and communication on economic growth with data spanning from 1972 to 2008. The data was differenced to make it stationary then linearized for estimation using ordinary least squares. The
findings showed that expenditure on education was a highly significant determinant of economic growth while expenditure on economic affairs, transport and communication were also significant albeit weakly. In contrast, expenditure on agriculture was found to have a significant though negative impact on economic growth. Outlays on health and defence were all found to be insignificant determinants of economic growth. The findings did not conform to apriori expectations.

Njenga (2013) examine the case for Kenya by analyzing the relationship between government expenditure and GDP growth. Historical annual data for Kenya from 1963-2008 obtained from published government documents mainly the annual economic surveys and statistical abstracts were utilized. A multivariate time series analysis was conducted with emphasis on the shape of impulse response functions under VAR and causal patterns established using Granger causality tests were adopted to show how government expenditure and inevitably size of government interact with GDP growth. The results of the analysis show that even though GDP level in one period determines its own level in future periods; government expenditure actually influences GDP in the medium and long term. Similarly, government size has a positive influence on GDP only in the short run but this effect becomes negative in the long run. Thus government must continue to spend more in productive areas to ensure economic growth.

2.4 Summary of Literature

This chapter has presented the various theories that explain public expenditure and economic growth of countries. The review carried out above has also presented the
various effects of public expenditure on economic development of various countries. As can be observed, studies have found mixed results on the causal relationship between public expenditure and economic growth. In some cases, the relationship runs from public expenditure to economic growth while in some it runs from economic growth to public expenditure.

Further, the results have also shown that the factors that affect economic growth are varied and range from factors such as market openness to legislative environment. In some cases, these factors positively influence economic growth while in some it has a negative effect. Thus, the debate on how public expenditure and economic growth are related is still an unresolved area of study hence the need for the present study.
CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the method that was used in the collection of data pertinent in answering the research questions. It is divided into research design, population and sample design, data collection, and data analysis methods.

3.2 Research Design

The study used a correlation design. This was because this method most captured the objectives of the study. In this manner, the study was able to establish the relationship between the variables in the study. This was therefore the appropriate research design in this study.

3.3 Sampling Design

An 11-year period between 2002 and 2012 was selected on which the research was based. The period between 2002 and 2012 was representative enough in analyzing the relationship that is present between the variables. The period between 2002 and 2012 consisted of sample data that had undergone several phases like economic recovery just after the 2002 general elections, recession period after the post election violence in 2007, a recovery between 2009 and 2010 before another slump in 2012.

3.4 Data Collection

Data collected for the research were from secondary sources mainly found in official government publications and other government departments like the Central Bank of Kenya and Kenya National Bureau of statistics. Data was also collected from the
World Bank website database. Secondary data was useful in building the model and conducting tests thereon. Yearly data for the variables in the study from 2002 – 2011 were collected from these sources.

3.5 Data Analysis

The data so collected was organised in an Excel spreadsheet and prepared for analysis. Descriptive analysis was performed on the data to show the trends on the variables as well as the mean, median, standard deviations, minimum and maximum values. The stationarity of the variables was examined to avoid the existence of spurious estimation results. For this purpose, Augmented Dickey-Fuller (ADF) test was used for observing the order of integration of the variables. Long-run relationship was tested by applying Ordinary Least Square (OLS) method. The results were presented in tables and charts. The following model was estimated:

\[ Y = \beta_0 + \beta_1 K + \beta_2 L + \beta_3 G + \beta_4 F + \beta_5 H + \varepsilon \]

Where

\( Y \) = Percentage change in real GDP

\( K \) = percentage change in private investment (Gross fixed capital formation, private sector)

\( L \) = population growth (proxy for labour force)

\( G \) = percentage change in public expenditure for capital formation

\( F \) = percentage change in net official development assistance

\( H \) = percentage change in net exports (proxy for trade openness)
This model was employed by Alexiou (2009) to examine the relationship between economic growth and public expenditure. The model was chosen for the study because it included variables that were relevant to the Kenyan economic environment and hence was appropriate for this study.
4.1 Introduction

This chapter presents the results of the study. The chapter is organized as follows. The first section presents the descriptive results where the trend of time series data is presented using charts together with summary descriptive results in a tabular form. The second section presents the results of unit root tests while the third section presents the serial correlation test results. Finally, the last section presents the results of OLS regression.

4.2 Descriptive Results

This section presents the trend of data series as well as the summary descriptive results on all the series used in the study.

Figure 1: Percentage Change in Real GDP

![Percentage Change in Real GDP](image)

The results in Figure 1 show that there has been a cyclical movement in the trend of percentage change in real GDP from 2002 to 2012. The results show a rise in the growth of real GDP from 2002 to 2007 before falling sharply in 2008. The decline in 2008 can be attributed to the 2007/2007 post election violence which dumped

Figure 2: Population Growth

![Population Growth](image)

Figure 2 shows the results for the trend of population growth in Kenya from 2002 to 2012. As the results show, the trend can be said to be of a quadratic nature, rising from 2002 to 2004 and falling to the lowest in 2008 then rising again to 2012.

Figure 3: Percentage Change in Public Expenditure for Capital Formation

![Percentage Change in Public Expenditure](image)
Figure 3 shows the trend of percentage change in public expenditure for capital formation. The results depict a picture of a general upward rise in public expenditure. The change was negative in 2002 and 2003 before rising in 2004 to the highest in 2005 and then falling sharply from 2005 to 2009. Since then, the expenditure has been rising.

Figure 4: Percentage Change in Private Investment

The results in Figure 4 show the trend in change in private investment from 2002 to 2009. As shown, there is a linear rise in private investment over the period within which data was available. This suggests that private investment has been rising in Kenya since 2002.
Figure 5 shows the results of the trend of change in net official development assistance from 2002 to 2011. As the results reveal, the trend has been linear as there has been an upward rise in net ODA to Kenya since 2002.

Figure 6 shows the trend of percentage change in net exports (an indicator of trade openness) from 2002 to 2012. It is not clear what this trend is as it has a series of upward and downward movements over the entire period with lowest in 2009 where the change was negative and the highest change in 2010.
Table 1 presents the summary descriptive results. As shown, economic growth (Y) ranged from 0.54% to 6.99% with a mean of 4% and a standard deviation of 2.39%. The results also show that private investment (K) ranged from 25.1% to 26.5% with a mean of 25.98% and a standard deviation of 0.57%. It was also noted that population growth (L) ranged from 2.67% to 2.70% with a mean of 2.68% and a standard deviation of 0.01%. The results further showed that public expenditure (G) ranged from -7.95% to 27.79% with a mean of 8.18% and a standard deviation of 12.06%. Further, the results show that net ODA (F) ranged from 19.79% to 21.29% with a mean of 20.57% and a standard deviation of 0.52%. The results also show that net export (II) ranged from -9.31% to 12.59% with a mean of 5.48% and a standard deviation of 6.55%.

4.3 Unit Root Test

The unit root test of stationarity of time series data is determined prior to cointegration and causality tests. Non-stationary data are unpredictable and cannot be modeled or forecasted. The results obtained by using non-stationary time series may be spurious in that they may indicate a relationship between two variables where one does not exist. In order to receive consistent, reliable results, the non-stationary data needs to be transformed into stationary data. In contrast to the non-stationary process that has a variable variance and a mean that does not remain near, or returns to a long-
run mean over time, the stationary process reverts around a constant long-term mean and has a constant variance independent of time. The results of ADF test are shown as follows.

Table 2: Unit Root Test Results

<table>
<thead>
<tr>
<th>Variables</th>
<th>Level</th>
<th>1st Difference</th>
<th>2nd Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real GDP, Y</td>
<td>-2.867 (0.0837)</td>
<td>-2.963 (0.0761)</td>
<td>-3.416 (0.0492)</td>
</tr>
<tr>
<td>Population growth, L</td>
<td>-8.745 (0.0001)</td>
<td>-4.746 (0.0082)</td>
<td>-1.489 (0.4799)</td>
</tr>
<tr>
<td>Private investment, K</td>
<td>-1.632 (0.4186)</td>
<td>-3.354 (0.0691)</td>
<td>-15.742 (0.0002)</td>
</tr>
<tr>
<td>Public expenditure, G</td>
<td>-4.489 (0.0096)</td>
<td>-2.259 (0.2013)</td>
<td>-3.385 (0.0511)</td>
</tr>
<tr>
<td>Net ODA, F</td>
<td>-1.965 (0.2926)</td>
<td>-5.350 (0.0042)</td>
<td>-7.641 (0.0007)</td>
</tr>
<tr>
<td>Net exports, H</td>
<td>-4.334 (0.0095)</td>
<td>-3.819 (0.0261)</td>
<td>-5.303 (0.0060)</td>
</tr>
</tbody>
</table>

The ADF test for unit root in Table 2 reveals that the null hypothesis of unit root in second difference is rejected for real GDP (Y) at the 5% level of significance. Therefore, the variable Y is stationary. Population growth (L) is stationary in level at the 1% level of significance. The results also show that private investment (K) is stationary in second difference at the 1% level of significance, public expenditure (G) is stationary in level at the 1% level of significance, net official development assistance (F) is stationary in first difference at the 1% level of significance and net exports (H) is stationary in level at the 1% level of significance. There is therefore a long run relationship between public expenditure and economic growth. The model to be analyzed is therefore revised as follows based on the non-stationarity tests above.

\[ Y(-2) = \beta_0 + \beta_1 K(-2) + \beta_2 L + \beta_3 G + \beta_4 F(-1) + \beta_5 H + \varepsilon \]

4.4 Serial Correlation Tests

Table 3 shows the results of correlation for all the variables used in the study. The reason for carrying out the correlation is to examine whether there were any serial
correlations between the independent variables which may lead to spurious results should the variables be applied in the model without further treatment.

Table 3: Correlation Results

<table>
<thead>
<tr>
<th></th>
<th>Y</th>
<th>K</th>
<th>L</th>
<th>G</th>
<th>F</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real GDP (Y)</td>
<td>1</td>
<td>0.40513</td>
<td>-0.89105</td>
<td>-0.10725</td>
<td>0.249542</td>
<td>-0.76946</td>
</tr>
<tr>
<td>Private investment (K)</td>
<td>0.40513</td>
<td>1</td>
<td>-0.48975</td>
<td>-0.49983</td>
<td>0.944043</td>
<td>-0.22466</td>
</tr>
<tr>
<td>Population growth (L)</td>
<td>-0.89105</td>
<td>-0.48975</td>
<td>1</td>
<td>0.156141</td>
<td>-0.25016</td>
<td>0.437776</td>
</tr>
<tr>
<td>Public expenditure (G)</td>
<td>-0.10725</td>
<td>-0.49983</td>
<td>0.156141</td>
<td>1</td>
<td>-0.42314</td>
<td>0.210767</td>
</tr>
<tr>
<td>Net ODA (F)</td>
<td>0.249542</td>
<td>0.944043</td>
<td>-0.25016</td>
<td>-0.42314</td>
<td>1</td>
<td>-0.23945</td>
</tr>
<tr>
<td>Net exports (H)</td>
<td>-0.76946</td>
<td>-0.22466</td>
<td>0.437776</td>
<td>0.210767</td>
<td>-0.23945</td>
<td>1</td>
</tr>
</tbody>
</table>

As shown in Table 3, the results show that there is a potential for private investment (K) to be problematic as it is highly correlated with net ODA (F). Therefore, the modified model where their first differences are used in the final regression model is preferred as a way to treat the variables before running an OLS model regression in the next section.

4.5 OLS Regression Analysis Results

This section presents the results of an OLS regression on the modified model for the relationship between public expenditure and economic growth. The results are shown in Table 4.

Table 4: Relationship between Public Expenditure and Economic Growth

<table>
<thead>
<tr>
<th>Variable</th>
<th>Statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private investment</td>
<td>1.442</td>
<td>0.6876</td>
</tr>
<tr>
<td>Population growth</td>
<td>-104.531</td>
<td>0.1534</td>
</tr>
<tr>
<td>Public expenditure</td>
<td>0.045</td>
<td>0.3868</td>
</tr>
<tr>
<td>Net ODA</td>
<td>-1.323</td>
<td>0.6951</td>
</tr>
<tr>
<td>Net exports</td>
<td>-0.163</td>
<td>0.0677</td>
</tr>
<tr>
<td>Constant</td>
<td>274.928</td>
<td>0.1992</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.9840</td>
<td></td>
</tr>
<tr>
<td>Adjusted R-squared</td>
<td>0.9440</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>24.6324</td>
<td>0.0394</td>
</tr>
</tbody>
</table>
As shown in Table 4, the study finds a strong positive relationship between private investments and economic growth in Kenya. Population growth and net ODA have weak negative relationship with the economic growth in Kenya. The results show that at 10% level of significance; net exports (H) variable has a significant negative impact on economic growth. The impact is negative suggesting that more trade openness leads to slower economic growth in Kenya. The model explained 98.4% of the variance in economic growth (R-squared = 0.9840). The independent variables were jointly significant in explaining the variance in the dependent variable (F=24.63, p < 0.05).

4.6 Summary and Interpretation of Findings

The study found that public expenditure has a strong positive effect on economic growth. This is consistent with those of Alexiou (2009) in SEE countries who found that public expenditure had a positive and significant effect on economic growth. These results fall under the 54% by Nijkamp & Poot (2002) who conducted a meta-analysis of past empirical studies of fiscal policy and growth and found that in a sample of 41 studies, 54% showed inconclusive relationship.

These results are however inconsistent with Barro (1991) who found a positive but insignificant relation between public investment and economic growth over the 1960-1985 period in 98 developed and developing countries.
The study found that private investment had a strong positive effect on economic growth in Kenya. This is inconsistent with those of Alexiou (2009) who found that private investment has a positive and significant effect on economic growth in SEE countries.

The present study found a negative and weak impact of population growth on economic growth at all acceptable levels of significance in Kenya. This is consistent with Alexiou (2009) who found that population growth did not have any statistically significant impact on economic growth in SEE counties.

The study found that net ODA had a negative and weak effect on economic growth at all acceptable levels of significance. This is inconsistent with those of Alexiou (2009) who found that development assistance had a positive and significant effect on economic growth in SEE countries.

The results showed that at 10% level of significance, net exports (H) had a negative and strong impact on economic growth. This is consistent with the findings of Alexiou (2009) who found that trade openness had a positive and significant effect on economic growth in SEE countries.
CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of findings, conclusions made from the study, limitations of the study, recommendations for policy and practice, and areas for further research.

5.2 Summary

The objective of this research was to investigate the effects of public expenditure on the economic growth of Kenya. To do this, secondary data was collected based on the model from literature. Unit root tests were performed, serial correlation test run and the model modified for final OLS regression analysis. The results were then presented in tables and charts.

The study found that from the descriptive analysis that economic growth (Y) ranged from 0.54% to 6.99% with a mean of 4% and a standard deviation of 2.39%. The results also show that private investment (K) ranged from 25.1% to 26.5% with a mean of 25.98% and a standard deviation of 0.57%. It was also noted that population growth (L) ranged from 2.67% to 2.70% with a mean of 2.68% and a standard deviation of 0.01%. The results further showed that public expenditure (G) ranged from -7.95% to 27.79% with a mean of 8.18% and a standard deviation of 12.06%. Further, the results show that net ODA (F) ranged from 19.79% to 21.29% with a mean of 20.57% and a standard deviation of 0.52%. The results also show that net export (H) ranged from -9.31% to 12.59% with a mean of 5.48% and a standard deviation of 6.55%.
The study found from the OLS regression analysis that public expenditure does not have a significant effect on economic growth at all acceptable levels of significance. The study found no evidence of the influence of private investment, population growth, and net ODA on economic growth at all acceptable levels of significance. The results showed that at 10% level of significance, net exports (H) had a negative and significant impact on economic growth. The model explained 98.4% of the variance in economic growth (R-squared = 0.9840) and the independent variables were jointly significant in explaining the variance in the dependent variable (F=24.63, p < 0.05).

5.3 Conclusion
The study concludes that public expenditure in Kenya as measured by percentage change in public expenditure for capital formation has a significant positive impact on economic growth (measured as the percentage change in real GDP). As the results showed, public expenditure had a significant relationship with economic growth. These findings support those that have found positive and significant relationship between public expenditure and economic growth.

The results also lead to the conclusion that trade openness affects economic growth in Kenya. As the results showed, net exports had a weak negative effect on economic growth in Kenya. This is consistent with several other prior studies that have established significant relationships between trade openness and economic growth. Therefore, as the trade openness index of Kenya increases, economic growth is dampened.
The study concludes that private investment influences economic growth in Kenya. The results showed that private investment had a positive significant impact on economic growth. Therefore, this study is inconsistent with a number of studies which found positive and insignificant effect on economic growth.

The study concludes that population growth does not influence economic growth in Kenya. The results showed that population growth had a negative but insignificant impact on economic growth. This is consistent with prior literature which found that population growth did not significantly impact economic growth.

The study concludes that net ODA does not affect economic growth in Kenya. The results had found a negative but insignificant impact on economic growth. These results are inconsistent with prior literature which has shown significant relationship between development assistance and economic growth.

5.4 Limitations of the Study

This study was focused on Kenya. This means that the results are unique to Kenya and may not be generalised to other countries which were not the focus of the present study. Therefore, such conclusions for other countries should be approached with this fact in mind.

The study also collected data for 2002 – 2012. This is a very recent period which may not provide the true picture of the relationship between the variables examined in this study as opposed to when this period would be made longer than it was in this case. This period is less than 20 years and such a sample period may not be very valuable.
for some of the interpretations that involve time series where long run relationships need to be established.

The choice of variables was dependent on the availability of data and therefore not many variables were included in the model. This should have been better had more data been available for more variables to be included in the model.

5.5 **Recommendations**

The study recommends that although the evidence in this study does not provide support for any relationship between public expenditure and economic growth in Kenya, it is important that such government expenditures be on areas that may be productive to the economy. Evidence suggests that most of public expenditure in Kenya is into the wage bill which has grown huge over the years and this trend needs to be changed to increase expenditure in productive sectors of the economy in order to record improved economic growth. To this end, the Vision 2030 blueprint comes in handy.

The study recommends that the government of Kenya should focus on examining the role of trade openness (measured as the net exports) as there is some evidence that rising imports (which lead to negative net export figures) may hamper economic growth of Kenya. Therefore, the trade imbalance as regards the exports needs a thorough policy review to encourage more exports of finished goods than the current exports of raw materials which lead to import of the same as finished goods and therefore bring trade imbalances. Value addition should be a key policy issue for the current government.
The study also recommends that since private investment may have a positive impact on economic growth, policies should be geared towards enhancing private investment in Kenya. This will be important if the 10% growth envisaged in the Visio 2030 blueprint is to be achieved.

The study further recommends that development assistance needs to be checked as the net figures are negative and therefore tend to hurt the economic growth in Kenya. Therefore, measures need to be taken through robust policies to reduce the level of external financial assistance in order to provide positive net figures that will help improve economic growth in Kenya.

5.6 Suggestions for Further Research

The study suggests that this study be replicated in other East African countries to examine if the results in this study still hold true for other East African nations. Given the renewed vigour to revive the East African Cooperation, a focus on all the East African countries would provide valuable information for purposes of policy formulation.

The study suggests that the sample years need to be increased from the current to beginning of independence (1963) in order to examine how public expenditure has affected economic growth. The use of a longer period of time may be very valuable for purposes of showing post-independence effects of public expenditure on economic growth.
Further, if quarterly data can be used, it would provide more data points for the regressions to be performed. The present study had used annual data which provided few data points for regression analysis. Quarterly data, if available, would be valuable.

Since the present study selected just a few variables for the model, it is important that further studies be done on this area by expanding the number of variables for purposes of constructing a model that can better explain the relationship between economic growth and public expenditure.
REFERENCES


### Appendix 1: Research Data

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- **Y** = Percentage change in real GDP
- **K** = percentage change in private investment
- **L** = population growth
- **G** = percentage change in public expenditure for capital formation
- **F** = percentage change in net official development assistance
- **H** = percentage change in net exports