IMPACT OF MACROECONOMIC VARIABLES ON ECONOMIC GROWTH IN KENYA

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DECLARATION

Declaration by Candidate

This research project is my original work and to the best of my knowledge it has not been presented in any other Institution. No part of this research project may be reproduced without prior permission of the researcher and/or Moi University.

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DEDICATION

This work is dedicated to my beloved husband Joshua, my sons Allan Johns and Alvin, my parents and my siblings. May the Almighty God bless you.

ABSTRACT

Economic growth in any context is highly affected by a myriad of economic factors and one of the aims of the Kenya Government is to stimulate economic growth by vision 2030.This study investigates the impact of macroeconomic variables on Economic growth in Kenya and goes further to determine whether changes in macroeconomic variables can be used to predict the future economic growth in the country. Economic growth is a concept that refers to quantities changes in economic variables and is attributed to increased overall production. Economic growth is the increase of the capacities of a country's economy to produce goods and services to a certain period of time compared to previous period. The GDP in Kenya advanced to 6.2 percent year-on-year in the second quarter of 2016 as compared to 5.9 % over the same period in 2015. This study focuses on Kenya where there has been poor economic performance from 1985-2002, recovery from 2003-07 and poor performance 2008-12 thus warranting attention of why there has been unstable economic growth in Kenya. The study is based on endogenous growth theory, neoclassical theory, New Keynesian framework theory and Accelerator theory of investment. Most studies have failed to consider the composite impact of the various macroeconomic variables on economic growth hence this study emphasizes on macroeconomic variables like remittances, gross capital formation, government consumption, inflation, and private capital flows on a time-seriated data while looking specifically at Kenya as the exclusive study area. The study followed an explanatory research design and the study period spanned from 1983-2017. Data was obtained from Central Bank of Kenya, Kenya National Bureau of Statistics, World Bank, African Development Indicators and relevant internet sources. Data analyses was done using statistical package for social sciences version 22 and findings summarized in graphs and tables. Regression analysis was conducted in order to establish inferential statistics; R, R-Square, P Value and F statistic to determine the significance of the model. From the findings there is a high significance impact of macroeconomic variables to economic growth since R-Square was 0.84 and because their corresponding coefficients are positive. These results are supported by both P value and F test statistic. P values are positive except for inflation which is -0.05 while F Value is 48.598 which is greater than the F statistic. Based on these findings, the study recommends monitoring of the macroeconomic environment since changes in the macroeconomic variables have an impact on the economic growth. The government should also work towards an environment that attracts gross capital formation and proper government spending to spur economic growth by providing a favorable business opportunity to investors. Proper utilization of capital flows should also be enforced by coming up with strategies to curb corruption which is rampant in the country.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ACRONYMS AND ABBREVIATIONS

ADF   Augmented Dickey Fuller Test

ERS   Exchange Rates

GDP   Gross Domestic Product

GNP   Gross National Product

INF   Inflation

IMF   International Monetary Fund

OLS   Ordinary Least Squares

RESET   Ramsey Regression Specification Error Test

US   United States

DEFINITION OF OPERATIONAL TERMS

Macro-economic variables: refers to factors that are pertinent to the broad economy at the regional or national level and affect a large population rather than a few select individuals.

Remittances: Current transfers by migrants who are employed in new economies and considered residents there.

Government spending: can be defined as any expenditure made by local, regional, and national governments making up a considerable portion of the Gross National Product

Migrant Transfers: The net worth of migrants who are expected to remain in the host country for more than one year that is transferred from one country to another at the time of migration.

Compensation of Employees: Comprises of wages, salaries and other benefits (in cash or in kind) earned by individuals- in economies other than those in which they are residents-for work performed for and paid by residents of those economies.

Financial development: Financial development entails the establishment and expansion of institutions and instruments that support market and the growth process.

Gross Domestic Product: It is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products.

Migration: Human migration is the physical movement by humans from one area to another, sometimes over long distances or in large groups. The movement of populations in modern times has continued under the form of both voluntary migration within one's region, country, or beyond, and involuntary migration (which includes the slave trade, trafficking in human beings and ethnic cleansing).

Economic Growth: Economic growth is the increase of per capita gross domestic product (GDP) or other measure of aggregate income; it is typically reported as the annual rate of change in real GDP. Economic growth refers to the quantity of goods and services produced and does not account for working conditions, education, political and social conditions, depletion of nonrenewable resources or environmental degradation.

Government final consumption expenditure: This is government acquisition of goods and services for current use to directly satisfy individual or collective needs of the members of the community.

Government investment (gross fixed capital formation): government acquisition of goods and services intended to create future benefits such as infrastructure investment or research spending.

Inflation: Inflation is defined as a sustained increase in the general level of prices for goods and services. It is measured as an annual percentage increase. As inflation rises, every dollar you own buys a smaller percentage of a good or service.

Workers Remittances: Workers' remittances include household to household transfers in cash and in kind. Funds sent by migrants to their country of origin to purchase real estate or invest in local business are recorded not as remittances but as foreign direct investment transactions (Source: World Bank, Global Economic Prospects, 2015).

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CHAPTER ONE

INTRODUCTION

1.0 Overview

This chapter presents the background of the study, statement of the problem, research objectives, research hypothesis, justification and scope of the study.

1.1 Background of the Study

A country that has high levels of economic growth has got a lot to show for it. Infrastructures in such a country are well established even in the rural areas and not only concentrated in the urban areas. Education is quality and it is usually affordable to all the citizens. The health sector is well funded and equipped to cater for the health needs of its citizens. The standards of living for its citizens are greatly improved and basic commodities are affordable (African diagnostic country report 2011). In the world's, some of the country's that are seen as having high rates of economic growth include the United States of America and in Africa South Africa is considered to be performing well. For a developing economy to break the cycle of poverty, economic growth for that particular economy must be sustained. Countries usually pursue fiscal policies to achieve accelerated economic growth. According to Euromonitor, (2013), The Sub-Saharan region, in particular, has a demographic advantage which is the key to long term growth, other than the growing middle class population, the region is expected to grow by 17% by 2030 making it the fastest growing and labor population as opposed to the global ageing population with urbanization rate expected to increase at 28% by 2030. The region has the youngest population in the world with at least 70% under the age of 30 as population is expected to reach 1billion by 2030 generally interpreting a larger consumer market. However, there are disadvantages to investing in the region following insecurity, corruption, income inequality but most especially if

the government fails to create adequate jobs to meet with the growing population, there will be a social unrest since similar researchers, (Muhammad & Muhammad, 2013) have found that unemployment rate has a negative correlation with the GDP. To overcome the high poverty levels and improve the standard of living in developing countries there is need for a substantial inflow of external resources in order to fill the savings and foreign exchange gaps. This will increase the rate of capital accumulation and growth. Economic growth is generally believed to be determined by some fundamental macroeconomic variables such as remittances, private capital flows, government consumption and government capital flows. Empirical evidences have shown that changes in macroeconomic variables are linked with macroeconomic behavior in advanced countries. Workers' remittances are the cash inflows coming from foreign countries as a result of foreign workers' remitting or transferring money to their home. These cash inflows have been increasing rapidly in developing countries. The history of transferring money by foreign workers to their home is very significant and cannot be overlooked as these remittances have impact on economic growth. First, immigration between developing and developed countries has increased dramatically in the past 20 years, (World Bank 2007). Second, transaction costs have declined as technological improvements have allowed for faster, lower cost mechanisms for the international transfer of payments between individuals, (Guiliano & Ruiz-Arranz 2006).The researcher examines effect of remittances, government consumption, private capital flows, and gross capital formation on Kenyan economic growth using the Gross Domestic Product. The GDP, nonetheless, is a controversial economic measuring tool which has been widely researched using various macroeconomic variables for various countries and time series combination, yet literature on these variables are sparsely available and fragmented. Gross domestic product simply measures the level of

economic output of within the borders of a country, where an increase in a country's GDP strongly correlates with an increase in the country's standard of living. GDP also acts as a sign of overall health of the economy closely monitored through various independent variables such as inflation (CPI, PPI and RPI), interest rate, unemployment, government spending, national income, exchange rate, foreign direct investment which need to be controlled by a country's government in order to achieve optimum stability.

1.1.1 Macro-Economic Variables

Macro-economic variables refer to factors that are pertinent to the broad economy at the regional or national level and affect a large population rather than a few select individuals. Macroeconomic factors such as economic output, unemployment, inflation, savings and investment are key indicators of economic performance and are closely monitored by governments, businesses and consumers, (Khalid *et al.,* 2012).

Fischer, (1993) posits that the interplay or relationship between various macroeconomic factors is the subject of a great deal of study in the field of macroeconomics. While macroeconomics deals with the economy as a whole, microeconomics is concerned with the study of individual agents such as consumers and businesses and their economic decision-making.

1.1.2 Remittances and Economic Growth

Barkham, (2012) posits that Diaspora remittances are the funds entering a country from foreign markets as gifts or support of friends and members of one's family. Through the theory of price, the demand of property by investors in the Diaspora can increase the prices of the property in the market receiving the remittances. Huge remittances from abroad can cause a surge in money supply hence price of goods.

Economic growth is the sustained increase in welfare of an economy nation, region, city together with the ongoing changes in that economy's industrial, (Ray 1998). It is the increase in the amount of the goods and services produced by an economy over time. Economists and many other social scientists have focused, primarily although not exclusively, on growth in per capita income as the preferred measure of economic growth. Economic growth is conventionally measured as the percent rate of increase in Gross domestic product (GDP). GDP refers to the market value of all the final goods and services produced within in a country in a given time period. The concept of GDP was developed in the early twentieth century, not for measuring economic growth, but for assessing the state of a national economy.

As mentioned above, whether remittances promote economic growth is an important issue of debate amongst economists. Many studies have attempted to address the impact of remittances on economic growth and poverty alleviation. Pradhan et al. (2008) find that remittances have a small, positive impact on growth in a 36 country cross-sectional study using a linear regression model in which remittances form one of five variables. Economic growth reflects the standard of living of a country. Positive economic growth leads to improvement in the standards of living as the people have more income to spend to improve their lifestyles, (Gorodnichenko, 2010). However, the contrary happens when the economic growth portrays a negative trend. As the people have less income, they have less money to improve and to upkeep their standard of living with some of them even having to go for cheaper alternatives so that they can make ends meet. If a positive growth in an economy is replicated by an increase in the standard of living and a negative growth is reflected by deterioration in the standard of living, economic growth is a good indicator of the direction of the standard of living of a country.

Those that believe remittances do not contribute to economic growth point to their expenditure on conspicuous consumption, (Rahman et al. 2006) and that any savings are being spent on consumption rather than for the accumulation of productive assets, (Stahl & Arnold 1986), and the theoretically low marginal propensity to consume out of transitory income. Those that argue for the positive developmental effects of remittances focus on the multiplier effects of consumption, (Stahl & Arnold 1986), development of the financial institutions that handle remittance payments, (Aggarwal et al. 2006), use of remittances as foreign exchange, (Ratha 2005), and the role of remittances as an alternative to debt that helps alleviate individuals' credit constraints in countries where micro-financing is not widely available, (Guilamo & Ruiz-Arranz 2006). These arguments may be separated into the classical opposing camps of development economists; those who believe in a top-down approach to poverty alleviation placing primary focus on the development of institutions, and those who argue for a bottom-up approach in which the individual is first lifted out of the poverty trap from which point society follows.

Aggarwal *et. al.,* (2006) conducted a study of 99 countries over the period 1975-2003 and find that remittances have a positive effect on bank deposits and credit to GDP. The authors then interpolate the positive effect on development by invoking existing studies showing the positive impact of these two variables on economic growth.

1.1.3 Government Consumption

Government consumption or spending can be defined as any expenditure made by local, regional, and national governments making up a considerable portion of the Gross National Product (GNP).

Government expenditures are very crucial instruments for economic growth at the disposal of policy makers in developing countries like Kenya. The spending is in the form of future investments, transfer payments and acquisitions. Future investments look into the long-term survival of the country and hence funds are directed towards infrastructure development example roads, airports and railways, (Landau, 1985). Other examples of future investments include technological and medical research or government-subsidized housing construction. Acquisitions mean expenditures on goods and services for individual or public consumption. It is commonly referred to as general government spending or final consumption expenditure. It may also include importation of goods, government salaries, education expenditure, military acquisitions, administrative costs and funding for defense.

According to Keynesian view, government could reverse economic downturns by borrowing money from the private sector and then returning the money to the private sector through various spending programs. High levels of government consumption are likely to increase employment, profitability and investment via multiplier effects on aggregate demand. Thus, government expenditure, even of a recurrent nature, can contribute positively to economic growth.

(Mitchel, 2005). Government spending may be current in nature. Current spending on state provided goods & services that are provided on a recurrent basis every week, month and year, such as salaries, and resources for state education and defense. The other aspect of government spending is capital spending which includes infrastructure spending such as new motorways and roads, hospitals, schools and prisons.

1.1.4 Private Capital Flows

Private capital flows are mainly made up of foreign direct investments (FDI) and portfolio investments (PI). The primary distinguishing feature of an FDI is the acquisition of some degree of management control (usually, the threshold of 10 percent of total equity is used). Contrary to FDI, PI do generally not involve a controlling interest. They are further split between debt and equity investments.

Economic theory suggests that capital will move from countries where it is abundant to countries where it is scarce because the returns on new investment opportunities are higher where capital is limited. Such a reallocation of capital will boost investment in the recipient country and, as Summers (2000) suggests, bring enormous social benefits. Underlying this theory is the premise that returns to capital decrease as more machinery is installed and new structures are built, although, in practice, this is not always, or even generally, true. New investment is more productive in countries with a skilled workforce and well-developed physical infrastructure, as Lucas (1990) recognized in explaining why capital does not flow from rich to poor countries.

Mishra *et. al.,* (2001) argue that larger capital flows are associated with more intense or frequent crises. Therefore, they insist that capital flows can help boost growth and productivity only if they are accompanied by other structural policies and higher exchange-rate reserves. The issue of volatility is also raised by Lensink and Morrissey (2001): Using both cross-section and panel data techniques, they report that, although FDI has a positive impact on growth, its volatility has a negative influence.

1.1.5 Gross Capital Formation

Sometimes referred to as gross domestic fixed investment, the gross fixed capital formation (GFCF) has to do with changes that occur within a specified time frame to

the physical assets related to the economy of a given nation. The range of physical assets involved can include improvements made to real estate, construction of roads and other avenues of conveyance that help to improve the infrastructure of the nation, facilities such as public schools and government buildings, and even factories, hospitals and private residences. The determination of gross fixed capital formation is important in the process of identifying the gross domestic product (GDP) of a nation during the time frame under consideration.

1.1.6 Inflation

Inflation refers to the increase in the general level of price of a basket of goods and services that is representative of an economy over a period of time. Inflation is measured by the percentage change in a price index, which is the average price level for a set of goods and services, relative to a base year, (Romer, 2009).

The Consumer Price Index (CPI) is the most commonly used index for measuring inflation. The rise in the price level reduces the purchasing power of the currency in an economic unit. Inflation occasions income and wealth redistribution effects depending on who benefits from the price increases, (Romer, 2009). Additionally, at the macroeconomic level, inflation fosters uncertainty in the economy, affects longtime planning and commitments and diverts resources from production as firms and consumers spend more time and resources trying to avoid inflation, (Totonchi, 2011).Studies on inflation in developing economies have been growing. For instance, studies by Brouwer and Ericsson (1995), Thomas (1999), Delgado and Robinson (1994), Damian (2010), Sovuthea (2013), are decade apart and still reveal the need to uncover determinants of inflation.

Inflation is defined as a sustained increase in the general level of prices for goods and services. It is measured as an annual percentage increase. Due to inflation the currency of a country becomes weak and hence the government spends more to provide goods and services. As a result the countries revenue base may increase and more taxes collected, but its economic development is negatively affected. The purchasing power of the country's currency is highly affected by inflation.

1.2 Statement of the Problem

Gross domestic output level of a country is influenced by all microeconomic and macroeconomic variables which are all generally interlinked to measure a country's economic health. This study focuses on Kenya where there has been poor economic performance from 1985-2002, recovery from 2003-07 and poor performance 2008-12. Economic growth in any context is highly affected by a myriad of economic factors and one of the aims of the Kenya Government is to stimulate economic growth to 10% by vision 2030.This motivates the researcher to find out the effects of some of the macroeconomic variables on economic growth in Kenya in order to achieve the set target. Moreover, economic growth rate in Kenya has been increasing and decreasing so often to warrant attention of why there has been unstable economic growth in Kenya. In addition, the country specific characteristics with respect to the economical, technological, infrastructural and institutional developments indeed matter a lot to analyze empirical relationship. It is unclear whether economic growth in Kenya would be lower or higher in the presence of the selected macroeconomic variables under this study.

Many studies have attempted to find out the relationship between macroeconomic factors and GDP. For instance, an empirical study of Pakistan's economic output Jilani, Cheema and Asim, (2010) concluded that inflation has a significant negative

relationship with GDP, the extreme values of inflation either low or high adversely affected Pakistan's economic growth. This study, nevertheless, failed to consider other variables including remittances, gross capital formation, government consumption, and private capital flows as possible and significant predictors of GDP and therefore generating a conceptual gap. Several studies have also found a significant relationship between GDP and other macroeconomic variables, (Muhammad & Muhammad, 2013) found negative correlation between unemployment rate and the Malaysian GDP. This study suffered from both the contextual gap (given that it was not based on Kenyan economy) and conceptual gap (since its only unemployment that was considered as predictor leaving out other plausible macroeconomic factors).

Another study on Ghana's real GDP, (Antwi, Mills & Zhao, 2013) found that there is a co-integration relationship between inflation adjusted GDP and its macroeconomic factors. Again, this study was contextualized in an economy that could have significant heterogeneous characteristics compared to that of Kenya. At the same time, the study has failed to consider the composite effect of the various macroeconomic variables including remittance, government consumption, private capital flow, and gross capital information as well as the inflation.

Therefore, the mentioned studies have failed to address the current problem given that they are not adequately addressing the desired concept, concept or methodology. Most of them have been based on establishing the relationship at a bivariate level. At the same time, none of the study is known to have adequately addressed the relationship between various macro-economic variables and GDP on a time-seriated data. Furthermore, past knowledge has not picked Kenya as the exclusive study area. The purpose of this paper is therefore to study the overall effect of macroeconomic variables on economic growth in Kenya using secondary time series data for the period 1983-

2017. Furthermore, there are well known difficulties with cross section data and so there was need for more long time series on the subject, (Jawaid *et. al.,* 2012).

The study contributes towards having specific and relevant policy on impact of macroeconomic variables on economic growth in Kenya.

1.3 Research Objectives

1.3.1 General Objective

The general objective of this study is to evaluate the impact of macroeconomic variables on economic growth in Kenya.

1.3.2 Specific Objectives

The specific objectives of this study in line with the general objectives will be.

    i.   To determine the impact of remittances on Economic growth in Kenya.

    ii.   To investigate the impact of private capital flows to economic growth in Kenya.

    iii.   To establish the impact of government consumption on Economic growth in Kenya.

    iv.   To determine the impact of gross capital formation, on Economic growth in Kenya.

    v.   To analyze the impact of inflation on Economic Growth in Kenya.

1.4 Research Hypotheses

Ho1: Remittances have no significant effect on Economic growth in Kenya.

Ho2: Government consumption has no significant effect on Economic Growth in Kenya.

Ho3: Gross capital formation has no significant effect on Economic Growth in Kenya.

Ho4: Private capital flows has no significant effect on Economic Growth in Kenya.

Ho5: Inflation has no significant effect on Economic Growth in Kenya.

1.5 Significance of the Study

Due to substantial policy and structural changes that have taken place in the Kenyan economy over the period 1983-2017, this study provided an empirical analysis of the impact of some macroeconomic variables on economic growth.

This study is very useful to different stakeholders in the economy and will bring to light the role of some specific macroeconomic variables in the economic growth of Kenya.

The study is also useful to the Government as the regression results gives a model that portrays the position of the country economically, hence assist in proper policy formulation for alleviation of poverty in the country. More so, the study also guides the government in setting up administrative structures and mechanisms for Government to tap (leverage) directly into foreign inflows from the Diaspora as an asset for investment and national development. The finding of the study also helps the government in policy formulation to increase the economic growth rate to 10% target in Vision 2030.

Secondly, the study is useful to scholars as it forms a basis for further research. Scholars will be able to look at the coverage of this study, review and work from its shortcomings and suggestions for further research.

Thirdly, this study is very useful to the commercial banks we have in the country. Majority of these banks have been on the fore front in targeting Diaspora banking as a source of cheap deposits. The banks are likely to take the opportunity to create more awareness in the Diaspora, reduce the cost of transferring money and this will definitely increase flow of remittances to the country. This will however depend on the impact of remittances in the general economy.

Finally, by evaluating the impact of macroeconomic variables on economic growth, this study contributes much to the existing literature.

1.6 Scope of the Study

There are challenges in gathering all variables that determine economic growth in all developing countries hence; the study is limited to Kenya. As much as this is the case, the need for relevant data cannot be over emphasised neither substituted. The study analyses variables that commonly affect economic growth in Kenya which are remittances, government consumption, private capital flows, inflation and gross capital formation for the period 1983-2017 using econometric technique of time series data for data analyses. It is important to clarify here that the study is restricted to the macroeconomic variables on the receiving economies and not on their microeconomic impact.

CHAPTER TWO

LITERATURE REVIEW

2.1 Overview

Macro-economic variables refer to factors that are pertinent to the broad economy at the regional or national level and affect a large population rather than a few select individuals. Macroeconomic factors such as economic output, unemployment, inflation, savings and investment are key indicators of economic performance and are closely monitored by governments, businesses and consumers, (Khalid et al., 2012). The five common macro-economic factors; rate of inflation – affects prices for inputs and outputs in the short run and interest rates over the longer run in an economy, rates of interest – affects cost of capital which is the interest expenses hence property values, rate of unemployment – affects available income and hence disposable income for investments since this is an important source of internal equity capital, rate of growth in GDP – affects the domestic demand for national outputs, and rate of foreign exchange – affects the value of the currency relative to international currency hence affecting property values where different currencies are involved as well as the export demand for outputs.

This chapter deals with review of literature related to the study. The review was done in order to identify and evaluate the opinions and knowledge of various studies towards the impact of macroeconomic variables on Economic growth with a close focus of Kenya as a third world country. It will also assist in analyzing existing knowledge in the area under study. Finally, the chapter gives a conceptual framework of the study.

2.2 Theoretical Framework

This section highlights some basic theories that have been used to support the effects of macroeconomic variables on economic growth. Such theories amongst others are:

2.2.1 The Neoclassical Theory

The neo-classical theory by was laid by Adam Smith (1723-1790) and David Ricardo (1772-1823), but also Alfred Marshall (1842-1924) and Vilfredo Pareto (1848-1923) who later built upon the theories of their predecessors. The theory claims that expansionary fiscal policy crowds out private sector output, reduce real wage and causes deflation. The lower private sector output and deflation occur mainly due to the rise in interest rate following a higher public debt. Real wage reduces as a result of increase in labor supply to finance expected increase in future taxes that is caused by the higher public debt. The New Keynesian School, on the other hand, argues that the increase in public spending increases aggregate demand and hence output through the multiplier effect. This effect is based on the assumption that prices are sticky and there is excess capacity (Beetsma, 2009).

In Neoclassical models, a shock to government spending generates negative wealth effect on the infinitely lived representative household (higher government spending means higher taxation in present discounted terms), as the household feels poorer, labor supply increases and consumption and real wage falls. Baxter and King (1993) showed how discretionary fiscal policy affects the macro economy in a neo-classical framework assuming lump-sum tax to finance higher government spending Assuming that leisure and consumption are normal goods, labor supply increases as households feel poorer. Given the labor demand constant, marginal labor productivity and real wages decline. As a result, consumption decreases while output rises. If the shock persists, marginal productivity of capital rise and hence private investment would increase.

Ultimately, a new steady state is reached where real wages have returned to their initial level and private consumption has been lower than before. If, on the other hand, the tax is distortionary, the outcome would be different due to the intra-temporal and inter-

temporal substitution effect in labor supply. The result depends on the manner in which the tax rate is designed. For instance, Burnside *et. al.,* (2000) show the effect of increase in government expenditure financed by changes in tax rates in a hump shaped manner. The hump shaped government purchases produce hump shaped pattern in output, consumption and employment. In the new steady state, private consumption, investment and output have fallen. In general, the neo-classical models have trouble in producing increase in private consumption unlike what the empirical analysis usually suggests. As Beetsma (2009) states the main obstacle lies in the rightward shift of the labor supply curve for a given labor demand which yields lower wage.

This theory is relevant in this study because it outlines how a steady economic growth rate results from a combination of three driving forces: labor, capital, and technology. Therefore, it is an ideal theory to address inflation and government spendings as variables considered in this study in influencing economic growth.

2.2.2 New Keynesian Framework

The New Keynesian models by Mankiw, Gregory and Romer (1991) argue that an increase in government spending increases demand and thus economic activity output through crowding in or multiplier effect. It, moreover, produces increases in private consumption by introducing nominal rigidities, increasing returns, countercyclical mark-ups and non-Ricardian consumers. Introducing nominal rigidities into a monopolistic competition implies that price is greater that marginal cost. Given the increase in labor supply due to the standard wealth effect (the rise in tax) discussed in the neo-classical literature, the increased demand for goods will be met by firms since prices are sticky and it is greater than the marginal cost in monopolistic competition. To produce the additional output, firms need to employ more labor units which in turn raise the real wage.

Devereux *et. al.,* (1996) and Ravn *et. al.,* (2006) found other mechanisms in which the labor demand curve also shift and positive consumption response might result. In particular, Devereux *et. al.,* (1996) introduced increasing returns where government spending may increase the equilibrium number of firms in intermediate goods characterized by increasing returns to specialization. The increase in productivity in these firms enables them to demand more labor. Consequently, the labor demand shifts outward thereby increasing the real wage. Ravn *et. al.,* (2006) introduced "deep habits" instead of increasing returns. "Deep habits" refer to habit formation for a variety of goods in which the individuals group their demand for good into a price elastic and price inelastic components. An increase in demand via higher government spending increases the weight of the elastic component and induces producers to lower their price mark-up. The counter-cyclical reduction in the wage along with the increase in labor supply (the standard wealth effect) leads to a rise in labor demand, higher real wage and higher consumption.

Optimizing consumers, however, can spread the consumption across time and private consumption may not increase substantially. Gali *et. al.,* (2007) introduced non-Ricardian, "rule-of-thumb" consumers, an additional imperfection that ensures increased private consumption (Beetsma, 2009). These are consumers who consume their entire disposable income. If these consumers are large (as in developing countries), the positive current private consumption in general increases as this effect more than offsets the negative wealth effect.

Some new Keynesian economists suggest that recessions result from a failure of coordination. Coordination problems can arise in the setting of wages and prices because those who set them must anticipate the actions of other wage and price setters. Union leaders negotiating wages are concerned about the concessions other unions will

win. Firms setting prices are mindful of the prices other firms will charge. To see how a recession could arise as a failure of coordination, consider the following parable. The economy is made up of two firms. After a fall in the money supply, each firm must decide whether to cut its price. Each firm wants to maximize its profit, but its profit depends not only on its pricing decision but also on the decision made by the other firm.

If neither firm cuts its price, the amount of real money (the amount of money divided by the price level) is low, a recession ensues, and each firm makes a profit of only fifteen dollars. If both firms cut their price, real money balances are high, a recession is avoided, and each firm makes a profit of thirty dollars. Although both firms prefer to avoid a recession, neither can do so by its own actions. If one firm cuts its price while the other does not, a recession follows. The firm making the price cut makes only five dollars, while the other firm makes fifteen dollars.

The essence of this parable is that each firm's decision influences the set of outcomes available to the other firm. When one firm cuts its price, it improves the opportunities available to the other firm, because the other firm can then avoid the recession by cutting its price. This positive impact of one firm's price cut on the other firm's profit opportunities might arise because of an aggregate-demand externality.

What outcome should one expect in this economy? On the one hand, if each firm expects the other to cut its price, both will cut prices, resulting in the preferred outcome in which each makes thirty dollars. On the other hand, if each firm expects the other to maintain its price, both will maintain their prices, resulting in the inferior solution, in which each makes fifteen dollars. Hence, either of these outcomes is possible: there are multiple equilibria.

The inferior outcome, in which each firm makes fifteen dollars, is an example of a coordination failure. If the two firms could coordinate, they would both cut their price and reach the preferred outcome. In the real world, unlike in this parable, coordination is often difficult because the number of firms setting prices is large. The moral of the story is that even though sticky prices are in no one's interest, prices can be sticky simply because price setters expect them to be.

This theory is relevant because it offers explanations for the failure of the labor market to clear. If the economy is at full employment, a fired shirker simply moves to a new job. Individual firms pay their workers a premium over the market rate to ensure their workers would rather work and keep their current job instead of shirking and risk having to move to a new job. Since each firm pays more than market clearing wages, the aggregated labor market fails to clear. This creates a pool of unemployed laborers and adds to the expense of getting fired. Workers not only risk a lower wage; they risk being stuck in the pool of unemployed. Keeping wages above market clearing levels creates a serious disincentive to shirk that makes workers more efficient even though it leaves some willing workers unemployed. Therefore, this theory addresses private capital flow and remittances.

2.2.3 The Endogenous Growth Theory

This theory is associated with Paul Romar and emphasis on increasing both capital and labor productivity. They place greater importance on the need for governments to actively encourage technological innovation. They argue in the free market classical view, firms may have no incentive to invest in new technologies because they will struggle to benefit in competitive markets. By increasing labor productivity may result to increasing returns and also by increasing capital may not necessarily lead to diminishing returns rather depends on the type of capital investment.

Endogenous growth theory holds that economic growth is primarily the result of endogenous and not external forces. Endogenous growth theory holds that investment in human capital, innovation, and knowledge are significant contributors to economic growth. The theory also focuses on positive externalities and spillover effects of a knowledge-based economy which will lead to economic development. The endogenous growth theory primarily holds that the long run growth rate of an economy depends on policy measures. For example, subsidies for research and development or education increase the growth rate in some endogenous growth models by increasing the incentive for innovation.

The first version of endogenous growth theory was AK theory, which did not make an explicit distinction between capital accumulation and technological progress. In effect it lumped together the physical and human capital whose accumulation is studied by neoclassical theory with the intellectual capital that is accumulated when innovations occur. An early version of AK theory was produced by Frankel (1962), who argued that the aggregate production function can exhibit a constant or even increasing marginal product of capital. This is because, when firms accumulate more capital, some of that increased capital will be the intellectual capital that creates technological progress, and this technological progress will offset the tendency for the marginal product of capital to diminish.

In the long run the rate of economic growth, as measured by the growth rate of output per person, depends on the growth rate of total factor productivity (TFP), which is determined in turn by the rate of technological progress. The neoclassical growth theory of Solow (1956) and Swan (1956) assumes the rate of technological progress to be determined by a scientific process that is separate from, and independent of, economic forces. Neoclassical theory thus implies that economists can take the longrun growth

rate as given exogenously from outside the economic system. Endogenous growth theory challenges this neoclassical view by proposing channels through which the rate of technological progress, and hence the long-run rate of economic growth, can be influenced by economic factors. It starts from the observation that technological progress takes place through innovations, in the form of new products, processes and markets, many of which are the result of economic activities. For example, because firms learn from experience how to produce more efficiently, a higher pace of economic activity can raise the pace of process innovation by giving firms more production experience. Also, because many innovations result from R&D expenditures undertaken by profit-seeking firms, economic policies with respect to trade, competition, education, taxes and intellectual property can influence the rate of innovation by affecting the private costs and benefits of doing R&D.

Endogenous growth economists believe that improvements in productivity can be tied directly to faster innovation and more investments in human capital. As such, they advocate for government and private sector institutions to nurture innovation initiatives and offer incentives for individuals and businesses to be more creative, such as research and development (R&D) funding and intellectual property rights. The idea is that in a knowledge-based economy, the spillover effects from investment in technology and people keep generating returns. Influential knowledge-based sectors, such as telecommunications, software, and other high-tech industries, play a particularly important role here.

This theory is therefore applicable in this study because it explains policies that embrace openness, competition, change and innovation will promote growth. The theory also offers endogenous growth theory offered a fresh perspective on what engineers' economic growth. It argued that a persistent rate of prosperity is influenced by internal

processes such as human capital, innovation, and investment capital, rather than external, uncontrollable forces, challenging the view of neoclassical economics. Conversely, policies that have the effect of restricting or slowing change by protecting or favouring particular existing industries or firms are likely, over time, to slow growth to the disadvantage of the community. Sustained economic growth is everywhere and always a process of continual transformation.

The sort of economic progress that has been enjoyed by the richest nations since the Industrial Revolution would not have been possible if people had not undergone wrenching changes. Economies that cease to transform themselves are destined to fall off the path of economic growth. The countries that most deserve the title of "developing" are not the poorest countries of the world, but the richest. Therefore, the study addresses gross capital formation which is an independent variable in this study. However, one of the biggest criticisms aimed at the endogenous growth theory is that it is impossible to validate with empirical evidence. At the same time, the theory has been accused of being based on assumptions that cannot be accurately measured.

2.2.4 The Accelerator Theory of Investments

The accelerator theory was conceived by Thomas Nixon Carver and Albert Aftalion, among others, before Keynesian economics, but it came into public knowledge as the Keynesian theory began to dominate the field of economics in the 20th century. Some critics argue against the accelerator theory because it removes all possibility of demand control through price controls. Empirical research, however, supports the theory. The Accelerator theory of investment suggests that as demand or income increases in an economy, so does the investment made by firms. Furthermore, accelerator theory suggests that when demand levels result in an excess in demand, firms have two choices of how to meet demand. It is either to raise prices to cause demand to drop or to increase

investment to match demand. The theory proposes that most companies choose to increase production thus increase their profits. The theory further explains how this growth attracts more investors, which in accelerates economic growth.

There are two fundamental macro-economic principles viz., the multiplier and the acceleration. J.M. Keynes who developed the multiplier, ignored the effects of induced investment. According to Paul Samuelson, in the long run, the effect of an increase in spending world not stop with the effect of an increase in spending world not stop with the multiplier expansion of income, as Keynes has pointed out, for this higher income level would, in turn, have implications for other parts of the economy. An increase in national output or income will lead to an increase in investment. Such investment, which depends on national income or its rate of change, is called induced investment.

The accelerator theory is an economic postulation whereby investment expenditure increases when either demand or income increases. The theory also suggests that when there is excess demand, companies can either decrease demand by raising prices or increase investment to meet the level of demand. The accelerator theory posits that companies typically choose to increase production, thereby increasing profits, to meet their fixed capital to output ratio. The acceleration principle describes the effect quite opposite to that of multiplier. According to this, when income or consumption increases, investment will increase by a multiple amount. When income and therefore consumption of the people increases, the greater amount of the commodities will have to be produced.

This will require more capital to produce them if the already given stock of capital is fully used. Since in this case, investment is induced by changes in income or consumption, this is known as induced investment. The accelerator is the numerical

value of the relation between the increases in investment resulting from an increase in income. The net induced investment will be positive if national income increases and induced investment may fall to zero if the national income or output remains constant. To produce a given amount of output, it requires a certain amount of capital. If Y_t output is required to be produced and v is capital-output ratio, the required amount of capital to produce Y_t output will be given by the following equation: $K_t = vY_t \dots\dots (i)$

This theory addresses the private capital flow as well as GDP in an economy. For instance if one (1) machine was needed to produce a hundred (100) units and demand rose to two hundred (200) units, then investment in another machine would be needed to meet this increase in demand. From a macro-policy point of view, the accelerator effect could act as a catalyst for the multiplier effect, though there is no direct correlation between these two. This theory applicable to this study since it is typically interpreted to establish new economic policy. For example, the accelerator theory might be used to determine if introducing tax cuts to generate more disposable income for consumers who would then demand more products would be preferable to tax cuts for businesses, which could use the additional capital for expansion and growth. Each government and its economists formulate an interpretation of the theory, as well as questions that the theory can help answer.

2.3 Literature Review

2.3.1 Remittances and Economic Growth

A booming interest in the topic of international remittances has developed over the past few years on the part of academics, donors, international financial institutions, commercial banks, money transfer operators, microfinance institutions, and policy makers. The surge of remittances to countries of origin in the last two decades and foreign direct investment (FDI) to developing countries has reignited debate on their

development potential in receiving countries. Alongside the interest in remittances, there is also growing recognition of the importance of transnational practices in shaping the relationship between migration and remittance. International remittances are transferred through formal and informal mechanisms. The main formal remittances services providers (RSPs) are money-transfer operators (MTOs), the banks and post offices, microfinance institutions (MFIs) and new transaction technology (NTT) mechanisms, including mobile network operators (MNOs). Formal channels are particularly important since they can serve as an entry point to formal financial inclusion by facilitating and expanding access to other financial products and services, in both origin and destination countries (Agunias and Newland, 2012; Gupta, Pattillo and Wagh, 2009).

A recent study by Ahamada and Coulibaly (2013) examined causality between remittances and growth in SSA. They used data for 20 countries that were in the sample used by Singh *et. al.,* (2010). Using granger causality test for panel data in the period 1980-2007, they found that remittances do not affect economic growth nor does economic growth affect remittances inflows. Extending the study to examine the link between remittances and physical output in the 20 countries, they found it was only in Gambia where remittances enhanced physical output and physical output enhanced remittances.

Nyamongo *et. al.,* (2012) in their study on the role of remittances and financial development on economic growth in a panel of 36 countries in Saharan Africa over the period of 1980-2009 found out that remittances appear to be an important source of growth for these countries in Africa during the period under study. They further established that volatility of remittances appears to have a negative effect on the growth

of countries in Africa and that remittances appear to be working as a compliment to financial development.

Jawaid *et. al.,* (2012) in their study to investigate the relationship between workers' remittances and economic growth by using 7 years average annual data of 113 countries from the period 2003-2009 indicate the positive and significant relationship between workers' remittances and economic growth .The study shows that the workers' remittances are more contributing in high income countries as compared to low and middle income countries. Imai *et. al.,* (2011) examined the effect of remittances and its volatility on economic growth by using the panel data of 24 Asian and Pacific countries from the period of 1980-2009.They have a positive relationship between workers' remittances and economic growth but the volatility of workers' remittances was found harmful for economic growth. However, they got a significant negative relationship of workers' remittances with poverty.

Jawaid and Raza (2012) examined the data of seven years of 113 countries to determine the association of remittances and economic growth and identified after empirical examination that here exist an important direct relationship linking worker's remittances to economic growth. It was also identified that workers' remittances are contributing more in high income countries.

Wakayama (2011) wrote a thesis on remittance and GDP growth in developing countries and after analyzing the Europe and central Asia region countries concluded that there is no correlation between remittance and GDP per capital growth therefore remittance cannot express GDP correctly in countries whose ratio of remittance to GDP as suggested by core.

Siddique, Selvanathan and Selvanathan (2010) conducted a study on remittance and economic growth on major south Asian countries i.e. Bangladesh, India and Sri Lanka and after empirical analysis identified that remittances have a mixed response with the economic growth. In Bangladesh remittance is not the cause of economic growth and same is the case with India no casual relationship is found between remittance and economic growth but in Sri Lanka a two-way causal relationship is found between remittance and economic growth which effects vice-versa.

Karagoz, (2009) conducted a study on the same topic workers' remittance and economic growth with reference to economy of Turkey and after analyzing time series data of thirty-five years concluded that workers' remittance has a strong relationship with economic growth and these two variables are positively correlated.

Vargas-Silva, Jha and Sugiyarto (2009) examine the impact of remittances on poverty and economic growth in Asia (using annual data). In their specification, GDP growth rate and poverty gap ratio are expressed as a function of remittances (logarithm of remittances as a per cent of GDP), logarithm of initial GDP per capita, primary school completion rate, logarithm of gross capital formation, openness of trade and GDP deflator. While the impact of remittances on growth is positive, the impact on poverty is negative. A 10 per cent increase in remittances as a share of GDP in a given year leads to about a 0.9-1.2 per cent increase in annual growth. A 10 per cent increase in remittances (as a percentage of GDP) decreases the poverty gap by about 0.7-1.4 per cent. Pradhan, Upadhyay and Upadhyaya (2008) examined the effect of workers' remittances on economic growth using panel data from 1980-2004 for 39 developing countries; they confirmed a positive impact on growth.

Many studies have attempted to address the impact of remittances on economic growth and poverty alleviation. Pradhan et al. (2008) find that remittances have a small, positive impact on growth in a 36-country cross-sectional study using a linear regression model in which remittances form one of five variables.

Pant (2008) argues that whether remittances are utilized for consumption or purchasing houses, or other investments, they produce positive impact on the economy by stimulating demand for other goods and services. Migrants provide different forms of capital that have developmental impact on their countries of origin.

These impacts may be in the form of financial, social, cultural, political and/or economic impacts. The impact can be examined at both micro level, like in case of households and macro level like impact on GDP growth, poverty and development.

Jongwanich (2007) showed that, while remittances do have a significant impact on poverty reduction through increasing income, smoothing consumption and easing capital constraints of the poor, they have only a marginal impact on growth operating through domestic investment and human capital development.

Remittances also encourage economic growth when they are used for financing children's education and welfare expenses such as health care (Chimhowu et al. 2005). Investing in child education and welfare will increase labour productivity in the long term which in turn impacts positively on growth. Even if the remittances are spent on consumption or real estate, there are still multiplier effects and increases in demand for goods stimulated by these activities (Chimhowu et al. 2005), once again showing the positive link between remittances and GDP.

2.3.2 Gross Capital Formation on Economic Growth

According to Adhikary (2011) capital accumulation helps increase investment, investment creates employment through expanding production bases, additional employment generates higher savings which provide confidence in undertaking larger investment, and this chain effect ultimately influences economic returns positively.

Levine and Renalt (1992) revealed that capital formation influences the rate of economic growth in country. Similarly, Kendrick (1993) pointed out that the formation of capital alone does not lead to economic prosperity, rather the efficiency in allocating capital from less productive to more productive sectors influences economic growth.

Blomstorm *et. al.,* (1996) also note a one-way causal relationship between fixed investment and economic growth. They conclude that changes in capital formation rates do not have any significant influence on future growth rates.

2.3.3 Government Consumption on Economic Growth

One method of financing government operations is through debt. Government borrows so as to minimize gap on investment and savings (Likita, 2010). The government may borrow from either the domestic market or the external market. Government debt may have an impact on macroeconomic variables such as inflation, exchange rates, unemployment, interest rates and money supply. It also may have an impact on the economic growth of the country. When the government borrows heavily from the domestic market, there may be crowding out where the financiers are not left with enough funds to advance to the private sector. This will in turn cause the interest rates to go up. On the other hand if it borrows from the external market, the exchange rate will be affected as foreign exchange is required to pay for the interest and principle (Saheed, 2015). These have an effect on unemployment as the private sector, because

of crowding out may not be able to create more wealth which may result in retrenchments or suspension of employment and the government may not be able to employ because it will use most of its resources for paying the principle and interest (Khan, Khanwar, & Khan 2014). Loans advanced by banks cause creation of money which in turn may cause inflation (Nyalihama, 2011).

There has been a growing concern in Kenya in regard to the increase in government debt in recent times. There has been a growing appetite for the domestic indebtedness while the external debt has been on the rise. The interest rates have been on the upward trend while the Kenya shilling has been weakening to the major currencies and inflation is high (Muthui, Kosimbei, &Thuku, 2013). It is this in mind that this critical literature review would like to review the work done by other researchers on the impact of government indebtedness on economic growth in Kenya.

Gregorious and Ghosh (2007) made use of the heterogeneous panel data to study the impact of government expenditure on economic growth. Their results suggest that countries with large government expenditure tend to experience higher economic growth.

Devarajan and Vinay (1993) used panel data for 14 developed countries for a period ranging from 1970 to 1990 and applied the Ordinary least square method on 5-year moving average. They took various functional types of expenditure (health, education, transport, etc) as explanatory variables and found that health, transport and communication have significant positive effect while education and defense have a negative impact on economic growth.

Using panels of annual and period-averaged data for 22 Organizations for OECD countries during 1970 to 1995, Bleaney *et. al.,* (2001) studied the impact of government

spending on economic growth. Applying OLS and GLS methods, they found that productive public expenditures enhance economic growth, but non-productive public spending does not, in accordance with the predictions of Barro (1990) model.

Gemmell and Kneller (2001) provide empirical evidence on the impact of fiscal policy on long-run growth for European economy. Their study required that at least two of the taxation/expenditure/deficit effects must be examined simultaneously and they employ panel and time series econometric techniques, including dealing with the endogeneity of fiscal policy. Their results indicate that while some public investment spending impacts positively on economic growth, consumption and social security spending have zero or negative growth effects.

Mitchell (2005) evaluated the impact of government spending on economic performance in developed countries. He assessed the international evidence, reviewed the latest academic research, cited examples of countries that have significantly reduced government spending as a share of national output and analyzed the economic consequences of these reforms. Regardless of the methodology or model employed, he concluded that a large and growing government is not conducive to better economic performance. He further argued that reducing the size of government would lead to higher incomes and improve American's competitiveness.

Olorunfemi, (2008) studied the direction and strength of the relationship between public investment and economic growth in Nigeria, using time series data from 1975 to 2004 and observed that public expenditure impacted positively on economic growth and that there was no link between gross fixed capital formation and Gross Domestic Product. He averred that from disaggregated analysis, the result reveal that only 37.1% of

government expenditure is devoted to capital expenditure while 62.9% share is to current expenditure.

Olopade and Olepade (2010) assess how fiscal and monetary policies influence economic growth and development. The essence of their study was to determine the components of government expenditure that enhance growth and development, identify those that do not and recommend those that should be cut or reduce to the barest minimum. The study employs an analytic framework based on economic models, statistical methods encompassing trends analysis and simple regression. They find no significant relationship between most of the components of expenditure and economic growth.

Abu and Abdullah (2010) investigates the relationship between government expenditure and economic growth in Nigeria from the period ranging from 1970 to 2008.They used disaggregated analysis in an attempt to unravel the impact of government expenditure on economic growth. Their results reveal that government total capital expenditure, total recurrent expenditure and Education have negative effect on economic growth. On the contrary, government expenditure on transport, communication and health result in an increase in economic growth. They recommend that government should increase both capital expenditure and recurrent expenditure including expenditure on education as well as ensure that funds meant for development on these sectors are properly utilized. They also recommend that government should encourage and increase the funding of anti-corruption agencies in order to tackle the high level of corruption found in public offices in Nigeria.

Government Expenditure is the amount of resources spent by a particular government to finance all its operations so as to provide public goods. Oyinlola (1993) observed

that the size of government expenditure and its impact on economic growth have emerged as a major fiscal management issue facing economies in transition. Singh and Sahini (1984) has urged that a large and growing government is not conducive to better economic performance. For decades public expenditures have been expanding in Kenya, as in any other country of the world.

Alexander (1990) applied OLS method for sample of 13 Organization for Economic Cooperation and Development (OECD) countries panel during the period ranging from 1959 to 1984. The results show, among others, that growth of government spending has significant negative impact on economic growth.

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2.3.4 Private Capital Flows on Economic Growth

Capital flows affect economic growth either directly, through its effect on savings, cost of capital, technology transfer, and development of financial sector, or indirectly, through increased product specialization and improvements in macroeconomic policies and institutions due to competitive pressures, (Prasad *et. al.,* 2003, 2007). Capital flows are transmitted through three channels: an overvaluation channel resulting from currency appreciation; a savings and investment channel through domestic savings; and an institutional development channel where capital flows carry indirect benefits via development of domestic financial sector institutions, (Deléchat *et. al.,* 2009).

Cho and Tien (2014) examined the sources of growth of 32 countries in SSA and found that growth is largely associated with an increase in the share of working-age population, capital accumulation, and total factor productivity. This is supported by findings of Calderón and Nguyen (2015) that aid and FDI inflows positively affect growth, while sovereign debt inflows do not. Tsai (1994) and Omri and Kahouli (2014), in separate studies, established two-way linkages between FDI and growth.

Mishra *et. al.,* (2001) argue that larger capital flows are associated with more intense or frequent crises. Therefore, they insist that capital flows can help boost growth and productivity only if they are accompanied by other structural policies and higher exchange-rate reserves. The issue of volatility is also raised by Lensink and Morrissey (2001): Using both cross-section and panel data techniques, they report that, although FDI has a positive impact on growth, its volatility has a negative influence.

Borensztein *et. al.,* (1998), hereafter BDL, have tested the effect of FDI on economic growth. Their primary intuition was that FDI can play a major role in the process of technology diffusion and growth in developing countries. In particular, they consider

the FDI by multinational corporations to be a major channel for the access to advanced technologies by developing countries. They used a model of endogenous growth in which the rate of technological progress is the main determinant of the long-term growth rate of income, and performed a cross-country regression. In support to various recent endogenous growth theories, BDL highlights the important role of human capital. Indeed, results "suggest that FDI is an important vehicle for the transfer of technology, contributing relatively more to growth than domestic investment. However, the higher productivity of FDI holds only when the host country has a minimum threshold of human capital. Thus, FDI contributes to economic growth only when a sufficient absorptive capability of the advanced technologies is available in the host country" (BDL, 1998).

2.3.5 Inflation and Economic Growth

Inflation is one of the most frequently used terms in economic discussions, yet the concept is variously misconstrued. There are various schools of thought on inflation, but there is a consensus among economists that inflation is a continuous rise in the prices. Simply put, inflation depicts an economic situation where there is a general rise in the prices of goods and services, continuously. It could be defined as a continuing rise in prices as measured by an index such as the consumer price index (CPI) or by the implicit price deflator for Gross National Product (GNP). Inflation is frequently described as a state where "too much money is chasing too few goods". When there is inflation, the currency losses purchasing power.

Basically, two causes of inflation have been identified, namely, demand-up and costs push inflation.

Demand-pull inflation is caused by an increase in the conditions of demand; these could either be an increase in the ability to buy goods or an increase in the willingness to do so.

Cost – push inflation arises from anything that causes the conditions of supply to decrease. Some of these factors include a rise in the cost of production, an increase in government taxation and a decrease in quantity of foods produced.

Studies by Akbari and Rankaduwa (2006), Kemal (2006), Qayyum (2006) and Khan et al. (2007) were conducted in emerging economies such as Brazil, Pakistan, and Ukraine. The studies revealed different signs for macroeconomic indicators and this is an indicator that conflicting results on monetary and non-monetary determinants of inflation in emerging economies exist. A probable reason for the lack of consensus is because their models for predicting inflation assumed a linear approach and do not comprehensively address the dynamic relationship between various macro-economic determinants of inflation.

A negative correlation between net capital inflows and productivity was found by MacDonald (2015), showing it to be caused by the most liquid assets of a country, including foreign exchange reserve purchases. Gourinchas and Jeanne (2013) also found that capital does not flow more to countries that invest and grow more, but is driven by national savings and that capital flows are related to the pattern of international reserves. Other macroeconomic variables are also affected by capital flows, such as exchange rate, asset prices, lending rates, and bank lending, (Elbadawi and Soto 1994; Brooks et al. 2001; Jansen 2003). The effects are different, however, for periods before and after a crisis (Kandil and Trabelsi 2015).

In a study on economic growth and inflation rate in Kenya, Kigume (2011) shows that low economic growth rate and inflation rates have been experienced over the years in Kenya. However, this study failed to identify the short-run and long-run impact of inflation on economic growth and no causation is established between the economic growth and inflation rate. The relationship between inflation and economic growth has brought a lot of controversy both in theory and empirical literature and they concluded that there existed a negative relationship between inflation and economic growth rate and further that the variations in the observed levels of inflation in the country is accounted by the global oil prices changes and the shocks caused by changes in agricultural commodity prices in the global market, (Kigume, 2011).

Barro (1991) found a significant negative effect of inflation on economic growth. He found that there exists a non-linear relationship between inflation and economic growth. His main policy message stated that reducing inflation by 1 per cent could raise output by between 0.5 and 2.5 percent.

Erkin *et. al.,* (1988) found evidence that there is a negative link between inflation and economic growth. They argued that inflation results to more public expenditures for lesser goods. They also found out that when inflation is high, the level of investment is low as many people spend money to purchase only basic commodities especially food. However, they found out that inflation usually remains stable for a long period of time unless affected by other macroeconomic situations affecting a particular country.

Hasanov, (2010) employed annual data set on growth rate of real GDP, Consumer Price Index Inflation and growth rate of real Gross Fixed Capital Formation to investigate whether there was any threshold effect of inflation on economic growth over the period of 2001-2009. Estimated threshold model indicated that there was non-linear

relationship between inflation and economic growth in the Azerbaijani economy and threshold level of inflation for GDP growth was 13 percent. Inflation rate lower than 13 percent reflected statistically significant positive effect on GDP growth but this positive relationship became negative when inflation exceeded 13 percent. He added that, economic growth was expected to decline by about 3 percent when inflation increased above the 13 percent threshold.

Frimpong and Oteng-Abayie, (2010) found a threshold effect of inflation on economic growth of 11 percent for Ghana over the period 1960-2008 though failing the test of significance at that level. They also estimated a robust 11 percent threshold inflation level with close coefficients after dropping growth rate of aggregate labor force and money supply growth which were found to be insignificant in the OLS models. They further revealed that even at relatively lower threshold levels, inflation is still significant. But their study however, failed to check for sensitivity of the estimated coefficients across sub-samples of the full sample period to establish a new evidence of the threshold effect. The study thus concluded by highlighting the need to extend the context of analysis to deal with lower threshold levels in search of that evidence.

One of the most macroeconomic objectives of any country is to sustain high economic growth with low inflation, (Liu et al, 2008). Inflation imposes negative externalities on the economy when it interferes with the economy's efficiency. It may also reduce a country's international competitiveness, by making its exports relatively more expensive than its imports thus impacting on the balance of payments, (Koiman *et. al.,* 2007).

Nell, (2000) examined the issue if inflation was detrimental to economic growth or not by using Vector Auto Regressive (VAR) technique. Data for the period from 1960-

1999 was used and his empirical results suggested that inflation within the single-digit zone may be beneficial to economic growth, while inflation in the double digit zone tends to limit economic growth.

2.4 The Conceptual Framework

The main independent variables in the study are remittances, Private capital flows, gross capital formation, inflation and government consumption. These are analyzed in relation to economic growth in Kenyan economy. The relationships are summarized in figure 2.1 below.

Independent variable   **Dependent Variable**

| Workers' Remittances |
| Private Capital flows |
| Gross Capital formation |
| Final Government consumption |
| Inflation |

| Economic Growth |
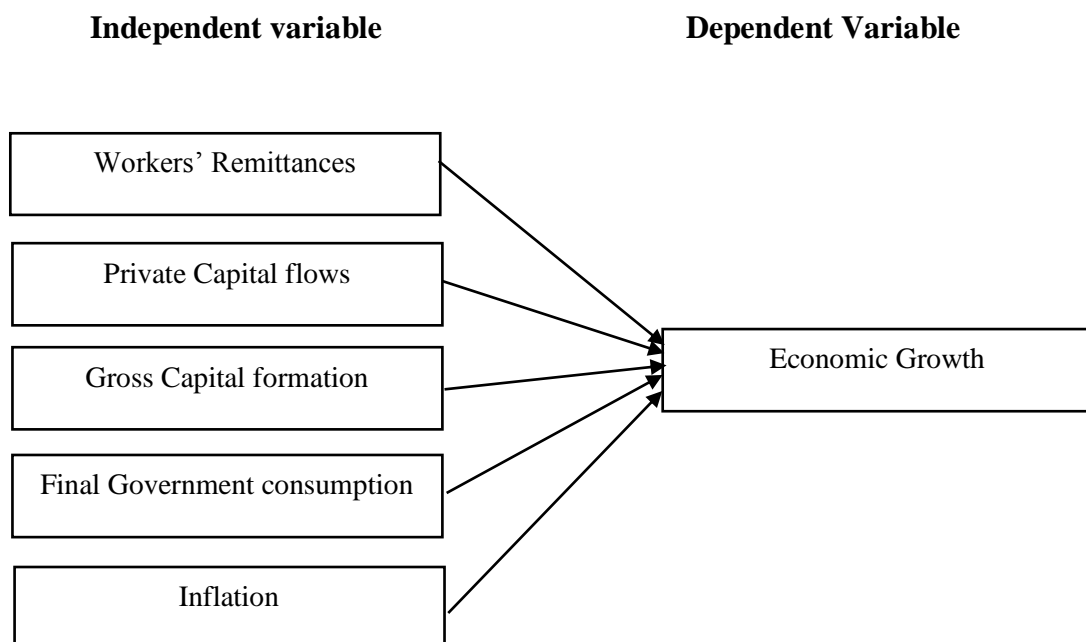
Figure 2.1: Conceptual Framework
Source: Researcher, 2019

The independent variables for this study include workers remittance, private capital flows, gross capital formation, government consumption and inflation. The dependent variable, on the other hand, was economic growth.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Overview

This Chapter presents the Research design, the target population, data reliability, data type, sources and collection method. It also covers data analysis and tests, specification of the model, limitations and ethical considerations in the study.

3.1 Research Design

An explanatory research approach was adopted in this study. Explanatory research design is defined as an attempt to connect ideas to understand cause and effect meaning researchers want to explain what is going on. It provides insights into understanding the problem faced by the researcher

3.2 Target Population

Being a case study of Kenya, there was no sampling hence the study focused on the population not a sample size.

Data on remittances, gross capital formation, government consumption, private capital flows, and inflation covers a period of 35 years from 1983-2017 as this forms the most current data to avoid biased results. Data was collected from the Kenya National Bureau of Statistics, Central Bank of Kenya, African Development Indicators and relevant internet sources.

3.3 Data Type and Sources

This study relies purely on secondary macro- economic time series data for the period 1983-2017. Secondary data provides enough information to test the hypothesis of the study, it is also readily available hence convenient to use and reliability of information and conclusion is greatly enhanced. The data is obtained from the records of World

Bank; African development Indicators, Kenya National Bureau of Statistics, Central Bank of Kenya and relevant internet sources. Data on remittances is the sum of three items defined in the fifth edition of IMFS Balance of payments manual; workers' remittances, compensation of employees, and migrant transfers. Economic growth is treated as the dependent variable and is measured using GDP per capita.

3.4 Data Collection Methods

Secondary Time series data was collected from the Kenya National Bureau of Statistics, Central Bank of Kenya, World Bank, and relevant internet sources. Data covers 35 years from 1983-2017 this is aimed at giving a more comprehensive coverage.

3.5 Data Analysis

The collected data is analyzed using econometric analysis of time series data and the data is presented in tables and graphs. Additionally, stationary tests are carried out on all variables to ascertain their order of integration to avoid the spurious regression problem. All estimations are carried out using SPSS version 22.

3.5.1 Data analysis technique

The analysis of the Data is carried out using OLS method In order to achieve the objective of the study. The choice of OLS is mainly because it minimizes the error sum of square and has a number of advantages such as unbiasedness, consistency, minimum variance and sufficiency; it is widely used, simple and easy to understand. Data was exposed to various diagnostic tests to confirm the assumptions of the OLS. The following are the diagnostic tests conducted in the study.

3.5.2 Multicollinearity of the Explanatory Variables

The term multicollinearity originally meant the existence of a perfect or exact, linear relationship among some or all explanatory variables of a regression model. If there is

perfect multicollinearity, the regression coefficients remain indeterminate and their standard errors are infinite. On the other hand, if multicollinearity is imperfect but high, Estimation of the regression coefficients may be possible (determinate) but could possess the large standard errors (in relation to the coefficient themselves), which implies that the coefficients cannot be estimated with great precision or accuracy.

According to Gujarati (2003), Multicollinearity becomes a serious problem if the pair wise or zero order correlation between the two regressors is in excess of 0.8.

3.5.3 Autocorrelation of the Disturbance Terms

OLS assumes that there is no serial or autocorrelation in the error terms entering the regression functions. Autocorrelation may be defined as correlation between members of series of observations ordered in time (as in time series data) or space as in cross section data. OLS estimates, in the presence of autocorrelation are still linear unbiased as well as consistent and asymptotically normally distributed, but no longer efficient. They do not have minimum variance among all linear unbiased estimators.

3.5.4 Heteroscedasticity of Disturbance Terms

One of the important assumptions of OLS is that the variance of each disturbance term conditional on the chosen values of the explanatory variables is homoscedasticity. they have the same or equal variance. Violation of this assumption of homoscedasticity leads to estimates that are unbiased and consistent but inefficient. They do not have a minimum variance as well.

3.5.5 Unit Root Test for Stationarity

Time series data is associated with the problem of non-stationary, i.e. the series exhibits time characteristics. Stationary denoted as 1(0) series in econometrics implies that the mean variance computed from such variables would be unbiased estimates of the

unknown population mean and variance. However, this does not hold for those series that are un-stationary .Using one or more non-stationary series in a regression equation could therefore produce spurious (nonsense) results.

Unit root test for stationarity will be performed to avoid spurious results. This involved Augmented Dickey-Fuller (ADF) test, which a test against the null hypothesis that there is a unit root and that series are integrated of order 1. The empirical results derived indicate that the variables of interest were stationary after first differencing.

3.5.6 Co-integration Analysis

The statistical concept of equilibrium centers on a stationary process. Although economic variables may be individually non-stationary, they may be co integrated. Non –stationary series are said to be co-integrated if a linear combination of these variables yields a lower order of integration, rendering the linear combination stationary i.e. 1 (0). The existence of co-integration relationship implies that the regression of non-stationary series in their levels yields meaningful, not spurious results. However, for co integration to exist the non-stationary series must be integrated of the same or higher order.

3.5.7 Model Specification

The following are common specification errors; omission of relevant variables, inclusion of unnecessary variables, adopting wrong functional forms, errors of measurement bias or incorrect specification of the stochastic error term. If the regression model is not correctly specified, OLS estimators are biased and inconsistent. To test for correct model specification the study will use Ramsey Regression Specification Error Test (RESET). the null hypothesis of the test is that the model is correctly specified.

3.6 Model Specification

The main purpose of this study is to assess the effect of macroeconomic variables on Economic growth in Kenya.

GDP is used to measure Economic growth. The study will adopt a modified model consistent with the one used by Karagöz (2009) while analyzing the impact of workers' remittances on economic growth in Turkey. From the model it is shown that remittances flow to Turkey have statistically meaningful but negative impact on growth. On the other hand, exports and domestic investments positively affect the economic growth, while foreign direct investment has no meaningful effect. He estimated the following model:

$$GDP_t = \beta_0 + \beta_1 PCF_t + \beta_2 CG_t + \beta_3 GCF_t + \beta_4 REMIT_t + \beta_5 INF_t + \varepsilon_t \ldots\ldots \text{(1)}$$

Where GDP_t is per capita GDP at period t

PCT is the Private Capital Flows,

CG is the Government consumption,

GCF is the Gross Capital Formation,

REMIT is the Workers remittance, and INF is Inflation. β_0 is the constant while β_i represent coefficient of the respective variable et is the error term

Using time series data on real GDP (per capita), workers' remittances, private capital flows, gross capital formation, final government consumption and the error term the study estimates the following model.

3.7 Measurement of Variables

3.7.1 Economic Growth

The study used real GDP per capita as a proxy for Economic growth. GDP per capita is gross domestic product divided by mid- year population.

GDP is the sum of gross value added by all resident producers in the economy plus any other product taxes and minus any subsidies not included in the value of products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data is in current US dollars (African Development Indicators 2011).

3.7.2 Workers Remittances

Workers' remittances are current transfers by migrants who are employed in new economies and considered residents there.

The coefficient of workers' remittances is expected to have a positive sign.

3.7.3 Private Capital Flows

Private capital flows consist of private debt and non-debt flows. Private debt flows include commercial bank lending, bonds, and other private credits: on debt private flows are foreign direct investment and portfolio equity investment. (African Development Indicators 2014).

3.7.4 Government Consumption

General government final consumption includes all government current expenditures for purchases of goods and services (including compensation of employees). It also includes most expenditure on national defense and security, but excludes government military expenditures that are part of government capital formation. (African Development indicators 2014).

3.7.5 Gross Capital Formation

Gross capital formation (gross domestic investment) consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories.

3.7.6 Inflation

Inflation is defined as a sustained increase in the general level of prices for goods and services. It is measured as an annual percentage increase. As inflation rises, every dollar you own buys a smaller percentage of a good or service.

3.7.7 Electoral cycles

Dummy one is used as a proxy of electoral cycles. It seems that during every electoral year jobs and economy are pivotal issues. Kheman (2004) carried out an empirical study on political cycles in a developing economy: Effects of Elections on Indian States. The predictions of three models were tested in the study: one, populist cycles to woo myopic and uninformed voters: two signaling models with asymmetric information: three, a moral hazard model with high discounting by political agents. The empirical results for fiscal policy show that election have a negative effect on some commodity taxes, a positive effect on investment spending, but no effect on deficits primarily because consumption spending is reduced. With regard to public service delivery, elections have a positive and large effect on road construction by state work departments. Elections in Kenya in the recent past have been cause for violence and fragmentation. The havoc that this political violence of 2007 wreaked has inflicted a serious damage on the Kenyan economy (Mkhabela 2011).

Table 3.1: Summary of Variables and their Measurements

Variable	Measurement
Dependent Variable	
Economic Growth	Real GDP per capita is used as a proxy for economic growth
Independent Variable	
Workers' Remittances	Workers' Remittances as a percentage of GDP
Inflation	Consumer Price Index
Private Capital Flows	Private Capital flows as a percentage of GDP
Government Consumption	Government consumption as a percentage of GDP
Gross Capital Formation	Gross Capital formation as a percentage of GDP
Electoral Cycles	Dummy one is used as a proxy for electoral cycles in Kenya

3.8 Ethical Consideration

The researcher was original and has acknowledged the effort of other authors by quoting them in the study. Issues of plagiarism were not tolerated in this work as this harms the former researchers. Finally, the researcher will take responsibility for any errors or omissions in this work.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter covers data analysis and findings of the research. The study sought to determine the effect of macroeconomic variables on economic growth in Kenya. The data was summarized and presented in the form of tables and listings. This study relied purely on secondary macro- economic time series data for the period 1983-2017. The data was analyzed and interpreted in line with the objectives of the study namely, to examine the effect of remittances on Economic growth in Kenya, to examine the effect of private capital flows to economic growth in Kenya, to determine the effect of government consumption on Economic growth in Kenya, to investigate the effect of gross capital formation, on Economic growth in Kenya and to analyze the effect of inflation on Economic Growth in Kenya. The data was obtained from the World Bank database; African development indicators, Kenya central bureau of statistics, central bank of Kenya and relevant internet sources. Data on remittances is the sum of three items defined in the fifth edition of IMFS Balance of payments manual; workers' remittances, compensation of employees, and migrant transfers. Economic growth is treated as the dependent variable and is measured using GDP per capita.

4.2 Descriptive Statistics

Table 4.1: Descriptive Statistics

	GDP	PCF	GC	GCF	REMIT	INF
Range	70.2	2,654.2	81.1	44.2	99.9	44.4
Minimum	- 42.7	-1,991.5	- 54.6	- 14.0	- 45.9	1.6
Maximum	27.4	662.7	26.6	30.3	54.0	46.0
Sum	180.7	-3,848.6	91.7	239.0	280.0	426.4
Mean	5.3	- 113.2	2.7	7.0	8.2	12.5
Variance	157.9	257,213.1	279.3	132.5	380.6	83.0
Skewedness	-1.5	- 2.9	-1.6	0.4	-0.5	1.9
Kurtosis	5.5	9.1	3.6	-0.3	1.2	4.6

Range for this study was important because it shows the difference between the highest

local minimum and the highest local maximum for standardization purpose. It was

highest in PCF where the range was 2654.2 units. Variance showed the dispersal from

the mean was highest for PCF at 257,213.1 units. Skewedness indicated the extent to

which the concept of centrality was obeyed and the degree to which the graph deviated

from a normally distributed curve. For all variables (except GCF and INF), the

skewedness was negative meaning that the distribution tail was longer on the negative

side as opposed.

4.3 Diagnostic Tests

Diagnostic test will be based on the M-estimators, casewise diagnostics, normality test,

multicolleneality tests, stationarity tests, and collinearity diagnostics.

4.3.1 M-Estimators

Table 4. 2: M-Estiomators

	Huber's M-Estimatora	Tukey's Biweightb	Hampel's M-Estimatorc	Andrews' Waved
GDP	0.059	0.050	0.060	0.051
PCF	0.338	0.101	0.212	0.101
GC	0.057	0.060	0.061	0.060
GCF	0.060	0.052	0.064	0.052
REMIT	0.100	0.080	0.084	0.080
INF	0.063	(0.056)	0.004	(0.056)

a. The weighting constant is 1.339.
b. The weighting constant is 4.685.
c. The weighting constants are 1.700, 3.400, and 8.500
d. The weighting constant is 1.340*pi.

This is a generalization of the maximum-likelihood estimator (MLE). As shown in Figure It can be shown that M-estimators are asymptotically normally distributed with p-Value for each variable using every estimator (absolute) is greater than 0.05. This implies that, there is often correlation among all the variables with no independent replication and there are consistent (Lumley and Heagerty (2000) and Kim and Boos (2001).

4.3.2 Case wise Diagnostics

Table 4.3: Case wise Diagnostics

Case Number	Std. Residual	GDP	Predicted Value	Residual
27	3.084	0.380	0.238	0.142

Table 4.3 indicates a casewise estimate of 0.380. This means that, based on the expected estimate (0.238) predicted by the regression model and thus implying that that, as hoped, the regression model we have constructed is better at predicting the outcome variable than using the mean outcome (it generates a significantly smaller sum of residuals).

4.3.3 Normality Test

To test for the normality of the dependent variable (Sales), Kolmogorov-Smirnova and Shapiro-Wilk test was conducted. This is fundamental in order to determine appropriate tests to be conducted and make sure that assumptions of a normal distribution are not violated (Kothari 2004). Kolmogorov-Sminov and ShapiroWilktest for normality were used to detect all departures from normality (MathStatistics-Tutor, 2010). The tests reject the hypothesis of normality when the p-value is less than or equal to 0.05 (Sharpiro and Wilk, 1965).

Table 4.4: Results for Test of Normality

	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	**Df**	**Sig.(p-Value)**	**Statistic**	**Df**	**Sig.(p-Value)**
PCF	.081	33	.070	.895	33	.331
GC	.077	33	.200*	.932	33	.218
GCF	.131	33	.083	.866	33	.150
REMIT	.069	33	.068	.947	33	.137
INF	.085	33	.073	.925	33	.314
GDP	.124	33	.071	.891	33	.153

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

Table 4.4 shows that the Kolmogorov-Smirnova was .081, .077, .131, .069, .085 and .124 for PCF, GC, GCF, REMIT, INF and GDP respectively. and .965 respectively. The Shapiro-Wilk statistics for the same variables were .895, .932, .866, .947, .925 and .891 respectively. The corresponding P-values for all the variables from either test were ranging between 0.07 (PCF Kolmogorov-Smirnova Test) 0.331 (PCF ShapiroWilk Test). According to Shapiro-Wilk (S-W) test, if the p-value is greater than 0.05, the data are described as normally distributed. Since all the p-values were greater than the predetermined significance level (0.05) (not significant at p<.05), this therefore imply that the data for all the variables was normally distributed.
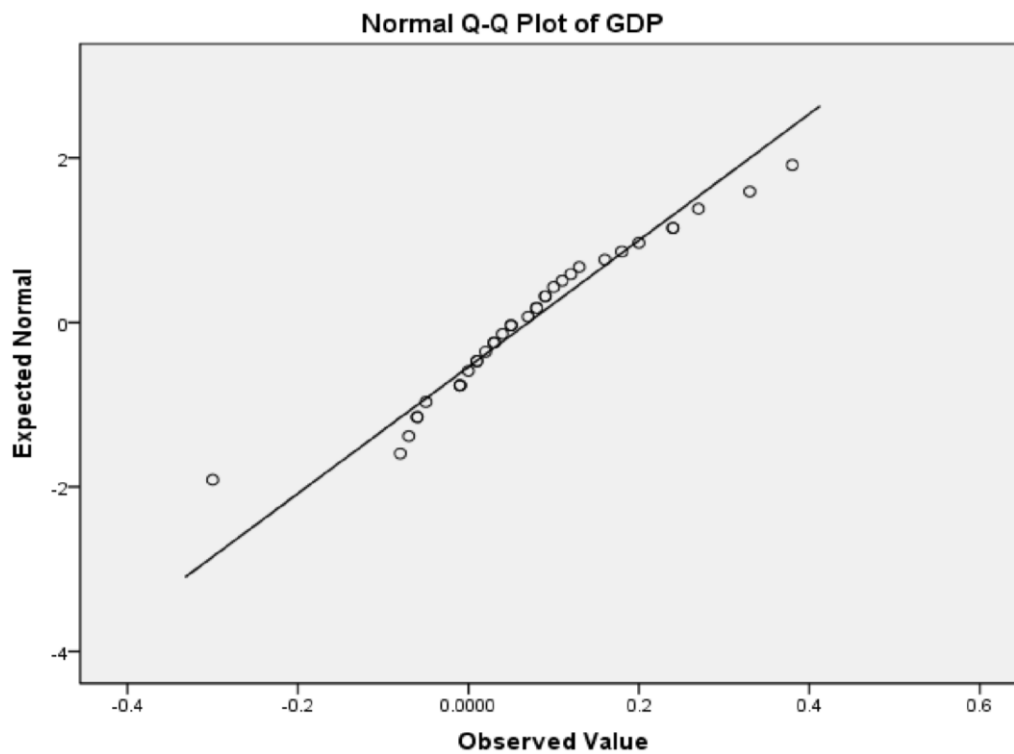
Figure 4.1 Scatter diagram

4.3.4   Multicollinearity Test

Table 4.5: Multicollinearity Test

Model	Collinearity Statistics	
(Constant)	Tolerance	VIF
PCF	0.937	1.067
GC	0.703	1.423
GCF	0.693	1.443
REMIT	0.961	1.040
INF	0.828	1.208
GDP (dependent Variable) is the Economic Growth		

To test the correlation between variables, multicollinearity test was conducted. Multicollinearity is a statistical phenomenon in which two or more predictor variables in a multiple regression model are highly correlated (Gujarat and Porter, 2009). It arises when there is a linear relationship between two or more independent variables in a single equation model (Gujarat and Porter, 2009). In a multiple regression analysis, the

estimated regression coefficients fluctuate widely and become less reliable as the degree of correlation between independent variables increases (Kothari, 2004).

Detection Tolerance and Variance Inflation Factor (VIF) method was used to test for multicollinearity (Cooper & Schindler, 2011). O'Brien (2007) suggested that a tolerance of less than 0.20 and a VIF of 5 or 10 and above indicates a multicollinearity problem. Multicollinearity is reflected by lower tolerance values and higher VIF values (Hair, Anderson, Tatham & Black's, 1998).

Table 4.3 indicates that Variance Inflation Factor (VIF) results for the study variables was less than 5 while Tolerance was greater than 0.2 for every variable which shows no multicollinearity between predictor variables.

4.3.5 Stationarity Tests

This test is to establish whether the time series data is stationary to avoid performing a spurious regression. If two variables are trending over time, a regression of one on the other could have a high R^2 even if the two are totally unrelated. First, individual time series are evaluated for the presence of unit root using ADF (Dickey and Fuller, 1981) test. The test was based on the regression equation.

$$\Delta Y_t = \delta Y_{t-1} + \mu_t$$

The hypothesis is:

$H_o: \delta = 0$ (Unit root)

$H_1: \delta \neq 0$

The decision rule is that:

If $t^* >$ ADF critical value, $\rightarrow$ not reject null hypothesis, i.e. unit root exists

If $t^* <$ ADF critical value, $\rightarrow$ reject null hypothesis, i.e. unit root does not exist

ADF test was applied to test for stationarity of the variables. The decision criterion is based on comparing computed t-statistics with the critical values at various levels of significance (1%, 5% and 10%). Where the computed t-statistics was less than (more negative) than the critical values at selected level of significance, the null hypothesis was rejected with a conclusion that time series does not possess a unit root. If one cannot reject the null hypothesis of a unit root then differencing is done until stationarity is attained. When multiple time series variables are found to be integrated of order an additional test is required to determine whether a long run relationship exists among the variables. The findings were presented in Figure 4.2 and Figure 4.3.
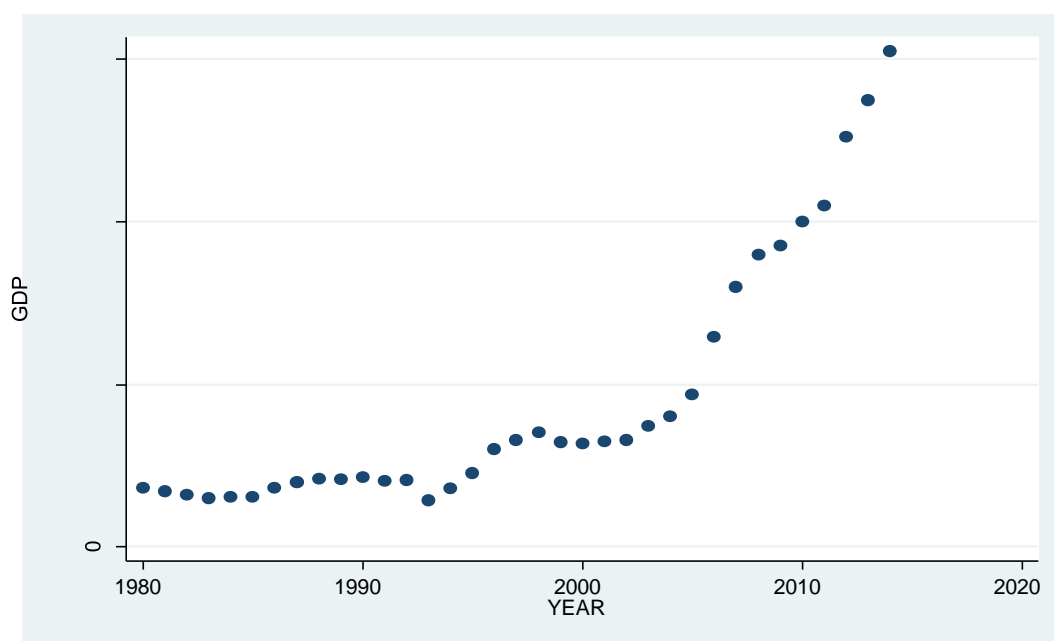

Figure 4.2: Scatter plot of GDP

There is a definite trend of the GDP over time with the GDP increasing steadily between 1980 and 2010 and a sharp increase between 2010 and 2014. Based on the correlogram below, there is a stochastic trend. Since the correlogram shows a pattern, then the series is non-stationary.

Bartlett's formula for MA(q) 95% confidence bands
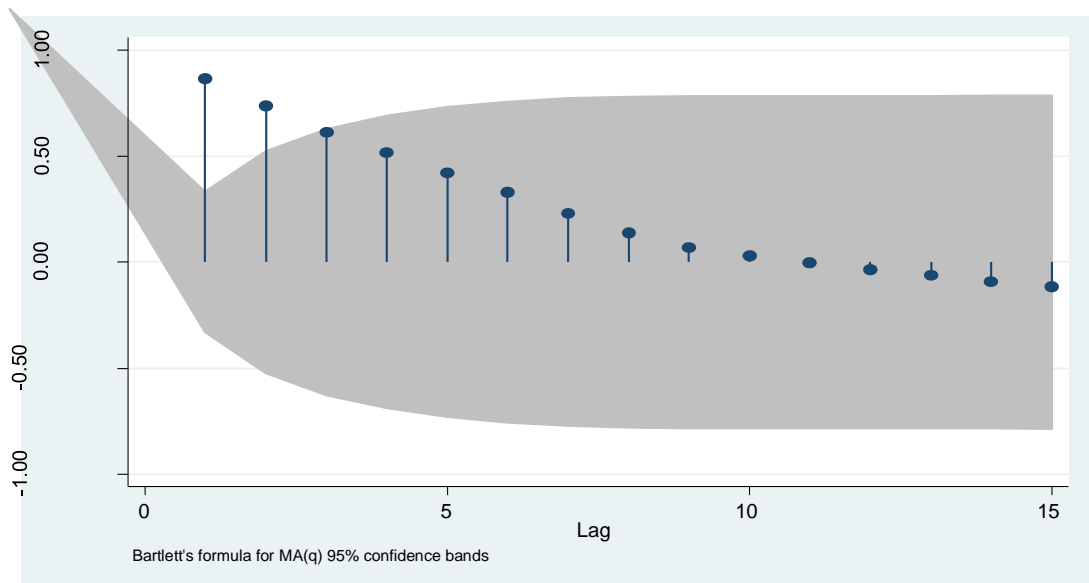
Figure 4.3: Autocorrelation of the GDP

4.3.6 Collinearity Diagnostic

Table 4.6: Collinearity Diagnostic

Dimension	Eigenvalue	Condition Index	(Constant)	PCF	GC	GCF	REMIT	INF
				Variance Proportions				
1.	2.35	1	0.06	0	0.03	0.03	0.04	0.01
2.	1.195	1.402	0.05	0.37	0.02	0.03	0.05	0.05
3.	1.025	1.514	0	0.07	0.01	0.02	0.1	0.39
4.	0.837	1.676	0	0.38	0.03	0.01	0.48	0.01
5.	0.47	2.237	0.81	0.17	0.05	0	0.26	0.05
6.	0.123	4.37	0.08	0.01	0.86	0.91	0.07	0.49

The collinearity diagnostics are meant to confirm whether there are serious problems with multicollinearity. As shown in Table 4.6, all eigen values are less than 5 and thus close to 0, indicating that the predictors are highly intercorrelated and that small changes in the data values may lead to large changes in the estimates of the coefficients. The condition indices are computed as the square roots of the ratios of the largest Eigen value to each successive Eigen value. Values greater than 15 indicate a possible

problem with collinearity; greater than 30, a serious problem. Therefore, there are no

any serious problems with multicollinearity for variables considered in this study.

4.4 Correlation Analysis

Table 4.7: Correlation Analysis

		GDP	PCF	GC	GCF	REMIT	INF
Pearson Correlation	GDP	1.000	-.145	-.145	.904	0.064	.168
	PCF	-.145	1.000	-.149	-.175	-.005	-.036
	GC	.904	-.149	1.000	.724	-.012	.223
	GCF	.823	-.175	.724	1.000	.148	-.215
	REMIT	.064	-.005	-.012	.148	1.000	-.026
	INF	.168	-.036	.223	-.215	-.026	1.000
Sig. (2- tailed)	GDP	.	.203	.000	.000	.358	.168
	PCF	.203	.	.196	.157	.490	.418
	GC	.000	.196	.	.000	.474	.099
	GCF	.000	.157	.000	.	.198	.108
	REMIT	.358	.490	.474	.198	.	.441
	INF	.168	.418	.099	.108	.441	.
N	GDP	35	35	35	35	35	35
	PCF	35	35	35	35	35	35
	GC	35	35	35	35	35	35
	GCF	35	35	35	35	35	35
	REMIT	35	35	35	35	35	35
	INF	35	35	35	35	35	35

As shown in Table 4.7, correlation was found to be significant between GDP and GC

(0.904), GDP and GCF (0.833), as well as GCF and GC 0.724. These relationships were

positive with p-Value<0.05.

4.5 Analysis of Variance

Table 4.8: Analysis of Variance (ANOVA)

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	0.513	5	0.103	48.598	.000a
Residual	0.061	29	0.002		
Total	0.574	34			

Predictors: (Constant), INF, PCF, REMIT, GC, GCF
Dependent Variable: Economic Growth (GDP)

At this level F-test was used with Analysis of variance (ANOVA) used to generate the F value. The ANOVA showed relationship in the variables between and within the measure of the dependent variable. It reflects the magnitude the model has on the data compared to those that are not considered in the model (residual). The ANOVA results indicated a high F-value (48.598) which indicates that the independent variables (predictors) collectively had a significant influence on the dependent variable. P-Value was $0.000 < 0.05$ indicating further confirming that macroeconomic variables considered in this study significantly influence economic growth.

4.6 Coefficient of Determination (R-Square)

Coefficient of determination, also called R-Square (R2) gives the proportion of variance in the dependent variable (science) which can be predicted from the independent variables. If there are significant outliers, R2 is adjusted/corrected for errors.

Table 4.9: Coefficient of determination on macroeconomic variables and their effects on economic growth

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin Watson
0.918	0.843	0.815	5.399	1980

Predictors: (Constant), INF, PCF, REMIT, GC, GCF

The coefficient of determination (R^2) was 0.84, which means that for any change in the economic growth, all the predictors (macroeconomic variables) collectively explain up

to 0.843 (that is,84.3%) of that change. Adjusted R Square was 0.815, a figure close to that of R^2, which indicates that there were no significant outliers on the measures for all the variables.

The researcher also tested for autocorrelation using Durbin Watson statistic which is a test for autocorrelation in the residuals from a statistical regression analysis and always between 0 and 4. The Hypotheses for the Durbin Watson test are:

H_0 = No first order autocorrelation

H_1 = First order correlation exists.

(For a first order correlation, the lag is one-time unit).

A rule of thumb is that, test statistic values in the range of 1.5 to 2.5 are relatively normal. Values outside of this range could be cause for concern. Field (2009) suggests that values under 1 or more than 3 are a definite cause for concern. For the current study, Durbin Watson statistic was 1.980 which falls within the relatively-normal range and therefore there was no presence of autocorrelation in the residuals from a regression analysis.

4.7 Coefficient Matrix for Regression Model

Regression was done to find the multivariate relationship between the macroeconomic variables and economic growth as measured by the GDP. This was done at two levels, the first being by a regression model, while the second level was the test of hypothesis. In both cases, macroeconomic variables were found to be significantly affecting GDP.

To generate the model, the dependent variable and the independent variables, the standardized Beta coefficients generated from regression analysis were used to develop the regression model for the relationship at period (t) as follows:

GDPt = 2.510 + 0.098PCFt +0754CGt +0.266GCFt +0.024REMITt +0.037INFt +εt

Where GDPt is per capita at period t; PCF, CG, GCF, REMIT, and INF indicate the Private Capital Flows, Government consumption, Gross capital formation, Workers remittance and Inflation.

Table 4.10: Regression coefficient matrix

	Unstandardized Coefficients		Unstandardized Coefficients		
	Coefficients (B)	Std. Error	Beta	T	Sig.
(Constant)	2.510	1.940		1.294	0.21
PCF	0.002	0.002	0.098	2.273	0.21
CG	0.570	0.067	0.754	8.455	0.00
GCF	0.291	0.098	0.266	2.965	0.01
REMIT	0.016	0.049	0.024	2.317	0.75
INF	-0.051	0.113	-0.037	3.453	0.65
Dependent Variable: Economic Growth					

As shown in Table 4.10, GC and GCF were the only variables that were found to be significant in the regression model with p-Value<0.05. The model coefficients were as follows: PCF (0.002), CG (0.570), GCF (0.291), REMIT (0.016), and INF (-0.051).

 The model can therefore be summarized as follows:

GDP = 2.510 + 0.002PCF + 0.570CG + 0.291GCF + 0.016REMIT - 0.051INF

Levine and Renalt (1992) revealed that capital formation influences the rate of economic growth in country. Similarly, Kendrick (1993) pointed out that the formation of capital alone does not lead to economic prosperity, rather the efficiency in allocating capital from less productive to more productive sectors influences economic growth.

Although this was the case, the study findings revealed that gross capital formation had a positive and significant effect on the economic growth. These findings were in line

with Adhikary (2011) who found that capital accumulation helps increase investment, investment creates employment through expanding production bases, and additional employment generates higher savings which provide confidence in undertaking larger investment which consequently affects influences economic growth positively. Based on these findings, the null hypothesis that states that Gross Capital Formation has no effect on Economic Growth in Kenya was rejected.

H_0: Private Capital flows has no significant effect on Economic Growth in Kenya.

The critical value for t at 33 degrees of freedom (d.f = 34 − 1) at 95% confidence level, 2-tail test was 2.021. Given that calculated t-scores Private Capital Flow given by Table 4.6 = 2.273; was greater than the critical value for t (2.021) for both variables, the criteria is not to accept the null hypothesis for both explanatory variables. Thus, Private Capital Flow has a significant effect on the economic growth of Kenya as measured by GDP.

Mishra et al. (2001) argue that larger capital flows are associated with more intense or frequent crises. Therefore, they insist that capital flows can help boost growth and productivity only if they are accompanied by other structural policies and higher exchange-rate reserves. The issue of volatility is also raised by Lensink and Morrissey (2001): Using both cross-section and panel data techniques, they report that, although private capital flows has a positive impact on growth, its volatility has a negative influence.

Borensztein et al. (1998) tested the effect of foreign direct investment on economic growth. They highlight the important role of human capital. In their findings, they revealed that foreign direct investment was important vehicle for the transfer of technology, contributing relatively more to growth than domestic investment. However,

they also noted that higher productivity of foreign direct investment has a profound impact only when the host country has a minimum threshold of human capital. Thus, they noted that foreign direct investment would have a positive and significant effect on economic growth only when a sufficient absorptive capability of the advanced technologies is available in the host country.

The findings of the study are in line with those of Borensztein et al. (1998) which revealed that not only do private capital flows have a negative effect on the economic growth but the effect is not significant. This means that the null hypothesis that states that Private Capital flows have no effect on Economic Growth in Kenya was accepted.

At multivariate, null hypothesis at this first level of demand was stated as follows:

H0i: There is no significant relationship between all the predictors (PCF, CG, GCF, REMIT, and INF) and the economic growth.

From the ANOVA results (Table 4.4), F-calculated was 48.598 compared to F-critical of 2.49. The criterion is to accept the null hypothesis as stated if f-critical is greater than f-calculated. We, therefore not accept the null hypothesis, and adopt the alternative hypothesis. Approving these results was the significant value of 0.00, giving a confidence level of at least 95%.

In their study on the role of remittances and financial development on economic growth in a panel of 36 countries in Saharan Africa, Nyamongo et al. (2012) found out that remittances appear to be an important source of growth for these countries in Africa during the period under study. Although this was the case, the findings have shown that remittances do not have a significant effect on the economic growth.

These findings are in line with those of Ahamada and Coulibaly (2013) who found out that remittances do not affect economic growth nor does economic growth affect

remittances inflows. Furthermore, Wakayama (2011) found out that there is no correlation between remittance and economic growth per capital growth and they concluded that remittance cannot express economic growth correctly. Based on the findings, the hypothesis that states that Remittances have no effect on Economic growth in Kenya was accepted.

Hasanov (2010) found out that there was non-linear relationship between inflation and economic growth in the Azerbaijani economy and threshold level of inflation for economic growth was 13 percent. On the other hand, Frimpong and Oteng-Abayie (2010) found a threshold effect of inflation on economic growth of 11 percent for Ghana over the period 1960-2008 though failing the test of significance at that level. The findings of the current study have revealed that the rate of inflation has no significant effect on the economic growth. This means that the hypothesis that states that inflation has no effect on economic growth in Kenya was accepted.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDTIONS

5.0 Introduction

This Chapter presents summary of the findings in line with the objectives of the study. Based on the findings, the conclusions and recommendations on the way forward were drawn and eventually present an area of future research.

5.1 Summary of Findings

The study was carried out to evaluate the impact of macroeconomic variables on economic growth in Kenya. This study purely relied on secondary macroeconomic time series data for the period 1983-2017 obtained from World Bank database: African development indicators, Kenya central bureau of statistics, Central bank of Kenya and internet sources. The data was analyzed using SPSS Version 22.

The findings showed that the overall model was significant in explaining or predicting the GDP with a coefficient of determination of 0.843. The findings regarding the predicted model coefficients revealed that the second difference of private capital flows ($\beta 1 = -0.098$, p-value = 0.21), remittance ($\beta 4 = 0.024$, p-value = 0.75) and inflation were negative although not significant in explaining the GDP ($\beta 5 = -0.037$, p-value = 0.065). On the other hand, government consumption and gross capital formation were found to be positive and significant. The findings showed that with each unit increase in the government consumption 3 years ago, there would be 2.78 units in the GDP of the current year, p-value = 0.000 while each unit increase in gross capital formation 3 years ago would result in 1.93-unit increase in the GDP of the current year, p-value = 0.000.

Jawaid *et. al.,* (2012) stated that there are well known difficulties with cross section country data and so there was need for more longtime series on the subject. From the discussion of the findings above, it can be concluded that government consumption and gross capital formation are the most significant factors influencing economic growth in Kenya.

5.2 Conclusions of the Study

The objective of the study was to investigate the impact of macroeconomic variables on economic growth in Kenya for the period 1983-2017 using secondary time series data and then make recommendations that should be taken to speed up economic growth in Kenya. From the study, it can be concluded that economic growth in Kenya is largely driven by government consumption and gross capital formation. This study is consistent with the study by Gregorious and Ghosh (2007) which used panel data to study the impact of government expenditure on economic growth. Their results suggested that countries with large government expenditures tend to experience higher economic growth.

In conclusion, the economic growth of a country is highly dependent on various factors. The findings have shown that remittances do not have a significant effect on the economic growth in Kenya. The findings also showed that the level of government consumption has a positive effect on economic growth in Kenya. In line with these findings, although remittances appear to be an important source of growth, there was need to put in measures that would result in increased level of remittances and hence have a positive and significant effect on the Kenyan economy although studies have shown that remittance cannot express economic growth correctly. Furthermore, growth of government spending has significant negative impact on economic growth. However, the positive effect of government consumption is mainly as a result of

productive public expenditure. This implies that governments should strive to reduce or do away with expenditures that have no significance to the economy although studies have shown that countries with large government expenditure tend to experience higher economic growth.

Furthermore, the gross capital formation had a positive and significant effect on economic growth in Kenya. This means that capital formation influences the rate of economic growth by increasing investment, creating employment which results in increased savings. Although this is the case, the formation of capital alone does not result in economic growth but rather the effectiveness in allocating the capital influences economic growth. The study also showed that not only do private capital flows have a negative effect on the economic growth in Kenya but the effect is not significant. Based on these findings, there is a confirmation that capital flows can help boost growth and productivity. However, capital flows have a great influence only if they are accompanied by other structural policies and higher exchange-rate reserves are associated with more intense or frequent crises. So, while private capital flows have a positive impact on growth, its volatility has a negative influence. Consequently, private capital flows are an important source for the transfer of technology, contributing relatively more to growth than domestic investment. However, higher productivity of private capital flows has a deep influence only when there is availability of crucial human capital. The findings of the current study have also revealed that the rate of inflation has no significant effect on the economic growth in Kenya.

According to Adhikary (2011) capital accumulation helps increase investment. Investment creates employment through expanding production bases, additional employment generates higher savings which provide confidence in undertaking larger investment, and this chain effect ultimately influences economic growth positively.

This means the Kenyan government should focus on improving their investment levels in order to improve the economic growth in the country to the target of 10% by vision 2030.

5.3 Recommendations

The Government of Kenya should work towards an environment that attracts gross capital formation and proper government spending to spur economic growth by providing a favorable business opportunity to investors. This is in line with this study's findings that gross capital formation and government consumption as a ratio of GDP cause economic growth and that, government consumption and gross capital formation as a ratio of GDP has a positive and statistically significant coefficient.

The Kenyan government should also improve workforce trainings in the country and come up with well-developed infrastructure for the countries investment to be productive.

The government should ensure optimal utilization of capital flows to the country by coming up with strategies to curb corruption which is rampant in the country.

The government should focus on influencing the size and composition of capital flows into the country.

There is need to play down on speculative businesses and to invest into the real sectors of the economy.

There is also the need to reduce the level of capital flight out of country. Inflows should be tied to specific, relevant and purposeful projects. This will help to create employment opportunities in the long run.

Prudence and proper accountability should be the watchword in the management of accruals from official capital inflows and transfers. Such monies are expected to be channeled into productive ventures by the governments in power and not for profligacy.

There is need to effect a change in the revenue structure of government. This must become significantly based on domestic production activities, which is in contrast to the ages long dependence on export of primary commodities (Be they agricultural commodities or crude oil.

Lastly, macroeconomic projections should guide the overall level of expenditure. As such, their projections need to be more realistic, internally consistent and based on more accurate and timely information.

5.4 Suggestions for Further Research

There are a number of areas that require further research. The study sought to investigate the effect of macroeconomic variables on the economic growth. However, the variables used in the study were not exhaustive. Future research could incorporate macroeconomic variables such as, interest rates, exchange rates among others. A study of what are the determinants of economic growth will assist the Government to work on areas that will enhance the same. A study that will include the interaction of these variables as explanatory variables of economic growth will complement this study. This will inform policy makers in deciding whether they need to pursue joint or separate policies regarding the variables which determine economic growth.

5.5 Limitations of the Study

One common problem in estimating remittances is that official records capture formal transfers but not informal remittances sent through family, friends, or "black market" operators. The researcher ensured deriving a composite score on remittance for each of the year considered.

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APPENDICES

Appendix I: Raw Data

YEAR	GDP	PCF	GC	GCF	REMIT	INF
1983	7265303092	78973746	1438775000	1331204011	27719999	13.85818
1984	6854490191	14147557	1274164000	1275711523	78540001	11.60305
1985	6431594078	13000895	1185538000	1223789861	67980003	20.66671
1986	5979205950	23738843	1101469000	1083108590	58080002	11.39778
1987	6191426332	10753527	1076183000	1062030401	56759998	10.2841
1988	6135040561	28845949	1071196000	1059608936	66000000	13.00657
1989	7239145307	32725777	1326180000	1421473342	52139999	2.534276
1990	7970816494	39381344	1480081000	1564362332	66000000	8.637673
1991	8355380879	394431	1537874000	1708414332	76559998	12.26496
1992	8283101227	62189917	1495647000	1611734092	89099998	13.78932
1993	8572346693	57081096	1598094000	1770035086	139259995	17.78181
1994	8151479004	18830977	1367113000	1551234373	124080002	20.0845
1995	8209129172	6363133	1287378000	1361186089	114839996	27.33236
1996	5751789915	145655517	832857200	974216095	118139999	45.97888
1997	7148145376	7432413	1083296000	1349074586	137279999	28.81439
1998	9046326060	42289248	1342739000	1934609895	298320007	1.554328
1999	12045858436	08672932	1828630000	1928428484	288420013	8.864087
2000	13115773738	62096810	2037687000	2018242247	351779999	11.36185
2001	14093998844	26548246	2290269000	2209264379	347820007	6.722437
2002	12896013577	51953456	2031547000	2010673120	431640015	5.742001
2003	12705357103	110904550	1912702000	2122913535	537900024	9.980025
2004	12986007426	5302623	2074243000	2357162587	550000000	5.738598
2005	13147743911	27618447	2245372000	2266260821	433000000	1.961308
2006	14904517650	81738243	2702386000	2360608674	538000000	9.815691
2007	16095337094	46063931	2874638000	2616976828	620000000	11.62404
2008	18737895401	21211685	3256686000	3503820003	424991046	10.31278
2009	25825524821	50674725	3705188000	5016463063	570459274	14.45373
2010	31958195182	729044146	4675360000	6380367096	645207871	9.75888
2011	35895153328	95585680	5626199000	6771593329	667317334	26.23982
2012	37021512049	116257609	5632628000	6850850657	631460883	9.234126
2013	39999659234	178064607	5667631000	8128650616	685757272	3.961389
2014	41953433591	139862091	5878368000	8547271278	934149157	14.02155
2015	50410164014	163410210	7051554000	10696856486	1211021406	9.378396
2016	54930813988	371846696	7759475000	11311950712	1304277242	5.718274
2017	60936509778	944327305	8089216300	13785517196	1440846022	6.877498

Dummy variable assumes of 1 or 0
Source: World Bank Development Indicators