EFFECT OF GOVERNMENT SPENDING ON ECONOMIC GROWTH IN BURUNDI

BY

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DECLARATION

Declaration by the Candidate

This thesis is my original work and has not been presented to any other examination body. No part of this research thesis should be produced without the author's consent and/or Moi University.

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DEDICATION

I dedicate this thesis to my parents Ngendakumana Xavier and Prof. Nineza Claire, my siblings Habimana Yves, Nduwimmana Alain and Inamahoro Frida. I am very thankful for your love, prayers, understanding and support to complete this research work.

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And finally, ***AD MAJOREM DEI GLORIAM***. (For the greater glory of God)

ABSTRACT

One of every nation's primary macroeconomic objectives is economic growth. Government spending is crucial in developing countries because it helps to meet the population's basic needs. The numerous turmoils that Burundi has seen since gaining independence have had a profound effect on the country's economy. Following the civil war (1993–2005), the government's main objective was to boost the economy of the nation by ensuring everyone's safety, providing for their basic needs (such as health and education), and increasing agricultural productivity, which provided for 85% of the population and contributed 44.1% of GDP. The economy benefits from government spending in a few key areas, according to the research. Approximately 60% of the Burundian government's budget has been allocated to the agricultural, security, health, and education fields. It is essential to research how government investment on security, agriculture, health, and education affects Burundi's economic growth. The main objective of the study was to look into how government spending in Burundi affected economic growth from 2005 to 2017.Investigating the impact of government investment on the agriculture, health, security, and education sectors on economic growth in Burundi constituted the specific goals. This work provides an empirical analysis of how government expenditure affects economic growth. Numerous studies have looked into the nature of the relationship between economic growth and government spending using a range of explanatory variables and analytical methods. This study used the Keynesian Theory. In this study, secondary data were employed, more specifically quarterly time-series data on GDP and spending in the agricultural, security, health, and education sectors in Burundi from 2005 to 2017.The data was obtained from the ministry of finance and the statistical institute of Burundi. Using ADF, a unit root test was performed on the data, and it was determined that all variables were non-stationary at level but stationary after the first difference. To determine whether the variables have a long-term relationship, the Johansen cointegration test was used. The Trace and Maximum Eigen values showed that there was only one possible cointegrating equation, therefore confirming the hypothesis that the variables have a long-term relationship. The characteristics of the long and short run relationships were established using the VEC model. With a coefficient of -0.950665 and a T-Stat of -7.54196, government spending on agriculture was proven to have a long-term, significant impact on Burundi's economic growth. With a coefficient of -0135594 and a T-Stat of -1.03483, government health spending was shown to have no impact on Burundi's economic growth. With a coefficient of 1.642991 and a T-Stat of 4.8765, government spending on security sectors was observed to have a significant and negative effect on Burundi's economy. With a coefficient of 1.24711 and a T-Stat of 4.14613, government spending on education was determined to have a significant and negative effect on Burundi's economy. It was fund that in the short run model the GDP’s first lagged value and the other variables embodied by the constant C were the only significant ones impacting GDP. The government should optimize its spending more on agriculture, while reducing its level and share of spending security in order to ease the burden and to direct some of the security expenditure to more productive sector. And adapt the education system so that it can be able to provide adequate skillsneeded by the labor market in order to boost productivity given that empirical results showed a negative effect of Burundi government spending on education on GDP. Further research should be done on the effect of other components of GDP consumption, investment, exports, and imports on Burundi’s economy.

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OPERATIONAL DEFINITIONS OF TERMS

Economic Growth

Economic Growth is the rate of increase in Gross Domestic Product. It captures an increase or decrease in the value of products and services generated in a particular economy over a period of time. It can be positive or negative. It was determined as a percentage rate of GDP change (Gwartney, 2010)

Government Expenditure on Health

Government Expenditure on Health is the amount of expenditure that the government allocates for the health sector.It comprises of the funds that the government spends building hospitals, providing them with medical supplies and equipment, hiring and training medical staff, and paying their wages (Aboubabcar, 2017).

Government Expenditure on Security Sectors

Government Expenditure on Security Sectors is the amount of expenditure that the government allocates for defense and police. It covers costs such as paying salaries, purchasing tools and equipment for the military and police, and training (Zhao, 2017).

Government Expenditure on Education

Government Expenditure on Education is the amount of expenditure that the government allocates for education.It comprises the costs incurred by the government to finance basic through higher education, including paying teachers and lecturers, building learning facilities including classrooms, lecture halls, and offices, and buying educational supplies. It also includes scholarship costs, both domestically and internationally (Douanla, 2015).

Government Expenditure on Agriculture

Government Expenditure on Agriculture is the amount of expenditure that the government allocates for agriculture. It involves costs such as purchasing new agricultural equipment, agricultural inputs such as improved seeds, training, and hiring a lot of agricultural development agents, among other things (Chandio, 2016).

ABBREVIATIONS AND ACRONYMS

ADF : Augmented Dickey Fuller

ADRL : Auto-Regressive Distributive Lag

BIF : Burundian Francs

CS-ARDL: Cross-Section Auto-Regressive Distributive Lag

CSPL : *Cadre Strategique de Croissance et de Lutte coontre la Pauvrete*

ECM : Error Correction Model

GDP : Gross Domestic Product

Ksh : Kenyan Shillings

LLC : Levin-Lin-Chu

MENA: Middle East and North Africa

ODA : Official Development Aid

VAR : Vector Auto-Regressive

VECM: Vector Error Correction Model

CHAPTER ONE

INTRODUCTION

1.0 Overview

This chapter provides the background information, problem statement, research hypotheses, significance of the study as well as the scope of the study.

1.1 Background of the Study

In any given economy, the main macroeconomic goals are full employment, price stability and economic growth (Sexton *et al*., 2011). Economic growth, as measured by GDP, changes from one country to another all over the world. The level of standards of living in a country depends on the country's economic ability to produce goods and services. The government can influence the economic growth of the country in various ways whether by using policies affecting their spending or their income (Mankiw, 2008).

1.1.1 Economic Growth

Economic growth can be defined as an increase in the production of economic goods and services compared from one period of time to another. It is an increase of the production possibilities of an economy. That growth in per capita real Gross Domestic Product means that there are more goods and services available per person thus improving the living standards (Gwartney *et al,* 2010). This means an increase in the value of national output/national expenditure. Economic growth is an essential macroeconomic goal given that it increases higher living standards, better tax collections, and the creation of new jobs. Economic growth is a good indicator of how well or bad the economy of a country is doing.

Gross domestic product (GDP) is the total monetary or market value of all thefinished goods and services produced within a country's borders within a specific time period. Gross domestic product is the key statistic used to calculate economic growth. It is widely considered as the sum of consumption, investment, government purchasesand net exports which represent exports minus imports. Real GDP per capita is GDP divided by the size of the population. GDP gives the total value of a country's economy production of final goods and services as well as the income earned in that economy over a period of a year. The use of real Gross domestic product in calculating economic growth separates the changes in the amount of goods and services from the effects of the rising price level and it also isolates the effects of changes in population. An increase in population lowers the standard of living if otherthings remain equal. More people share the same amount of Gross domestic product. And also an increase in Gross domestic product that matches an increase in population leaves the standard of living unchanged (Krugman, 2009).

Gross domestic product can be calculated in three different ways. The first one is by adding up all the money spent on goods and services, minus the value of imports plus exports. The second way is by adding up all the money earned through wages and profits. And the last one is by adding up the value of goods and services produced. These ways are respectively known as the expenditure, income and output measures of Gross domestic product. All three different methods of calculating GDP should, in theory, give the same number (Rode, 2012).

A country experiences economic growth when it produces more, either by acquiring additional resources or by figuring out how to produce more with the resources it already has.

A country with high levels of economic growth has a lot to show for it, as the African country report (2011) states. It has well-developed infrastructure, a high-quality education system that is accessible to all citizens, and a health care sector that is well-funded and well-equipped to meet its citizens' health requirements.

Businesses in an expanding economy will hire more workers to meet the rising demand for goods and services from customers. On the other hand, businesses will need to cut costs wheneconomic growth is negative because the economy will demand fewer goods and services (Gorodnichenko, 2010).

When a nation's productivity, or the quantity of goods and services produced by each worker, rises, the country experiences economic growth. One or more of the following factors could be directly responsible for this rise in output. The rise in physical capital per worker, which results in an increase in factories, machinery, and roads, will reduce economic activity's cost. Productivity will rise as a result of improved machinery and factories. The quality of the workforce can be improved by increasing human capital. A workforce that is skilled is more productive. This is because of investments in trainings, skills, and improvement. Discovering of natural resources like oil or minerals can also boost economic growth. Technical knowledge is another factor necessary for improving economic output because it provides understanding of the best way to produce goods and services. An increase in one or some of these factors will lead to an increase in the economy’s output (Mankiw, 2008).

Institutions and policies must provide the necessary conditions for a nation to achieve high income levels. By enforcing the rule of law, the legal systems ought to guarantee the protection of private ownership. Competition should exist in markets. As a result of monetary and price stability policies, inflation should be low and predictable. Avoid

laws that make it harder to get in and make it harder to trade on your own. The nation ought to maintain a low tax rate and steer clear of tariffs, quotas, and other regulations that prevent residents from transacting with people from other nations (Gwatney *et al*, 2010).

1.1.2 Economic Growth in Burundi

Burundi's economy grew at a rate of less than 2% per capita per year for the first ten years after independence, from 1962 to 1972. This was primarily due to the low productivity in other sectors and lower value added in agriculture in the context of instability after independence. The tragic events of 1972 led to a roughly 7% decline in GDP. In the ten years since independence, GDP per capita has only increased by 16%.

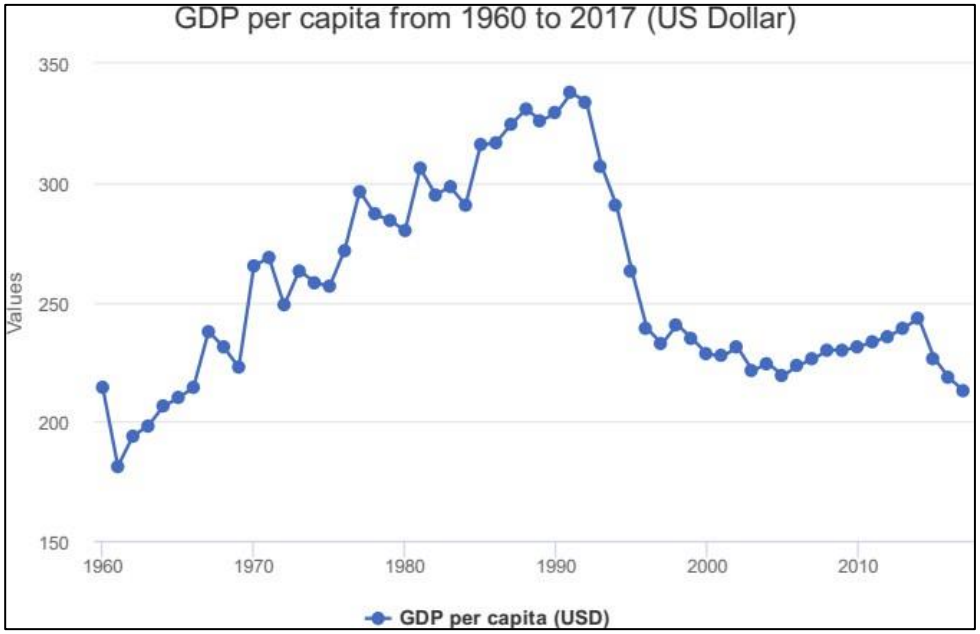

Fig 1.1: GDP per capita Burundi, 1960-2017

Burundi's political tensions decreased from 1973 to 1991, and the country's economy experienced modest growth. From 1962 to 1972, investment increased from 6% to 13.8% on average, from 1973 to 1991.The majority of investments were made with money from outside sources, and official development assistance (ODA) increased

from an average of 3.3% of GDP to 17%.Even though Burundi's economy grew at an average rate of 4.1% during this time, debt rose and resources were mismanaged, especially in the middle of the 1980s.In 1972, the external debt, as a share of GDP, was only 2.8%, but it reached 82.5% in 1991.

In 1993, Burundi's economy, which was already fragile, collapsed with the beginning of the civil war caused by the assassination of the first democratically elected president Ndadaye Melchior and his close collaborators. Between 1993 and 2005, GDP per capita decreased by about 40%, to reach the lowest amount of US $ 140 in 2005. The frequent shortages of electricity due to sabotage of transmission lines have had serious consequences for the economy. The industrial sector registered a drop of almost 17% in 1995. In addition, after the second coup d'état by Pierre Buyoya in 1996, the international community imposed an embargo on Burundi; which deteriorated further more the country's economic situation. Between 1992 and 1999, Burundian Franc fell by 16% a year, while average annual inflation was 23%. Military spending were about half of the government's budget. The exchange rate was overvalued by about 80 per cent and the gap between the official and parallel was more important in the 1990s than at any other time. In lack of a well-established and regulated financial system, this has created arbitrage opportunities and an increase in corruption.

From 2005 to 2014, Burundi's GDP growth stabilized following the end of hostilities and showed relatively positive results. Despite the fragile environment, the Burundi government has been able to stabilize the country's economy since 2005.Average annual growth rates for GDP per capita and GDP per capita were 4.1% and 1.1%, respectively. The recovery of economic performance was aided by the conclusion of the peace process, the reduction in violence, improved macroeconomic management,

and a significant influx of aid. Economic expansion was primarily fueled by household consumption and public spending (Evaluation de la pauvreté au Burundi, 2016).

The gross domestic product (GDP) of Burundi declined by 3.9% in 2015 as a result of the sociopolitical crisis affecting the country. This crisis brought to an end a decade of economic stability with average growth of 4.5% per year. In 2017 recovery was slow and growth was 0.01% of GDP.

1.2 Problem Statement

In order to use this information to predict future parameters of economic growth given a certain level of government spending, it is important to understand whether there is a relationship between public expenditures and economic growth. This part of forecasting can be used to control how much money the government spends, which might have a negative effect on the economy.

Government spending on essential areas like agriculture, health, security and education has been proven to have a significant effect on economic growth in developing countries. Research reveals that not only government spending has a big role to play as it used to provide basic social needs in developing countries, it can alsobe beneficial to economic growth (Amaghionyeodiwe *et al*, 2017; Aboubacar *et al*, 2017; Ochieng *et al*, 2017; Fozieh *et al*, 2016; Harerimana, 2016; Douanla *et al*, 2015;Gisore *et al*, 2014; Bazezew, 2014; Musila *et al*, (2004)).

After Burundi's civil war ended in 2005, the government's top priorities were to increase agricultural productivity, which accounts for 44.1% of GDP and provides income for 85% of the population, as well as to improve security and meet basic needs like health care and education. The proportion of the budget allotted to the priority sectors has gradually increased: from 7.73 percent of the budget in 2009 to 9.78 percent in 2013

for health expenditures, from 24.23 percent of the budget in2009 to 27.58 percent in 2013 for education expenditures, and from 3.60 percent ofthe budget in 2009 to 4.75 percent in 2013 for agriculture expenditures. However, the percentage of the budget that is allocated to the security sectors has remained virtually unchanged at 20 percent since 2009.From approximately 24.9% of GDP in 2000 to approximately 45.4% of GDP in 2008, and then again to 29.75% in 2011, government spending rose. (Republic of Burundi, Burundi Public expenditure review 2013).

Since 2005, the main objective of the government was to stabilize the country and enhance economic growth (Republique du Burundi, CSPL, 2006). It is thus important to investigate the effects of the government expenditure on the health, education, agriculture and security on economic growth.

This study aims to investigate and fill the knowledge gap on the impact of public expenditure components like health, education, agriculture, and security on economic growth in Burundi by using recent data sets to examine the effects of growing government sectoral spending on economic growth and their long-term relationship.

1.3 General Objective

The main objective of the study is to analyze the effect of government expenditure on economic growth in Burundi for the period 2005 to 2017.

1.3.1 Specific Objectives

i. Investigate the effect of public expenditure in health on economic growth in Burundi.
ii. Establish the effect of public expenditure in education on economic growth in Burundi.

iii. Determine the effect of public expenditure in agriculture on economic growth in Burundi.

iv. Evaluate the effect of public expenditure in security on economic growth in Burundi.

1.4 Research Hypotheses

The following null hypotheses arose out of the specific objectives.

H_{O1}: Burundi's Government Expenditure in health from 2005 to 2017 did not significantly affect the country's economic growth.

H_{O2}: Burundi's Government Expenditure in education from 2005 to 2017 did not significantly affect the country's economic growth.

H_{O3}: Burundi's Government Expenditure in agriculture from 2005 to 2017 did not significantly affect the country's economic growth.

H_{O4}: Burundi's Government Expenditure in security from 2005 to 2017 did not significantly affect the country's economic growth.

1.5 Significance of the Study

This study provides an empirical analysis of the effect of Burundi government expenditure on the country's economic growth. More specifically, the effect of specific components of government expenditure on economic growth was analyzed.

The findings of this study are important to policy makers because they will enable them to establish the effect of government expenditure in Burundi's economic growth.They will have the useful information concerning health, education, agriculture and security what kind of effect the expenditure on agriculture, security sectors, education and health

could have on the economy. In turn, they will be able to effectively plan both medium and long term growth objectives for the country.

1.6 Scope and Limitations of the Study

The study was limited to the period between 2005 and 2017. Economic growth can be affected by both fiscal and monetary policies. This study was concentrated on fiscal policy effects particularly government expenditure leaving out government revenue as another form of fiscal policy. Government expenditure was categorized in terms of actual budget execution to various ministries. The study was limited to the following sectors: health, education, agriculture and security

CHAPTER TWO

LITERATURE REVIEW

2.0 Overview

This chapter covers the concepts, theoretical framework, the empirical studies and the conceptual framework.

2.1 Concepts

This part covers the concepts of government spending, government spending and economic growth.

2.1.1 Government Spending

Government spending refers to the total amount the state spends on goods and public services. According to Baleeiro (1958), government spending refers to money spent by the public sector on services like education, healthcare, social protection, and defense. It can also be thought of as investing in economic growth or financing public services using public funds. It contributes a substantial amount to the Gross Domestic Product. Spending by the government has a more direct impact on the lives of its citizens. For example, the government spends money to build a hospital and pay a doctor to improve the health of the population. By building schools, paying teachers, and providing books, the government also improves the education of its citizens. Any government must decide how much to spend, what to spend on, and how to finance its spending (Abel *et al*., 2010).Government spending is financed mainly through two sources: tax and debt. Taxes comprise of direct and indirect tax. They are collected by recognized revenue authorities. When a government spends more than it collects in taxes, it borrows money. Government can borrow money whether inside the country from banks (internal debt) or outside the country (external debt). Borrowing can be

short-term or long-term, and involves selling government bonds or bills. Treasury bills are also issued into the money markets to help raise short-term cash.

Public spending enables governments to produce and provide goods and services or purchase goods and services that are needed to fulfill the government's social and economic objectives.

There are two main categories of government spending: recurring expenses and capital expenditures. Payments for the purchase or production of a new or existing good are known as capital expenditures. Examples of capital expenditures include spending on assets like cars, computers, and furniture, as well as on building a new hospital, school, or road. They don't need to be renewed every year because they are for the long haul. They include spending on physical assets, which is also known as "social capital. "On the other hand, payments for things that are used up and only lasta short time are called current expenditures. Examples of current expenditures includepayments for wages and salaries, stationery, medical supplies, and interest. They include expenses for wages and raw materials and are for the short term (Busatto, 2011).

Government spends money for a variety of reasons, such as to supply goods and services that the private sector would fail to do. Those goods and services include defense, roads and bridges and also merit goods, such as hospitals and schools; and welfare payments and benefits, including unemployment and disability benefit. To achieve supply-side improvements in the macro economy, such as spending on education and training to improve labour productivity. To provide subsidies to industries that may need financial support for either their operation or expansion. The private sector is not able to meet such financial requirements and, hence, the public sector is essential in providing the necessary support. For instance, until the government

invests in the sector, transportation infrastructure projects do not attract private funding. to promote income redistribution and increase equity, to boost macroeconomic expenditure and contribute to increases in aggregate demand and economic activity. Such an incentive is a discretionary fiscal policy policy (Gruber, 2016).

2.1.2 Government Spending and Economic Growth

The relationship between government spending and economic expansion has been demonstrated by economic theory. The significance of managing government spending is acknowledged by both Keynesians and monetarists. The performance and expansion of the economy are driven by aggregate demand, or spending, according to the Keynesian school of thought. Consumer spending, business investment spending, net government spending, and net exports comprise aggregate demand. Keynesian economists contend that the private sector's parts of aggregate demand are too volatile and reliant on psychological and emotional factors to sustain economic growth. As a result, by increasing aggregate demand and government consumption, any increase in government spending contributes to economic expansion. Depending on which area of government spending is increased, higher spending will also have an effect on the economy's supply side. In the long run, a rise in aggregate supply and higher productivity could result from spending on infrastructure enhancement. Spending on pensions or welfare benefits may help reduce inequality, but it may also stifle investment from the private sector that is more productive. Monetarists, on the other hand, argue that because of inflation brought on by increases in the money supply, this growth in the money supply must be controlled, which is why it is important to control government spending. (Musyoki, 2010).

Barro developed in 1990 an endogenous growth model of public expenditures in which he showed that growth rate depends on the structure of the government spending. Spending in infrastructure and in law being the highly productive categories. Increased investment in roads and railroads can help to improve efficiency by removing supply constraints. Additionally, this may promote long-term economic growth.

In a developing country, government spending has a big role to play as it used to develop social overheads, create infrastructure of economic growth such as transport and communications facilities, … Government spending on public infrastructure effect on economic growth depends on the size and the form of the total expenditure allocated to economic and social developments projects in the economy (Muritala, 2011).

According to Solow's (1956) neoclassical growth model, productive government spending may have an impact on incentives for investing in human or physical capital, but in the long run, this has an impact only on equilibrium factor ratios, not growth rates, even though there will typically be transitional growth effects (Chude and Chude, 2013).

2.2 Theoretical Framework

Theories have been developed by economists in order to explain the nature of the relationship between government spending and economic growth. The impacts of public spending on economic growth have been supported by a number of basic theories, some of which are discussed in this section. This study will use the Keynesian Theory.

2.2.1 Wagner's Law of Increased Government Activities

A renowned German political economist, Adolf Wagner (1835–1917), developed an empirical law to analyze and explain the pattern of rising public spending. According

to Wagner, there is a causal relationship between the relative expansion of an industrializing economy's public sector and the growth of its economy as a whole.

According to Wagner, industrializing economies have a natural tendency toward relative development in the public sector. He uses the examples of Great Britain, the United States, France, Germany, and Japan to illustrate his point. He came to the conclusion that as industrializing countries' per capita income and output rise, so must their public sectors as a share of overall economic activity.

Adolf Wagner recorded historical evidence of rising public expenditure activities, particularly in Germany. He then attempted to explain the origin of the rise in public expenditure using his “Law of Increasing State Activities".

Wagner presented his law in the following words “Comprehensive comparisons of different countries and different times show that among progressive people, with which we alone are concerned an increase regularly takes place in the activity of both the central and the local governments. This increase is both extensive and intensive.

The central and local governments constantly undertake new functions, while they perform both old and new functions more efficiently and completely.”

In recent years, Wagner's law has become universally true. It is a proven truth that rising government expenditures and hence rising public spending have historically accompanied economic growth in a nation.

Wagner’s law was based upon historical facts. His law was applicable to modern progressive governments who were engaged in growing the public sector of the economy. Wagner noted a consistent trend toward a 'extensive' and 'intensive' expansion of the state's functions.

Wagner's law states that the expenditure of public authorities is increasing due to three factors. The first is the growth of Traditional Functions (defense, administration of justice, law and order, and social welfare provision). The range and variety of such functions has gradually expanded. The second reason is that new functions are being covered. Traditionally, the state's operations were restricted to defense, justice, law and order, and the maintenance of the state's authority. etc. However, as governments became more aware of their societal obligations, they began to increase their efforts in the sphere of various welfare measures to enrich the cultural life of the society. Finally, there is the Expanding Sphere of Public Goods. Almost all modern democratic governments have recognized the growing importance of providing and expanding the range of public goods.

The modern state has increasingly realized the need and necessity of providing social and merit goods through financial allocation. The government was attempting to change the composition of national product toward public goods.

2.2.2 Keynesian Theory

This theory was propounded by the British economist; John Maynard Keynes. The theory became popular during the Great Depression of the 1930s. According toKeynes, public expenditure is an exogenous factor which can be utilized as a policy instrument to promote economic growth. From the Keynesian thought, public expenditure can contribute positively to economic growth. Hence, Through the multiplier effects of aggregate demand, an increase in government consumption is likely to lead to an increase in employment, profitability, and investment. As a result, government spending boosts aggregate demand, resulting in increased output depending on expenditure multipliers.

Keynesian theory is an economic theory of total spending in the economy and its effects on output and inflation. Keynesian economics was established during the 1930s by British economist John Maynard Keynes in an attempt to understand the Great Depression. Keynes pushed for higher government spending and reduced taxation to stimulate demand and lift the world economy out of the depression.

The “Keynesian theory" refers to the idea that optimal economic performance can be achieved—and economic slumps avoided—by influencing aggregate demand through activist stabilization and government economic intervention measures. Keynesian economics is a "demand-side" theory that focuses on short-run changes in the economy.

Keynesian economics represented a new way of looking at spending, output, and inflation. Previously, classical economic thinking held that cyclical swings in employment and economic output would be modest and self-adjusting. According to this classical idea, if the economy's aggregate demand declined, the consequent weakening in output and jobs would lead to a drop in prices and wages. Lower inflation and wage levels would encourage firms to make capital investments and hire more workers, so encouraging employment and restoring economic development. The magnitude and severity of the Great Depression, on the other hand, put this idea to the test.

Keynes maintained in his seminal book, *The General Theory of Employment, Interest, and Money* and other works that during recessions structural rigidities and certain characteristics of market economies would exacerbate economic weakness and cause aggregate demand to plunge further.

Keynesian economics, for example, refutes the view held by certain economists that lower wages will restore full employment by stating that firms will not hire more

workers to manufacture things that cannot be sold because demand is low. Similarly, weak business conditions may encourage corporations to cut capital investment rather of investing in new plants and equipment to take advantage of lower pricing. This would also result in lower overall expenditures and employment.

One of the key components of Keynesian countercyclical fiscal policy is the multiplier effect. According to Keynes' fiscal stimulus hypothesis, an increase in government expenditure eventually leads to increased corporate activity and even more spending. According to this hypothesis, spending increases aggregate output and generates greater revenue. If workers are ready to spend their extra income, the consequent increase in GDP could be bigger than the initial stimulus amount.

The Keynesian multiplier's magnitude is proportional to the marginal propensity to consume. Its premise is straightforward. Spending by one customer generates revenue for a company, which subsequently spends on equipment, worker wages, energy, materials, acquired services, taxes, and investment returns. The cash earned by that worker can then be spent, and the cycle repeats. Keynes and his supporters argued that in order to achieve full employment and economic growth, people should save less and spend more, raising their marginal propensity to consume.

In this way, one dollar spent in fiscal stimulus eventually creates more than one dollar in growth. This appeared to be a coup for government economists, who could provide justification for politically popular spending projects on a national scale.

This theory was the dominant paradigm in academic economics for decades. Eventually, other economists, such as Milton Friedman and Murray Rothbard, showed that the Keynesian model misrepresented the relationship between savings, investment, and economic growth. Many economists continue to rely on multiplier-generated

models, despite the fact that most agree that fiscal stimulus is significantly less successful than the original multiplier model predicts.

In macroeconomics, the fiscal multiplier often associated with Keynesian theory is one of two broad multipliers. The money multiplier is the other multiplier. This multiplier refers to the process of creating money as a result of a fractional reserve banking system. The money multiplier is less contentious than the Keynesian fiscal multiplier.

Keynesian economics is concerned with demand-side solutions to recessions. Government intervention in economic processes is an important tool in the Keynesian instruments for combating unemployment, underemployment, and poor economic demand. The emphasis on direct government action in the economy pits Keynesian thinkers against others who advocate for limited government participation in markets.

Lowering interest rates is one approach for governments to genuinely participate in economic systems and stimulate active economic demand. Keynesian theorists say that economies do not recover fast and that active intervention is required to promote short-term demand. Wages and employment, they contend, are slow to adjust to market demands and require government intervention to keep on course. Thus, in the instance of Burundi, the government's intervention through fiscal policy was more than necessary to boost the economy.

2.2.3 Musgrave Theory of Public Expenditure Growth

This theory was propounded by Musgrave as he fund changes in the income elasticity of demand for public services in three ranges of per capita income. He posits that at low levels of per capita income, demand for public services tends to be very low, this is so because according to him such income is devoted to satisfying primary needsand that when per capita income starts to rise above these levels of low income, the demand

for services supplied by the public sector such as health, education and transport starts to rise, thereby forcing government to increase expenditure on them. He notes that when per capita income is large, as it is in industrialized economies, the rate of public sector expansion tends to slow as more fundamental needs are met. According to this hypothesis, increasing capital expenditures by the government may result in increased economic growth as well as increased recurrent expenditures by the government. However, increasing recurring government spending does not significantly boost the economy. This also suggests that, when compared to government recurrent expenditure, the causal effect of economic growth on capital spending is more significant.

2.2.4 Rostow's Theory

In 1960, Rostow published "Stages of Economic Growth," which outlined five stages that all nations must go through to develop: Traditional society is the first factor, followed by preconditions for takeoff, takeoff, drive to maturity, and age of high mass consumption. According to the model, all nations fall somewhere along this linear spectrum and move up during each stage of development:

Traditional Society: A population without a scientific viewpoint on the world and technology, as well as a subsistence, agricultural-based economy with intensive labor and little trading, define this stage.

Preconditions to Take-off: Here, a society starts to develop manufacturing and a more global/national perspective rather than a localized one.

Take-off: According to Rostow, this stage is characterized by a brief period of intense expansion during which industrialisation begins and employees and institutions become focused around a new industry.

Drive to Maturity: This stage occurs over time as living standards rise, technology becomes more prevalent, and the national economy grows and diversifies.

Age of High Mass Consumption: At the time of writing, Rostow considered Western countries, particularly the United States, to be in the final "developed" stage. In a capitalist system defined by mass production and consumerism, a country's economy thrives.

According to this view, government spending is a necessity for economic development, and its level is closely proportional to a country's stage of development. In the early stages of economic growth and development, public investment as a proportion of overall economic investment is expected to be high. The public sector provides social infrastructure overheads such as roads, transportation infrastructure, sanitation services, law and order, health, education, and other human capital investments, all of which are required to prepare the economy for takeoff into the middle stages of economic and social development.

During the middle stages of growth, the government continues to deliver investment goods, but this time public investment supplements private investment growth. Market failures emerge during the two stages of growth, which can stymie the push towards maturity, necessitating an increase in government engagement to deal with these market failures. In the mass consumption stage, income maintenance programs and welfare redistribution policies rise significantly in relation to other items of government spending, as well as in relation to GDP.

2.3 Empirical Literature

Various studies have been conducted to establish the relationship between economic growth and government expenditure. Different researchers have used different explanatory variables to establish this relationship.

Researchers used different classifications of government expenditure in their studies. The general objective of the study the effect of government expenditure on economic growth in Burundi for the period 2005 to 2017, similar studies have been conducted in other countries/regions with different time frame. This section discusses about researches done that considered the aggregate government expenditure and those done that considered more than one component of government expenditure to establish the relationship between government expenditure and economic growth.

Ambya (2020) investigated the impact of regional government spending on education, health, and infrastructure, as well as other variables such as labor, on the economic growth of Indonesia's autonomous regions. Panel data regression was employed as the analysis model. The study's findings show that local government expenditure on real per capita education, real per capita health, and real per capita infrastructure, as well as the number of workers, has a positive and significant effect on economic growth.

Gumus *et al*. (2019) evaluated the relationship between real government expenditures and real GDP in three South Caucasus countries: Azerbaijan, Armenia, and Georgia. They used two key hypothesis about real government spending and growth. The Wagner theory contends that economic growth leads to increased government spending, whereas the Keynes hypothesis contends that increased government spending feeds higher economic growth. The study included the years 1990 to 2016. According to their empirical findings, actual government expenditures and economic growth in the South

Caucasus had a mutually beneficial relationship. They also fund both immediate and long-term bidirectional causality. These findings confirmed each other and were consistent with the current literature.

Alrasheedy *et al* (2019) conducted a study about government expenditure and economic growth in Saudi Arabia. They tested the validity of 5 different versions of Wagner's law as well as Keynesian approach in Saudi Arabia by employing the annual time-series data over the period 1970-2017. The analysis examined the stationary properties, co-integration and Granger causality between government expenditure and economic growth. The ARDL approach of co-integration was utilizedto validate the existence of the long-term relationship between the variables. The results confirmed the long run validity of three models for both approaches, indicatingthat government expenditure, government consumption expenditure and governments spending as a share of income significantly affect economic growth and vice versa. However, the study revealed that there was no significant statistical evidence for the impact between per-capita income and either government expenditure per capita or government expenditure in both Wagner's Law and the Keynesian approach. However, in the short run, they fund that the Keynesian approach holds for all five models, whereas there was a violation of one model of Wagner's Law, where no evidence was fund for the impact of economic growth on government spending in the short run. The analysis also confirmed the feedback hypothesis for all the models except one, which showed a unidirectional hypothesis of causality running fromeconomic growth to government consumption expenditure, and not vice versa.

In a study published in 2018, Nouira *et al*. examined the relationship between public spending and growth in a number of MENA and developing nations between 1988 and 2016. The study's key finding demonstrated that there is a threshold effect of

government spending on economic development across all panel groups. For all nations, the threshold is between 10 and 30 percent; for MENA nations, it is between 20 and 30 percent; and for developing nations, it is between 10 and 20 percent. It is also obvious that the MENA region experiences a substantially larger threshold effect. Additionally, the CS-ARDL model's outcomes for diverse groups indicate a favorable correlation between government spending and economic expansion investigated how the Economic Community of West African States' member nations' public spending affected economic growth. The outcomes of the analysis revealed that total public spending in the majority of ECOWAS nations had a negative impact on economic growth both long- and short-term. The only nations where overall public spending contributed to GDP growth over the long term but not in the near term were Burkina Faso, Guinea, and Ivory Coast.

Garry *et al*. (2017) studied the impact of public expenditure on economic growth in Mexico, Central America and the Dominican Republic. The evolution of the countries' fiscal performance was analyzed; the strong link between public spending and economic growth was verified; the long-run relationship between current and capital expenditure with GDP growth was identified, and it was shown that public spending has a significant multiplier effect in the short and long-term, highlighting its persistence over time. The correlation coefficients showed that there was a positive and strong relationship between economic growth and current expenditure in all of the sample countries, but it was weak between capital spending and economic growth. Cointegration tests for economic growth and public spending showed that the contribution of public spending to GDP growth in most countries between 2005 and 2014 was significant, but the contribution of investment to GDP growth has moderated.

Lucy *et al* (2017) by using the vector error correction model-Granger causality test and the autoregressive distributed lag bounds testing approach to co-integration to evaluate both long- and short-run parameters, including the direction of causation, with data spanning from 1980 to 2015, researchers examined the relationship between government spending and economic growth in Ghana. The empirical findings supported the presence of a long-term link between the dependent and independent variables by providing evidence of co-integration. Additionally, the Granger causality tests showed that government spending and economic growth were not causally related in Ghana's economy during the study's time period. Government spending influenced Ghana's economic expansion.

Ochieng *et al* (2017) investigated the effect of government expenditure on economic growth in Rwanda specifically expenditure on physical infrastructure, agriculture and social sectors using quarterly time series data from 2005 to 2015 using ADF stationarity, Cointegration and Granger Causality tests before applying the VARmodel to study the effects of government expenditure components on economic growth. Cointegration tests showed a long-term association between the different parts of government spending and GDP. Except for education spending and GDP, which indicated unidirectional causation, Granger causality tests demonstrated bidirectional causality among the variables. The findings showed that spending on agriculture, education, and health had favorable benefits on GDP, whereas spending on sports, culture, and physical infrastructure had conflicting consequences. The research suggested increasing spending in the social and agricultural sectors while cutting back on infrastructure spending.

Using the Autoregressive Distribution Lag Bounds Testing approach, Kanono *et al* (2016) looked at the long-term and causal relationship between government spending

and economic growth in Lesotho from 1980 to 2012. The findings supported Wagner's Law in Lesotho by demonstrating a long-term, positive, and statistically significant causal relationship between economic performance and governmental spending. However, the Granger causality test revealed a relationship between economic development and government spending in Lesotho, supporting Wagner's Law. The results of this investigation also fall short of endorsing Keynesian theory.

Fozieh *et al.* (2016) studied Wagner's law and the Keynesian hypothesis about the relationship between the real government expenditure and the real GDP using the annual data of Iran's economy from 1981-2012. Using bivariate and multivariate models, they looked at the relationship between GDP and overall government spending as well as the relationship between GDP and government spending on education. Using the ARDL approach of both long-term and short-term associations, the co-integration was evaluated. The real GDP, capital stock, and labor force stock variables, respectively, had a positive, a negative, and a positive impact on total government expenditure in making the estimates of the Wagner's view, and the long-term association is valid in this regard. Additionally, the Keynesian model's estimation found that, in contrast to actual government spending, educational expenses had a long-term relationship.

A Structural Vector Auto Regression model was used by Walaa (2016) to examine the dynamic effects of changes in government spending on economic growth in Kenya using quarterly data from 1991 to 2012. The findings suggested that Kenya's government spending had a minimal and transient impact on output. These outcomes were supported by Kenya's high marginal propensity to import goods, high debt servicing costs, and high government debt to GDP ratio.

Wang *and al.* (2016) in their study examined the relationship between public expenditure and economic growth from the perspectives of Keynes and Wagner′s law on Romania. Using annual time series data covering the period 1991-2014 after the fall of the Iron Curtain, they estimated the long-run relationship between government expenditure and economic growth, ARDL approach and Bounds Test based on Unrestricted Error Correction Model estimation were used. According to empirical findings, government spending in Romania had a long-term, unidirectional relationship with economic growth, which suggests that government spending may be impacted by economic growth. Keynes's Law, in contrast, did not apply for the duration. Based on this finding, the government may assess the relationship between economic expansion and public spending and better develop plans for dealing with the many aspects of the current economic environment.

Jinho *et al* (2016) investigated how expansionary government spending shocks in Korea have influenced GDP growth since the 1980s through the lenses of time varying parameter structural vector auto-regression approach. According to the estimation results, Korea's economic growth has been positively impacted by an increase in discretionary government spending, although its stimulating influence has clearly decreased over the sample period. Additionally, the cointegrating regression analysis suggested that government spending multiplier estimates in Korea have positive relationships with public infrastructure investment spending as well as the overall level of household debt, while modestly exhibiting inverse associations with trade openness and public debts.

Mulinge (2016) studied the effect of recurrent public expenditure on economic growth in Kenya using time series data covering the period 1980 – 2014. The study's specific objectives were to disaggregate recurring governmental spending into three categories:

social services, general public administration, and debt, as well as to determine how these categories affected Kenya's economic growth. Before utilizing the autoregressive distributed lag approach to verify cointegration, he used the ADF test for unit root tests. According to the study's findings, Kenya's economic growth and recurring governmental spending have a long-term relationship. Government recurrent expenditure on administration showed a negative association with growth, whereas government recurrent expenditure on social services and debt showed a positive link. Government recurrent spending on social services, however, was statistically significant in promoting economic growth whereas government spending on debt and administration was statistically insignificant.

Muyaba (2016) used data for the period of 1991-2015 to study the effect of government expenditure on economic growth in Zambia. The econometric tools used to analyze the data were the ARDL and the Pairwise Granger Causality Test. According to the study's empirical findings, public spending and economic growth in Zambia were positively and significantly correlated throughout the long and short terms. The Granger causality test showed a unidirectional causal relationship between public spending and economic development. This result confirmed that, as opposed to Wagner's Law, the Zambian budgetary climate is in line with Keynesian theory.

Connelly *et al*. (2016) examined the effects of government consumption spending, public social spending, and public investment on economic development using panel data for 34 OECD nations from 1995 to 2011. The findings demonstrated that neither public investment nor consumption spending by the government had a major impact on later economic growth. However, a rise in public social spending has a very detrimental impact on subsequent economic expansion. This implied that higher social spending by the government might restrain economic expansion. Overall, the findings revealed that

any rise in government spending in the OECD countries may not have any good growth effects.

Muturi *et al* (2015) analyzed the effect of public expenditure on economic growth in Kenya, Uganda, Rwanda, Burundi and Tanzania. The specific objectives of the study were to investigate the effect of public expenditure on components of consumption, health, defence and agriculture. The Hausman test was used in the study, which used panel data spanning the years 1995 to 2010, and the results were confirmed using the fixed effects technique. The research showed that whereas health and consumption spending had a beneficial impact on economic growth, agriculture and defense spending had a negative impact.

Using disaggregated model of public expenditures over the period from 1980 to 2010, Gisore *et al*. (2014) conducted research on the connection between East African governmental spending and economic growth. The study's goal was to identify spending that influences growth using a balanced panel fixed effect model. Their study used the LLC test to determine whether only GDP was level and stationary while testing for panel unit root. The findings showed that spending on health and the military had a statistically significant positive effect on growth. On the other hand, education and agriculture received very little funding. In order to stimulate economic growth, it will be reasonable for East Africa to boost expenditure on health and the military, but less money should go to other areas.

Bazezew (2014) estimated a multivariate co-integration and error correction model to examine the marginal effect of expenditure on each sector on economic growth in Ethiopia from 1975 to 2013, with a particular focus on sectoral expenditures on education, health, agriculture, and defense.. According to the study's findings, short-

term effects of government spending on education on economic growth are negligible but long-term effects are favorable. Defense spending has a impact on economic growth that is both long-term and large is negative. Long-term but negligible short-term correlation exists between government investment on agriculture and growth. Both in the short and long terms, spending on health was found to be inconsequential. Thus, the findings indicated that in order to promote sustained economic growth, government spending should be directed toward the education sector.

Afonso *et al*. (2014) studied (two-way) causality between government spending, revenue, and growth using a panel of 155 nations for the period 1970–2010. There was no evidence of Granger causation connecting government spending and per capita GDP across all econometric parameters. However, they came to the conclusion that there was better evidence for the opposite link between government spending and per capita GDP, backing Wagner's Law. There were notable short- and long-term impacts in particular.

Using information from 1992 to 2011, Campodónico *et al*. (2014) examined the effects of public spending on infrastructure, health care, and education in Peru on economic development, poverty, and income distribution. They came to the conclusion that long-term economic growth is increased and unemployment, poverty, and inequality are decreased when investments in health and education are prioritized above those in infrastructure. This finding held true for both the public and private sectors.

Using data from 1980 to 2011, Matundura (2014) studied the effects of major public capital expenditure on economic growth in Kenya i.e. public capital expenditure on education, infrastructure, health and agriculture. The study employed Johansen cointegration test and the ECM in the empirical analysis to evaluate the relationship among the variables. The short run and long run relationship with three cointegrating

equations revealed that the coefficient of expenditure on infrastructure wasstatistically significant and positively related to GDP at 5% level of significance. The coefficient of expenditure on agriculture was positively and significantly related to theexpenditure on education. The government should therefore increase the percentage amount allocated into these three sectors. Expenditure on health did not spur economic growth over the long run period therefore expenditure in this sector should be rationed. It was also noted that the government programs like Lamu Port and New Transport Corridor Development to Southern Sudan and Ethiopia (LAPSSET) to foster increased investment in infrastructure and hasten delivery of goods and services strongly recommended.

The effect of government sectoral spending on economic growth in Malawi was examined by Musaba *et al*. (2013). Cointegration analysis was used to evaluate the growth effects of government expenditures in agriculture, education, health, defense, social protection, and transport and communication using time series data from 1980 to 2007. The short-term findings revealed no discernible link between government sectoral spending and economic expansion. The long-term results indicated that spending on agriculture and defense had a strong favorable impact on economic growth. Economic development was inversely correlated with spending on health, social protection, and communications, as well as transportation.

Okeyo (2013) used annual time series data for Kenya covering the period from 1965 to 2012 to establish causal link between the size of the government and economic growth in Kenya. The study did not find causality between the final general government consumption expenditure and gross domestic product, which, by extension, implied no causality between government size and economic growth, that is, neither economic growth nor government size causes the other in Kenya. Therefore, neither the

Keynesian hypothesis, which contends that government spending drives economic growth, nor Wagner's law, which holds that an increase in government spending is a result of economic growth, were supported by the study data.

Okoro (2013) examined the impact of government spending on Nigerian economic growth over a 32-year period (1980-2011) utilizing time series data and the ordinary least squares multiple regression analysis to estimate the model stated. The dependent variable was chosen to be real GDP, while the independent variables were government capital spending and government recurrent expenditure. Using the Granger Causality Test, the Johansen Cointegration Test, and the Error Correction Mechanism, the results revealed that in Nigeria, there is a long-run equilibrium link between government spending and economic development. In accordance with the findings, the study advised that the government raise both capital expenditure (investment in roads, electricity supply, transportation, and communication) and recurrent expenditure, focusing primarily on areas that are expected to spur economic growth.

Srinivasan (2013) used a cointegration technique and an error correction model to analyze the relationship between public spending and economic growth in India. The analysis covered the years 1973 through 2012. The outcome of the cointegration test reveals that there is an equilibrium long-run link between public spending and economic development in India. The empirical findings, which are based on the estimate from the error-correction model, show that economic growth and public spending are causally related in both the short- and long-term, validating Wagner's law of public spending.

To determine the extent to which democracy and government spending have affected economic growth in Ghana between 1960 and 2008, Sakyi *et al*. (2012) used the

Autoregressive Distributed Lag bounds testing approach to cointegration. The empirical findings confirmed the theory that government expenditure is more efficient in democracies. The study showed how government spending and democracy work together to boost economic growth in Ghana over the long and short terms. The paper's conclusions and policy suggestions offered crucial information pertinent for emerging nations engaged in the democratization process.

Maingi (2010) applied Vector Auto Regression estimation technique using annual time series data for the period 1963 to 2008 to evaluate the impact of government expenditure on economic growth in Kenya. The Johansen cointegration tests found a long-run link between GDP growth rate and selected government expenditure components. The Granger-causation test revealed bidirectional causation between GDP growth rate and government expenditure components. The findings of impulse response functions and variance decomposition revealed that government spending on investment, physical infrastructure, education, health care, public debt servicing, economic affairs, general administration and services, defense, public order and national security, and government consumption had an impact on economic growth. According to the study, the composition of government expenditure and public expenditure changes are important for economic growth.

Clement *et al.* (2010) used a disaggregated government expenditure data from 1961 - 2007, specifically; expenditure on general administration and that of community and social services to determine the specific government expenditure that economic growth may have significant impact on. Economic conditions and policies change implying that it is not only economic growth that can affect government expenditure hence the inclusion of other fiscal policy variable and political freedom to augment the functional form of Wagner's law. All the variables used were fund to be I (1) and long run

relationship existed between the dependent and the independent variables except in the case where only GDP was used as the independent variable. Wagner's hypothesis did not hold in all the estimations rather Keynesian hypothesis was validated in all the estimation.

Olorunfemi (2008) used time series data from 1975 to 2004 to investigate the direction and strength of the relationship between public investment and economic growth in Nigeria. It was discovered that public expenditure had a positive impact on economic growth but that there was no link between gross fixed capital formation and GDP. According to the results, disaggregated study reveals that just 37.1% of government expenditure is committed to capital investment, while 62.9% is devoted to current expenditure.

Butkiewicz *et al* (2008) wrote a paper on the impact of government expenditures on economic growth, emphasizing how government effectiveness in developing nations influences the productivity of government spending. The effects of different types of government spending on growth were also investigated. Funding for defense, education, and health had no significant positive effects. Consumption expenditures have a negative influence on growth in both developed and developing countries, with emerging countries with weak governments suffering the most. Capital expenditures assist developing countries with ineffectual governments. They argued that emerging countries should limit their governments' consumption spending and invest in infrastructure to encourage growth.

Mitchell (2005) examined how government spending affects economic performance in developed countries. He evaluated the most recent scholarly studies, listed instances of countries that have drastically decreased government spending as a share of national

GDP, and analyzed the economic repercussions of these reforms. Regardless of the methodology or model used, he concluded that a large and expanding government does not promote improved economic performance. He also claimed that lowering the size of government would increase wealth and boost American competitiveness.

Shenggen *et al*. (2003) examined trends in government spending in the developing world, analyzed the sources of change, and developed an analytical framework for assessing the differential impacts of various government expenditures on economic growth. Although structural adjustment programs increased government investment, not all industries were treated equally. Agriculture, education, and infrastructure spending in Africa, agricultural and health spending in Asia, and education and infrastructure spending in Latin America all fell as a share of overall government spending as a result of structural adjustment initiatives. The influence of various types of government spending on economic growth is uneven. Government spending on agriculture and health was notably high in Africa, promoting economic growth. Asia's investments in agriculture, education, and defense have boosted growth. However, with the exception of health, all categories of government spending in Latin America were statistically negligible. Growth was boosted by structural adjustment initiatives in Asia and Latin America, but not in Africa. Growth in agricultural productivity is critical for rural poverty alleviation. Agriculture, irrigation, education, and roadways all contributed significantly to its expansion dividing total agricultural spending into research and non-research costs investment on research demonstrates that it has a far greater influence on productivity than non-research investment.

Kweka *et al* (2000) investigated the impact of public expenditures on economic growth using time series data on Tanzania for 32 years by formulating a simple growth accounting model, in which total government expenditure was disaggregated into

expenditure on (physical) investment, consumption spending and human capital investment. They determined that whereas increasing productive expenditure (physical investment) looked to have a negative impact on growth, increased consumer expenditure appeared to have a positive influence on growth, and was particularly correlated with greater private consumption. Human capital investment spending was insignificant in the regressions, most likely because any effects would have substantial delays. The findings verified the widely held belief that public investment in Tanzania has not been productive, but they contradict the widely held belief that government consumption spending has slowed growth. They also discovered evidence that aid had a positive impact on growth, particularly after the mid-1980s changes.

Devarajan and Swaroop (1996) investigated the relationship between government expenditure composition and economic growth in a group of emerging nations. The regression results showed that capital expenditure has a substantial relationship with real GDP per capita growth. However, their research found that recurrent spending had a positive association with real GDP per capita growth.

Landau (1986) expanded the research to incorporate human and physical capital, as well as political and international variables and a three-year lag in government spending in GDP. Government spending was broken down into investment, transfers, education, defense, and other forms of government consumption. The findings replicated the earlier findings in part. According to studies, general government consumption was large and had a detrimental impact on growth. Education funding increased, but only little.

Landau (1983) concludes that government spending slows economic growth in a study of 104 rich and developing countries. Landau's research demonstrates that government

spending has a detrimental impact on economic growth. He employed time series analysis to identify trends in government spending and economic growth, as well as the behavior of both trends across time.

This next section discusses researches done with only one type of government expenditure. The main objective in each of the following studies was the same as one of the specific objectives of this study.

2.3.1 Government Expenditure on Education

Dao (2020) investigated the impact of public education spending on economic growth in Vietnam from 2000 to 2015. The results showed that enrollment in lower secondary school, enrollment in pre-primary school, enrollment in primary school, percentage of high school graduation, capital and regular government spending on education, and HDI were statistically significant. Enrollment in lower secondary school, enrollment in primary school, capital spending in the public budget for education, and HDI are all positively associated to GDP growth.

Mukhtarov *et al*. (2020) looked into the effects of population growth, gross capital formation, and government spending on education on economic growth in Azerbaijan from 1995 to 2018. The findings supported the existence of a long-term link between the variables. The estimation findings demonstrated that long-term economic growth was positively and statistically significantly influenced by government spending on education, gross capital formation, and population concluding that in order to boost economic growth, policymakers should work to enhance investment in education.

Hindatu *et al* (2019) studied the impact of public education expenditure on economic growth in Nigeria 2004-2014. The basic objective of the study is to assess the long run impact of public education expenditure on economic growth in Nigeria. Augmented

Dickey Fuller unit root test was used to test for stationarity, VectorAutoregressive Model and causality tests were employed to determine the long run impact and direction of relationship between education expenditure and economic growth at 0.05 level of significance. All the variables were fund to be cointegrated and there was bidirectional causality between log of gross domestic product and logof public education expenditure in the long run and one directional causality from log of public education expenditure to log of gross domestic product which by implicationpublic education expenditure had positive impact on economic growth in both short run and long run.. It was recommended in the study that government should increase the education expenditure in order to impact significantly on economic growth.

Bhattacharyya (2019) investigated the link between public spending on education and the expansion of 28 Indian states' economies. The study's findings suggested that public spending on education and economic growth have a long-term relationship. In the long run, there is evidence of a one-way causal relationship between gross state domestic product and public spending on education.

Kobzev *et al*. (2018) focused on the primary, secondary, and tertiary levels of education while examining the relationship between education and economic growth in India from 1975 to 2016. The Granger Causality Method and the Cointegration Method were used to analyze the relationships using econometric estimations. The results demonstrated that there was strong evidence indicating the positive relationship between education levels and economic growth in India, which may have an impact on governmental decisions.

Awaworyi *et al*. (2017) conducted analysis to look at the relationship between economic growth and government spending on education using a sample of 237

estimates gathered from 29 main studies. The research showed that while government spending on education has a favorable impact on growth in affluent nations, this relationship is statistically negligible in less developed nations.

Amaghionyeodiwe *et al*. (2017) explored the relationship between government education spending and economic growth in West African countries. The study used data from 15 different ECOWAS countries from 1990 to 2016. The unit root, cointegration analysis, and casualty test were all performed. According to the study's findings, government investment on education and economic growth in West African countries are both positively and strongly associated. Long-run Granger causation disappears, but there is no evidence of short-run Granger causality from government educational spending to economic growth. This showed that government education spending has a long-term, considerable, and favorable impact on economic growth through its effect on human capital. Thus proving that any expenditure on education, especially over the long term, is vital and crucial in considerably enhancing economic growth. In order to improve the region's primary, secondary, and post-secondary levels of formal education, West African countries should give the education sector more priority and, as a result, increase its share of total government spending on education.

Using data from the China Statistical Yearbook from 1992 to 2013, Hua (2016) investigated the connection between public spending on education and economic growth in China. Regression analysis was used to analyze how government spending on education affects GDP. The results showed that the contribution of government spending on education is substantial and significant, indicating that if government increases spending on education, economic growth will follow.

Using balanced panel data from 1973 to 2012, Mallick *et al*. (2016) looked at the patterns of spending on education and economic growth in 14 major Asian countries. The findings demonstrated that economic growth and education spending had long-run equilibrium ties in every country. The findings showed that all 14 Asian nations studied (Bangladesh, China, Hong Kong, India, Japan, Nepal, Pakistan, Malaysia, The Philippines, Saudi Arabia, Singapore, Sri Lanka, Thailand, and Turkey) saw favorable and statistically significant effects from spending on education.. According to the study, the education sector is one of the key drivers of economic growth in all 14 major Asian nations. In order to have the trained labor needed for long-term economic development, the education sector should be given priority, and a sizeable portion of government spending should go toward improving various elementary, higher, and technical educations in the individual countries.

Qutb (2016) analyzed the impact of public education spending on economic growth of Egypt during the period (1908-2014) using the application of Johansen Cointegration and Vector Error Correction Methodology. The results demonstrated a long-term association between public education spending and Egyptian economic growth, but the short-term impact was shown to be negative, which helped Egypt's rising jobless rate to be justified. Conclusion: High-quality education that also satisfies the labor market's demand for particular skills is necessary for education to make a meaningful contribution to economic growth and development.

Owusu (2015) investigated the relationship between education expenditure and economic growth in Ghana. For the time span of 1970 to 2012, the causal relationship between the variables was tested using vector error correction and cointegration analysis. According to the empirical findings, there is a long-term, positive, and

significant correlation between education spending and real GDP, gross capital formation, and labor force participation. The findings showed that education has a substantial impact on Ghana's economy's long-term growth. Additionally, Granger causation between economic growth and education spending runs in both directions in the near term.

Douanla *et al*. (2015) studied the effect of government spending in education on economic growth in Cameroon over the period 1980-2012 using a vector error correction model. According to the estimated results, these expenditures positively and significantly impacted economic growth over the long and short terms. According to the calculated error correction model, a 1% increase in private gross fixed capital formation and government education spending resulted in long-term gains in economic growth of 5.03% and 10.145%, respectively. Spending on education thus appears to be a major factor in Cameroon's economic expansion.

Bosupeng (2015) examined data from 1960-2013 and attempted to link GDP and education expenditure in a long run framework in Botswana by applying the Johansen cointegration test and Granger causality procedure to examine the long run affiliations of the variables. No statistically significant relationship between GDP and expenditure on education and skills development was fund. The lack of a positive relationship between GDP and expenditure on education had several implications.The first one implying that for a developing economy like Botswana, the country could be channeling funds to education with no increased production. Secondly, the lack of a statistically significant relationship between education expenditure and GDP may mean that the government is not providing enough jobs for the recent graduating classes who are fresh from their universities or vocational training institutions. The third factor is that even

though the governments are spending so much money on the education system, there might be a mismatch between what the employer needs and the skills possessed by the students. It was advised to review the quality of education and the programs offered by the local institutions.

The long-term relationship between public spending on the education sector and economic growth in Bangladesh was examined by Muktdair-Al-Mukit (2012). Time series data from 1995 to 2009 were used in the investigation along with an econometric model. The study's findings indicated that long-term economic growth was positively and significantly impacted by public spending on education. Using the cointegration technique, it was found that a one percent increase in public spending on education led to a long-term rise of 0.34% in GDP per capita.

Hussin (2012) studied long-run relationship and causality between government expenditure in education and economic growth in Malaysia using Time series data for the period 1970 to 2010. Vector Auto Regression method was applied. Findings from the study showed that economic growth positively cointegrated with selected variables namely fixed capital formation, labor force participation and government expenditure on education. With regard to the Granger causality relationship, it was found that the economic growth was a short term Granger cause for education variable and vice versa. Furthermore, their study proved that human capital such as education variable plays an important role in influencing economic growth in Malaysia.

Musila (2004) looked into the relationship between Uganda's economic growth from 1965 to 1999 and the amount of money the government spent on education per worker using the time-series method. The empirical findings demonstrated that the amount spent on education per worker had a favorable and considerable impact on economic

growth, both in the long run and the short run. According to error correction model predictions, a short-term increase in output of 0.04% is predicted to result from a 1% rise in the average cost of education per worker. According to cointegration estimates, a 1% increase in average education spending per worker will result in a long-term output rise of roughly 0.6%.

2.3.2 Government Expenditure on Health

Zouhair *et al*. (2020) investigated the impact of health spending on economic development in France from 1978 to 2016. Health spending has a positive impact on economic growth, therefore increasing it would result in a rise in economic growth in France. Finally, health-care spending can result in better health-care services, which can increase human capital and improve productivity, so adding to economic prosperity.

Viju *et al*. (2020) conducted a study on the relationship between public health spending and economic performance in the United States, utilizing data from the Bureau of Economic Analysis and the Bureau of Labor Statistics from 2003 to 2014. There is a positive association between healthcare spending and per capita GDP. They ended by stating that strategically investing in various parts of healthcare will increase income, GDP, and productivity.

Through the Abuja Declaration in 2001, African chiefs of state and governments agreed to devote 15% of their government spending on health, but only five African countries had met this aim by 2013. Piabuo *et al*. (2017) conducted a comparative analysis on the influence of health expenditure between CEMAC sub-region nations and five other African countries that signed the Abuja Declaration. Panel ordinary least square, completely modified ordinary least square, and dynamic ordinary least square were employed as econometric techniques of analysis with data derived from the World

Development Indicators (2016) database. In both samples, health spending had a positive and significant effect on economic growth. A unit increase in health expenditure can possibly boost GDP per capita by 0.38 and 0.3 units for the five other African nations that meet the Abuja objective, respectively, a significant difference of 0.08 units between the two samples. Furthermore, for both sets of countries, a long-run association exists between health expenditure and economic growth. As a result, African economies are strongly recommended to meet the Abuja target, especially when other socioeconomic and political elements are in place.

Aboubacar *et al*. (2017) used the General Method of Moments technique to assess the relationship between health care expenditure and economic growth in Sub-Saharan Africa from 1995 to 2014. The findings demonstrated a positive and statistically significant association between the two variables, specifically, health expenditure had a considerable impact on the region's economic growth. According to the findings, health care is a necessity rather than a luxury in Sub-Saharan Africa. As a result, it was determined that effective and efficient health care programs, as well as increased health expenditure, were required.

Zaman *et al*. (2017) investigated the relationship between health-care spending and life expectancy and GDP in developing nations, with a focus on Bangladesh. To determine the relationship between total health expenditure and GDP and life expectancy, multivariable logistic regression was used. According to their findings, overall health expenditure is more sensitive to GDP than to life expectancy.

Zuven (2014) studied the Impact of Health Expenditure on Economic Growth in 136 nations from 1995 to 2011, dividing them into four groups based on national income: poor, lower medium, upper middle, and high countries. The findings revealed a positive

and significant relationship between health spending and economic growth, with the influence of health spending on economic growth for high income and upper middle income countries being slightly higher than for low and lower middle income countries.

Yousra *et al* (2014) studied the direction of the causal relationship between public spending on health and economic growth in Algeria using co-integration technique and the direction of causality in both long and short run through integrating the Error Correction Model into the traditional Granger causality test r results support the existence of a long run relationship between GDP and public spending on health, The main results in this paper confirm that there is unidirectional causal link running from GDP to public spending on health. Yet, public spending on health does not Granger-cause per capita GDP growth with a positive sign. So, study points out a rather diminutive role of public spending on health in determining the per capita GDP, specially that Government of Algeria depends on its oil revenues that fluctuate over time which in turn affect the public spending on health and the growth of the economy.

Using annual data, Boussalem *et al* (2014) evaluated the causation and co-integration links between public health spending and economic development in Algeria from 1974 to 2014. The research demonstrated that there is a long-run causality from public spending on health to economic growth, but no short-run causality. Concluding the lack of a clear link between public spending on health and economic growth is not necessarily a cause to reallocate health investment away from the health sector.

Using data from the Organization for Economic Co-operation and Development (OECD) countries from 1990 to 2009, Wang (2015) examined the ideal health care spending in a developing country. Increases in health spending effectively result in higher economic performance when the ratio of health spending to gross domestic

product (GDP) is lower than the ideal level of 7.55%, according to empirical research. Spending more money does not always translate to better treatment above this percentage. With an economic growth rate of 1.87%, the real level of health spending in OECD countries is 5.48% of GDP.

Liya (2010) investigated the relationship between government spending on health and per capita GDP in low-income African nations south of the Sahara and offered an analysis of health and real per capita income in low-income African countries south of the Sahara. The data ranged from 1970 to 2009. In Ethiopia, Kenya, Rwanda, Tanzania, and Uganda, the findings demonstrated a link between per capita income and health.

Using panel data from Indian states, Indrani *et al* (2004) examined the relationship between economic growth, poverty, and health. According to the findings, economic growth and health status are positively connected and have a two-way relationship, meaning that better health boosts growth by enhancing productivity, while higher growth allows for the production of better humans. Finally, they concluded that health expenditure is a key driver of both higher growth and better health status.

2.3.3 Government Expenditure on Agriculture

Runganga (2021) utilized the Autoregressive Distributed Lag estimate technique to study the impact of agriculture on economic growth in Zimbabwe from 1970 to 2018. Inflation, government spending, and gross fixed capital creation all had a favorable impact on economic development in both the short and long run, according to the findings. The study also found that agricultural production had a beneficial impact on economic growth in the short run but had no effect in the long run. In conclusion, agriculture has a vital part in the early stages of economic growth, but plays a minor function once the economy has matured.

Sheikdon (2020) used time series data from the Statistical, Economic and Social Research and Training Center for Islamic Countries, which spans up to 35 years, from 1985 to 2017, to assess the contribution of the agriculture sector to the economic growth in Somalia. The Ordinary Least Squares method was used to examine the data. The empirical findings revealed a robust and favorable association between Somalia's agriculture sector and GDP, with an estimated 19.7% contribution. Additionally, the agriculture sector was found to be able to account for 95% of GDP fluctuation.

Using World Bank data from the years 1985 to 2015 and the Autoregressive Distributed Lag, Paul-Alfred (2020) investigated the impact of the agriculture sector on economic growth in Ivory Coast. The findings showed that manufacturing agriculture and economic growth were positively and significantly correlated, both in the short and long terms. Economic development benefited greatly and favorably from the agriculture investment. Consequently, it may be said that in order to increase value addition, the state must support the processing of agricultural products.

Ebenezer *et al*. (2019) used annual time series data from 1983 to 2016 to analyze the impact of government spending on agricultural output in South Africa. It is demonstrated that there is a long-term relationship between agricultural government spending and agricultural productivity, with a positive substantial influence only to be expected in the long run.

Using linear regression analysis, Iliyasu (2019) looked at the relationship between government spending and agriculture sector activity in Nigeria between 1999 and 2016. According to test results, there is a correlation between government spending and various agricultural subsectors and total agricultural activity. But the relationship was fund to be insignificant.

Utpal (2018) investigated the relationship between government spending on agriculture and related activities and economic growth in the Indian state of Meghalaya from 1984 to 2014. The findings demonstrated the significant positive impact of agricultural spending on GDP growth.

Sanyang (2018) used time series data from the 1980s to 2017s to study the effect of agriculture on economic growth in the Gambia. The data were then analyzed using the error correction model and the auto regressive distributed lag model. Results confirmed the sector's significance in the economy by demonstrating that agriculture has a considerable positive impact on economic growth both in the short- and long-term. An additional confirmation of the contribution of agricultural to economic growth comes from a causality test, which revealed that GDP growth Granger also Granger causes agriculture growth. According to the study, agriculture helps promote economic growth.

Mwabutwa (2017) looked into how government spending changed Malawi's agricultural growth from 2005 to 2014. Using panel regression models with estimated pooled OLS, fixed effects, and random effects models, the causal effects were determined. The results of the investigation point to the fact that government support for agriculture generally has a favorable influence on agricultural development in Malawi's districts.

Sertoglu *et al*. (2017) used time series data from 1981 to 2013 to investigate the impact of Nigeria's agriculture industry on economic growth. The findings demonstrated a long-run equilibrium link between Real GDP, agricultural output, and oil rents. The result of the Vector Error Correction Model (VECM) demonstrates that the speed of adjustment of the variables towards their long term equilibrium path was slow, despite

the fact that agricultural output had a favorable impact on economic growth. It was suggested that the government and policymakers go on diversification and boost additional allocation in terms of budgeting to the agricultural industry.

Chandio *et al*. (2016) used the ADF unit root test, Johansen Co-integration test, and Ordinary Least Square (OLS) technique as analytical tools to study the effects of government spending on the agricultural sector and economic growth in Pakistan over the period 1983–2011. The Johansen Cointegration test's findings revealed a long-term connection between Pakistani government spending on agriculture, agricultural output, and economic growth. On the other hand, the empirical findings of regression analysis showed that government spending and agricultural output have a significant effect on Pakistan's economic growth.

Harerimana (2016) used panel data analysis methodologies to study the influence of government spending on agriculture on economic growth in Rwanda from 1997 to 2014. The findings demonstrated that government spending on agriculture had a large and positive effect, and that in the long run, government spending on agricultural explains GDP growth. According to the Ordinary Least Squares estimations, the coefficient for Government Spending on Agriculture is statistically significant. In total, a one-unit increase in government spending on agriculture was related with a 2.5% increase in GDP.

Wangusi *et al*. (2015) investigated the effects of agricultural public spending on crop productivity in Kenya. The findings revealed a positive and significant link between agricultural productivity and public spending on agriculture.

Tijani *et al*. (2015) looked into the effects of government spending on agriculture from 1970 to 2006 on Nigeria's economy. The findings demonstrated that overall agricultural

spending had a long-term, positive, considerable impact on Nigeria's economic growth. And suggested as a last point that in order to support economic growth in Nigeria, agriculture should receive top priority in budgetary allocation.

For the years 1980 to 2013, Mkhatshwa (2015) looked into the connections between inflation, agricultural growth, and economic growth in Swaziland. The validity of causation and long-term relationships was investigated. There was evidence for a long-term link between these variables. The findings of the Granger causality test revealed that between 1980 and 2013, no causal relationship between economic growth and agricultural expansion could be found. With a 15% impact on economic growth, agricultural expansion in Swaziland has a favorable short-term link with that country's economic growth. It was advised that the government support the agriculture sector in light of the findings.

Alexander (2013) analyzed the relationship between agricultural productivity and economic growth in Zimbabwe from 1980 to 2010. Regression analysis was performed on time series data from 1980 to 2010. The data was examined for stationarity and autocorrelation. Data nonstationarity issues were resolved by differencing the trending series. The empirical analysis results gave significant evidence that agricultural production is crucial in improving the wellbeing of countries, particularly in developing countries. According to the study's findings, the value of agricultural produce influenced economic growth in Zimbabwe from 1980 to 2010.

Tuyon, (2013) examined the relationship between the agriculture industry and Malaysian economic growth from 1970 to 2010. Despite the implementation of various agriculture-led economic growth initiatives, the results showed that the agricultural sector's contribution to the Malaysian economy had been decreasing. The vector error-

correction model's direction of causation between agriculture output and economic growth revealed that both agriculture and economic growth have no causality direction in the short run, but there is a bi-directional causality movement in the long run.

Using a Granger causality method, Jatuporn *et al*. (2011) analyzed the relationship between agriculture and economic growth in Thailand from 1961 to 2009. The findings indicated that agriculture and economic growth had a long-term association. Consequently, it may be said that policymakers should view agriculture as a significant pillar of the Thai economy.

Chebbi (2010) used Johansen's multivariate approach to examine the cointegration of the Tunisian economy and overcome the problem of spurious regression to study the role of agriculture in economic growth and its linkages with other sectors of the Tunisian economy. According to empirical findings, all Tunisian economic sectors cointegrate and tend to move together. In the short run, agriculture appeared to play a role in driving the expansion of other nonagricultural sectors in Tunisia.

2.3.4 Government Expenditure on Security Sectors

Karakaya *et al*. (2020) used the Autoregressive Distributed Lag Model Bounds test and the Johansen Cointegration test to examine the impact of defense spending on economic growth in Turkey from 1984 to 2016. The findings of the Johansen cointegration test indicated the existence of a long-term negative link for Turkey's economy. The findings of the ARDL limits test revealed that both defense spending had a positive long-term and short-term influence on economic growth.

Phiri (2019) examined evidence of a non-linear relationship between military spending, economic growth, and other growth variables for the South African economy using annual data collected from 1988 to 2015. The empirical analysis was based on estimates

using a logistic smooth transition regression model, and the empirical results for the data indicated an inverted U-shaped link between military spending and economic growth. Empirical findings also suggested that South Africa's current levels of military spending, as a component of total government expenditure, were excessive and needed to be reallocated to more productive nonmilitary spending in order to improve the performance of economic growth and other growth determinants.

Yolcu *et al*. (2017) investigated the impact of military spending on economic growth in Middle Eastern countries and Turkey from 1988 to 2012. The findings revealed that the influence of military spending on economic growth is nonlinear, with the status of the economy determining the effect of the former on the latter. This is significant not only for demonstrating the unequal relationship between the variables.

Masih (2017) used the Granger causality test between economic growth and defense spending to investigate the relationship between defense spending and economic growth in Sub-Saharan Africa. According to the findings of the analysis, defense spending and economic growth shared a common pattern across the sample period under consideration. According to the report, Kenya and Niger are subject to defense spending, whereas Sudan, Mali, and Tanzania are experiencing bidirectionality. It was shown that defense spending had a significantly more pronounced and long-term impact on economic growth.

Zhao *et al*. (2017) used Granger causality tests and generalised impulse response functions based on vector error correction models to evaluate the relationship between defence spending, other components of public spending, and economic growth in China from 1952 to 2012. According to the findings, defense spending has an adverse and unidirectional effect on economic growth. Furthermore, empirical evidence suggests a

trade-off link between Chinese defense spending and public spending. From the standpoint of policymakers, the data suggested that reducing defense spending may increase economic growth.

D'Agostino *et al*. (2017) examined how military spending affects the economy using the extended data-set from the Stockholm International Peace Research Institute. In order to investigate the long-run equilibrium link between military spending and economic growth, a sizable panel of nations over the years 1970 to 2014 was built. The findings revealed a considerable and long-lasting adverse impact of military burden on economic growth, with OECD countries suffering the greatest effects overall.

Korkmaz (2015) investigated the impact of military spending on economic growth and unemployment in Mediterranean nations. According to the findings of this study's analysis, military spending has a detrimental impact on countries' economic growth. As a result, countries should work to establish a more peaceful atmosphere, reduce defense spending, and redirect investment resources to areas that would secure economic growth.

Kung (2013) used data from 1988 to 2010 to examine the relationship between military spending and economic growth in sixteen Latin and South American countries: Argentina, Belize, Bolivia, Brazil, Chile, Colombia, Dominican Republic, Ecuador, El Salvador, Guatemala, Mexico, Nicaragua, Paraguay, Peru, Uruguay, and Venezuela. The panel causality analysis, which takes into account dependency and heterogeneity between countries, confirms evidence on the direction of causality for twelve countries and a military spending-growth hypothesis for Belize and Nicaragua. Regarding the direction of the growth-military spending nexus, for Bolivia and Ecuador, one-way Granger causality running from economic growth to military spending was funded.

Shahbaz *et al*. (2012) used an autoregressive distributed lag model bounds testing technique to cointegration to evaluate the causation between military spending and economic development. To determine the direction of causality between military spending and economic growth, the VECM Granger causality model was utilized. The findings revealed a long-term link between military spending and economic growth. Furthermore, there was negative unidirectional causality from defense spending to economic growth. Finally, suggesting that policymakers sustain economic development by cutting defense spending.

Braùoveanu (2010) investigated the relationship between defense spending and economic growth in Romania in order to determine the existence, direction, and strength of this link. Cluster analysis, quintile analysis, regression methodology, and Granger causality were employed. According to the findings, there is a negative association in Romania. The high amount of spending on equipment and other operational spending may be a potential source of the negative effect of defense expenditures on economic growth in Romania.

Abu-Bader *et al* (2003) investigated the link between government spending and economic growth in Egypt, Syria, and Israel. The test of causality within the share of government civilian spending in GDP, military burden, and economic growth revealed that the military burden has a negative impact on economic growth in all three countries, while civilian government spending has a positive impact in Israel and Egypt.

2.4 Conceptual Framework

A conceptual framework is defined as a visual representation that illustrates the interconnections between the independent, extraneous and dependent variables that the researcher will operationalize in order to achieve his/her objectives (Oso and One,

2008). The conceptual framework below shows the linkage between independent variables and dependent variable.

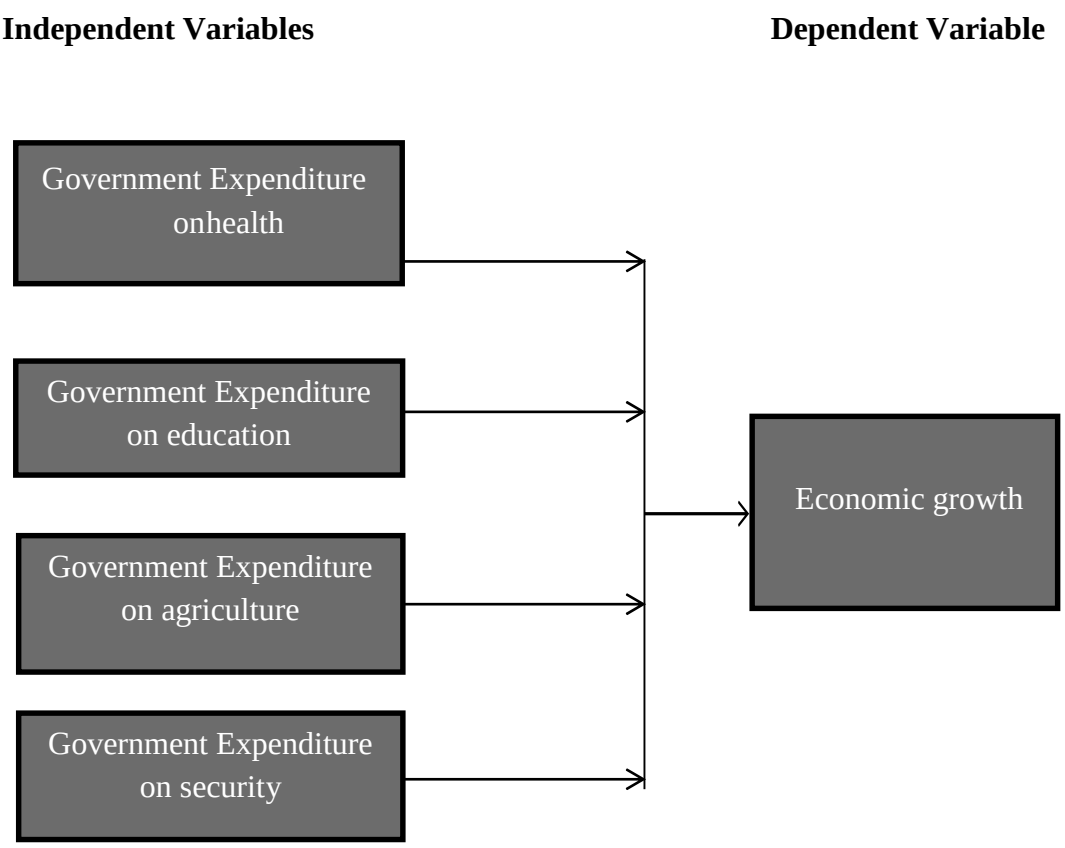

Fig 2.1: Conceptual Framework
Source: Author's Own Conceptualization, 2019

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Overview

This chapter covers the methodology that was used in this research. It describes the research design and research methodology that will be used to test the variables.

3.1 Area of Study

The main objective of the study is to analyze the effect of government spending on economic growth in Burundi. Consequently, Burundi is the geographical area ofstudy. Burundi is bordered by Rwanda to the north, Tanzania to the east and southeast, and the Democratic Republic of the Congo to the west. Burundi is a low income Sub-Saharan African country with an equatorial climate. It is a landlocked country amid the Great Lakes region where East and Central Africa meet. Agriculture is the main economic activity as it employs 85% of the population and it represents 39.6% of the GDP. Burundi's main exports are coffee and tea. The industry sector represents 17.1% of the GDP and employs around 2% of the population.

3.2 Research Design

This study was conducted through a correlation research design. Correlation research design is a research design where the researcher determines the relationship that may exist between two or more paired and quantifiable variables. Correlation research design is suitable for studies that aim at determining whether or to what degree a relationship exists between quantifiable variables (Oso *et al*, 2005). Data of the dependent (GDP) and independent (government expenditure on security, agriculture, health and education) variables were collected and econometrics analysis was used to establish the relationship between government expenditure and economic growth.

This work is based on the positivism philosophy. In positivism studies, The researcher's function is limited to impartial data gathering and evaluation. In other words, the researcher is an objective analyst and takes distances from personal values in conducting the study. In these types of studies, research findings are observable and quantifiable. Positivism depends on quantifiable observations that lead to statistical analyses. Positivism relates to the viewpoint that the researcher needs to concentrate on facts.

3.3 Data Sources

Secondary data was used in this study to analyze the effect of government spending on economic growth in Burundi specifically quarterly time-series data of the expenditures on agriculture, security sectors, education and health in Burundi from 2005 to 2017. Secondary data can be defined as data that have already been collected for some other purpose. Data of the government spending on security, agriculture, health and education were obtained from publications of the central bank of Burundi and the ministry of finance while data of GDP were obtained from the institute of statistics and economic studies of Burundi.

3.4 Data Analysis

The study employed econometric tools in analysis. The main objective of the study is to analyze the effect of government expenditure on economic growth in Burundi for the period 2005 to 2017. The study addressed four specific objectives. These specific objectives were achieved by employing VAR impulse responses functions. The data analysis used E-Views software. Data was subjected to log transformation.

3.4.1 Model Specification

The study used Keynesian theory. Keynesian theory states that public expenditure determines economic growth. During recession a policy of budgetary expansion should be undertaken to increase the aggregate demand in the economy thus boosting (GDP), the employment rises, income and profits of the firms increase, and this wouldresult in the firm's hiring more workers to produce the goods and services needed by the government.

The Keynesian model of economic growth as a function of public expenditure is given as;

GDPt = f (GEXPt)…….(3.1)

Where;

GDPt = Economic growth

GEXPt = Government expenditure in all sectors of the economySubscript t = it the time period for the data 2005 -2017

Maingi (2010) defined total public expenditure as a function of summation of all individual government expenditure in all components.

GEXPt = f (government expenditure in all components)…….(3.2)

The government expenditure GEXP is defined by the four components in the study;

GEXPt = f [(EXPEt EXPHt, EXPSt, EXPAt), Ut]……..(3.3)

Since,

GDPt = f (GEXPt) according to the Keynesian,Hence the model under study is derived as:

GDPt = Ct + β O EXPSt+ β1 EXPHt + β 2 EXPAt + β 3 EXPEt+ Ut…….(3.4)

Where;

Ct = Intercept of the regression line (any level of economic growth that exists at zero government expenditure level)

GDPt = Economic growth EXPESt = Expenditure on securityEXPHt = Expenditure on health

EXPAt = Expenditure on agricultureEXPEt= Expenditure on education

Ut = Error term (causes of economic growth not explained by variables in the model)

B_0, β_I, β_2, β_3 and >0 are regression coefficients

3.4.2 Stationarity Test

Stationarity test will be done to ensure that variables are stationary. In time series data analysis the Ordinary Least Square regression results might provide a spurious regression if the data are non-stationary. Thus the data should be stationary i.e. the mean and variance should be constant overtime and the value of the covariance between two time periods depends only on the distance between the two time period and not the actual time at which the covariance is computed.

The augmented Dickey Fuller test will be used to establish whether the data isstationary or not and also to determine the order of integration of the variables. It involved the following equations.

$\Delta GDP = a0 + \beta t + \theta yt - 1 + m\ t{=}1\ \rho \Delta GDPt - i + et$ (For levels) (3.5)

$\Delta\Delta GDP = a0 + \beta t + \theta \Delta yt - 1 + m\ t{=}1\ \rho \Delta\Delta GDPt - i + et$ (For first differences).. (3.6)

There are cases where ADF doesn‘t have a drift and a trend but the example has both a drift (intercept) and a trend. Where $a0$ is a drift, m is the number of lags and e is the error term and t is trend.

The null hypothesis will be HO: $(a0, \beta, \theta) = (a0, 0, 1)$ (No-Stationarity)The alternative hypothesis H1: $(a0, \beta, \theta) \neq (a0, 0, 1)$ (Stationarity).

If the test reveals that null hypothesis should be rejected than the variable will be said to be stationary.

3.4.3 Co-integration Test

The study data was tested for co integration by using Johansen Co integration test method. Co-integration is a technique used to test for existence of long-term relationship (co-movement) between variables in a non-stationary series. Before testing for co integration, it is important to determine the order of integration of the individual time series. A variable Xt is integrated of order d (1d) if it becomes stationary for the first time after being differenced d times. Co integration also asserts that 1(1) can be estimated using OLS method and produce non spurious results.

3.4.4 Vector Error Correction Model (VECM)

A vector error correction (VEC) model is a restricted VAR designed for use with nonstationary series that are known to be cointegrated. The VEC has cointegration relations built into the specification so that it restricts the long-run behavior of the endogenous variables to converge to their cointegrating relationships while allowing for short-run adjustment dynamics. The cointegration term is known as the error correction term since the deviation from long-run equilibrium is corrected gradually through a series of partial short-run adjustments.

To take the simplest possible example, consider a two variable system with one cointegrating equation and no lagged difference terms. The cointegrasting equation is:

$$y_{2,t} = \beta y_{1,t} \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots .. \dots (3.7)$$

The corresponding VEC model is:

$$\Delta y_{1,1} = \gamma_1 \left(y_{1,1\_1} - \beta y_{1,1\_1}\right) + \in_{1,1} \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots . (3.8)$$

$$\Delta y_{1,1} = \gamma_1 \left(y_{1,1\_1} - \beta y_{1,1\_1}\right) + \in_{1,1} \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots . (3.9)$$

In this simple model, the only right-hand side variable is the error correction term. In long run equilibrium, this term is zero. However, if y_1 and y_2 deviate from the long run equilibrium, the error correction term will be nonzero and each variable adjusts to partially restore the equilibrium relation. The coefficient γ_1 and γ_2 measures the speedof adjustment of the i-th endogenous variable towards the equilibrium.

3.4.5 Diagnostic Test

Diagnostics play a crucial role in finding and validating a good predictive relationship among variables under study. The model was be tested for heteroscedasticity, autocorrelation, and normality.

a) CUSUM Test

CUSUM (or cumulative sum) is a sequential analysis technique developed by E. S. Page of the University of Cambridge. It is typically used for monitoring change detection.

E. S. Page referred to a "quality number" , by which he meant a parameter of the probability distribution; for example, the mean. CUSUM is a method to determine changes in it, and a criterion for deciding when to take corrective action. When the

CUSUM method is applied to changes in mean, it can be used for step detection of a time series.

As its name implies, CUSUM involves the calculation of a cumulative sum (which is what make it "sequential"). Samples from a process x_n are assigned weights w_n, and summed as follows:

$S_0=0$…… (a.1)

$S_{n+1}=\max(0,S_n+x_{n+1}-w_n)$ …….(a.2)

When the value of *S* exceeds a certain threshold value, a change in value has been found. The above formula only detects changes in the positive direction. When negative changes need to be found as well, the min operation should be used instead of the max operation, and this time a change has been found when the value of *S* is *below* the (negative) value of the threshold value.

b) Autocorrelation

Autocorrelation (sometimes called serial correlation) occurs when one of the Gauss-Markov assumptions fails and the error terms are correlated.

i.e. $\mathrm{cov}(u_t, u_{t+1}) \neq 0$ ……(b.1)

This can be due to a variety of problems, but the main cause is when an important variable has been omitted from the regression. In the presence of autocorrelation the estimator is no longer BLUE, as the estimator is not the best. In this case the t-statistics and other tests are no longer valid.

The Lagrange Multiplier test is used for detecting autocorrelation of the more general form such as 2nd or 4th order autocorrelation, and the test is executed as follows:

i. First decide on the order of autocorrelation that you want to test, say 2;

ii. Run the usual OLS regression of y against the explanatory variable x.

$$y_t = \alpha + \beta x_t + u_t \quad \text{.....(b.2)}$$

and save the residuals; u_t

iii. Run a regression using the residuals from step ii as the dependent variable against the explanatory variable x_t, (as in ii) and also lagged variables of u (depending on the order of the autocorrelation, in this case 2 lags)

$$u_t = \delta_0 + \delta_1 x_t + \delta_2 u_{t-1} + \delta_3 u_{t-2} + \varepsilon_t \quad \text{.....(b.3)}$$

c) Jarque-Bera Test

The Jarque-Bera Test,a type of Lagrange multiplier test, is a test for normality. Normality is one of the assumptions for many statistical tests, like the t test or F test; the Jarque-Bera test is usually run before one of these tests to confirm normality the test matches the skewness and kurtosis of data to see if it matches a normal distribution. The data could take many forms, including Time Series Data

The formula for the Jarque-Bera test statistic is:

$$JB = n\,[(\sqrt{b1})^2 / 6 + (b_2 - 3)^2 / 24]. \quad \text{.....(c.1)}$$

Where:

n is the sample size,

$\sqrt{b_1}$ is the sample skewness coefficient,

b_2 is the kurtosis coefficient

The null hypothesis for the test is that the data is normally distributed; the alternate hypothesis is that the data does not come from a normal distribution.

3.5 Measurement of Variables

Economic Growth (GDP): It was be calculated as a percentage rate of change of the GDP.

Government Expenditure on Health: amount in BIF the government spends in construction of hospitals building structures, equipping the hospital institution with equipment and drugs, training of doctors and nurses and paying their salaries.

Government Expenditure on Education: the amount of government expenditure in BIFin education.

Government Expenditure on Agriculture: the amount of government expenditure onagriculture.

Government Expenditure on Security Sectors: the amount of government expenditurein BIF on defense and police.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.0 Overview

This chapter contains the results of the data analysis, starting by the descriptive statistics, diagnostics tests, unit root test, Johansen Test of Co-integration, and VEC model results.

4.1 Descriptive Statistics

In this study quarterly time series data covering the period from 2005 to 2017 is used. The table below presents the descriptive analysis results of the variables of the study. The data collected on the country's economic growth (Measured in GDP) and the Government expenditure on security, agriculture, health and education was analyzed to give the mean values, maximum, minimum and standard deviation for theentire period under study.

Table 4.1 Summary of Descriptive Statistics of Variables

	GPD	SECURITY	AGRICULTURE	HEALTH	EDUCATION
Mean	727.4829	32.44357	17.47963	20.01975	44.07567
Maximum	1266.51	56.268	52.76	85.133	83.78
Minimum	263	13.462	0.406	1.252	8.385
Std. Dev.	342.586	12.05295	18.2844	19.55796	22.97468
Observations	52	52	52	52	52

The Table 4.1 depict the description of the variables used in the estimation. They are expressed in billions of Burundian Francs. GDP averages 727.4829 billions BIF and varies from 263 to 1266.51 billions BIF with a standard deviation of 34.586 billions BIF. Expenditure on security sectors averages 32.44357 billions BIF and goes from 13.462 to 56.268 billions BIF with a standard deviation of 13.462 billions BIF. Expenditure on agriculture averages 17.47963 billions BIF and ranges from 0.406 to

52.76 billions BIF with a standard deviation of 18.2844 billions BIF. Expenditure on health ranges from 1.252 to 85.133 billions BIF with an average of 20.01975 billions BIF. Expenditure on education averages 44.07567 billions and varies from 8.385 to 83.78 billions BIF with a standard deviation of 22.97468 billions BIF.

4.2 Diagnostics Tests

Diagnostic tests were conducted to ensure that the model was fit for the study.

a) CUSUM Test

The CUSUM of square test showed that there was no deviation from the 5% significance level indicating that the model was stable.

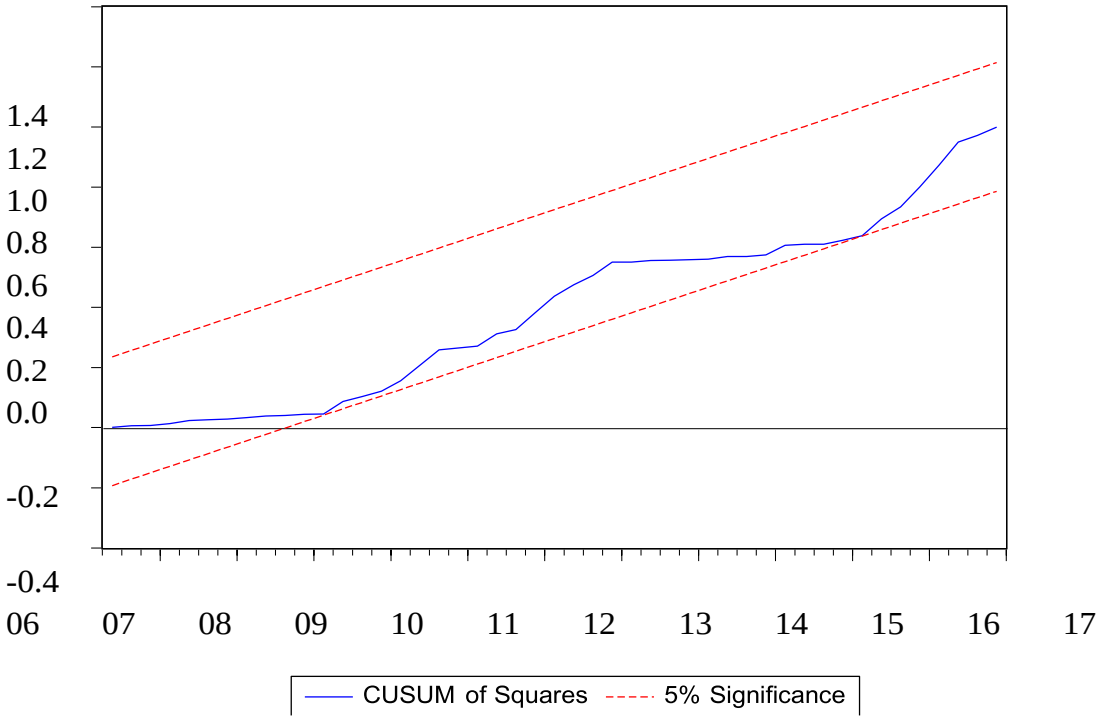

Fig 4.1: CUSUM Test

b) Autocorrelation LM Test

The Autocorrelation LM test was conducted to check for serial correlation among the model's residuals. The probability values were fund to be higher than 5%, therefore the null hypothesis of the serial correlation was rejected.

Table 4.2: Autocorrelation LM Test Results

Lags	LM-Statistic	Probability Value
1	20.84944	0.7010
2	24.35858	0.4987
3	34.41236	0.0994
4	25.78958	0.4189

c) Jarque-Berra Test

The Jarque–Berra test is a goodness-of-fit test of whether sample data have the skewness and kurtosis matching a normal distribution. The test is named after Carlos Jarque and Anil K. Berra. The test statistics is always non negative. If it isfar from zero, it signals the data do not have a normal distribution.

Jarque-Berra test for normality was conducted to check if the residuals of the model were normally distributed. The results showed that the residuals of all variables were normally distributed except for log_health variable. But jointly the residuals of the model were normally distributed given that the joint probability value was higher than 5%. Thus the null hypothesis of not normally distributed data was rejected.

Table 4.3: Jarque-Berra Normality Test Results

Variable	Jarque-Berra	Degree of Freedom	Probability value
Log_Gdp	2.324989	2	0.3127
Log_Secu	3.950353	2	0.1387
Log_Agri	0.473325	2	0.7893
Log_Health	10.37254	2	0.0056
Joint	18.17188	10	0.0521

d) Heteroskedasticity Test

The model's residuals were tested for heteroskedasticity and the joint probability was 0.9227, higher than 5%.Thus rejecting the null hypothesis of no heteroskedasticity.

4.3 Unit Roots Test

Quarterly data from the period of 2005Q1 to 2017Q4 of the dependent and independent variables under study were used in this research. Augmented Dickey Fueller test was conducted to check for the stationarity of the data. The results showed that at level all variables were non stationary. The log transformation was applied to the raw data of the variables.

Table 4.4 Unit Root Results at Level

Variable	Augmented Dickey-Fullertest statistic at level	Test criticalvalues		Prob Value	Conclusion
LogGDP		1% level	-3.571310		
	-1.546823	5% level	-2.922449	0.5018	I(0)
		10% level	-2.599224		
LogEXPSecu		1% level	-3.568308		
	-1.545085	5% level	-2.921175	0.5028	I(0)
		10% level	-2.598551		
LogEXPAgri		1% level	-3.577723		
	-1.852480	5% level	-2.925169	0.3513	I(0)
		10% level	-2.600658		
logEXPHealth		1% level	-3.568308		
	-2.065199	5% level	-2.921175	0.2592	I(0)
		10% level	-2.598551		
EXPEdu		1% level	-4.161144		
	-2.051844	5% level	-3.506374	0.5586	I(0)
		10% level	-3.183002		

When time series data is non-stationary and used for analysis it may give spurious results because estimates obtained from such data will possess non constant mean and variance. As shown by the results, all the variables under study are non-stationary thus the necessity to test for stationarity at 1^{st} difference and the results are shown in table 4.5.

Table 4.5: Unit Root Results after First Difference

Variable	Augmented Dickey-Fullertest statistic at level	Test criticalvalues		Prob Value	Conclusion
		1% level	-3.574446		
DlogGDP	-6.323632	5% level	-2.923780	0.0000	*I(1)*
		10% level	-2.599925		
		1% level	-3.568308		
DlogEXPSecu	-10.51950	5% level	-2.921175	0.0000	*I(1)*
		10% level	-2.598551		
		1% level	-3.568308		
DlogEXPAgri	-8.593016	5% level	-2.921175	0.000	*I(1)*
		10% level	-2.598551		
		1% level	-3.568308		
DlogEXPHealth	-9.026705	5% level	-2.921175	0.000	*I(1)*
		10% level	-2.598551		
		1% level	-3.574446		
DlogEXPEdu	-6.807618	5% level	-2.923780	0.000	*I(1)*
		10% level	-2.599925		

From table 4.5, all the variables were stationary since the ADF values are greater than the corresponding critical values and the probability is less than 0.05 for all variables. Therefore the data becomes stationary at first difference integrated of order 1 that is I(1). Differencing was used to make the series stationary, to de-trend and control the auto-correlations.

4.4 Johansen Test of Co-integration

Since the variables were fund to be non-stationary at level as evident from the unit root test results but are integrated of order one, thus the linear combination of one or more of these variables might exhibit a long run relationship. In order to capture the extent of cointegration among the variables, the multivariate cointegration methodology proposed by (Johansen 1990) was used. The results are shown in the table below.

Table 4.6: Cointegration Tests Results

Hypothesized No. of CE(s)	Max-Eigen Statistic	0.05 Critical Value	Prob	Trace Statistic	0.05 Critical Value	Prob
None *	37.30493	33.87687	0.0187	95.03183	69.81889	0.0001
At most 1 *	29.38322	27.58434	0.0291	57.72690	47.85613	0.0045
At most 2	15.67164	21.13162	0.2446	28.34368	29.79707	0.0728
At most 3	9.804141	14.26460	0.2251	12.67205	15.49471	0.1274
At most 4	2.867907	3.841466	0.0904	2.867907	3.841466	0.0904

The results presented in the table 4.6 show that the Trace and Maximum Eigen values indicate an existence of at most one cointegrating equations. These results therefore confirmed that there is a long run relationship between government expenditure on security, agriculture, health, education and economic growth.

The existence of the long-run relationship between the selected government spending and economic growth are in line with the findings of Ambya (2020), Gumus *et al* (2019), Nouira *et al.* (2018), Ndiaye (2018), Garry *et al*. (2017), Mulinge (2016), Bazezew (2014). These findings confirm the Keynesian theory that states that the government spending and economic growth are related and that the direction of that relationship goes from government spending to economic growth.

According to the Granger representation theorem, when variables are co-integrated of I(1), there must also be a Vector Error Correction Model (VECM) that describes the short-run dynamics and the long-run relationship. Thus the next step was to estimate the VEC model.

4.5 Vector Error Correction Model

The long-term relationship between the variables was demonstrated by the cointegration results in table 4.7. It was demonstrated that GDP and government spending on agriculture, education, health care, and security sectors have a long-term

relationship. As a result, the normalized cointegration coefficient in the table below was used to estimate this relationship using the VEC model. In the interpretation of the results, a negative sign on the coefficients indicates a positive relationship, while a positive sign indicates a negative relationship.

Table 4.7: Normalized Cointegration Coefficients

Variable	Coefficient	Standard-error	T-Statistic
Log_EXPSecu	1.642991	0.33692	4.8765
Log_EXPAgri	-0.950665	0.12605	-7.54196
Log_EXPHealth	-0.135594	0.13103	-1.03483
Log_EXPEdu	1.247117	0.30079	4.14613

In the long-run government expenditure on agriculture has a positive and significant effect on GDP on average *ceteris paribus*. These results are similar with results of previous studies such as done by Utpal (2018),Tijani *et al* (2015), Ebenezer *et al* (2019), Runganga (2021), Sanyang (2018), Mkhatshwa (2015), Chandio *et al* (2016), Harerimana (2016), Musaba *et al* (2013) and Paul-Alfred (2020). In most developing countries, agriculture is the backbone of society as it provides food for people, jobs for workers and trade for economies at local, national and international levels which explains why in 2003 the Heads of State and Government of the African Union pledged to commit at least 10% of their public expenditure to agriculture as part of the Comprehensive Africa Agriculture Development Programme. Government expenditure on agriculture is important in addressing market failures, such as a lack ofinfrastructure and research and development, which are major limitations to the sector's growth. In countries with limited resources where agriculture is critical to the economy, it is important to have sufficient resources allocated to the sector. In African countries, increasing the volume of public spending on agriculture is an important way to boost productivity and reduce poverty, (FAO, 2012).

Agriculture in Burundi provides income for 83% of the country's population and accounts for 44% of Burundi's gross domestic product. Thus spending in agriculture can be seen as direct investment.

Government expenditure on health was fund to have a positive and insignificant effect on the country's GDP in the long-run *ceteris paribus*. These findings are in line with those of Yousra *et al* (2014). Spending on health is more of a necessity rather than a direct investment. Though the link between government expenditure on health and economic growth is not strong, it is not necessarily a reason to reallocate health expenditure away from the health sector.

Government expenditure on security sectors was fund to have a negative and significant effect on economic growth in Burundi in the long-run *ceteris paribus*. These findings are consistent with the findings of Korkmaz (2015), Brauoveanu(2010) and Bazezew (2014), Shahbaz, *et al* (2012). Countries emerging out of civil conflict face two main challenges: economic recovery and the risk of conflict recurrence. Large military spending is an expected and lasting consequence of civil war. Decreasing military spending can result in significant economic gains and help post-civil war civilizations recover. The fact that the share of defense spending to GDP is being referred to as military burden implicitly depicts the defense spending as having a negative effect on the economy (Da Silva, 2022).

In the long-run, government expenditure on education was fund to have a negative and significant effect on the Burundi's economic growth *ceteris paribus*. These findings are similar to the findings of Musaba *et al* (2013) and Qutb (2016). Education has been regarded as one of the leading determinants of economic growth since the time of Adam Smith. Investment in public education is to create the skills and attitudes needed for

higher levels of productivity and growth of the economy.This negative effect can be due to the fact that Burundi's education system does not produce enough skilled workers according to the demand of the market or has not produced yet enough skilled workers needed to affect positively the country's economy since spending in education is commonly considered as investment in human capital. In order to contribute significantly to the economy and development, education should be of high quality and also meet the skill-demand needs of the economy (Qutb, 2016).

The results of the short-run relationship analysis showed a negative and significant error correction term of -0.063713 which means the speed of adjustment towards long-run equilibrium is 6%. It is a relatively low speed of adjustment. This means thatin case of a disturbance or a shock in the system around 6.3% of the disturbance in theshort time is corrected each trimester. The system adjust any disequilibrium towards the long-run equilibrium state at a 6.3% speed of adjustment.

4.6 Hypotheses Results

From the results of the VECM, information can be extracted concerning whether the research hypotheses were accepted or rejected.

The first research hypothesis was:

H_{O1}: Burundi's Government Expenditure on health from 2005 to 2017 did not significantly affect the country's economic growth.

With a T-Stat of -1.03483, which is between -2 and 2, concluding that in the long run government expenditure on health has a insignificant effect on Burundi's economic growth. Thus accepting the null hypothesis that Burundi's Government Expenditure on health from 2005 to 2017 did not significantly affect the country's economic growth.

The second hypothesis was:

H_{O2}*: Burundi's Government Expenditure on education from 2005 to 2017 did not significantly affect the country's economic growth.*

With a T-Stat of 4.14613, which is not between -2 and 2, concluding that in the long run government expenditure on education had a significant effect on Burundi's economic growth. Thus rejecting the null hypothesis that the Government Expenditure on education did not significantly affect the country's economic growth from 2005 to 2017.

The third research hypothesis was:

H_{O3}*: Burundi's Government Expenditure on agriculture from 2005 to 2017 did not significantly affect the country's economic growth for the period of 2005 to 2017*

With a T-Stat of -7.54196, which is not between -2 and 2, concluding that in the long run government expenditure on agriculture has a significant effect on Burundi's economic growth. Thus rejecting the null hypothesis that the Government Expenditure on agriculture did not significantly affect the economic growth in Burundi for the period of 2005 to 2017.

The fourth hypothesis was:

H_{O4}: *Burundi's Government Expenditure on security from 2005 to 2017 did not significantly affect the country's economic growth.*

With a T-Stat of 4.8765, which is not between -2 and 2, concluding that in the long run government expenditure on security sectors had a significant effect on Burundi's economic growth. Thus rejecting the null hypothesis that Burundi's Government Expenditure on security did not significantly affect the country's economic growth for the period of 2005 to 2017.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS ANDRECOMMENDATIONS

5.0 Overview

This chapter discusses the summary of the findings, the conclusions, recommendations and suggestions for further research.

5.1 Summary of Findings

The main objective of this study was to analyze the effect of government spending on economic growth in Burundi for the period between 2005 and 2017 with a specific focus on government spending on security sectors, agriculture, health and education.

To achieve the objective, quarterly data of the variables were sourced and descriptive statistics of the variables were presented, after which diagnostic tests were done to ensure that the model was the best fitted for the study. The data was tested for stationarity using ADF to establish the order of integration of the variables under study. Johansen cointegration test was run to check for a long run relationship among the variables. Afterwards a VEC model was used to determine the nature of the long and short run relationships.

The dependent and the independent variables, gross domestic product and government spending on security sectors, agriculture, health and education respectively were fund to be non-stationary at level. It was only after taking their first difference that they were fund to be stationary. The variables were all fund to be non-stationary and integrated of order one, thus the linear combination of the variables should exhibit a long run relationship. Johansen cointegration test was used to confirm the long run relationship between the variables. The Trace and Maximum Eigen values indicated that there was at most one cointegrating equation, confirming therefore the existence of a long

run relationship between the variables.

In the long run, only government spending on agriculture was fund to have a positive and significant effect on Burundi's economic growth with a coefficient of -0.950665 and a T-Stat of -7.54196. Government spending on health was fund to have insignificant and positive effect on Burundi's economic growth with a coefficient of -0135594 and a T-Stat of -1.03483. Government spending on security sectors was fund to have significant and negative effect on Burundi's economy with a coefficient of 1.642991 and a T-Stat of 4.8765. And finally government spending on education was fund to have a significant and negative effect on Burundi's economy with a coefficient of 1.24711 and a T-Stat of 4.14613.

5.2 Conclusions of the Study

The results showed that government expenditure on security was fund to have a negative and significant effect on the economy of Burundi hence retards economic growth. This can be explained by the fact that expenditure on this sector are aimed at ensuring safety and security of government operations rather than economic returns.

Government spending on education was fund to have a negative and significant effect on GDP. This can be explained by the inadequacy of the education system that does not produce enough skilled workers to affect positively Burundi's economic growth. Government expenditure on agriculture showed a positive and significant impact on GDP. This implies that government expenditure on agriculture improves the total agricultural output which increases aggregate domestic consumption and export earnings which adds to the GDP. Finally, government spending on health were fund to have a positive and insignificant effect on GDP.

5.3 Recommendations of the Study

Based on the findings of the study, the following policy recommendations are made;

The study depicts that government expenditure on agriculture is positively related to economic growth and it brings a significant effect in the long run. Based on this, investing more in agriculture would help to create conditions that could lead to higher productivity and hence higher economic growth.

As it was shown by the results that government spending on education was fund to have a significant and negative effect on the economy, it is recommended to adapt the education system so that it can be able to provide adequate skills needed by the labor market in order to boost productivity

As security expenditure has been shown to have a negative and significant effect on the economy, it is recommended to ease the burden and to direct some of the security expenditure to more productive sectors such as agriculture.

Government should increase its spending on agriculture allocating more funds to agricultural programs.

5.4 Suggestions for Further Research

This thesis focused on the effect of government expenditure component of fiscal policy on economic growth in Burundi for the period between 2005 to 2017. Further research can be done on the effect of other components of fiscal policy such as taxation on economic growth. Gross Domestic Product is not only affected by government spending, further research evaluating the effect of other components of GDP such as investment, consumption, import and export can be done.

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APPENDICES

Appendix I: RAW DATA

quarterly	GDP	SECURITY	AGRICULTURE	HEALTH	EDUCATION
2005Q1	287	13.462	0.6807	1.36	12.291
2005Q2	298	19.732	0.739	1.252	8.385
2005Q3	263	15.899	0.739	1.554	8.434
2005Q4	313	19.732	0.576	1.252	10.759
2006Q1	303	16.361	0.417	5.15	14.717
2006Q2	321	16.808	0.474	4.889	13.282
2006Q3	312	19.0917	0.45	4.412	13.645
2006Q4	316	18.128	0.406	4.533	15.503
2007Q1	323.25	30.137	0.548	5.006	24.488
2007Q2	340.4	20.73	0.73	4.938	27.066
2007Q3	338	27.642	0.72	5.458	18.617
2007Q4	353.35	27.267	0.796	3.754	24.825
2008Q1	363.26	18.713	1.795	5.377	19.525
2008Q2	386.5	18.581	1.783	5.339	23.06
2008Q3	402.25	22.101	2.12	6.351	23.785
2008Q4	387.09	26.637	2.556	7.654	27.793
2009Q1	483.36	40.291	6.235	17.085	49.678
2009Q2	501.45	22.437	3.472	9.512	27.665
2009Q3	499.5	24.144	3.736	10.235	29.769
2009Q4	499.19	22.086	3.418	9.362	27.231
2010Q1	567.85	30.841	4.292	12.362	35.954
2010Q2	583.1	27.499	3.827	11.022	32.058
2010Q3	593.65	27.043	3.763	10.839	31.526
2010Q4	550.8	29.855	4.154	11.966	34.804
2011Q1	683.42	18.581	9.354	18.526	61.459
2011Q2	703.35	20.732	6.854	13.658	42.669
2011Q3	699.1	22.102	8.014	17.269	32.155
2011Q4	733.65	27.267	7.459	11.625	41.236
2012Q1	840.15	29.657	9.358	18.327	60.429
2012Q2	838.4	34.376	10.733	20.367	40.903
2012Q3	841.85	39.426	11.927	13.786	47.411
2012Q4	836.89	43.815	8.073	15.979	54.376
2013Q1	950.125	42.659	25.693	19.654	62.159
2013Q2	955.05	32.599	36.547	20.123	52.159
2013Q3	954.12	37.599	29.654	18.256	74.632
2013Q4	953.205	45.266	33.218	17.699	60.236
2014Q1	1047.345	43.611	40.438	28.236	73.713
2014Q2	1042.12	49.567	45.961	28.236	83.78
2014Q3	1048.5	44.12	40.91	25.133	74.573
2014Q4	1047.135	49.327	45.738	28.099	83.375
2015Q1	1056.275	56.268	52.76	85.133	75.752

2015Q2	1040.036	46.79	43.872	70.792	62.992
2015Q3	1038.45	41.793	39.187	63.232	56.265
2015Q4	1033.239	53.737	50.387	81.304	72.345
2016Q1	1210.175	53.953	49.461	30.8526	75.529
2016Q2	1214.5	42.157	38.647	24.1072	59.016
2016Q3	1213.324	43.681	40.044	24.978	61.149
2016Q4	1210.201	37.455	34.336	21.418	52.433
2017Q1	1265.12	43.628	34.498	34.318	57.644
2017Q2	1266.51	42.624	29.768	39.771	68.376
2017Q3	1258.72	36.78	42.312	40.707	68.376
2017Q4	1262.15	52.278	35.311	48.779	81.933

Appendix II: Plagiarism Certificate

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